

*Abstracts of*  
*7<sup>th</sup> National INSPIRE GEM*  
*Research Conference*

# INGEM 2024

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Organized by  
Swansea University Medical School, UK  
20 July, 2024

*Editors:*

**Andrew Shearn**  
**Richard Odai**  
**Joseph Maclaughlin**  
**Ilyas Khan**

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Andrew Shearn  
Richard Odai  
Joseph Maclaughlin  
Ilyas Khan  
(Editors)

*Abstracts of 7<sup>th</sup> National INSPIRE GEM  
Research Conference: INGEM 2024  
20 July 2024*

*Organized by*  
Swansea University Medical School, UK

*Published by*  
AIJR Publisher, Dhaurahra, Balrampur, India 271604



Abstracts of 7<sup>th</sup> National INSPIRE GEM Research Conference: INGEM 2024  
20 July 2024

*Editors*

- **Andrew Shearn:** GEM INSPIRE representative, meeting organiser
- **Richard Odai:** GEM INSPIRE representative, meeting organiser
- **Joseph Maclaughlin:** GEM INSPIRE representative, meeting organiser
- **Ilyas Khan:** INSPIRE academic lead

*Conference Organizer*

Swansea University Medical School, UK

*Conference Venue*

Swansea University Medical School, UK

ISBN: 978-81-989164-4-0

DOI: <https://doi.org/10.21467/abstracts.8.3>

*Type*

Abstract Book

*Series*

AIJR Abstracts

Vol. 8, No. 3

*Published*

07 February 2026

*Number of Pages*

36

*Copyeditor*

Dr. Adam A Bahishti

*Imprint*

AIJR Books

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AIJR Publisher, Dhaurahra, Balrampur, India 271604

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**INGEM 2024**

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## **Welcome to INGEM 2024**

*hosted by*

**Swansea University Medical School**

I'd like to begin by giving you all a very warm welcome to Swansea University for what is the 7<sup>th</sup> Annual National INSPIRE funded GEM Research Conference. My name is Dr Ilyas Khan and I am the Academic Lead for the INSPIRE programme at Swansea University Medical School and my welcome is also on behalf of the Academic leads from the affiliated medical schools who are: Dr Tom Barber from Warwick Medical School, Prof Lisa Jones from Three Counties Medical School and Prof John Alcolado from Chester Medical School. Our title of Academic Lead is purely titular, we don't actually do much, all the organisation and running of the programme is done by student committees in each of the Medical Schools, and so I'd like to thank the students who have taken time out of their busy schedules, placements, revision time to organise this conference, they are INSPIRE organising committee, from Swansea, Joe McLaughlin and Richard Odai and Conference Co-ordinators Andrew Shearn and Sam King, and Erica Sugita from Warwick University. For every orchestra there must be a conductor to keep everything in order and our maestro keeping everyone on time and calming nerves has been the indefatigable Kelly Coles from Warwick University.

I'd like to extend my thanks to all the participants for your attendance, the wonderful posters and engaging presentations. I would like to congratulate the prize winners, and lastly our invited speakers who gave such illuminating talks sharing their experiences in research.

## The INSPIRE Programme



7<sup>th</sup> National INGEM Conference  
20 July 2024



# Agenda

09:00 - 09:30	Registration and Refreshments	Main Foyer
09:30 - 09:45	Open and Welcome Remarks Dr Ilyas Khan	Main Lecture Theatre
09:45 - 10:15	Keynote: "Trust Me I'm A Heart Surgeon" Professor Gianni Angelini MD, MCh, FRCS, FETCS, FMedSci	Main Lecture Theatre
10:15 - 11:00	Refreshments and Poster Presentation	Foyer
11:00 - 12:10	Oral Presentations	Main Lecture Theatre
12:10 - 12:55	Lunch	Main Foyer
12:55 - 13:00	Inspire Summer Internships	Main Foyer
13:00 - 13:30	Keynote: "Navigating the world of Medical Research: Tips and Strategies for Students" Dr Thinzar Min MBBS, MSc, MD, FRCP(Glasg), FHEA, PGDipME	Main Lecture Theatre
13:30 - 14:35	Oral Presentations	Main Lecture Theatre
14:35 - 15:00	Break and Refreshments	Main Foyer
15:00 - 15:30	Talk: "My SFP Experience" Dr Emily Kidner	Main Lecture Theatre
15:30 - 16:00	Talk: "Being a 'Bare Minimum' Medical Student – Balancing Med School with Opportunity" Dr Tamsin Nicholson MA(Hons), MSc, MBBCh	Main Lecture Theatre
16:00 - 16:30	Closing Remarks and Prize-giving Dr Ilyas Khan	Main Lecture Theatre

# Oral Presentation Order

*Morning*

11:00 - 12:10

Oral Presentations

Main Lecture  
Theatre

1. Amy Barnes
2. Ffion Ellis-Davies
3. Flora Lawton
4. Serge John

*Afternoon*

13:30 - 14:35

Oral Presentations

Main Lecture  
Theatre

1. Darius Mazaheri-Asadi
2. Elizabeth Irwin
3. Joe McLaughlin
4. Callum Chapman



**INGEM 2024**

# Osteonecrosis in children and young adults treated for acute lymphoblastic leukaemia: a scoping review

Michael Callum Chapman, Maisie Tustian, Joseph D Wilson, Mark A Williams and Robyn J Stiger  
Swansea University Medical School

**Introduction:** Osteonecrosis (ON) is a common disabling complication of treatment for patients with acute lymphoblastic leukaemia (ALL). Reported incidence rates range from 1-61% and multiple possible risk factors have been identified. This review explored existing evidence to provide new perspectives and recommendations for future interdisciplinary research.

**Methodology:** PEDro, CINAHL, AMED, EMBASE, OVID, EMCARE databases were systematically searched from their inception to March 2022. Published original research reporting the incidence rates of osteonecrosis in patients aged 10-25 with ALL were included. Study reporting quality was assessed against appropriate reporting guidelines (STROBE, CONSORT and CROSS). All relevant data reporting incidence rates and risk factors were extracted for narrative synthesis.

**Results:** 3146 report titles were screened, with 34 studies included (n=12,056) (30 observational cohort studies, three randomised trials, and one questionnaire study). The median study quality reporting score was 68% (IQR 64-82%). Median overall incidence rate of ON was 51.8% (IQR 41.4-58.9%) and 15.65% (IQR 9.2-24.2%) for asymptomatic and symptomatic patient screening respectively. Five possible risk factor categories were identified: sex assigned at birth, age, ethnicity, steroid regimen, and genotype. The female sex and white ethnicity were consistently reported as risk factors independently associated with an increased risk of osteonecrosis in all studies.

**Conclusion:** A heterogeneous body of literature with moderate reporting quality identified a high incidence rate of osteonecrosis in patients with ALL. Future research investigating the efficacy of stratified treatments that focus on reducing the risk of osteonecrosis through modification of steroid regimen particularly in females of white ethnicity is needed. Obtaining multidisciplinary consensus with regards to screening methodologies and intervention outcomes may also help to improve evidence synthesis in this area. This may in turn facilitate early diagnosis and improve long term patient outcomes through treatment regimen modification and possible prevention of ON progression.



# Assessing the influence of strontium ranelate on myocardial infarction: A systematic review

Amy Barnes

Warwick University Medical School

**Aims:** The aim of this systematic review is to evaluate the significance of strontium ranelate on incidence and risk of myocardial infarction, within populations of osteoporosis patients. This review also aims to appraise existing literature to explore dissimilarities between data.

**Methods:** Between October-November 2023 a literature search was performed using the PubMed, Embase and Cochrane Library databases. 34 records reporting incidence of myocardial infarction from patients taking strontium ranelate were sourced. Following assessment against the exclusion criteria and critical appraisal using the critical appraisal skills programme checklist, 5 records remained eligible. Risk of bias was minimised using the Joanna Briggs Institute tool.

**Results:** A total of 3 cohort studies and 2 case-control studies were assessed. All 5 studies reported no statistically significant increased incidence or risk of myocardial infarction in patients taking strontium ranelate. There was no significant difference between patients taking strontium ranelate and patients taking other osteoporosis medications. Patients presenting with contraindications demonstrated an increased risk of myocardial infarction, but this was not significant.

**Discussion:** Patients taking strontium ranelate for osteoporosis do not have a significantly increased incidence or risk of myocardial infarction, compared to patients taking alternative osteoporosis medications. However, discrepancies between studies suggest that conclusions regarding the safety of strontium ranelate may still be inconclusive and further research into this field is warranted. Clinicians should remain cautious about the safety of strontium ranelate.



# Learning from 4 years of feedback: INGEM- A National Conference for Graduate Medical Students by INSPIRE

Erica Sugita

Warwick University Medical School

**Background:** The national decline in the academic medicine workforce is likely to adversely impact future medical research and teaching in the UK. Graduate-entry medical (GEM) students are more likely to have previous research experience, and this has shown to be a good predictor for entry into an academic medicine career. The INSPIRE Conference is a national conference for GEM students, including workshops around navigating the application process for the Specialised Foundation Programme (SFP) with the aim of the improving students' confidence and understanding of the recruitment and selection process (though this is due to change for 2025). Alongside this, providing opportunities for students, particularly those from Widening Participation (WP) backgrounds, to present their research formally either through poster or oral presentations is a key aim of the conference, as well as increase opportunities to network and improve the social capital of those for whom access may be limited.

Feedback was sought via an anonymous survey from 146 students who attended the INGEM conference between the years 2020-2023 to explore the helpfulness of the conference in improving confidence and knowledge of research options and opportunities.

The conference has shown to significantly increase students' confidence and knowledge in research activities such as presenting and publishing, following attendance. Further, there was a significant increase in interest in pursuing academic medicine. Similar patterns were also observed in students from WP backgrounds. The conference has had a positive impact on attendees and is likely to contribute to the growth of the academic medicine workforce.



# A role for physiotherapy in managing pain in hypermobility?

Elizabeth Irwin

Swansea University Medical School

**Background:** Prevalence of joint hypermobility in the UK adult population is approximately 30% and this population can present with pain as a significant symptom. Management of hypermobility is mainly focused on providing symptomatic relief (rather than curative treatment) including pain management, education, and of interest here, physiotherapy and therapeutic exercise. At present, there is very little in the literature exploring the effectiveness of physio- and exercise-therapy in those with symptomatic hypermobility.

**Methods:** All studies included adult participants with sample sizes ranging from n=11 to 28. All five studies used clinically confirmed diagnoses, with one also including self-reported diagnoses. Three studies focused specifically on pain in knee joints, whilst two looked at pain across the whole body. This literature review included five systematic reviews with adult participants with outcome measures at baseline and a follow-up period (from 4 weeks to 1 year).

**Results:** This review identified that following an exercise programme, improvements in pain over time were demonstrated. Four of the five systematic reviews found decreases in pain scores at follow-up compared to baseline. This was also contrasted in control groups without exercise intervention and receiving advice only. The final review found increase in pain scores with reports of iatrogenic injury associated with quality of professional contact.

**Conclusion:** Overall, patients did benefit from physio- and exercise-therapy shown through decreases in the measures of pain at follow up compared to baseline.



# **“They were taking it home with them...” Experiences of hospice staff away from the frontlines during the emergency COVID-19 pandemic: a qualitative secondary analysis study**

Thanga Harini Sundaramoorthy

Warwick University Medical School

**Background:** The Covid-19 pandemic presented different challenges and work pressures for hospice staff. Research on hospice staff mainly explores their professional roles and responsibilities as they continued to work during the emergency public health period, often overlooking the personal experiences and challenges they encountered outside of this.

**Aim:** This qualitative study aims to explore the impacts of the Covid-19 pandemic on the home life of hospice staff and enable a deeper understanding of their experiences.

**Methods:** In-depth interviews of hospice staff (n=25) conducted across seven hospices explored the impacts and implications of the pandemic on hospice care. This qualitative study involved secondary reflexive thematic analysis of this interview dataset.

**Results:** Three main themes were identified: (1) Blurred margins: Participants discussed facing difficulty separating work and home life and taking stresses and thoughts about work home. (2) Loneliness and social interactions: Staff described being anxious and lonely during this period, and not feeling like socialising after demanding workdays. (3) Withdrawal from family and personal commitments: Some staff felt unable to see or support their parents, partners and children during the pandemic and subsequent negative psychological and emotional effects on them.

**Conclusion:** Hospice staff compromised aspects of their home life and personal commitments during the pandemic to carry out their role at work. Workplaces and organisations should aim to support hospice staff more broadly to help with managing work-related pressures and balancing personal commitments as we enter a more demanding palliative care era and in preparation for unprecedented pressures including future pandemics.



## **Do alterations in peripartum environment due to antibiotic use in a normal vaginal birth increase the likelihood of IBD in offspring?**

Flora Lawton

Swansea University Medical School

Inflammatory Bowel Disease (IBD) pathogenesis has been linked to various factors, including the gut microbiota, immunological abnormalities, and environmental influences. A key question is whether alterations in the peripartum environment due to antibiotic use in normal vaginal birth can increase the likelihood of IBD in offspring. Antibiotics are frequently prescribed during this period both to treat existing infections and as routine prophylaxis. This review analyses current research on peripartum antibiotic exposure and the future risk of IBD in offspring. Although animal studies support the theory that maternal antibiotic use can disrupt the gut microbiota of offspring, potentially increasing their susceptibility to IBD, human population studies have not demonstrated a statistically significant correlation. The reviewed literature thus suggests that while animal models indicate a possible mechanism, the link between maternal antibiotic use and IBD in offspring remains unsubstantiated in human studies. Further research is needed to clarify these findings and explore additional factors that may contribute to IBD risk.



# Is advanced maternal age associated with increased risk of postpartum haemorrhage?

Ffion Ellis-Davies

Swansea University Medical School

**Aims:** Postpartum haemorrhage (PPH) represents one of the major causes of maternal morbidity, accounting for nearly 25% of all maternal deaths globally. With developments in assisted reproductive technology, many women are opting to have children later in life. It is well-recognised that women of advanced maternal age (AMA) are likely to experience a higher-risk pregnancy. This review aims to summarise the relationship between AMA and the increased risk of PPH.

**Method:** The literature search was conducted using four databases: PubMed, Scopus, MEDLINE and MIDIRS. The key search algorithm was: ‘postpartum haemorrhage OR postpartum hemorrhage [MeSH] OR pph AND risk AND advanced maternal age OR older woman OR women over 35 years old.

**Results:** Research suggests that there is a clear relationship between AMA and PPH; from the age of 35 the risk of PPH increases and increases rapidly above the age of 45. This has been demonstrated across studies in multiple countries, and in both primiparous and multiparous groups.

**Conclusions:** AMA has been shown to be associated with a significantly increased risk of PPH. The mechanism for this relationship, however, is not well understood. Uterine atony, the failure of the myometrium to contract and compress blood vessels after delivery, is recognised as the main cause of PPH. Summarising this relationship will hopefully increase identification of women at higher risk to encourage early intervention and active management.



# “I promise it’s not COVID” - the change in societal attitudes towards COVID-like symptoms and the effect this has on COPD patients

Pheobe Blencowe and Rachael O’Dwyer

Warwick University Medical School

**Aims:** To explore the societal perception of coughing and the stigma experienced by people with COPD following COVID-19, and the potential impact of this.

**Methods:** A cross-sectional study was conducted among the general public and patients with COPD using mixed methods. Data from the general public was collected via an online survey, and both an online survey and qualitative interviews were conducted to obtain data from people with COPD. Quantitative data was analysed using descriptive statistics and qualitative data were thematically analysed.

**Results:** 198 members of the general public participated in the survey, with data showing a statistically significant increase in stigma towards coughing after COVID-19. 5 individuals with COPD participated in the COPD-specific survey, with results alluding to an increase in negative reactions and stigma towards their symptoms experienced by participants since COVID-19. Additionally, from the 3 individuals with COPD that were interviewed, themes of psychological impact, stigma from the public and overall impact on life were depicted.

**Conclusions:** Results show patterns in the data from the general public and participants with COPD indicate an increase in stigma experienced by patients with COPD ever since COVID-19 emerged. Despite this, low participant numbers limited the study, thus we recommend wider data outreach in subsequent work to underpin future research in this area, in which we believe there is scope for positive and impactful change through education.



# Potential applications of AI and machine learning in diagnosis, treatment planning, and Follow-up of venous disease: a literature review

Jaskaran Singh Bhangu, Rhadika Rewal, Gowrypalan Ganenthira and Keioni Essex  
Swansea University Medical School

**Background:** Venous disease, including chronic venous insufficiency, deep vein thrombosis, varicose veins, and venous ulcers, significantly impacts patients' quality of life and healthcare systems. Accurate diagnosis, appropriate treatment selection, and close monitoring are vital for effective management.

**Aims:** This literature review synthesises current evidence on the potential applications of artificial intelligence (AI) and machine learning (ML) in the diagnosis, treatment planning, and follow-up of venous disease.

**Methods:** A comprehensive search of Google Scholar and PubMed identified relevant studies published within the last five years. The search strategy included keywords such as "artificial intelligence," "machine learning," "venous disease," "diagnosis," "treatment planning," and "follow-up." Studies were included if they focused on AI/ML applications in venous disease diagnosis, treatment, or monitoring.

**Results:** 15 studies were identified, exploring AI/ML use in image analysis, risk prediction, treatment decision support, and disease monitoring. These demonstrated AI/ML's potential for automated detection of venous abnormalities, predicting post-thrombotic syndrome risk, selecting optimal endovenous ablation techniques, and monitoring venous ulcer healing.

**Conclusions:** The studies highlight growing interest in AI/ML for venous disease management. However, further research is needed to develop tailored solutions, address challenges, and validate technologies for clinical use. Interdisciplinary collaboration is crucial to realise AI/ML's full potential in improving patient outcomes.



## Same day/early discharge for TAVI – changing practice in the UK

Jake Dixon and Dr Thirumaran Rajathurai

Warwick University Medical School

**Introduction:** At University Hospital of Coventry and Warwickshire (UHCW) we have been looking at the possibility of implementing same-day or early discharge (SDD/ED) for low-risk Transcatheter Aortic Valve Implantation (TAVI) patients who have had no significant procedural complications. The current median length of stay in the UK is 3 days, often due to concerns about delayed complications including arrhythmias, infection, vascular complications and stroke. Studies have shown that the rate of re-admission within 30 days after SDD vs different-day discharge is not significantly different. UHCW has implemented a minimalist TAVI approach and expedited discharge processes, including early mobilisation and discharge advice to patients about potential complications. Consequently, UHCW has a median length of stay of one day (shortest in the UK).

**Aims:** To review our data to ensure that patients were receiving safe and effective treatment while having a short hospital stay.

**Methods:** Retrospective analysis of 157 patients who underwent TAVI at UHCW in 2023. 87 of these patients underwent elective procedures.

**Results:** In patients that had an uncomplicated procedure, none that were discharged early suffered a delayed complication due to their TAVI procedure. In those that suffered complications, these were identified peri-procedurally and not after discharge.\*

**Conclusions:** Same day/early discharge appears feasible without compromising patient safety. Discharging patients earlier will allow us to reduce hospital-borne complications, accelerate patient recovery, lower healthcare costs, and improve patient flow through the hospital. We will look to confirm these results with a prospective study.



# The Role of Circular RNAs as Prognostic Factors in Lung Cancer: A Meta Analysis

Sanabil Ahsan, Thin Thin Win, Saint Nway Aye and Nan Nitra Than

Swansea University Medical School

**Aim:** The study aimed to systematically evaluate the prognostic value of circular RNAs (circRNAs) in lung cancer.

**Methods:** A comprehensive search was conducted in PubMed, Embase, and MEDLINE databases for studies examining the association between circRNAs and overall survival (OS) or disease-free survival (DFS) in lung cancer patients. Pooled hazard ratios (HRs) and 95% confidence intervals (CIs) were calculated to assess the prognostic significance of circRNAs. Statistical analyses were performed using RevMan 5.4 software, employing a random effects model due to heterogeneity across studies.

**Results:** A total of 43 studies met the inclusion criteria, predominantly focusing on non-small cell lung cancer (NSCLC), with only one study addressing small cell lung cancer (SCLC). High expression of upregulated circRNAs was significantly correlated with poorer prognosis and worse OS (HR 1.93, 95% CI [1.61-2.33],  $p < 0.00001$ ). Conversely, high expression of downregulated circRNAs was associated with better prognosis and improved OS (HR 0.73, 95% CI [0.58-0.94],  $p = 0.01$ ). However, no significant association was found between circRNA expression levels and DFS (HR 1.44, 95% CI [0.92-2.24],  $p = 0.11$ ).

**Conclusion:** This meta-analysis supports the significant role of circRNAs as prognostic biomarkers in lung cancer, especially NSCLC. Elevated expression of upregulated circRNAs is linked to poorer outcomes, while downregulated circRNAs are associated with better survival, highlighting their potential as therapeutic targets in lung cancer management.



## Designing resources for online collaborative learning on a medical programme– the Students’ Voice

Thirumalaiappan Muthukumaraswamy, Jemima Marsden, Samali Pathira Kankanange, Deema Alyousuf, DaHyun Chung, Rachel Ashworth and Elizabeth Walden

Three Counties Medical School

**Introduction:** The MBChB at Three Counties Medical School (TCMS) is a new graduate entry medical degree centred around problem-based learning (PBL). The PBL model, emphasising collaborative, student-centred, self-directed learning, is widely used in medical education (1). This educational approach has been shown to develop critical skills in preparation for practice, and students enjoy this style of autonomous, inquiry-led learning (2). However, PBL’s differences from traditional classroom teaching mean it requires resources that support self-directed group learning outside the classroom. Current online resources include narrated presentations, videos, e-books, and forums in subject-specific areas.

**Results:** Results of an initial survey (84% response rate) revealed that videos and podcasts summarising medically related information (including physiology) were primarily ranked highly as useful for weekly learning in preparation for PBL. Question banks, flashcards and the ability to practice questions were rated as most useful for exam preparation. 29 (out of 32 respondents) customise and make their own study materials. Psychosocial concepts, anatomy, and public health were the curriculum areas that ranked highest for inclusion in developing new online resources.

**Conclusion:** Based on the survey results, resources like weekly collaborative mindmaps will be shared with students via the VLE (Blackboard) to populate concepts, link resources, and layer throughout their degree. The extent to which these resources support student learning will be reassessed at the end of the academic year. By using the student perspective to generate online learning resources to support self-directed learning, we hope to create innovative tools that can be shared more widely within the educational community



# Identifying Interaction Types in Primary Care Data within the SAIL Databank

Joseph McLaughlin and Hoda Abbasizanjani  
Swansea University Medical School

**Introduction:** Understanding the interactions occurring in GP surgeries is crucial for understanding how General Practice functions, informing policy decisions and guiding healthcare provisioning. This work aims to identify the type of interaction that a particular patient is having at their registered general practice on a specific day.

**Methods:** Relevant Read codes were identified by keyword search in the Read code glossary. These were then categorised into 2 distinct categories of interaction. These types of interaction were further tagged with the associated Health Care practitioner. The Welsh Longitudinal General Practice Dataset (WLGP Dataset) from the SAIL databank was then cleaned to identify unique interactions, extracting annual counts for each interaction type.

**Results:** The analysis revealed that the number of face-to-face GP interactions has been relatively stable since 2002. The number of ‘non-face-to-face’ interactions has greatly increased since 2002, overtaking face-to-face interactions since 2016. A notable decline in face-to-face interactions was observed during the COVID-19 pandemic.

**Conclusion:** This work identified GP interaction types and associated healthcare practitioners, highlighting important trends. Future work will involve refining Read codes with healthcare professionals. In addition, further analysis is needed to categorise a portion of the cleaned WLGP data that was not labelled with an interaction type.



# Enhancing otorhinolaryngology education through extracurricular teaching

Jayson Ryoo

Swansea University Medical School

**Background:** Otorhinolaryngology teaching comprises only 1%, or an average of 1.5 weeks, of the undergraduate medical curriculum in the UK [1, 2]. Swansea University Ear, Nose, and Throat Society has hosted a skills course covering various otorhinolaryngological skills. The present study was undertaken to evaluate the effectiveness of extracurricular teaching and to elucidate the perception of the current provision of teaching.

**Methods:** Delegates of the course were asked to complete pre- and post-course questionnaires. On a scale of 0 to 5, ranging from no background knowledge to excellent understanding, delegates were asked to self-evaluate their understanding of tracheostomy, quinsy, epistaxis, and otoscopy. Delegates were also asked to evaluate the quality and quantity of the otorhinolaryngology teaching offered at Swansea University.

**Results:** A total of 34 delegates attended the course, of which 31 (91.2%) responded to both the pre- and post-course questionnaires. Responses were further analysed using a paired t-test. After attending the course, delegates' understanding of tracheostomy (1.46 vs. 4.19, pre- vs. post-course, respectively), quinsy (1.49 vs. 4.29), epistaxis (1.86 vs. 4.26), and otoscopy (2.03 vs. 4.10) improved significantly ( $p < 0.01$ ). Delegates rated the quality and quantity of medical school teaching as 2.23 and 1.77, respectively.

**Conclusions:** The inadequacy of otorhinolaryngology teaching can lead to insufficient preparation of junior doctors and may have implications in the quality of care given to patients with otorhinolaryngological conditions. Alternate means of delivery of teaching need to be sought to better prepare the next generation of otorhinolaryngologists.

## References:

- [1] Davies KL, Elhassan HA. Clinical ear, nose and throat training as a percentage of the undergraduate medical curriculum. *Clin Otolaryngol.* 2012;37: 500-501.
- [2] Khan MM, Saeed SR. Provision of undergraduate otorhinolaryngology teaching within General Medical Council approved UK medical schools: what is current practice? *J Laryngol Otol.* 2012;126: 340-344.



# Rational rhythms: benefits of the Cabrera ECG format

Archie Reed

Swansea University Medical School

According to the World Heart Report 2023, cardiovascular diseases (CVDs) have been the leading global cause of death for decades. Despite recent progress, health inequality is rife with low- and middle-income countries increasingly bearing their burden. Investigating electrical activity within the heart remains the foundation for diagnosing CVDs with the standard 12-lead display a mainstay in clinical practice. However, there is a growing body of evidence that suggests an alternative format could further enhance it. The Cabrera format, named after doctor and scientist Enrique Cabrera, is an anatomically rationalised order of the Einthoven and Goldberger leads paired with a reversed polarity in lead aVR. The format was first developed during the 1940s and can be used to contextualise the 6-lead ECG into a cycle revolving around the heart in the frontal plane in an analogous way to the pre-cordial leads. Despite recommendations from several authors and inclusion in the standardisation guidelines of international bodies, this format has only been routinely adopted by Sweden in 1979. The Cabrera format has been shown to be easier to learn and use and also provide a clinical advantage to diagnosing acute coronary syndrome and its differential diagnoses. Furthermore, its reversal of lead aVR is proposed to combat the historic neglect of this lead in ECG interpretation. Tradition and technical difficulties have been attributed to the Cabrera format's lack of use, but the latter can be easily overcome with modern technology. This article presents the existing evidence supporting the adoption of this format.



## **Do IMT doctors receive adequate training to feel confident performing clinical procedures?**

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IMT (Internal Medicine Training) is the training programme for doctors desiring a career in a medical specialty post-foundation training, and includes rotations in various specialities, such as acute medicine, cardiology and gerontology. As this training prepares them to become medical registrars, equipping them with the skills needed to manage various patient presentations, they are expected to perform a range of clinical procedures. The Joint Royal Colleges of Physicians' Training Board (JRCPTB) sets the clinical competency requirements and targets to progress and complete the programme. At University Hospital Coventry and Warwickshire, we are assessing IMT doctors' confidence levels in performing key procedural skills to meet JRCPTB targets, and their satisfaction with the teaching provided. This project is an anonymous online survey, with voluntary participation by doctors in all stages of IMT assessing their own confidence levels and satisfaction pertaining to teaching sessions skill-by-skill, answering the questions from an array of multiple-choice options.

The aims of this project include examining whether teaching targets are being met, identifying gaps in teaching, and ascertaining potential improvements for the training programme, with the ultimate objective of improving patient outcomes and safety. As this is an ongoing study, no conclusions can be established so far. However, the data collected thus far suggests that some IMT doctors are not meeting the targets set out by the JRCPTB and are dissatisfied with the teaching of the training programme, highlighting potential unmet needs of the programme.



# Early Identification of Neurodevelopmental disorders in neonates with EEG

Sarah Osborne

Swansea University Medical School

Premature babies are at greater risk of neurodevelopmental disorders. Early intervention can reduce their impact, but diagnosis is difficult. Complexity-driven analysis of electroencephalography (EEG) data can overcome these challenges. Physical and behavioural signs are used in conjunction with cranial ultrasound and MRI to identify structural abnormalities and the manifestation of neural deficits. However, this relies on trends and leads to later diagnoses. EEG generates functional data without reliance on clinical signs by measuring neural activity. EEG data analysis is highly variable both in protocol and interpretation. Controlling this with computer-assisted procedures minimises variability between analyses and improves reliability. Using Multiscale Entropy (MSE) to determine complexity of brain activity across temporal and spatial scales uses these benefits and combines them with a capacity to find patterns of activity across several levels of neural activity. Healthy and pathological development differ in their complexity. Greater complexity, when measured by Multi-scale Entropy (MSE) has predicted positive long-term developmental outcomes in neonates. Taken together, analysis of brain activity complexity through EEG can differentiate between healthy and pathological brain development in the high-risk group of premature babies. Several papers support these ideas, by evaluating EEG developmental biomarkers in neonates and the power of complexity analysis over traditional feature detection.



# Peer Teaching - A Springboard to Academia for Swansea GEM Students

Serge John and Marcela Bezdickova

Swansea University Medical School

**Introduction:** At Swansea University staff and students have worked together to deliver a peer teaching programme of unique size and scope.

**Aim:** To evaluate the viability of peer-teaching programmes, review the evidence and reflect on the impact our peer-teaching programme has had based on our trial and testimonials from tutors, tutees and faculty.

**Methods:** 1. Literature review of peer-teaching in GEM. 2. Results from a RCT on the benefit of peer-teaching to GEM students. 3. Summary of qualitative data from tutor and tutee feedback 4. Discussion of how our peer-teaching programme works and recommendations for implementation

**Conclusions:** The peer-teaching programme supports GEM students with experience and training in pedagogy. It the fruit of student-staff collaboration, with GEM students taking on the administration and continued expansion of the programme. The programme now has 60 GEM students who are paid to teach whilst developing their portfolio. Evidence and feedback supports learning benefit to tutors and tutees, personal and professional development.



# Can Vitamin D reduce COVID-19 infections and severity? A Systematic Review

Omar Selim

Swansea University Medical School

**Introduction:** The aim of this literature review is to investigate whether Vitamin D can reduce COVID-19 infections, deaths and severity. COVID-19 is an unprecedented disease with infection and death figures significantly larger than previous coronavirus outbreaks such as SARS and MERS. Studies have found Vitamin D to reduce the risk of microbial infections. Furthermore, studies have reported an association between Vitamin D deficiency and respiratory infections such as pneumonia and acute respiratory distress syndrome.

**Method:** In terms of search strategy, PubMed and Cochrane were searched using relevant keywords. Additional filters were applied and only papers comprising pooled analysis from RCTs were included. A final list of 5 studies were obtained.

**Results:** Analysis of these studies focused on the effect of Vitamin D supplementation on some or all of the following; mortality; length of hospital stay; need for invasive ventilation; ICU admittance rate; inflammation levels and COVID-19 test negativity. The results suggested that the evidence was too weak to support any link between Vitamin D and mortality, length of hospital stay or need for ventilation. The strongest evidence showed that Vitamin D had an effect on reducing fibrinogen levels and COVID-19 test negativity. Evidence pointed to no Vitamin D effect on other inflammatory indicators, however, Vitamin D may have an effect on lowering ICU admission rates.

**Conclusion:** To conclude, there may be some benefit to administering Vitamin D to COVID-19 patients, however more RCTs with large sample sizes are required for a better understanding of the effect of Vitamin D on COVID-19 infected individuals.



# **Should Physician-Assisted Suicide (PAS) be Legalised in the UK? An Innovative Workshop Exploring Medical Students' Perspectives**

Habiba Abbasi

Three Counties Medical School

This workshop aimed to investigate students' perspectives on physician-assisted suicide (PAS) and its potential legalisation. A two-pronged strategy was used – a goldfish bowl roleplay simulation and a facilitated group discussion. The roleplay enabled students to engage with practical and emotional challenges related to responding to a PAS request, while the discussion encouraged open dialogue on the ethical complexities of legalising PAS. Students showed nuanced changes in perspectives on PAS by actively participating in roleplay and discussions, demonstrating the potential for these approaches to promote deeper understanding.



# Exploring the Role of Social Capital in Academic Success Among Medical Students

Nico Ruga and Deborah Nsiah  
Warwick University Medical School

**Background:** This project explored the role of social capital in academic and professional success in medicine.

**Methods:** The project was executed in four stages:

- **Education:** Educational slides explaining social capital were created and disseminated. These included a QR code linking to a survey.
- **Data Collection:** A survey, accessible via the QR code, asked students about their social capital.
- **Workshops:** We held a workshop were held to discuss survey data. Students were invited to explore themes and propose strategies for improvement in a collaborative setting.
- **Analysis and Implementation:** Now we are analysing the data and workshop outcomes, identifying quick-fix improvements and long-term strategies. Practical strategies, like mentorship programs involving Trust clinicians, were proposed to enhance social capital for underrepresented groups.

**Results:** The survey and workshops identified key themes such as the importance of role students supporting each other and the medical school running networking events. More research to hopefully be done and findings to be shared with the wider faculty and at conferences, with plans for future research and maybe publication

**Conclusions:** Social capital significantly impacts academic success. More research to be done.



# Enhanced Neuroanatomy Education Through Peer-to-Peer Teaching: Insights from the Welsh National Neuroanatomy Teaching Series

Darius Mazaheri-Asadi and Richard Odai

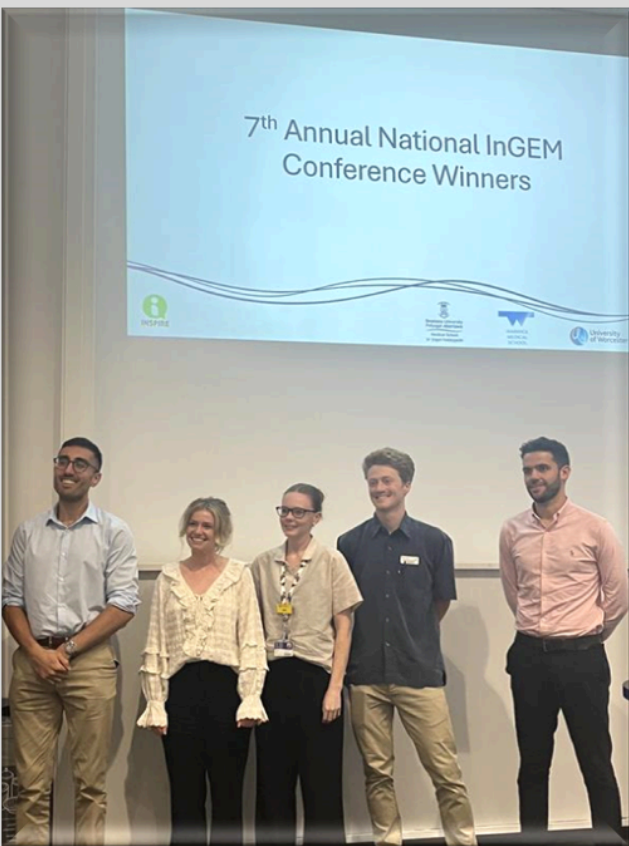
Swansea University Medical School

This study aims to explore the effectiveness of a peer-to-peer teaching series, integrated with expert-led sessions, in enhancing neuroanatomy education. The Welsh National Neuroanatomy Teaching Series (WNNTS) comprised six online sessions supplemented by a final in-person event. Each online session combined peer-to-peer learning with guest speakers (academics or clinicians) providing clinical insights. Participant feedback forms were collected and analysed. Existing literature on peer-to-peer teaching was also explored for comparison and further context on this teaching style. Feedback from participants of the WNNTS indicated high levels of agreement regarding the efficacy of the combined peer-to-peer and expert-led teaching approach. Notably, 95% found the combined teaching method facilitated easier understanding of anatomy, and 97% felt it helped consolidate prior knowledge. Moreover, 97% also reported this approach to teaching made understanding anatomy more engaging and interesting. However fewer attendees (91%) agreed that the series helped increase their insight into relevant medical specialities highlighting a potential area for improvement. Attendees represented a diverse mix, including 15% preclinical medical students, 13% clinical medical students, 23% allied healthcare professionals, and 49% biomedical and allied healthcare students. The WNNTS demonstrates the effectiveness of integrating peer-to-peer learning with expert-led sessions in neuroanatomy education. These findings are consistent with existing literature on peer-to-peer teaching. This approach enhances engagement, comprehension, and retention of anatomical knowledge across diverse medical disciplines. The study highlights the value of collaborative learning environments in medical education and suggests its potential to supplement traditional teaching methods.





# INGEM 2024



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ISBN 978-81-989164-4-0



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