

Descriptive statistics

Using table processor LibreOffice Calc and statistical program **Medstat** perform the following exercises:

I . Numerical (quantitative) data

- (A). Define measures of location of the data set (calculate the mean, the median and the mode).
- (B). Estimate dispersion of the samples (calculate range and standard deviation). Calculate standard error.
- (C). Check up whether data samples follow a normal distribution.
- (D). Calculate confidence interval for the population mean Interpret results.

Task 1. *Glucose level in blood* and *body weight* data are represented in the tables below:

Glucose level	Body weight
4	70
6	72
6	90
2	80
2	102
4	92
5	94
4	81
4	78
6	84
6	100
7	90
7	93
3	83
3	81
3	72
3	69
2	72
2	68
2	120
4	108
3	97
3	82
2	93

Task 2. *Blood serum protein* data is represented in the table below:

Blood serum protein level
6,9
5,6
8,4

6,5
6,4
7,3
6,2
4,4
5,3
8,6

Task 3. *Pneumonia duration* (in days) in 15 patients is represented in the table below:

Pneumonia duration
6
7
8
8
10
11
11
11
8
10
10
14
15
18
6

Task 4. 15 recruits body height was used for making conclusion about height of recruits in the region. Data is given in the table

Recruit body height
180
170
175
190
170
180
190
190
175
175
183

185
184
180
178

II. Categorical (Qualitative data)

Using statistical program Medstat calculate proportions and confidence interval for the population proportion for the given data

Task 5. "Multitabs". In studies on the use of the complex of vitamins and minerals "Multitabs" for the prevention of influenza, the main group taking the drug "Multitabs" was 160 adults. The control group (not taking the drug) included 100 people. Analysis of the incidence of influenza during the epidemic showed that 5 people were sick in the main group, 9 - in the control group. Calculate proportions and confidence interval for the population proportions.

Task 6. Drug meloxicam. When taking non-steroidal anti-inflammatory drugs, there may be side effects. Thus, in the control group of 893 people taking the drug *meloxicam*, 6 people developed hypersensitivity (urticaria), 17 people - complications from the digestive tract, liver symptoms were developed in 6 people, neurologic symptoms - in 7 people. Nephrotic syndrome was obtained in 4 patients. Give point and interval estimate of the occurrence of each of the side effects when taking meloxicam.

Task 7. Diphtheria vaccination. The table below shows 2,663 patients. Part of the patients was vaccinated against diphtheria (grafted patients), and part are not (unvaccinated patients). Some of them developed diphtheria during the epidemic

	Diseased people	Not sick people
Grafted patients	1625	5
Unvaccinated patients	1022	11

Give point and interval estimate of the diphtheria incidence during the epidemic for grafted and unvaccinated patients.

Task 8. Drug amixin. In assessing the clinical efficacy of the drug *amixin* (used in the treatment of mixed infections in children), 82 children with acute respiratory viral infection were under observation. It was revealed that adenoviruses were the etiologic cause of infection in 31 patients, 10 had influenza viruses and 8 had parainfluenza viruses. Give point and interval estimate of the occurrence of acute respiratory viral infection by each type of virus.

Task 9. Hypertension and smoking. Dependence of the hypertension on smoking was studied on the sample of 180 people, The following data were obtained.

	Non-smokers	Smokers
Presence of Hypertension	21	66

Absence of Hypertension	48	45
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Give point and interval estimate of the frequency of occurrence of pathology in groups of smokers and non-smokers.