

Ref: FOI/2024/9593

Date Received: 5th February 2024

Response Due: 4th March 2024

Date: 1st March 2024

Dear Sir/Madam

With reference to your request for information received on 5th February 2024, I can confirm in accordance with Section 1 (1) of the Freedom of Information Act 2000 that we do hold the information you have requested. A response to each part of your request is provided below.

In your request you asked:

- 1. The normal range (adults and children) for the following liver enzymes: alanine transaminase (ALT), aspartate transaminase (AST), alkaline phosphatase and gamma GT.**

ALP (alkaline phosphatase)

0 - 4weeks: 70 - 380 U/L

4weeks - 16years: 60 - 425 U/L

>16years: 30 - 130 Units: U/L

ALT (alanine aminotransferase)

7 - 40 U/L

AST (aspartate aminotransferase)

13 - 40 U/L

Gamma-Glutamyl Transpeptidase (GGT)

Male: < 73 Female: < 38 Units: U/L

- 2. The method and machine used with reference so it can be identified.**

Siemens Advia 2400/1800

ALT

The ADVIA Chemistry Alanine Aminotransferase (ALTP5P) method uses pyridoxal-5'-phosphate added to Reagent 1 of the ADVIA Chemistry ALT method. The method is based on work by Wroblewski and LaDue, which was later modified by H.U. Bergmeyer.¹

AST

The ADVIA Chemistry Aspartate Aminotransferase (ASTP5P) method uses pyridoxal-5'-phosphate added to Reagent 1 of the AST method. The method is based on work by Karmen which was later modified by H.U. Bergmeyer.¹

ALP

The ADVIA Chemistry Alkaline Phosphatase_2 Concentrated (ALP_2c) assay is based on the primary reference procedure for the measurement of catalytic activity of alkaline phosphatase at 37°C as described by the International Federation of Clinical Chemistry (IFCC). The alkaline phosphatase method is based on a procedure published by Bowers and McComb¹ and more recently reviewed by Rej.² This assay responds to all alkaline phosphatase isoenzymes in human serum.³

GGT

The ADVIA Chemistry Gamma-Glutamyl Transferase (GGT) method is based on the procedure described by L.M. Shaw, et al.¹

3. How was your local normal range determined?

- I. **From the reference range specified by the manufacturer**
Applicable to ALT, AST and GGT
- II. **By the lab of a large group of normal volunteers**
N/A
- III. **From historical data**
N/A
- IV. **Other – please describe. ALP**
Pathology Harmony 2011 (National consensus)

5. Do your liver function tests automatically include measurement of AST?

No

6. How many sets of liver function tests, which include measurement of ALT and alkaline phosphatase, does your hospital or laboratory complete each year?

2022-23 Total LFT 623,994 2023-24 (projected) Total LFT 644,968

How many patients does this represent?

The Trust does not hold this information centrally.

7. How many requests for measurement of AST does your hospital or laboratory complete each year?

2022-23 18,167

2023-24 (projected) 21,952

How many patients does this represent?

The Trust does not hold this information centrally.

8. How many values exceed the upper limit of normal for each liver function test?

Analyte	2022 - 2023	2023 – 2024 (Projected)
ALP (alkaline phosphatase >380 U/L) 0 to 4 weeks	109	84
ALP (alkaline phosphatase >425 U/L) 4 weeks to 16 years	373	362
ALP (alkaline phosphatase >130 U/L) > 16 years	86059	87071
ALT (alanine aminotransferase >40 U/L)	142121	145940
AST (aspartate aminotransferase >40 U/L)	4562	5128
GGT (gamma-glutamyl transpeptidase ≥73 U/L) Male	5140	5016
GGT (gamma-glutamyl transpeptidase ≥38 U/L) Female	5938	6320
Total	244302	249921

Please note all the above information is for Wrightington, Wigan and Leigh NHS Foundation Trust and Salford Royal NHS Foundation Trust as this is a shared service.

If you are not entirely satisfied with this response, please do not hesitate to contact the Information Governance Department via the email address provided. If we do not hear from you within 40 days, we will assume that we have been able to accommodate your request under the Freedom of Information Act 2000.

Yours sincerely,



Ehsan Haqqani
Associate Director of Governance & Patient Safety

PLEASE NOTE:

If you are unhappy with the service you have received in relation to your request and wish to make a complaint or request a review of our decision, you should write to: Information Governance Department, Wrightington, Wigan and Leigh NHS Foundation Trust, Suite 9, Buckingham Row, Brick Kiln Lane, Wigan, WN1 1XX.

If you are not content with the outcome of your complaint, you may apply directly to the Information Commissioner for a decision at:

The Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow

Cheshire, SK9 5AF

Helpline number: 0303 123 111