Rapid Exome Sequencing in NNUs.

Do you suspect a possible monogenic disorder? This three week turnaround service is specifically for this group.

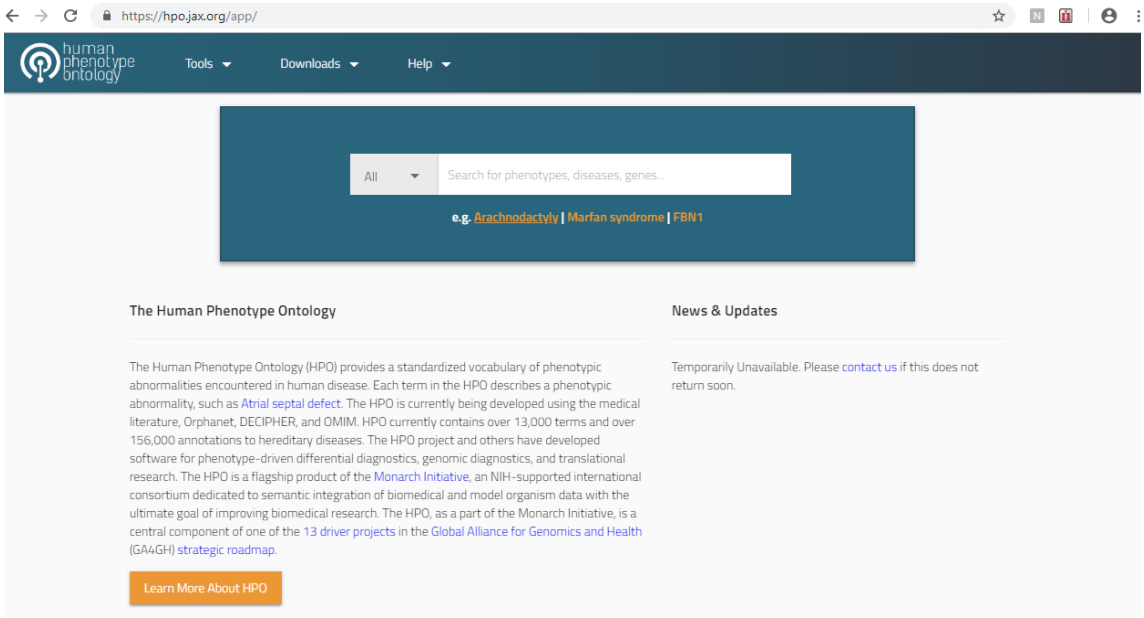
Fast track testing only applies to babies on the neonatal unit or PICU, not for outpatients or paediatric patients at this time.

Discuss appropriateness of investigation with geneticist on service – the office on 0113 392 4463 hold the rota.

If they agree case meets the criteria open the Exeter Exome Sequencing form – a national form will be introduced in due course but as of early April this is the correct way to request the investigation.

Make sure you have browser set as Chrome not Internet Explorer. Go the ‘Relevant Clinical Features’ box and ‘control & click’ the link to the Human Phenotype Ontology website.

This should take you here:



Type each item from the phenotype into the blue box and follow its helpful suggestions to determine the HPO term with best fit – in some cases doing this with the geneticist on the phone might help!

Copy and paste the term – words **and** HPO number onto the Exeter form – example below

Add as many features as you can to give a comprehensive description of the problem.

Exeter Exome Sequencing Request Form

Sample requirements: Please send at least ***1µg*** *DNA or EDTA blood to: Prof. S. Ellard, Molecular Genetics Laboratory, RILD level 3, Royal Devon & Exeter NHS Foundation Trust, Barrack Road, Exeter EX2 5DW* rde-tr.MolecularGeneticsAdmin@nhs.net

- We welcome enquiries – please contact Dr Júlia Baptista (Julia.baptista@nhs.net or 01392 408247), Karen Stals (Karen.stals@nhs.net or 01392 408247) and Dr Emma Baple (ebaple@nhs.net or 01392 405747) to discuss cases
- Prices include co-segregation analysis and confirmatory testing by Sanger sequencing or droplet digital PCR (for CNVs)
- We can detect partial/whole gene deletions in addition to base substitutions and small insertions/deletions
- Referrals are only accepted for NHS patients

CLINICIAN DETAILS		
CLINICIAN NAME: Chris Day	HOSPITAL: Bradford Teaching Hospitals NHS Foundation Trust	
E-MAIL ADDRESS FOR REPORT (nhs.net): chris.day2@nhs.net	TELEPHONE: 07852222121	
RELEVANT CLINICAL FEATURES HPO terms (https://hpo.jax.org/app/ phenotypes & presence in this individual	**FAMILY HISTORY/PEDIGREE:** Please include relevant information on relatives and relationships to other tested individuals, incl. disease status and age of onset.	
Polycystic kidney dysplasia HP:0000113 Abnormal intestine morphology HP:0002242 Malabsorption HP:0002024 Anteverted nares HP:0000463 Micrognathia HP:0000347 Prominent forehead HP:0011220 Widely patent fontanelles and sutures HP:0004492 Abnormality of the renal tubule HP:0000091		
Additional information:		
CLINICAL GENETICS NUMBER:	CONSANGUINITY ☐	**PLEASE TICK IF URGENT** ☒

The geneticist may well be able to give a clinical genetics reference number.

Aim for Trio analysis if possible – both parents and the index case. All their details are needed in the Family History / Pedigree box – ok to fill this in by hand!

Complete their details including NHS numbers in the bottom section of the form and send all three EDTA samples to the Leeds DNA lab. Consider sending by taxi or other urgent delivery to make sure safe transit and prompt despatch.

Ring the DNA lab on 0113 206 5205 to make sure they are expecting the samples and know to forward on to Exeter as part of the nationally funded rapid exome testing service – no special funding approval needed – ignore the price on the form!

The exome analysis should be thought of as ‘the assay’ – it will create a record of the exome sequence. The clinical question being asked, ‘the test’, will involve interrogating that information. This will be guided by our expert genetic colleagues with clinical input (usually by phoning in) at a genetic MDT to help interpret the significance of abnormalities found.

Incidental genetic abnormalities e.g. for adult onset conditions in the baby or other genetic problems picked up in either parent would NOT be reported as answering that question would not be part of the clinical test being done.

Chris Day with input from Eamonn Sheridan

April 2019

Exeter Exome Sequencing Form attached