Blood Sciences Laboratories
Royal Brompton and Harefield Hospital sites

29 September 2023

Dear laboratory user,

Re: Changes to Blood Sciences lab reporting with EPIC from 5th October 2023

We are writing to inform you that from **05/10/23**, the Synnovis Blood Sciences Laboratories at Royal Brompton and Harefield sites will be making changes to some tests with the introduction of the new Epic electronic health records system and Beaker, the new LIMS**.** In all cases no changes to the analytical methodology or UKAS accreditation will occur.

These changes are summarised below:

New equations for two calculated tests

The below tests will be calculated using different formula to previous and so cannot be trended pre and post EPIC go live.

Test	Current formula	New formula
Estimated Glomerular Filtration Rate (eGFR)	4v MDRD (minus ethnicity)	CKD-EPI (2009) minus ethnicity
LDL cholesterol	Friedewald	Sampson NIH2

(i) *Change to eGFR calculation explained*

The NICE Chronic kidney disease: assessment and management [NG203] 2021 guidelines recommend the use of the CKD Epidemiology Collaboration creatinine (CKD-EPI) equation to estimate GFR. Until now we have used the 4 variable Modification of Diet in Renal Disease (MDRD) formula (without the ethnicity factor, which was removed from the calculation in November 2021). Several studies have shown that the MDRD equation systematically underestimates the GFR, particularly in low-risk patients with a high-normal serum creatinine level. This results in the labelling of some people with CKD who do not have significant kidney disease, particularly in the earlier stages of CKD.

As a result of this change in equation please be aware of the following:

- The new equation will more accurately assess eGFR, reducing the over-diagnosis of CKD in low-risk patients and improving diagnostic performance in patients aged over 80 years.
- Serum creatinine results are not affected by this change and will continue to be comparable over time. If the creatinine has not changed significantly, then true renal function will not usually have altered and any eGFR change can be attributed to the change in equation. Likewise, a change in creatinine that is significant could be masked by a seemingly stable eGFR.

(ii) *Change to calculated LDL equation explained*

LDL cholesterol has historically been calculated using the Friedewald equation. However, this has several limitations and is not valid in samples with triglycerides >4.5 mmol/L. The Sampson-National Institutes of Health 2 equation is more accurate than the Friedewald equation, particularly in patients with low LDL, and can also be used with triglycerides up to 9 mmol/L.

Change to HbA1c reporting

HbA1c results will no longer reported in both % and mmol/mol units, but only mmol/mol – this is in line with NICE guidance from 2015 to measure HbA1c using methods calibrated according to International Federation of Clinical Chemistry (IFCC) standardisation.

HbA1c – reference range 20-42 mmol/mol

Changes to test profile groups

The tests contained in some profiles have been harmonised across all the hospital sites.

Profile	Tests performed
Renal	Sodium, Potassium, Creatinine, eGFR
Renal + urea	Sodium, Potassium, Creatinine, eGFR, Urea
Liver function profile	Total bilirubin, ALT, ALP, Albumin
Bone profile	Albumin, ALP, Calcium, Adjusted calcium, Phosphate

Changes to autoimmunity testing and other referred work

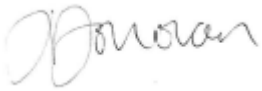
With the move to Epic, we are able to send many of the tests not offered in our local laboratories to labs on the King's or St Thomas's Hospital sites. This will significantly improve the process for reporting results and improve the turnaround times, and a clear audit trail of where the sample is will be visible within Epic.

Charting of results

Patient results from any of the hospital sites will be visible in the patient chart. However, there are some differences to analytical equipment and test repertoire on each site. The tests have been reviewed to see which can be charted together. Of note, GSTT, KCH and RBH&HH sites use a different troponin assay on each site, so such results should not be compared.

Should you have questions related to these changes, please do not hesitate to contact us.

Yours faithfully,



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