Urgent Field Safety Notice
SBN-CPS-2018-006

CPS / Hematology
Version 2
August-2018

cobas m 511: Potential for discrepancy in red cell parameters in patients with severe microcytic anemia and/or thalassemia

Product Name/Description	**cobas m** 511 integrated hematology analyzer
GMMI / Part No Device Identifier	07261691190
Production Identifier (Lot No./Serial No.)	All
SW Version	Version 1.0
Type of Action	Field Safety Notification

Dear Valued Customer,

Roche Diagnostics regrets to inform you of reported cases affecting the **cobas m** 511 integrated hematology analyzer.

Description of Situation

Discrepant results have been reported from Pakistan and Singapore in patients with severe microcytic anemia (e.g. iron deficiency, thalassemia) and the following parameters are affected: RBC (red blood cell count), HGB (hemoglobin concentration), MCH (mean corpuscular hemoglobin), HCT (hematocrit), MCV (mean corpuscular volume), and RDW-SD (Red blood cell distribution width - standard deviation).

Internal investigations did show that the following parameters might be also affected: MCHC (Mean corpuscular hemoglobin concentration), RDW (Red blood cell distribution width - coefficient of variation), #RET (Reticulocyte count), %RET (Reticulocyte percent), and HGB-RET (Mean reticulocyte hemoglobin content).

This issue is preliminarily linked to the **cobas m** 511 software version 1.0.

For global epidemiology of haemoglobin disorders and derived service indicators refer to the attachment.

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Potential medical impacts and risks
Of particular clinical concern are the HGB differences observed within the transfusion decision limits, which might lead to an incorrect transfusion decision.

Root cause analysis
In some cases, with extreme central pallor or hypochromia the RBC count may be low. When there is severe anisocytosis, there is a bias toward measuring smaller cells, thereby underestimating MCV and MCH. The calculated values HGB and HCT will also be lower. Further, derived parameters MCHC, RDW, RDW-SD, #RET, %RET, and HGB-RET might also show erroneous results.

Actions taken by Roche Diagnostics

In all reported cases associated with significant red blood cell differences, the **cobas m** 511 integrated hematology analyzer, as designed, displayed messages, including "Anemia", "Anisocytosis", "Hypochromia", "Microcytosis", "RBC fragments", and "RBC interference". These messages prevent the results from being automatically released to the Laboratory Information System (LIS), thus triggering a laboratory review.

In addition, Roche has generated the new message "*RBC discrepancy?*" triggered by the rule "HGB ≤ 9.0 g/dL and MCH ≤ 21.0 pg". The rule is finally validated and released and is now implemented by Roche's Application Specialist on your **cobas m** 511 analyzer. The rule is marking all relevant eleven (11) parameters with an asterisk (*) which indicates that the results may be unreliable.

Roche will provide an update of the **cobas m** 511 software and the corresponding user documentation which will be rolled-out in Q4, 2018.

Actions to be taken by the customer/user

When the message "*RBC discrepancy?*" is reported for a patient result, alternative methods shall be used to verify the relevant parameters as they may be unreliable. Review of the patient sample is recommended.

After implementing the rule, when the existing rule set needs to be changed, do NOT use the "Create" button (refer to button 1 in the image below) because "Create" will generate a new rule set without the "*RBC discrepancy?*" rule. ONLY use the "Duplicate" button (refer to button 2 in the image below) to duplicate the existing rule set including the "*RBC discrepancy?*" rule and modify the duplicated rule set as required.

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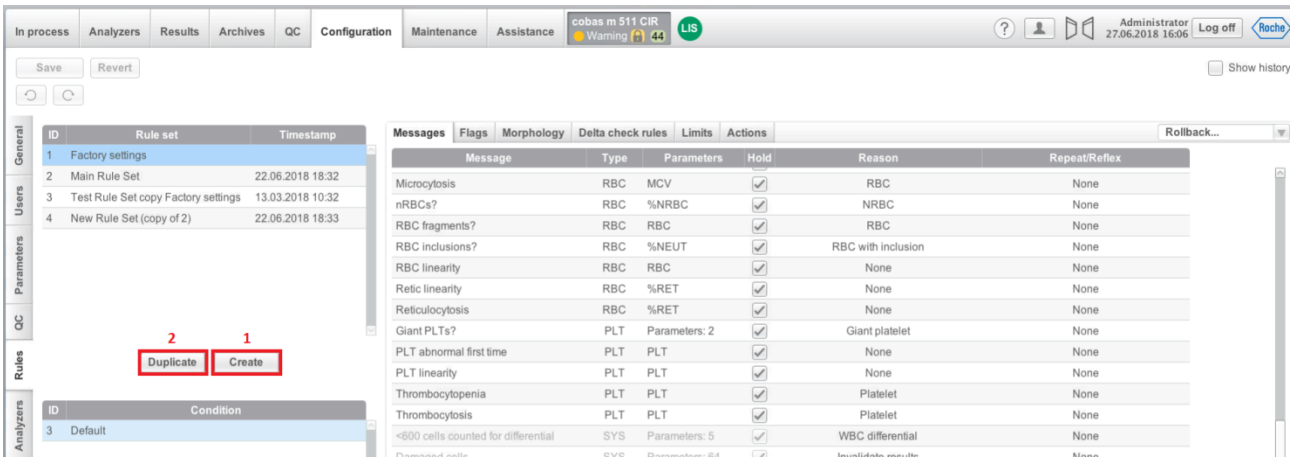
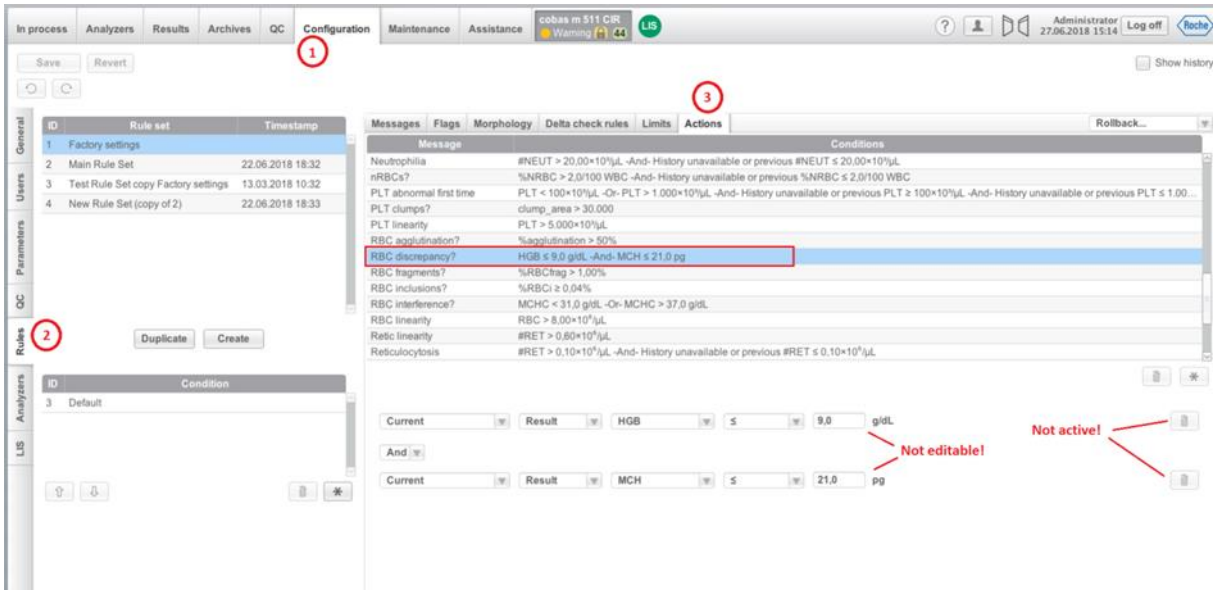


You are kindly advised to daily check the presence of the rule in your activated rule set. This can be done in the following way:

1. Select the “Factory settings” rule set and verify that an uneditable row appears with the message “RBC discrepancy?” and the condition “HGB ≤ 9 g/dL –And– MCH ≤ 21 pg”.



2. Select a user-created rule set (if available) and verify that the same rule appears.
3. Roll back that rule set to a previous version (if available) and verify that the same rule appears.
4. Navigate to the Configuration > Rules > Messages tab.
5. Verify that the “RBC discrepancy?” message exists and that it is uneditable, except for the “Reason” and “Repeat/Reflex” columns.

For customers evaluating the instrument Roche kindly advises to not report values for diagnostic use until your

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instrument is updated with a new **cobas m** 511 software version including this rule.

Labelling update

The User Assistance and, more specifically, the table in the section "List of default system messages about the sample" will be updated to include a description of the message "*RBC discrepancy?*" as presented in Table 1.

Message	Default Description	Recommended action
RBC discrepancy?	**MCH** ≤ 21.0 pg and **HGB** ≤ 9.0 g/dL	Use alternative methods to verify the following parameters, as they may be unreliable: RBC, HGB, HCT, MCV, MCH, MCHC, RDW, RDW-SD, %RET, #RET, and HGB-RET.

Table 1: New item that will be introduced in the User Assistance, in the section "List of default system messages about the sample".

The User Assistance will also be updated to include the following message:
*For diagnostic purposes, **cobas m** 511 integrated hematology analyzer results should always be assessed in conjunction with the patients' medical history, clinical examination, and other findings.*

The "System analytical performance characteristics" document will be updated to reflect the identified potentially interfering conditions. More specifically, the section currently titled as "System limitations and interfering substances" will be updated and the "Interfering conditions" sub-section will include the following applicable statements:

Red blood cells

If any of the following are present, an erroneous low value may result for the RBC, HGB, HCT, MCV, MCH, RDW and/or RDW-SD parameters, and/or an erroneous low or high value may result for the MCHC parameter.

- Erythrocyte aggregation (e.g., cold agglutinin)
- Microerythrocytes
- Fragmented red blood cells

Reticulocytes

If any of the following are present, an erroneous high value may result for the #RET parameter.

- Malaria
- Howell-Jolly body
- Thrombocytosis

If any of the following are present, an erroneous low value may result for the #RET parameter, and/or an erroneous low or high value may result for the %RET and/or HGB-RET parameters.

- Erythrocyte aggregation (e.g., cold agglutinin)
- Microerythrocytes
- Fragmented red blood cells

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Communication of this Field Safety Notice (if appropriate)

<If the recipient needs to forward the FSN to additional organizations/individuals then one or more of the following statements may be included:

This notice must be passed on to all those who need to be aware within your organization or to any organization/individual where the potentially affected devices have been distributed/supplied. (If appropriate).

Please transfer this notice to other organizations/individuals on which this action has an impact. (If appropriate).

Please maintain awareness of this notice and resulting action for an appropriate period to ensure the effectiveness of the corrective action. (If appropriate).>

The following statement is mandatory in FSNs for EEA countries but is not required for the rest of the World:

Include if applicable: The undersigned confirms that this notice has been notified to the appropriate Regulatory Agency.

We apologize for any inconvenience this may cause and hope for your understanding and your support.

<closing salutations>,

Contact Details

To be completed locally:

Name
Title
Company Name
Address
Tel. +xx-xxx-xxxx xxxx
Email name@roche.com

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Supporting Information

Global epidemiology of haemoglobin disorders and derived service indicators

WHO region	Demography 2003				% of the population carrying			Affected conceptions (per 1000)			Affected births (% of under-5 mortality)
	Population (millions)	Crude Birth rate	Annual births (1000s)	Under-5 mortality rate	Significant variant[a]	α^+ thalassaemia[b]	Any variant[c]	Sickle-cell disorders[d]	Thalassaemias[e]	Total	
African	586	39.0	22 895	168	18.2	41.2	44.4	10.68	0.07	10.74	6.4
American	853	19.5	16 609	27	3.0	4.8	7.5	0.49	0.06	0.54	2.0
Eastern Mediterranean	573	29.3	16 798	108	4.4	19.0	21.7	0.84	0.70	1.54	1.4
European	879	11.9	10 459	25	1.1	2.3	3.3	0.07	0.13	0.20	0.8
South-east Asian	1 564	24.4	38 139	83	6.6	44.6	45.5	0.68	0.66	1.34	1.6
Western Pacific	1 761	13.6	23 914	38	3.2	10.3	13.2	0.00	0.76	0.76	2.0
World	**6 217**	**20.7**	**128 814**	**81**	**5.2**	**20.7**	**24.0**	**2.28**	**0.46**	**2.73**	**3.4**

[a] Significant variants include Hb S, Hb C, Hb E, Hb D etc. β thalassaemia, α^0 thalassaemia.
[b] α^+ thalassaemia includes heterozygous and homozygous α^+ thalassaemia.
[c] Allows for (1) coincidence of α and β variants, and (2) harmless combinations of β variants.
[d] Sickle-cell disorders include SS, SC, S/β thalassaemia.
[e] Thalassaemias include homozygous β thalassaemia, haemoglobin E/β thalassaemia, homozygous α^0 thalassaemia, α^0/α^+ thalassaemia (haemoglobin H disease).