APPLICATION OF STATISTICAL FEATURES OF THE GAUSSIAN DISTRIBUTION HIDDEN IN SETS OF U NSELECTED MEDICAL LABORATORY RESULTS

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Abstract:

The aim of the work was to animate billions of biochemical data obtained from unselected patients and sunk in computer memories of large laboratories. The original method, a software package JEG, allows isolating of the subset of Gaussian distributed values from the low and high values contained in the original data set. In a main parcel of 1455 data sets (1 148 008 results) there were results of systematical analyses of 18 major serum parameters from 6 laboratories. Trueness and reproducibility of the results were examined. The own, indirect laboratory reference limits as well as age and gender dependency of any serum constituent were determined, all without additional blood collection. Statistical comparison with up to 16 sources from the literature showed a significant accordance of 33 from 36 mean and maximal values. The method is fast, fully automatic and simple.

Keywords: indirect reference distribution; normal distribution; laboratories; inpatients

List of Abbreviations:

GRI - Gaussian Reference Intervals, HC - Histographical Curve = smoothed histogram, IQC - Internal Quality Control, JEG - name of the program, MP - main parcel