Pathology
Equipping for the Futures

In response to Pathology Modernisation initiatives and as part of the Gwent Trust’s Clinical Futures programme, the Pathology department will gradually centralise the processing of much of the Primary Care workload from the whole of Gwent at the Royal Gwent Hospital. This is in line with the Trust’s overall strategy for service provision in Gwent. In this model the proposed new Critical Care Centre for Gwent will be a home for the main Pathology provision in Gwent but in the interim it is intended that the Royal Gwent Hospital will adopt this role.

The Pathology department has recently entered into a Managed Service Contract with Abbott Diagnostics to provide automated biochemistry equipment across the three acute hospitals in Gwent. The contract will ensure cost effective provision of equipment and reagents for Pathology over the next seven to ten years. Caerphilly Miners’ and Nevill Hall Hospitals have stand alone instruments which can perform the majority of tests offered in the chemistry repertoire. At the Royal Gwent Hospital a state of the art robotic track has been installed connecting multiple analysers in an effort to maximise efficiencies and deal effectively with a workload which is continually increasing.

This large scale investment in Biochemistry equipment now supplements that which was made in Haematology in 2005 providing a similar set up across Gwent and thus harmonising methods within the Trust for the Blood Sciences (Haematology and Biochemistry). This also means that Pathology will be well placed to provide a robust and effective service to users over the period of the contract. With robotic systems in both Haematology & Biochemistry at the Royal Gwent Hospital, Pathology is also well prepared to move toward Clinical Futures, achieve modernisation objectives and to assure the service over this period.

At present the new biochemistry equipment is being installed at the three hospitals and as with any such major undertaking there are and will be a few problems along the way. Some of these problems may impact on the service that we provide to you in the short term as systems are settled in and staff training and expertise are brought up to the necessary levels. We apologise in advance if you do experience some unintended service issues during this time but ask for your patience in what is a difficult time for the laboratories.

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**Pathology Helpdesk Changes**

For some years the Pathology Laboratory has operated a Helpdesk on 01633 234500 which has been staffed by the Clinical Scientists from Biochemistry. The demand is now so great that we will shortly be introducing an automatic answering service whereby incoming calls can be re-directed to the appropriate Department. The main telephone number will remain the same and the options available will be as follows:-

Option 1 for GENERAL ENQUIRIES
Option 2 for HAEMATOLOGY
Option 3 for MICROBIOLOGY
Option 4 for BIOCHEMISTRY
Option 5 for CLINICAL ADVICE FROM BIOCHEMISTRY ONLY
Option 6 for the repeat message.

The automatic service operates 24 hours a day whereas option 5 is only available Monday to Friday from 0800 to 1800 and Saturday between 1000 and 1300, outside these hours messages can be left on an answer-phone. Direct access to the other Departments in Pathology not covered by the above should be made through the main switchboard (01633 234234) or directly to the Department if you know the extension number by prefixing the extension number with 23.

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**Alpha1-Antitrypsin and Alpha1-Antitrypsin Phenotypes**

**Function**

- **Alpha-1-antitrypsin (A1AT)** is a glycoprotein that accounts for more than 90% of the serum trypsic inhibitory capacity.
- Markedly reduced levels are associated with excessive tissue damage following inflammation.
- A1AT accounts for the majority of the alpha1-globulin fraction observed following routine serum electrophoresis.
- Abnormalities or absence of the alpha1-globulin region in the electrophoretic pattern may be indicative of genetic variants of alpha1-antitrypsin.
- PI M is the commonest phenotype in all population and racial groups studied. The deficiency alleles include: - S, Z and null.

**Clinical Use**

Alpha 1 antitrypsin deficiency predominantly affects the lungs and liver. It is reputed to account for ~6% of all cases of emphysema in Western Europe and for up to 20% of all cases of neonatal cholestasis where congenital anomalies of the biliary tract can be excluded. Heterozygous deficiency may allow increased tissue damage in chronic inflammatory disorders with phagocytic overload.

Smoking and atmospheric pollution contribute to the severity of the lung disease in deficient subjects.

N.B. Increased concentrations are seen in pregnancy and in individuals taking exogenous oestrogens, in addition to raised levels seen within days of trauma, infection, tissue necrosis and malignant disease. Quantification in these circumstances is of little diagnostic value.

**Current Laboratory Protocol**

Please also refer to the accompanying algorithm.

**Family Studies**

Family studies are indicated for the ‘deficiency’ homozygotes −SS, −ZZ or the SZ heterozygote. They can be referred to a clinical geneticist for further counselling if so required.

In cases of heterozygosity for the −S or −Z genotypes, the advice is to avoid smoking and to reduce alcohol consumption.

*A more comprehensive review for A1AT screening is available. Please telephone the pathology HelpDesk on 01633 234500 for a copy.*
Alpha1-Antitrypsin and Alpha1-Antitrypsin Phenotypes

Low Alpha-1-globulin fraction on Electrophoresis-
Quantitation of A1AT

[ALAT] < age-related median value ~ <1.4g/L

Box 1
Pregnancy
Infection
Trauma
Malignancy

Yes
No Further Action

Any condition in Box1 present

Yes
Repeat sample post pregnancy, infection or trauma

No

Child with liver disease

Yes
Automatic sample referral for phenotyping

No

Refer 2nd sample for phenotyping

Homo/heterozygote for Deficiency allele

Yes
Family Studies

No
No Further Action. However if clinically appropriate repeat sample in 12 months
1. Background

We have been charged with performing demand management in an attempt to reduce the number of unnecessary tests being requested. Initially a survey of Diabetic Annual reviews was undertaken because these requests were readily identifiable. The results showed that a large number of requests for reviews were being performed in GP surgeries, Diabetic Clinic and Richmond House. Often these annual reviews were being requested within a few weeks or months of each other.

2. Initial developments

As a result of the initial survey a program was written and introduced which was called Kerberos, which we assumed was an American version of Cerberus, the Greek mythical three-headed dog that guards the entrance to Hades!! The program looked at the current request for a few of the more common tests, together with any previous requests for the same test. It became apparent that multiple requests for the same tests were being made within a very short time period.

3. Current status

Based on as much sound scientific evidence, clinical advice from Senior Consultants and National recommendations, time-windows for repeat requesting were established. As a result, if the request was not within a previously defined time-window then the request was ‘bounced’, the requesting source notified and the previous results shown. Feed-back has been welcomed and some of the time intervals have been altered accordingly.

The purpose of this communication is to up-date you with the current time-frames in place at present and to outline future initiatives. It is hoped that the initiatives will prevent unnecessary duplication/triplication of requests and ultimately lead to a reduction in e.g. Clinic visits for Patients, repeat phlebotomy, transport etc. The current time-windows are outlined below:-

<table>
<thead>
<tr>
<th>Test</th>
<th>Time-window (days or otherwise stated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP</td>
<td>19 (Hours)</td>
</tr>
<tr>
<td>EGFR</td>
<td>28</td>
</tr>
<tr>
<td>ELECTROPHORESIS</td>
<td>60</td>
</tr>
<tr>
<td>FERRITIN, B12, FOLATE</td>
<td>28 (If B12 &gt; 300ng/l repeats disallowed for 330 days)</td>
</tr>
<tr>
<td>HBA1c</td>
<td>60</td>
</tr>
<tr>
<td>LIPIDS</td>
<td>24</td>
</tr>
<tr>
<td>TFT</td>
<td>30</td>
</tr>
<tr>
<td>TPMT</td>
<td>3000 (i.e. ONLY ONE REQUEST ALLOWED)</td>
</tr>
</tbody>
</table>

4. Future developments

(a) We intend to expand the test repertoire to include other tests where appropriate.

(b) To send automatic copies of diabetic annual reviews performed in the Hospital.

(c) Provide regular up-dates of any new initiatives well in advance of introduction to try to prevent any problems with repeat appointments for Patients.

5. Feedback

Please contact us with any suggestions and documentary evidence if we have chosen a time-frame which is not appropriate.

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