HAEMATOLOGY

Blood transfusion
Coagulation
Basic Blood Count
Leucocyte differential count
Reticulocytes
HEMATOLOGY— BLOOD TRANSFUSION

ABO and Rh grouping

The report includes a summary of results by method, summary of reaction strengths by method, laboratory-specific results with scores and an expert statement.

INDIVIDUAL RESULTS AND SCORES

The results for ABO and Rh are presented on a graph for each sample. The method used will be printed on the headline. In scoring own result will be compared to the consensus result of own method group.

The performance of attending laboratories will be scored according to the suggestions by WHO (Development of Guidelines for Organising National External Quality Assessment Schemes in Blood Group Serology, London, UK, 9-11 May 2001). The scoring is attached to help the internal and external audits. However, the surveys may also include specimens, which will remain outside of scoring.

<table>
<thead>
<tr>
<th>Laboratory</th>
<th>Reaction</th>
<th>Grade</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABO grouping</td>
<td>A</td>
<td>A</td>
<td>6/8</td>
</tr>
<tr>
<td>Rh(D)</td>
<td>positive</td>
<td>positive</td>
<td>4/4</td>
</tr>
</tbody>
</table>

The principles of the scoring will be as follows:

**ABO (Maximum points/specimen = 8)**

1. Reaction strengths
   - Correct agglutination reaction and grade: 1 point/reaction, altogether 4 points / specimen
   - Correct reaction, but large difference in reaction grade from the expected: 0.5 points /reaction (eg. 2+ for an expected 4+)
   - Wrong agglutination reaction: 0 points
2. Interpretation
   - Correct interpretation: 4 points/specimen

**Rh(D) (Maximum points/specimen = 4)**

1. Reaction strengths
   - Correct agglutination reaction and grade: 1 point/reaction, altogether 2 points / specimen
   - Correct reaction, but large difference in reaction grade from the expected: 0.5 points /reaction (eg. 2+ for an expected 4+)
   - Wrong agglutination reaction: 0 points
2. Interpretation
   - Correct interpretation: 2 points/specimen

**SUMMARIES**

Reaction strengths by cell, antiserum and method used are presented on graphs.

The numerical summary presents frequencies of methods used and results correlating to expected results. The summary headline indicates the expected result stated by the EQA organiser.

**GRAPHIC SUMMARY**

Example of presentation of reaction strengths for ABO grouping.

**NUMERICAL SUMMARY**

Shares of the correct interpretations by method. Expected result is stated by the EQA organiser and sample manufacturer.

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Interpretation of Labquality’s EQA report

HEMATOLOGY— BLOOD TRANSFUSION

Antibody screening and Direct antiglobulin test

The report includes a summary of results by method, summary of reaction strengths by method, laboratory-specific results with scores and an expert statement.

INDIVIDUAL RESULTS AND SCORES

The results for antibody screening and direct antiglobulin test are presented on a graph for each sample (patient). The method used will be printed on the headline. In scoring own result will be compared to the consensus result of own method group.

The performance of attending laboratories will be scored according to the suggestions by WHO (Development of Guidelines for Organising National External Quality Assessment Schemes in Blood Group Serology, London, UK, 9-11 May 2001). The scoring is attached to help the internal and external audits. However, the surveys may also include specimens, which will remain outside of scoring.

SUMMARIES

The final results for antibody screening and direct antiglobulin test are presented on similar summaries. Reaction strengths by specimen and method used are presented graphically.

The numerical summary presents frequencies of methods used and results correlating to expected results. The summary headline will indicate the expected result stated by the EQA organiser.

GRAPHIC SUMMARY

Example of presentation of reaction strengths by method for antibody screening.

NUMERICAL SUMMARY

Example of the summary for antibody screening results by method. Expected result is stated by the EQA organiser and sample manufacturer.

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**HEMATOLOGY— BLOOD TRANSFUSION**

**Compatibility testing**

**INDIVIDUAL RESULTS AND SCORES**

The results for compatibility testing are presented on a table and on a graph. The method used will be printed on the headline. In scoring, own result will be compared to the consensus result of own method group.

The performance of attending laboratories will be scored according to the suggestions by WHO (Development of Guidelines for Organising National External Quality Assessment Schemes in Blood Group Serology, London, UK, 9-11 May 2001). The scoring is attached to help the internal and external audits. However, the surveys may also include specimens, which will remain outside of scoring.

<table>
<thead>
<tr>
<th>Serum/Erythrocyte</th>
<th>Laboratory interpretation</th>
<th>Expected result</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>3S/5E</td>
<td>Compatible</td>
<td>Compatible</td>
<td></td>
</tr>
<tr>
<td>3S/6E</td>
<td>Incompatible</td>
<td>Incompatible</td>
<td></td>
</tr>
<tr>
<td>3S/7E</td>
<td>Compatible</td>
<td>Compatible</td>
<td></td>
</tr>
<tr>
<td>3S/8E</td>
<td>Compatible</td>
<td>Compatible</td>
<td></td>
</tr>
<tr>
<td>4S/5E</td>
<td>Compatible</td>
<td>Compatible</td>
<td></td>
</tr>
<tr>
<td>4S/6E</td>
<td>Incompatible</td>
<td>Incompatible</td>
<td></td>
</tr>
<tr>
<td>4S/7E</td>
<td>Compatible</td>
<td>Compatible</td>
<td></td>
</tr>
<tr>
<td>4S/8E</td>
<td>Compatible</td>
<td>Compatible</td>
<td></td>
</tr>
</tbody>
</table>

**SUMMARIES**

The final results for compatibility and reaction strengths are presented on summaries.

Reaction strengths by specimen and method used are presented graphically.

The numerical summary presents frequencies of methods used and results correlating to expected results. The summary headline indicates the expected result stated by the EQA organiser.

**GRAPHIC SUMMARY**

Example of the reaction strengths reported in compatibility testing for serum 3S and erythrocytes 5E.

**NUMERICAL SUMMARY**

Example of the summary for compatibility results by method. Expected result is stated by the EQA organiser and sample manufacturer.

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HEMATOLOGY—Coagulation

APTT, D-dimer, LMW-heparin, Prothrombin time, Special coagulation tests

**e-scheme** Reports for e-schemes are published only on Internet at www.labquality.fi

**INDIVIDUAL RESULTS**

**Histogram**

The statistical values include the results that fall within the calculated limits for the group in question. The limits are obtained from the median value of the uncorrected results ±3 * uncorrected standard deviation (s) if the group includes at least seven results.

The green columns show the results for the method group and blue columns relate to all results.

Laboratory's result is shown by a red dot and numerically. If a result falls beyond the scale of the axis, is shown by an arrow instead of a dot. The green target area below the histogram is shown if there are at least seven results in the method group.

The statistical values for own group and all groups are printed below the histogram.

**Numerical summary**

The summary headline indicates the sample, date of report release, analyte, instrument and outlier rule.

The statistical values in the numerical summary are calculated similarly to the values under the histogram. The numerical summary shows all results by method. CV and s are calculated if there are at least two results in a method group. If there is only one, a dash (—) appears. Own method group is shaded.

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**HEMATOLOGY—CELL COUNT AND MORPHOLOGY**

**Basic Blood Count**

**e-scheme** Reports for e-schemes are published only on Internet at www.labquality.fi

**INDIVIDUAL RESULTS**

**Histogram**

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**Labquality 2010**
Interpretation of Labquality’s EQA report

HEMATOLOGY—CELL COUNT AND MORPHOLOGY

Leucocyte differential count and evaluation of blood cell morphology

INDIVIDUAL RESULTS AND SUMMARIES

The results for evaluation of blood cell morphology are presented in the table for each specimen using scale Change slight - Change clear - Change strong.

On the left there are arrows showing findings in which at least 5 of 8 specialist haematologists agree when studying the smears individually, not as a group.

In leucocyte differential count the percentages are divided into eleven classes. Intervals between some classes have been chosen to correspond to reference ranges for different cell types. Tables are produced for each cell type (monocytes as an example). In an individual table, a laboratory’s own result is placed in the appropriate class indicated in grey.

Laboratory’s own result is indicated with grey.

<table>
<thead>
<tr>
<th>LABQUALITY</th>
<th>Evaluation of Blood Cell Morphology</th>
<th>Lab. no</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 241</td>
<td>Change slight</td>
<td>Change clear</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Monocytes</th>
<th>Percentages</th>
<th>Number of results</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
<td>180</td>
</tr>
<tr>
<td>1 – 4</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>5 – 9</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>10 – 19</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>20 – 29</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>30 – 39</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>40 – 49</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>50 – 59</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>60 – 69</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>70 – 79</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>80 – 100</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Laboratory's own result is indicated with grey.

The haematologist’s report includes findings, diagnoses, red cell indices, automated cell counts (red cell indices, WBC, PLT) and automated differential count.

The photographs show the most characteristic findings.
**HEMATOLOGY— CELL COUNT AND MORPHOLOGY**

**Leucocyte differential count, 3-part**

### INDIVIDUAL RESULTS

The statistical values include the results that fall within the calculated limits for the group in question. The limits are obtained from the median value of the uncorrected results ±3 * uncorrected SD if the group includes at least seven results.

The shaded area on the histogram represents the results for the own method group. The outer edges of the histogram relate to all results.

Laboratory’s result is shown by a black diamond and numerically below the histogram. If a result falls beyond the scale of the axis, it is shown by an arrow instead of a diamond. The grey target area below the histogram is shown if there are at least seven results in the method group.

The statistical values for the laboratory’s own group and all groups are printed below the histogram as well as results from previous ten surveys.

### NUMERICAL SUMMARY

The summary headline indicates the survey, sample and analytes (assays). The statistical values in the numerical summary are calculated similarly to the values under the histogram. The numerical summary shows all results by method. SD and CV are calculated if there are at least two results in the method group. If there is only one, a dash (—) appears.

An extract of a numerical summary for 3-part differential. In EQA for automated analysers it is usual that some analysers require own special EQA samples. In this survey Sysmex analysers used sample no. 2 and and other instruments had sample no. 1. The main rule in EQA result evaluation is to compare your results only with those in your own instrument or method group.

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Interpretation of Labquality’s EQA report

HEMATOLOGY—CELL COUNT AND MORPHOLOGY

Leucocyte differential count, 5-part

INDIVIDUAL RESULTS

The statistical values include the results that fall within the calculated limits for the group in question. The limits are obtained from the median value of the uncorrected results ±3 × uncorrected SD if the group includes at least seven results.

The shaded area on the histogram represents the results for the own method group. The outer edges of the histogram relate to all results.

Laboratory’s result is shown by a black diamond and numerically below the histogram. If a result falls beyond the scale of the axis, it is shown as an arrow instead of a diamond. The grey target area below the histogram is shown if there are at least seven results in the method group.

The statistical values for the laboratory’s own group and all groups are printed below the histogram as well as results from previous ten surveys.

NUMERICAL SUMMARY

The summary headline indicates the survey, sample and analytes (assays). The statistical values in the numerical summary are calculated similarly to the values under the histogram. The numerical summary shows all results by method. SD and CV are calculated if there are at least two results in the method group. If there is only one, a dash (—) appears.

An example of a numerical summary produced by instrument type. There is a separate sample for each instrument type. The main rule in EQA result evaluation is to compare your results only with those in your own instrument or method group.

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HEMATOLOGY—CELL COUNT AND MORPHOLOGY

Reticulocytes, manual methods

INDIVIDUAL RESULTS

The statistical values include the results that fall within the calculated limits for the group in question. The limits are obtained from the median value of the uncorrected results ±3 * uncorrected SD if the group includes at least seven results.

The shaded area on the histogram represents the results for the own method group. The outer edges of the histogram relate to all results.

Laboratory’s result is shown by a black diamond and numerically below the histogram. If a result falls beyond the scale of the axis, is shown by an arrow instead of a diamond. The grey target area below the histogram is shown if there are at least seven results in the method group.

The statistical values for the laboratory’s own group and all groups are printed below the histogram as well as results from previous ten surveys.

NUMERICAL SUMMARY

The summary headline indicates the survey, sample and analytes (assays). The statistical values in the numerical summary are calculated similarly to the values under the histogram. The numerical summary shows all results by method. SD and CV are calculated if there are at least two results in the method group. If there is only one, a dash (—) appears.

An example of statistical processing of reticulocyte count survey with manual methods. The main rule in EQA result evaluation is to compare your results only with those in your own method group.

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HEMATOLOGY—CELL COUNT AND MORPHOLOGY

Reticulocytes, automated analysers

INDIVIDUAL RESULTS

The statistical values include the results that fall within the calculated limits for the group in question. The limits are obtained from the median value of the uncorrected results ±3 * uncorrected SD if the group includes at least seven results.

The shaded area on the histogram represents the results for the own method group. The outer edges of the histogram relate to all of the results.

Laboratory’s result is shown by a black diamond and numerically below the histogram. If a result falls beyond the scale of the axis, it is shown as an arrow instead of a diamond. The grey target area below the histogram is shown if there are at least seven results in the method group.

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NUMERICAL SUMMARY

The summary headline indicates the survey, sample and analytes (assays). The statistical values in the numerical summary are calculated similarly to the values under the histogram. The numerical summary shows all results by method. SD and CV are calculated if there are at least two results in the method group. If there is only one, a dash (—) appears.

An example of a numerical summary produced by sample and instrument type. Each instrument type had a separate sample. The main rule in EQA result evaluation is to compare your results only with those in your own instrument or method group.

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