HCB1/26: Histological and Cytological Staining

This EQA round was accomplished according to the document ***EQA Plan 2026***.

Typing conventions: *We are using comma as a decimal separator and dates in day.month.year format.*

Samples

The samples for this round were prepared by the subcontractor. Each participant received:

- 2 histological slides (labelled A and B).
  Sample A: Lung, congestive heart failure, male, 70 years old.
  Sample B: Lung, congestive heart failure, male, 70 years old.
- 2 cytological slides (labelled C and D).
  Sample C: Pleural effusion, male, 77 years old.
  Sample D: Pleural effusion, male, 74 years old.

The staining to be performed by each participant was prescribed for each slide.

Assessment rules

The tasks of the participants were:

1. Perform staining using a standard procedure that is routinely used in the laboratory (or perform an alternative staining) and mark the staining really used in the result form.
2. Send both stained slides (EQA samples) and filled in result form back to SEKK.

Assessment of participant's staining is performed by a team of 3 experts. This team evaluates the staining quality for each slide separately. The experts evaluate **the quality of staining** on the scale from **0 to 2 points** for each individual slide as follows:

Score (points)	***Description***	***Criteria***
2	Excellent staining	Staining without comments from the experts.
1	Acceptable staining	Sample A (HE) and samples C, D (HE/MGG): Weak staining of the nuclei, that still allowed assessing the details of the nuclear architecture. Sample B: Detection of iron by Perls reaction – the staining of an intensity that still allowed identification of hemosiderin in the tissue.
0	Unacceptable staining	Sample A (HE): Very weak staining of the cytoplasm of the cells with hematoxylin, practically not allowing the evaluation of the tissue, very weak staining of the nuclei of the cells with eosin, not allowing the detailed assessment of the nuclear architecture. Sample B: Detection of iron by Perls reaction - staining with an intensity that no longer allowed the identification of hemosiderin in the tissue. Sample C and D: For MGG/HE staining very weak staining of the cytoplasm of the cells, practically not allowing the evaluation of the tissue and very weak staining of the nuclei of the cells, not allowing the detailed assessment of the nuclear architecture.

Virtually every routinely used staining has many variants that are used according to the local customs and traditions of workplaces. Whether or not individual experts like a particular staining is usually the subject of discussion during the evaluation, but it does not affect the scoring of individual preparations - a key parameter of the assessment is the applicability of the staining in routine operation.

The staining quality of a particular slide is not evaluated if an expert has marked the slide as not assessable, or if the participant used other than the prescribed or alternative staining, or has not done the staining at all.

Experts assess all samples anonymously, i.e. without knowledge of the participant that sent the sample.

Team of the experts	assoc. prof. Tomáš Jirásek, MD, PhD Markéta Trnková, MD Iva Staniczková Zambo, MD, PhD

Using several anonymous model cases, the experts verified their assessment criteria and discussed possible points of dispute in order to ensure the maximum possible objectivity in the interpretation among all experts.

The scores for individual samples from individual experts are summated, so the sums could range from **0 to 6 points** for each slide. The scores achieved were then evaluated as follows:

Score	***Evaluation***	***Recommendation***
6 or 5	Excellent result	Without comments.
4 or 3	Acceptable result	It is advisable to improve the staining (the staining is not optimal).
2 and less	Unacceptable result	It is a warning signal and an impulse for an immediate action

If a participant's result is evaluated as “excellent result” or “acceptable result” on the basis of the scoring, then the result is evaluated as **successful** in the EQA.

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Supervisor's comment

There were 97 participants in this round, 3 of them from Austria, 1 from Poland and 13 from Slovakia.

Sample A (histology)
HE (success rate 100 %): Results do not require a comment.

Sample B (histology)
Detection of iron by Perls reaction (success rate 100 %): Results do not require a comment.

Sample C (cytology)
HE (success rate 100 %): Results do not require a comment.
MGG (success rate 100 %): Results do not require a comment.

Sample D (cytology)
MGG (success rate 97 %): Results do not require a comment.
HE (success rate 100 %): Results do not require a comment.

Summary

Most of the specimens we received showed good staining and were, according to experts, usable in routine practice; the thickness of the sections is a matter of local custom, as is the intensity of tissue staining with hematoxylin and eosin. The samples that some laboratories consider to be excellent may be evaluated by another workplace as thick and unsatisfactory, or discolored (and vice versa). We repeat that the evaluation criterion is applicability in routine practice, not the "artistic impression" of the sample in front of the "jury". For very rare laboratories that show a lower rating than excellent results in any of the stainings, we recommend checking the working procedures.

In this round we asked the participants whether they performed the individual stainings on an automatic machine or manually. We were interested in whether the procedure used had any effect on the quality of the staining.
The participants' answers are shown in the table:

Answer	*Count*
Not specified	54
Manual staining	168
Automat	152

When evaluating the preparations, experts did not find any fundamental differences between the individual procedures.

Long term success rate

You can find in the following table the overview of the total success of the participants of this round over last 2 years. Individual 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 rate specified in the header.

	Success	*0 %*	*1 - 74 %*	*75 - 79 %*	*80 - 89 %*	*90 - 94 %*	*95 - 99 %*	*100 %*
Success in words		unsatisfactory		acceptable	good	very good	excellent	
Count	absolute	0	0	0	1	4	0	92
	relative	-	-	-	1 %	4,1 %	-	95 %
Note: You can find your individual success over last 2 years in your result sheet.								

The table shows that the most participants in this round show a long-term success rate of over 95 %.
A success rate of less than 95 % should be considered an opportunity for improvement.

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Supplements

As a supplement to this report individual participants gain:

Name of the supplement	***Remark***
Confirmation of attendance	Issued only to those participants who sent us the results.
Result sheet	Issued only to those participants who sent us the results.

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

Also we return the slides that we received from the participants.

If you reported the results in this round, you can find your individual evaluation (reports) in the **Cibule** application (https://www.eqa.cz/cibule). After log-in, select ***EQA Results - View*** in the menu and then click the ***Reports*** button for the particular round.

Additional information

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

- The summary of the results of this round, including this final report.
- 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.