Clinical Biochemistry News

ACBI

Association for Laboratory Medicine

LabMed

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Newsletter of the Association of Clinical Biochemists in Ireland

and the Association for Laboratory Medicine (Republic of Ireland Region)


ACBI 1989


ACBI 1987


ACBI 1983


ACBI 1996


ACBI 1992


ACBI 1994

Photos from the Association of Clinical Biochemists in Ireland (ACBI) Past Conferences

Top left clockwise: (1989 Conference) Founders of the ACBI Prof. Paddy Moore, Irene Buckley, Joan Raftery, Dorothy McGeeney, Marion Doolin; (1987) Prof. Iain Percy-Robb, Prof. James Westgard, Joan Westgard, Dr. Rory O'Moore; (1983) Tony McGill, Marion Doolin, Fergus O'Brien TD (Minister of State for Health); (1994) Brendan Howlin TD (Minister for Health), Dr. Helen Grimes-O'Cearbhaill; (1992) Dr. Leo Morgan, Dr. John O'Mullane; (1996) Niamh Cavanagh, Des Kenny, Dr. Alan Balfe

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Editors: Dr. Martin Healy; Dr. Peadar McGing

ACBI Conference Report 2024

Report compiled by Dr. Peadar McGing.
Authors: Wendy Groenendijk, Clinical Biochemist, St. Vincent's University Hospital; Carl Talbot, Principal Clinical Biochemist, The Coombe Hospital; Dr. Briedgeen Kerr, Senior Clinical Biochemist, Cork University Hospital; Micheál Ryan, Senior Clinical Biochemist, Limerick University Hospital; David Green, Senior Clinical Biochemist, Cork University Hospital; Dr. Peadar McGing, Retired Principal Clinical Biochemist, ex Mater Misericordiae University Hospital.
Photography by Dr. Peadar McGing.

The 46th ACBI Annual Conference was held at the Hodson Bay Hotel, Athlone, Co Roscommon on the 8th and 9th November, 2024. The conference was particularly special, as it marked the 60th anniversary of the ACBI. The theme of this year's conference was healthcare for an ageing population, which featured a variety of engaging topics delivered by experts in elder care. The conference was opened by Dr Paula O'Shea, President of the ACBI and Chairperson of the Conference Organising Committee and Consultant Clinical Biochemist at MMUH and Our Lady's Hospital, Navan.

Session 1 — Nutrition:

The first session was chaired by Dr Tomás Griffin, Consultant Endocrinologist at Galway University Hospitals. The first talk of the session, entitled 'Nutrition and the Older Person', was presented by Dr Daniel McCartney, Director of Human Nutrition & Dietetics at TU Dublin and Trinity College Dublin. Dr McCartney began his presentation by discussing how nutrient intake affects prevalent disorders associated with ageing and explained how critical physiological systems, such as the endocrine and musculoskeletal systems, are affected. Importantly, Dr McCartney emphasised how diet and nutritional status significantly influence these systems.

Dr McCartney addressed the current challenges within public healthcare, noting that many Irish Recommended Dietary Allowances (RDAs) are based on outdated or poor science and thus do not accurately reflect the current nutritional needs of the population. He stressed the importance of updating these guidelines to better reflect current research and address the nutritional needs of older populations. Dr McCartney went on to emphasise the central role Clinical Biochemists play in guideline development, from determining serum concentrations to producing data which can subsequently inform evidence-based policies.

Dr McCartney discussed the burden of chronic disease, particularly cancer, highlighting the shocking significant healthcare costs associated with cancers linked to lifestyle choices such as smoking, alcohol consumption, and obesity, as highlighted by the National Cancer Registry.

Dr McCartney then discussed targets for both macro- and micronutrients, with a particular focus on those that should be avoided. The presentation concluded with a focus on food and dietary solutions with the aim of improving nutritional health and quality of life for ageing populations.

The second speaker of the morning was Prof Bernard Walsh, Clinical Professor at Mercer's Institute St James's Hospital and Trinity College Dublin. Professor Walsh began his talk by emphasising the importance of defining vitamin D status, with Ireland reporting deficiency as <30 nmol/L, insufficiency <30 – 50 nmol/L and sufficiency ≥50 nmol/L. As low vitamin D status is prevalent across the world in healthy populations, defining vitamin D status is crucial.

Prof Walsh touched upon a number of studies which assessed vitamin D status in various groups. The first was an Irish geo-mapping study which investigated vitamin D status in Dublin and surrounding areas, exploring the effects of gender, age and season on vitamin D status over a five-year period. Interestingly, this study showed that approximately 40% of the study population had

either deficient or insufficient serum vitamin D levels. Importantly, the study provided recommendations on strategies to optimise vitamin D status population-wide, stating mandatory food fortification may be necessary. [This paper expanded on the original vitamin D geo-mapping paper published in 2017 by retired Principal Clinical Biochemist, Dr. Martin Healy, and colleagues]. A retrospective study of vitamin D status performed at St James's Hospital identified that Irish children <17 years had the same level of deficiency and insufficiency as adults. This alarming finding emphasises the urgent need for policy measures to address this issue.

Prof. Walsh then discussed the various factors involved in vitamin D deficiency, such as decreased bioavailability, increased catabolism etc., highlighting its potential effects on the musculoskeletal system. This is of particular importance in the elderly, where deficiency increases the risk of falls and fractures.

While vitamin D supplementation is effective when taken consistently, adherence is often insufficient. To potentially address this, Prof Walsh advocated for food fortification across as a wide range of products (e.g., dairy, flour) as a cost-effective approach to increase vitamin D levels in the general population, noting that this approach is already being implemented in several countries worldwide.

Prof Walsh concluded his talk reiterating the point that inadequate vitamin D levels remain a widespread problem, and future strategies are required to tackle public health challenge.

Session 2 (a) — Oral presentations from abstracts:

Next up was a chance to get some tea or coffee and some edibles while visiting the posters and the sponsors stands. A special word of thanks goes to all the meeting's sponsors.

Session 2 of the conference was chaired by Prof. Maria Fitzgibbon of the Mater Private Hospital and consisted of two oral presentations from submitted poster abstracts and the Keynote lecture.

The first of the oral presentations from abstracts was presented by Karen Heverin, a Principal Clinical Biochemist from Galway University Hospital. She presented a 'Proof of concept study assessing first trimester urinary total and glycated CD59 to predict gestational diabetes (GDM) in second trimester'. The talk began discussing the limitations around the use of the traditional 1 step 75g Oral Glucose Tolerance Test (OGTT) for the diagnosis of Gestational Diabetes Mellitus (GDM) and the potential benefit to identifying a new biomarker to aid in the diagnosis. CD59 is a complement regulatory protein present in all cells which is inactivated in diabetes. The aim of this study was to examine whether urinary total CD59 (tCD59) or glycosylated CD59 (gCD59) was detectable in the urine of GDM patients, and if so, to determine if it compares diagnostically to the OGTT. 34 patients (26 with normal glucose tolerance and 8 confirmed GDM) had samples collected in the first trimester for analysis of urine total and glycosylated CD59. Glycosylated CD59 was undetectable on initial testing and total CD59 was not a good predictor of GDM when compared to the fasting, 1hr and 2 hr glucose levels in an OGTT.

The second oral presentation titled 'A Case of Missing IgM' was presented by Wendy Groenendijk, A Clinical Biochemist from St Vincent's University Hospital. The case described a 78 year old male with chronic lymphocytic leukaemia who had discrepant results on Roche and Sebia platforms for both Albumin and IgM levels. Sample treatment with dithiothreitol was used to investigate the possibility of IgM polymerisation. Following treatment, capillary zone electrophoresis showed the appearance of a large monoclonal band and reduced albumin peak both of which were in keeping with the Roche results. Following this case, an electronic rule was implemented to flag discrepant albumin results and minimise the chance of reoccurrence for this interference.

Session 2 (b) — Keynote Lecture:

The keynote lecture was provided by Professor Rose Anne Kenny, Regius Professor of Physic, Professor of Medical Gerontology, Trinity College Dublin and Mercer's Institute for Successful Ageing, St James's Hospital Dublin. She is the founding Principal Investigator of The Irish LongituDinal study on Ageing (TILDA) and presented her talk on 'Age Proof - The New Science of Living a Longer and Healthier Life'.

With life expectancy increasing 2.5 years per decade, Prof Kenny discussed the importance of increasing people's healthspan, not just lifespan, with healthspan describing the period of time during which a person is healthy within his or her lifespan. From studies in twins, we know that 20-30% of factors determining lifespan are genetic, with the remainder being modifiable environmental factors such as smoking, diet, housing quality, occupational hazards, etc., many of which induce an effect through epigenetic modifications on DNA. Prof Kenny discussed a number of biomarkers that we may use in predicting lifespan which included HDL cholesterol, waist:hip ratio, CRP, resting heart rate and HbA1c.

The importance of complex social interactions in increasing a person's lifespan and healthspan was emphasised with quality and quantity of social relationships having a greater correlation to increased lifespan than that of either smoking or alcohol status. Studies have pointed to the biological mechanisms that underpin the relationship between social interactions and increased life expectancy, with loneliness and lack of social interaction triggering increased inflammation, hormone disruption, and increased production of cytokines. A key point for good mental health going into retirement is to 'flourish' in old age, and this may include participation in arts/crafts, cultural pursuits, having a creative hobby, reading for leisure and listening to music.

When looking towards positive influences on lifespan, Prof Kenny points towards a number of areas including increasing social interactions (volunteering, interaction with family etc.), increased exercise (with a combination of weight bearing and aerobic exercise showing the best results), exposure to temperature extremes (sauna heat stress and cold-water immersion) and decreased consumption of ultra-processed food. Prof Kenny finished her talk by highlight components that she sees as key to increasing lifespan including midlife health, health screening (BP, Cholesterol, diabetes etc.), long term physical activity, pharmaceuticals (statins, metformin and rapamycin), dietary interventions (intermittent fasting, Mediterranean diet) and enhancing the gut microbiome (probiotics, prebiotics).

[Editor's note: For those who would like to explore this topic further Dr. Kenny has produced a very readable book (pictured) which was published in 2022 and which is readily available in book shops or through the public library system.]

Suitably energised by what was a brilliant keynote lecture we headed back out to the exhibition area to enjoy some lunch, read some posters, visit the sponsors' stands, and generally just avail of the opportunity to chat with laboratory and industry colleagues.

Session 3 — Endocrine and Renal aspects of ageing:

Soon it was time to head back into the lecture room for the afternoon sessions, chaired by Dr. Caroline Joyce, Principal Clinical Biochemist, Cork University Hospital.

First up was Dr Elizabeth Brosnan, Consultant Physician / Endocrinologist in Mayo University, who presented her lecture entitled *Atypical presentations and common endocrine disorders in older age*. Dr Brosnan discussed a number of cases which demonstrate atypical ways in which elderly patients may present with endocrine disorders.

The first case involved an 80 year old female, who found "ageing" more difficult in the previous few months with difficulty moving, and was referred to GUH rheumatology. There, hypocalcaemia was identified. Follow up biochemical, haematological, clinical and historical blood work analysis finally arrived at a diagnosis of coeliac disease in this elderly patient, providing an atypical reason for the hypocalcaemia. This case demonstrated that autoimmune disease may be identified and diagnosed in the older age group, with 20% being diagnosed in people over the age of 65, with 4% being diagnosed in patients over the age of 80. Diagnosis in the elderly tends to have a different clinical presentation. 30% can be 'silent' – which is equally important to identify and diagnose due to long term consequences, e.g. lower bone density, osteopenia and osteoporosis with higher fracture rates, as well as symptoms of coeliac neuropathy, memory disturbance,

ataxia and a higher rate of lymphoma. Management of the condition through dietary restriction, can be difficult for the older age group, due to cost, habit and logistics involved.

Dr Brosnan then discussed a case where a 78 year old female patient was initially diagnosed and treated for type 2 diabetes. With a BMI of 27 she wasn't particularly overweight, but she did have a raised blood sugar and she did present with diabetic ketoacidosis. Anti-GAD, anti-islet cell and anti-ZnT8 antibodies were tested and all found to be positive. This changed her diagnosis to latent autoimmune diabetes of adulthood (LADA).

Of newly diagnosed patients with type 1 diabetes, 50% of diagnoses occur in adulthood. Of the total diabetic population, 2-12% are diagnosed in adulthood, with 40% of type 1 diabetics being misdiagnosed as type 2 diabetics. This is because they have a prolonged endogenous insulin production, in comparison to children and teenagers who are diagnosed with type 1 diabetes. Therefore, LADA should always be suspected in the older age group, when there is an atypical history or physical exam. There is a genetic susceptibility to LADA with a polymorphism in the HLADQB1 and DRB1 genes. Sulphonylurea therapy should be avoided as it is thought to hasten the decay of the patient's own insulin producing cells.

Dr Brosnan's presentation was followed by one on *Renal disease in older adults and how interpretation of biochemical data will inform care pathways*, delivered by Prof Liam Plant, Consultant Nephrologist in Cork University Hospital. Professor Plant's talk focused on how nephrologists and GPs now think about identifying, prognosticating, treating, mitigating and monitoring CKD in the elderly. He indicated how all this is built upon just two biochemical values (eGFR and ACR), and outlined how they are measured, presented and evaluated.

The presence of CKD has always been identified by the existence of any one of the following:

1. a structural abnormality (imaging)
2. a histological abnormality (biopsy)
3. haematuria not due to an infection, a stone or a Tumour
4. albuminuria / proteinuria
5. eGFR < 60 mls/min (based on age, gender, race & serum creatinine).

KDIGO 2024 Clinical Practice Guideline for the evaluation and management of CKD is available which shows how these values enable early identification and intervention in primary care. Clinicians can categorise kidney disease in patients and stratify patients into those who can be managed in primary care and those who require consultation with nephrology, and how they should be monitored. Other resources available to clinicians include online kidney failure risk calculations (such as https://kidneyfailurerisk.co.uk) which utilises biochemical data, gender and age to predict risk over certain time periods.

In addition, there has been an expanse of new treatment options available for CKD which help to slow the rate of decline, for example SGL2 inhibitors and RAS inhibitors, all of which require more monitoring.

There was discussion on the effect of aging on the kidneys and the associated effect that it has on values like eGFR, and whether low values with progressive age should be considered as kidney disease, or not. With evidence reported from TiLDA that 1 in 7 people over the age of 50 in Ireland have an eGFR value that would classify them as having kidney disease, the European Kidney Function Consortium (EKFC) equation is helpful since it uses a correction factor for the expected normal population. This equation performs well from approximately 12 to 92 years of age. However, equations like this are easily susceptible to error, for example, if something like the gender of the patient is recorded inaccurately. Likewise, the eGFR can be affected by variations in the endogenous markers that are used within the calculation, e.g. loss or gain of muscle mass results in reduced or increased creatinine, resulting in an associated effect on calculated eGFR without associated kidney disease. Therefore, it is best to use an eGFR formula that has least variance possible between measured and estimated. KIDGO guidance is that if the gap between measured and estimated is less than 30%, then it is acceptable for clinical practice.

In a similar way, biological variation/variability in the measurement of albumin and creatinine can affect

the ACR measurement.

In conclusion, the improvements in the structuring of guidelines should be welcomed. However, clinicians need to be familiar with the variations that can occur and that can affect the measurement of eGFR and ACR, a variance that is more likely in the older adult. Prof. Plant also stressed the need for CKD to be added to the HSE structured Chronic Disease Management programmes.

The final tea / coffee and poster viewing of the day set us up nicely for the final lecture session of the day under the guidance of session Chair Dr. Graham Lee, Consultant Clinical Biochemist in the Mater Misericordiae University Hospital.

Session 4 (a) — Linking geriatric services:

This session opened with two excellent talks that provided an insight into comprehensive geriatric assessment and the link between the hospital and primary care setting. In her presentation *Comprehensive Geriatric Assessment: Who, What, Where and Why?,* Dr. Maria Costello, Clinical Lead for the West Galway Integrated Care Team for Older Persons guided us through the key elements that ensure the successful delivery of the Integrated Care Programme for Older Persons (ICPOP). The service is targeted at older persons who have complex needs and those who require specialist multi-disciplinary intervention to help maintain their independence and live well at home. It involves a multi-disciplinary team, which is led by a Consultant Geriatrician and includes a nurse, physiotherapist, occupational therapist, speech & language therapist, social worker and dietician.

The National Clinical Programme for Older People recommends that all older adults identified as being frail or at risk of frailty should have a timely comprehensive geriatric assessment (CGA) performed and documented in their permanent health record. (HSE 2012).

Older people living with frailty or at risk of frailty are admitted to hospital more frequently and have longer length of stay in comparison to other patient groups. Early identification of frailty and those at risk of frailty, with appropriate intervention, can lead to improved clinical outcomes. A CGA is an organised approach to determine an older person's medical conditions, mental health, functional capacity and social circumstances. Its purpose is to develop and implement a coordinated and integrated plan for treatment, rehabilitation, support and long term follow up. Dr. Costello, using individual case examples, outlined the benefits of CGA which include improved diagnostic accuracy, optimisation of medical and rehabilitation treatment, enhanced health and functional outcomes. CGA also informs the development of individual care plans, assists in avoiding the potential complications of hospitalisation and facilitates effective discharge planning.

This excellent insight into ICPOP and the use of CGA was followed by Dr. Aoife Leahy, Consultant Physician in Geriatric Medicine, University Hospital Limerick. In her lecture Dr. Leahy provided an overview of her research study (SOLAR), which aimed to assess the benefits of CGA for older adults in the Emergency Department (ED).

Older adults over 75 years old, who presented to a single centre with medical complaints and who screened positive for frailty on the ISAR (≥2), were randomised to geriatrician-led multidisciplinary CGA and management or to usual care. Dr. Leahy outlined the elements to the ISAR (Identification of Seniors at Risk) frailty assessment tool and compared it to other validated frailty assessment tools including the Rockwood Clinical Frailty scale and the PRISMA 7 tool.

The primary outcome was patient experience time (PET) in the ED. The analysis was performed as per intention to treat. 228 patients were recruited from November 2020 to April 2021. The mean age of the cohort was 84 years with 113 patients in the intervention group and 115 in the control group. Follow -up was carried out at 30 days and 180 days. ED PETs were significantly lower in the intervention group with no adverse events related to this group. This study showed that geriatrician-led multidisciplinary assessment of older frail adults in the ED setting conferred a statistically significant improvement in ED PET at index visit and lower rates of ED re-attendance, nursing home admission, quality of life and function at 180 days.

Following these talks that centred on the frail elderly the possible use of a biochemical test panel for use in this patient cohort was discussed.

Session 4 (b) — Oral presentations from abstracts:

This session concluded with two more oral presentations selected from the accepted abstracts for the conference.

Mr Conor Vaughan (Cork University Hospital) presented his talk titled 'Coming Out of the Dark: A Comprehensive Study of Vitamin A and E Stability'. He highlighted how the pre-analytical phase is the most significant source of error in laboratory medicine and the importance of quality studies assessing the effect of pre-analytical variables. The aim of the study was to determine the effect of light exposure on the stability of fat-soluble Vitamins A & E in EDTA plasma, Lithium heparin plasma and clot activated gel tubes over time.

Samples were taken from ten healthy volunteers (CUH staff) following the granting of full ethical approval for the study. The effect of fluorescent light exposure compared with light protection over 48 hours was considered. Reference change values were 32.3% and 34% for Vit. A and Vit. E respectively.

This study found that Vitamin A and Vitamin E remained stable for up to 12 hrs in all blood matrices examined, irrespective of light exposure. This suggests that stringent light control in the pre-analytical phase may not be necessary for these analytes. If the results of this study are reproduced, it may lead to fewer request rejections based on light stability for Vitamins A and E. This would reduce the cost to the health system of repeat testing and potentially allowing for sample collection for these analytes in the community.

Mr Vaughan thanked all those in the Biochemistry Dept., CUH, who had input into this comprehensive stability study and the volunteers who kindly provided the samples used in the study.

The second oral presentation was given by Dr. Micheál Mac Aogáin from St. James's Hospital. Dr Mac Aogáin provided an overview of the genetic landscape of Porphyria in Ireland by leveraging a comprehensive database that integrates clinical, genetic and biochemical data. His study involved the retrospective analysis of data from 87 families with biochemically confirmed phenotype, with genetic diagnoses established through the use of Sanger-based mutation scanning. The primary presenting phenotypes included Acute Intermittent Porphyria (AIP), Erythropoietic Protoporphyria (EPP), Variegate Porphyria (VP), familial Porphyria Cutanea Tarda (fPCT), and Hereditary Coproporphyria (NCP).

Identified genetic variants were annotated and assessed for pathogenicity using a curated in-house genetic reference database, housed in a cloud-native, publicly accessible platform (Porphyriadb.com)

Dr. Mac Aogáin established that of the 87 families analysed, 74% had at least one member with a confirmed genetic diagnosis. He described the distribution of different phenotypes and highlighted the heterogeneous genetics of porphyria nationally.

This study underscored the importance of a comprehensive genetic reference database to ensure genetic susceptibility is accurately identified and monitored in affected families and provided a real insight into the invaluable service provided by the Porphyrins Laboratory at St. James's Hospital.

Friday evening saw the ACBI Annual Dinner held in the conference room. Your newsletter editors and their wives shared a table with some others and completely ignored the opportunity to discuss forthcoming editions of *Clinical Biochemistry News.* An excellent evening was had by all and our thanks go to the hotel catering staff for both the Annual Dinner and the conference in general.

Session 5 — Brain repair in Parkinson's and hCG in pregnancy:

Saturday morning dawned brightly and after a hearty breakfast and pleasant conversations with fellow delegates, it was back to the conference area for day 2's session. The opening session of the day was chaired by Dr. Seán Costelloe, Consultant Clinical Biochemist in Cork University Hospital.

The session began with Professor Eilís Dowd from the University of Galway who presented a talk titled "The Loaded Matrix: Biomaterial-Aided Cellular Brain Repair for Parkinson's Disease." Prof. Eilis highlighted

the limitations of L-DOPA, the only effective treatment for Parkinson's disease since its first use in 1961. Despite effectively controlling symptoms for a considerable period of time L-DOPA does nothing to prevent or reverse neuronal damage or inflammation. Professor Dowd's research focuses on transplanting induced pluripotent stem cells (iPSCs) to replace damaged neurons, addressing the scarcity of legally available transplantable tissues. A key innovation in her work is the use of hydrogels enriched with neurotrophic factors to support the survival and differentiation of these transplanted cells. This approach has shown promise in animal models, and it is hoped that one day these may offer a potential pathway to more effective, and even curative, treatments for Parkinson's disease.

Dr. Caroline Joyce, Principal Clinical Biochemist at Cork University Hospital, delivered a talk titled "Hot Topic - Monitoring hCG in Pregnancy and Beyond," which focused on the meeting between laboratory and clinical services to help diagnose, monitor, and treat women with gestational trophoblastic disease (GTD). She primarily discussed the complexities of measuring beta-human chorionic gonadotropin (β-hCG), a critical biomarker for GTD management. Challenges arise due to the hormone's various isoforms and the variability between different immunoassay platforms, which can lead to discrepancies in patient monitoring across centres.

This talk illuminated the importance of effective communication and collaboration between laboratory staff and clinical teams to ensure accurate management of GTD patients; and crucially, the need for consistency when monitoring GTD patients using β-hCG as a biomarker due to differences between analytical platforms. The talk additionally highlighted the importance of considering laboratory biases when using monitoring and treatment guidelines whose reference intervals and cut-offs are often based on methods not commonly used in routine clinical practice (such as RIA).

Session 6 (a) — Blood biomarkers for dementias:

A break for coffee and tea plus fruit and biscuits was refreshing, and allowed time to view some more of the excellent posters and to visit some more of the sponsors' stands. Then it was back in to the lecture hall for the final session of the conference, a busy session which was chaired by Dr. Jennifer Brady, Consultant Clinical Biochemist with Children's Health Ireland.

First up was Dr Joseph Kane, Clinical Lecturer in Queen's University Belfast, and Honorary Professor in Psychiatry of Old Age, Belfast Health & Social Care. His presentation, entitled *Blood-based biomarkers in neurodegenerative dementias,* gave us an insight into a newly developing area of blood testing. He began by pointing out that Alzheimer's Disease (AD) represents one form of neurodegenerative disease that ends up with the clinical condition dementia. AD is not a clinical diagnosis; it is a neuropathological diagnosis. Much of the work on AD in recent years has focused on getting a clinical diagnosis earlier, rather than at post-mortem. Better radiological scans have helped considerably but newer blood tests are likely to have the biggest effect.

Dr. Kane told us how workers in this area now have a series of proteins which are looking very promising. Blood Tau is now as good as csf Tau and, being much easier to sample, is being incorporated into protocols. Blood markers are coming and their development is being hugely incentivized by the development of new drugs to tackle pre- and early- dementia as they are needed as markers of likely drug efficacy. However he does not believe that blood-based markers will develop as quickly as the drug companies hope, nor will blood-based markers quickly replace the csf markers that have come into more use in the past few years.

Session 6 (b) — EFLM Lecture:

Zoom was needed for the EFLM Plenary lecture, delivered by Prof. Snežana Jovičić. Prof. Jovičić was unable to travel to Ireland in person on this occasion, having kindly stepped in as a late replacement. This presentation, *Digital transformation towards the clinical laboratory of the future*, dealt with both the concepts likely to govern our future laboratories, and also the mechanisms that will bring those developments. Before starting her main lecture Prof. Jovičić gave a comprehensive overview of the EFLM organisation, including the Academy lecture programme.

Prof. Jovičić began her Plenary lecture by quoting from Cortelyou et al's 2010 paper in Health Care Management stating that the clinical laboratory is the nerve centre of diagnostic medicine. She pointed out that the clinical laboratory is a central place where most of the clinical requests converge and from where the answers to them emerge. A key focus of her talk was that to successfully adapt and take advantage of the new circumstances we find ourselves in (masses of data, expanded POCT, AI, etc.), and to respond to the new expectations, clinical laboratories need to develop in the direction of digital transformation.

So what is digital transformation? It is a process that involves the use of digital technology to collect data, automate processes, establish trends, and mark better business decisions. Digital technologies connect automated processes and equipment, monitor and control supply chains, and work alongside robots programmed to leverage artificial intelligence (AI). Note that digital transformation should not be confused with digitization, which is the process of converting information into a digital format.

How will all this be achieved? Education, including new learning methods will be needed. Laboratory medicine experts will need close collaboration with artificial intelligence experts. There will be no borders between the central lab and POCT. In finishing up, Prof. Jovičić stated that clinical laboratories will move from mere data production to directing decision making. In her final point she reminded us that we must not forget the ultimate user of laboratory test results – the patient and his/her well-being.

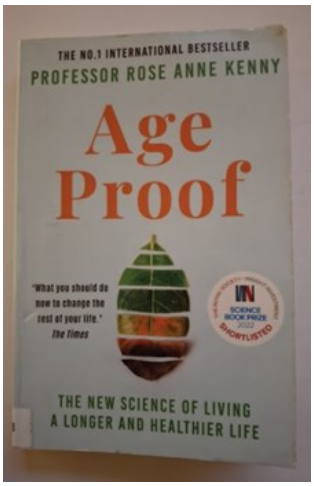
This session concluded with an oral presentation selected from the accepted abstracts for the conference. Eileen Byrne, Senior Clinical Biochemist at the Mater Misericordiae University Hospital, Dublin, presented an interesting case under the title *To Err is Good?* A GGT of <2 U/L aroused the suspicions of the Duty Biochemist, leading to the investigation of the assay reaction curve. This revealed an abnormal pattern, suggesting interference in the assay. A raised Total Protein of 95 g/l (ref 65-83) and Calculated Globulin of 61 g/L (ref 26-39) pointed to a paraprotein as a possible cause of the interference. A phone conversation with the patient's GP added clinical information pointing to a possible myeloma. On the Duty Biochemist's suggestion further tests were requested which revealed an elevation in kappa free light chains (10393.8; ref 3.3 - 19.4), with an abnormal kappa-lambda ratio of 124 (0.26 - 1.65) and the presence of a paraprotein (IgG-kappa monoclonal paraprotein). This was an interesting example of the importance of the Duty Biochemist in spotting the suspicious result and investigating the 'black box' element of the assay leading to a clinical diagnosis for the patient.

Following Eileen's presentation Dr. Paula O'Shea announced the winners of the poster awards and presented medals to Wendy Groenendijk and Eileen Byrne (joint winners best clinical case poster) and Karen Heverin (Geraldine Roberts medal for best poster overall). Paula then concluded the meeting by thanking the many individuals who had contributed to what was a very successful meeting.

<u>Session 6 (c) — Oral presentations from abstracts:</u>

Session 1: [L-R] Dr. Daniel McCartney, Dr. Tomás Griffin, Prof. Bernard Walsh.

Session 2b: [L-R] Prof. Rose Anne Kenny, Prof Maria Fitzgibbon, Dr. Paula O'Shea.



Session 3: [L-R] Dr. Elizabeth Brosnan, Prof. Liam Plant, Dr. Caroline Joyce

Session 4 (+): [L-R] Dr. Aoife Leahy, Dr. Mario Costello, Dr. Elizabeth Brosnan, Dr. Paula O'Shea

Session 5: [L-R] Dr. Paula O'Shea, Dr. Caroline Joyce, Dr. Seán Costello, Prof. Eilís Dowd

Poster prize-winners: [L-R] Wendy Groenendijk and Eileen Byrne (joint winners best clinical case poster), Karen Heverin (Geraldine Roberts medal for Best poster)

Friday morning lecture session

The ACBI Logo, and a New Banner

The Banner:

To celebrate the 60th anniversary of the founding of ACBI I was asked to design (with family help) a new pull-up banner for the 2024 Annual Conference. I immediately contacted Susan, my younger daughter. I figured she could help her poor old dad as she's a Creative Copy-writer with a major advertising company, and has her own mini-company, Susan Illustrates, where she produces quirky Irish humour cards and prints. She enthusiastically stepped up the mark, and the end result was the banner many of you will have seen at the entrance to the posters / sponsors area of the conference, and which is shown in this photo.

The new banner is intended to accompany our existing ones, so the text was kept to a minimum. The focus of the banner is on the association's logo, with the lines on the banner following the curved lines of the logo.

That brings me to the logo itself. How much do members know about our logo?

The Logo:

The ACBI logo was launched in 1993. Dr. Alan Balfe, now retired as a Principal Clinical Biochemist from St. James's Hospital, was responsible for research and for the design concept. His brother, architect Brendan Balfe, was the design artist.

The design of our logo incorporates Celtic symbols of knowledge and healing to represent science and medicine. The water in the logo represents the Otherworld Well of wisdom, the spring of healing, and the cauldron of regeneration. It also includes the hazels of wisdom and inspiration, which fed the salmon of knowledge. The grouping of the elements of the logo echoes the triadic motif. The overall appearance is open to interpretation at various levels of meaning. For example, the lower part echoes a common schematic used in biochemistry to represent molecules migrating in a matrix.

In summary, ACBI has a logo our members can be proud of. We again extend our thanks and appreciation to Alan and Brendan.

Dr Peadar McGing.

This piece drew heavily on a poster display previously featured for the ACBI's 50th anniversary at the 2014 Annual Conference and first presented at the 1998 Conference. Special thanks to Dr. Alan Balfe for the description of the logo, which was included in that display. Also, to Paddy Quigley for minding the four poster boards for the past 10 years (and Jacintha Quigley for allowing storage of the poster in their home!).

A Selection of Members' Recent Publications

The determination of endogenous steroids in hair and fur: A systematic review of methodologies. **Maher P**, **Healy M**, Laird E, Marunica Karšaj J, Gao W, Zgaga L. J Steroid Biochem Mol Biol. 2024 Nov 28;246:106649. doi: 10.1016/j.jsbmb.2024.106649

Endometriosis specific vaginal microbiota links to urine and serum N-glycome. MacSharry J, Kovács Z, Xie Y, Adamczyk B, Walsh C, Reidy F, McAuliffe FM, **Kilbane MT**, Twomey PJ, Rudd PM, Wingfield M, Butler M, van Sinderen D, Glover L, Saldova R. Sci Rep. 2024 Oct 25;14 (1):25372. doi: 10.1038/s41598-024-76125-2

Performance evaluation of the Abbott Alinity Hepatitis C antigen next assay in a US urban emergency department population. Prostko J, Rothman R, Hsieh YH, Pearce S, **Kilbane M**, McAuley K, Frias E, Taylor R, Ali H, Buenning C, Grieshaber J, Bedrava J, Daghfal D. J Clin Virol. 2024 Oct 30;175:105743. doi: 10.1016/j.jcv.2024.105743

Point-of-care procalcitonin trends in suspected neonatal late-onset infection: a prospective observational study. Armstrong SJ, **Brady JJ**, Drew RJ, Foran A. Pediatr Res. 2024 Oct 25. doi: 10.1038/s41390-024-03670-x

Symptom burden, coagulopathy and heart disease after acute SARS-CoV-2 infection in primary practice. Colleran R, Fitzgerald S, Rai H, McGovern L, Byrne RJ, Mansur A, Cradock A, Lavery R, Bisset J, McKeogh S, Cantwell G, O'Ciardha D, Wilson H, Begossi N, Blake N, **Fitzgibbon M** et al. Sci Rep. 2024 Sep 11;14 (1):21229. doi: 10.1038/s41598-024-71535-8

The final part of the CRESS trilogy - how to evaluate the quality of stability studies. Cornes M, Vermeersch P, Šimundić AM, Von Meyer A, Šálek T, Meyer B, **Costelloe S**, De Guire V, Gomez-Rioja R, Cadamuro J. Clin Chem Lab Med. 2024 May 16;62(11):2128-2139. doi: 10.1515/cclm-2024-0527

Reviews / Articles of Interest

Strategy for chosing 'the right test, for the right patient, at the right time' in ICU patients.
Guidelines for the prescription of standard hematology and biochemistry clinical laboratory tests in the intensive care unit: A scoping review protocol.
Devis LL, Catry E, Hardy M, Mansour A, Honore PM, Lippi G, Closset M, Mullier F.
PLoS One. 2024 Oct 25;19(10):e0310059. doi: 10.1371/journal.pone.0310059.

Comprehensive review of Troponin structure, analysis and clinical interpretation.
Clinical Biochemistry of Serum Troponin.
Gokhan I, Dong W, Grubman D, Mezue K, Yang D, Wang Y, Gandhi PU, Kwan JM, Hu JR.
Diagnostics (Basel). 2024 Feb 9;14(4):378. doi: 10.3390/diagnostics14040378.

Should the cut-off for HbA1c in younger pre-menopausal women be revisited?
The Impact of Age and Sex on Fasting Plasma Glucose and Glycated Haemoglobin (HbA1c) in the Non-diabetes Population.
Stedman M, Heald AH, Holland D, Halsall I, Green L, Wu P, Patel K, Scargill J, Gibson M, Hanna FWF, Fryer AA.
Diabetes Ther. 2024 Dec 20. doi: 10.1007/s13300-024-01680-w.

The effect of pregnancy and postpartum on common analytical tests.
Reference intervals for 23 common biochemical parameters during pregnancy and the first six postpartum months.
Lillemoen PKS, Holstad K, Bjørke-Monsen AL.
Scand J Clin Lab Invest. 2024 Nov 16:1-12. doi: 10.1080/00365513.2024.2406006.

Educational

Authors discuss their recently published papers on the Clinical Chemistry podcast
Clinical Chemistry Podcast | myadlm.org

Restore the microbiome and reduce non-communicable diseases such as CVD. This is an international study which includes participation of APC Microbiome Ireland, University College Cork.
Cardiometabolic benefits of a non-industrialized-type diet are linked to gut microbiome modulation. Li F, Armet AM, Korpela K, Liu J, Quevedo RM, Asnicar F, Seethaler B, Rusnak TBS, Cole JL, Zhang Z, Zhao S, Wang X, Gagnon A, Deehan EC, Mota JF, Bakal JA, Greiner R, Knights D, Segata N, Bischoff SC, Mereu L, Haqq AM, Field CJ, Li L, Prado CM, Walter J. Cell. 2025 Jan 20:S0092-8674(24)01477-6. doi: 10.1016/j.cell.2024.12.034.

Description of the development of an AI generated database to provide information on the extent of industrial processing of food. 50,000 food items from 3 different US supermarket chains examined for the extent of processing and alternatives provided within categories. There are plans to roll out the software internationally.
Prevalence of processed foods in major US grocery stores. Ravandi B, Ispirova G, Sebek M, Mehler P, Barabási AL, Menichetti G. Nat Food. 2025 Jan 13. doi: 10.1038/s43016-024-01095-7.
The searchable database described in the above paper is known as GroceryDB and is freely available here.

Everything you want to know about EQA. A series of papers recently published in CCLM. Five articles.
10.1515/cclm-2024-1289
10.1515/cclm-2024-1290
10.1515/cclm-2024-1291
10.1515/cclm-2024-1292
10.1515/cclm-2024-1293

Special issue of Clinical Chemistry on genomics/ pharmacogenomics advances in the laboratory.
Volume 71 Issue 1 | Clinical Chemistry | Oxford Academic

Publications from EFLM / IFCC

EuroLabNews: The current edition of the EFLM Newsletter, EuroLabNews (September/October 2024), is available here.

CCLM: The latest issue of Clinical Chemistry and Laboratory Medicine (CCLM Volume 62 (2) 2025 is available here. Free for ACBI and EFLM Academy Members.

International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) eNews: The December 2024 edition is available here.

eJIFCC: The current issue of the IFCC's journal, eJIFCC (April 2024), can be found here.

IFCC Curriculum: Comprehensive syllabus for postgraduate training in clinical laboratory Science.

Database of Outcome Studies in Laboratory Medicine (OSLM): Developed by an IFCC Taskforce, the database contains publications under a variety of headings related to laboratory outcomes research. Link here.

ISO 15189 standards were updated and published in December 2022. These specify the requirements for quality and competence that medical laboratories must meet to achieve accreditation. In January 2025 the EFLM Committee on Accreditation produced a guidance document to assist in the understanding and implementation of the standards.