Facing the ‘Legal High’ Challenge

‘Legal highs’ are a major clinical problem, with products retailed throughout the UK. Patient presentations include reduced consciousness, heart problems, seizures and psychotic episodes.

- Seen in 2.5-10% of samples from substance misuse clinics, depending on location.
- Our new markers cover compounds found in current ‘head shop’ products.

Drugs of Abuse Service

- Urine or oral fluid
- Panel of 25 tests (see below)
- Overcomes false positive/negative results and high cost of immunoassay screening
- Price: £20. Turn round: 1 working day

LC-QTOF Screen

- Looks for over 1,200 drugs and metabolites in urine
- Includes over 60 legal highs with more being added
- Service includes detailed clinical interpretation
- Price: £80. Turn round: 1 working day

New Test Panel from 1 July 2014

- Identical repertoire for urine and oral fluid
- Legal high markers are best detected and interpreted in urine samples where we have most experience

Opiates: Morphine, Codeine, DHC, 6-MAM
Opioids: Thebaine, Methadone, EDDP, Buprenorphine, Norbuprenorphine
Cocaine: Cocaine / Benzoylcegonine
Benzodiazepines: Diazepam, Nordiazepam, Oxazepam, Temazepam
Amphetamines: Amphetamine, Metamphetamine, MDMA, MDA, Mephedrone, 4-MEC
‘Legal Highs’: Adamantyl marker (AKB-48, 5F-ABK-48 & STS-135), Ethylphenidate, MPA
Other drugs: Ketamine, Tramadol

Further info: info@cityassays.org.uk • www.cityassays.org.uk • 0121 507 4138
Address for samples: Clinical Biochemistry, City Hospital, Dudley Road, Birmingham B18 7QH
About ACB News

The Editor is responsible for the final content. Views expressed are not necessarily those of the ACB.

Editor
Dr Jonathan Berg
Department of Clinical Biochemistry
City Hospital
Dudley Road
Birmingham B18 7QH
Tel: 07973-379050/0121-507-5353
Fax: 0121-507-5290
Email: jon@bergfamily.co.uk

Associate Editors
Mrs Sophie Barnes
Department of Clinical Biochemistry
12th Floor, Lab Block
Charing Cross Hospital
Fulham Palace Road
London W6 8RF
Email: sophie.barnes@imperial.nhs.uk

Mr Ian Hanning
Department of Clinical Biochemistry
Hull Royal Infirmary
Anlaby Road
Hull HU3 2JZ
Email: ian.hanning@hey.nhs.uk

Dr Derren Ready
Microbial Diseases
Eastman Dental Hospital
University College London Hospitals (UCLH)
256 Gray’s Inn Road
London WC1X 8LD
Email: derren.ready@phe.gov.uk

Mrs Louise Tilbrook
Department of Clinical Biochemistry
Broomfield Hospital
Chelmsford
Essex CM1 5ET
Email: louise.tilbrook@meht.nhs.uk

Situations Vacant Advertising
Please contact the ACB Office:
Tel: 0207-403-8001 Fax: 0207-403-8006
Email: admin@acb.org.uk

Display Advertising & Inserts
PRC Associates Ltd
1st Floor Offices
115 Roebuck Road
Chessington
Surrey KT9 1UZ
Tel: 0208-337-3749 Fax: 0208-337-7346
Email: mail@prcassoc.co.uk

ACB Administrative Office
Association for Clinical Biochemistry & Laboratory Medicine
130-132 Tooley Street
London SE1 2TU
Tel: 0207-403-8001 Fax: 0207-403-8006
Email: admin@acb.org.uk

ACB President
Professor Eric Kilpatrick
Tel: 01482-607-708
Email: president@acb.org.uk
Twitter: @ACBPPresident

ACB Home Page
http://wwwacb.org.uk

Printed by Swan Print Ltd, Bedford
ISSN 1461 0337
© Association for Clinical Biochemistry & Laboratory Medicine 2014

Front cover: Learn more about clinical laboratory medicine in Shetland in this issue

ACB News
The monthly magazine for clinical science
Issue 616 • August 2014

General News page 4
Council Matters page 9
Practice FRCPath Style Calculations page 10
Federation News page 12
Out and About page 15
ACB News Crossword page 18

EuroLabFocus
The Patient & Laboratory Medicine
Liverpool, UK • 7-10 October 2014

The Association for Clinical Biochemistry & Laboratory Medicine
Better Science, Better Testing, Better Care
ACB Charities
There to be Used

W J Marshall, Director of Finance
The Association is responsible for the administration of two charities: the Benevolent Fund and the CP Stewart Memorial Fund. The Benevolent Fund is able to provide funds in cases of hardship; the CP Stewart Fund supports research.

The deed governing the Benevolent Fund has recently been revised and the trustees are authorised to provide financial support to present and former members and staff of the Association and their dependents. In practice, very few applications for support have been received in recent years. While this may be a reflection that hardship is, fortunately, uncommon, it is possible that people who might be eligible for support, for example, the surviving spouse or partner of a deceased member, are not aware of the Fund’s existence. Death can lead to short-term financial difficulties until probate has been granted. We would therefore ask members to make potential beneficiaries aware of the Fund’s existence. Applications for support should be sent to the ACB Office. Donations are always welcome.

The CP Stewart Memorial Fund was established specifically to provide financial help to members wishing to travel to other laboratories in order to learn a new technique and introduce it in their own departments. It cannot provide funds to support research performed in a member’s home laboratory, for which scientific scholarships are available. Again, applications for disbursements from the fund should be addressed to the ACB Office in the first instance.

Prof Rick Jones, Leeds
We are very sad to announce the death of Professor Rick Jones after a long and determined battle with myeloma. Many professional colleagues attended a packed funeral service in Leeds on 11th July. An obituary will appear in the September issue.

EuroLabFocus 2014
Early bird registration for the Liverpool meeting has been extended from Monday 1st to Monday 8th September. The Invitation to Participate describes the scientific and social programme and the website outlines the latest updates and the registration packages. Find out more about the meeting at www.eurolabfocus2014.org

Sudoku
This month’s puzzle

Last month’s solution
The sale and use of legal highs was described in parliament recently as a “national emergency”. For legal high users who end up in hospital or on treatment programmes it is important to be able to measure these new substances in patient samples. The Clinical Biochemistry Department at City Hospital, SWBH NHS Trust in Birmingham is now offering a range of tests to help with quick and reliable testing for legal highs.

Legal highs include pills, powders and dried plant material onto which chemicals have been sprayed. Many of the chemicals are relatively new and little is known about them. Products are sold as ‘research chemicals’ to try and get round the law.

Pathology staff at City Hospital, Birmingham, have developed methods to enable legal high drug use to be detected. The laboratory can measure ‘classic’ drugs of abuse such as cocaine, heroin, amphetamines and ecstasy, along with the main chemicals in legal highs on sale today. Staff visit local “head shops” and check internet sites to see keep up to date with the latest compounds. The Department has produced a short video about their services available on the SWBH Pathology TV News You Tube channel (also available at www.cityassays.org.uk).

Speaking of the developments Dr Jonathan Berg, SWBH Pathology Director, said: “Some drugs workers are suggesting that people monitored for substance misuse have switched to legal highs as they know they are not detectable by traditional laboratory methods”.

The issue of legal highs in the UK has been the subject of a recent review by Norman Baker, Crime Prevention Minister the results of which are awaited. Legal highs, also called new psychoactive substances, are widely available in “head shops” and markets around the UK and also on the internet. Their use among young people is particularly concerning but ACB News has recently talked to head shop staff who say that a very wide range of ages are purchasing products. There are at least 250 high street legal high shops and internet sales are clearly significant. A 1g pack of smoking materials can be purchased for around £7-£10 and ACB News has learned that in UK prisons these packs can be resold up to £50. Legal highs are often thrown over prison walls with packages also containing mobile phones!

The UK current market value is difficult to estimate but £30-£100 million annual sales might be a conservative estimate and there is clearly a sophisticated sales network. One Birmingham shop had a burglary a few weeks ago but the shop worker said that the “rep restocked us by lunchtime”. It is often claimed that the products are mainly manufactured abroad, however, ACB News recently purchased wholesale quantities of AKB-48 across the internet from a company based in Covent Garden. There were no restrictions on the purchase with the 10g pack being enough to add to 130 1g packs of smoking mix. The AKB-48 is now in the hands of police dog handlers who are training their dogs to sniff out legal highs!
Analyte Monographs

Paul Newland & William Marshall

We hope that all readers are aware of, and that many have consulted, the Analyte Monographs that are available as PDFs from the Association’s website.

Their full title is ‘Analyte Monographs Alongside the Laboratory Medicine Catalogue’. If the Laboratory Medicine is considered to be equivalent to a dictionary of laboratory tests, the Analyte Monographs might be considered to be entries in an encyclopaedia. The monographs are formatted uniformly, and aim to provide all the information that might be useful to both providers and users of the test concerned. Thus headings include the chemical nature of the analyte; its physiology; methods of analysis; analytical performance; causes of abnormal values; the investigation of abnormal values, and references to any relevant guidelines and systematic reviews providing critical information on the use of the test.

Trainee Involvement

Nearly 40 monographs are currently available, and others are in development, but there are some notable gaps, and we have not yet been able to commission any for haematology, immunology or microbiology, although we plan to do so. Responsibility for them originally lay with the Association’s Scientific Committee, but has now been taken over by the Publications Committee. Paul Newland has responsibility for commissioning articles and identifying peer reviewers. Initial editing and formatting is the responsibility of William Marshall, as Managing Editor. Many of the monographs have been written by Trainees, all of whom report the work to be educationally valuable; they are also eligible for inclusion in their lists of publications. More senior personnel may claim CPD credits under the Royal College of Pathologists’ scheme (five credits per article).

Experience suggests that a personal approach is more likely to generate offers to write monographs, but anyone who would like to write one is invited to contact Paul Newland. We are currently seeking authors for articles on testosterone (in males and females), blood gases and aldosterone and renin.

Liverpool Beckons

EuroLabFocus, 7th-10th October 2014

- Relevant Science
- 400 Scientific Posters
- Relaxed Social Programme
- Significant Exhibition

Yes, Liverpool really is the place to head to in early October. The Merseyside venue is an excellent conference venue and this meeting offers a fantastic opportunity to update with the latest clinical science.

The Invitation to Participate has been distributed again with this issue of ACB News and is also available on the internet. To tempt even more delegates the early booking registration has been extended to the 8th September.
Standing Up for Science Media Workshop 2014

Amy Turner, St George’s Hospital, London

The June Standing Up for Science Media Workshop held by the Voice of Young Science (VoYS) network was an inspiring event.

VoYS is a network for early career researchers, part of the charity Sense About Science which gives young scientists a voice, enabling them to stand up for science, and a public forum to discuss scientific and medical claims.

The workshop comprised several panels and discussions on aspects of science and the media. The opening panel of academic lecturers, fellows and an NHS consultant shared their personal experiences of interacting with the media, forming useful relationships with journalists, using the media to your advantage to highlight important issues, and the negative sides of working with the media.

The afternoon panels discussed what journalists, producers and editors are looking for in an article or broadcast (including some eye-opening insight from a journalist), practical media guidance for young researchers, and advice on how to respond to bad science and tips for interacting with the media.

Whilst the workshop was largely aimed at academic PhD students and Postdocs, its messages were just as applicable to NHS scientists, who have a vital voice to lend to scientific discussions. It is becoming increasingly important to bridge the gap between the world of science and the public, enabling patients to make sense of medical claims and empowering them to make decisions about their own healthcare when faced with an onslaught of often confusing and conflicting information in the media.

The take home messages – get involved, take advantage of social media such as Twitter to network and share your thoughts, and don’t leave it to the professors and consultants to stand up for science, the voice of young scientists is just as valid and important!

◆ The Association for Clinical Biochemistry and Laboratory Medicine partners the VoYS Programme, and members of ACB are eligible for priority places at Standing up for Science workshops in 2014. See http://bit.ly/VoYSmedia workshops for further information.
Acute Kidney Injury Detection Learning Event

A learning event will take place on Monday September 29th to support Trusts who currently have no automated system for detecting AKI and issuing warnings to users of Clinical Chemistry laboratory services.

What is the Meeting About?
The meeting will outline the progress of the AKI programme to date and offer advice on how best to implement the NHS England AKI warning algorithm. Progress with LIMS upgrades and associated barriers to adoption will be reviewed.

The meeting is designed for:
- Laboratory Scientists (medical and non-medical) with responsibility for clinical communication channels in their hospital.
- Nephrologists.
- Laboratory IT personnel.
- Laboratory scientists already working towards an AKI warning system.

Background
An NHS England safety notice regarding the early detection of AKI (Alert reference number: NHS/PSA/D/2014/010) was sent to all Trusts on June 9th 2014. Since its release there have been a number of enquiries from Trusts seeking advice on how to implement the NHS England AKI warning algorithm. Trusts with automated AKI detections systems already in place were invited to a national scientific meeting held on 19th June 2014. The meeting showcased the differing approaches that Trusts were taking via a well-supported poster session. The meeting was led by Dr Andrew Lewington (Consultant Nephrologist) and Dr Robert Hill (Consultant Clinical Scientist and chair of the NHS England AKI Programme Detection Workstream). The meeting reached a consensus that the way forward was for all Trusts to adopt the NHS AKI warning algorithm as soon as their IT systems allow it

but before March 2015 – in line with the requirements of the safety notice.

The NHS England AKI programme team strongly recommends that the AKI algorithm should operate within the LIMS system and generate an “AKI warning stage” test result with a reportable value of 1, 2 or 3 corresponding to the AKI stage. Phase one of the project will deliver AKI warning stage results to secondary care results reporting systems within Trusts’ Electronic Patient Records (EPRs). Phase 2 will deliver the test results to primary care. Communication systems for alerting primary care to AKI status are not currently sufficiently developed, particularly in the out of hours periods to roll out to primary care. The programme will be completed by April 2017.

Further information can be found at:

Register for the Event
Report from the 206th Council Meeting:
3rd July 2014

There were three topics of the day discussed:
- Members’ benefits
- Personalised EQA
- Regional boundaries

**Members’ Benefits**

This is an initiative that is being progressed by William Marshall and Andrew Taylor. Please look out for an ACB News article that explores the potential benefits that a member’s package could have for us all.

**Personalised EQA**

This was discussed at great length at Council as it is topical and features as a key element in the recent produced quality report written by Dr Ian Barnes. It was acknowledged that there is a huge amount of planning and implementation required to ensure that personalised EQA schemes are fit for purpose. The issue of personalised EQA was taken much further than merely individual “cases for comment” or clinical interpretation. It includes how we, as an organisation, can support the development of schemes that assess not only clinical interpretative skills but competencies required in our roles as managers, scientists, researchers and service auditors. It was agreed there would be a requirement for a series of schemes that would assess the competencies associated with being a Clinical Scientist at any level within the profession. Cases for comment was put forward as potential scheme, but the question was raised whether this was a assessment or educational tool. Also, this currently serves 300-350 members and to upscale this to include all Clinical Scientists would be a huge undertaking. It was agreed that given the nature and scope of developing assessment tools, electronic based (online) solutions has to be an approach to be considered, in partnership with other groups with a vested interest. It was agreed that the ACB, should be pivotal in the design and content of any schemes developed. A timescale to completion of anything up to 5 years was considered appropriate, but work should commence now to demonstrate our clear intent to embrace personalised EQA.

Council concluded that there is a requirement for a clearly defined set of standards that need to be developed. Any existing resources available should be utilised e.g. 360 feedback and existing interpretative EQA schemes and the potential for such schemes to come under the remit of our accrediting bodies should be given consideration.

**Regional Boundaries**

A discussion ensued following an email from our President, Eric Kilpatrick, asking Chairs of regional boundaries to consider whether there was scope for defining new boundaries that would support better information flows, improved education and training for all, and should the regions be aligned with the LETBs. Most of the regions felt that their boundaries had evolved for the right reasons and therefore could not see much benefit in redefining boundaries. However, the Southern Region acknowledged that it was geographically a large region that did not always offer consistency in access to meetings for all of its membership. The Southern Region agreed to explore potential options to improve members access to meetings and how information may flow around the region.

Please have your say and contact me (paul.newland@alderhey.nhs.uk) with your views on personalised EQA and in particular:

- Is “Cases for Comment” suitable as a competency assessment too?
- Should the ACB lead on this initiative?
- What type of schemes would you like to see as part of the overall personalised EQA package?
- Are you aware of any existing schemes that may support this initiative?
Calculate the pH of an aqueous 0.25% w/v solution of sodium lactate. (The pKa of lactic acid is 3.86 and the atomic weights are C = 12, H = 1, O = 16 and Na = 23).

First calculate the molar concentration of sodium lactate:

\[
\text{Conc (mol/L)} = \frac{\text{Conc (g/L)}}{\text{MW}}
\]

\[
\text{Conc (g/L)} = \text{Conc (g/100 mL)} \times 10 = 0.25 \times 10 = 2.5 \text{ g/L}
\]

\[
\text{MW sodium lactate (formula CH}_3\text{-CH(OH)-COONa} = \text{C}_3\text{H}_5\text{O}_3\text{Na)}
\]

\[
= (3 \times 12) + (1 \times 5) + (3 \times 16) + 23 = 112
\]

\[
\text{Conc (mol/L)} = \frac{2.5}{112} = 2.23 \times 10^{-2} \text{ mol/L}
\]

Sodium lactate is the salt of a weak acid and in aqueous solution undergoes salt hydrolysis:

\[
\text{Na Lact (solid)} \rightarrow \text{Na}^+ (\text{aqueous}) + \text{Lact}^- (\text{aqueous})
\]

\[
\text{Lact}^- + \text{H}_2\text{O} \rightarrow \text{LactH} + \text{OH}^-
\]

The lactate ion functions as a weak base and its equilibrium constant is denoted \(K_b\):

\[
K_b = \frac{[\text{LactH}][\text{OH}^-]}{[\text{Lact}^-]}
\]

(The concentration of water is very large and relatively constant and so is incorporated into the value of \(K_b\))

The relationship between \(K_a\) and \(K_b\) for any conjugate acid-base pair is:

\[
K_a \times K_b = K_w
\]

where \(K_w\) is the ionization constant for water and has the value \(1 \times 10^{-14}\)

Use this relationship to calculate the \(K_b\) of lactate from its \(K_a\):

\[
K_a = \text{antilog}_{10} (-\text{pKa}) = \text{antilog}_{10} (-3.86) = 1.38 \times 10^{-4}
\]

\[
K_b = \frac{K_w}{K_a} = \frac{1 \times 10^{-14}}{1.38 \times 10^{-4}} = 7.25 \times 10^{-11}
\]

If \(x\) is the amount of lactate that reacts with water then the amount of lactic acid and hydroxide ion is also \(x\) and the remaining amount of lactate ion is \((2.23 \times 10^{-2}) - x\) mol/L:
\[
\text{Lact}^- + \text{H}_2\text{O} \rightleftharpoons \text{LactH}^- + \text{OH}^- \\
(2.23 \times 10^{-2}) - x
\]

and the expression for the equilibrium constant can be written:

\[
K_b = \frac{(x)(x)}{(2.23 \times 10^{-2}) - x} = \frac{x^2}{(2.23 \times 10^{-2}) - x}
\]

This is a quadratic equation which could be solved for \(x\) in the usual way. However, since lactate is a very weak base, \(x\) is very small its value can be omitted from the denominator making the solution easier:

\[
7.25 \times 10^{-11} = \frac{x^2}{2.23 \times 10^{-2}}
\]

\[
x^2 = 7.25 \times 10^{-11} \times 2.23 \times 10^{-2} = 1.62 \times 10^{-12}
\]

\[
x = \sqrt{(1.62 \times 10^{-12})} = 1.27 \times 10^{-6} \text{ mol/L}
\]

\(x\) is the concentration of hydroxide ions in mol/L which can be converted to its pOH:

\[
pOH = -\log_{10} [\text{OH}^-] = -\log_{10} (1.27 \times 10^{-6}) = -(0.104 - 6) = -(5.90) = 5.90
\]

The pH can be calculated from the relationship between pH and pOH:

\[
\text{pH} + \text{pOH} = 14
\]

\[
\text{pH} = 14 - \text{pOH} = 14 - 5.90 = 8.10
\]

**Question 160**

As part of the evaluation of an immunoassay for a renal tubular protein a recovery experiment was performed by spiking 500 µL of urine with 50 µL of protein standard containing 2000 pg/mL. Assay of the unadulterated urine and urine/standard mixture gave values of 210 pg/mL and 350 pg/mL respectively. Calculate the percentage recovery and determine if it is significantly different from 100%. Assume there was no error involved in spiking the urine and the analytical standard deviation is 10 pg/mL.

<table>
<thead>
<tr>
<th>Table of z-distribution:</th>
<th>(P(%))</th>
<th>10</th>
<th>5</th>
<th>2</th>
<th>1</th>
<th>0.2</th>
<th>0.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(z)</td>
<td></td>
<td>1.65</td>
<td>1.96</td>
<td>2.33</td>
<td>2.58</td>
<td>3.09</td>
<td>3.29</td>
</tr>
</tbody>
</table>

**South African Correction to June Deacon’s Challenge**

You will be pleased to know that we read the ACB News avidly down here. We discuss the Deacon’s calculations regularly. We picked up a calculation error on page 11 of the June 2014 ACB News which we thought readers would appreciate. The molecular weight of Lithium Carbonate is 73.89 rather than 66.95 which changes the calculation a little. The formula for Lithium Carbonate is Li2Co3 and not LiCo3 as stated.

Professor Tahir Pillay, Department of Chemical Pathology, University of Pretoria
This is the fourth in this series of pensions briefings ahead of the introduction of a new Career Averaged Revalued Earnings based NHS pension scheme from 1st April 2015. In this article I describe the proposed protection arrangements for scheme members in general and in particular those who are later in their careers.

### Pensions Information Booklets

Before getting into those topics however I bring to the attention of all FCS members the publication in April 2014 of updated versions of the key NHS Pension Scheme information booklets. Pensions regulations are revised fairly regularly driven by changes in taxation and, recently through changes to the law on civil partnerships and same sex marriages.

1. **Scheme Guide for members of the 1995/2008 NHS Pension Scheme, v12.1, April 2014.**
   
   This booklet describes in very clear, readable terms the main features of scheme membership, contributions and benefits of the two parts of the current scheme. It flags throughout the important issues that scheme members should be aware of but probably would not think about themselves. The main booklet is supplemented by more detailed short booklets for specific topics such as your pension assets on divorce.

2. **Retirement Booklet for members of the 1995/2008 NHS Pension Scheme, v15, April 2014.**
   
   This booklet is commonly referred to as “Booklet R”. It is essential reading for all scheme members as they approach or start thinking about their retirement date and retirement financial planning. I would strongly advise not delaying reading this. It is again arranged for members of both parts of the scheme, is very clear and readable and has lots of “Important” text boxes with information you may not have considered. Looking at this well in advance should help prevent unwelcome surprises about your money once you have retired and it is too late to reverse decisions. Those members who have their retirement date in mind should set the formal process into action 4 months in advance by contacting your trust pensions officer. You will get a copy of Booklet R along with your AW8 form.

The booklet is also a useful read for those already in retirement as changes continue as you approach new milestones such as State Pension Age.

The booklets, which apply to the pension scheme in England and Wales, (the Scotland and N Ireland schemes will have their own member’s information material) can be accessed at [http://www.nhsbsa.nhs.uk/Pensions.aspx](http://www.nhsbsa.nhs.uk/Pensions.aspx) and follow the link to “Members Hub”.

### Pension Protection Provisions

All new appointees joining the NHS Pension Scheme after 1st April 2015 will only have access to the new 2015 CARE scheme. Protection arrangements will not apply to them. However, everyone already in the pension scheme prior to that date will get some form of protection.

Implementation of 2015 Scheme – protection for existing members

This recognised that pension arrangements are made long-term on an assumption that provisions will endure. Reorganising your financial plans later in your employment history can be very difficult and in short time scales probably not financially effective. The PFA therefore includes several types of protection (Paragraph 3 of the PFA). Note that these are not yet enshrined in formal regulations but the stated policy for protection includes:

**Preserved Rights (for all Scheme Members):**

1. For everyone transferred into the new scheme on 1st April 2015 all pension entitlement already established is preserved under the conditions of your part of the 1995/2008 scheme. You will be able to take those pensions benefits based on your eventual final salary (at the time you take that portion of your pension) at the normal pension age (NPA) for that part of the scheme (60 for the 1995 part and 65 for the 2008). These are termed “Preserved Rights”.

2. This will mean that you will have two parts to your eventual pension:
   - Your Preserved Rights part based on your eventual final salary.
   - The CARE part earned as previously described on your earnings from 2015 until your eventual retirement age.

3. What happens if you decide to take your preserved rights at the preserved NPA rather at your final full retirement depends on the preserved scheme. This is because the 2008 scheme has more flexibilities in its regulations than the 1995 scheme:
   - In both 1995 & 2008 parts you need to formally retire, which means taking an employment break of at least 24 hours. In the 1995 part you also must not undertake more than 16 hours NHS work per week for the following month.
   - Important: If you take your preserved rights in the 1995 scheme then you cannot accrue further NHS pension entitlement in any scheme (i.e. in the 2015 scheme) even if you continue to work. You would not then be paying pension contributions.
   - If your preserved rights are in the 2008 part then you can continue to accrue pension rights by working after taking your 2008 pension benefits.
   - If you decide to take both parts of your pension (preserved rights plus 2015 CARE accrued benefit at the NPA of your preserved rights then the 2015 component will be actuarially reduced to account for collecting those early.

These will be very personal issues and decisions cannot be reversed once you have taken your pension. Decisions should not be taken lightly and there may be options you had not thought of. Your personal independent financial advisor should be able to help and an explanation of the numbers in your particular case should be available from your trust employer pensions officer. However, FCS cannot provide individual personal financial advice.

4. The pension scheme has published some FAQs about preserved rights: http://www.nhsbsa.nhs.uk/Pensions/4330.aspx

**Protection for those Approaching Retirement Age**

1. All members of the 1995 scheme who, at 1st April 2012, were 10 years or less from NPA (i.e. for FCS members having a date of birth before 1st April 1962) have full protection. This means that they remain covered by the 1995 scheme arrangements until they retire and will not be transferred to the 2015 scheme. Pension will be calculated on the
best of last three years salary. Those with a date of birth close to this date would be wise to get a definitive statement from their employer’s pensions officer whether they are protected or not.

2. Similar protection will apply to members of the 2008 scheme except, with a NPA of 65, the date of birth is 1st April 1967.

3. Tapered protection: For those within an additional 3 years and 5 months (i.e. a total of 13y 5m from their NPA) you will remain in the original 1995 or 2008 part until a date later than 1st April 2015 dependent on your age. For each month more than 10 years from NPA you will lose 2 months of protection. The result is that the date at which you will be transferred to the new 2015 scheme will be later than 1st April 2015.

**Protection Opt Out**

Pensions calculations are of course very complex and personal. Whilst the protections above are provided to give assurance to members that they are not disadvantaged modelling of the impact suggests that for the 2008 scheme (with NPA of 65 years) some members at least would be better off transferring in total to the new 2015 scheme.

These members will therefore be made a one off offer of “Pension Protection Opt-out” choice. This exercise is due to occur before the 2015 scheme starts in 1st April 2015.

**Next time:** Total Reward Statements and new pension scheme governance
My STP training included a fantastic opportunity to undertake an elective period of 4 to 6 weeks duration to experience a wider scope of healthcare science in “a cultural or clinical setting that is different from the usual training environment”. As I am based at the Luton and Dunstable Hospital in Bedfordshire, an urbanised area minutes away from the M1 and within easy commuting distance of London, I thought visiting an isolated rural hospital would be ideal. After some research and discussion with my supervisor David Housley, we decided to contact Geoff Day at the Gilbert Bain Hospital in Lerwick, Shetland about the possibility of a placement there. Geoff was very enthusiastic and so began the planning for my elective in Shetland for May 2014.

Shetland is an Island Group
Shetland is Britain’s most northerly archipelago, there are 16 inhabited islands and Britain’s most northerly point Out Stack is located on one of the islands. The Shetland isles have been inhabited from 3000 BC when the first inhabitants arrived by boat. Shetland has a population of 23,200 (2011 census) and its capital and largest town is Lerwick which means ‘muddy bay’ in Old Norse. The Vikings invaded the islands in 800 AD and Shetland remained Norwegian until the land was given as part of Princess Margaret of Norway’s dowry when she married Scotland’s King James III in 1468. Fair Isle, the most southerly island in the archipelago, is famous for developing the Fair Isle knitting pattern which was popularised in the 1920’s when the future British King Edward VIII wore a tank top with the pattern.

Luton versus Lerwick
In contrast Luton is a large town located in the county of Bedfordshire once famous for its hat making industry but is now known for its association with Vauxhall Motors and its airport. Luton’s population comes from diverse cultural and ethnic backgrounds, with the 2011 census recording the ethnicity of the population as 55% white, 30% Asian, 10% black, 6% mixed/other. The town has areas of high deprivation with Luton ranked the 69th most deprived out of 326 local authority areas in England. Compared with Luton, Shetland has a very homogeneous population with the 2011 census recording it as 98.5% white, 1% Asian, 0.1% black, 0.4% mixed/other. Shetland has undergone boom and bust periods based on the fishing industry with World War I
bringing an end to the last herring industry boom. In the 1970s oil was discovered in the North Sea and an oil terminal was built at Sullom Voe, and the terminal has its own landing strip and harbour. The income from the oil industry has lead to investment in Shetland with improved road networks and the creation of many jobs.

**Quick Facts: Arrival in Shetland**
After being reminded by my colleagues in Luton several times about the need for fleece lined coat, hat, gloves and scarf I arrived at Sumburgh Airport in Shetland on a gloriously sunny day on 27th of April. The hospitality I received in Shetland was fantastic; I was collected from the airport by the owner of my accommodation and was given a tour of the south of the ‘Mainland’ island and the town of Lerwick.

**Ward Round Looks at Every Patient in the Hospital!**
During the first week of my elective I rotated around the departments that comprise the laboratory in the Gilbert Bain Hospital. The laboratory is working towards a UKAS assessment so I spent some time with the Quality Manager discussing what this entailed. As a result of this I was asked to prepare a presentation to be given to laboratory staff on uncertainty of measurement. I was really glad to get the opportunity to learn more about the topic myself and get experience presenting to a new audience. Whilst at the hospital I was given the opportunity to go on a multidisciplinary ward round that had input from three medical consultants, the senior sister, pharmacist, dietician, the junior doctor and medical student. This was a fantastic experience as it provided me practical knowledge of the conditions and diseases I am learning about in my MSc course. It must be quite unusual for a ward round to consider every inpatient in the hospital.

As part of my learning I compared the Luton and Dunstable and Gilbert Bain laboratories. My comparison involved looking at the quality management systems of both laboratories and included equipment used such as main analysers and POCT kit, personnel and external
services. Business continuity plans of both hospitals were studied and these were quite different. For example the Luton and Dunstable plan does not even mention ferries, helicopters and scheduled flights like the Gilbert Bain one!

It is easy to think that because the laboratory does not handle as many specimens as most other hospitals that the work in Shetland is less demanding but this is far from the case. Each specialism has one member of staff except from sample reception which generally has two. So, any level of sickness could seriously affect the ability of the laboratory to provide a service as there are no reserve BMS staff that can be called in. Staff are truly multidisciplinary as there is one on call person to cover all specialisms at night and at the weekend. The department still needs to have the same quality management system as other laboratories but with much fewer staff to implement it.

**Out and About**

Pam, one of my Shetland colleagues, took me on a Shetland tour which included the Sumburgh lighthouse on the southern tip of the island to see the famous puffins and gannets. After a spot of lunch we went to St Ninian’s Isle which is connected to the mainland by a rare phenomenon known as a tombolo. I saw the ruins of St Ninian’s chapel where pre-Christian Pictish treasure including, silver feasting bowls, decorative pieces from weapons and jewellery was found by a schoolboy in 1958. On another trip I went to Scalloway, Shetlands old capital and visited the museum which told the history of the town including the Shetland Bus. This was a code name for dangerous North Sea crossings of resistance fighters from occupied Norway to Britain in World War II. Whilst in Scalloway I was literally given the keys to a castle! Scalloway Castle was built in ca.1600 by Patrick Stewart the Earl of Orkney and the Lord of Shetland and the son of Mary Queen of Scots half brother. Earl Patrick was very unpopular with the local lairds and was imprisoned in Edinburgh Castle for misrule of the islands, and after he was beheaded in 1615 the castle gradually fell into disrepair. Currently, the castle is still standing but much of it is open to the elements.

**Final Thoughts**

I have really enjoyed my time in Shetland and it has made me aware of the challenges that isolated hospitals face. I would strongly encourage other STP trainees to take up the opportunity of an elective and I hope they benefit from it as much as I have. Many thanks go to the staff at Gilbert Bain Hospital for making me feel welcome and allowing me to spend time with them. Shetland is a beautiful place and I miss those days when I spent my lunch break watching the seals sunning themselves on the beach opposite the hospital... but for me it is back to watching the 12.30 EasyJet flight coming in from Athens over Luton & Dunstable!
ACB News Crossword

Set by Rugosa

Alligator Alley

So, one final dip into a Florida experience and then we will have to think of another zany way forward on this page. The excitement of camping in Big Cypress is enhanced by the understanding that there is plenty of wildlife sharing your campsite. There are certainly alligators to be seen on the ponds and waterways everywhere. However, perhaps the best trip is the “loop road” which is an amazing 25 mile drive off Highway 41, with alligators popping up all along the road sunning themselves on the banks of the swamp. The road becomes a dirt track, but this journey will not disappoint. You can get some great alligator shots without even leaving your car and also explore Streetwater Strand.

Across
6 Against trip outline (7)
7 Graduate cut open lab instrument (7)
9 Attempt measurement (5)
10 Carbohydrate catalogue’s editing not top drawer (9)
11 Crazy Goon era spice (7)
12 Good ties pilot developed: thin elastic structure prevents choking (10)
13 Treatment using an electric instrument: doctor taking time out made thirty (9)
15 Essential nutrient in acidic tonic mixture (9,4)
19 Extirpate from sailor after hours (6)
20 Sedition of Middle Eastern cause (7)
23 Alcoholic drink following allotment exposition (9)

Down
1 We bear the responsibility? (4)
2 Last two over first after surprise expression of infection (6)
3 Poor signs, poor medical outlook (9)
4 Post bearing thanks for shared composite organ (8)
5 Pride NHS on synthesis of analgesics (10)
6 Operator of late ferry cast anchor (6)
7 Humour or anger (4)
8 GI procedures same in French translation (6)
12 Good ties pilot developed: thin elastic structure prevents choking (10)
14 Treatment using an electric instrument: doctor taking time out made thirty (9)
16 Privy to US external structure (8)
17 A disorderly struggle broke a bone (6)
18 Generally dissipated, lacking all vigour (6)
21 Aden left East Enders some fragrant liquids (6)
22 Permit transfer (4)
25 Heard what 24 did when tight? (4)

Last month’s solution

ACB News | Issue 616 | August 2014
EuroLabFocus
The 3rd EFLM-UEMS Congress
Laboratory Medicine at the Clinical Interface

The Patient and Laboratory Medicine
Liverpool, UK • 7-10 October 2014

Early Registration Deadline extended to 8 September 2014

We are grateful to the following for their support for this conference:

Commercial Partners:

@EuroLabFocus

www.eurolabfocus2014.org
PhiCal® Calprotectin  
TNFα blocker monitoring

PhiCal® Calprotectin ELISA
- Fecal calprotectin: marker of intestinal inflammation
- Therapy monitoring of IBD patients

PhiCal® is a German trademark of Immundiagnostik AG, Bensheim

TNFα blocker ELISA panel
- TNFα blocker monitoring: infliximab or adalimumab drug levels (e.g. Remicade®, Humira®)
- TNFα blocker ADA: anti-drug antibodies against infliximab, adalimumab and etanercept (e.g. Remicade®, Humira®, Etanercept®) in serum/plasma

Produced by:

www.immundiagnostik.com

In UK distributed by:

BIOHIT HealthCare

www.biohithealthcare.co.uk