FOB1/21: Faecal Occult Blood

This EQA round was accomplished according to the document ***EQA Plan 2021***.
Typing conventions: *We are using comma as a decimal separator and dates in day.month.year format.*

Samples

We used liquid commercial samples in this round.

Supervisor's comment

There were 185 participants in this round, 6 of them from Slovenia, 3 from Slovakia, and 1 from Austria.

Assigned values

Assigned values were determined as robust means in peer groups based on the manufacturer of the kit (code R). Only groups containing 5 or more participants are evaluated.

Measurement results obtained from **the laboratory systems**

Eiken (code R = 208): Most members of this group are using homogeneous measuring systems (identical manufacturer of the kit and equipment). Three participants declared the use of Roche instrument. The average CV was 6,8 % which is very good result.

Sentinel (code R = 116): The users of this kit are using wide range of measuring systems (Abbott, Beckman Coulter, Roche, Siemens and other). Despite this fact the level of reproducibility in this group is good (average CV was 9,5 %). We asked the participants what type of the calibrator they used. We received these answers:

Not specified	1
FOB Gold Calibrator (Routine)	54

Measurement results obtained from **the POCT systems**

Aidian (Orion) (QuikRead, code R = 57): The results of the participants in this group were more scattered than the results of the laboratory systems (average CV was 20 %).

BodiTech (iChroma, code R = 200): The results of the participants in this group were very scattered (the average CV was 43 %). Interestingly, for sample A the lowest result was 2,5 and the highest 460 and for sample B it was 78 and 2000 µg/g. The general instructions included special section with instructions for users of iChroma systems - the question is whether all participants really followed these instructions. It was **impossible to evaluate** the results of this group because it was not possible to determine an assigned value with acceptably low uncertainty. **We recommend all users of BodiTech systems to strictly follow the instructions given in the general instructions in the next round, including the recalculation of the results!**

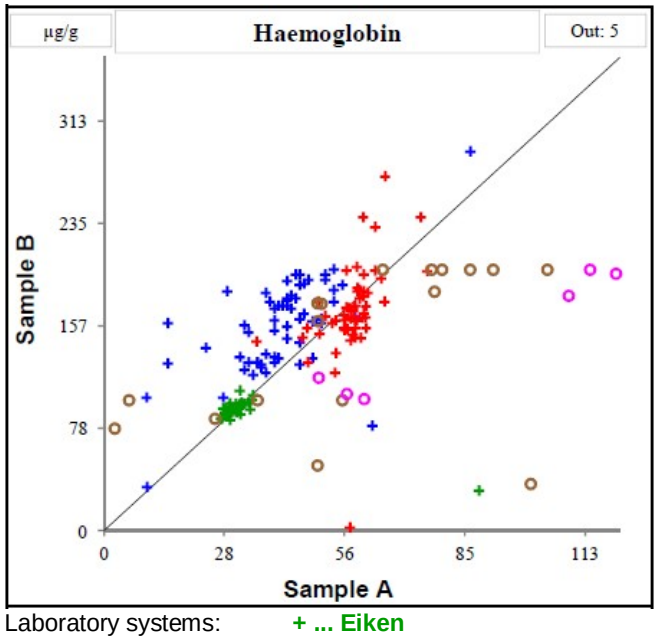
SD BIOSENSOR (Standard F, code R = 124): The distribution of the results in this group was bimodal, which led to a large CV (the average CV was 50 %). The part of the participants that reported higher results (approximately 120 µg/g for sample A) probably did not follow the instructions of the system supplier. It was **impossible to evaluate** the results.

The position of the results of the above mentioned groups shows Youden plot that you can find on the right.

The graph demonstrates the following facts:

1. Very good reproducibility of the results in the Eiken and Sentinel groups.
2. The averages of the measurement results in the individual groups differ significantly (that is why we evaluate the results within individual groups in this programme). This is also the reason for the unsatisfactory overall reproducibility of the results (total CV for both samples over 30 %).
3. There are 5 results out of the graph - these are mostly the results of the participants who did not convert the results to the unit µg/g or swapped samples.

We did **not evaluate** the results of the participants who declared the use of the kits of "other" manufacturers 3x Spinreact, 3x Vitassay, other manufacturers sporadically). These results are not shown in the graph.



Laboratory systems: + ... Eiken
+ ... Sentinel
POCT systems: + ... Aidian (Orion)
o ... BodiTech
o ... SD BIOSENSOR

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Unit of the results
The results are expressed in **the unit µg/g (i.e. µg of haemoglobin per gram of faeces)** in the FOB scheme.
The unit **µg/g** is particularly important for the determination of the test positivity (i.e. comparison with the cut-off value) - it is therefore clinically relevant. The instructions on how to recalculate the measurement result from the unit µg/L to µg/g were included in the documentation of the round.

Long term success rate
You can find the overview of the total success of the participants of this round over last 2 years in the following table. Particular ranges of success are defined in the column headers (0 % … no success; 50 % … success from 1 to 50 %; 75 % … success from 51 to 75 % etc.). Next 2 lines contain both absolute and relative number of participants that reached the success from the header**.**

	Success	***0 %***	***50 %***	***75 %***	***80 %***	***85 %***	***90 %***	***95 %***	***99 %***	***100 %***
Count	absolute	18	25	33	0	0	0	0	0	88
	relative	11 %	15 %	20 %	-	-	-	-	-	54 %
Note: You can find your individual success over last 2 years in your result sheet.										

Overall success of most participants of this round over last 2 years is 75 % or better.
But the portion of those who succeeded in 50 % or less tests is not negligible. Namely to these participants we recommend:

- Do not forget to recalculate results to the unit prescribed, **which is µg/g.**
- In case of "negative" result (i.e. the result out of the measurement range, below the LoQ) enter the result equal to the LoQ of your system (of course recalculated to the µg/g, e.g. for QuikRead go systems, where limit of quantification is 75 µg/L, it means to enter the result 15 µg/g). The instructions on how to report the results that are out of the measurement range you can find in the help of the web application Cibule.
- Carefully report both results and basic information about the test (especially the manufacturer of the kit).
- Strictly follow the instructions received from the manufacturer / supplier of your measuring system.

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Supplements

As a supplement to this report individual participants receive:

Name of the supplement	***Remark***
Confirmation of attendance	Issued only to those participants who sent us the results.
Result sheet (quantitative results)	Issued only to those participants who sent us the results.
Complex statistics	Only for tests with quantitative results and two samples.

The supplements are identified by their name, EQA round identification and participant code and are intended for the needs of the participant.

Additional information

The final report, with the exception of the supplements, is public. Further information is freely available to the participants and other professionals at www.sekk.cz, in particular:

- The summary of the results of this round, including this final report.
- The criteria (D_{max}) for a quantitative results assessment.
- The document ***EQA Plan*** (contains information that applies both to this round and also the EQA in general).
- Explanation of the content of the particular supplements mentioned above.
- Contact to the EQA provider and the EQA coordinator and the list of all supervisors, including contacts.