

ABSTRACT IN ENGLISH

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Title of the diploma thesis: Implementation of new analytical system into a routine biochemical laboratory

The diploma thesis deals with the procedures in the case of the exchange of a biochemical analyzer under conditions of common laboratory clinical practice in a biochemical laboratory. The experimental part is focused on the comparison of the COBAS Integra 800 and COBAS 6000 analytical systems and the assessment of the degree of conformity in the measurement of biochemical methods using statistical tools (differential analysis according to Bland-Altman and Passing-Bablok regression analysis). With the help of determining the partial uncertainties of the measurement results, it evaluates the verification of individual methods by measuring control and reference materials on the COBAS 6000 analyzer. Comparison of eight methods - alanine aminotransferase, antistreptolysin-O, aspartate aminotransferase, C-reactive protein, HDL cholesterol, magnesium, creatine kinase and LDL cholesterol - a certain degree of difference appeared to have been assessed. Consequently some of the methods had changed the reference limits and the doctors were informed. All eight methods passed through verification and were judged to be appropriate for the intended use.

Keywords: comparison of analyzers, comparability, verification, routine practice of biochemical laboratory, uncertainty of measurement, repeatability, precision