LABQUALITY DAYS

New EQA Scheme for Improving Pipetting Quality

Riitta Viertola[1], Kristel Virtanen[1], Solveig Mo[2], Marit Sverresdotter Sylte[2], Jonna Pelanti[1], Heidi Berghäll[1]

[1] Labquality, Helsinki, Finland

[2] Department of Medical Biochemistry and Pharmacology, Haukeland University Hospital, Bergen, Norway

Introduction

Labquality has developed a new EQA scheme for pipette control. According to ISO 15189:2022, laboratories shall specify calibration and traceability requirements sufficient to maintain consistent reporting of analysis results. Pipette calibration can be performed by ISO 17025 accredited calibration facilities or internally by the clinical laboratories when following the standardized procedure. The new EQA scheme supports laboratories in performing intermediate performance checks between pipette calibration intervals.

Approach

Two liquid samples were distributed; sample S001A was purified water and sample S001B was 85% glycerol, pipetting volumes were 200µL and 100µL respectively. Laboratories performed multiple pipetting of the specified volumes and reported the mean of the obtained mass weights measured with a laboratory scale (0.01 mg resolution). Reference values were measured by direct pipetting for S001A (aqueous) and reverse pipetting for S001B (viscous) using a 200µL pipette at a calibration facility equipped with air humidifier and weighed with a scale equipped with an evaporation trap.

Outcome and Conclusions

70/93 laboratories from 24 countries using 13 different pipette models reported their mean results S001A n=268, S001B n=267. Results were reported for pipettes with maximum volumes between 100µL - 1000µL. For sample S001A the median for the reported results was 200.00mg (CV% 1.0) and for S001B the median was 119.9 mg (CV% 6.8). Target values were set to 204.45mg and 124.85mg respectively with target area ±5%. Most of the participants used a direct pipetting technique, less suitable for viscous liquids.

The high interest towards this pilot indicates that there is a need for an EQA scheme for pipette control. Results show that different variables, such as used pipetting techniques, may have an impact on the pipetting quality, especially when handling samples of different compositions.

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1 ISO 15189:2022