NHS
North Thames
Genomic Medicine Service

Referring Whole Genome Sequencing (WGS) for a Rare Disease

Clinician's How-To Guide

Table of Contents

A. WGS Checklist

NHS
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1: Check WGS eligibility

On the National Genomic Test Directory (PDF) check "WGS" is indicated under "Methods" in Associated Tests.

2: Complete the Test Order Form

Complete the Test Order form (one per family)

3: Consent and complete the Record of Discussion form(s)

After consenting the patient, complete a Record of Discussion for each individual in the family being tested (+ a *Consultee form* if patient is an adult lacking capacity)

4: Organise WGS samples

Provide the patient and family members being tested with completed Sample Forms to take with them to their local hospital/phlebotomy

5: Send the Record of Discussion forms and Test Order Forms to the laboratory

Send to gos-tr.wgsnorththamesglh@nhs.net save a copy to your records

B. WGS Pathways

There are **two** suggested pathways for WGS referrals. One is by requesting and consenting for WGS yourself, and another is by requesting via a Genomic Practitioner/Associate.

Genomic Practitioner/Associate: gos-tr.ntgenomicsassociate@nhs.net

role established to help meet the demands of genetic testing, with a specialised knowledge of WGS.

- Point of contact between consultants and the laboratory
- WGS request help – consenting, forms, sample collection, sample chasing
- Track WGS activation and dispatch

Non-WGS genetic testing, clinical details, decisions on clinical urgency and feeding back clinical information/WGS results to patients are **NOT** part of the role.

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Key:

Referring Consultant

Genomic Practitioner

Eligibility for Mainstream Genetic Testing

- ◯ Make sure patient fulfils NGTD criteria (page4)
- ◯ Discuss family history
- ◯ Determine whether this is a singleton WGS (only the patient to be tested) or trio WGS (patient and both parents to be tested)

Note: For other family combinations, please check possibility with laboratory

Patient Appointment

- ◯ Discuss family history
- ◯ Go through brief consent discussion to make sure the patient is happy with the genetic referral
- ◯ Complete Test Order form (page 5 and 6)

? Requesting via Genomic Practitioner

NO

Patient Appointment [continued]

- ◯ Go through entire consent discussion
- ◯ Complete Record of Discussion (*page 7)* page can be virtually completed or with the patient face-to-face) *(+ Consultee form if adult lacking capacity)*
- ◯ Provide Patient Information Leaflets and video link
- ◯ Provide Sample Form(s) (page 11) to all family members being tested
- ◯ Save forms to Electronic Patient Record

Following the Appointment

- ◯ Send Record of Discussion form(s) and Test Order form to gos-tr.wgsnorththamesglh@nhs.net
- ◯ Confirm with laboratory that all samples have arrived and the test has been activated

YES

- ◯ Send Test Order Form to Genomic Practitioner (gos-tr.ntgenomicsassociate@nhs.net)

Genomic Practitioner Appointment

- ◯ Go through consent discussion
- ◯ Complete Record of Discussion *(+ Consultee form if adult lacking capacity)*
- ◯ Provide Patient Information Leaflets and video link
- ◯ Provide Blood Test Request Form(s) to all family members being tested (if not done by consultant)
- ◯ Send forms to department pathway coordinator to save to Electronic Patient Record

Following the Appointment

- ◯ Send Record of Discussion form(s) and Test Order form to gos-tr.wgsnorththamesglh@nhs.net
- ◯ Confirm with laboratory that all samples have arrived, and the test has been activated

C. Eligibility for WGS

NHS North Thames Genomic Medicine Service

Patient eligibility for WGS clinical indications can be found on the NHS England » National genomic test directory . If you need to determine which genes/panels are included in a clinical indication, please visit PanelApp.

R59 Early onset or syndromic epilepsy

The Clinical Code/Indication

Testing Criteria

Unexplained epilepsy with clinical suspicion of a monogenic cause including:

1. Onset under 2 years, OR
2. Clinical features suggestive of specific genetic epilepsy, for example Dravet syndrome, OR
3. Additional clinical features: intellectual disability, autism spectrum disorder, structural abnormality (e.g. dysmorphism, congenital malformation), unexplained cognitive/memory decline

Testing may occasionally be appropriate where age of onset is between 2 and 3 years and following clinical agreement by a specialist MDT.

Overlapping indications

- R110 Segmental overgrowth disorders – Deep sequencing test should be used where megalencephaly is present to allow detection of somatic mosaic variants
- R14 Acutely unwell children with likely monogenic disorder should be used in acutely unwell children with epilepsy

NOTE: If a metabolic disorder is suspected, testing should be carried out either using R89 or R98 or under an alternative metabolic-related clinical indication

Referrals for testing will be triaged by the Genomic Laboratory; testing should be targeted at those where a genetic or genomic diagnosis will guide management for the proband or family.

Where in Pathway

At presentation

Requesting Specialties

- Clinical Genetics
- Metabolic Medicine
- Neurology

Check whether you are eligible for requesting this test

Specialist Service Group

- Neurology

Associated Tests

It is not a requirement to perform microarray testing in addition to WGS but microarray testing can be performed where appropriate

Code	Name	Optimal Family Structure	Scope(s)	Target Type	Target Name	Method
R59.2	Genomewide Microarray	Singleton	Genomewide CNVs	Genomewide	Genomewide	Microarray
R59.3	Epilepsy - early onset or syndromic WGS (phase 1)	Trio or singleton	Exon level CNVs, Small variants, STRs	Panel of genes or loci	Genetic epilepsy syndromes (402)	WGS

If trio is indicated, include parents if available

Make sure WGS is an associated test

D. Forms required:

NHS
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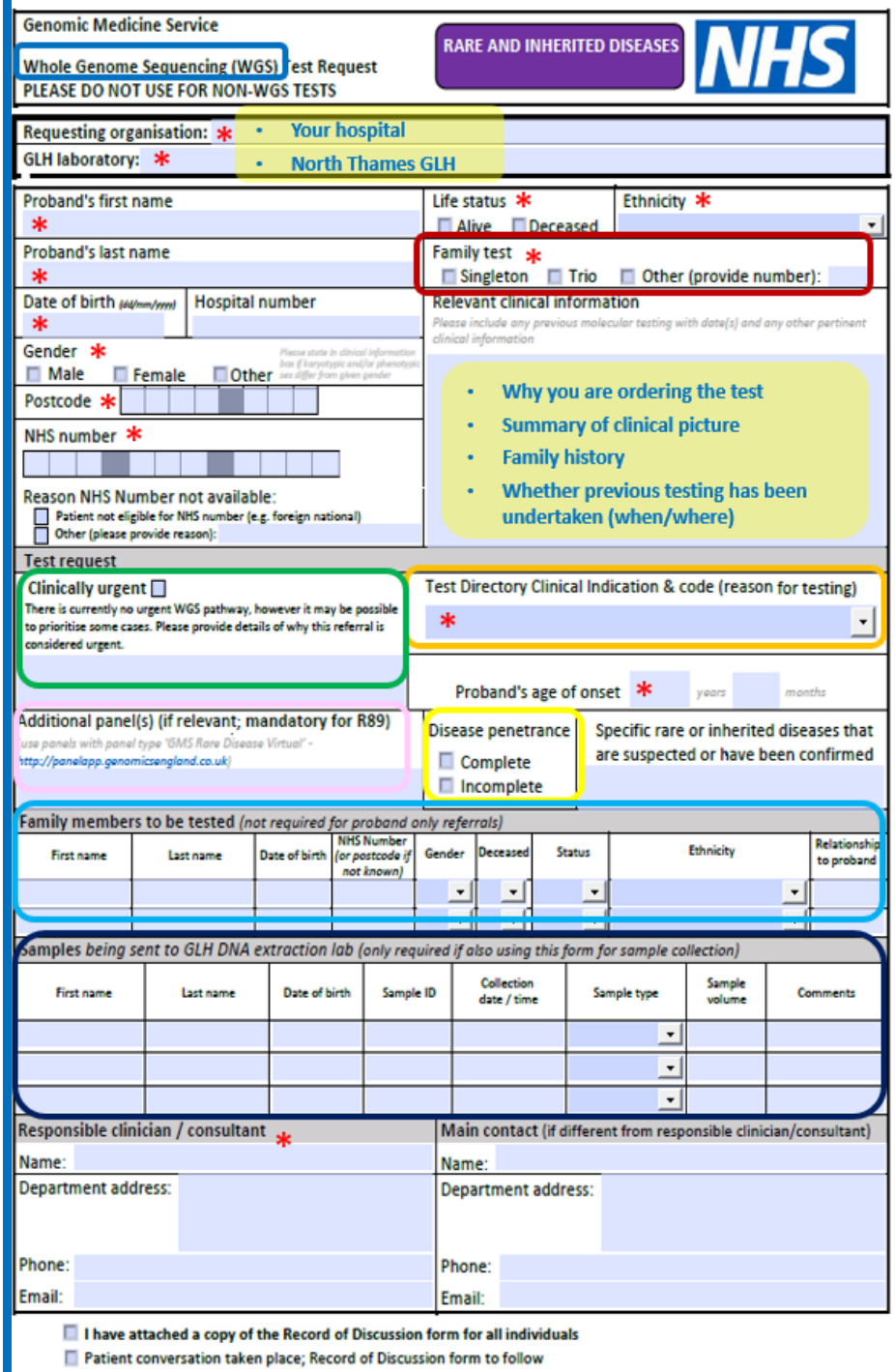
Genomic Medicine Service

Two forms must be sent **electronically** to the NT GLH (gos-tr.wgsnorththamesglh@nhs.net): The Test Order Form (see page 5) and the Record of Discussion (

Blood samples (1xEDTA tube) must be sent with the NT GLH Blood Test Request Form (see page 11).

1. The Test Order Form: completed by the consultant


Genomic Medicine Service

Whole Genome Sequencing (WGS) Test Request
PLEASE DO NOT USE FOR NON-WGS TESTS

RARE AND INHERITED DISEASES NHS

Requesting organisation: * • Your hospital
GLH laboratory: * • North Thames GLH

Proband's first name *
Proband's last name *
Date of birth (dd/mm/yyyy) *
Hospital number
Gender * Male Female Other
Postcode *
NHS number *
Reason NHS Number not available:
Patient not eligible for NHS number (e.g. foreign national)
Other (please provide reason):

Life status * Alive Deceased
Ethnicity *
Family test * Singleton Trio Other (provide number):
Relevant clinical information
Please include any previous molecular testing with date(s) and any other pertinent clinical information

- Why you are ordering the test
- Summary of clinical picture
- Family history
- Whether previous testing has been undertaken (when/where)

Test request

Clinically urgent
There is currently no urgent WGS pathway, however it may be possible to prioritise some cases. Please provide details of why this referral is considered urgent.

Test Directory Clinical Indication & code (reason for testing) *

Proband's age of onset * years months

Additional panel(s) (if relevant; mandatory for R89)
use panels with panel type 'GMS Rare Disease Virtual' - http://panelapp.genomicsengland.co.uk)

Disease penetrance
Complete
Incomplete

Specific rare or inherited diseases that are suspected or have been confirmed

Family members to be tested (not required for proband only referrals)

First name	Last name	Date of birth	NHS Number (or postcode if not known)	Gender	Deceased	Status	Ethnicity	Relationship to proband

Samples being sent to GLH DNA extraction lab (only required if also using this form for sample collection)

First name	Last name	Date of birth	Sample ID	Collection date / time	Sample type	Sample volume	Comments

Responsible clinician / consultant *
Name:
Department address:
Phone:
Email:

Main contact (if different from responsible clinician/consultant)
Name:
Department address:
Phone:
Email:

I have attached a copy of the Record of Discussion form for all individuals
Patient conversation taken place; Record of Discussion form to follow

* Mandatory

Check on the National Genomic Test Directory whether you are eligible for requesting this test

If only one parent available, select "other" and type "DUO" in the adjacent box

Reasons for urgent testing must be provided

The main R code detailed in the National Genomic Test Directory. Only WGS-eligible R codes are available in the drop-down menu

Additional panels (including non-WGS panels) can be requested here

If penetrance is unknown, select 'Incomplete"

If one or more family member is included in the test (duo/trio WGS), add details

Not required to complete when using a Sample Form (page 11)

Proband first name	Proband last name	Date of birth (dd/mm/yyyy)	NHS number

* Mandatory

Follow the link for a complete list of HPO terms

Terms must be ticked as present or absent in all family members being tested.

HPO terms are important for the analysis and interpretation of WGS data.
Please enter valid HPO terms present in the proband/family members being tested
HPO terms can be copied from the lists below

HPO Terms - Please ensure those given match those available at [https://hpo.jax.org/app/]	Proband Name DOB		Parent 1 Name DOB		Parent 2 Name DOB	
	Present	Absent	Present	Absent	Present	Absent
e.g. Epilepsy *	✓ *			✓ *		✓ *

Intellectual disability, developmental and metabolic
Intellectual disability - mild
Intellectual disability - moderate
Intellectual disability - profound
Intellectual disability - severe
Autistic behaviour
Global developmental delay
Delayed fine motor development
Delayed gross motor development
Delayed speech and language development
Generalized hypotonia
Feeding difficulties
Failure to thrive
Abnormal facial shape
Abnormality of metabolism/homeostasis
Microcephaly
Macrocephaly
Tall stature

Craniosynostosis
Bicoronal synostosis
Unicoronal synostosis
Metopic synostosis
Sagittal craniosynostosis
Lambdoidal craniosynostosis
Multiple suture craniosynostosis

Skeletal dysplasia
Disproportionate short stature
Proportionate short stature
Short stature
Skeletal dysplasia

Diabetes
Neonatal insulin-dependent diabetes mellitus
Transient neonatal diabetes mellitus

Renal
Multiple renal cysts
Nephronophthisis
Hepatic cysts
Enlarged kidney
Renal insufficiency

Neurology
Muscular dystrophy
Myopathy
Myotonia
Fatigable weakness
Peripheral neuropathy
Distal arthrogryposis
Arthrogryposis multiplex congenita
Cognitive impairment
Parkinsonism
Spasticity
Chorea
Dystonia
Ataxia
Cerebellar atrophy
Cerebellar hypoplasia
Dandy-Walker malformation
Olivopontocerebellar hypoplasia
Diffuse white matter abnormalities
Focal White matter lesions
Leukoencephalopathy
Cortical dysplasia
Heterotopia
Lissencephaly
Pachygyria
Polymicrogyria
Schizencephaly
Holoprosencephaly
Hydrocephalus
Neurodegeneration
Dementia

Epilepsy
Seizures
Generalized seizures
Focal seizures
Epileptic spasms
Infantile encephalopathy
Atonic seizures
Generalized myoclonic seizures
Generalized tonic seizures
Generalized tonic-clonic seizures
EEG with focal epileptiform discharges
EEG with generalized epileptiform discharges
Multifocal epileptiform discharges

Cardiology
Hypertrophic cardiomyopathy
Dilated cardiomyopathy
Cardiomyopathy

Eye Disorders
Cataract
Retinal dystrophy
Macular dystrophy
Microphthalmia
Anophthalmia
Coloboma
Developmental glaucoma
Aniridia
Abnormal anterior eye segment morphology
Nystagmus

Immune Disorders
Immunodeficiency
Abnormal lymphocyte morphology
Abnormal lymphocyte physiology
Abnormal lymphocyte count
Abnormality of neutrophils
Abnormality of humoral immunity
Abnormal inflammatory response
Abnormality of complement system

Human Phenotype Ontology (HPO) terms are a standardised vocabulary of phenotypic abnormalities which are important for the analysis and interpretation of WGS data.

Please complete accurately for each family member being tested (present/absent boxes ticked).

A complete list can be found at Human Phenotype Ontology (jax.org).

Follow this link for more information on how to use HPO terms in a clinical context.

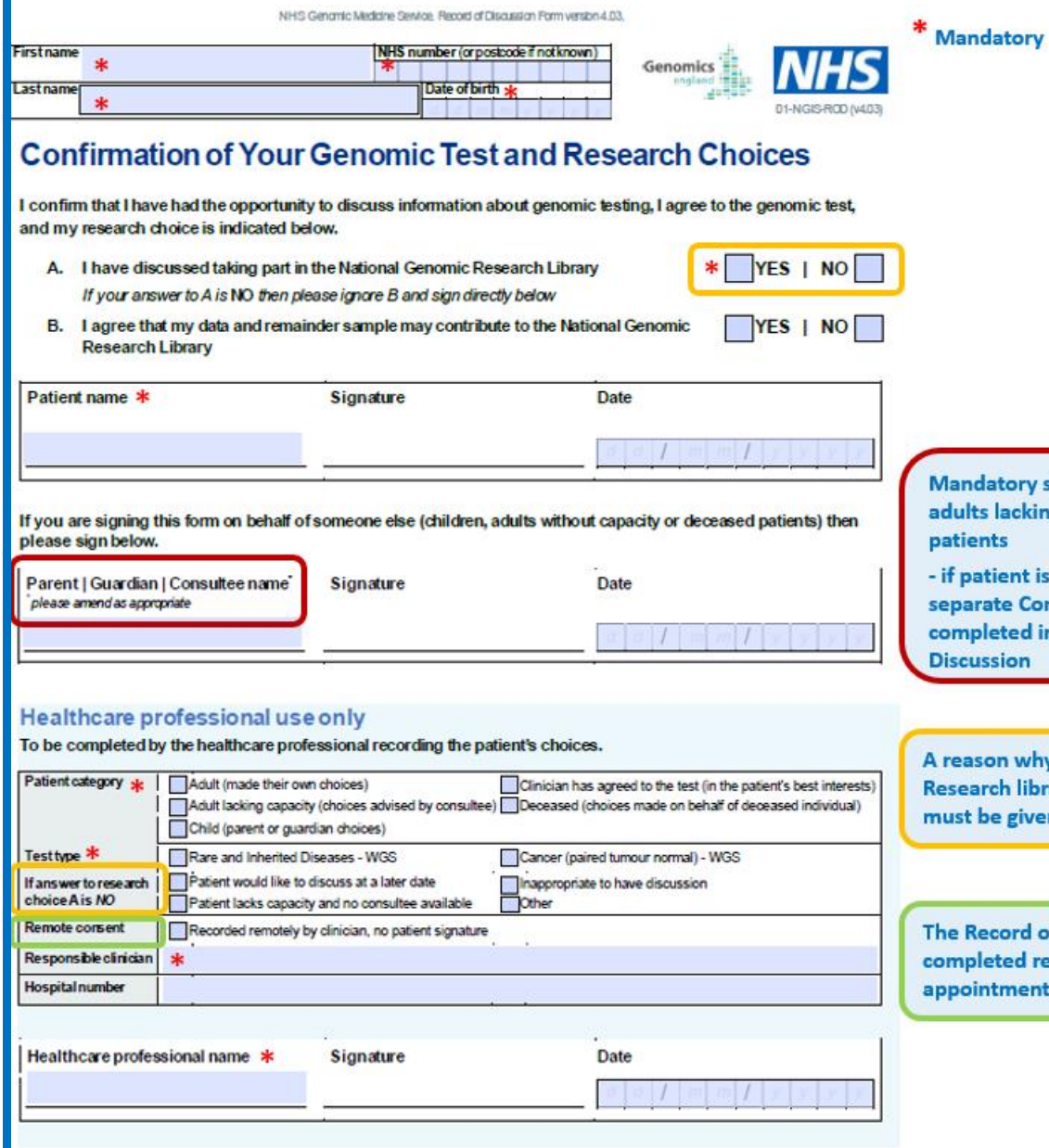
HPO terms are very important for increasing the chances of finding a potential diagnosis via the panel agnostic exomiser variant prioritisation analysis that is carried out if the panel-tiering analysis is negative. If choosing HPO terms is done properly, this would also reduce the need for further analysis.

2. The Record of Discussion - completed by the consultant or Genomic Practitioner

North Thames Genomic Medicine Service

Page 3 (pictured) of the document to be completed after a full consent conversation – a summary of the conversation is listed on Page 1 and 2 (not pictured). This can be completed remotely (i.e. consent appointment over the phone/virtual). Information on what to include in the consent conversation is detailed page 8-10.

For adults lacking capacity, please also complete the Consultee form.



NHS Genomic Medicine Service. Record of Discussion Form version 4.03.

First name * | NHS number (or postcode if not known) *

Last name * | Date of birth *

Genomics england | NHS

01-NGIS-ROD (v4.03)

* Mandatory

Confirmation of Your Genomic Test and Research Choices

I confirm that I have had the opportunity to discuss information about genomic testing, I agree to the genomic test, and my research choice is indicated below.

A. I have discussed taking part in the National Genomic Research Library * ☐ YES | NO ☐

If your answer to A is NO then please ignore B and sign directly below

B. I agree that my data and remainder sample may contribute to the National Genomic Research Library ☐ YES | NO ☐

Patient name *	Signature	Date
		dd / mm / yyyy

If you are signing this form on behalf of someone else (children, adults without capacity or deceased patients) then please sign below.

Parent | Guardian | Consultee name* *please amend as appropriate*	Signature	Date
		dd / mm / yyyy

Healthcare professional use only

To be completed by the healthcare professional recording the patient's choices.

Patient category *	☐ Adult (made their own choices)	☐ Clinician has agreed to the test (in the patient's best interests)
	☐ Adult lacking capacity (choices advised by consultee)	☐ Deceased (choices made on behalf of deceased individual)
	☐ Child (parent or guardian choices)	
Test type *	☐ Rare and Inherited Diseases - WGS	☐ Cancer (paired tumour normal) - WGS
If answer to research choice A is NO	☐ Patient would like to discuss at a later date	☐ Inappropriate to have discussion
	☐ Patient lacks capacity and no consultee available	☐ Other
Remote consent	☐ Recorded remotely by clinician, no patient signature	
Responsible clinician	*	
Hospital number		

Healthcare professional name *	Signature	Date
		dd / mm / yyyy

Mandatory signature for children, adults lacking capacity or deceased patients

- if patient is an adult lacking capacity, a separate Consultee form must be completed in addition to the Record of Discussion

A reason why the National Genomic Research library has not been discussed must be given (i.e. if A is ticked as NO)

The Record of Discussion form can be completed remotely if the patient appointment is virtual/over the phone

E. Consent Requirements:

1. WGS Consenting via the Genomic Practitioner

It is important to note that the consultant **ultimately has responsibility for patient consent**. Therefore, it is essential that you make sure the patient is happy to proceed with the genetic testing before referring them. The Genomic Practitioner would then speak to the patients and all family members to be tested and fill the Record of Discussion form.

a. Consultant Preliminary Discussion with the Patient:

1. What WGS is – reading through all the DNA and analysing specific areas (virtual panels) – NOT gene agnostic
2. Managing expectations - Turnaround time from the point that all blood samples/consent forms have arrived at the laboratory
    a. 12 months (routine tests) *(as of August 2024)*
    b. 12 weeks (urgent tests) *(as of August 2024)*
3. Understanding that the patient will be contacted by a Genomic Practitioner

The Genomic Practitioner will discuss the National Genomic Research Library with the patient.

If possible, please provide Patient Information Leaflets and the WGS video link

2. WGS Consenting yourself

a. Full Consent Conversation required:

	Individuals aged 16+ years with capacity	Children (less than 16 years)	Adults without capacity	Individuals who are deceased
Clinical test	RoD reviewed with each individual	RoD reviewed with parent/guardian	RoD reviewed with person acting in best interests of the patient	RoD reviewed with appropriate relative

1. What WGS is – reading through all the DNA and analysing specific areas (virtual panels)
2. Small blood sample required for each family member
3. Turnaround time from the point that all blood samples have arrived at the laboratory
    a. 12 months (routine tests) *(as of August 2024)*
    b. 12 weeks (urgent tests) *(as of August 2024)*
4. Family Implications
    a. Implications on other family members or future pregnancies
    b. Opportunities for relatives to have access to screening, predictive genetic testing and/or information about reproductive choices based on these results or family history
    c. Importance of sharing results with family members if a pathogenic variant is found (it is helpful to start early conversations about this rather than only after the results are available)
5. Uncertainty

a. Results may find a variant of uncertain/unknown significance (VUS) = a genetic change that may affect the way the gene is working, but there is not enough evidence available to confirm this as a disease-causing or likely disease-causing variant.
b. May require a referral for further genetic testing via Clinical Genetics Service
c. Variants of uncertain significance should not be used to make clinical decisions for the individua or family members
d. This result may change over time as this can be re-analysed in future

6. Unexpected Information/ Incidental Findings
    a. Pathogenic variants may be identified that are unrelated to the reason for the genetics referral, and may indicate an underlying predisposition to a different phenotype (e.g. risk of further cancer or diagnosis with other possible health problems)
    b. These are not routinely looked for and they are rare to come across as the laboratory focuses analysis on virtual panels relevant to the genetic referral
    c. The results will NOT inform all health conditions – currently, there are no additional looked-for findings, however these may still be found by chance
    d. Misattributed parentage is another example of incidental findings
7. DNA storage
    a. The blood sample will be sent to the laboratory and DNA will be extracted
    b. This DNA will continue to be stored (approximately 30 years) unless the patient requests this to be destroyed
    c. This DNA can be accessed by other laboratories within the NHS Genomic Medicine Service
    d. The DNA will not be used for further genetic testing without consent – however, this may be used as a control sample for testing other family members
    e. DNA is not always of sufficient quality and another sample may be required to complete testing
8. Data storage
    a. Data includes patient's health and genomic information, which can be securely access on an ongoing basis by NHS healthcare professionals
    b. Data is stored behind various NHS firewalls
    c. National (identifiable) and international (non-identifiable) comparison of data for greater understanding of significance of any results may be required
    d. Germline variants may be shared for relatives to access testing (limited identifiers to process the test) but medical information will not be shared with relatives
    e. Genomic data may be re-analysed in future as new evidence can occasionally change results
    f. The report will be available on the patient's clinical record

b. The National Genomic Research Library (Genomics England)

	Individuals aged 16+ years with capacity	Children (less than 16 years)	Adults without capacity	Individuals who are deceased
NGRL	The research choice is captured within the RoD. There is an additional 'Participation in the NGRL' form to note the individual's choice if this was not made at the time when the clinical test was discussed.			
	No additional forms	OPTIONAL assent form signed by child	MANDATORY form signed by consultee	No additional forms

For adults lacking capacity, a Consultee form is also required (will be completed by the Genomic Practitioner if using this pathway).

1. What it is - a comprehensive database that enables approved researchers to access *de-identified* genomic data, health data and samples
2. Research participation is an opt in process (they can choose to take part)
3. Who can access – national and international scientists, researchers, and healthcare companies
4. Data accessed
    a. The Data is de-identified (pseudonymised) – each patient record is given a unique identification number instead of name, DOB and contact details
    b. The data available included data about the sample, the raw data of the sample analysis, the patient clinical data (information about their condition that was submitted when ordering WGS) and secondary clinical data from NHS and GP records
5. Patients may be re-contacted for years to come by GE or clinical team
    a. Certain approved staff within Genomics England will be able to see both identified and de-identified patient data to inform patients about any diagnosis found or to access a clinical trial
    b. They will NOT be contacted for marketing purposes
6. They can withdraw from research and data sharing at any time
    a. Partial withdrawal: the patient is happy for their data to continue to be stored but they do not wish to be contacted by Genomics England
    b. Full withdrawal: all data will no longer be included in any future data releases for further research access

F. WGS Sample Form

NHS
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Genomic Medicine Service

A completed NT GLH Sample Form with patient details **must** be attached to the labelled blood tube (1x EDTA) for WGS.

If the patient is unable to provide a blood test, a saliva kit can also be accepted. In this case, please provide the patient with a completed Sample Form, a saliva kit (e.g. OG-600 or OG-500 kits) and a pre-paid envelope with the GLH address, for the saliva and form to reach the laboratory for extraction:

North Thames GLH, Rare & Inherited Disease Genomic Laboratory
Specimen Reception, Level 5 Barclay House, 37 Queen Square,
London WC1N 3BH

The form is double sided (page-2 not pictured) – please make sure to print both sides as information on the back is needed for phlebotomy and the processing of samples at the laboratory.

UKAS MEDICAL 7883 — NHS Great Ormond Street Hospital for Children NHS Foundation Trust

North Thames Genomic Laboratory Hub
Rare & Inherited Disease Genomic Laboratory
Level 5 Barclay House
37 Queen Square, London WC1N 3BH

NHS University College London Hospitals NHS Foundation Trust — UKAS MEDICAL 8040

Please note that forms received with missing patient identifiers or no referring clinician/facility may not be tested

* Mandatory

GENETIC TEST REQUEST FORM

Lab Ref (lab use only) | Date Received (lab use only)

Patient Details - *use four patient identifiers* *

First name: | Surname:
DOB: | Sex Assigned at birth:
NHS Number: (mandatory) | Hospital No/Your Ref:
Ethnicity: | GOSH Family ID:
Patient Address:
Postcode:

Referring Clinician Details *

Referring Clinician: (full name required)
Contact Number:
NHS.net email: (mandatory)
Department:
Hospital: (full hosp. name & address required)
Submitter ID (Outreach):
Referring Consultant: (if different from referring clinician)
Referring Consultant Email:

Referring Clinician: I have discussed genomic testing with this patient and have retained a record of discussion (see page 2). Consent is not required for DNA storage.

NHS Patient (England) ☐
NHS Patient (Wales, Scotland, N.I)* ☐
Private/International Patient* ☐

*Billing Address (If organisation to be invoiced): | Purchase Order No.
*Patient Email Address (If Self Funding):

Specimen Details	If high risk please specify:	Sample Type	Date / Time Collected	Collected By
High Risk Specimen? Yes ☐ No ☐				

°Clinical Indication Code: R * "WGS", or WGS Clinical R code | Urgent ☐ Routine * ☐

Reason for referral: *(please give clinical details & details of previous genetic investigations in the family, if known)*

° For NHS England referrals, please refer to the National Genomic Test Directory for available tests and eligibility criteria - https://www.england.nhs.uk/publication/national-genomic-test-directories/

Molecular Genetic Testing *(EDTA, except NIPD, see below)*
- ☐ DNA storage ONLY
- ☑ Diagnostic test *
- ☐ Carrier test
- ☐ Predictive test
- ☐ NIPD *(PAXgene or Streck cell stabilising tube)*

Please provide relevant family history above

- ☐ Microarray *(EDTA only)*
  - If requesting urgent microarray (e.g. pregnancy, infants <3 months) please send a Lithium Heparin as well
- ☐ Cytogenetic follow up *(EDTA & Lithium Heparin)*
  - Please give the name & GOSH MRN of index patient above or include copy of index patient report
- Rapid testing for infants *(Lithium Heparin & EDTA)*
  - 13/18 ☐ 21 ☐ Aneuploidy (please specify)
  - ☐ Presence of SRY (chromosomal sex)

Karyotype *(Lithium Heparin)*
- ☐ To exclude Turner Syndrome (Short Stature/Amenorrhea ONLY)
- ☐ To exclude Ring 20 (Epilepsy)
- ☐ Azoospermia/Male Infertility/IVF
- ☐ Premature Ovarian Failure/IVF
- ☐ Sample requested by lab

Chromosome Breakage (not Fragile X) *(Lithium Heparin)*
- ☐ Fanconi Anaemia
- ☐ Bloom Syndrome
- ☐ Other—contact the lab

If only requesting a sample for WGS, this section is optional (as this information will be included in the Test Order Form).
If requesting other non-WGS genetic testing (e.g. microarray, WES), please include clinical information

If requesting other non-WGS genetic testing, please tick the relevant boxes

G. More resources:

NHS
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1. Genomics Resources

What is Genomics?
Genomics 101: Genomics in Healthcare
The Genomics Era: The Future of Genetics in Medicine
RCGP Genomics Toolkit
New Conditions Factsheet (Genomics Education Programme)

2. WGS Resources

Guide-to-requesting-WGS-RD-Nov-20.pdf (hee.nhs.uk)
Requesting whole genome sequencing: information for clinicians - Genomics Education Programme (hee.nhs.uk) Test order forms - North Thames GMS : North Thames GMS (norththamesgenomics.nhs.uk)
Whole Genome Sequencing - North Thames GMS : North Thames GMS (norththamesgenomics.nhs.uk)
Rare Diseases Test Order Forms and Clinician Packs (scroll to Rare Disease- whole genome sequencing (WGS)
Whole Genome Sequencing Animation – North Thames GMS
Genomic Question Time drop-in session (Teams link) - First Thursday of the month 12:30-13:00 - Passcode: aDYRNt - Or contact us on: nt-gmsa@gosh.nhs.uk
Whole Genome Sequencing – Genetic Test Ordering

How useful did you find this how-to guide? Please let us know how we can improve.