J. Arnaud, R.L. Jones, A. LeBlanc, M.Y. Lee, O. Mazarrasa, P. Parsons, M Patriarca, A Taylor, J.P. Weber, C Weykamp – **Criteria to Define the Standard Deviation for Proficiency Assessment for the Determination of Essential Trace Elements in Serum:** Comparison of Z-scores Based on the Horwitz Function or on Biological variability. Accred Qual Assur, 2009, 14:427–430

Abstract

A critical issue in the organisation of Proficiency Testing/External Quality Assessment Schemes is the definition of the criteria againstwhich the performance of individual laboratories should be evaluated. Organisers of EQAS in Occupational and Environmental Laboratory Medicine (http://www.occupational-environmental-laboratory.com) collaborate to define common acceptable levels of performance. The aim of this study was to compare the Horwitz function to the Fraser's approach. Sets of results obtained from the distribution of test materials in the Network schemes (for the measurands: copper, selenium or zinc in serum) were used to calculate Z-scores according to both approaches. Quality specifications derived from both approaches were also compared to the standard deviations obtained. Except for selenium, Horwitz criteria suggests a more stringent evaluation than Fraser criteria, the latter being very stringent as regard the participant analytical variability.