Morbidity of population as a medical and social problem. Epidemiological methods for the study morbidity.
• International Statistical Classification of Diseases, Injuries, and Causes of Death; the principles of its construction and meaning.
• The concept of morbidity and its medical-social significance.
• Methods of Morbidity study.
• Morbidity by major non-epidemic diseases.
• Hospitalized Morbidity.
• Morbidity with temporary disability, sources and methods of study.
• Morbidity according to medical examinations.
• Morbidity by causes of death.
• Morbidity according to Special sampling
The International Statistical Classification of Diseases and Related Health Problems (Tenth Revision) - ICD-10

- It is a **Medical classification** list given by the World Health Organization (WHO).
- It codes the diseases, signs and symptoms, abnormal cases, complaints, social circumstances, and external causes of injuries or diseases.
- The code set allows more than 14,400 different codes and permits the tracking of many new diagnoses.
- unchanged international version of ICD-10 is used in about 110 countries for reporting causes of death and statistics.
The **PRINCIPLES** for
CONSTRUCTION OF the
INTERNATIONAL CLASSIFICATION
OF DISEASES (ICD)

- Etiological
- Local
- By common pathogenesis
- Diseases associated with certain
  physiological or age-related conditions
# Classes of the ICD-10

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Importance of studying prevalence rates of diseases and the morbidity structure

1) for preparation and proper distribution of medical staff;
2) network planning;
3) rational organization of different types of medical care;
4) implementation of preventive and health-care measures;
5) monitoring of health care quality, i.e. to estimate activities of physicians; medical institutions; governing body of the health-care system.
Methods for studying the morbidity

• By appeals for medical care
• data of medical examinations
• causes of death
• survey of population by special programs
Sources of information for study of morbidity:

1) appeals for medical care:
   a) general morbidity;
   b) infectious diseases rates;
   c) non-epidemic (socially significant) diseases rates;
   d) hospitalized morbidity;
   d) morbidity with temporary disability;
2) morbidity revealed by medical examinations;
3) data about causes of death.
4) morbidity according to the survey of population by special programs
### Types of morbidity

<table>
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<th>Types of morbidity</th>
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<td>General morbidity</td>
<td>&quot;Statistical coupon for registration of final (revised) diagnoses&quot;</td>
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<td>Infectious incidence</td>
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<td>morbidity with the most important non-epidemic (socially significant) diseases</td>
<td>Notification of major non-epidemic diseases</td>
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<td>Hospitalized morbidity</td>
<td>Card of a patient discharged from the hospital</td>
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<tr>
<td>morbidity with temporary disability</td>
<td>Leaf of disability</td>
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</table>
General morbidity

• Set of diseases (acute and chronic) among certain groups of population for a particular calendar year.

• The study of general morbidity is conducted according to the data from polyclinics (outpatient establishments).
General morbidity

**Primary Morbidity (Incidence)**

- The level of diseases revealed within this calendar year and registered for the first time.

**Prevalence**

- The level of diseases revealed this calendar year and registered for the first time and disease revealed in the previous years but registered anew this year.

Studying by "Statistical coupon"-s (of the outpatient)
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<th>Method of filling-in</th>
<th>Coupon of ambulatory patient (outpatient)</th>
<th>Statistical coupon</th>
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<tbody>
<tr>
<td>Filled-in with the each case of acute disease</td>
<td>(with the sign &quot;1&quot;)</td>
<td>(with the sign &quot;+&quot;)</td>
</tr>
<tr>
<td>In each case of chronic disease revealed for the first time in life</td>
<td>(with the sign &quot;2&quot;)</td>
<td>(with the sign &quot;+&quot;)</td>
</tr>
<tr>
<td>The first-time visit within this calendar year with previously diagnosed chronic disease</td>
<td>(with the sign &quot;3&quot;)</td>
<td>(with the sign &quot;-&quot;)</td>
</tr>
<tr>
<td>Chronic diseased re-visits in the current year</td>
<td>without the sign</td>
<td>without the sign</td>
</tr>
</tbody>
</table>
PRIMARY MORBIDITY (INCIDENCE)

ALL cases of acute and chronic diseases revealed (registered) for the first time in life within the current year

= ___________________________ X 1,000

The average annual population
Prevalence

Number of cases registered for the first time within this year and re-registered anew (from the previous years)

= \frac{\text{Number of cases registered for the first time}}{\text{Average annual population}} \times 1,000

The average annual population
General morbidity

The unit of supervision

The patient's first visit to the doctor or a case of particular disease within the current year

The basic registration document

"Statistical coupon for registration of final (revised) diagnoses"
Infectious (Epidemic) incidence

Quarantine diseases are subject to special accounting and control worldwide
Infectious incidence

• Diseases of each case to be reported to the local Sanitary Inspection with detailed information!!
Infectious (Epidemic) incidence

- typhoid
- paratyphoid
- salmonellosis
- dysentery
- enteritis
- Baby infections
- catalepsy
- poliomyelitis
- rabies
- ricketsiosis
- malaria
- Leptospirosis
- Sepsis in children of 1 month of life,
- Hemorrhagic fever
- Psittacosis
- other
According to ICD-10, these diseases do not belong to a class of infectious diseases (influenza, SARS).

The medical institutions provide only the total (by-month) information to the Sanitary Inspection about these diseases.
Infectious (Epidemic) incidence

The “Emergency notification about infectious disease, food, acute professional poisoning, an unusual reaction to vaccination” (within 12 hours) should be directed to the sanitary-epidemiological station – CHE (Centre of Hygiene and Epidemiology)

Emergency messages sent to the Sanitary and Epidemiological Service, are recorded in the “Registration Journal of Infectious diseases"
**ЕКСТРЕНЕ ПОВІДОМЛЕННЯ**

про інфекційне захворювання, харчове, гостре професійне отруєння, незвичайну реакцію на щеплення

1. Діагноз

2. Привівця, ім'я, по батькові

3. Стать: ч. - 1, ж. - 2

4. Вік (для дітей до 14 років – дата народження)

5. Адреса: населений пункт, район

6. Вулиця, будинок №, ка. №

7. Дата:

8. Місце госпITALізації

9. Якщо отруєння - вказати, де вони відбулося, чим отруєння потрапив
infectious (Epidemic) diseases analysis using the following parameters:

\[
\text{THE LEVEL OF DETECTED DISEASES} = \frac{\text{NUMBER OF INFECTIOUS DISEASES}}{\text{Average annual population}} \times 1,000
\]
The seasonality

\[ \frac{\text{The number of cases by monthes of the Year}}{\text{The average annual number of cases}} \times 100 \]
Admission rate = \frac{\text{Number of the hospitalized patients}}{\text{Average annual population}} \times 1,000
Case Distribution

Spot Map of Residence Distribution of Rheumatic Fever Cases in Baltimore

1960-1964

1977-1981
Morbidity by the most important socially significant diseases

Some diseases are subject to special registration:

• cancer,
• mental illness
• sexually transmitted diseases
• TB
• serious fungal infections
• HIV, etc.
For each detected **socially significant diseases** the message is filled in and sent to:

The Centre of Hygiene and Epidemiology (of The State Sanitary and Epidemiological Surveillance) and

**specialized medical institutions**
Doctors of all medical institutions, who first diagnose the major non-epidemic DISEASES, fill in the NOTICE about Newly diagnosed PATIENTS with:

**active TB**

trichophytia, microsporia favus, scabies trachoma

syphilis, gonococcal, chlamydial infection urogenital mycoplasmosis and trichomoniasis

cancer or other malignant tumors

dispensary

tuberculosis
dermatovenerologic

oncological
The need for a special registration of these diseases is caused by:

- significant prevalence;
- high mortality rates of some of them;
- epidemiological significance;
- social conditions
- need in early detection and treatment, comprehensive survey of patients, and active dynamic monitoring them,
- necessity of special treatment, and to identify individuals who had contact with patients.
Morbidity of hospitalized patients
(Hospitalized morbidity)

of patients treated in hospital per year, or severe cases that require special medical examination and treatment
Information about the morbidity of hospitalized patients allows to make conclusions about:

- hospitalization
- timeliness
- volume of medical care
- treatment results
- duration
Hospitalized morbidity

- The unit of supervision
- The basic registration document
- The case of hospitalization of a patient
- The statistical card of a patient discharged from hospital
Level of hospitalization = \[ \frac{\text{Number of patients hospitalized with certain diseases or total number of hospitalized}}{\text{Average annual population size}} \times 1,000 \]
Structure of Hospitalizations

\[
\text{NUMBER of patients hospitalized according to gender, age, place of residence} = \frac{\text{The total number of the hospitalized patients}}{X 100}
\]
The incidence of employment results in significant economic losses to society
The morbidity with temporary disability is analyzed by key indicators:

- Morbidity with TD (*temporary disability*) per 100 employees;
- number of TD (*temporary disability*) days per 100 employees;
- duration of one case of TD (*temporary disability*) (in days);
- Structure of morbidity of TD (*temporary disability*) (by cases and days, in%).
Health Index = \frac{\text{Number of persons never been ill (per year)}}{\text{Average annual Population size}} \times 1,000
Methods of study of morbidity according to medical examinations

Pathological prevalence - a set of diseases and pathological conditions detected by doctors in medical examinations of the population.

Number of cases detected in medical examinations

\[
\frac{\text{NUMBER OF POPULATION}}{X 1,000}
\]
REGISTRATION FORMS APPLIED IN MEDICAL EXAMINATIONS

- Outpatient medical card;
- The history of child development;
- Medical card;
The above documents allow:

1) to get an accurate picture of the prevalence of pathology in the population;
2) determine the dynamics of change;
3) evaluate the effectiveness of the treatment;
4) to review dynamics for a number of years
Screening

information on the prevalence of disease in studied population
screening— "Selection" – the World Health Organization strategy aimed at detecting disease in clinically asymptomatic patients.
THE SCREENING PURPOSE

is

• an early as possible, detection of diseases, thus allowing for
  ▪ early treatment for alleviating the status of patients and
  ▪ reducing the mortality rates
The value of screening

This method

✓ allows to obtain information on:

➤ risk factors

➤ incidence of various diseases in the population,

✓ to describe their natural progression

✓ to promote the better understanding the pathogenesis of diseases

➤ is the basis for analysis of conditionality of diseases by environment.

The most important practical task of screening is to detect disease at the earliest possible stage.
Screening tests - diagnostic tests that are designed for mass screening of people who do not consider themselves to be ill, to identify persons with symptoms of the disease or under risk factors.
• To identify cases of tuberculosis, the cutaneous **tuberculin skin test** (Mantoux test) is widespread.

• For the diagnosis of depression as a screening test they use **Beck Depression Inventory**.

• In order to avoid fetal pathology they commonly use **alpha-fetoprotein test**.

• **Radiography of teeth** routinely used by dentists to prevent cases of caries.
Various screening studies are used for early diagnosis of malignant tumors:

- Pap test - to detect potentially pre-cancerous lesions and cervical cancer prevention;
- Mammography - for the detection of breast cancer;
- Colonoscopy - to the exclusion of colorectal cancer;
- Dermatological examination to rule out melanoma.
In accounting of morbidity, data on causes of death are the most severe disease ended in death.
<table>
<thead>
<tr>
<th>Лікарське свідоцтво про смерть №</th>
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</thead>
<tbody>
<tr>
<td>(остаточне, попереднє, замість попереднього)</td>
</tr>
<tr>
<td>Дата видачі: &quot; &quot; 200 р.</td>
</tr>
</tbody>
</table>

1. Прізвище, ім'я, по батькові померлого: ____________________________

2. Стати: чоловік – 1, жінка – 2 (підкреслити)

3. Дата народження: рік __________ місяць _________ число ________

4. Дата смерті: рік __________ місяць _________ число ________

5. Для дітей, які померли в віці від 6 днів до 1 місяця: доношений – 1, недоношений – 2 (підкреслити)

6. Для дітей, які померли в віці від 6 днів до 1 року: а) маса (вага) при народженні _______ г., б) зріст при народженні ______ см.

7. Місце поховання померлого: Держава ________ , республіка, область ________ район ________ , місто 1, село 2 (підкреслити) ________ (писати)

8. Місце смерті: а) Держава ________ , республіка, область ________, район ________, місто, село ________, б) смерть настала: в стаціонарі 1, вдома 2, в іншому місці 3 (підкреслити)


<table>
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<tr>
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<tbody>
<tr>
<td>Останочне, попереднє, замість попереднього №</td>
</tr>
<tr>
<td>Дата видачі: &quot; &quot; 200 р.</td>
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</tbody>
</table>

1. Прізвище, ім'я, по батькові матері померлого дитини: ____________________________

2. Стати: чоловік – 1, жінка – 2 (підкреслити)

3. Дата народження: рік __________ місяць _________ число ________

4. Дата смерті: рік __________ місяць _________ число ________

5. Місце смерті (перинатального): а) Держава ________ республіка, область ________ район ________ , місто 1, село 2 (підкреслити) ________ (писати)

6. Призвище, ім'я, по батькові матері померлого дитини: ____________________________

7. Рік народження матері ________ (на підставі запису в паспорті, із слів матері підкреслити)

8. Сімейний стан: наявність шлюбі: 1, не перебуває в шлюбі 2 (підкреслити)

• Lets get more and qualitative information in a shorter time and with a lower cost.
METHODS OF SPECIAL STUDIES

- Selective review of the documentation of medical facilities

- The survey of sample groups