INFLUENCE QUALITY OF ENVIRONMENT ON THE HEALTH OF POPULATION

CRITERIA QUALITY OF ENVIRONMENT

- **ANALYTICAL MONITORING – estimation level of environmental pollution more or less, than MPC for each pollutant**
- **MEDICAL MONITORING – by changes indexes of Health of population**
- **ECOLOGICAL MONITIRING – by changes in ecosystems and biocenosis**

THE INFLUENCE QUALITY OF ENVIRONMENT ON THE HEALTH OF POPULATION

The Health of population is the main integrated indicator of quality (level of pollution) of environment.

Indexes of the health of population are used at medical monitoring quality of environment in any place

ENVIRONMENTAL PATHOLOGY –
It is changes of health under influence of harmful factors of environment of different nature

ENVIRONMENTAL PATHOLOGY divided on:

1. **Ecologically dependent diseases** – it is proved action of harmful factor of environment as reason of the disease (water-nitrate methemoglobinaemya, fluorosis, caries of teeth.)

2. **Ecologically connected diseases** – diseases, more often meet in population under influence of polluted environment (lung diseases, cardiac diseases, oncological diseases)

EPIDEMIOLOGY

Epidemiology – science about laws of distribution diseases in population

METHODS OF RECEIVING EPIDEMIOLOGIC DATA:

Sanitary-Statistical method

Medical Inspection in Ambulance

Medical Inspection in Hospital

Natural Experiment

CONCEPT "HEALTH"

Now there are very many concepts "Health"

- Theoretical Health (WHO)
- Individual Health
- Population Health:
- Statistical Health – 95% confidential interval of normal indexes for healthy person in given part of population

THE FACTORS DETERMINING CONDITION OF HEALTH OF THE POPULATION

(by World Health Organization):

№	Name of the factor	Densities in %%
1.	MODE OF LIFE AND SOCIAL ECONOMIC CONDITIONS	49-53 %*
2.	THE GENETIC FACTORS	18-22 %
3.	POLLUTION ENVIRONMENT	17-20 % (40-60%)**
4.	THE MEDICAL FACTORS	8-10 %

The note: * - fluctuation on the different countries
** - in polluted regions

QUANTITATIVE PARAMETERS OF HEALTH OF THE POPULATION

1. **DEMOGRAPHIC INDEXES** - birth rate, death rate, natural increase of population, etc.

2. **SICK RATE (morbidity)** – general morbidity, by separate groups of diseases, etc.

3. **INDEXES OF PHYSICAL DEVELOPMENT** - is especial sensitive at children

4. **INDEXES OF INVALIDISATION** - amount of the invalids, on groups of invalidity

USAGE INDEXES OF HEALTH FOR ESTIMATION QUALITY OF ENVIRONMENT

Most sensitive indexes of health for influence of environmental pollution:

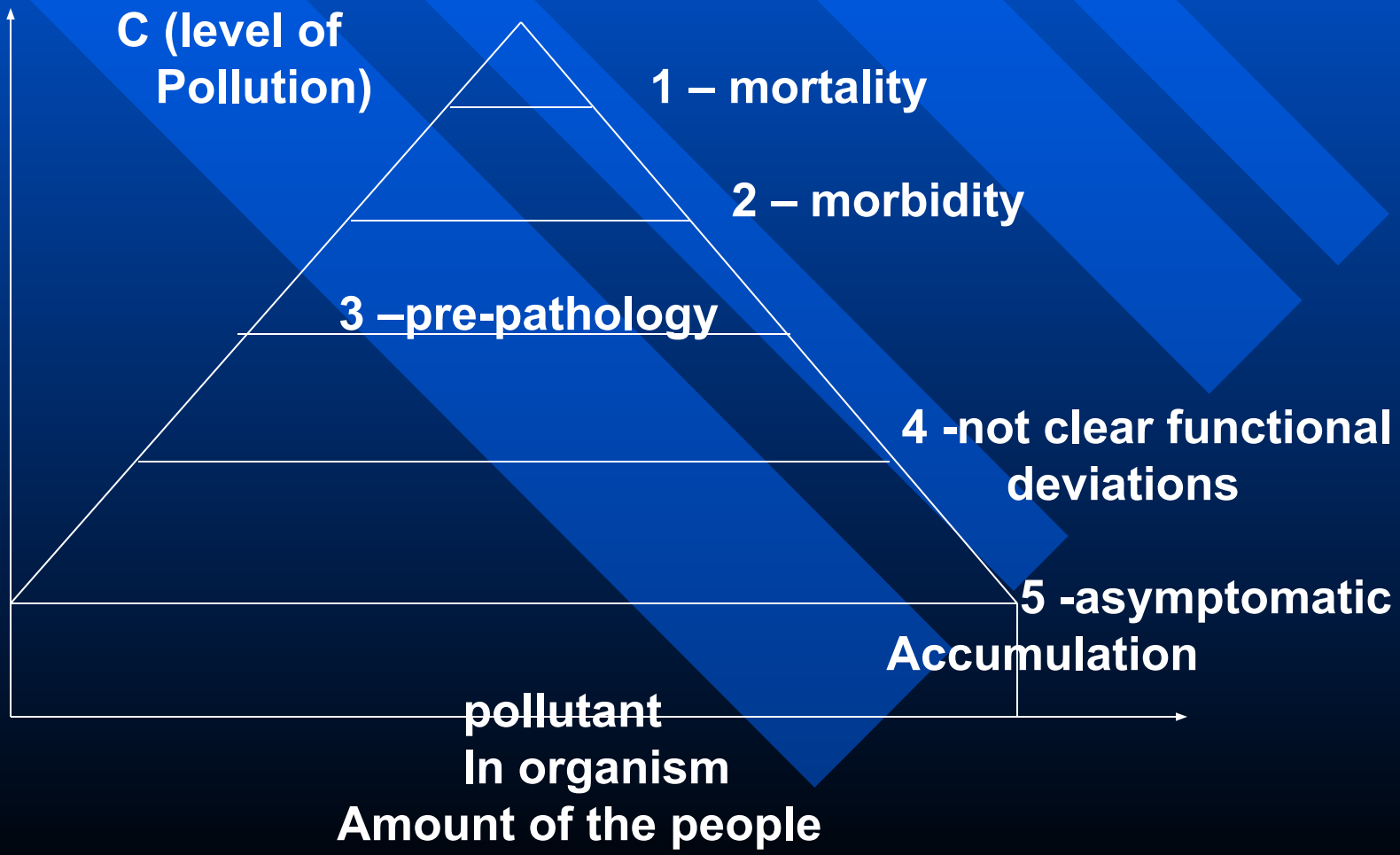
SICK RATE (morbidity)

– **general morbidity, by separate groups of diseases (pulmonary diseases).**

PHYSICAL DEVELOPMENT of children and tenagers

Demographic indexes can change after long time, invalidity most of all shows action not environmental, but professional factors

LEVELS OF INFLUENCE OF THE POLLUTION OF ENVIRONMENT ON HEALTH



INFLUENCE OF POLLUTION OF ENVIRONMENT ON HEALTH OF THE POPULATION

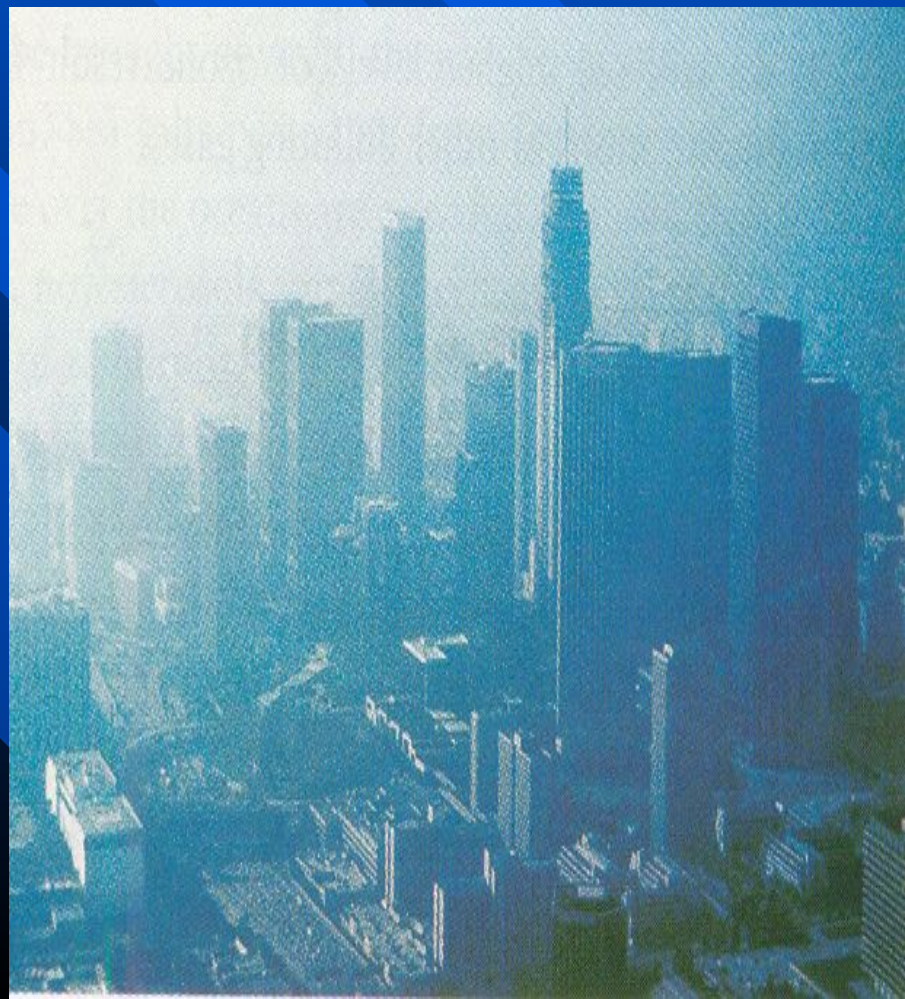
DIRECT NEGATIVE INFLUENCE

1. SHARP INFLUENCE

SPECIFIC	NOT SPECIFIC
Specific acute poisonings	Sharp provoking action
In population	(London toxic fogs – “Murderers”, Could Los-Angeles type, flashes of bronchial astma)

LOS ANGELES AIR

a) early in the morning,
b) the air is clear



2. CHRONIC NEGATIVE ACTION

SPECIFIC

CHRONIC SPECIFIC ILLNESSES:
Fluorosis, etc.

NOT SPECIFIC

Deterioration parameters of Health of the population (demographic, morbidity, physical development, invalidity)

3. THE REMOTE EFFECTS:

Cancerogenic, Mutagenic, Ebriotropic, Teratogenic, Immunodepressive

INDIRECT NEGATIVE INFLUENCE

GROWTH OF RICKETS OR SKIN MELANOMAS (UVR), ACID RAINS, CONTAMINATION OF FOOD PRODUCTS, AESTHETIC DAMAGE (destroying monuments, buildings)

Methodical approaches to study influence of quality of environment on the Health of the population

Traditional way - the researches go from pollution of environment - to health of the population.

Here allocate 2 main concepts:

- **Factorial attribute** - X - factor (s) of Environment, which action on health is studied;

- **Productive attribute** - Y - parameter (s) of health of the population

4 basic methodical scheme of researches:

1) **Scheme 1**: X - > Y (Study influence of one factor of environment on one parameter of health);

2) **Scheme 2**: X - > the Sum Y (Action of one factor of environment on a complex of parameters of health);

3) **Scheme 3**: Sum of X - > Y (Action of a complex of the factors of environment on one parameter of health);

4) **Scheme 4**: Sum of X - > Sum of Y (Action of a complex of the factors on a complex of parameters of health).

Nontraditional (inversion) way of investigation influence of environmental contamination on the health of population

It is used now more often, is especial abroad.

A way of researches goes from condition of health of the population to revealing the most powerful factors of environment, determining a level of health, with the purpose of their elimination or minimization.

Zones of supervision (research)

The zone of supervision - certain territory, on which it is studied influence of ecological conditions on health of the population.

It is necessary choose 3 zones of supervision:

1. Skilled zone - territory, on which level of the investigated factor (complex of the factors) more. than MPC in 5 – 10 times

2. Control № 1 – territory, where the investigated factor is at a level of MPC

3. Control № 2 - territory, where the investigated factor is much lower than MPC or is absent.

Rules of a choice of zones of supervision.

The chosen zones of supervision should be identical on the following parameters:

- On social and economic conditions and mode of life of the population
- On age, sex, professional structure of the population
- By amount of the population

Differ these zones must only by levels of pollution of an environment.