In this issue
ACB Medal Award
Guildford Trace Element Centre Gets Full Marks
Lifetime Allowance Explained
Goodbye ‘Old Style’ Training Courses
Benefits to Members Launches at EurolabFocus
Summer of Scottish Sport
Farewell to Aram Rudenski
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**TNFα blocker monitoring**

**IBD diagnostics & therapy control**

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General News

Practice FRCPath Style Calculations

Federation News

Training Matters

Meeting Reports

Obituary

ACB News Crossword

Situations Vacant

Front cover:
Angie Cooper received the ACB Medal for 2014
ACB Extras Gives Additional Benefits to Members

William Marshall & Andrew Taylor

As announced in the September issue of ACB News, the Association has contracted with the company Parliament Hill to make available to members a wide range of useful benefits. The scheme, named ‘ACB Extras’, is being launched this month and we are using all our communication media to try and draw attention to it.

Benefits include discounts on:

- **Insurance**: roadside assistance, home, car, travel and life insurance.
- **Professional advice**: legal and financial.
- **Home and leisure-related items**: health clubs, cinema tickets, wine and magazine subscriptions.
- **Travel**: hotels, car hire and airport extras.
- **Work and business items**: IT training, CV and interview assistance.

Other benefits are presently being negotiated and will be added as agreements are reached. The full range of benefits is available on the ACB Extras website, accessible through the members’ page of the ACB website.

Suggestions from members for additional benefits will be welcomed.

Many of the items are part of normal expenditure so the scheme provides a real opportunity for members to save money. Indeed, looking at the range of benefits available, it seems likely that many members should be able to more than save the cost of their annual subscriptions to the Association by taking advantage of even only a small number of the things on offer. Extras will not be available to retired or Corporate Members.

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**Sudoku**

This month’s puzzle

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+---+---+---+---+---+---+---+---+
|   |   |   | R | H |   |   |   |
| S | Y |   |   |   |   |   | M |
|   | E |   |   |   |   |   |   |
| H | C | R |   |   |   |   |   |
| I | T | Y | M |   |   |   |   |
| C |   | S | Y |   |   |   |   |
|   | S |   | C |   |   |   |   |
| T |   |   |   |   | E |   | M |
+---+---+---+---+---+---+---+---+
```

Last month’s solution

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+---+---+---+---+---+---+---+---+
| T | H | Y | I | E | R | S | C | M |
| M | S | C | Y | T | H | I | E | R |
| I | R | E | S | M | C | T | Y | H |
| R | M | S | C | H | E | Y | I | T |
| Y | E | T | M | I | S | R | H | C |
| C | I | H | T | R | Y | M | S | E |
| S | Y | R | E | C | T | H | M | I |
| H | C | I | R | Y | M | E | T | S |
| E | T | M | H | M | S | I | C | R |
+---+---+---+---+---+---+---+---+
```
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ACB Medal Award 2014

Eric Kilpatrick

The ACB Medal Award has showcased the talent of ACB Members in training since 1971. Traditionally, the Award is made on the basis of an oral communication at the Association’s Annual National Meeting, Focus, but in years where the ACB has been hosting international meetings instead of Focus the Award has not been held. With EuroLabFocus being in Liverpool, this should have been an occasion when the Award skipped a year. However, the ACB was keen to ensure that this important event still went ahead and so the Southern Region kindly agreed to host the session as part of their regional meeting on the 5th September, which also included an update on liver pathology and diagnosis.

Quality Work of Direct Clinical Relevance

Four abstracts were shortlisted for presentation and I had the privilege of chairing the session and being one of the four judges. There was an eclectic mix of topics which started with Oliver Clifford-Mobley discussing an assay which could simultaneously measure urinary metabolites relevant to primary hyperoxaluria. This was followed by Angie Cooper describing how she had used zinc transporter 8 autoantibodies to help discriminate MODY from type 1 diabetes in young, newly diagnosed patients. Katie Hadfield then told us how she had used laboratory data to markedly improve the detection and documentation rates of chronic kidney disease within primary care. Last to present was Rachel Curd, who discussed how she had developed a rapid mass spectrometry screening test to exclude galactosaemia.

The quality of the work and the way in which it was presented by each person was excellent, which made the task of the judges extremely difficult. All four would have been worthy winners, but it was Angie Cooper who received the Award and Oliver Clifford-Mobley who was runner-up.

I was pleased that in a non-Focus year the cream of young talent in our specialities still got the opportunity to show us just how accomplished they are. For those of us who worry about the future for laboratory medicine, the ACB Medal.
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The official opening of the new Guildford Supra-regional Assay Service (SAS) Trace Elements Centre was held recently. Professor Vincent Marks, the first Director of the SAS services at Guildford, gave a short account of beginnings of the Centre before cutting the ribbon to mark the move to new laboratories based at the Surrey Research Park. Visitors were then invited to see the new facilities, meet the staff and join them for lunch.

The Centre accommodates the SAS Trace Element Laboratory and the UKNEQAS Trace Elements External Quality Assessment Scheme had previously been located on the main University of Surrey Campus for more than forty years. However, with pressure on space and business expansion, it was decided to relocate to the nearby Surrey Research Park. This move has given laboratories specifically designed for the modern equipment used, and for the research and development work associated with the Centre. Deputy Director, Dr Chris Harrington, designed the new accommodation, supervised the building programme and facilitated the successful implementation of the laboratories. The £450,000 relocation cost was funded by the Royal Surrey County Hospital NHS Foundation Trust.

**Samples from Head to Toe**

The analytical workload of the SAS laboratory involves the measurement of trace elements in whole blood, serum, urine, hip-fluid aspirates, herbal medicines, toenails, hair, liver biopsies and tissue specimens. Most samples are for the investigation, follow-up and monitoring of patients for nutritional or orthopaedic reasons. Clinical advice and interpretation of results, as comments on written reports or in direct discussion with colleagues in other hospitals forms an important component of the workload.

The UK NEQAS Trace Elements External Quality Assessment Scheme has over 120 registered participants from 25 countries.
around the world and the scheme monitors 34 element/matrix combinations. A new scheme for the analysis of Cu and Fe in solid matrices was introduced in 2012 for clinicians and laboratories testing liver biopsies for the diagnosis of Wilsons Disease and haemochromatosis and has 19 participants from 7 countries.

In addition to overseeing an extensive SAS repertoire and the international External Quality Assessment Scheme, Andrew Taylor, the Centre’s Director, and Chirs Harrington, teach and supervise students at the University of Surrey and elsewhere, manage research projects, as well as collaborating on numerous projects with external colleagues.

The SAS Trace Elements Centre is managed as part of Surrey Pathology Services, a joint venture between the Royal Surrey County, Frimley Park and Ashford & St Peter’s Hospital NHS Foundation Trusts.

The new location of the facility is:
SAS Trace Element Centre
Surrey Research Park
15 Frederick Sanger Road
Guildford
GU2 7YD
Tel: 01483 689978
Email: rsc-tr.traceelements@nhs.net
Website: www.surreyeqas.org.uk

**ACBI 2014**

**14th-15th November 2014**

**Royal Hospital Kilmainham, Dublin**

Why not attend what is always an excellent Scientific Meeting in what is the ACBI’s fiftieth anniversary year?

For the full programme and booking details: [www.acbi.ie](http://www.acbi.ie)

Click on the image for a link to the ACBI website on the electronic version of ACB News.
Deacon’s Challenge
No 161 - Answer

A 65-year old married woman in good health has just discovered that her brother is homozygous for the C282Y haemochromatosis gene mutation. Her sister has been tested and has the normal genotype. Her own genotype is as yet unknown. The population gene frequency for C282Y is 8%, and the lifetime penetrance is estimated to be 30%.

Calculate the probability of each of the possible genotypes in both the woman and her partner, and use these data to determine the probability that their child will develop clinical haemochromatosis. You should ignore any possible contribution from any other genetic loci associated with haemochromatosis.

It is only possible for her brother to be a homozygous for the C282Y gene mutation (C/C) and her sister a normal genotype (N/N) if both parents are heterozygous (N/C).

Each parent has an equal chance of producing gametes that are either normal (N) or mutated (C). Therefore the probability of each possible genotype for the patient can be calculated:

Patient N/N P = 0.5 x 0.5 = 0.25
N/C P = (0.5 x 0.5) + (0.5 x 0.5) = 0.5
C/C P = 0.5 x 0.5 = 0.25

(Note that even though the patient is clinically unaffected it is still possible that she could have the CC genotype because the penetrance of haemochromatosis is only 30%.)

Since no information is available for her partner it can be assumed that he has the same risk as the general population. The population gene frequency is 8% and the probability of each genotype can be calculated from the Hardy-Weinberg formulae:

\[
p + q = 1 \\
p^2 + 2pq + q^2 = 1
\]

where \( p \) = frequency of the dominant allele
\( q \) = frequency of the recessive allele

Since the frequency of the recessive gene (C) is 8% it follows that \( q = 0.08 \) and \( p = 1 - 0.08 = 0.92 \) allowing calculation of the probability for each genotype in her partner:

\[
\begin{align*}
N/N & = p^2 = 0.92^2 = 0.8464 \\
N/C & = 2pq = 2 \times 0.92 \times 0.08 = 0.1472 \\
C/C & = q^2 = 0.08^2 = 0.0064
\end{align*}
\]
Their child can only develop haemochromatosis if he/she is homozygous for the mutation (C/C) which can only arise by inheritance of the mutated gene (C) from each parent which can only occur if both parents are either C/C or N/C. The probability of each event occurring is the product of the probabilities of each genotype from each parent:

- Patient C/C and Partner C/C = 0.25 x 0.0064 = 0.0016
- Patient C/C and Partner N/C = 0.25 x 0.1472 = 0.0368
- Patient N/C and Partner C/C = 0.5 x 0.0064 = 0.0032
- Patient N/C and Partner N/C = 0.5 x 0.1472 = 0.0736

(Note that as the normal (N/N) was excluded these probabilities do not add up to 1).

The probability of transmission of the homozygous genotype for haemochromatosis for each of these possible crosses is then calculated:

- Patient C/C and Partner C/C = 1 x 1 = 1.0
- Patient C/C and Partner N/C = 1 x 0.5 = 0.5
- Patient N/C and Partner C/C = 0.5 x 1 = 0.5
- Patient N/C and Partner N/C = 0.5 x 0.5 = 0.25

The probability that her child is C/C is the sum of the probability of each cross multiplied by the probability that the cross will result in C/C:

\[(0.0016 \times 1) + (0.0368 \times 0.5) + (0.0032 \times 0.5) + (0.0736 \times 0.25)\]

\[= 0.0016 + 0.0184 + 0.0016 + 0.0184 = 0.04 \text{ (4%)}\]

The risk of clinical disease is the probability of the affected genotype (0.04) multiplied by penetrance (30% or 0.3):

Risk of clinical haemochromatosis = 0.04 x 0.3 = 0.012 (or 1.2%)

---

Question 162

Current guidelines indicate that a patient with familial hypercholesterolaemia who fails to achieve a 50% reduction in LDL-cholesterol concentration compared to the pre-treatment value should be referred for specialist management. In your laboratory, LDL-cholesterol is calculated using the Friedewald equation and the results of total cholesterol, triglycerides and HDL-cholesterol.

A patient has a pre-treatment LDL-cholesterol of 12.2 mmol/L. Calculate the value following treatment that would allow you to confirm a 50% fall in the true value with greater than 95% probability.

Current IQC performance shows CVs of: total cholesterol 2.9% at 7.0 mmol/L, HDL cholesterol 2.7% at 1.5 mmol/L, and triglycerides 2.5% at 1.6 mmol/L.

Table of z-distribution:

<table>
<thead>
<tr>
<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>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>

FRCPath, Autumn 2013
Perhaps this Briefing No. r6 might be construed as a rather technical article but the topic has already had significant impact on some FCS Members and it is important to share.

**Background**

The notion of a limit to the amount that an individual can invest tax-free into their pension fund was introduced by past governments to close what was then perceived as a tax loophole. The annual and lifetime limits were set deliberately high, initially the annual limit was £215k and rose to £255k, so that only extremely high earners were affected. In more recent years (post the 2008 financial crisis) both limits have been reduced, in the case of the annual allowance very dramatically to £50k since 2011. The apparent objective has been to increase personal contributions to meeting the nation’s financial deficit onto a larger number of higher earners. For tax year 2014-2015 the annual limit is £40,000.

This limit is still a very significant sum when considering defined contributions invested in a private pension fund. (A defined contribution scheme is where you and your employer pay a stated sum or proportion of your salary into an investment vehicle which eventually is turned into your pension income.) The calculations for members of the NHS scheme, where there are defined (guaranteed) benefits, are less obvious. Former pension scheme documents reassured members that only those with salaries above £110k might be affected. FCS members, medical and scientist, may now exceed the limit in any one year if they enjoy a significant within year pay increase resulting from say a promotion, clinical excellence award or they start to receive a pay enhancement for additional duties or responsibilities, especially if this is in addition to incremental pay progression.

For NHS Pensions Agency links on the subject go to: http://www.nhsbsa.nhs.uk/4221.aspx

**The Calculations**

For the NHS end-salary schemes that calculation takes the pension benefit you have accrued at the end of the year (irrespective of whether you can actually take your pension yet) and subtracts your pension benefit at the beginning of the year (uplifted by inflation). This represents the increase in pension benefit “earned” during the year. That sum is then turned into a notional capital value that would need to be “invested” by multiplying by a factor of x16. This factor is set by HMRC. Add to this any additional personal pension contributions such as AVCs.

Working through the algebra:

Annual contribution \( C = \) Pension year \((y+1) – \) Pension year \((y) \times (1+\text{Inflation})\)

Where: \( S = \) pensionable salary at start of year
\( R = \) increase in pensionable pay over the year
\( F = \) Inflation factor
\( A = \) your accrued pension years at start of year.

1. For 1995 scheme:
   \[ C = \frac{19}{80} \times [S(1-AxF) + R(A+1)] \]

2. For 2008 scheme:
   \[ C = \frac{16}{60} \times [S(1-AxF) + R(A+1)] \]

Early in your career \( C \) is dominated the term \( S(1-AxF) \) i.e. your pay point. Late in your career \( C \) is dominated by \( R(A+1) \) i.e. your pay increase in the year multiplied by your accrued years. That is where the numbers can become large.
A calculator spreadsheet is available on the FCS web pages. The Pensions Agency publishes some sample calculations: http://www.nhsbsa.nhs.uk/Documents/Pensions/Annual_Allowance_example_calculations_factsheet_082014_V4.pdf

The trap occurs because HMRC regard any “Annual Contribution” over the annual limit as taxable income in the year. This is potentially a large sum making the pay increase or enhancement a poisoned chalice! The impact can be mitigated by off-setting unused allowance from the previous 3 years but we are now in the position where the previously high limit of £255k no longer applies.

**What Should I Do?**

Within year pay increases only count if they are pensionable. The impact of a large increase is mitigated if it occurs later in the financial year – but beware of a big impact in the following year. A pay increase in April carries most risk and in September or October probably has the lowest overall risk. Remember that your incremental progression contributes to the issue.

If you exceed the annual limit the Pensions Agency will send you a statement and you must declare the amount on your tax return form. You are strongly advised to consult your Independent Financial Advisor (IFA). The HMRC has produced a factsheet: www.hmrc.gov.uk/helpsheets hs345.pdf

As the impact is a one-off (albeit potentially a very significant tax sum) there is a facility called “Scheme Pays” where the amount you owe is paid by the Pension Scheme and then recovered when you draw your pension. Professional advice from your IFA should be sought if considering this option. Information can be found at: http://www.nhsbsa.nhs.uk/Documents/Pensions/Scheme_Pays_Factsheet_v4_10.13.pdf

**Lifetime Allowance (LTA)**

Pensions Agency documents can be found at: http://www.nhsbsa.nhs.uk/4222.aspx

This is the (notional) total “investment” in funding your pension. For the NHS final salary schemes, as for Annual Contribution, it is determined by the value of your pension benefits when you take them rather than the total amount of contributions made. Any separate personal pension investment will need to be added.

The limit has been reducing over recent years. On 1st April 2014 it was reduced from £1.5m to £1.25m which means it will affect:

- Members in 1995 scheme with pension in excess of £54378.
- Members in 2008 scheme with a pension (before taking any lump sum) of £62500.

If you exceed the Lifetime Allowance then tax will be charged on NHS benefits in excess of the LTA at a rate of 55% on your lump sum and 25% of the capital value on your pension.

You can apply to mitigate the impact by applying for Individual Protection for pension accrued at the higher allowance that applied to earlier years. This must be done directly to HMRC by deadline dates. Again if you are in this situation you should seek advice from your IFA.
Earlier this year I attended my first ACB Training Course, the National Training Course No. 4, after successfully applying for a travel grant from the ACB. This was the final training course in the current series and is likely to be the final one in this format. A select group of 38 Trainees descended on the University of South Wales in Pontypridd on Sunday 30th June 2014 for this event which started with a pre-course buffet and quiz in the evening on campus. The following two days were packed with high quality lectures from experienced staff from the local region with a focus on paediatric metabolic biochemistry and biochemistry of pregnancy.

The meeting opened with an introductory lecture on paediatric clinical biochemistry by Dr Stuart Moat, Consultant Clinical Biochemist and Director of the Newborn Screening laboratory in Cardiff. Dr Moat highlighted that paediatric patients were not just ‘mini’ adults and discussed the difficulty posed in obtaining suitable samples from these patients. Roanna George, a Principal Biochemist in Stuart’s laboratory, followed with excellent lectures on clinical emergencies posed in neonates with hyperammonaemia and hypoglycaemia with Chemical Pathologist Dr Farrhan from Aneurin Bevan then covering neonatal jaundice.

The afternoon sessions provided overviews of the inherited storage disorders by Chemical Pathologist Dr Duncan Cole whilst Dr Moat utilised clinical cases to highlight the role of common laboratory tests in aiding diagnosis of a number of rare disorders.

The last session of the first day was an interactive workshop on the interpretation of EQA, led by Consultant Clinical Biochemist Annette Thomas, which was informative as to the issues encountered with interpretation of EQA reports and the identification of issues involved.

Case Discussions

Day two started with an overview of CPA and the transition to UKAS and ISO 15189 standards provided by Senior CPA/UKAS assessment manager Janet Chatfield. This was followed by a presentation on the Clinical Pathology Quality Management System by Tim Vonporkorny. After a break, the Trainees took to the stage in the interactive clinical cases sessions that all Trainees had to prepare presentations for prior to attending the course. Seven trainees presented their cases which covered a wide range of case scenarios. The interactive aspect of the presentations ensured that all Trainees contributed to the case discussions. Well done to all short listed trainees who presented their cases excellently.

The afternoon session provided FRCPath Part 1 essay preparation training with RCPath examiners, Dr David Cassidy and Mrs Avril Wayte, leading interactive workshops on writing analytical technique essays. The course ended with presentations relating to the investigation of infertility and the biochemistry of abnormal pregnancy by Carol Evans and Rachel Still.

Attendance at this course provided me with the invaluable opportunity to increase my knowledge on certain aspects of the FRCPath curriculum whilst consolidating paediatric biochemistry knowledge. I am extremely grateful to the ACB for providing me with the opportunity to attend this course. I would like to pass on a big thank you to all of the organising committee of this course from the Wales Region from all Trainees who attended as they put in sterling work in organising a packed, informative conference in great facilities and ensuring that all ran smoothly.
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Dilemmas in Laboratory Medicine

Emma Stevenson

The Spring ACB Wales & South West and Wessex Meeting took place in Cardiff. It was not just the pleasant weather or views over the beautiful Vale of Glamorgan that brought together so many ACB Members and non-Members, but the chance to discuss a hot topic in laboratory medicine: to test or not to test.

The focus of the meeting was dilemmas in laboratory medicine. Accordingly, the presenters covered some of the more controversial matters currently occupying the minds of biochemistry professionals, including tumour markers and point of care testing.

That is the Question . . .

The first speaker was Consultant Chemical Pathologist, Dr Soha Zouwail, who gave an interesting talk on “Benchmarking requesting profile: A way forward to quality use of pathology”. Perhaps, not surprisingly, around 25% of pathology tests may be inappropriate, related in part to media influence and a concerning rise in websites offering private blood tests for conditions like “cancer”.

Dr Zouwail explained to us how her laboratory had been measuring GP requesting activity, which showed significant variation in the rate of biochemical sets ordered by GPs. By engaging and educating GPs and implementing a regular primary care newsletter, she told us that local intervention appeared to be effective at tackling this variation. To avoid the danger of over-diagnosing, we should take the Goldilocks approach to testing: not too little, not too much, but just right. We came away understanding the need to focus on quality not cost-saving, through information, education and requestor accountability.

Katy Heaney looked at point of care testing and introduced the POCT Manager’s role as the work of an idealist, in the sense that a visionary is required to answer the most important POCT question: “to implement or not to implement?” Katy discussed the decision process of the POCT committee, including practical considerations, clinical evidence and cost-efficiency, in addition to some amusing personal experiences of device implementation. She emphasised that POCT can result in a more positive patient experience but left us with the big question: Can the NHS afford to give weight to patients’ opinions of POCT service, even when there is little evidence to support cost or clinical benefit?

The final presentation of the morning session was a clinician’s viewpoint on the use of procalcitonin in sepsis by Dr Robert Orme. He told us that diagnosis of infection is often difficult and procalcitonin has been welcomed as a biomarker for early diagnosis of sepsis, in monitoring treatment success and in predicting patient outcome. The test can be used to improve clinical decision-making and reduce the length of antibiotic courses, which is currently an important issue owing to inappropriate antibiotic usage and the threat of resistance. Dr Orme stressed to us that procalcitonin is not a “magic bullet”, but must be used in conjunction with other investigations and clinical signs. He ended his thorough and interesting talk with a description of the successful (and cost-effective) introduction of prolcalcitonin analysis in his local Trust in Gloucestershire.

Right Tests Used Effectively

The afternoon session commenced with Dr Cathie Sturgeon, who discussed tumour markers and posed the question, “Are we doing the right tests and are we using them effectively?” From the NHS Atlas of Variation, it is clear that there is a huge variation in test requesting. Variation is particularly evident with tumour marker requesting and Cathie
recommended improving upon this through proactive engagement with users and more informative result reports. She concluded her talk by telling us that we biochemists are all part of the clinical picture as we work towards the 2020 Vision for Healthcare.

Professor Paul Collinson on B type Natriuretic Peptide (BNP) testing in primary care captivated the audience. Heart failure (HF) is one of the UK’s biggest killers and NICE guidance recommends measuring serum natriuretic peptides (BNP or NT-proBNP) as part of the chronic HF diagnostic pathway in patients with no previous myocardial infarction. Paul concluded that age should be taken into account when interpreting results, but normal levels can be used to rule out HF and raised levels indicate referral for echocardiography.

The penultimate talk of the day discussed the use of faecal calprotectin in inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS). Consultant Gastroenterologist Dr Jonathan Tyrell Price considered the pros and the cons of faecal calprotectin in IBD and IBS from the patient’s point of view. He explained that it is vital to distinguish IBD from IBS so that the conditions can be treated appropriately. We found out that while CRP is not as sensitive as faecal calprotectin and a colonoscopy cannot rule out IBD, a 50 µg/g cut-off for faecal calprotectin has emerged as a useful screening test where other inflammatory markers are unhelpful.

The meeting was rounded off with some interesting cases in endocrinology by Dr Owain Gibby, with a clinical theme of calcium problems. Dr Nadia el Farhan then explained the biochemical background of the case studies, including the calcium sensing receptor and associated mutations. She finished the session, and the day, with explanations of some of the more complex tests for investigating abnormal calcium levels, including the TmP/GFR test for assessing the kidneys’ phosphate and calcium handling, and the long-forgotten Ellsworth-Howard test for the diagnosis of pseudohypoparathyroidism.

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A Summer of Sport

Laura Willox, Glasgow Royal Infirmary

On a sunny Friday at the end of May the ACB Scotland Region, along with the Royal College of Pathologists, met at Hampden Park in Glasgow ahead of the Commonwealth Games for “A Summer of Sport”. There were a range of presentations from the cardiovascular benefits of exercise to drug testing in elite athletes, as well as a chance to tour the football museum at half time.

**Encouraging Men to Slim Down**

The day kicked off with a presentation from Professor Kate Hunt on the Football Fans in Training study (FFIT). This was an initiative set up to encourage men in Scotland to participate in weight management programmes.

Seventy-five percent of men in Scotland are overweight or obese and the majority do not use traditional weight management services. The football club setting provided a real draw for many of the men, 95% of whom had never attended a weight management programme before.

Thirteen Scottish Professional Football League clubs across Scotland took part in the RCT with men randomised to the control group having access to the programme once the study was complete. The programme involved nutrition classes based on portion size and the NHS eatwell plate, as well as alcohol awareness sessions with physical activity incorporated into each session. Men who participated lost significantly more weight than those in the control group and this weight loss remained after 12 months.

There were added benefits for other family members with one man’s dog losing so much weight due to the extra exercise that it was able to go for an operation!

The programme is ongoing in the football clubs in Scotland with plans for expansion.

**Does One Size Fit All?**

Next Dr Jason Gill spoke about cardiometabolic risk in people from different ethnic backgrounds. There is a large global burden of inactivity and it is responsible for more deaths worldwide than smoking. The relative risk of type II diabetes mellitus (T2DM) is increased in those who are less active when adjusted for BMI.

There was very interesting discussion on the increased risk of T2DM in people of South Asian and native Chilean Mapuche descent, particularly when moving from rural to urban settings, compared with White European populations.

South Asian populations living in the UK have a 5 times higher risk of developing T2DM when compared with those of European descent. South Asian women have an equivalent risk of developing diabetes at a BMI of 22 as white European women at BMI of 30 kg/m² with similar risk increases seen in South Asian men. In addition, VO₂max is lower in South Asians than European populations when adjusted for body fat. It is already known that lower levels of fitness increase the risk of T2DM and the metabolic syndrome.

Dr Gill also explained recent findings that South Asian populations need to take more physical activity to reach the same level of fitness as European populations. This equates to 266 minutes of physical activity per week compared to 150 minutes per week for people of European descent. This may lead to physical activity guidelines being published for different ethnic groups in order to reduce the risk of T2DM.

The morning session concluded with a presentation by Declan Fields on performance nutrition. This was an interesting discussion on the importance of meeting nutritional requirements in elite athletes and also debunked some common myths surrounding the use of supplements. Athletes are discouraged from taking supplements due to poor regulation and safety testing as well as the increased risk of positive doping tests due to unlisted ingredients.
At lunchtime we were given the opportunity to tour the Scottish Football Museum before heading back for the afternoon session.

**Citius, Altius, Fortius**

The afternoon session was entitled Professional Sport and Elite Athletes and commenced with an interesting presentation from Professor David Cowan on the role of the WADA (World Anti-Doping Agency) accredited laboratory and the particular challenges when faced with large sporting events such as the recent London Olympics and the forthcoming Commonwealth Games. Based on the Olympic motto of citius, altius, fortius he aimed for faster analysis with higher sensitivity and stronger proof.

During large sporting events such as the Olympics, staff numbers and equipment numbers need to be increased to deal with the increased workload. It is also extremely important to have simple sample preparation steps with fast analysis, easy data review and good selectivity. In addition they need to be flexible to new substances that may be being abused. During the London Olympics the lab analysed 400 samples per day with a 24-hour turnaround time. The lab remained open 24 hours in order to achieve this, with a massively increased workforce. For the Glasgow games slightly shorter operating times will be in place from 6am-midnight.

The majority of the work done is qualitative, however, with some substances concentration needs to be known. Analysis is mostly carried out by GC-MS/MS, UHPLC-HRMS (which was utilised at the last Olympics) and GC-C-IRMS which is useful in the identification of pseudoendogenous compounds via isotopic differences. They have done a lot of work to decrease run times in order to get results quickly.

He concluded by discussing the role of intelligence testing and hoping that the Commonwealth Games in Glasgow may be the first drug-free games.

**Looking Forward to Glasgow**

The day concluded with a talk from Dr Brian Walker, Head of Sports Medicine at the Scotland Institute of Sport about his experiences as a medic at the Commonwealth games in Delhi, and the lessons learned which assisted in planning for the games in Glasgow. He also discussed the preparations being made by the athletes in order to avoid infection, ensure good nutrition and get the best prepared team possible.

This was a very well organised meeting in an excellent setting on a range of interesting and useful topics. Many thanks to the Organising Committee.
Aram Rudenski died peacefully on Saturday 27th August 2014. He was only 58 years old and illness diagnosed in 2011 had caused his premature retirement from his post as Consultant in Clinical Biochemistry at Salford Royal NHS Foundation Trust (formerly Hope Hospital).

On his arrival in our Department in 2001, it was immediately evident that behind his quiet manner lay real dedication and a determination to transform and improve services. He brought special experience in laboratory computing and clinical nutrition and quickly established collaborations across the Trust, impressing colleagues with the depth of his subject knowledge and ability to explain complex concepts in simple language.

He had a very fine intellect and the unusual distinction of being a doctor who had started his academic career with an Open Scholarship in Mathematics to Clare College Cambridge, graduating with a Triple First in the Mathematics and Medical Sciences Triposes. The mathematical model of insulin/glucose interaction that formed the basis of his DPhil thesis has been highly influential. He published many papers on a diverse range of subjects, his contribution often being sophisticated mathematical and statistical analysis.

**Baffled by Red and Blue Loyalties**

Those who took the trouble to get beyond his natural reserve discovered a true polymath with rich and broad cultural interests. He was a keen linguist, natural history enthusiast, theatre-goer and music-lover. Aram could talk on almost any subject - the only one that really baffled him was the intense Red or Blue loyalty that afflicts many Mancunians to varying degrees!

He did his best to convert his laboratory colleagues to the wonders of classical music, memorably hosting his 50th birthday lunch in a fairly typical Salford tavern near the hospital, having persuaded the startled landlord that no alcohol should be served and that the background music was to be his own CDs of Schubert string quartets.

The creation of his garden was a labour of love which he approached with the precision of a serious botanist, being particularly proud of his roses and cultivating a wide range of fruit and vegetables within a fairly small space. In 2009, he thoroughly enjoyed demonstrating the medicinal qualities of plants at the Royal College of Pathologists show garden at the Tatton Flower Show which won a Silver medal.

His early retirement due to ill health was a great loss to Salford Hospital and to the Clinical Biochemistry profession. He was cared for with devotion during this difficult period by his partner, David. As friends and colleagues, we extend our deepest sympathies to David, Aram’s sister Hannah and his wider family, many of whom live in Israel, a country very dear to Aram’s heart.

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**Mathematician Turned Pathologist with Sideways View on Mancunian Afflictions**

Aram walking with John Kane and Don Barber, two colleagues from Salford
ACB News Crossword

Set by Rugosa

Clinical Biochemistry Ski Trip to Zermatt and Cervinia

If you are looking for a bunch of mates to go skiing or snowboarding then look no further. The team at SWBH in Birmingham are heading to the Italian and Swiss Alps for a week of amazing skiing starting on 24th January. We are taking our own ski guide and are a mixed ability group. If you want to tag along then you are very welcome. For further details please email: jonathanberg@nhs.net. If you are reading the electronic version of ACB News then get a feel for the amazing Zermatt ski runs by clicking here . . .

Across
1 Cleaner burn (4)
5 Acid-base assessment complicated management of post-operative angina (5,3)
9 Assemble a crowd (5)
10 Short drive in Nash-Healey’s Pininfarina (4)
11 NHS guilt about source of vitamin D (8)
12 Being a form of endless roaming (8)
13 Company having no clue in technicolour process (6)
14 Sharp instrument could accidentally slice keen beginner (6)
15 Upset from criticism of her hair? (8)
17 Life-saving treatment is sadly starting in confusion (8)
20 Relations disastrous, manifestly sent off (6)
22 Prosaic safe surgical procedure contains return of connective tissue (6)
24 Tie off vessel on leaving urogenital operation (8)
25 A rum time changing before being fully developed (8)
26 Intestinal content investigation (4)
27 Take care surgeon, go out and about (5)
28 Order enema set for the provision of relief (8)
29 Measure gains lost from wrong diagnoses (4)

Down
2 Philip took rye cocktail, upended first-class honey-based drink, developed metabolic problem (15)
3 Organised large container for plunder (7)
4 Portable measuring instrument prices all fluctuate (9)
5 Believed stop-start made us uncertain (7)
6 Kind of strength that is incongruous without resistance (5)
7 Proverbially, what you catch chasing two hares (7)
8 Metabolic syndrome outcome research tool is unsettled point (15)
16 Protection of sound mind (9)
18 Slow about measure for fermentation product (7)
19 Being in the black novels about time (7)
21 Altered, subdued accepting thanks (7)
23 Sharp parachutes? Not sharp! (5)

Last month’s solution

Across
1 Cleaner burn (4)
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Consultant Clinical Scientist

Band 8C  Ref 34633G

You will be part of a team of 2 Consultant Clinical Scientists with 8 Junior Clinical Scientists, and 4 Medical Consultants providing a clinical biochemistry service to the population served by the new South Glasgow Hospital and across Scotland for more specialised work. The previous postholder’s responsibilities changed over time until she took on the Director of the Scottish Neonatal Screening programme and West of Scotland Antenatal Screening Programme full-time.

This post initially is designed so that the successful candidate will support the Department’s Specialist areas ensuring SOPs are fully UKAS compliant and support the management team addressing ICO/EGA. The Department will undergo a new UKAS review end of 2016. Thereafter, the successful candidate will be encouraged to take on more specialist reporting/analytical developments in an area of their interest which meets the Department’s overall goals. The Consultant Clinical Scientist will share responsibilities for Clinical Scientist staff deployment, appraisal, line management and to support Trainees (especially Clinical Scientist) within South Glasgow. For more information call Dr P Galloway, phone 0141 354 9034 or Mr Frank Finlay, phone 0141 354 9032.

To apply visit www.jobs.scot.nhs.uk and search for job reference 34633G.

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- Cocaine: Cocaine / Benzoylcegonine
- Benzodiazepines: Diazepam, Nordiazepam, Oxazepam, Temazepam
- Amphetamines: Amphetamine, Metamphetamine, MDMA, MDA, Mephedrone, 1 4-MEC 1
- ‘Legal Highs’: Adamantyl marker 2 (AKB-48, 5F-AKB-48 & STS-135), Ethylphenidate, 3 MPA 3
- Other drugs: Ketamine, Tramadol

1: Originally a ‘legal high’ now Class B. 2: Predominant compounds in current smoking products. 3: Major drugs in current powders and pills.

Further information:
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Recent guidance issued by UK health agencies provides recommendations of high sensitivity Troponin assays as options for the early rule-out of non-ST-segment-elevation myocardial infarction (NSTEMI). Thermo Scientific™ MAS™ Omni•CARDIO™ provides a QC solution for the new generation of high sensitivity Troponin I and T assays by specific targeting of levels aligned with the new cut-off demands. Omni•CARDIO also provides critical coverage for several non-cardiac specific analytes, including D-Dimer, hCG, Myeloperoxidase and Procalcitonin (PCT).

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