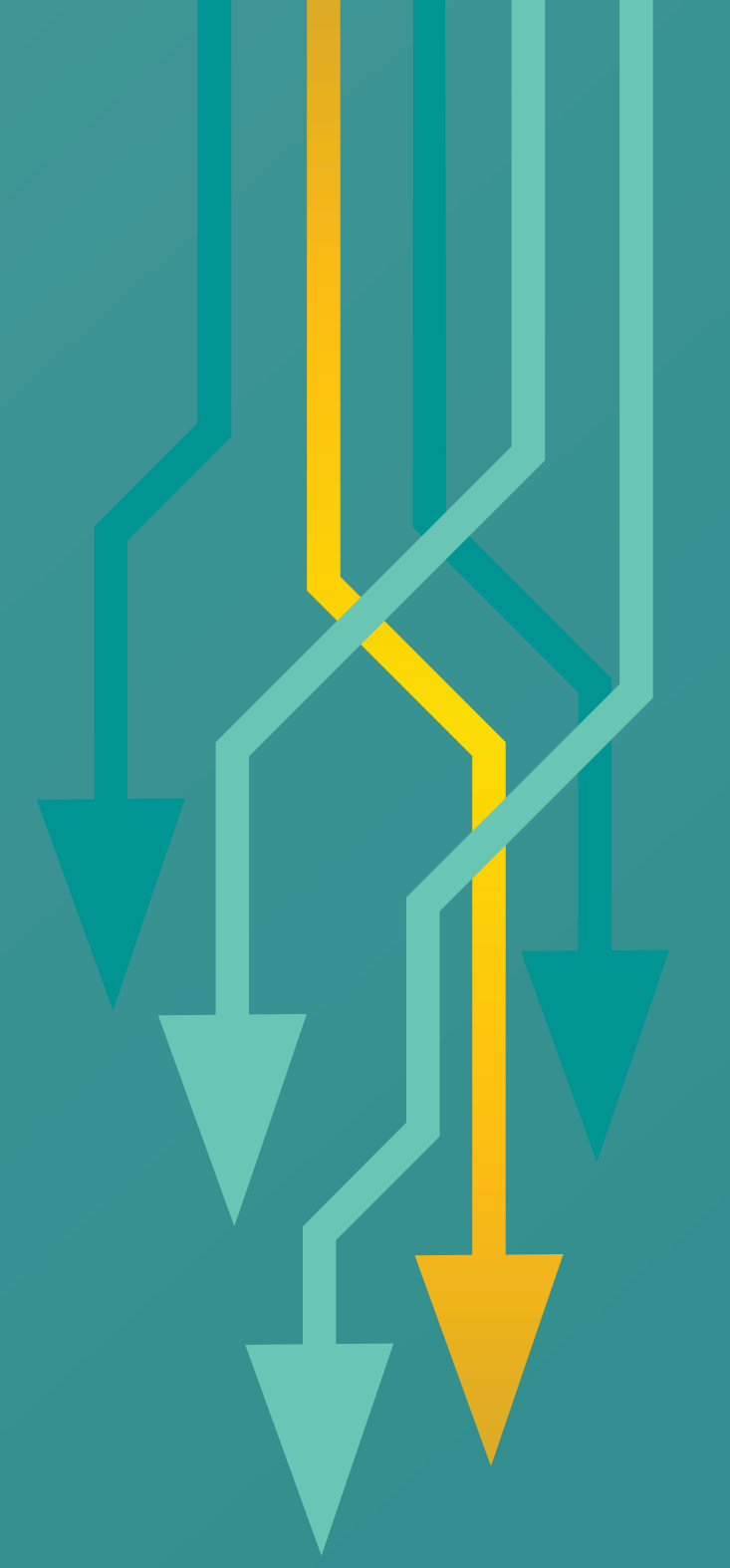


New EQA Scheme for Improving Pipetting Quality

Riitta Viertola¹, Kristel Virtanen¹, Solveig Mo², Marit Sverresdotter Sylte², Jonna Pelanti¹, Heidi Berghäll¹
 1 Aurevia, Helsinki, Finland 2 Department of Medical Biochemistry and Pharmacology, Haukeland University Hospital, Bergen, Norway



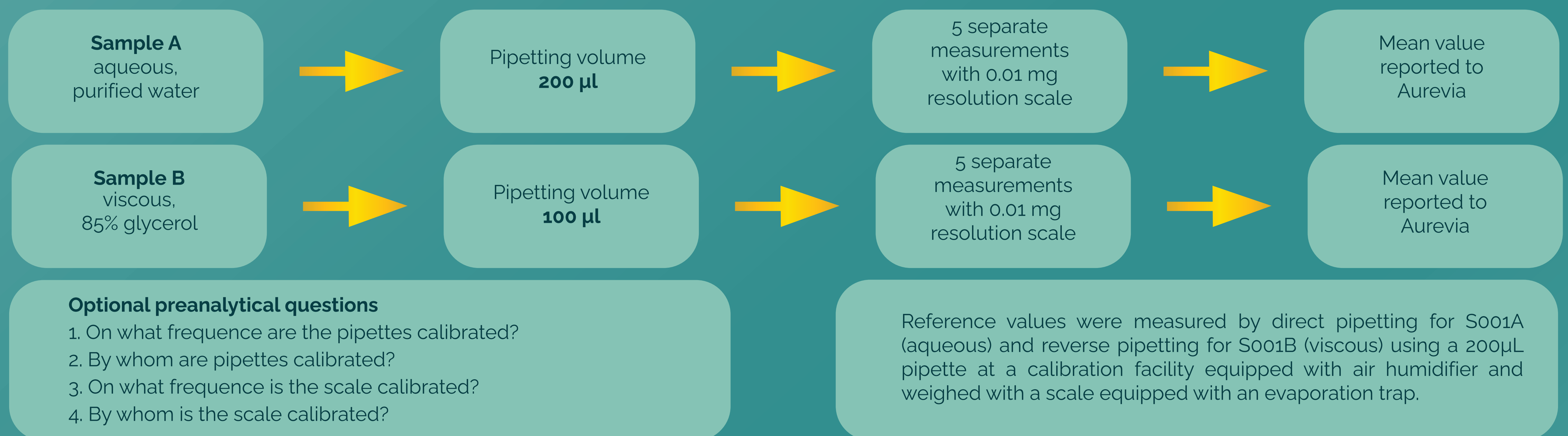
Need

According to ISO 15189:2022, laboratories shall specify calibration and traceability requirements sufficient to maintain consistent reporting of analysis results. Aurevia has developed a new EQA scheme for pipette control. 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.

Benefits & Conclusions

- Aurevia's new EQA scheme for pipette control supports clinical laboratories in fulfilling ISO 15189:2022 requirements
- The pilot study results shows that different variables, such as used pipetting techniques, may have an impact on the pipetting quality, especially when handling samples of different compositions
- The high interest towards the pilot study indicates that there is a need for an EQA scheme for pipette control

Approach



Results

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 100 µL - 1000 µL and participants were allowed to report results from 5 different pipettes. Target values were set to 204.45 mg and 124.85 mg respectively with target area ±5 %. Most of the measurements (489/535) were done using a direct pipetting technique. For viscous sample S001B only 14% of the measurements were done using reverse pipetting, more suitable for this sample type. Results from the preanalytical section shows that around 70% of the participating laboratories calibrate their pipettes and scales once a year. Also, the use of an external calibration agency was common.

S001A

Max volume of pipette	X _{pt}	Median	CV%	Min	Max	Outliers	n
200 µL	199.97	200.00	0.8	190.00	241.20	11	135
300 µL	199.44	199.78	0.7	197.76	200.89	0	8
1000 µL	199.46	199.89	13	166.00	211.10	12	105
All	199.75	200.00	1.0	166.00	241.20	27	244

Table 1. Sample S001A was purified water, pipetting volume 200 µL.

S001B

Max volume of pipette	X _{pt}	Median	CV%	Min	Max	Outliers	n
100 µL	114.04	119.28	8.6	100.00	123.84	0	20
200 µL	116.51	119.66	6.5	93.80	127.00	1	123
300 µL	121.18	121.38	12	111.01	122.53	1	6
1000 µL	117.44	120.00	6.9	81.00	136.48	2	100
All	116.84	119.87	6.7	81.00	136.48	11	249

Table 2. Sample S001B was 85% glycerol, pipetting volume 100 µL.

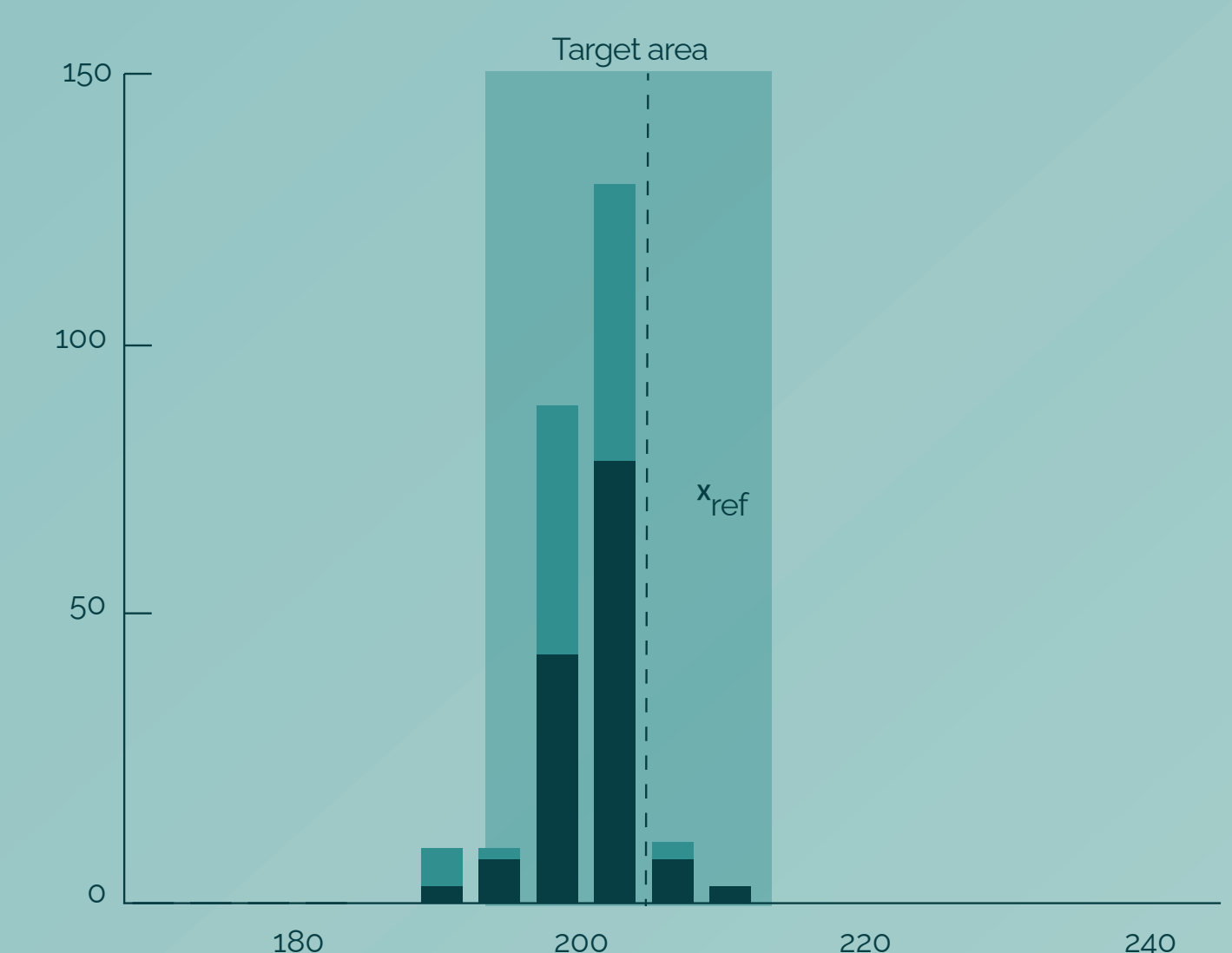


Figure 1. Sample S001A histogram of max vol 200 µL pipette results.

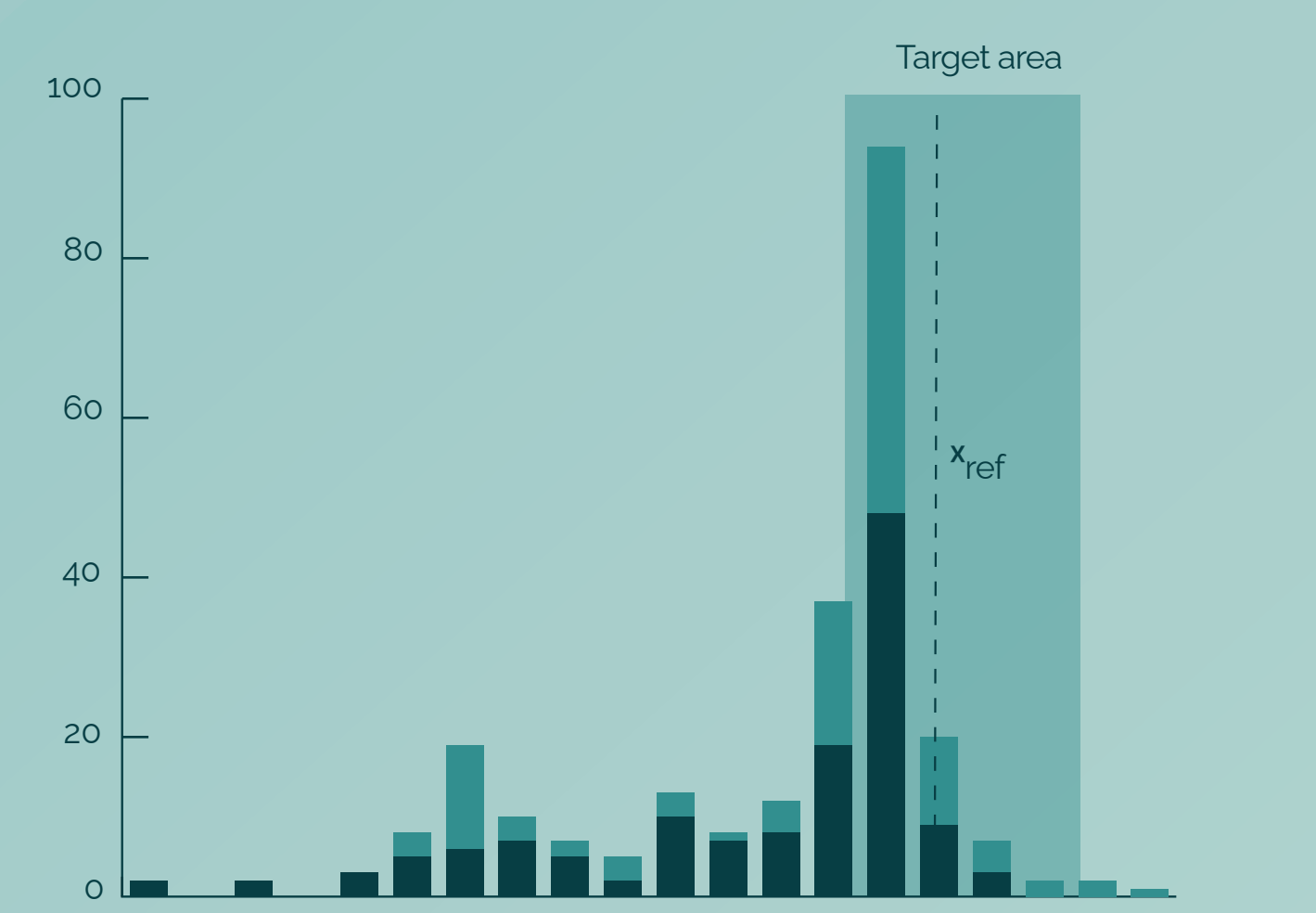


Figure 2. Sample S001B histogram of max vol 200 µL pipette results.

