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Launch IF Antibody Test MHRA Alert

Deterioration in the activity of affected lots may lead to false negative results outside of the manufacturer’s claims for performance (61.2% sensitivity). A false negative could result in a delay in diagnosis or treatment of vitamin B12 malabsorption. Laboratory internal quality control systems may not detect this deterioration. Orgentec have pointed to affected lots: 24723031 and 24723945. This lot has also shown a deterioration in activity in a recent UK NEQAS Haematinics distribution. The action you should take: do not use devices from the affected lot; consider the need to review previous negative results from tests performed using the affected lot; and where results are inconsistent with the clinical picture, samples should be retested with a different lot number. It may be necessary to arrange for repeat samples. For further details, or to request replacement strips for retesting, contact: Ms Louise Knight, Launch Diagnostics Ltd, Tel: 01474 876 402 Email: louiseknight@launchna.com
Consultant Clinical Scientist Appointments

The ACB strongly supports the use of accredited Royal College of Pathologists assessors in the appointment process of any consultant grade clinical scientist (AfC Bands 8c, 8d and 9). Employing authorities are recommended to seek the advice of one or more national assessors, both on the agreement of the job description for the post and on the calibre and suitability of candidates.

Further guidance is available through the College website at: http://www.rcpath.org/workforce/medical-workforce/consultant-clinical-scientist/

Michael Thomas
Assessor Lead for Clinical Biochemistry

Policy On Letters to ACB News

We have a clear editorial policy on ACB News with regard to publishing letters where the writer does not want their name published. We are prepared to do this as long as the writer(s) are happy to give their names to the ACB News Editor and the content is felt to warrant a name and affiliation being withheld.

This month a reader, who is also a senior practising member of the profession, has wanted to speak out about tendering and the impact on services and ACB News is happy to publish this without naming them.
We have previously reported in detail on the proposed tendering process in the East & West Midlands (ACB News 594, 595, 598, 599 – all available on www.acb.org.uk). Clearly things are not going entirely to plan and there is now considerable discussion and conjecture about what is happening behind the scenes.

Some Clear Facts . . .

The proposed three-lot tender had a PQQ response phase that closed on 1st March 2013. The bids were assessed and a number of bidders contacted and told they would proceed to the Invitation to Tender (ITT), commencing May 2013. This deadline was not met and indeed a second deadline of the end of June has also been missed. Bidders have been told that the ITT will now be issued by the end of July, and the deadline for receipt of tenders extended to mid-October.

During the last few months there have been several communications with NHS Trust providers of Pathology services asking for additional information. This has included workload figures and also questions designed to give an impact assessment on providers if the tender means that they no longer offer pathology services to Primary Care.

Analysis of the Strategic Projects Team website also sees some interesting changes. Certainly marketing communication activity has been curtailed and Richard Dolby, who became Commercial Manager for the Transforming Pathology Programme in August 2012, has moved on. Richard was, for a short time, a key public face for the process, speaking at events such as the Health Service Journal meeting in London last autumn. Richard is now working with the Transforming Pathology Partnership (TPP), the hub and spoke model which includes seven Trusts in the East of England, centred on Addenbrooke’s Hospital.

Why the Delays?

A number of sources suggest that now the CCGs have taken over there are questions being asked about the desirability of continuing the process. One GP member of a CCG board has told ACB News that there are many other much bigger issues to consider, explaining: “GP Board members are questioning why this tendering is occurring when they are happy with the way their Pathology services are provided, but GP members are in the minority on the Board”.

Another source has suggested that CCGs who feel they currently get excellent value are not happy that the cost of their pathology services may actually increase substantially due to tendering. Certainly we are aware that some provider Chief Executives have been contacted by CCGs who are looking to pull out of the process before it moves on to the next stage.

Detrimental Impact on Pathology

There are many signs that the tender process and the delays and uncertainty are having a detrimental impact on pathology provision. One Trust told ACB News that a detailed business case requested by their local CCG for introducing BNP testing is now “on hold until after the tendering process is complete”. A number of laboratories are experiencing serious situations with staffing and this is in part put down to the tendering and all the uncertainty that it is bringing within the workforce. This is impacting on the ability to offer out of hours services, and one laboratory reports that managers are having to participate in the out of hours rota.
Burton Hospitals has recently issued a notice to award a five year contract for the hospital based pathology once the East and West Midlands tendering process is completed. However, this potential opportunity is somewhat compromised with the statement that “the Authority is engaged in discussions...to join a Regional Alliance...therefore there can be no guarantee of award in this procurement exercise”.

One has to ask what the commercial sector are thinking of all this. Assurances that the East & West Midlands tender process would run to time made last February have already been broken. Commercial companies looking to enter or increase their market in UK pathology are spending millions of pounds on tender preparation and clearly this brings considerable pressure for the process to proceed in some way. The negative impact of the three Leicester CCGs pulling out of the process before the PQQ process began sounded alarm bells to some last February.

Pathology Experiment . . . Uncertain Outcome & Political Dimension

The impact at a professional level is clear with laboratories that previously worked well together now very guarded on how they interact. There is evidence that wasteful duplication of specialist services is being re-introduced as part of the jockeying for position. Attracting staff to the Midlands to work in pathology has never been easy and the uncertainty that tendering has brought only makes this harder. Whether it proceeds or not, the impact of the uncertainty it has introduced is now a serious managerial challenge for an increasing number of Trusts.

So, it is very much “watch this space”.

The public outcry in Essex over the East of England pathology tendering was surprising and had a significant impact. One has to wonder how the current delayed process will sit politically with a coalition government that will soon be turning its attention to the build-up to a general election and looking to please, rather than annoy, potential voters.
The ACB Office maintains a database from which the ACB Workforce Advisory Committee (WAC) compiles workforce statistics. In recent years this has been supplemented by “Lost, New & Vacant post” surveys, the first being performed in 2006 and subsequently in 2007, 2009 and 2010. The 2006 survey showed the number of lost posts was exactly balanced by new jobs created, a situation that has not been repeated since; all subsequent surveys have shown that more posts were being lost than created and the only differentiating factor is the rate at which those posts were lost.

In early 2013, the survey was repeated due to the perception that the situation had probably not improved. The survey was sent to 181 ACB members, of which there were 91 responses (50.2% response rate, down on previous rates of ~75%). The general data contained within detailed the current status of 580 Clinical Scientist/Chemical Pathologist staff members. This accounts for 74% of the estimated total workforce (not inclusive of SpR staff), as determined from ACB workforce data collected in January 2013.

Of the 91 respondents, 46 (50.5%) reported that there had been no change to their workforce in the preceding two years. The Table below illustrates the main findings of the 2013 survey, and presents data from 2010 for comparison. This covered the preceding 2 year time period; lost was defined as “vacant for >6 months and not advertised”, while vacant was defined as “remaining unfilled >3 months after being advertised”.

Where posts were lost, respondents were asked to state the AfC band and the reason the post was lost. It will come as no surprise that band 8 and 9 comprised the most posts, although there were 11 band 7 posts lost too. However, the reasons for higher grade posts predominating are reflected by the fact that most were lost due to re-structuring to lower pay bands. Figure 1 illustrates the comparison between surveys for the loss of posts.

As illustrated in Figure 1 above, the main reason posts were lost in 2010 were due to financial constraints, however, conversion to a lower pay band was the main factor in 2013. Although varied, reasons provided for vacant posts mainly reflected either a lack of

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**Lost, New and Vacant Posts in 2013 Compared with 2010**

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<thead>
<tr>
<th></th>
<th>2013 Survey</th>
<th>2010 Survey</th>
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<tr>
<td>Lost</td>
<td>47</td>
<td>78</td>
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<tr>
<td>New</td>
<td>37</td>
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<tr>
<td>Vacant</td>
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<td>14</td>
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<tr>
<td><strong>Net effect</strong></td>
<td><strong>-10</strong></td>
<td><strong>-48</strong></td>
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suitable candidates (higher band posts) or short, fixed-term contracts possibly discouraging people from applying (Band 6 & 7). This is supported by anecdotal evidence that trainees are choosing to leave the profession rather than take on a temporary contract in the hope that another opportunity will present itself in the interim.

**Trainee Losses**

The current survey shows that, whilst there is still a net loss of posts, the severity has lessened compared with previous surveys. The data also show a change in the factors influencing changes to the workforce, possibly reflecting an active drive to maintain posts at lower pay bands while consolidating laboratory medicine into “Blood Science” departments.

Although not reflected in this survey, a worrying development in laboratory medicine is the number of trainees who choose to leave the profession near the end of their training before their contract expires. Trainees leaving the profession is not a new phenomenon; WAC data has previously demonstrated an attrition rate between 10 and 20%. However, a recent poll of Regional Tutors has shown that, in the past 2 years, 12 Biochemistry trainees have left to pursue other careers due to a lack of progression opportunities. This on top of data showing that, in September 2013, 25 trainees are at risk of being lost to the profession if they can’t obtain a substantive post in the interim. The problem is not limited to Biochemistry; Clinical Microbiology and Immunology are suffering from a similar fate. This presents a great deal of waste in time and resources, as well as the negative human impact. It seems self-defeating to invest so much in a workforce who, due to lack of progression opportunities, aren’t subsequently utilised and allowed to make what would undoubtedly have been a positive contribution to the profession.

**Professional Brain Drain . . . Or Refreshing New Blood?**

A concern also raised by the survey is the degree of expertise and level of experience that are seemingly being squeezed out of the profession. Whilst WAC is grateful to anyone who has strived to maintain a post through re-banding, evidence suggests that previous incumbents of such posts are being lost to the profession, whilst relatively inexperienced people are taking their place. A case in point is one Trust in England who replaced 3 Band 8 posts (combined experience of previous incumbents >100 Biochemist Years) with 3 Band 7 posts (combined experience of successful candidates ~15 Biochemist Years). While fully appreciating that we can’t have the best of both worlds, as a profession we must be aware of this “Brain Drain” and ensure that measures are taken to maintain the breadth and depth of knowledge of Clinical Scientists by actively supporting participation in any beneficial training opportunity.

Finally, for any workforce planning to be effective we need good workforce data. There is a current drive by the College, DoH and Health Education England (HEE) to improve the quality of workforce data, so as to facilitate improved staffing, education and training planning in the new NHS landscape. The ACB has received praise from many quarters in the past about the quality of our data and, whilst it is viewed as exemplar by the College compared to other professions’, it is by no means perfect. To help with this, it would be appreciated if ACB Members would ensure their details on the ACB website (and in their local ESR) are as accurate as possible please. Thanks.
Standing Up for Science Media Workshop

Gemma Gallacher, Southern General Hospital, Glasgow

A media workshop organised by Sense About Science and sponsored by the Association for Clinical Biochemistry was recently held in the University of Glasgow. This full day event introduced early career researchers to ‘the good, the bad and the ugly’ aspects of dealing with the media. Speakers from both sides of the fence were invited to ensure a well-rounded discussion.

‘Science and the Media’ was first on the agenda. This session included talks from experienced members of the scientific community. The discussion focussed on the role of science and scientists in the public domain and what happens when things go wrong. Dr Eleanor Gilroy from the James Hutton Institute spoke of her work ‘undoing the damage’ the media has caused regarding the public’s perception of genetically modified crops. Professor Miles Padgett from the University of Glasgow gave a positive account of his experience with the media. TV and radio appearances over the years have allowed him to promote his research to as wide an audience as possible. His advice to young researchers was: be prepared, know your facts and view the media as a means of promoting your work.

Working with Journalists

Professor Sergio Della Sala from the University of Edinburgh warned of the misuse of the media and commented that the scientific community may be contributing to the misrepresentation of science announcements. He emphasised the importance of knowing your facts and discouraged the release of press statements on ‘what you are about to do’ rather than ‘what you have done’ and ‘what you have found’. Group work allowed further discussion of the topics of the day as well as a chance to interact with young researchers from various scientific backgrounds.

The afternoon session gave the journalists an opportunity to fight back. The audience gained an insight into the difficulties and time pressures faced by both newspaper and TV journalists. Peter Ranscombe from The Scotsman encouraged young scientists to approach journalists directly to get their voice heard. Julie-Anne Barnes from the Daily Mail urged the audience to provide clear and concise information to ensure that their research is not ‘lost in translation’. The BBC Scotland’s Health Correspondent Eleanor Bradford explained that direct quotes from relevant sources are a key component of breaking news stories. She emphasised that these quotes do not necessarily have to come from the most senior member of a Department and that young researchers should not be afraid to engage with journalists early on in their career.

The last session of the day provided guidance on how early career researchers can get involved and ‘Stand Up for Science’. Ross Barker, the Media Relations Officer at the University of Glasgow, explained the work that he does bridging the gap between researchers and journalists. He encouraged the audience to work with press officers to promote their work to the general public. Jaime Earnest, a Voice of Young Science (VoYS) representative, and Victoria Murphy from Sense About Science urged the audience to comment on ‘bad science’ and to ‘ask for evidence’ when scientific claims are made in the media. There was an introduction to the work the VoYS network does and information on how early career researchers can get involved.

Go On – Get Involved

The workshop provided useful hints and tips on the successful communication of research to the scientific community and beyond. For more information on the VoYS how to get involved visit www.senseaboutscience.org/voys
Deacon’s Challenge
No 146 - Answer

An HPLC mobile phase is normally prepared by mixing 27 mL methanol and 20 mL acetonitrile with 153 mL of ammonium acetate buffer. You only have 120 mL of buffer. How much methanol and acetonitrile would you add in order to prepare the maximum amount of mobile phase?

This is a simple exercise in proportionality – as taught in primary school!

153 mL buffer requires 27 mL methanol
therefore 1 mL buffer requires \( \frac{27}{153} \) mL methanol

and 120 mL buffer requires \( \frac{27 \times 120}{153} \) = 21.2 mL methanol (to 3 sig figs)

Similarly 153 mL buffer requires 20 mL acetonitrile
therefore 1 mL buffer requires \( \frac{20}{153} \) mL acetonitrile

and 120 mL buffer requires \( \frac{20 \times 120}{153} \) = 15.7 mL acetonitrile (to 3 sig figs)

Question 147

It has been suggested that a simple delta-check using serial plasma creatinine measurements be used to detect acute kidney injury (AKI). If the within-subject biological coefficient of variation (CV) for plasma creatinine is 5.0% what minimum analytical CV is required to detect a percentage increase in plasma creatinine of 20% with 95% certainty?

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FRCPath, Autumn 2012
The Royal College hosted a joint meeting with the ACB on biochemical endocrinology on a sunny day in early March. A balance of lectures and interactive teaching sessions provided many learning points to influence clinical and laboratory practice.

Dr Graham Beastall began with an update on the work of the International Federation of Clinical Chemistry towards the standardisation of thyroid function tests (TFTs). Despite being part of routine laboratory services for over 30 years, method-dependent differences remain significant. Dr Beastall highlighted the impact this has on public confidence in the use of TFTs to diagnose and manage thyroid disease. The differences between standardisation (achievable for free thyroid hormones) and harmonisation (applicable to TSH) were explained. Recalibration would improve concordance across methods, but alignment to the conventional reference measurement procedure for free T4 (ft4) would involve a significant shift in reported ft4 values. While TSH harmonisation may be ‘coming soon’, the future for free thyroid hormone standardisation remains less certain.

Reference Intervals for Thyroid Function

Dr Julian Barth then asked the question, ‘What are abnormal TFTs?’ and set the scene with a show of hands to highlight that only a minority of the audience were using locally-generated reference intervals. Dr Barth showed that nationwide variation in TSH reference intervals cannot be fully explained by differences in assay performance, and population values follow a remarkably similar distribution across multiple methods. Harmonisation of TSH reference ranges should therefore be achievable, however, the most clinically relevant upper-limit-of-normal remains controversial. The data suggested harmonisation of ft4 reference ranges is likely to be particularly challenging with current between-method differences.

Professor Richard Andersen gave an update on the clinical utility of measuring anti-Müllerian hormone (AMH) in women. He explained that much of the evidence for its use stems from studies in assisted reproduction, and it is not yet certain whether AMH can fulfil its potential as the ‘crystal ball’ of female reproduction. AMH is an effective biochemical predictor of response to ovarian stimulation, and is also an independent marker for the overall success of assisted reproduction cycles. This has promoted its reputation as a marker of ovarian reserve, so it was interesting to note that high AMH levels are in fact linked to a delayed time to pregnancy in healthy young women, which may reflect patients with polycystic ovarian syndrome (PCOS). Furthermore, although there is a link between AMH and age at menopause, wide variability limits its use in predicting menopause for individuals. Improvements in assay performance will be required if AMH is to be used routinely in this area.

Vitamin D in Chronic Disease

Professor Bill Fraser and Professor Naveed Sattar then discussed some of the ‘knowns’ and ‘unknowns’ of vitamin D deficiency, emphasising the lack of convincing evidence for a causal role in many chronic diseases. They reminded us that many vitamin D ‘facts’ often seen in the press are based on association studies, and there are more meta-analyses than randomised controlled trials in this area. We were shown how the basis for commonly-accepted treatment target levels is controversial, and reminded of the potential risks of high-dose supplementation. Professor Fraser showed data demonstrating that parathyroid hormone (PTH) levels vary widely with vitamin D concentration,
illustrating the problem of using PTH as a surrogate marker for vitamin D status. Vitamin D requests continue to increase and many are inappropriate. It was useful to hear that a guidance document from the National Osteoporosis Society/Institute of Medicine will soon be available for circulation in primary care.

After lunch, attendees were given electronic voting handsets for an interactive session on hyperandrogenism and PCOS led by Dr Danielle Freedman. Diet and lifestyle should be considered the mainstay of treatment for PCOS, as illustrated by a case of markedly raised testosterone (confirmed by tandem mass spectrometry) and hirsutism in a female which improved dramatically following weight loss. We were reminded of the link between PCOS and hyperinsulinism, and that metformin can help regulate menstrual cycles.

Dr Claire Higham then gave an update on the current best treatments for acromegaly, and pointed out the dependence on standardised growth hormone and IGF-1 assays for assessing response, with current changes to IGF-1 assays being a particular concern. There was a further interactive clinical case session, with Dr Kevin Deans and Dr Freedman presenting a case of ectopic ACTH-driven Cushing’s syndrome and a case of primary hyperparathyroidism in pregnancy, respectively.

The day ended with a debate, ‘This house believes that the future of hormone measurements lies with tandem mass spectrometry, not immunoassay’, with Dr Sandra Rainbow speaking in favour of, and Dr Richard Chapman against, this motion. The room was almost equally split on the issue at the start, and remained so after two informative talks.

This was an excellent update on current hot topics in biochemical endocrinology. The issues discussed highlighted the importance of assay performance in clinical decision-making and emphasised the role of the laboratory in guiding rational test requesting and in leading initiatives towards result harmonization.

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<td>Drugs of Abuse Test</td>
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<td>Collection Device (pack of 20)</td>
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* for contracted work
Albeit briefly, Spring was in the air on what was the first scientific meeting of the year for ACB Scotland. Held under the shadow of Stirling Castle in the historic city of Stirling, the ‘brooch that clasps the Highlands and Lowlands of Scotland together’, the meeting was devoted to matters of the heart and laboratory informatics.

**Sensitive Heart Testing**

The day began with an informative presentation from Dr Nick Mills (Edinburgh Royal Infirmary) outlining recent research during the implementation of a high sensitivity troponin I (hs-TnI) assay. He provided evidence that use of hs-TnI with a lowering of the diagnostic threshold from 0.2 ng/mL to 0.05 ng/mL was associated with a 29% increase in diagnosis of myocardial infarction (MI) and subsequent improvement in morbidity and mortality in patients with acute coronary syndrome (ACS). It was shown that patients with TnI concentrations between 0.05 and 0.19 ng/mL have the worst clinical outcomes and are at greater risk of a further cardiac event compared to those with a TnI less than 0.05 ng/mL or greater than 0.2 ng/mL. When the diagnostic threshold is reduced to 0.05 ng/mL there is a decline in the risk of death and recurrent MI from 39% to 21% potentially due to increased referrals for specialist advice and treatment.

Implementation of the high sensitivity assay and the diagnostic reclassification of patients are associated with improved clinical management, including increased specialist referral, coronary angiography and anti-platelet therapy, fewer deaths, and fewer admissions with recurrent MI.

The consensus statement on the universal definition of MI recommends that an increase in plasma troponin concentration above the 99th centile of a normal reference population is used to confirm the diagnosis, irrespective of whether the coefficient of variation is less than 10% at this concentration. This would identify more patients with ACS at risk of recurrent MI and death and would increase the diagnosis of MI by 47%. Dr Mills indicated that gender-specific thresholds less than 0.05 ng/mL may be helpful in identifying more female patients with ACS. He concluded by discussing these gender-specific differences in hs-TnI measurements and the ongoing BHF HighSTEACS trial investigating this.

**Heart Failure**

Dr Bernie Croal (Aberdeen Royal Infirmary) described the use of BNP and NT-proBNP in the diagnosis and monitoring of heart failure. These have a high negative predictive value and can be used in the assessment of suspected chronic heart failure. He described a pilot study carried out in NHS Grampian measuring NT-proBNP in patients with suspected heart failure as a decision-point for referring patients for echocardiogram. Using a cut-off of 400 pg/mL, 52% of patients avoided an echocardiogram. Furthermore, 20% of patients had an NT-proBNP greater than 2000 pg/mL and were prioritised for an urgent echocardiogram.

Despite the apparent advantages to be gained by implementing NT-proBNP, Dr Croal acknowledged the difficulties in obtaining funding for the introduction of new laboratory tests in the current financial climate. He highlighted the importance of evaluating any new test by looking at its efficacy (i.e. can it work?), effectiveness (i.e. does it work?) and efficiency (i.e. is it worth it?) to build a defensible business case.
Dr Kevin Deans (Aberdeen Royal Infirmary) concluded the morning’s discussions with an entertaining overview of cardiac risk factors with respect to “where we are” and “where we are going”. This took us from risk scoring systems to the current available evidence regarding use of specialised lipids and inflammatory biomarkers in determining overall risk and need for treatment. Overall, the morning session provided an interesting update on some of the progress being made with current and novel cardiac biomarkers.

**Laboratory Informatics**

The afternoon began with a look at the implementation of TrakCare in NHS Lothian by Dr Sara Jenks (Edinburgh Royal Infirmary). TrakCare, a healthcare information system, was introduced eight years ago to NHS Lothian as a pilot site and is currently being rolled out to five additional NHS Health Boards across Scotland, serving approximately 70% of the Scottish population. Dr Jenks gave a comprehensive overview of the functionality of the TrakCare system and, interestingly, a user’s perspective of some of the problems and advantages encountered with its use. By considering some of the difficulties encountered when using TrakCare, she gave an insight into some of the factors that should be considered when building a TrakCare system, how important it is to get small details right from the start and the importance of laboratory involvement in the setting up process.

**Primary Care Ordering**

Jim Allison (Aberdeen Royal Infirmary) continued the theme with an account of laboratory Order Communications in Primary Care within NHS Grampian. A great number of benefits both to users and the laboratory have been realised with its recent introduction, which has eased the requesting process and provided a ‘quantum leap’ in the quality of requests received by the laboratory. This has had a knock-on effect in improving the workload management within the laboratory.

Both of these presentations enlightened what can be quite a ‘dry’ subject-area and highlighted the importance of laboratories being involved as much as possible in an IT project from initial planning discussions to retaining control and input into aspects of the ordering and reporting system e.g. creating test names, developing order sets and optimising the display of results and comments to users.

The day came to a close following an overview and update from Charlotte Fifield (Glasgow Royal Infirmary) and Kelly Smith (NHS Lothian) on the progress being made in Scotland with regards to Pathology Harmony and the Clinical Portal, which is a ‘virtual’ electronic patient record that can be accessed across the various Health Boards in the South of Scotland.
The ACB Northern Ireland and Ireland meeting was held this year in the Elliott Dynes Building, a former Care of the Elderly Unit, in the Royal Victoria Hospital in Belfast. Chair for the morning session was Dr Peter Sharpe (chairman of the NI section), who welcomed attendees from both sides of the border.

**Network or No Network?**

Jennifer Welsh, chair of the NI Pathology network since 2010, provided a concise overview of the NI pathology network. This was officially launched on 20th October 2009 and progress has been made on strengthening our culture of evidence-based practice. This includes a regional screening programme for familial hypercholesterolaemia. In December 2011, the DHSSPSNI released the ‘Transforming Your Care’ document which was a review of local health and social care. Jennifer highlighted the importance of being mindful of this release, particularly recommendation 78, regarding implementation of the pathology network, to ensure that the interest in pathology is maintained. Prior to this publication, the board had no clinical members. Network decisions are made for the greater good and Chemical Pathologist Michael Ryan is now the network’s clinical lead. Positive news for trainee scientists is that a new fund for their training has been supported by the Chief Medical Officer. When the network is prioritising potential projects, from the current list of 44, the aim is to reach a consensus amongst people actually delivering the services.

**Why is this Blood Glucose so Low?**

Next was a highly instructive talk from Gwen Wark, Director of the peptide laboratory in Guildford. Her subject was insulin and the investigation of hypoglycaemia. She reminded us to think of proinsulin, as some tumours only produce this precursor peptide. The main clinical indication for measuring insulin levels is in the work-up of hypoglycaemia, but it is being increasingly being requested in patients suspected of being insulin resistance. The JCEM guidelines from 2009 are the port of call for those who would like further elaboration. Drugs, alcohol and critical illness are common causes. If both insulin and C peptide are elevated in hypoglycaemia, then the aetiology is narrowed to sulfonylurea or insulinoma. To avoid confusion, it is crucial to clarify whether the reference interval is for a healthy or a hypoglycaemic population. The blood glucose is essential to enable result interpretation and she always measures C peptide concurrently to check the source of the insulin. It can be helpful for insulin assays to be less specific as tumours can produce 100% insulin, 100% proinsulin or a mixture. ELISA can provide a quantitative result for proinsulin. The mainstay of insulin analysis, however, is the immunoassay and insulin was actually the first substance measured by this method. Failure to appreciate the hook effect can lead to falsely low results. Haemolysis is unfortunately a big problem as peroxisome protease, found in erythrocytes, degrades insulin, but not C peptide. The enzyme’s activity is much lower when frozen. Gwen presented some case scenarios, which illustrated various clinical pitfalls when considering possible causes of hypoglycaemia. For instance, enzyme assays should be able to detect animal as well as human insulin. She also reminded us to consider the potential access to insulin, e.g. a healthcare worker or diabetic pets.

**Help with Those Tricky Thyroid Results**

There followed an illuminating presentation on unusual thyroid results, by local Trainee in Endocrinology, Dr Helen Wallace. She presented a case of thyroid hormone resistance, an autosomal dominant condition, affecting only one in 50,000 live births. This is a rare condition where free T4 is elevated and TSH is normal or elevated. Next came a similar
pattern, but with a different explanation. This time a TSHoma, showing a typically blunted response in the TRH test. The patient’s results normalised after treatment with pituitary surgery. The final case was one of a macroadenoma presenting with bitemporal hemianopia, with post-op blood results indicative of primary hyperthyroidism. This lady had been receiving enoxaparin for the treatment of recent multiple pulmonary emboli. Enoxaparin interferes with protein binding, thereby increasing free T4. TSH may be an unreliable indicator in somebody with pituitary surgery.

**Kidneys are Important Then . . .**

Clinical scientist Peter Auld was up next, discussing the introduction of a scoring system for that oft neglected medical emergency, acute kidney injury. The idea is to highlight to clinicians results for which immediate action is required, but without “crying wolf”. About one in five of all acute hospital admissions suffer from this condition, which kills 200 times more people than MRSA. The NCEPOD 2009 report observed that only 50% of AKI patients receive good care. Last November, there was a consensus conference at RCP Edinburgh, which emphasised that 12,000 lives could be saved a year, given optimal care. The MDRD reversal technique was highlighted as an estimate of a patient’s baseline creatinine. A 10 day pilot study was performed in the RVI, which found 13 episodes of AKI, one of which had been missed by clinical staff. The pilot allowed improvement of the initial e-alert system, to ensure better visualisation. The system has the potential to reduce morbidity and mortality. NICE have recently released draft guidelines for consultation and in the words of Donal O’Donoghue, “Don’t let them die from AKI”. Why not download the London AKI app today?

**Hypertension: Not Just Essential!**

Marguerite MacMahon stimulated us with the utility of mass spectrometry in evaluating hypertension. It has greater specificity than the more widely used immunoassay and can handle complex mixtures, so many compounds can be measured in just one run. It is slower than immunoassay however, and requires significant sample preparation, for example dilution or protein precipitation. A quarter of the Western population are hypertensive, meaning endocrine causes are more common than you might think. Mass spectrometry is much better at detecting catecholamine metabolites than immunoassay and this is more important than whether the sample was plasma or urine (a useful 2013 discussion can be found in Clinical Chemistry). Methoxypyramine, a marker of metastatic phaeochromocytoma, can also be measured. Urinary free cortisol can boast 100% recovery, with a turnaround time of only 2 days, and an impressive intra- and inter-assay CV of only 3%. Finally, aldosterone and renin can also be measured and it is noteworthy that primary hyperaldosteronism confers a higher cardiovascular mortality when compared to those with similar blood pressure.

**To Screen or Not to Screen?**

Next Jennifer Cundick talked about neonatal screening. First she reminded us that the classic WHO screening criteria of Wilson and Jungner were not designed for neonates. Next came a history of neonatal screening locally, starting with PKU screening in 1969, hypothyroidism in 1981 and CF in the early 1980’s (cf 2005 for
remainder of UK). The introduction of tandem mass spectrometry at the tail end of the last century led to a quickening of pace. MCADD screening came in August 2009. She suggested considering the combined prevalence of inherited metabolic disorders when considering the utility of neonatal screening. Food for thought was provided in the example of the benign condition histinidaemia, when patients were subjected to the significant risks of liver biopsies for little perceived benefit?

**A Condition in its Screening Infancy**

Screening for the autosomal recessive condition sickle cell anaemia was introduced in Northern Ireland in March 2012 (England: 2001 and Scotland: late 2010) and we were given a succinct overview of the story so far by Gareth McKeeman. Over 25,000 children have been screened to date and a case has yet to be found. The clinical consequences of this condition occur due to the hypoxic polymerisation of HbS leading to painful vaso-occlusive ischaemia. The method used is ion-exchange HPLC, with the more positively charged measurands eluting later. Variants are confirmed by isoelectric focussing. 18 SC carriers have been found and 9 HbD carriers have been found; of note D-Punjab is the only clinically significant variant. When considering the merits of screening, one must always weigh up cost versus equality.

**It is Time to Fight for Obesity Treatment**

The educational components of the day finished with a bang, with the inimitable presentational style of Dr Michael Ryan. He warned us of the rising prevalence of obesity and stated that it is the most significant health problem of this century. BMI is a tool prone to error in individuals with higher than average muscle mass. It must not be glossed over that obesity increases the risk of many cancers and increases the risk of death and cardiovascular disease. Abdominal obesity has been relatively ignored, when compared to its more popular cousins of smoking, diabetes and hypertension. If a person weighs 100 kg and they manage to shed 10 kg, their risk of death falls by over 20%. Dr Ryan believes that a pathological relationship with food is the root cause and reminds us that excess calories are stored as triglycerides. Blood markers of calorie overload include GGT, triglycerides, LDL, HDL and CRP. The ubiquitous fatty liver should not be dismissed as a benign phenomenon as it is a serious predictor of early death. He mentioned some pharmacological treatments including lorcaserin and the anticonvulsant topiramate. He also pulled out the statistic that about 97% of type 2 diabetes is due to weight. He mentioned the incretin system and the diabetic drugs available such as GLP1 agonists. He recommended the Nature review article on these hormones from 2006. He told us that behaviour modification really works and concluded by reminding us of the potency of weight loss: 6% weight loss has similar effects on HDL as fibrates and on LDL as ezetimibe. Bariatric surgery, he told us during the questions, can reverse diabetes, but patients do need long-term follow-up and it is not yet known the long term benefits.

The final part of the day was a celebration of two retiring chemical pathology consultants: Pooler Archbold and the aforementioned, Mike Ryan.
Weakened Pathology Departments from Tendering Process

What is happening with tendering of pathology services in the East of England and now the East and West Midlands is nothing short of scandalous. This whole process was championed as improving services and whilst that may have been the intention it is currently destroying them.

The reality is that with Trusts facing so much uncertainty over the future of their laboratory services investment in pathology for many of us has virtually dried up. This means no building works and a fight for new equipment. BMS Staff are clearly leaving in droves and who can blame them when no one can guarantee your job for more than 12 months or offer any prospect of future development because higher grades are being cut. As a consequence some labs now find themselves in the position of operating out of hours services on a knife edge or even withdrawing them. Supporting professional groups is becoming impossible – nobody has the time anymore.

Networking . . . You Must be Joking!

One of the main drivers for these changes, Lord Carter’s reports, highlighted the importance of quality, specialist services and of course networking to offer joined up services. The reality is that tendering is causing conflict within the profession. Trusts are being pitted against each other in what many feels like a fight for survival. For the sake of ticking a box on a tender response laboratories are setting up tests any way they can, without considering overall costs to the public purse, rather than supporting specialist centres that invest sensibly in time and money to develop those services. Then of course there is the time, that is the huge amount of time wasted on this instead of driving our services forward.

In the East and West Midlands, Leicestershire CCGs have already pulled out of the tender process and other CCGs are reportedly considering their position. Talking to colleagues in the East of England the tender process is turning into a farce with hardly a contract signed and the Essex labs are pulling right out. The prevailing opinion appears to be when the true cost of the proposed new pathology services becomes apparent the CCG’s will run a mile. By then will we be in a position to rebuild what we have lost?

Ultimately it is the patient and taxpayer who is suffering as our services become weaker as the process is prolonged. This is turning into one of the biggest crises to hit our profession and no doubt will go public soon. Surely it is now time for the RCPath, IBMS and ACB to take action.

As I come from a laboratory that is involved in the tendering process please do not publish my name as this may impact both on my career and also to the work of my pathology department in trying to address this situation. Perhaps others can use ACB News to express their appropriate concerns as well ... or is it just me that feels like this!

Concerned Consultant Clinical Scientist
[Name and address supplied to the Editor]
Perception and Understanding in Abundance

In January’s ACB News, the Association reported on the death of Neil Formstone, our Lay Representative on Council, which had occurred the previous month.

Neil was a very private individual. He lived in Colwyn Bay, North Wales and had been active in the local community before becoming involved in Welsh Health initiatives. He had been a cancer patient in 1994 and after that experience became convinced that lay people had a vital role to play in all aspects of healthcare. He became an active member of patient support groups in North Wales and subsequently became a facilitator, trainer and co-researcher for Macmillan. He encouraged lay people and professionals to interact and work together towards a common goal. His initial foray into pathology was as a Steering Committee member of the Wales External Quality Assurance Scheme.

Opinion With Frank Views

It was Ian Watson who first proposed the idea of a Lay Representative to ACB Council in March 2009. At that time Neil was Chair of the Royal College of Pathologists Lay Committee and he was invited to present the case for similar representation within the Association to ACB Executive in February 2009. Neil emphasised that such representation needed to be completely independent and would only then be able to offer a diversity of opinion. He was clear that such independence would likely impact on the way both Executive and Council worked since this would be challenged by the Lay Representative and might involve a frank and direct criticism of the Association’s mission.

Neil had already worked in a lay advisory role with many other organisations in addition to the College, and he was emphatic that such a representative would not be there to offer a rubber stamping to legitimise the activity of the professional body.

Refreshingly Wide Perspective

Of course his views were enriched and validated by his many faceted engagements with other organisations, which in recent years included, amongst others, the Academy of Medical Royal Colleges Patient Liaison Group, the Council of the Royal College of Radiologists, the Wales Deanery, the Healthcare Scientist Programme, Health Education England Professional Board and Clinical Pathology Accreditation.

The great thing about him was that he had a broad perspective and wasn’t focused on a particular disease or patient type. This was particularly evident in policy discussions such as those at Executive Retreat where there is more scope for wider-ranging discussions.

Hugely Enjoyable to Be With

Those who knew him and worked with him, as I did over the last three years, can only be amazed by his perception and understanding of the issues healthcare faces. He had an amazing vigour and was also a lively and hugely enjoyable individual to spend time with socially.

The esteem he was held in by so many is evident by the fact that the Wales Cancer Bank is organising a celebration in tribute to him in Cardiff on the 5th July at which statements and presentations from friends and colleagues, including the ACB, will lead to a shared statement of the difference that public involvement can make as a legacy of Neil’s work.

He will be missed not only by the ACB, but also by the many other organisations with which he was involved. As we search for a suitable successor we can only hope there is at least one other like him with sufficient knowledge and dedication to take on this vital role!

Michael Thomas, Past President
ACB News Crossword

Set by Rugosa

So, with the honey out of stock and the trip to the apiary from which it came over, what shall we do as prizes? All is not lost, any winning entries received this month will be added to the list of those who want the new crop honey which hopefully, and if the weather improves, be harvested at the end of August. Our photo this month shows Mike Cartwright, who used to print ACB News, looking in his bee hives in disgust to see that his ‘workers’ have done very little so far this year!

Across
1 Metal from central Panama (6)
5 Failed at organisation of related records (8)
9 Reports 1 with charge of riotous action (6)
10 Cystic fibrosis testers’ set wears out? (8)
11 “Ancient Mariner” back in stock at last (4)
12 Endocrine syndrome made calmer with yoga (10)
13 Make secure recovery (6)
14 Left out acclaimed eccentric intellectual (8)
16 Ends up in smoke at a plane disaster (8)

20 Signed out unregistered duct (6)
23/28 A result of self over-treatment could be kinky ill melodramas (4,6,8)
25 Party hands (4)
26 A method for 19 could start out from a basic soy mixture (8)
27 Number 53 of redesigned new edition went off (6)
28 See 23
29 Strength of many difficult clues (6)

Down
2 Operation leader times a tardy group (7)

3 Stupid 27 lost direction, was confused, had spasm (7)
4 Element manages in French revolution (9)
5 Difficult passage about unknown radius (7)
6 Physical unit of weather measurement (5)
7 Exhaust damage from repeated stress (7)
8 Traditions prevaricate about German spirit (7)
15 Two bends in minimal construction of metal (9)
17 Activity of US soldier involved Italy (7)
18 Embarrassing charge after a short week (7)
19 A neatly modified component we determine (7)
21 Conceals information upsetting second England opener (7)
22 For ever late up admitted Eric’s partner (7)
24 Used for roping wild stallions, lint-free (5)

Last month’s solution

![Crossword grid with solution]

Issue 603 | July 2013 | ACB News
SIEMENS

Job ID 124887

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- An MSc in Clinical Chemistry and FRCPATH Level 1 qualification (or equivalent practical experience).

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To find out more about the role, visit our website or contact Jade Bishop on 0161 446 5906 or email jade.bishop@siemens.com

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- Actively participating in service meetings.
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We look forward to hearing from you!
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