NHS
North East and Yorkshire
Genomic Laboratory Hub

1st February 2021

RE: Changes to Rare Disease Genetic Testing in North East and Yorkshire

Dear User,

As a result of NHSE reconfiguration of genomic testing in England the three regional genetics laboratories in the Yorkshire and the North East (based in Newcastle, Sheffield and Leeds) have come together to form the NE&Y (North-East and Yorkshire Genomic Laboratory Hub, previously known as YNE-GLH). We are part of a network of seven GLHs in England which together aim to drive standardisation, accelerate the uptake of new genomic services and technologies, and increase equity of patient access. Please see our new website for further information and updates: https://genomics-yne.org.uk/

The go-live for specialist services is 1st February 2021 when the laboratories will start to deliver services according to the National Genomic Test Directory (https://www.england.nhs.uk/publication/national-genomic-test-directories/) and in line with the rare and inherited disease eligibility criteria (https://www.england.nhs.uk/wp-content/uploads/2018/08/Rare_and_Inherited_Disease_Eligibility_Criteria_August_20-21.pdf).
Whilst the majority of tests will be available at the start of this service, there will be a small number that will be phased into service up to 1st April 2021 or are awaiting full clinical ramp up of Whole Genome sequencing.

Each test has been assigned an 'R code'. Tests that fall outside the directory will no longer be funded. A new NE&Y GLH request form will shortly be available via the GLH website along with a simplified list of R codes for each clinical indication with the responsible testing laboratory (see accompanying documents).

Please move to using this form for all new referrals, quoting the R code and a description of the test requested. Continue to send samples to your local Genetics Laboratory, who will arrange export to the appropriate laboratory. The attached spreadsheet provides details of which GLH will be providing testing for each indication.

Testing is now split into core and specialist testing as follows:

1) **Core Rare Disease Tests**
   These represent the tests most commonly requested by Clinical Genetics, Paediatrics, Oncology, Lipid Clinics and Fetal Medicine Units.

2) **Specialist Rare Disease Tests**
   These can be requested directly by clinicians within the relevant Clinical Specialities as outlined in the eligibility criteria document.

   The following specialist services for the region will be led and provided by laboratories within the YNE-GLH:
   - Neurology (led by the Sheffield)
   - Respiratory (led by Sheffield)
   - Musculoskeletal (led by Sheffield)
   - Inherited cancer (led by Leeds in partnership with North West GLH)
   - Gastohepatology (led by Sheffield)
   - Haematology (led by Sheffield)
   - Mitochondrial (led by Newcastle Mitochondrial Unit)

   The remaining specialist services will be led by GLHs outside our region:
   - Skin (led by North Thames GLH)
   - Hearing (led by North West GLH) -
   - Cardiology (led by North West GLH)
   - Endocrinology (shared across a number of GLHs)
   - Immunology (led by North West GLH)
   - Metabolic (led by North West GLH)
   - Eyes (led by North West GLH)

- Renal (shared across a number of GLHs with Atypical Haemolytic Uraemic Syndrome to be continued to be offered by Newcastle as a Highly Specialist Service)

Familial targeted testing, with the exception of prenatal testing, will be carried out by the specialist providers. This includes members of families where the clinically significant familial variant may have been identified in a different laboratory. The home laboratory will liaise with the specialist provider to ensure appropriate controls are available.

Targeted prenatal testing will become the responsibility of the local laboratory in order to keep turnaround times to a minimum and facilitate close communication with fetal medicine. For a significant proportion of cases, the laboratory will not have been involved in the original diagnostic testing of the family and will need to validate the relevant test prior to the receipt of the prenatal sample. It is therefore essential to provide as much notice as possible in order for the relevant primers to be ordered and tests validated, ideally at least three weeks.

3) **Whole Genome Sequencing (WGS)**
   A national Whole Genomic Sequencing provision and supporting informatics infrastructure has been developed in partnership with Genomics England and Illumina.
   Phase 1 of Live Clinical Testing started at the end of 2020 for a small number of core and specialist clinical indications.
   https://genomics-yne.org.uk/whole-genome-sequencing-documentation/
   WGS is expected to significantly increase the diagnostic rate for disorders where current standard of care tests are limited, for example intellectual disability or congenital malformation. Other services, where more extensive panel testing is already offered, for example epilepsy, will continue to be offered on an interim basis until WGS is available.

4) **R21 Rapid Prenatal Exome Service**
   This service was launched in October 2020 via West Midlands, Oxford and Wessex GLH (Birmingham laboratory) for fetuses with abnormalities detected on fetal imaging where a monogenic malformation disorder is likely and molecular diagnosis may influence pregnancy or early neonatal management in the index pregnancy.

5) **R14 Rapid Exome Service for acutely unwell babies children with a likely monogenic disorder.**
   Rapid exome sequencing for NICU/PICU referrals is a rapid genomic test for acutely unwell babies/children with a likely monogenic disorder where a genetic diagnosis would change management. The test has been available nationally since October 2019 via the South West GLH (Exeter laboratory).

The genetic laboratories across the region have been working hard over the last year to implement the changes required to deliver the new genomic test directory. As services develop and are nationally aligned to agreed standards, for example turnaround times and reporting formats, we hope you will start to see real clinical benefits to your patients. Please continue to use your local duty scientist e-mail address for clinical or specific patient enquiries and team will forward appropriately as required.

We welcome any feedback or questions you may have as the new services embed (please e-mail ruth.charlton1@nhs.net).

Yours faithfully,
Dr Ruth Charlton (FRCPath)
NE&Y-GLH Scientific Lead for Rare Disease