

**BUKOVYNIAN STATE MEDICAL UNIVERSITY
DEPARTMENT OF SOCIAL MEDICINE AND PUBLIC HEALTH**

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Biostatistics in Medicine: Fundamentals of Methodology and Statistical Research

(Part 1)

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A teaching and methodological manual for students, masters and postgraduates of the second (master's) level of higher education in the field of knowledge 22 "Healthcare", specialty 222 "Medicine" according to the program of the academic discipline "Social medicine, public health (Module 1. Biostatistics)".

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The educational and methodological manual was prepared in accordance with the working curriculum for the discipline "Social Medicine, Public Health" (Module 1 – "Biostatistics") for students, masters, and postgraduates for professional training of higher education applicants in specialty 222 "Medicine" and provides for mastering biostatistics as a science, defining and analyzing basic biostatistical indicators and criteria based on the principles of evidence-based medicine. Its goal is to form in students an understanding of the algorithm for collecting, processing, analyzing, and evaluating information about the activities of health care institutions and population health indicators.

The manual contains material on the methodology for collecting statistical data, the methodology for calculating and presenting them in the form of tables and graphics, the methodology for assessing the variability of the indicators under study, and presents the stages of assessing the reliability of the general population, correlation, regression, variation, and time series.

The teaching and methodological manual can be recommended to students, masters, and postgraduates of medical faculties of higher educational institutions of the Ministry of Health of Ukraine.

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TOPIC 1

ORGANIZATION AND PLANNING

OF STATISTICAL RESEARCH

1. To study the indicators of public health (morbidity, traumatism, disability, natural movement of the population, physical development), the nature and degree of impact on them of various factors (socio-economic, biological, natural, climatic, lifestyle), a number of methods, mainly from which is statistical. Doctors, especially scientists, often have to use statistical methods in their activities. So statistics is a social science that studies the quantitative side of mass social phenomena inseparably from their qualitative characteristics. Medical statistics distinguish sections such as public health and health statistics.
2. Population health statistics include five groups of indicators:
 - demographic;
 - morbidity;
 - disability;
 - physical development;
 - social well-being (drug addiction, substance abuse).
3. Health statistics cover two divisions:
 - health statistics;
 - statistics of activity of health care establishments.

Methodological basis of statistics

1. When studying which phenomenon it is necessary to take into account all the facts of this phenomenon.
2. To know the qualitative side of the phenomenon (for example, for the treatment of hypertension with new drugs it is necessary to know the mechanism of hypertension).
3. Only qualitatively homogeneous groups should be considered in the study.
4. During comparison, indicators of qualitatively homogeneous groups should be used.

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