Ulster Med J 2025;**94(S1):**1-14

Abstracts

Building a Future in Medical Research: Opportunities and Insights

These abstracts were presented at the Research For Clinicians Day organised by the Northern Ireland Medical and Dental Training Agency on 6th November 2024.

Every reasonable effort has been made to ensure the accuracy of all information at time of publication. However, information contained within this booklet is subject to change.

ORAL PRESENTATIONS

Timely Nutrition – A QI project based in the Northern Ireland Cancer Centre (NICC)

Ellen Reid, Gillian Lindsay, Heather Kearney, Joanne McCaughan, Karlee Brown, Kirsty Taylor, Keith Rooney, Nicola Hill, Jin Tee, David Johnston

Treatment, tumour and patient factors can result in inadequate oral intake among oncology inpatients. Malnutrition limits effective wound repair and immune functions. Supplemental nasogastric (NG) feeding is commonly utilised in NICC. Baseline data suggested a large number of confirmatory chest radiographs were completed and patients could wait a long time for their feed to commence.

Key MDT stakeholders were involved in early resolution-focused discussions, including Consultant Oncologists, a Consultant Radiologist, Consultant Radiographer, Oncology Nurse-Specialists, and junior doctors. Our SMART aim was for 90% of inpatients in NICC to commence NG-feeding within 2-hours of NG placement by August 2024.

A 'plan-do-study-act' (PDSA) approach was adopted, with three strategies for change. Initially (Cycle 1), MDT-led education of junior doctors focused on the use of pH testing to replace radiological confirmation of NG position. Cycle 2 updated the NICC induction document, clarifying this guidance. Lastly, Oncology Nurse-Specialists delivered ward-based teaching to nursing staff.

Snapshot inpatient audits measured time between NG insertion and commencement of feeding (TTF) at baseline and following each cycle. Baseline average TTF was 16-hours (range 4-35-hours). Following cycle 1, in all documented cases, TTF was within 2-hours. Poor documentation limited analysis of results following cycle 2, with only one documented TTF (9-hours). Data collection following cycle 3 is ongoing at present.

Results to date show a vast improvement in time taken to commence NG feeding (the primary aim). We also demonstrate a reduction in the number of confirmatory chest radiographs and therefore a reduced patient radiation exposure.

Navigating Intractable Posterior Epistaxis: Key takeaways from a case of Severe Septal and Turbinate Necrosis post Nasal Packing and SPA ligation

Dr Peter Eves[1], Dr Marian Shibani Bhaskar[1], Mr Brendan Wright[2], Mr Robert Adair[2]

Introduction: Sphenopalatine Artery (SPA) ligation, despite anatomical variation and limited supporting evidence, remains the favoured operative approach to intractable posterior epistaxis with a success rate of up to 95%. While the reports of significant complications like necrosis of the septum and nasal structures remains low, such articles highlight contributory factors to consider when managing a case of intractable posterior epistaxis that could sway the case towards unfavourable outcomes.

Description of case: A male patient in his mid-70s with a past medical history of Ischemic Heart Disease and previous bypass surgery presented with recurrent left sided epistaxis on Aspirin. He was managed initially with cautery and bilateral nasal packing with rapid rhinos (in situ for 60 hours). Continued symptoms prompted the need for SPA ligation. During this hospitalisation, the patient had a Hb drop 2.4 g/l requiring two units of packed red cells.

Six months post SPA ligation, the patient presented with nasal blockage and subsequently blew a large piece of foul-smelling debris from his nose. Histological exam revealed necrosed soft tissue, cartilage and nasal bone laced with bacterial and aspergillus species. Examination and CT Sinus confirmed a subtotal nasal septal perforation with loss of inferior turbinates. Saline and budesonide rinses were started and review one month later showed no residual mucosal inflammation, signalling resolution.

Discussion: This case suggests that septal and turbinate necrosis, though rare, can result from several contributory factors including unfavourable SPA anatomy (present in 20% of the population), a history of atherosclerotic disease, a significant Hb drop and prolonged nasal packing. This case highlights the need for careful consideration of multiple potential risk factors, and how they relate to each other, before opting for SPA ligation.

International variation in attitudes to kidney biopsy practice

Dr Michael Toal, Dr Chris Hill, Dr Michael Quinn, Prof. Ciaran O'Neill, Prof. Peter Maxwell

Background: Kidney biopsy is an invasive but essential investigation in nephrology for diagnosis and prognostic assessment. There is substantial variation in biopsy practices within and between countries, however the reasons for this are unclear due to limited research.

Methods: A case-vignette questionnaire was developed. A biopsy propensity score (0-44) was generated from responses to indications and contraindications, which categorised respondents into one of five groups for instant feedback. A higher score was associated with an increased likelihood of recommending biopsy. Dissemination occurred by email, social media and the National Kidney Foundation.

Results: 1181 nephrologists/trainees from 83 countries participated, making this the largest ever international study of kidney biopsy practice. The overall mean score was 24.2 (NI mean=22.8).

A biopsy was most often recommended for higher levels of proteinuria and least often in the setting of reduced kidney size. An adjusted multiple linear regression model demonstrated significantly higher scores for males, younger clinicians and those who performed biopsy more frequently ($p=0.01$). A previous severe complication (requiring intervention/death) did not affect propensity ($p=0.76$).

In countries with over 20 participants, the mean score ranged from 22.1 (Nigeria) to 26.9 (Mexico) ($p<0.001$). Within the UK nations and Ireland there was no significant difference in propensity scores ($p=0.20$), however the usual operator was more frequently a nephrologist in NI and a radiologist in the Republic ($p<0.001$).

Conclusion: International kidney biopsy practice is highly variable. The significant variations in kidney biopsy practice warrants further examination, given its potential implications for timely care and resource use.

POSTER PRESENTATIONS - Quality Improvement and Medical Education (Joint Category)

The Impact on Inpatient Stays, Crisis & Emergency Department Assessments in Patients with EUPD Who Complete an 18-Month Mentalization-Based Therapy Programme

Dr Adam Flynn ST4 – Lead Author, Dr Owen McNeill Consultant, Dr Cedar Andress ST5, Dr Chris Walsh Consultant

Introduction: The Personality Disorder Service in the Northern Health & Social Care Trust was set up to deliver evidence-based treatment. This group of people historically have been stigmatised, excluded and let down by services, despite their complex needs and frequent history of childhood trauma. The team developed a Mentalization Based Therapy (MBT) programme originally commencing in 2013. The group itself is a rolling 18 month programme that required significant workup and education prior to joining and also includes weekly 1:1 session with Practitioner.

Problem: To identify recent completers of the Mentalization-Based Therapy 18 month group therapy programme and to assess whether there was any reduction to the number of days spent as inpatient both during and after having completed the programme, whether there was a reduction in the frequency of same day assessments with community mental health teams and finally whether there was any reduction in terms of volume of crisis assessments and presentations to Emergency Department.

Strategy for Change: 19 service users were identified that had initially been referred to Personality Disorder Service between 2016 and 2018 and who subsequently began MBT programme between 2017 and 2019. Subsequent period of 12 months was then analysed post-completion of treatment taking us up to 2022.

Measurement of Improvement: The average time spent in inpatient admission days saw a reduction of 74.61% post-therapy.
The average number of same day assessments and unscheduled saw a small decline of 4.35%.
Finally, the average number of Crisis contacts and Emergency Department assessments saw a reduction of 66.92%

Effects of Change & Discussion: This demonstrates that, by using an evidence-based and well-established programme, which carries a high time commitment for both service users and practitioners, it is possible to considerably reduce use of other, more acute services and keep patients with a diagnosis of Emotionally Unstable Personality Disorder out of hospital longer and on a sustained basis.

A QIP to Verify the Presence and Completeness of Discharge Summaries for Covid-Positive Patients in the Direct Assessment Unit (DAU)

Dr Anu Kaushik, Dr Jason McMinn

Problem: Discharge summaries are critical for continuity of care as patients transition to their next healthcare provider, such as a GP. Incomplete summaries can result in gaps in patient information, compromising safety and care quality. Before this QIP, many patients either lacked discharge summaries or had missing details like drug name, dosage, and treatment duration.

Strategy for Change: The QIP followed the Plan-Do-Study-Act (PDSA) cycle over two phases. The first cycle (Oct–Dec 2023) reviewed discharge summaries for Covid-positive patients. Deficiencies were presented in a medical teaching session with proposed improvements to ensure discharge summaries included drug name, dosage, and duration. The second cycle (Feb–April 2024) reassessed the summaries.

Measurement of Improvement: The project measured

the proportion of Covid-positive patients with discharge summaries and documentation of drug name, dosage, and duration. The first cycle showed, out of 35 Covid-positive patients seen in the DAU, only 17.14% (6 patients) had discharge summaries. Of these, only 50% (3 patients) included the required details. The second cycle measured improvement after the intervention.

Effects of Change: In the second cycle, 71.43% (20 out of 28) had summaries, and all 100% included the necessary details, showing significant improvement.

Discussion: The QIP resulted in notable improvements in the completeness and quality of discharge summaries. The PDSA approach was effective, highlighting the need for ongoing QIPs to maintain high standards and ensure accurate documentation for patient safety.

Improving Induction for N2NI Doctors: A Collaborative Approach for Workforce Integration

Dr Charlotte Irwin, Dr Conal Corr, Dr Sally-Anne Phillips

Problem: In 2022, the GMC reported that 52% of doctors joining the UK workforce were International Medical Graduates (IMG)[1]: NI figure 35% (2021). Inadequate support during this time can affect both the doctor's professional development and the quality of patient care, and a need for a more structured enhanced induction was recognised.

Strategy for Change: In 2024, the New to Northern Ireland (N2NI) initiative surveyed IMG experience of Workplace Induction, highlighting a need for Work shadowing and an Enhanced Induction Programme for trainees N2NI. Following a shadowing pilot in February 2024, guidance was developed for trainees and facilitators along with an application form to streamline stakeholder processes.
A targeted shadowing pilot was then conducted in August 2024.

Measurement for Improvement: Focus groups, using semi structured interview questions, gathered feedback on the trainees' experience before, during and after shadowing, comparing this to the initial pilot.

Effects of Change: Overall, feedback highlighted the need and benefit of a period of work shadowing for N2NI doctors. Trainees reported lowered anxiety levels prior to changeover and improved integration into their new roles, strongly attributed to the newly established support network and the ability to access and familiarise themselves with IT systems. The application process facilitated earlier administrative and Trust preparation.

Discussion: Collaboration between NIMDTA and local Trusts to support IMGs is essential to facilitate smooth transitions, bolster workforce integration and improve overall healthcare delivery. Future initiatives will focus on strengthening collaboration/communication with Trusts and Supervisors and development of a structured checklist for shadowing.

References: GMC State of Medical Education & Practice in the UK: Workforce Report 2022

Impact of Peer-Directed Teaching on Medical Student Learning

Ciara McCaffrey, Oran McGilly

Introduction: Peer-directed learning (PDL) has been recognised for its potential to enhance collaborative skills and learning amongst students. Since 2016, Queen's University Belfast has implemented the 'PeerShare' programme, where final-year medical students provide lectures and OSCE tutorial sessions to third- and fourth-year medical students.

Aims: The objective of this evaluation is to assess the effectiveness, impact, and potential for broader application of the PeerShare programme.

Methods: A mixed-methods evaluation was conducted from March to May 2024. Participants included 195 Year 3, 196 Year 4 and 153 final year medical students. Quantitative feedback was gathered through structured surveys with Likert-scale questions administered after the PeerShare online lectures. Qualitative insights were collected via focus group discussions and semi-structured surveys at the end of PeerShare 2024.

Results: The findings show high average ratings for engagement (4.52/5) and helpfulness (4.68/5) of PeerShare sessions. A significant increase in confidence was also observed, with average confidence levels rising from 2.93/5 before to 4.17/5 post-session. Qualitative feedback revealed that students valued the personalised guidance, realistic mock OSCE, and concise topic overviews provided by PeerShare. Students noted that the sessions enhanced their learning and improved their exam preparedness.

Discussion: PDL methods like PeerShare can significantly enhance medical student learning by fostering a supportive and engaging learning environment. The results suggest that PDL is an effective strategy in medical education, positively impacting student confidence, engagement, and overall learning experience.

Audit of postoperative VTE prophylaxis in a General Surgery department: improving compliance with local and national guidelines

Emily Armstrong CT2, Jenna Doherty CT2,
Mr Omer Eltayeb Consultant General Surgeon

Venous thromboembolism (VTE) is a significant risk for patients undergoing abdominal surgery, and its prevention is a critical component of postoperative care. The National Institute for Health and Care Excellence (NICE) recommend: Add pharmacological VTE prophylaxis for a minimum of 7 days for people undergoing abdominal surgery whose risk of VTE outweighs their risk of bleeding, taking in to account individual patient factors and according to clinical judgement. This project aims to audit and improve adherence to NICE and local guidelines within the General Surgery department of Antrim Area Hospital.

A retrospective audit was conducted to assess baseline compliance with guidelines in all patients who underwent

abdominal surgery from 05/05/24 – 25/08/24. Change was then implemented by means of an educational poster which was displayed throughout surgical wards and doctors' areas and emailed to all prescribing clinicians within the General surgical team. Re-audit was carried out from 26/08/24 – 15/09/24.

Initial results showed that compliance with NICE and local guidelines was suboptimal prior to intervention, with variability in prescribing practices and duration of thromboprophylaxis. Post-implementation data indicates a significant improvement in adherence, with most patients receiving appropriate prophylaxis.

In conclusion, the structured implementation of appropriate post-operative VTE prophylaxis following abdominal surgery has demonstrated improved compliance with NICE recommendations. Continuous education, monitoring, and re-audits are essential to maintain adherence and further reduce the risk of VTE in surgical patients.

Using QI methodology to improve patient safety in the digital age: improving the use of 'FYI Alerts' on Encompass in the BHSCT Rheumatology service.

Dr Gareth May; Dr Calvin Tan; Dr Claire Benson

Problem: Belfast Health & Social Care Trust recently migrated to a new digital health care record. Encompass provides new opportunities to expand on patient safety. 'FYI Alerts' allow clinicians to flag vulnerable patients across different providers. One specific 'FYI Alert' available is the "Risk of Immunosuppression – Rheumatology" alert. This was largely unknown about until this project.

Strategy for change: Our SMART objective was to seek 60% of patients on biological therapy in the BHSCT rheumatology service in a week period to have their 'FYI Alerts' completed during the encounter by 3 months.

Measurement of Improvement: Data was collected on a weekly basis looking at all the consultant-led out-patient encounters within the BHSCT rheumatology service. This looked at the number of patients seen, the number of patients on biological therapy, and the number of patients on biological therapy who had their 'FYI Alerts' appropriately completed. Data was expressed as percentage completed.

Effects of change: We produced a league table showing percentage completion rates between consultants and held a competition with a prize incentive to ensure alert completion. We also supplemented this with posters around the clinical environments. We saw a positive increase in alert completion after our interventions.

Discussion: We used QI methodology to plan, do, study and act our improvement initiative. We have shown how patient safety could be improved by enhanced alert completion, and subsequent communication between different healthcare providers.

Oxygen prescribing in the General Surgery department Antrim Area Hospital

Dr Iva Jovanovic

Introduction: Oxygen is probably the most common drug used in medical emergencies1. However, oxygen overuse can have fatal side effects particularly for those patients at risk of iatrogenic hypercapnia 2. British Thoracic Society Guidelines state that oxygen must be prescribed for all patients and target saturations documented on the prescription in order to improve patient safety

Aims: To review oxygen prescribing practice in adult inpatients across the General Surgery wards in Antrim Area Hospital according to the British Thoracic Society Guidelines for oxygen use in adults in healthcare and emergency settings.

Methods: Data was collected on 25 in inpatients across 3 surgical wards (C3, C4 and SEU) in Dec 2023. All patients receiving oxygen were included. Patients identified as receiving supplementary oxygen on the ward were included in the study. Data was obtained retrospectively by the ward doctor from drug cardexes and clinical notes.

Results and discussion: 10 patients had oxygen prescribed on the drug cardex (40 %) and 11 patients had target saturations documented (44%). This audit showed poor compliance with national guidance for oxygen prescribing. Patient number sampled was small in this audit which could limit its validity, however it does highlight deficiencies surrounding across oxygen prescribing in adult inpatients.
An intervention was performed to increase awareness among clinicians through training and circulating information regarding the importance of oxygen prescribing. A re-audit will be performed to assess the efficacy of this intervention.

'Improving Staff Knowledge of Pre-operative Fasting Guidelines'

Jenna Doherty, Emily Armstrong,
Sara Adams, Etain McGuinness

Fasting before surgery is an essential aspect of preoperative care to reduce the risk of aspiration during anaesthesia. However, inappropriate or prolonged fasting can lead to adverse outcomes such as dehydration, hypoglycaemia, and patient discomfort.

This audit aims to assess staff knowledge of fasting guidelines in pre-op surgical patients, both elective (NCEPOD 4) and stable emergency (NCEPOD 3) patients. A survey was conducted amongst surgical Foundation Doctors, Nurses and Health Care Assistants to evaluate their understanding of NICE and Royal College of Anaesthetists fasting guidelines, including recommendations for clear fluids and solid food intake.

Initial results showed that 62.8% of staff had not received any formal teaching regarding fasting guidelines, with 63.6% of staff not confident in educating patients on fasting

guidelines. Knowledge gaps were identified with 63.6% of participants unclear that solid foods can be consumed until 6 hours, and 50% unclear that clear fluids can be consumed until 2 hours before induction of anaesthetic. Staff were also unsure of what was classified as a 'clear fluid'.

The initial results suggested that education was required for surgical staff members. Therefore, a teaching video was developed and presented to staff. Following the teaching session, a follow-up survey confirmed that the knowledge and confidence in educating patients on fasting guidelines had substantially improved.

Addressing the gaps in staff knowledge will improve patient outcomes, reduce unnecessary fasting, and align practices with current standards. Further education and ongoing audits will be essential in maintaining and enhancing adherence to best practices in surgical care.

Green Healing: Cutting Carbon emissions by tackling plastic waste and paracetamol use in Hospital

Keith Mc Partland, Jack McCallion, John Mc Caffery, Connor Maguire, Sinead McParland, Rehab Wali

A local audit of paracetamol use in district intensive care revealed that 79% of patients audited received dose of IV paracetamol where the enteral route could and should have been used. This resulted in 428 doses of IV paracetamol, where an oral equivalent could have been used. Paracetamol is a widely used drug used throughout the hospital and though the patients journey on the MAU. Studies have shown no superiority was demonstrated comparing IV v oral dosing of paracetamol in terms of efficacy of analgesia, length of stay, patient satisfaction, need for rescue analgesia or side effects. Reduction in use of IV Paracetamol not only has a cost saving associated for drug alone but also associated consumables. As well as cost there is a significant carbon foot print associated with this. A 1g IV dose Paracetamol 0.193kgCO2e versus a 1G oral dose of 0.003kgC02e. Our first analysis revealed 428 doses of IV paracetamol given where the oral equivalent dose could have been used. This equates to a potential reduction in co2 emissions of 82.604kg C02 and is likely to be vastly underestimated when consumables per dose such as IV giving set, iv flush are taken into account. The potential cost saving identified was £1643 (£1716 total cost IV versus £72.76 oral) As our hospital had recently transitioned to integrated electronic care record we set automatic alerts to prompt nursing staff to change to oral route once full NG feed rates had been established. In addition, our default order set prescription was oral rather than IV prompting the prescriber only to do so when needed. Informative posters were placed throughout the unit to highlight the potential C02/kg/equivalent reduction to compare our inappropriate IV paracetamol use which would equate to driving a car 683km! Following these simple interventions, we were able to reduce our IV paracetamol use by over 1 third over the next audit cycle.

Inappropriate IV paracetamol use not only has a potential cost and carbon saving benefit but also reducing nursing workload and preventing hospital acquired infections by inappropriate venous cannulation. Having identified a simple intervention in the ICU, we rolled out QIP to our local MAU with help of pharmacy team who have instigated a similar strategy with prescribing. We plan to roll out this prescribing change to electronic care system trust wide and throughout the province of Northern Ireland as rest of country comes online.

Exploring psychotherapy core training cases and concepts through the use of simulation based education

Dr Lizzy Donaghy and Dr Sarah Davidson

Introduction: As part of completing core training in psychiatry, trainees must complete two supervised psychotherapy cases. A previous learning need was identified through the psychiatry trainees committee report in 2021 which found that core trainees found psychotherapy cases daunting and difficult to approach (1). We considered that simulation based education sessions could be used to address this identified learning need (2,3).

Aim: To develop psychiatry core trainees' confidence and skills as they approach their psychotherapy cases.

Methods: We devised two training sessions to cover the curriculum and introduce simulation based education exercises. Sessions were delivered to a group of 10-12 core trainees. We carried out feedback questionnaires before and after each session to measure the effect of the sessions.

Results: To the feedback statement: 'I feel confident in starting a psychotherapy case', mean scores improved from 0.9 out of 5 prior to the first session, to 3.75 out of 5 following the second session. To the feedback statement: 'I feel confident in managing a difficult situation that may arise while undertaking my psychotherapy case', mean scores improved from 0.9 out of 5 prior to the first session, to 3.5 out of 5 following the second session.

Discussion: Feedback scores demonstrate that core trainees felt more confident in starting a psychotherapy case, and managing a difficult situation, following simulation based sessions. We feel that this is an exciting new venture in psychotherapy training.

References:

1. An exploration of trainees' experiences undertaking longer-term supervised psychotherapy with individual patients: A trainee-led study. RCPsych PTC Report 2021.

2. Piot MA, Attoe C, Billon G, Cross S, Rethans JJ, Falissard B. Simulation Training in Psychiatry for Medical Education: A Review. Front Psychiatry. 2021 May 21;12:658967. doi: 10.3389/fpsyt.2021.658967. PMID: 34093275; PMCID: PMC8175985.

3. Paparo, J., Beccaria, G., Canoy, D., Chur-Hansen, A., Conti, J. E., Correia, H., et al. (2021). A new reality: the role of simulated learning activities in postgraduate psychology

training programs. Front. Educ. 6:653269. doi: 10.3389/feduc.2021.653269

Where's the LVP Kit? – Reducing the Delay in Locating Equipment for Paracentesis

Dr Matthew Donnelly, Dr Helen Morgan (Staff Grade), Dr Ryan Doherty (IMT 2), Dr Peik Lim (Consultant)

Problem: We identified a recurring delay in patient care due to an inability to locate the appropriate equipment to carry out a large volume paracentesis (LVP). A delay in such time sensitive procedures can to lead to prolonged patient discomfort and an increased risk of complications.

Objective: This QI project aims to improve patient care. We plan to streamline LVP's with a new 'LVP box' where the equipment is stored in a single location. We will also provide teaching for junior staff around performing an LVP.

Strategy: The QI was over an 8 week period at the Mater Infirmorum Hospital (MIH) in Belfast. Doctors were surveyed pre-intervention to assess the time it takes to complete an LVP along with assessing their confidence on the indications, which tests are required and the consent process. A teaching session was organised in the addressing the topics above and a standardised 'LVP kit' was developed. A post intervention survey was then carried out.

Measurement: Pre intervention 35% of respondents could prepare for an LVP within 30 minutes, this improved to 54% post intervention. Staff were more confident in the indications for an LVP (38% pre vs 80% post), in tests required (38% vs 70%) and in consent process (50% vs 90%)

Discussion: Through a simple intervention we have shown a marked reduction in the delay of patient care and improved Doctors confidence. In future we believe this could be expanded other procedures.

ICD De-activation in Palliative Care

Dr Maysah Salman and Dr Lana Dixon

Introduction: The implantable cardioverter-defibrillator (ICD) is a recognized lifesaving therapy for patients with heart failure. Given the complexity of heart failure as a lifelong condition, in which many patients can develop terminal illness that can be very distressing to both patients and families, it is recommended to deactivate these devices in end of life, to reduce the risk of inappropriate shocks.

Methods: The first audit that looked into ICD deactivation in Northern Ireland was between 2012 and 2013. After that audit we established the need of a better deactivation pathway and created the ICD alerts on the electronic records, which alerts all health professionals of the presence of such devices. In this audit we have collected the total cases of ICD deactivation between august 2022 and august 2023, with comparison of key variables between it and the previous audit. Medical notes/niecr/cvis review of patient and device characteristics including date and cause of death if possible, and date and location of any device deactivation

Results: de-activation discussion was present in more than 80% of the cases, demonstrating a significant improvement. a significant improvement was noted in deactivation being carried out in community especially in terminally ill patients at hospices.

Conclusion: ICD deactivation at end of life needs to be part of the pre-implantation consent and counselling process, and formalized in advance care planning if the patient is agreeable.

An EPIC takeover of ENCOMPASS – Evaluation of medical note taking and patient safety

Mehaab Jaffer, Peter Eves, Catherin Diver

Background: Accurate and comprehensive health record management is essential for delivering effective patient care and ensuring continuity among healthcare professionals. Standardised case note structures have been recommended, with best practice guidelines covering legibility, patient identification, diagnosis, treatment, nursing records, diagnostic tests, note organisation, and confidentiality. Recommendations from the Royal College of Surgeons (RCS), Medical Defence Union (MDU), and General Medical Council (GMC) support these standards. This audit aimed to compare the quality of paper-based notes with electronic notes following the implementation of a structured proforma on the ENCOMPASS system.

Methods: A retrospective review of 20 handwritten case notes was conducted using the Surgical Tool for Auditing Records (STAR). After the introduction of ENCOMPASS, which included a proforma based on the standardised case note structure, the same case notes were re-evaluated to assess improvements.

Results: Significant improvements were observed across all aspects of medical note-taking, including patient details, referral source, legibility, headings, date, time, investigations, treatment plans, and signatures.

Conclusion: The introduction of ENCOMPASS, along with digital ward round and clerking proformas, led to marked improvements in medical note-taking. These improvements aligned the notes with the guidelines and recommendations from the RCS, GMC, and MDU, ultimately enhancing patient care and safety.

Post-Operative Day 1 C-Reactive Protein Measurement in Elective Colorectal Patients

Dr Michael Popoola

Problem

- A CRP test can cost up to £5, but is requested routinely on post-op day 1 when it frequently doesn't influence patient management at that stage of the clinical journey
- CRP peaks at 48-72hrs after a stimulus, limiting the clinical utility of its measurement <24hrs in elective patients

- Over a 2-month period (June to Aug 2023), 53% of our elective colorectal patients had a CRP test on post-op day 1

Strategy for change

- Staff education through a poster in doctors' office

Measurement of Improvement:

- Comparison of rates of post-op day 1 CRP tests conducted before and after the intervention

Effects of change

- Good potential to save money and resources by decreasing the amount of unnecessary CRP tests being conducted

Discussion

- As just over 50% of our elective colorectal patients have a CRP measured on day 1 post-op, there is large room for improvement to decrease this.
- It is hoped that if the aim this QIP is successful, this change can be also be applied to other surgical departments in hospital (such as upper GI and urology)

"Bridging the Thermal Gap: Improving Temperature Management in Preterm Infants in the NICU Royal Jubilee Maternity Hospital".

Nur Khaleeda Binti Abidin, Stephen Doherty

Introduction: Thermal care is crucial for preterm infants, as temperature instability may significantly increase the rates of morbidity and mortality. The mortality risk increases by 28% for every degree below 36.5°C. Factors that may contribute to temperature instability include a large head, higher skin surface-to-body weight ratio, less subcutaneous fat, and thinner skin. A thermal care guideline exists at most neonatal ICU in UK to detect abnormal temperature and provide management recommendations.

Methods: The aim of this audit was to assess the incidence of abnormal temperatures within the first 10 hours of life in preterm infants and identify potential risk factors for temperature instability. The study included all infants born before 34 weeks gestation and admitted to the neonatal ICU at Royal Jubilee Maternity Hospital between March and June 2024. Data on body temperature, measurement methods, birth weight, and gender were extracted from patient charts. Medical records of infants with abnormal temperatures were reviewed to identify associated risk factors.

Results: A total of 26 infants were included, with 10 males and 16 females. Of these, 50% were classified as extremely preterm, 19% as very preterm, and 31% as moderately preterm. Regarding birth weight (BW), 38% had an extremely low BW, 15% had a very low BW, 42% had a low BW, and 4% had a normal BW. The rate of hypothermia measured by the Servo thermometer was 73%, and the rate of hyperthermia was 62%. Axillary temperature measurements were taken in infants with hypothermia detected by Servo, with a corresponding rate of 19%.

Summary: There were significant discrepancies between the temperature methods assessed. To address this and improve thermal care, a standard operating procedure for temperature monitoring in preterm infants is being developed. A re-audit will follow its implementation.

"Burning Questions: A Comparative Analysis of Microbial Trends and Antibiotic Efficacy in Burns Patients (2023 vs. 2024)"

Brigitte Heim, Dr Omneya Alwani, Mr Abid Rashid

Objectives: This study aimed to compare bacterial isolates from burn inpatients over two similar periods, identifying the most common organisms and determining effective antibiotics for treating infections.

Methods: Data were collected retrospectively on all burn admissions to the burns unit from 01 January to 31 March in 2023 and 2024 from Electronic Case Record (ECR). Those who had swabs for microbiology were identified and their antibiograms and sensitivities were analysed.

Results: There were 30 admissions in 2023 and 16 in 2024. The mean age was 49.5 and 59.8 years in 2023 and 2024 respectively. The mean burn size could not be calculated because of paucity of data. The Female:Male was 1.3:1 and 1:1 for 2023 and 2024 respectively. Wound swabs were taken in 23(76%) in 2023 and 11(68%) in 2024. In 2023, 19 (63%) had swabs on or before the admission day as compared to 11(68%) in 2024. Of those swabbed, Staphylococcus aureus was the most common isolate in both periods with 13(52%) and 7(54%) for 2023 and 2024 respectively. Other frequently isolated bacteria included E. coli, Pseudomonas aeruginosa, and Enterococcus faecalis. Antibiotic sensitivities were consistent across both years, with Staphylococcus aureus sensitive to Doxycycline, Flucloxacillin, and Cotrimoxazole, and Pseudomonas aeruginosa to Tobramycin.

Conclusion: Staphylococcus aureus was the predominant pathogen in both periods with similar antibiograms. Deficiency in data was identified for burn size and also there were patients with no swabs taken. A dashboard for continuous monitoring is recommended with periodic audit of process.

Impact of Encompass on Efficiency for Day-Case Procedures

Dr Peter Eves, Dr Mehaab Jaffer

Problem: Significant frustrations for patients and staff due to delays in discharge for day-case patients due to failure of the operating team completing the necessary paperwork. The daily frustrations impacted the morale of nursing staff caught between pressure from bed managers and angry patients.

Strategy for change: Use of Encompass we thought would force the hand of the operating team to complete discharge

summaries and post op prescriptions in theatre, thus eliminating delays and relieving frustrations.

Measurement of Improvement: Over a 3 week period before and after the introduction of Encompass the number of day-case procedures were recorded. The number of scripts completed in theatre was noted and totals calculated. Nursing Staff, Pharmacists and junior doctors were interviewed before and after the roll out of encompass to highlight the issues.

Effects of change: Given that medication was prescribed in theatre and that issues could now be managed remotely by junior staff, discharges were more efficient improving the experience of both patients and staff.

Discussion: There was dramatic resolution of the bed pressure in the unit, however the department at the point of measurement was only back to 60% of its original elective productivity. The new system also brought with it new issues e.g. it made no distinction between a day case and a normal inpatient discharge. This required completion of a full pre-admission medicines reconciliation highlighting an issue for further PDSA cycles/ for other units to pre-empt in the future.

Impact of Encompass on Hospital Antimicrobial Prudent Prescribing Indicators

Dr Peter Eves, Dr Mehaab Jaffer

Problem: On a back drop of increasing antimicrobial resistance it was noted the indications and durations for antibiotic prescriptions was rarely adequately recorded.

Strategy for change: We had hoped that the introduction of Encompass and its prompts/reminders would improve the consistency of antibiotic prescriptions and the departments overall antimicrobial stewardship.

Measurement of Improvement: A sample of patient prescriptions where made a month's period one month before the role out of Encompass and a month after. It was noted whether the prescription followed trust guidelines or specialist advice, whether indication and duration were documented amongst other data points.

Effects of change: We found that Encompass made a dramatic improvement in the documentation of antibiotic indication and duration. We also saw a significant change in the duration antibiotics were given, with frequent reminders reducing the number of patients receiving over 7 days of treatment.

Discussion: We saw an improvement in the accuracy and clarity of antimicrobial prescriptions with the roll out of Encompass. We also saw a significant reduction in the duration of antibiotic prescription. It also became evident that there were no trust guidelines for the use of low dose metronidazole for treating tumour odour in patients with oropharyngeal cancer, common place in our practice. Furthermore, it identified an issue where a patient's antibiotics where stopped short when they should have been continued given the uncertainty of duration length at initial diagnosis. Highlighting issues for further study and intervention.

Improving Safe Prescriptions of Anti-Platelet Medication on a Stroke Unit (Altnagelvin Hospital)

Dr Sean McGinley and Dr Hannah Hunter

Problem: Anti-platelet medication in stroke care requires a specific duration and plan depending on a number of factors. This was not being documented clearly enough on 'kardexes' within our unit, resulting in confusion in administration and duration of these drugs. This was particularly evident on discharge.

Strategy for Change: We carried out 3 distinct improvement cycles at the beginning of each month. Firstly, we held an education session for the medical team working on the ward, encouraging incorporation of our project into post-take ward rounds. Secondly, we held education sessions for nursing staff and asked them to incorporate it into their handover. Finally, we printed posters to display on medication trolleys highlighting the importance of this.

Measure of Improvement: Our measure of improvement was the proportion of total stroke admissions on the ward with a clearly prescribed anti-platelet start date, duration and ongoing plan following discharge on their medical 'kardex'. Data collection took place monthly for 3 months following each implemented change.

Effects of Change: The proportion of medication correctly prescribed on the unit increased from 35% to 67%, 88% and 100% with each consecutive cycle over the 3 month project.

Discussion: Anti-platelet medication is an important part of stroke care, but can have devastating consequences if prescribed incorrectly. Our project has helped improve the safety of this within Altnagelvin Hospital. red.

Adherence of dosing schedule of Denosumab therapy for Osteoporosis: A local audit at Musgrave Park Hospital.

Shabneez Ibrahim, HanJun Tan, Cathy Donaghy

Problem: Denosumab is a bone anti-resorptive drug used in the treatment of osteoporosis and other bone related disorders. It is administered by subcutaneous route at 6 months interval. Studies have showed that the timely injection of denosumab is important as longer interval between doses is associated with suboptimal BMD responses at both spines and hips and it also increases risk of composite fractures of all types.

Strategy for change: We aimed to determine whether denosumab injection is given at the appropriate timing and suggestion how can this be facilitated.

Measurement: We conducted a retrospective, electronic medical record study from BHSCT rheumatology pharmacy list of those on denosumab injection. A total of 28 patients were involved in the audit, who were all above 70-year-old and were on denosumab either because they could not tolerate bisphosphonate or had a worsening of osteoporosis despite being on oral bisphosphonate.

Results and Discussion: 40% did not receive their second dose of denosumab injection at the right time interval (6-9 month) and 65% did not receive their third dose on time. This means there is a large deficit in the system in ensuring that patients on denosumab are getting their injection on time. Several actions have been proposed to be able to improve this problem:

- Ideally having a nurse led clinic to ensure patients are booked every 6 months for their injection and ensure bloods are being monitored. But this might be challenging due to clinic pressure.
- Booking the patient in bio-clinic every 6 months for their denosumab injection
- Design a template letter to the GP that will be visible on the system to request taking over care for further injection and ensure GP responded to the letter

Maximizing safety on Post Take Surgical Ward Rounds to Prevent Avoidable Harm – Reaudit

Syed Wajih Ul Hassan, Sheena Alam, Colman Byrnes

Problem: Lack of standardized documentation on a post take surgical ward round

Strategy for change: Change current clerking booklet to include a post take surgical ward round template with a short checklist at the end for the management section.

Measurement of change: Re-audit of case notes prospectively showed a significant rise in the documentation of critical elements to a surgical post take ward round.

Effect of change: Reduced ambiguity in plans. Junior doctors and nursing staff feel more satisfied with clarity of plans.

Discussion: Surgical ward rounds are the main form of communication between clinical teams. The quality of a ward round has been shown to affect patient outcomes where high quality documentation can prevent diagnostic delays, avoidable complications and medicolegal disputes. A prospective review of the case notes identified that standards set by the Royal college of surgeons Edinburgh (RCSEd) for a post take ward round weren't being met locally. A systematic review found that a checklist on a surgical ward round improves clarity of information, improves communication and understanding of management plans among junior doctors and reduces ward round duration. After discussion with local consultants, we customized the surgical assessment for emergency (SAFE) ward round tool and introduced a post take ward round template with a management section that highlighted the important elements that should be documented. The teams readily engaged with the template which helped increase local compliance with the standards set by the royal college. Junior doctors and nursing staff found the new template to provide more clarity for management plans.

POSTER PRESENTATIONS - CASE STUDIES/CASE REPORTS

Laparoscopic cholecystectomy in situs inversus totalis—surgical technique and procedure safety using anatomical checkpoints

Brian Cunningham, Daryl Blades, Gerarde McArdle

Introduction: Situs inversus totalis (SIT) is a condition in which there is complete transposition of both the thoracic and abdominal viscera. Operating on patients with SIT can be technically difficult for the surgeon for many reasons. It means altering the traditional theatre set up, port placement and assuming the surgeon's ambidexterity. Changes in orientation of anatomy have been shown to cause an increase in surgical complications. This case report focuses on the set up and technique used by a right hand dominant surgeon to perform laparoscopic cholecystectomy (LC) safely in a patient with SIT.

Case Description: A 54-year-old man, known to have SIT, was referred to the general surgical unit with epigastric pain, dysphagia, and weight loss. Upper GI endoscopy was technically difficult and raised the suspicion of gastric volvulus. A CT scan of the abdomen and pelvis was subsequently carried out showing SIT and mild nodularity of the gallbladder wall, thought to represent a 7.1 mm gallbladder polyp. The patient then proceeded to a laparoscopic cholecystectomy.

Discussion: Repeated examination and cross-checking of anatomy were key to ensuring safety during LC in SIT. A four-port approach was used, mirroring the exact setup of the standard LC. During the dissection, the surgeon proceeded with dissection using their right hand and applying surgical tension with the left. This approach meant that the majority of the dissection was performed towards the midline, where anatomical checkpoints were crucial. We ensured that our dissection was well above Rouvière's sulcus. Before clipping the structures, we ensured that Strasberg's 'critical view of safety' was visible from both the medial and lateral aspects of Calot's triangle.

Branch retinal artery occlusion with visible embolus in a male with bilateral macular degeneration.

Dr Catherine Drew

A 58 year old male presented to eye casualty with a six day history of superior visual field loss in his right eye. A complete ophthalmological examination was conducted. Visual fields revealed a partial outer superior temporal and superior nasal deficiency. Visual acuity was reduced in the right eye at 6/15. He could not perceive any colour in his right eye and all plates seen on Ishihara in left eye. Fundus exam revealed a small disc in the right eye. The inferotemporal margin of the right optic nerve was swollen. Small embolus visible at the optic disc of right eye and whitening of vessels extending from the retinal artery. The inferior retina over the macula was swollen. Both maculae had extensive dry AMD with

mixed drusen. OCT images were obtained and demonstrated the oedematous inferior retina of right eye. He was subsequently diagnosed with branch retinal vein occlusion. He had no history of hypertension or cholesterol. He is a non-smoker. Blood results revealed cholesterol elevated at 5.2. Lipid profile was normal except triglycerides at 2.32. He was referred to TIA clinic and ultrasound carotids. TIA clinic did not find any identifiable risk factors. He commenced patient on clopidogrel and atorvastatin. Ultrasound carotids was unremarkable. He was also referred to the macular clinic due to evidence of macular degeneration. It appears to categorized as category 2 in The Age-Related Eye Disease Study (AREDS).Ten days later he was reviewed in eye casualty, visual acuity had improved to 6/10 bilaterally.

Dissimilar ventricular arrhythmia

Dr Maysah Salman and Dr Lana Dixon

Introduction: Hypertrophic cardiomyopathy (HCM) is a condition characterised by increased left ventricular wall thickness, in the absence of abnormal loading conditions.1 "Dissimilar ventricular arrhythmias" is a rare condition recognised in HCM, in which different ventricular tachyarrhythmias, at different ventricular rates, are simultaneously encountered in the right and left ventricles.

In this case, we present evidence of dissimilar ventricular arrhythmias in a patient with HCM with an ICD in situ.

Case report: A 50 year old male, previously diagnosed with HCM, was admitted with VT not terminated by ATP, requiring a shock from the implantable defibrillator. Whilst an inpatient he had a witnessed syncopal event. The bedside cardiac monitor showed ventricular fibrillation. The ICD did not deliver therapy, and he required an external DCC. Subsequent ICD interrogation showed that the ICD however was recording a VT of 160 BPM. We concluded that the left ventricle was most likely in ventricular fibrillation and the right ventricle was in Ventricular Tachycardia, corresponding with the near field sensing on the device that was seen and detected.

Discussion: Despite it being clinically observed and reported, there is no explanation for the underlying mechanism by which dissimilar ventricular arrhythmias occur. Intraventricular conduction block has been suggested as a possible mechanism.

Conclusion: Multiple hypotheses have been investigated to establish the mechanism of dissimilar ventricular arrhythmias. The condition remains to be a delicate mystery.

Confounding ANCA in post-streptococcal syndrome.

N Boylan, G Boyd, N Kearney, C McCourt

A 53 year old male presented to the emergency department with a 5 day history of a painful lower limb rash which had spread to his elbows and flank. He had intermittent fevers and lethargy three weeks prior. Past medical history included ulcerative colitis (UC) and low grade B-cell non-Hodgkin's lymphoma (NHL) for which he was not on active treatment. Examination revealed palpable purpura with scattered petechiae affecting the lower limbs, papules on the flanks and elbows and bilateral ankle/knee swelling. There was no erosion, ulceration or mucosal disease and he had not commenced any new drugs.

Investigations revealed a mild increase in inflammatory markers and an acute kidney injury (Creatinine 179mg/dL, baseline 79mg/dL) with proteinuria and microscopic haematuria on dipstick. Complement (C)3/C4 levels were low. Anti-nuclear antibody was negative. Perivascular anti-neutrophilic cytoplasmic antibody (pANCA) was positive at 1/80 with low-titre MPO and PR3 antibodies. The combination of renal and skin signs with positive pANCA prompted a working diagnosis of granulomatosis with polyangiitis and the renal team were consulted. Subsequently, anti-streptolysin O titres (ASOT) returned at >1600iu/ml (normal <200iu/ml).

The ASOT levels and febrile illness predating the rash prompted a change in diagnosis to post-streptococcal vasculitis and glomerulonephritis. Penicillin V was commenced and renal disease was monitored with repeat creatinine, dipstick and C3/C4. Post-streptococcal syndrome is more common in children but can occur in adults 1-3 weeks after the initial infection. ANCA positivity was a confounding factor our patient possibly due to his UC and NHL.

Unexplained subcutaneous emphysema of the forearm – a case report and review of the literature.

N. Glynn, A Rashid

Introduction: Surgical emphysema may result from trauma or infection with gas forming organisms. Determining the cause is imperative to provide appropriate and timely treatment.

Case description: We present the case of a 15-year-old girl with left arm swelling of 48 hours duration with no preceding trauma. Her type 1 diabetes was managed by insulin pump.

Upon review, the patient was apyrexic and normotensive. White cells were 15 x 10^9/L and C - reactive protein was 4 mg/L. Glucose and ketones were normal. Most recent HbA1c was 81. No difference in circumference was elicited between the right and left upper limb. No significant erythema was present and the patient demonstrated excellent range of movement. X-ray of the hand and forearm showed extensive surgical emphysema.

A test incision was made in the forearm. The finger sweep test was negative. Fluid was sent for microscopy and culture. The patient was commenced on intravenous antibiotics and high elevation. Microscopy and culture was negative. She was discharged after 48 hours on oral antibiotics.

Discussion: Surgical emphysema of the limbs has been described in cases of minor trauma including puncture wounds and insect bites. High pressure injection of air with

machinery is also possible. Factitious disorders may manifest with limb emphysema. Body cavity sources should be excluded with cases due to intrathoracic and intraabdominal pathology being described.

A test incision allowed us to rule out a sinister underlying cause in this case. Benign causes should be considered in the absence of systemic upset and test incisions considered in unclear cases.

'A thirsty Bear' – Ureteric injury following Advanced Mucosal Resection using the OVESCO bear clip.

Rachael O'Halloran, Andrew McCanny,
Brian Duggan, Kevin McCallion

Introduction: Iatrogenic ureteric injuries are a serious complication of abdomino-pelvic surgery and can be associated with significant morbidity. They can occur during open, laparoscopic or endoscopic surgery, however 65-80% of ureteric trauma is only identified in the post-operative period. Management of ureteric injury involves either stent insertion or urinary diversion via a percutaneous nephrostomy. We report the first documented case of a ureteric injury following AMER.

Description of case: A 42F with a history of a colonic polyp presented to a district general hospital ED with a 4 day history of worsening right lower quadrant pain. She was 4 days post AEMR for an 8cm recto-sigmoid lesion. CT imaging showed a rectosigmoid perforation with pneumoperitoneum in addition to moderate right sided hydronephrosis, secondary to a bear claw clip inserted at the time of AEMR. Treatment involved intra-operative retrograde studies which showed obstruction at the level of the bear claw which resolved upon removal. A ureteric stent was inserted at this time. Six weeks following stent insertion, planned retrograde studies showed complete resolution of the hydronephrosis, no extravasation of contrast and the ureteric stent was removed.

Discussion: This patient was initially felt to have a ureteric stone given the AKI and microscopic haematuria, hence she proceeded to non-contrast imaging. In someone who is post procedure with new abdominal pain we must consider the possibility of perforation and ideally perform contrast enhanced cross-sectional imaging. The case raises awareness of endoscopic iatrogenic ureteric injuries during general surgery procedures. It is important to ensure patients are aware of the risk of ureteric injury during such procedures

Superior mesenteric artery syndrome in a 15-Year-Old Male Following Appendectomy: A Case report

Rehem Babiker, Anwar Fadlallah

Introduction: SMA syndrome, also known as Willkie's Syndrome, is a rare but potentially life-threatening condition characterized by the compression of the third portion of the duodenum, due to decreased angle between the superior mesenteric artery and the aorta, and consequent partial or total obstruction, leading to a spectrum of gastrointestinal symptoms.

Description of the case: A 15-year-old boy underwent an appendectomy 9 month ago, after which he had lost approximate 12-15kg with no specific plan to lose weight. And started to develop continuous nausea, early satiety and failure to complete his meals despite his desire to. Normal bowel motions, no history of constipation, or other GI symptoms was found. He underwent numerous investigations to assess causes for his symptoms and was commenced on lansoprazole to treat gastritis. A clinical suspicion of SMA syndrome was raised.

Discussion: The most common risk factor for SMA syndrome is a significant weight loss for any reason. In this case, the patient presented with a progressive weight loss, ongoing nausea and early satiety, despite having normal bowel motions and normal body image. All his symptoms started to present after he underwent appendectomy. A high suspicion of eating disorder was made; however, this was declined by CAMHS. The diagnosis of SMA syndrome was made by the comprehensive history, clinical examination and abdominal MRI/MRA study, which revealed drastic reduction in Aortomesenteric Angle and Aortomesenteric Distance. He showed significant improvement after a period of jejunal feeding, and progressed to gain weight and all his gastrointestinal symptoms were resolved. One of the commonest reasons for loss of intraperitoneal fats pad is abdominal surgeries. Considering the diagnosis of SMA syndrome is important and working in close with radiological expertise enhance the diagnosis, as early recognition and intervention are crucial for effective management and favourable outcomes as well as preventing significant complications as electrolyte imbalance, significant malnourished status and inaccurate eating disorder diagnosis.

POSTER PRESENTATIONS – CLINICAL RESEARCH

Are Surgical Ward Rounds EPIC? a prospective audit within the general surgical unit

Dr Anna Murray, Miss Rachael Coulson,
Professor Stephen Kirk

Introduction: The documentation of the ward round process has changed significantly following the introduction of an electronic health record (EPIC) in the SEHSCT in 2023. There is no clear understanding from the literature of the impact of EPIC on ward round documentation.

Methods: A prospective audit of ward round notes of general surgical inpatients in the Ulster Hospital was undertaken in September 2024. These were audited against the Royal College of Surgeons of Edinburgh's ward round tool (SHINE), comprising a number of domains required to be recorded to facilitate a safe ward round. Additionally, a consensus was sought from consultant surgeons in the unit via an electronic survey, outlining the ten most important domains to be documented in a ward round note.

Results: When notes were audited against the SHINE ward round tool there was evidence of incomplete documentation.

This includes members of the team present; revisiting patient's history; VTE, regular medications, analgesia and intravenous fluids; patient understanding; and discharge planning. Audit of consultant consensus of ward round documentation is ongoing.

Conclusion: Accurate ward round documentation is vital to patient safety and experience. This is the first prospective evaluation of ward round documentation since the launch of EPIC within the general surgical department in SEHSCT. There are significant discrepancies in recommended documentation (SHINE). Further audit and reformulation of EPIC templates and adherent to these will be required to ensure patient safety is maintained.

Exploring network-based models of intrinsic radiosensitivity

Dr Ellen Beattie

Radiotherapy is one of the main treatments in the field of oncology with approximately 50% of patients undergoing radiation therapy at some point. It is used as a curative method for some patients and palliative for others. It could be argued that radiotherapy is failing to incorporate advancements in cancer biology and genomics into planning treatments for individuals. Previous studies have found tumours from patients respond differently to radiation exposure, yet all anatomically similar cancers are treated with the same treatment regime. A number of gene expression signatures have been developed - most widely accepted is that of the Radiosensitivity Index.

This project aimed to better understand the role the Radiosensitivity Index may have in effectively predicting radiosensitivity. We replicated techniques used in this model by applying correlation/regression, enrichment and network analysis to gene subsets. Our models were used to predict tumour radiosensitivity. The main pathways correlated were common biological processes - it was hard to distinguish a definitive link to radiosensitivity. Validation of our models based on genes identified from our analysis showed that they performed statistically better when predicting intrinsic radiosensitivity than models trained on genes that had no correlation/regression analysis.

We found that regression techniques and network analysis are not sufficient methods for creating efficient predictive models for intrinsic radiosensitivity. The ability to accurately predict an individual's response to radiation would be a massive catalyst in enabling radiotherapy to become more personalised. Improvements in radiosensitivity predictions would allow a reduction in radiotherapy-related toxicities and increase efficacy of treatment.

Metabolic Bone Disease

Dr Emma Millar, Mrs Nikki Lyttle, Dr Jennifer O'Carroll, Mrs Perudasi Nakiryowa, Dr Catherine Black

Introduction: Metabolic bone disease of prematurity (MBD) is a multifactorial condition affecting infants born <32 weeks' gestation and <1500g. It is associated with significant morbidity and its biochemical and radiological changes can result in pathological fractures and severe secondary hyperparathyroidism. There is no consensus or national framework for the prevention and treatment of MBD and practices differ among neonatal units.

Aims: To assess levels of MBD in a tertiary neonatal unit across 3 time epochs of differing nutritional, monitoring and treatment practice. Collecting data to inform a guideline that includes the most informative screening tests, optimal nutritional delivery and effective targeted treatment strategies.

Methods: Observational cohort study identifying infants <32 weeks' gestation and <1500g at birth (n=264). Infants that died <28 days or those with missing data were excluded (n=57). Data was collected over 3 time periods from Feb 2021-Sept 2024. Period 1 (n=78): historic practice with old Parenteral Nutrition formulations, delayed fortification, and treatments targeting phosphate levels alone. Period 2 (n=69): initial PN changes and measuring of parathyroid (PTH) targeted treatment. Period 3 (n=60): reformulated current PN, early fortification and PTH targeted treatment. Data was collected using NIECR and BadgerNet.

Results and Discussion: The percentage of infants requiring treatment reduced from 68% in period 1 to 8% in period 3. Phosphate monotherapy fell from 67% in period 1 to 0% in period 3.This study demonstrates a reduction of MBD following implementation of improved PN formulation, early fortification and targeted treatment ensuring optimal mineral molar ratios.

BNP as a prognostic indicator in heart failure in elderly population

Eranda Ranasinghe Arachchi, Kouamivi Agboyibor, G. Yalamanchili, Peter McKavanagh, Naseema-Maria Begum, Rizwan Hanif Khan

Introduction: Heart failure accounts for 5% of all NHS emergency admissions. As per the updated NICE guidelines, BNP is used in the diagnostic criteria and management of heart failure. This study is to evaluate the prognostic value of BNP in elderly population with decompensated heart failure.

Methods: We conducted a retrospective observational cohort study of 88 elderly patients who were admitted with decompensated heart failure between September 2023 to April 2024 in Northern Ireland. 88 Heart failure cases were identified based on echocardiogram findings and BNP levels performed on initial admission. The same cohort was followed up for 12 weeks period for specific end points, which were heart failure readmissions or deaths. HF follow ups were also assessed during post discharge as well.

Results: Mortality rate is 29.1% when BNP values is more than 2000. The heart failure readmission rate is 45.6% when BNP value is more than 2000.

66.6% re-admission rate was demonstrated with rising BNP

values during heart failure follow up. This was much lower with patients who had declining BNP values during heart failure follow up which was 33.3%

Satisfactory statistical power of the study, which demonstrated that NT- Pro BNP can be used as prognostic marker for mortality in elderly patients with heart failure irrespective of their ejection fraction.

Conclusions: NT Pro BNP can be used as a prognostic biomarker for elderly patients with heart failure. Satisfactory statistical evidence was shown on this study to prove that higher BNP values on admission predicts higher mortality rate. Significant evidence was demonstrated in this study to show that there are higher re-admission rates with high BNP levels specially in elderly population and Higher mortality and morbidity rate with rising BNP levels.

'Pan Scan': A retrospective comparison of trauma cross-sectional imaging 2024 and 2019 within the Southern Health and Social Care Trust. Across both silver trauma and general adult trauma

Dr James McNulty, Dr Peter McLoughlin

Over the previous several years there has been a marked increase in the use of computed tomography for the investigation of trauma. Several studies have identified a significantly reduced positive pick up rate for traumatic findings in major trauma centres in England. Our study planned to investigate the positive pick up rate within the Southern health and social care trust. Comparing 2019 with 2024. Over a 2 week period there were 78 trauma studies in 2024 compared to 21 in 2019. The small dataset for 2019 made comparison of positives findings not staticsally significant therefore 2019 dataset was expanded to 6 weeks. In 2024 total major findings was 17% versus 44% for 2019. The significant increased demands identified in this study are important indicators for workforce planning in radiology in Northern Ireland. Further the significantly decreased positive finding rate places importance on senior clinical assessment with the Emergency department for risk stratification.

To biopsy or not to biopsy – Diagnostic value of Post Nasal Space biopsy for vasculitis

Mehaab Jaffer, Catherine Diver and Brenden Hanna

Background: Granulomatosis with polyangiitis (GPA), a form of vasculitis, is a destructive inflammatory disease that affects not only the upper respiratory tract but also multiple organ systems. Prompt treatment with immunosuppressive agents is crucial to halt disease progression and alleviate symptoms. However, these medications carry significant side effects, making accurate diagnosis essential. Biopsy of the postnasal space (PNS), an area commonly involved in the disease, is often utilized for diagnostic confirmation. Nonetheless, the diagnostic utility of PNS biopsy remains controversial.

Methods: Over a one-year period, 20 cases undergoing PNS biopsy under local anaesthesia for diagnostic confirmation of vasculitis were retrospectively reviewed. Biopsy results were compared to clinical findings and anti-neutrophil cytoplasmic antibody (ANCA) status to assess their diagnostic relevance.

Results: The majority of referrals were for patients presenting with nasal crusting. Epithelial hyperplasia was observed in 35% of biopsies. Nondiagnostic results were obtained in 15% of cases, while 15% revealed papilloma. The remaining biopsies included findings of normal mucosa, viral warts, and hyperkeratosis.

Conclusion: These findings suggest that the diagnostic value of PNS biopsy for confirming vasculitis is limited. To improve diagnostic yield, future studies should consider increasing the sample size and incorporating cases involving PNS biopsy performed under general anaesthesia

Relevance of q FIT test in patients presenting with per-rectal bleeding: A cohort study from colorectal unit

Muhammad Bilal Akbar, Obada Abu Jarad,
Priyanka Bandhari.

Aim:

- To establish that the q FIT tests is relevant as a first line investigation in filtering- out Colorectal cancer in patients referred with per-rectal bleeding alongside other lower GI symptoms.

- To assess the diagnostic yield of Q Fit test across different quantitative ranges i.e. <10, 10 –150, 150-400,>400 in patients presenting with PR bleeding vs other bowel symptoms.

- To analyse the positive/negative predictive values of quantitative faecal immunochemical test (q FIT), in patients presenting with per-rectal bleeding to an outpatient colorectal clinic.

Method: This was a Cohort analytical study from May 2022 till September 2023 of 243 patients, presenting with symptoms of Colorectal cancer.

Conclusion : The faecal immunochemical test can rule out colorectal cancer (CRC) in majority of the patients (100% in our study) referred with rectal bleeding. Contrary to the common misconception, faecal haemoglobin is undetectable in a large number (31.2% in our study) of patients presenting with rectal bleeding. In patients with rectal bleeding and undetectable f- Hb (q Fit < 10), the use of flexible sigmoidoscopy would reduce the probability of undetected CRC and will identify most benign pathologies. These recommendations can reduce the burden on endoscopy and radiology units and help in lowering down the complications and cost related.

Prioritising the patients for diagnostic investigations based upon high q FIT range i.e. > 400, patients presenting with bowl symptoms other than PR bleeding can take precedence as the sensitivity of Q Fit test is highest for this patient's sub-group.

A single centre retrospective study exploring factors that predict 'super response' to biologic therapy

N. Boylan, G. Boyd, N. Kearney, K. McKenna

Biologic therapy has revolutionised psoriasis management. Subgroup analysis in early pharmaceutical trials and emerging real-world evidence supports that some patients show a rapid and sustained response while others respond poorly.

We aimed to evaluate if demographic, disease and treatment-related factors were associated with super-response to biologic therapy in patients with moderate to severe psoriasis. We completed a retrospective review of the psoriasis biologic database in our centre. Patients were classified into SR (super-responder) or SNR (super non-responder). SR was defined as PASI <2 and PASI 90 at 52 weeks. SNR was defined as failing two different biologic classes within one year. Data was collected on demographic factors, disease severity, treatment history and comorbidities. Statistical analysis was completed using Jamovi.

573 patients were included. 158 (27.6%) were classified as SR and 13(2.3%) as SNR. SNR were numerically more likely to be female (69.2% vs. 30.8%, p=0.055). SR had lower BMI (31.4 vs. 37.1, p=0.038). Psoriatic arthritis was more common in SNR (69.2% vs. 39.9%, p=0.039). SR was more likely in patients whose first biologic was an IL-23(p19)(100%) or TNF inhibitor (92.5%) compared to an IL-17 inhibitor (75%)(p=0.05). No association was seen with smoking, age, time to biologic or disease severity.

Identifying predictors of response is important as we aim to personalise medical treatments. Female sex, absence of psoriatic arthritis and initial treatment with IL-23(p19) and TNF inhibitors were associated with SR. This study is limited by small sample size with further observational studies required to confirm these findings.

A comparison of revision rates for cementless versus cemented fixation for a single prosthesis posterior-stabilised total knee arthroplasty; follow-up of 18,824 cases from the UK NJR

Patrick Hickland, Roslyn Cassidy,
Owen Diamond, Richard Napier

Introduction: Cementless total knee arthroplasty (TKA) offers conceptual benefits over cemented TKA. However, there are concerns that the cam-post interaction of posterior-stabilised (PS)-TKA implants transmits excessive force to the tibial component-bone interface.

Aims: To assess the survivorship of cemented and cementless options of a single prosthesis PS-TKA.

Methods: Data was obtained from the United Kingdom National Joint Registry (NJR), on patients undergoing primary PS-TKA for osteoarthritis using the Stryker Triathlon system between 01/01/2010 and 31/12/2019. We excluded patients with an implausible body mass index (BMI, <10 or >60 kg/m2), or where there was use of bone graft, revision implants, or hybrid cementation.

Results: There were 18,824 relevant PS-TKA, 1,068 (5.7%) cementless and 17,756 (94.3%) cemented. Those in the former were more likely to be male (48.7% vs 41.9%, p<0.01), of lower median age (70 vs 71 years, p=0.01), higher median BMI (31 vs 30 kg/m2, p<0.01), and had a shorter median follow-up (5.5 vs 6.9 years, p<0.01). The rate of all-cause revision did not differ between the groups (2.4% vs 2.8%, p=0.49).

Discussion: This study is the first to make this comparison, and demonstrates equivalent rates of revision in the medium term with either method of fixation of PS implants of the now most commonly used TKA system in the UK. Future research should assess survival in the longer term.