Genetics Working Party

Membership

Keith Gomez	Chair
Nicola Curry	
Mike Laffan	
Megan Sutherland	Representing Genetics Laboratory Network
Vicky Cloke	Representing Genetics Laboratory Network
Kate Talks	
Jayashree Motwani	
Gavin Ling	

Remit

1. Provide oversight of issues related to genetics in haemophilia
2. Review guidance on genomic testing and update as required
3. Support genetic analysis of all patients with heritable haemostatic disorders and facilitate recording of data on NHD

Meetings and main work streams

The working party last met by web conference in December 2020.

Reconfiguration of Genetic Services by NHS England

The four Genomics Laboratory Hubs (GLH) providing testing for haemostatic disorders under the national contract in England, at no charge to NHS requestors, are:

- Central and South GLH (led by Oxford, Birmingham & Bristol)
- South East GLH (led by St Thomas')
- North West GLH (led by Manchester)
- North East and Yorkshire GLH (led by Newcastle, Leeds & Sheffield)

The genes that can be tested are listed in the following panels:

- Bleeding and platelet disorders (R90) https://panelapp.genomicsengland.co.uk/panels/545/
- Thrombophilia (R97) https://panelapp.genomicsengland.co.uk/panels/516/

The transition period has been completed and all hubs are now accepting samples. The testing criteria has been revised in October 2021 and states:

R90:

Individuals with a bleeding or platelet disorder of likely monogenic aetiology where there are multiple possible causative genes

R97:

- *Clinical features indicative of a likely monogenic venous thrombophilia as assessed by a consultant haematologist*

- *Testing should typically be targeted at those with venous thromboembolic disease at less than 40 years of age, is spontaneous or associated with weak environmental risk factors and which is present in at least one first degree relative*
- *Testing should only be used where it will impact on clinical management*

Consent

A revised information sheet and consent form for genomic testing to cover bleeding and thrombotic disorders is now available at http://www.ukhcdo.org/wp-content/uploads/2020/02/Genomics-Information-Sheet-and-Consent-Form_02-2020.docx

The British Society of Genetic Medicine is drafting the consent process for children.

Heritable Platelet Disorders category on NHD

A new category of Heritable Platelet Disorders was added to the NHD in September 2020. A form has been developed to enable offline completion of the dataset and is being trialled by the Data Managers Forum. The working party is currently considering how best to deal with registrations under the discontinued categories.

Capture of genetic diagnosis in the NHD

This is shown by region in the table below. The numbers have been static in the last 3 years. This is because BMS working in genetics lab have difficulty in finding the time to enter data. Requiring two BMS to verify data entry makes it particularly challenging. MDSAS are working on a solution using optical character recognition to extract the data directly from genetic reports submitted in PDF format.

Dr Keith Gomez,
Chair, Genetics Working Party
October 2021

Number of patients with a Genetic Diagnosis by Region (based on patient's postcode and not registered centre)

Based on patients with an active registration with the NHD 2020/21

Diagnosis	Region	Patients with a genetic diagnosis (% of registered patients)									
		Factor VIII / IX level (iu/dl)									
		< 1		1 & 5		> 5		40+		N/K	
		All Variants	Validated Variants	All Variants	Validated Variants	All Variants	Validated Variants	All Variants	Validated Variants	All Variants	Validated Variants
Haemophilia A	East Midlands	85 (46.4%)	65 (35.5%)	9 (15.0%)	8 (13.3%)	85 (25.8%)	67 (20.3%)	21 (11.2%)	10 (5.3%)	0 (0.0%)	0 (0.0%)
	East of England	26 (17.6%)	25 (16.9%)	14 (15.7%)	9 (10.1%)	43 (10.8%)	37 (9.3%)	3 (1.9%)	2 (1.2%)	0 (0.0%)	0 (0.0%)
	London	108 (32.2%)	106 (31.6%)	30 (34.5%)	27 (31.0%)	83 (20.4%)	81 (20.0%)	11 (7.1%)	9 (5.8%)	0 (0.0%)	0 (0.0%)
	North East	11 (16.9%)	9 (13.8%)	7 (18.4%)	7 (18.4%)	41 (27.9%)	36 (24.5%)	23 (16.7%)	20 (14.5%)	0 (0.0%)	0 (0.0%)
	North West	67 (29.1%)	62 (27.0%)	28 (35.9%)	24 (30.8%)	100 (25.7%)	83 (21.3%)	42 (28.0%)	24 (16.0%)	1 (12.5%)	1 (12.5%)
	Northern Ireland	41 (55.4%)	41 (55.4%)	18 (52.9%)	18 (52.9%)	64 (40.3%)	64 (40.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Scotland East	8 (9.8%)	8 (9.8%)	5 (13.9%)	4 (11.1%)	19 (10.6%)	16 (8.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Scotland West	2 (3.0%)	0 (0.0%)	2 (6.5%)	2 (6.5%)	3 (2.2%)	3 (2.2%)	3 (2.3%)	3 (2.3%)	0 (0.0%)	0 (0.0%)
	South East	125 (39.2%)	99 (31.0%)	36 (42.9%)	29 (34.5%)	128 (21.3%)	86 (14.3%)	51 (21.8%)	19 (8.1%)	0 (0.0%)	0 (0.0%)
	South West	37 (24.5%)	34 (22.5%)	9 (13.8%)	2 (3.1%)	37 (10.9%)	21 (6.2%)	11 (13.8%)	5 (6.3%)	0 (0.0%)	0 (0.0%)
	Wales	36 (40.9%)	34 (38.6%)	12 (28.6%)	11 (26.2%)	37 (19.8%)	36 (19.3%)	4 (6.8%)	4 (6.8%)	0 (0.0%)	0 (0.0%)
	West Midlands	39 (21.3%)	37 (20.2%)	5 (8.5%)	4 (6.8%)	15 (5.6%)	13 (4.9%)	2 (1.9%)	1 (0.9%)	0 (0.0%)	0 (0.0%)
	Yorkshire and the Humber	19 (12.8%)	16 (10.8%)	3 (3.1%)	2 (2.1%)	21 (6.5%)	13 (4.0%)	9 (8.2%)	5 (4.5%)	0 (0.0%)	0 (0.0%)
Haemophilia A Total		**604 (29.1%)**	**536 (25.9%)**	**178 (22.3%)**	**147 (18.4%)**	**676 (17.5%)**	**556 (14.4%)**	**180 (10.8%)**	**102 (6.1%)**	**1 (1.4%)**	**1 (1.4%)**
Haemophilia B	East Midlands	10 (31.3%)	8 (25.0%)	4 (21.1%)	1 (5.3%)	7 (12.1%)	6 (10.3%)	2 (9.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	East of England	0 (0.0%)	0 (0.0%)	3 (11.1%)	2 (7.4%)	2 (2.5%)	1 (1.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	London	11 (16.2%)	4 (5.9%)	6 (12.5%)	4 (8.3%)	9 (7.3%)	7 (5.6%)	2 (4.1%)	1 (2.0%)	0 (0.0%)	0 (0.0%)
	North East	3 (21.4%)	3 (21.4%)	1 (7.7%)	1 (7.7%)	3 (9.7%)	1 (3.2%)	3 (7.7%)	1 (2.6%)	0 (0.0%)	0 (0.0%)
	North West	12 (35.3%)	8 (23.5%)	15 (36.6%)	15 (36.6%)	18 (27.7%)	13 (20.0%)	18 (38.3%)	10 (21.3%)	0 (0.0%)	0 (0.0%)
	Northern Ireland	2 (22.2%)	2 (22.2%)	1 (25.0%)	1 (25.0%)	4 (22.2%)	4 (22.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Scotland East	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (4.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Scotland West	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	South East	20 (32.8%)	10 (16.4%)	16 (28.6%)	6 (10.7%)	21 (16.8%)	9 (7.2%)	13 (26.0%)	3 (6.0%)	0 (0.0%)	0 (0.0%)
	South West	2 (11.1%)	1 (5.6%)	4 (18.2%)	2 (9.1%)	9 (12.5%)	6 (8.3%)	1 (6.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Wales	4 (30.8%)	4 (30.8%)	12 (50.0%)	12 (50.0%)	10 (21.3%)	10 (21.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	West Midlands	7 (22.6%)	4 (12.9%)	5 (27.8%)	5 (27.8%)	4 (5.8%)	4 (5.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Yorkshire and the Humber	2 (8.7%)	2 (8.7%)	1 (5.0%)	0 (0.0%)	2 (4.9%)	2 (4.9%)	3 (16.7%)	2 (11.1%)	0 (0.0%)	0 (0.0%)
Haemophilia B Total		**73 (20.0%)**	**46 (12.6%)**	**68 (20.4%)**	**49 (14.7%)**	**89 (10.7%)**	**63 (7.6%)**	**43 (11.9%)**	**17 (4.7%)**	**0 (0.0%)**	**0 (0.0%)**

Haemophilia A includes Females with VIII deficiency & Haemophilia A Carriers

Haemophilia B includes Females with IX deficiency, Haemophilia B Carriers, FIX Leyden & FIX Leyden Carriers

Genetic variants entered on the NHD require a second-person entry as a validation check. This table shows all Genetic variants and validated entries separately by disease severity