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MEMO

To: *All users of the services of the Biochemistry Department, Central Pathology Laboratory, St James's Hospital.*

From: *Biochemistry Department, Central Pathology Laboratory, St James's Hospital*

Subject: **Changes in the reporting of results affected by Haemolysis, Icterus and Lipaemia (serum indices).**

Dear Colleague,

Please note that from the **15th of December 2014**, there will be some changes in the reporting of results from the Biochemistry Department at St James's Hospital. In particular this relates to the serum indices for Haemolysis, Lipaemia and Icterus, which can interfere to varying degrees with specific biochemistry tests. The nature of these amendments is outlined below and has been precipitated by an upgrade to the IT management system for our Roche analysers.

It is important to note that the laboratory will now be reporting results on certain analytes e.g. Potassium, Troponin T (HS) and Paracetamol at both mild and moderate levels of haemolysis (further details relating to Potassium, Troponin T (HS) and Paracetamol reporting in haemolysis are provided below and also in the Laboratory User Manual:

<http://www.stjames.ie/Departments/DepartmentsA-Z/B/Biochemistry/DepartmentOverview/>)

This is in response to feedback from clinical teams who felt that in certain circumstances these results could still be of some clinical value despite the presence of haemolysis.

However, it is recommended that for all samples which are affected by haemolysis, lipaemia or icterus, a new sample should be taken in order to optimise the clinical effectiveness of laboratory blood test results.

1. Serum indices:

➤ Haemolysis:

Haemolytic samples will be graded as Mild, Moderate and Severe (See table for more details)

Mild - Mild level of haemolysis present. All results will be reported but AST, LDH, UIBC and Direct Bilirubin can be affected by this level of haemolysis. These results must be interpreted with caution and a repeat sample is advised. For Paracetamol, see table below.

Moderate - Moderate level of haemolysis present. Results for AST, LDH, UIBC and Direct Bilirubin WILL NOT be reported at this level. Results for Potassium, Troponin T (HS) and CK can also be affected by this level of haemolysis but WILL BE reported. Therefore these results must be interpreted with caution and it is advised that a repeat sample should be taken in all cases. Please note that haemolysis can produce a positive interference in the analysis of serum potassium causing an overestimation of the results, and restricted reporting will be in operation for results above and below the potassium reference range. Haemolysis can also cause an overestimation of CK levels, however, it produces an underestimation of Troponin T (HS) results, see Laboratory User Manual <http://www.stjames.ie/Departments/DepartmentsA-Z/B/Biochemistry/DepartmentOverview/>

Severe – Very high level of haemolysis present. Multiple tests are affected by this level of haemolysis and are therefore not reported. It is strongly advised that a repeat sample be taken to clarify the biochemical status of a patient.

Haemolysis Interference		
Mild	Moderate	Severe
Paracetamol*	Paracetamol*	Haemolysed & Multiple Tests unsuitable for Analysis
AST	AST	
Direct Bilirubin	Direct Bilirubin	
LDH	LDH	
UIBC	UIBC	
	CK	
	Potassium**	
	Troponin T (HS)***	

Notes on the effects of haemolysis on specific tests

*Paracetamol

Haemolysis can have a variable impact on serum Paracetamol levels including both positive and negative interference at different concentration levels. This could lead to either an overestimation or underestimation of a specific laboratory result; however, it is difficult to determine the exact extent of this interference. Consequently, Paracetamol results will be reported at three different levels only in haemolysed samples and these are outlined in the table below. It is important to emphasise that these values provide a rough guideline only to the actual Paracetamol level and a repeat sample for serum Paracetamol is strongly advised in order to facilitate the appropriate clinical management of patients.

Paracetamol Result:	Reported as:
<5 mg/L	<5 mg/L
5-29 mg/L	<30 mg/L
≥30 mg/L	>29 mg/L

****Potassium:**

Haemolysis can cause a positive interference in the analysis of serum potassium (K), thus causing a potential overestimation of the result. Please note that in moderately haemolysed samples Potassium results above the reference range will be reported only as > 5.3mmol/L. Similarly, Potassium results in haemolysed samples below the reference range will be reported only as either < 3.5mmol/L or < 3.0mmol/L, as appropriate.

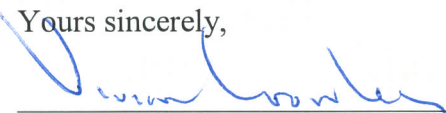
*****Troponin T (HS)**

Haemolysis can produce a negative interference in the analysis of plasma Troponin T (HS), thus causing a potential underestimation of the actual result. Therefore please note that while a result for Troponin T (HS) will be reported in a moderately haemolysed sample, this may not represent the true value for that sample and the taking of a repeat sample for plasma Troponin T (HS) is strongly advised in order to facilitate the appropriate clinical management of patients. In addition, any Troponin T (HS) result ≤ 14 ng/L in a moderately haemolysed sample WILL NOT be reported at all due to the risk of underestimation.

➤ **Lipaemia and Icterus**

Please note that if a sample exceeds specific Lipaemic or Icteric levels then the results of affected analyses will not be reported.

Yours sincerely,



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