

Abstracts

# Abstracts from Trainee Research Event 5<sup>th</sup> November 2020

## Title



### ORAL PRESENTATION

#### Resilience, burnout and coping mechanisms in medical students.

N. McKinley, S. McCain, L. Convie,  
M. Dempster, M. Clarke, S. Kirk.

**Introduction:** In 2014, the General Medical Council introduced the concept of resilience training to the medical school curriculum.

**Aims:** This cross-sectional study assesses resilience, coping mechanisms and professional quality of life in medical students.

**Methods:** Medical students at Queen's University Belfast (QUB) were invited to participate in an anonymous online survey during 8 weeks (2019), comprising three validated psychological scales: Connor-Davidson Resilience Scale (CD-RISC), Professional quality of life scale (ProQOL V) and BRIEF COPE.

**Results:** 324 QUB students (years 1-5) participated (response rate: 25%). Mean CD-RISC score was 68.5 (SD 11.5) (low for resilience). Mean burnout (BO) was 26.9 (6.0) (worse than population mean: 20), mean compassion satisfaction (CS) was 37.8 (5.8) (similar to population mean: 37) and mean secondary traumatic stress (STS) was 22.3 (5.9) (worse than population mean: 11). Pre-clinical students had higher compassion satisfaction than clinical students ( $p=0.01$ ). More than a quarter (27.4%) of medical students had high burnout and 21 (8%) had high BO, high STS and low CS. Common coping mechanisms were planning and active coping.

**Discussion:** The high levels of burnout in QUB medical students suggest that they may benefit from interventions to develop resilience and improve professional quality of life..

#### Reducing weekend routine task workload

Rebecca O' Kane, Anna O' Brien, Tim Martin

**Problem :** The on call weekend team is primarily in place to deal with emergencies, however a large amount of their time is spent performing routine jobs left over from weekdays.

**Strategy for change :** To reduce the number of routine tasks

left for weekend staff to complete by 25% by March 2020

**Measurement of improvement:** Initial discussions with foundation doctors revealed that the most common routine tasks were IV cannula, bloods to be taken and checked, insulin prescriptions.

Baseline audit of number of tasks left for weekend staff to complete (4 weeks), then weekly audit, using ward jobs list as reference.

We adapted and introduced the known F.R.I.D.A.Y.S. checklist.

We used the PSDA model and implemented 3 cycles in order to achieve improvement.

**Effects of change:** Baseline data revealed an average of 25 routine jobs left to be carried out. By end of PSDA cycle 3, there was an average of 10 jobs left.

Discussion with juniors and nursing staff revealed that they were happier with less bleeps, nurses were able to complete tasks more timely and overall satisfaction had improved.

**Discussion:** Overall F.R.I.D.A.Y. checklist was a successful tool for reducing weekend routine tasks. When implemented correctly, it reduced the number of routine jobs (40% reduction in our ward), improved communication between team and staff and improved patient safety.

#### Seroprevalence of SARS-CoV-2 antibodies in children - A prospective multicentre cohort study.

Thomas Waterfield, Chris Watson, Rebecca Moore, Kathryn Ferris, Claire Tonry, Alison P Watt, Claire McGinn, Steven Foster, Jennifer Evans, Mark D Lyttle, Shazaad Ahmad, Shamez Ladhani, Michael Corr, Lisa McPetridge, Hannah Mitchell, Kevin Brown, Gayatri Amirthalingam, Julie-Ann Maney, Sharon Christie

**Introduction:** Studies based on molecular testing of oral/nasal swabs underestimate SARS-CoV-2 infection due to issues with test sensitivity and timing of testing.

**Aims:** To report the presence of SARS-CoV-2 antibodies, consistent with previous infection, and to report the symptomatology of infection in children.



**Methods:** This multicentre cohort study, conducted between 16th April - 3rd July 2020 at 5 UK sites, recruited children aged 2 to 15 years of age. Participants provided blood samples for SARS-CoV-2 antibody testing and data were gathered regarding unwell contacts and symptoms.

**Results:** 992 participants were included in the final analysis. The median age was 10.1 years. There were 68 (6.9%) participants with positive SARS-CoV-2 antibody tests indicative of previous SARS-CoV-2 infection. Of these, 34/68 (50%) reported no symptoms. The presence of antibodies and the mean antibody titre was not influenced by age. Following multivariate analysis 4 independent variables were identified as significantly associated with SARS-CoV-2 infection. These were: known infected household contact; fatigue; gastrointestinal symptoms; and changes in sense of smell or taste.

**Discussion:** The symptoms of SARS-CoV-2 infection in children were subtle but of those reported, fatigue, gastrointestinal symptoms and changes in sense of smell or taste were most strongly associated with antibody positivity.

### Pandemic Proofing Education

Dr Eimear McCorry

**Introduction:** Prior to the pandemic there were already difficulties in delivering postgraduate medical education (PGME) with attempts to balance service delivery and training requirements. Social distancing guidelines imposed due to COVID added the final blow to traditional postgraduate teaching.

**Aims:** We wanted to reintroduce a PGME programme that was:

- safe
- accessible to all
- sustainable.

**Method:** We opted to deliver teaching remotely. Numerous platforms were trialled with Zoom being preferred. Initially we focused on one weekly session and with initial positive engagement momentum built and we systematically increased the opportunities available.

**Results:** There is now a comprehensive PGME programme within the Southern Trust with all activities available remotely. There have been up to 50 participants availing of multiple sessions per week across all sites and specialties. Feedback has been positive:

- 100% liking remote teaching format
- 100% viewing remote delivery as safer alternative.

**Discussion:** For the majority of trainers and trainees this was a new concept requiring adaptability and overcoming barriers. However this innovative approach has been positively received. We recognise that this is a work in

progress and seek feedback, evolve with alterations and addition of new elements.

### EDHEAD:

#### How to beat the pandemic 5 minutes at a time.

Dr Eimear McCorry

**Introduction:** Faced with a pandemic, educational activities stopped with teaching and training a distant memory. However, we recognised that an appetite for learning persisted and that our commitment to lifelong learning must never stop. EDHEAD was born to put education back on the agenda.

### Aims:

- Offer platform for paediatric healthcare professionals to access everyday clinical problems answered in evidence-based format using 5-minute peer reviewed, quality-assured videos.
- Offer leadership and educational opportunities as part of lifelong commitment to learning.
- Improve team moral by incorporating technology and humour within educational videos, with video element allowing for social distancing.

**Method:** The EDHEAD team created a 'wish-list' of clinical questions. All members of the paediatric team were invited to prepare 5 minute videos based on guidance provided. These were submitted electronically and EDHEAD team peer reviewed, quality assured, edited and uploaded to shared platform.

**Results:** We have had great engagement from multiple team members with the catalogue of videos steadily increasing. Feedback is collated to inform future clips.

**Discussion:** We have created a pandemic-proof approach to education! We plan to share learning and evolve by collaborating with other departments.

### The Northern Ireland Academic Foundation Programme Pathway to Academia

Dr Meadhbh Hogg

**Introduction:** The Academic Foundation Programme (AFP) provides foundation doctors with protected time for the development of the skills and aptitudes required in academic medicine. The NI AFP programme was established in 2008 with 9 AFP posts each year. To date, there has been no analysis of this cohort.

**Aims:** We sought to describe the academic and career outcomes of the Northern Ireland AFP cohort.

**Methods:** Anonymised data regarding AF2 post-holders from 2008-2018 was obtained from QUB and NIMDTA. A structured questionnaire was distributed to this cohort of 99 AFP trainees.



**Results:** 41 males (41.4%) and 58 (58.6%) females completed the AFP with the majority (59.6%) being QUB graduates. The response rate was 44.8%. Of the respondents, 76.9% have presented and 46.2% have published their AFP project with 61.5% applying for a higher degree or academic position. 86.6% agreed that completion of the AFP has enhanced application for future training programmes and 76.9% believe that the AFP has influenced their intended or actual career pathway.

**Discussion:** Our survey shows that participation in the NI AFP programme leads to research outputs, enhanced career opportunities and a clear pathway to academia

### Assessment of Obstetrics and Gynaecology Consultants Comfort with Delivering postgraduate Virtual Teaching

Dr Gemma Ferguson

**Background:** Continued medical education (CME) for postgraduate Obstetrics and Gynaecology trainees is normal delivered by the consultant body in a face-to-face capacity, on a bi-monthly basis. Due to COVID-19, these teaching sessions were not able to occur. With the current pandemic it is important that we explore other options for delivering CME to postgraduate trainees including virtual delivery.

**Aims:** To assess the viability of the consultant body delivering a virtual CME programme for obstetrics and gynaecology trainees in Northern Ireland

**Methods:** Survey monkey sent to consultants to find out about their experience with virtual teaching and whether they would be comfortable teaching on a virtual session.

**Results:** 41 consultants completed the virtual teaching survey, 67% had never used video-conferencing to teach doctors, 40% were not confident in sharing presentations and 92.5% in managing break-out sessions. 34 consultants would consider delivering CME if this became the standard teaching platform, with 82% having no objections to the sessions being recorded for trainees unable to attend.

**Conclusions:** Consultants are keen to provide this method of teaching but require further training to deliver. Having consultants teach via zoom improves access to a diverse and rich knowledge base for postgraduate trainees.

### Assessment of Virtual Teaching for Postgraduate Education in Obstetrics and Gynaecology.

Dr Gemma Ferguson

**Background:** Obstetrics and Gynaecology trainees in Northern Ireland attend bi-monthly postgraduate continued medical education (CME). COVID-19 restrictions meant these teaching sessions could not occur. Collaborating with senior trainees we developed a virtual postgraduate teaching series via ZOOM.

**Aims:** To assess the viability of virtual CME for obstetrics and gynaecology trainees in Northern Ireland.

**Methods:** Survey monkey sent to participants/non-participants exploring experiences and attitudes towards this teaching series.

**Results:** 33 trainees completed the participant survey, with most attending 1-2 ZOOM teaching sessions. Over 50% had never attended teaching via video conferencing before. 66% of trainees were confident in using video conferencing for learning. 27 participants agreed that pre reading for each topic added to their learning. All participants agreed that CME should be mapped to the current RCOG curriculum. 87% of participants agreed that video conferencing from a location of choosing is a more flexible way to approach CME.

15 trainees completed the non-participant survey, with 93% of trainees stating that work commitments meant that they were unable to attend the ZOOM sessions. Interestingly 2 trainees were unable to work ZOOM. 73% of non-participants agreed that video conferencing from a location of choosing is a more flexible way to approach CME, with 80% stating that if sessions were recorded and they were unable to attend, that they would use the recording for learning.

**Conclusions:** Virtual teaching is an appropriate method to provide the necessary volume and quality of postgraduate medical education.

### A Scoping Review of Training for Rare, Time-Critical Procedures in Emergency Medicine.

Dr Ian Dunwoody

**Introduction/Aims:** This study explored what is known about training for rare, time-critical procedures in Emergency Medicine.

**Methods:** A scoping review of the published literature was performed, 40 papers were found which discussed aspects of training in rare, time-critical procedures, relating to Emergency Medicine.

**Results:** Gaining experience in rare, time-critical procedures is challenging as trainees have limited exposure during their training. Skills gained decay quickly, so maintenance of skills is difficult. Simulation is widely practised; it is seen as an ethical imperative as skills can be gained and maintained without putting patients at risk of harm. Skills need to be practised frequently to combat skill decay; the optimum frequency of practice has not been established. New educational techniques may help maintain competency if incorporated into educational programmes.

**Discussion:** There are many challenges to gaining and maintaining skills in performance of rare, time-critical procedures in Emergency Medicine. Frequent practice is required, and this should take the form of simulation in the absence of frequent clinical practice. Further research is needed into the best type of simulation for specific time-critical procedures and into what impact simulation training has on clinical outcomes.

### Becoming an F1

Dr Rachael Coulson & Dr Rachael Crompton

**Introduction:** As junior doctors we remember the difficulties with starting out as an FY1. Although Trust induction is comprehensive, in our experience, there is minimal induction covering the intricacies of daily workings of the ward and what life is really like as an FY1.

**Aim:** To provide a peer-to-peer induction programme that is Trust specific but also role specific. We wanted to share invaluable tips gained through experience and ease transition into working life.

**Method:** Four sessions were offered to all incoming FY1s. Given the current climate these were facilitated remotely. Current FY1s were recruited to deliver the sessions. To determine content we asked current FY1s to reflect on what they wished they had known when starting as a doctor and incoming FY1s were surveyed about what they wanted included.

**Results:** Of the incoming FY1s that availed of the sessions 100% found them to be enjoyable, useful and increased their confidence for starting their new roles as junior doctors.

**Discussion:** This initiative highlights the necessity and usefulness of a peer-to-peer element of induction.

To improve this for further years we are currently in the process of seeking additional feedback.

### Use of Simulation Based Education to prepare an Inpatient Psychiatric Unit for the Covid-19 pandemic.

Dr Ruth Carville

**Introduction:** The outbreak of a novel coronavirus in 2020 required significant and rapid changes to standard operating procedures within the psychiatric inpatient unit, in order to protect patients as well as staff.

**Aims:** To develop standard operating procedures (SOPs) for managing Covid-19 positive patients, and to refine these and train staff using simulation based education.

**Methods:** Phase 1 of the simulation exercise involved “run-throughs” of the SOPs with the MDT on a closed ward to identify latent safety threats and issues with equipment and supplies etc. SOPs were refined based on the issues identified and these were used in Phase 2 which focused more on training redeployed staff and managing anxiety.

**Results:** Feedback was obtained using a staff survey. 85% felt that the SOPs had improved after their involvement in the Sim, 87% felt more confident about managing Covid positive patients, and 81% felt less anxious after attending the Sim.

**Discussion:** Simulations are a useful way to test new care pathways and can identify latent safety threats, engage staff in improvement, and provide a forum for raising concerns and managing anxiety.

### Reducing loneliness amongst elderly inpatients during Covid 19 pandemic.

Dr Niamh Slevin

**Introduction:** There are over 1.2 million chronically lonely people in the UK. Admission to hospital increases the prevalence of loneliness. Loneliness can significantly increase morbidity and mortality.

**Aims:** The aim of this project was to reduce loneliness by an increasing awareness, befriending scheme, posters and a loneliness protocol.

**Methods:** Use of patient surveys with qualitative and quantitative data. Open and closed questions used with implementation of a UCLA loneliness scale.

**Results:** Each intervention decreased the median UCLA scale, the befriending scheme had

the greatest effect on UCLA reduction.

**Discussion:** Due to social distancing policy, there has been a reduction in number and duration of visitors. Patients described loneliness as loss of purpose, days being very long and not feeling close to others. Many felt a shame associated with loneliness. Patients were reluctant to tell HcPs about loneliness due to fear of offending staff. Loneliness was seen by many patients as a natural part of growing old. Patients felt face masks reduced ability to engage with HcPs.

### The KIWI Project: Reducing Routine Prescribing Out of Hours

Dr Rebecca Cairns

**Problem:** Foundation doctors are contacted regularly out of hours to complete routine prescribing tasks that should be completed in normal working hours.

**Strategy for Change:** The “KIWI Checklist” is a communication tool designed to be used at ward level to ensure completion of 4 routine prescribing tasks within normal working hours. These include: rewriting of Kardexes; Insulin Prescribing; Warfarin prescriptions and IV fluid plans.

**Measure of Improvement:** The primary outcome measure for this project was the percentage of bleeps out of hours received by FY1 doctors that were for routine prescribing tasks.

**Effects of Change:** Data was collected over 10 weeks from October 2019- December 2019. The KIWI Checklist was introduced to 2 wards in BCH after week 5. Ward 7N had a reduction in the percentage of bleeps out of hours that were for routine prescribing tasks from 40% to 0% and Ward 9N had a reduction from 70% to 20%.

**Discussion:** A simple checklist at ward level reduces the burden of prescribing out of hours, improving patient safety. Senior medical and nursing leads within have approved the checklist for rollout across a number of divisions in BHSCT.



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### Adapting an Emergency General Surgery Service in Response to the COVID-19 Pandemic.

Dr Patrick Hickland

**Problem:** The need to reduce the number of general surgical inpatients to create capacity in preparation for the COVID-19 pandemic.

**Strategy for change:** Restructuring of our emergency general surgery (EGS) service, including establishing an enhanced ambulatory service, and non-operative management of selected conditions.

**Measurement of Improvement:** Patients referred by the emergency department were prospectively identified over four weeks from the date of reconfiguration (COVID) and compared to patients retrospectively identified from the equivalent period the previous year (Pre-COVID), followed up for 30 days. Data was extracted from handover documents and electronic care records.

**Effects of Change:** There were 281 and 283 patients during the Pre-COVID and COVID periods respectively. Rates of admission decreased (78.1% to 41.7%) whilst there were increased rates of ambulation (7.1% to 17.3%) and discharge (6% to 22.6%). Duration of admission decreased (6.9 to 4.8 days), and there were fewer operative and endoscopic interventions (78 to 40). There were increased ambulatory investigations (11 to 39), telephone reviews (0 to 39), and use of early CT to facilitate discharge (5% to 34.7%). There were no differences in 30-day readmission or mortality in any group.

**Discussion:** Restructuring of our EGS service in response to COVID-19 facilitated a 62.7% reduction in inpatient bed days (1519 to 567) whilst maintaining patient safety.

### Sleep – an important component of recovery on BCH Respiratory unit.

Dr Jemma Smyth

**Problem:** Sleep, both in the recommended duration and quality, is a controversial area. However, it is acknowledged that sleep plays an important role in recovery from illness. Hospital wards are loud, busy and bright – an environment not conducive to sleep.

**Strategy for change:** We sought to tackle two issues negatively impacting patient sleep – noise and light. We offered ear plugs (PDSA cycle 1) and ear plugs with an eye mask (PDSA cycle 2) aiming to improve the amount of sleep on the respiratory ward in BCH by 25% in a 4 month period.

**Measurement of improvement:** We distributed qualitative and quantitative patient surveys prior to our intervention and after. We compared the data from these surveys.

**Effects of change:** PDSA cycle one (ear plugs) showed evidence of a significant improvement in patient sleep – achieving our aim. PDSA cycle two did not show that the

use of both ear plugs and eyes masks had a significant impact than ear plugs alone.

**Discussion:** These were simple changes which could reduce consequences of sleep deprivation such as delirium and hasten patient recovery.

### Morbidity in the EMSU

Dr Mark McKeeve

**Problem:** No collection of data on morbidity for discussion occurring in the EMSU

**Strategy for change:** Implementation of morbidity function on the excel handover template already in use, before discharging any patient from the handover a prompt would appear for consideration of morbidity discussion. Teaching to all junior staff about the morbidity function on the excel handover was then provided. At the beginning of the placement a core trainee was designated as the responsible person for collection of morbidity data.

**Measurement of Improvement:** From April to June 0 morbidity cases were discussed prior to change, from July to September 49 cases were discussed. The change was sustained with 45 cases discussed from October to December.

**Discussion:** The problem with morbidity collection was compounded by constant rotation of senior staff. Giving the responsibility of improving the morbidity collection and discussion to a core trainee, who was permanently based in the EMSU, empowered them to organise the rest of the team and make a sustained change, provided permanent point of contact for the team on site. The prompt on the excel handover sheet ensured that patients were not removed from the handover without consideration of morbidity status.

### Babies Need Better Handover

Dr Diarmuid McLaughlin

**Problem:** Poor handover process in place for postnatal ward; Handover was handwritten via a ward diary. Often due to lack of space, unclear handwriting or no verbal handover taking place – there were a number of antibiotic doses not given for suspected neonatal sepsis, missed clinical reviews of infants amongst other concerns.

**Strategy for change:** Introduced a new typed & printed handover template and face-face handover to occur between each change of shift. Senior member of staff (Registrar/Consultant) met with post-natal ward SHO mid-morning to address any issues.

**Measurement of Improvement:** Staff questionnaires (initial, re-audit x2 over 6 months) to nursing and medical teams and the recording of any incident report forms completed.

**Effects of Change:** No incidents of missed antibiotics/clinical

reviews/concerns were recorded after the introduction of the typed, formal face-face handover. Improved staff morale overall amongst staff – clear, face-face handovers were now expected and became the norm. Staff felt more supported as a result of a formal meeting with registrar/consultant mid-morning to trouble-shoot any issues.

**Discussion:** As a result of our QI project, babies were better cared for and were placed at less risk. The project has demonstrated that clear communication at all times has the ability to enhance patient care and staff wellbeing.

### PICCs, Hicks and Ports. A Quality Improvement Project

Dr Peter McLoughlin

**Problem:** Central Venous Access devices (CVADs) are common on medical and surgical wards. Complications including blockage and infection are relatively common. These need addressed appropriately to prevent loss of IV access, days without TPN or line sepsis. There is limited training in hospitals, therefore junior doctors can be unsure in dealing with issues that arise.

**Strategy for Change:** To improve junior doctor aptitude and confidence in managing CVADs, a survey was prepared which consisted of two sections. Firstly one which junior doctors' rated their confidence on a 1-10 scale and a further section which tested technical knowledge of CVADs and their associated guidelines. An education session was then set up with information provided by the Infusional Services team.

**Measurement of Improvement:** The survey was re-taken after the education session to assess areas which improved and areas which still required attention.

**Effects of Change:** Junior Doctor confidence increased 36% overall for all 3 types of CVAD. There was a 57% improvement in the technical knowledge of CVADs and management of complications.

**Discussion:** Both junior doctor confidence rating and technical knowledge greatly improved after the education session. To ensure retention of knowledge we plan to re-audit. Further measures for implementation include easy access to CVAD protocols on the trust intranet.

### Can Patients with Acute Appendicitis be Ambulated Safely?

Dr Scarlett O'Brien

**Problem:** During the COVID-19 pandemic, surgical service and practice has been adjusted in order to reduce acute surgical admissions. Acute appendicitis accounts for a significant proportion surgical admissions in the UK.

**Strategy for Change:** Intercollegiate general surgery guidance during the COVID-19 pandemic advised

appendicitis should be managed conservatively, or with an open appendectomy if indicated. Our aim was to determine the efficacy and safety of our ambulation service in the conservative management of acute uncomplicated appendicitis.

**Measurement of Improvement:** Data was collected prospectively from 30th March 2020 – 16th August 2020 on all patients presenting with suspected appendicitis. Stable patients with clinically suspected or CT-proven appendicitis were discharged with oral antibiotics as per trust guidance. Readmissions for ambulated patients were recorded.

**Effects of Change:** 190 patients presented with suspected appendicitis (range 5-71years). 49.4% patients were deemed suitable for ambulation on initial assessment, 22% of which had a CT confirmed diagnosis on discharge. 65% of the ambulated patients underwent a telephone review within a 72 hour window. 13.8% of patients represented within a 30 day period, 7.4% of which proceeded to appendectomy.

**Discussion:** Patients with uncomplicated appendicitis can be safely managed with antibiotics out of hospital, with low representation rates.

### Quality Improvement project changing frequency of blood monitoring of patients on biologic therapy, according to best practise guidelines.

Dr Sarah Stewart

**Reasons for criterion chosen:** Belfast's Rheumatology Department facilitates infusions of biologics on a daily basis. Usual protocol was that patients had routine bloods taken on arrival. We evaluated guidance on drug monitoring, according to British Society of Rheumatology and Summary of Product Characteristics, finding that frequency of blood monitoring was surplus to requirement.

We recorded bloods taken and were struck by the unnecessary frequency of blood monitoring. We constructed a proforma of correct frequency of drug monitoring according to the British Society of Rheumatology and Summary of Product Characteristics. A one page poster of guidance.

**Data Collection:** Frequency of blood monitoring checked in a two week period went from 80% to 10% with use of our guidance poster.

**Conclusion:** Difference in cost of blood tests sent, in a two week period, after implementation of monitoring guidance was £1681.29. It is important to continually assess whether current practise is correct or could be updated. This project has demonstrated how reviewing guidance can lead to significant saving.

This project will save at least £43,713.54, in one Rheumatology Unit, per year.



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### Improving F1 handover at Lagan Valley Hospital

Dr Megan Harty and Dr Catherine Gribbon

**Problem:** No allocated time for morning handover at Lagan Valley Hospital contributes to anxiety among F1 doctors. It can result in the night-F1 staying beyond their shift to handover to each ward individually; leads to unfamiliarity of sick patients and outstanding tasks; and has the potential to compromise patient safety.

**Strategy for change:** We propose designating time each morning at 9am for handover between F1 doctors. It will follow a standardised format including:

1. Sick patients
2. Outstanding investigations
3. Deaths overnight
4. Any other outstanding issues/concerns

This qualitative project aims reducing anxiety among F1 doctors; familiarise the day-F1 with patients on their ward and improve patient safety by minimising errors associated with poor handover.

**Measurement of improvement:** Qualitative pre- and post-intervention questionnaires were completed by F1 doctors in relation to job satisfaction, confidence and the perceived impact on patient safety.

**Effects of change:** All respondents felt that the proposed F1 handover improved confidence among F1 doctors and minimised disruptions in patient care.

**Discussion:** Shift patterns and lack of a formal handover between doctors can disrupt continuity of patient care compromising patient safety. Formal handover ensures safe transfer of patients between doctors and reduces anxiety among F1 doctors.

### Virtual Burns Care in the era of COVID-19: A Regional Burns Unit's Experience

Dr John Hayes

**Problem:** Given the COVID-19 pandemic, reduce face-to-face consultations to only complex burns or those necessitating hospital admission to Northern Ireland's Regional Burns Unit.

**Strategy for Change:** Establish a virtual burns service, using a combination of telephone calls, emails, photography and Microsoft Teams software. Our initial adoption of the system was audited during April and May 2020. Through Plan-Do-Study-Act (PDSA) methodology an electronic tertiary-referral proforma was subsequently created prior to closure of the audit cycle in July 2020.

**Measurement of Improvement:**

1. Reduction in face-to-face consultations
2. Completeness

of burns referral data (including: demographic, clinical and initial management) both pre- (April & May 2020) and post-introduction (July 2020) of e-Referral pathway.

**Effects of Change:** From the start of lockdown a significant reduction in face-to-face consultations was observed. Given the increasing use of virtual telephone consultation only 19.5% of the unit's total referrals (April, May and July) were either reviewed face-to-face in dressing clinic or admitted. Following implementation of the e-Referral pathway an improvement in both the detail and completeness (95%) of patient referral information was achieved.

**Discussion:** Our experience demonstrates that virtual burns care can be safely and rapidly adapted in response to evolving need. The potential role of virtual care post-COVID, in selected patients, is an exciting one.

### Educating and empowering the pharmacy team to improve patient oral health

Dr Christina Tran

**Problem:** Hospitalisation is associated with a deterioration in patient oral health. The pharmacy team can advise on management of common oral conditions, adverse oral effects of medications, and appropriate antimicrobial prescribing. Survey data revealed the King's College Hospital (KCH) pharmacy team had low confidence in these areas and were unaware of where to access appropriate guidance.

**Strategy for change:** Two teaching sessions on management of oral conditions were planned and delivered to the pharmacy teams at two KCH sites. Health Education England's (HEE) Dental Factsheets for the Pharmacy Team were distributed to all team members, with reference copies kept in each department.

**Measurement of Improvement:** An online questionnaire was circulated to measure confidence in managing common oral conditions, adverse oral effects of medications, and appropriate antimicrobial prescribing.

**Effects of change:** Confidence in managing all the oral conditions covered showed significant improvement. 75% of participants would consider using HEE's Dental Factsheets for the Pharmacy Team for further guidance.

**Discussion:** This project enabled and empowered the pharmacy team to take a more active role in improving patient oral health. Future work lies in evaluating the patient impact of these measures.

### Using dynamic QR codes to provide patient information leaflets – a regional QI project with three PDSA cycles.

Dr Michael Graham

**Problem:** During the Covid pandemic information for pregnant patients was updated regularly and printed leaflets were often out of date.

**Strategy for change:** Dynamic QR codes were introduced to antenatal clinics across Northern Ireland. Dynamic codes allow for the destination of a code to be changed without changing the printed code. This allows patients to scan the codes on their phones, providing up to date patient information on their device.

**Measurement of Improvement:** The exact number of codes scanned was recorded digitally. A regional staff and patient survey was undertaken.

**Effects of change:** Both staff (82%) and patients (81%) were keen to provide and receive information leaflets via QR codes.

Intervention 1 = printed laminated codes used in clinics – 10 scans per day over 4 weeks  
Intervention 2 = targeted education sessions at clinics – 17.7 scans per day over 3 weeks  
Intervention 3 = codes included in patient notes – 26.6 scans per day over 3 weeks.

**Discussion:** This 3 cycle QI project was devised due to the challenges created by the Covid pandemic. QR code use has increased with each intervention saving resources and providing patients with up to date information.

### Virtual clinics for Paediatric Epilepsy during the Covid-19 pandemic – is this a successful model for service delivery?

Dr Heather Hamilton

**Problem:** Coronavirus Lockdown meant all non-emergency essential services were reduced. Face-to-face epilepsy clinics had to be cancelled.

**Strategy for change:** Instead of cancellations, all scheduled epilepsy clinic reviews were conducted by pre-arranged telephone call.

**Measurement of Improvement:** DNA rates during the virtual clinic review period were compared with face-to-face review clinics during the same 6 month period last year. We found a 37% reduction in non-attendances when using telephone reviews.

Qualitative feedback from parents favoured the approach in terms of convenience and stress reduction, but highlighted reservations regarding variable signal quality, and wanting reassurance of a doctor physically seeing their child.

#### Effects of change:

Ongoing use of telephone reviews for this stable patient population.

**Discussion:** Successful improvement in attendance rates and positive feedback from patients indicates telephone clinics are an effective form of review. A combination of face-to-face and telephone reviews is likely to be implemented. This raises questions; who is eligible for this review format and how to we decide? Are any other clinics amenable to this pattern? What are the benefits for the clinician and the financial benefits for the NHS?

### Dermatology -more than skin deep!

Dr Claire Hunter

**Introduction:** What appears on the skin can be a manifestation of systemic disease; an infectious, auto-immune or malignant process. Not all new inpatient rashes are drug-related.

**Description of case:** We report a 53 year old female inpatient, being treated for decompensated alcoholic liver disease, who developed a widespread, polymorphic rash, with crops of sterile vesicles. Rifaximin had been newly commenced. Drug eruption was a differential. However, histological findings from a skin biopsy were in keeping with herpes virus infection, with background erythema multiforme changes. Subsequent viral PCR confirmed varicella zoster. Dermatology review confirmed a diagnosis of disseminated herpes infection. Aciclovir, potent topical steroid, emollients and anti-histamines were recommended.

**Discussion:** Confirmation of an alternative diagnosis to a drug reaction enabled the patient to continue on necessary medication.

Dual pathology may be present. Her confusion and fluctuating cognitive state was proven to be due to encephalopathy on EEG, thought to be explained by hepatic encephalopathy. Herpes encephalitis may have contributed. Immunosuppression puts patients at risk of VZV. This patient had a prolonged ICU admission, and background of chronic alcoholism and poor nutrition. Allow initial presumptive diagnoses to be challenged, with emerging clinical details.

### Severe rhabdomyolysis caused by spinning – a case series

Dr Eamon McCarron

**Introduction:** Spinning is a popular high-intensity training (HIT) exercise which is increasingly reported as a cause of rhabdomyolysis. Rarely, rhabdomyolysis can lead to limb-threatening acute compartment syndrome (ACS) requiring urgent fasciotomy.

**Description:** We describe spinning-induced rhabdomyolysis in three young women, two of whom required emergency bilateral fasciotomies for ACS. None had neurovascular compromise at the time, and all three had a good outcome.

**Discussion:** Patients with exercise-induced rhabdomyolysis present with severe pain, swelling, and weakness of affected muscle groups accompanied with a rise in serum creatinine kinase (CK). Inadequate physical conditioning and increased duration and intensity of exercise are all associated with a higher risk of rhabdomyolysis. Although in itself it is a recognised phenomenon, diagnostic consideration should be given to occult metabolic myopathies in a young patient population.

#### Learning points:

1. Early involvement of senior / experienced surgeons



leads to early diagnosis and rapid intervention.

2. Compartment syndrome can occur without neurovascular compromise.

3. The public and exercise instructors should be aware of the risks to new spin-class attendees, and how to mitigate these risks.

### Clinical Management and Intensive Care outcomes of COVID-19 Pneumonia in Belfast

Dr Neil Cody

**Introduction:** COVID-19 infection can result in a severe viral pneumonia clinically indistinguishable from acute respiratory distress syndrome (ARDS). Mortality rates of mechanically ventilated patients are high and it is suggested that heterogeneity of disease pathophysiology means established therapeutic approaches to ARDS are not applicable in its management.

**Aim:** This case series aims to describe the physiological and outcome data of patients with Covid-19 who were admitted to Intensive Care (ICU) and treated with standardised evidence based guidelines for ARDS.

**Method :** Retrospective case review of all patients admitted to Intensive Care within the Belfast trust with Covid-19 between March and June 2020.

**Results:** 45 patients were included, 37 (82.2%) were male with a mean age of 55. 42 patient (93.3%) fulfilled ARDS criteria at time of admission. Clinical management was highly compliant with institution evidence-based ARDS guidelines. Median length of ICU stay was 14 days and ICU mortality was 8.9%.

**Discussion:** COVID-19 fits within the spectrum of ARDS and results in similar respiratory physiology. Adherence to established evidence based therapies for ARDS in ICU patients with COVID-19 pneumonia is associated with a low mortality in this cohort.

### Microsurgical salvage of neonatal upper limb ischaemia subsequent to intrauterine brachial vessel constriction.

Dr Jamie Clements

**Introduction:** We report a case of limb salvage due to intra uterine brachial artery thrombosis. Treatment modalities include medical, endovascular and surgical. Early recognition, prompt institution of appropriate treatment and monitoring is vital to achieve successful revascularisation and prevention of life long morbidity.

**Description:** A male baby at (36+6week) gestation was born to a nulliparous mother with gestational diabetes via uncomplicated elective caesarean section. The child was noted to have a 'flail' ischaemic limb post delivery. There were no palpable pulses in the limb and ultrasonography confirmed

thrombosis of the proximal brachial artery. Aetiology was due to dense fibrotic circumferential constriction of the brachial vessels and plexus. Successful revascularisation was achieved with a contralateral interposition reversed great saphenous vein graft.

**Discussion:** Neonatal limb ischaemia is a rare disease entity with devastating morbidity- including compartment syndrome, tissue loss, limb loss, reduced limb growth, irreparable neuropathies and Volkmann's syndrome. The initial diagnosis is based on the characteristic sequelae of ischaemia. Therapy should be individualised based on the clinical presentation. Early recognition, prompt institution of appropriate treatment and monitoring is vital to achieve successful revascularisation and prevention of life long morbidity.

### Cholesteatoma In Children With Sotos Syndrome: A Case Series and Literature Review

Dr Colin Leonard

**Introduction:** Sotos syndrome a genetic disorder characterised by delayed neurodevelopment, learning disability, excessive childhood growth and craniofacial abnormalities occurs as a result of a mutation in the NSD1 gene. We present a case series of 5 children with Sotos Syndrome who have been treated for cholesteatoma and review the literature.

**Case Series:** Retrospective case note review of patients cholesteatoma (n = 5 (1 Bilateral)) and Sotos Syndrome between 2012 and 2019. Median age at first surgery was 8 years old (3.5 years – 10.9 years). All children presented with otorrhoea. 4 children (5 ears) had abnormal hearing thresholds (>30dB HL) pre and post operatively. Median follow up is 32 months with 50% risk of recurrence and 25% risk of residual disease at 24 months. PubMed search of the MEDLINE database returned no articles reporting cholesteatoma in children with Sotos Syndrome.

**Discussion:** Cholesteatoma has not previously been reported in Sotos Syndrome. Otolaryngologists should be vigilant for cholesteatoma in children with Sotos Syndrome.

### A rare case of Bartholin's and peri-urethral abscess

Dr Adeeb Khan

**Introduction:** Bartholin's glands provide lubrication to the vagina and are a common site for infection. Lifetime incidence is 2-7%.<sup>1,3,4,6</sup> Bartholin's abscesses cause pain, dyspareunia, incontinence and obstructive voiding symptoms.<sup>1,5</sup>

Scarcely reported in literature are simultaneous presentations of Bartholin's and peri-urethral abscesses. Peri-urethral abscesses typically follow trauma caused by childbirth or surgical interventions.<sup>2,7</sup>

**Case Study:** A 23 year old was admitted in the spinal unit with acute urinary retention, saddle paraesthesia, back pain and a reduction in lower limb power and unusually high inflammatory markers. MRI spine ruled out cauda equina. On vaginal examination a right sided Bartholin's abscess was detected.

Following a Gynaecology review CT abdomen and pelvis demonstrated a peri-urethral abscess deviating the urethra to the left side.

**Treatment:** The abscess was incised and drained at the bedside. She was discharged with an indwelling catheter and oral antibiotics to return in one week for trial removal of catheter which was successful.

**Outcome and Follow Up:** She was clinically well, discharged and no follow up arranged.

**Discussion:** A common gynaecological pathology presented in an atypical way. Although good clinical history and examination findings are key, imaging modalities can be a vital adjunct for patient care.

### Metastatic collision of lobular breast carcinoma and adenocarcinoma of the colon within the same lymph nodes.

Dr Mohamad Lazim

**Introduction:** Collisions tumours are a rare but well documented phenomenon. They comprise of two histologically distinct tumour types occurring in the same site. The mechanism of which this comes about can be; 1) Two tumours arising with the same organ in close vicinity, 2) One tumour metastasizes into another tumour (tumour to tumour metastasis), 3) Two different tumours metastasize to a different organ, commonly a lymph node. Collision metastasis of two different primary tumours within the same lymph node is extremely rare.

**Description of Case:** The authors report a case of a 74 year old woman found to have collision metastasizes of lobular breast carcinoma and adenocarcinoma of the caecum metastasizing to the same mesenteric lymph node.

**Discussion:** The case is, to the best of the author's knowledge, the first to describe the metastatic spread of two tumours to a single lymph node involving breast carcinoma and adenocarcinoma of the colon.

### The Giant Hogweed as a rare cause of chemical burns: A Case Series

Dr Su Lim

**Introduction:** The Giant Hogweed (*Heracleum mantegazzianum*) is a rare cause for chemical burns in humans and animals and is acquiring growing recognition in mainstream media as a relevant public health concern.

Injuries attributed to this plant range from innocuous superficial irritation to full-thickness chemical burns. A vast majority of cases will resolve with conservative measures and effective first aid, but these case series demonstrate the clinical course of more severe injuries.

**Description:** We present a case series of 2 patients requiring admission to the Royal Group Hospitals for management of mixed thickness hogweed burns. Injuries were sustained by two separate infestations of giant hogweed in the Western Trust Area. Both patients responded to observation and conservative measures, namely effective analgesia, UV light protection, topical hydrocortisone, and dressings.

**Discussion:** Cutaneous burns induced by giant hogweed are caused by contact with its photoactive sap containing plant furocoumarins. On exposure to sunlight, the sap initiates a damaging process known as phytophotodermatitis (PPD). This process can be managed effectively with topical steroids; however, prolonged contact and subsequent sun exposure may lead to more severe skin damage. In extremely rare instances, damage may progress to full skin thickness burns warranting operative intervention.

### Pregnancy after Endometrial Ablation

Dr Sophia Ansong

**Introduction:** Endometrial ablation is an established treatment option for the management of women with Heavy Menstrual Bleeding. Following this procedure, women may still conceive and therefore effective contraceptive methods are recommended. We report 3 cases of unplanned pregnancies following endometrial ablation. Our series demonstrate the spectrum of possible complications and outcomes.

**Cases:** Case 1 is a 43-year-old woman who had an unplanned pregnancy following hydrothermal balloon ablation. Her pregnancy was complicated by Fetal Growth Restriction and Morbidly Adherent Placenta at delivery. Case 2 is a 40-year-old presenting with a missed miscarriage after previous Bilateral Tubal Ligation at C-Section and subsequent Novasure endometrial ablation. She underwent management by Total Abdominal Hysterectomy. Case 3 is a 41-year-old woman who had an unplanned pregnancy after Novasure endometrial ablation but went on to have relatively uncomplicated pregnancy and delivery.

**Discussion:** Pregnancy after endometrial ablation has the potential to increase patient morbidity significantly. According to Bauer et al. there is a 20-fold increased risk of morbidly adherent placenta. The overall risk of termination, ectopic pregnancy or miscarriage was quoted to be about 85% in another study. Consequently, it is important that appropriate contraceptive methods are discussed with patients post-ablation. The risk of failure of contraceptive methods should also be included in the discussion and an appropriate plan made if this occurs.



### An Endodontic Case Report: The Implication of Fixation Devices on Diagnosis and Treatment.

Dr Beth Bradley

**Introduction:** This case demonstrates the complexity of diagnosing and treating a tooth associated with a mandibular fracture and fixation.

**Description of Case:** This 19-year-old male patient attended with a history of severe spontaneous pain lower RHS. On examination the LR7 was acutely TTP, heavily restored and associated swelling painful on palpation.

Pre-operative radiographs revealed periapical radiolucency associated with apical third LR7 and a radiopaque mini-plate with an associated tracking sinus.

The patient was diagnosed with chronic apical periodontitis with an associated draining sinus. Treatment options;

- Endodontic treatment at GDP
- Specialist endodontic referral
- Extraction

Treatment was carried out under LA and a recall for review set at 6 months.

**Discussion:** The challenge was the difficulty of diagnosis. It demonstrates how mini-plates can interfere with accurate diagnosing.

It is likely that damage was a result of the trauma or surgery (2 years previously).

It highlights the potential that all modern endodontics could routinely use 3D imagery, CBCT.

**Conclusion:** It is important to recognise teeth with an associated history of trauma or elective surgery involving mini-plate/screw placement. Thorough radiographic and assessment with monitoring is required to ensure an accurate diagnosis.

### An unusual case of a radial artery pseudoaneurysm following complicated trans-radial arterial catheterisation

Dr Dorina Roy

**Introduction:** Radial artery pseudoaneurysm is a rare complication of a common procedure such as trans-radial arterial catheterisation. There are multiple risk factors increasing the likelihood of developing pseudoaneurysms, including traumatic insertion of the radial catheter or concomitant infection. Few cases are reported, and no established cause is described in literature. We describe a case of a young patient who developed an iatrogenic pseudoaneurysm post arterial line cannulation.

**Description of Case:** A 36 years old male was admitted with subarachnoid haemorrhage (SAH) due to a ruptured intra-cranial aneurysm. He underwent invasive monitoring with radial arterial line catheter during coil embolization

treatment. He underwent the procedure uneventfully but was complicated later by the development of a pseudoaneurysm.

**Discussion:** In our case, the patient had borderline levels of inflammatory markers on blood examinations and no overt signs of local infection. There was a history of multiple attempts at arterial cannulation, and he was also commenced on antiplatelet therapy post coil embolization of the aneurysm. Concurrent use of anticoagulation agents is associated with an increased risk of formation of pseudoaneurysms. Arterial line monitoring is an invaluable aid in assessing the critically ill patient, however pseudoaneurysms is a potential complication with high morbidity even in younger age groups. Atraumatic insertion and careful removal are strongly recommended for its prevention.

### Squamous cell carcinoma arising in a dermoid

Dr Rachel Bojail-Alade

**Introduction:** Squamous cell carcinoma arising in a dermoid usually affects elderly persons and usually found in 1% of mature teratomas. It usually has a poor prognosis and quite rare in the middle aged women.

Dr Tom Murphy

**Description of Case:** The case report presented is a 49year old lady referred from the GP with a large right ovarian mass with radiology suspecting to be an ovarian teratoma. Underwent a laparoscopic BSO with histology coming back as Stage 2b, CT afterwards showed no metastatic disease, she underwent Laparotomy, TAH, recto sigmoid colectomy, end colostomy, appendectomy, anterior caecal resection, SB resection, omental biopsy, re implantation of urethra, urethral resection, stent Right ureter. Histology post op coming back as Stage 3b. She deteriorated quite rapidly despite measures to improve outcomes, knowing that prognosis is usually poor when disease has spread beyond the ovary.

**Conclusion:** A high index of suspicion should be indicated for women in that age group with a pelvic mass. The length of time from diagnosis to death was 7months and begs the question if any of the surgical interventions were of benefit.

### Transitioning from dentistry to Maxillofacial Surgery - Management of Facial Lacerations

Dr Tom Murphy

**Introduction:** The aim of this case report aims to discuss the surgical management of deep facial lacerations, specifically for dental trainees transitioning to a position in Maxillofacial Surgery. It covers the important anatomical structures that need assessed and repaired.

**Description:** Assessment of a patient with a full thickness facial laceration with a chainsaw, extending into the oral cavity. On examination the patient had some loss of function to the buccal branch of their facial nerve. Intra-orally the

parotid duct was located and checked for patency, ensuring that it was not severed and it did not require stenting. The wound was closed in layers, aiming to reattach severed muscle bellies to maximise post-operative function. Post-operative wound care management was carried out as well as post-operative instruction.

**Discussion:** Dentists entering Dental Core Training typically may find the transition to a maxillofacial surgery post daunting as it is extremely out of their comfort zone. This article aims to highlight some stages which are key to address when assessing facial soft tissue trauma as well as ways in which to manage these.

### McKittrick-Wheelock syndrome – a rare but important complication of giant rectal villous adenoma

Dr Jake Clements

**Introduction:** Colorectal villous adenomas are common. A rare but important complication of rectal villous adenoma is the electrolyte and water “depletion syndrome” which can be elusive as a diagnosis. If recognised and managed expediently, severe metabolic and renal sequelae can be prevented through appropriate replacement therapy and timely surgery.

**Case Description:** We present a case of an elderly female who gave a 2-year history of progressive chronic watery diarrhoea, necessitating multiple attendances to her GP and several hospital admissions where she had been treated successfully with fluid and electrolyte replacement and a diagnosis of autonomic neuropathy was made. It was only after a thorough examination of the patient including a rectal examination that a large mass was detected and biopsies revealed a giant villous adenoma. She ultimately came to surgical resection with complete resolution of her symptoms

**Discussion:** Villous adenomata have a propensity for secreting large volumes of mucus rich in potassium and sodium and the losses can be so great as to result in cardiovascular, neurological and renal sequelae. Where rare, this case highlights the values in carrying out a thorough clinical assessment.

### Is Upper Mini-sternotomy(UMS) approach the future of Aortic valve procedures? The Belfast experience

Dr Firas Aljanadi

**Introduction:** Upper ministernotomy(UMS) for Aortic valve surgery is a well-established approach.It has been proven to be a competitive alternative to full sternotomy with improved aesthetic appearance and non-inferior safety.

**Aims:** We present our single centre experience showing short and medium term surgical outcomes of UMS approach for aortic surgery.

**Methods:** Retrospective analysis of patients who undergone

UMS Aortic valve procedures over the last five years. Analysis of patients’ demographics,intra-op findings and evaluation of early/medium term outcomes.Data presented as median(interquartile range)or percentages.

**Results:** 231patients had UMS Aortic valve surgery at our Hospital over 5 years(Sep2014-Sep2019).Mean age:67(37-86)years,BMI>30 in120(52%).Majority were done in J shape hemi-sternotomy(87%) and through Right fourth ICS(94.4%).Central cannulation was the most favoured approach(99.2%).The aortic valve was replaced in230 patients,mechanical valve:37(16%)and bio-prosthetic valve:193(84%).Combined aortic surgery was performed in 7 patients(3%),cross clamp time:60(33-170)min,CPB time:108(51-190)min.30-day Mortality:1(0.4%),conversion to full sternotomy:11(4.7%),reoperation for bleeding:8(3.4%),ICU stay:1(1-20)day,hospital stay:8(3-32)days,new onset AF:8(3.4%),CVA/TIA in 0.86%,30-day readmission:7(3%).Early follow up echo mean gradient:9.7(3-34)mmhg.Follow up:2.8±2 years.

**Discussion:** Aortic valve,aortic root and ascending aorta surgery is amenable by mini sternotomy incision with good outcomes taking into consideration careful patient selection. It is essential to respect the learning curve and accepting low threshold for conversion to conventional full sternotomy when required

### Cutaneous Malignant Melanoma in Northern Ireland: Epidemiology and investigation into links between Vitamin D levels, Socioeconomic Status and Breslow Depth.

Dr Rachel Currie & Dr Serena Martin

**Introduction:** The incidence of cutaneous malignant melanoma (cMM) is increasing; Vitamin D deficiency at presentation is associated with increased tumour thickness and poorer outcomes.

**Aims:** To examine the epidemiological and histopathological characteristics of cMM in Northern Ireland (NI), and to correlate with socioeconomic status (SES) and Vitamin D levels.

**Methods:** A retrospective review was performed from August 2015 - March 2020. Patients were identified from electronic theatre records and a prospectively-collected database; further information was gained from paper and electronic clinical records. SES was determined by the NI Multiple Deprivation Measure 2017.

**Results:** 440 patients presented with cMM; there are some differences in tumour site between the devolved nations. Vitamin D levels were assessed in 27%, of whom 44% had deficient levels.

Higher SES correlated with increased incidence of cMM (Correlation coefficient (CC) 0.922). This did not correlate with thicker tumours (CC -0.020). There was only a very



weak negative correlation between Vitamin D deficiency and tumour thickness (CC -0.14).

**Discussion:** Despite being included in the NICE guidelines since 2015, almost three-quarters of patients had not had Vitamin D levels assessed. Interestingly, higher SES was related to higher incidence of cMM but with presentation at earlier stage of disease.

### The changing epidemiology of mycobacterial isolates in Northern Ireland: a 12-year study

Dr Timothy Shaw

**Introduction:** Many developed countries have reported a recent rise in non-tuberculous mycobacterial (NTM) infections but the trend in Northern Ireland (NI) is unknown. This study aimed to characterise the epidemiological profile of mycobacterial species isolated from NI patients between 2007-2019.

**Methods:** All positive mycobacterial culture results reported by the NI Mycobacterial Reference Laboratory between 2007-2019 were analysed by species and specimen site. Annual population data was obtained from the NI Statistics and Research Agency.

**Results:** 2193 mycobacterial isolates were captured in the study period. Mycobacterium tuberculosis (M.tb) isolates remained stable at ~3 per 100,000 population whereas NTM isolates increased from 3.2 to 8.1 per 100,000 between 2007-2019. Eighteen different species of NTM were identified, five of which accounted for ~75% of isolates. Mycobacterium avium complex (MAC) species accounted for the greatest rise in NTM (1.8 to 4.6 per 100,000), of which over 90% were isolated from pulmonary specimens.

**Discussion:** NTM isolates now outnumber M.tb in NI, with a substantial rise in pulmonary MAC specimens. Clinicians in all specialties will increasingly encounter these poorly understood and drug-resistant organisms. More research into NTM disease is required to tackle this emerging problem.

### Elective Surgery in a Pandemic - Is it Safe to operate in a Designated Covid Hospital?

Dr Sarah Craig

**Introduction:** The global pandemic has resulted in mass cancellation of elective operations; impacting cancer procedures, waiting times and training opportunities. In the Southern Trust, Craigavon Area Hospital is the designated "COVID site" and Daisy Hill the "Non-COVID site".

**Aim:** To assess if systems introduced resulted in low post-operative COVID cases in a COVID site compared to a non-COVID site.

**Method:** A prospective audit of elective surgeries performed on COVID site from May -July and non-COVID site April-June 2020. Data collected using standardized audit proforma with 30 day follow up.

Measures introduced included PPE, a separate 'clean ward', routine staff and patient testing, 7 day patient self-isolation prior to surgery and a no visiting policy.

**Results:** 44 elective operations performed in COVID site and 21 in non-COVID site.

2.3%(1/44) developed clinical COVID 6 days post-op on COVID site - did not require ICU and alive at 30 days.

Zero COVID cases in non-COVID site and zero staff cases across both sites.

**Discussion:** Precautionary methods introduced may have contributed to low numbers of COVID and were enough to enable elective operations to continue on a COVID site. In light of recent rising community COVID cases, a re-audit will be conducted.

### Sentinel Lymph Node Biopsy: Review of first year of service in Northern Ireland

Dr Rachel Currie & Dr Serena Martin

**Introduction:** UK guidelines recommend sentinel lymph node biopsy (SLNB) for patients with malignant melanoma >1mm Breslow thickness; those found to have micrometastatic disease are considered for adjuvant therapy.

**Aims:** Service evaluation of the new NI SLNB service, which began in December 2018.

**Methods:** Consecutive patients were identified from a prospectively-collected database.

**Results:** 166 patients were referred to the service. A total of 115 nodal basins were investigated with SLNB. Seventy-three patients were male, 95 were female; mean age at presentation was 58 (range 20 - 87). Commonest primary tumour site in men was trunk/back (47%), and lower limb in women (41%).

Eighteen nodal basins were positive for micrometastases, 91 nodal basins were negative, and SLN localisation failed in 6 nodal basins.

Average waiting time from referral to outpatient appointment is 2.6 weeks, less than 3-week target; however, the mean time from diagnosis to surgery is breaching the 12-week target. Almost 10% of patients were not suitable for SLNB surgery, either due to co-morbidities or previous surgery.

**Discussion:** Surgical outcomes will be compared to international data, and considerations in starting a new service will be discussed, along with methods to reduce proportion of unsuitable referrals.

### Periodontal health and the frequency of COPD exacerbations: a systematic review and meta-analysis

Dr Niamh Kelly

**Introduction:** Evidence from emerging studies suggests that

oral bacteria and poor oral health may contribute to COPD exacerbations. Interventions to improve oral health such as periodontal therapy may improve lung function, decrease the frequency of COPD exacerbations, hospitalisations and improve quality of life.

**Aims:** The aim of this systematic review was to analyse the association between poor oral health and frequency of COPD exacerbations.

**Methods:** The databases, Pubmed; Embase; Web of Science; CINAHL and Medline were searched up to May 2020, with no language restriction. Eight articles met the inclusion criteria and were included in qualitative synthesis, five articles were included in quantitative analysis.

**Results:** The data from randomised controlled clinical trials showed a significant reduction in frequency of exacerbations following periodontal treatment (RR 0.28; 95% CI 0.09-0.83,  $p=0.02$ ). Based on random-effects meta-analysis amongst case control studies, plaque index (OR=1.63, 95% CI 1.15 to 2.31,  $p=0.01$ ), probing pocket depth (OR=2.03, 95% CI 1.46 to 2.82,  $p<0.001$ ) and clinical attachment loss (OR=1.68 (95% CI 1.17 to 2.42,  $p=0.01$ ) were all associated with exacerbation frequency. Qualitative analysis revealed that improved oral/periodontal health is associated with reduced hospitalisations and improves quality of life.

**Discussion:** The data suggests a potential association between poor oral health and the frequency of COPD exacerbations. Further, well designed and powered interventional studies are required to confirm an association.

### Inflammasome product IL-1 $\beta$ increases oligodendroglial lineage cell number and promotes their differentiation

Dr Ger Mullan

**Introduction:** The inflammasome is a protein complex that initiates immune responses to danger signals by releasing cytokines interleukin-1 $\beta$  (IL-1 $\beta$ ) and IL-18. Inflammasomes are thought to be involved in multiple sclerosis. Studies have shown that inflammasome activity can promote CNS repair.

**Aims:** To determine if inflammasomes can be stimulated in CNS cells, and whether inflammasome activity promotes oligodendrocyte progenitor cell (OPC) proliferation and/or differentiation.

**Methods:** Mixed glial cultures were generated from wild-type and Il1r1 $^{-/-}$  mouse brains. Cells were stimulated with IL-1 $\beta$  to test glial response to inflammasome activity, or with inflammasome triggers to test endogenous inflammasome response in glial cells. Cells were then stained for oligodendrocyte and inflammasome markers.

**Results:** Glial cells mounted an inflammasome response upon danger signal sensing. The formation of putative ASC specks denoted inflammasome activation. IL-1 $\beta$  increased oligodendrocyte lineage cell numbers, promoted OPC differentiation and increased myelin production in vitro, mediated via IL-1 receptor 1.

### Granulomatous Diseases of the Oral Cavity Study: A Proteomic Approach

Dr Maria Tumelty

**Introduction:** Orofacial granulomatosis (OFG) is a chronic granulomatous oral inflammatory disease and can precede gut Crohn's Disease (CD). Not all OFG patients have, or ever develop, CD. Therefore, whether OFG and oral CD are one and the same disease is a matter of debate.

**Aim:** To use proximity extension assay (PEA) to interrogate phenotypic differences between health and oral inflammatory conditions.

**Methods:** PEA analysis was performed using ProSeek Inflammation and Immune Response panel. Olink Proteomics (Uppsala, Sweden). Saliva samples from 32 patients with OFG were processed and analysed. Controls included saliva samples from 30 healthy volunteers and 28 patients with Oral Lichen Planus (OLP).

**Results:** No significant difference between the proteome of health vs OFG / OLP vs OFG. Significant differences in the levels of 8 proteins between OLP vs OFG (TWEAK, PRDX1, CDSN, LY75, MCP.1, FGF.23, CLEC4G, CX3CL1). Within the OFG group there were two distinct subtypes that correlate with idiopathic OFG and gut CD.

**Discussion:** Analysis of the oral proteome may offer a means of differentiating between different oral inflammatory diseases. More importantly it may help predict those cases of OFG that will progress to gut CD.

### Clinical outcomes of non-operative treatment of Dequervain's tenosynovitis with use of Platelet rich plasma.

Dr Ahmed Faraz & Dr Mohamad Noah Khan

**Introduction:** De Quervain tenosynovitis is a disorder of the tendons of first dorsal compartment of wrist that causes pain and functional disability managed by platelet-rich plasma (PRP).

**Objective:** To determine efficacy of intralesional injection of platelet rich plasma in patients of De Quervain's tenosynovitis

**Material & Methods:** This is a descriptive Case series conducted over 6 months, 100 patients were included. Platelet rich plasma was obtained after centrifugation, received intralesional injection plus oral non-steroidal anti-inflammatory drug.

**Results:** 57 males and 43 females with mean age of 41.26 $\pm$ 11.26 years, 53(53%) were diabetic. Efficacy of treatment was seen among 85(85%) patients, whereas Intralesional platelet rich plasma had. No significant association was noticed between gender of patients and



efficacy of Intralesional injection of platelet rich plasma (p-value=0.756). Efficacy of Intralesional injection of platelet rich plasma was not dependent on the diabetic status of the patients (p-value=0.556). Efficacy of Intralesional injection of platelet rich plasma was not dependent on duration of start of symptoms of patients. i.e. (p-value=0.978).

**Conclusion:** We conclude that Intralesional injection of platelet rich plasma can be effectively used for de Quervain's tenosynovitis.

### Does use of PPE affect post-operative infection rates in hip fracture patients?

Dr Alex Mercer

**Introduction:** COVID-19 has required significant change to theatre protocol. Regional guidelines dictate full PPE must be donned for all procedures where aerosol generating procedures (AGP) occur. Additionally, no one may enter or leave theatre whilst an operation is in progress, or until 20 minutes after an AGP.

**Aim:** We hypothesized that adopting these protocols may lead to a reduction in post-operative infection in hip fracture patients.

**Methods:** Multicentre retrospective cohort study comparing post-operative infection and return to theatre rates (<30-days post-op) from 18/03/20 to 27/04/20 with respective period in 2019. COVID-19 was considered endemic in Northern Ireland from 18/03/20. Patients were identified from the Fracture Outcomes Research Department database and relevant inpatient episode reviewed via Electronic Care Record.

**Results:** 464 patients were included– 261(2020) and 203(2019). In 2019, 4 patients (1.5%) returned to theatre within 30-days, however only one was due to wound dehiscence. In 2020, 1 patient (0.5%) returned to theatre for traumatic wound dehiscence, however they had no documented infection. There was no difference in post-operative complication rate requiring return to theatre within 30 days between cohorts.

**Discussion:** Whilst PPE can be considered important for protection of patients and staff against COVID-19, it may not have significant effect on post-operative infection rates.

### XLA AND Conjunctivitis; A Unique Association?

Dr Vyamka Redenbaugh

**Introduction:** Studies estimate that 21% of patients with XLA (X Linked Agamaglobulinemia) have had at least one episode of infectious conjunctivitis. In contrast, conjunctivitis is not a commonly described problem in patients with CVID (Common Variable Immunodeficiency).

**Aims:** We aimed to determine whether the association of

XLA and eye infections is unique amongst primary antibody deficiencies.

**Methods:** A retrospective observational study was carried out. Age-matched CVID patients with absent IgA levels were selected as the control group.

**Results:** 29 patients with XLA and 30 patients with CVID were analysed.

12 patients with XLA (41%) had suffered from recurrent conjunctivitis.

No patients with CVID had documented episodes of recurrent conjunctivitis.

The mean IgG trough levels were 10.78g/L for the cohort with XLA and 10.41g/L for patients with CVID.

**Discussion:** We demonstrate here the common and perhaps unique susceptibility to conjunctivitis in patients

with XLA. What is the underlying cause for the increased susceptibility? Since both groups in our study lacked serum IgA, it seems unlikely that absence of IgA antibodies is the culprit. The group with XLA and conjunctivitis averaged higher IgG trough levels, therefore, inadequate trough levels are also unlikely to be responsible.

### Salts in the body during a pandemic.

Dr Susan McAnallen

**Introduction:** Many patients admitted with confirmed COVID-19 were found to have electrolyte disturbances.

**Aims:** In this new era of COVID-19, we aimed to assess how this multisystem disease affects electrolytes & creatinine. In clinical practice, we noted patients were hypokalaemic with dysnatraemias. We explored potential aetiologies for this & assessed correlation with their clinical journey (e.g. prolonged hospitalisation, CPAP, critical care & death). We explored if age correlated.

**Methods:** Records of all COVID-19 positive patients over a 3 month period were analysed. Each patient's electronic care record was interrogated. Serum sodium, potassium, urea, creatinine, bicarbonate, chloride were recorded, as well as a peak sodium. Patients were subcategorised into those requiring CPAP, needing critical care admission & those who died.

**Results/Discussion:** 332 inpatients tested positive for COVID-19 between 11/3/2020–17/5/2020. Average age was 69 (55% male). 37% had a sodium  $\geq$  145mmol/L. 20% had a potassium  $<$ 3.5mmol/L. 48% of patients over 70 were hypernatraemic.

Mechanisms remain an area for exploration. Hypotheses include: GI losses associated with SARS-CoV-2; avoiding hypervolemia & upregulation of angiotensin II causing

increase in potassium excretion (SARS-CoV-2 binds to ACE2). Further research to combat this in future waves is warranted.

### Should We Favour Rapid-deployment Valves Over Conventional Bioprosthetic Valves in Aortic valve replacement

Dr Firas Aljanadi

**Introduction:** Rapid deployment valves are of increasing popularity amongst surgeons.

**Aims:** To compare conventional bioprosthetic with rapid-deployment valves used in aortic valve replacement.

**Method:** A comparison of pre, intra and post-operative outcomes of 120 patients received a rapid-deployment AVR (RDAVR) between Sep2014-Sep2019, with a propensity matched group of patients who had conventional bioprosthetic AVR (Conv AVR).

**Results:** RDAVR (n=120) was compared with Conv AVR (n=120). Both groups were matched in terms of baseline characteristics. However, RDAVR group included more elderly (>80 years) and females (40 vs 11 p<0.01; and 83 vs 36 p<0.01, respectively). In isolated AVR, RDAVR group had shorter cross clamp time and cardiopulmonary bypass time. 30-day mortality was not significantly different between the two groups (1.7%) same as post op pressure gradients. Additionally, patients were divided into size matched subgroups and post op pressure gradients were comparable. Hospital length of stay and early post-operative results were similar between the two groups except RDAVR group was associated with higher rate of permanent pacing (p=0.54). Survival rates in the both groups were comparable at 1 year, 2 years and at 3 years.

**Discussion:** RDAVR significantly reduces cross clamp and pump time and should be considered when that is of significant importance. Additionally, RDAVR was associated with statistically insignificant higher risk for permanent pacing and showed no haemodynamic superiority.

### Influence of nasal deviation on perception of maxillary dental centreline position

Dr Karl Grimes

**Introduction and Aim:** The aim of this study was to investigate the impact of nasal deviation on the perception of the maxillary dental centreline position as judged by orthodontists, general dental practitioners (GDPs) and lay people. The null hypothesis states that there is no difference in perception of maxillary dental centreline position and smile aesthetics with varying degrees of nasal deviation and dental centreline.

**Methods:** This was a cross sectional study which aimed to assess the impact of variations in the position of both the

dental centreline and nose on facial aesthetics. An image of a smiling female was digitally manipulated with varying degrees of nasal deviation and dental centreline position. Multiple regression analysis was undertaken to assess the effect of these changes on the perceptions of attractiveness for each rater group.

**Results:** Nasal deviation to the left by 1.5mm was perceived as more attractive if the dental centreline was also deviated to the left by 1.5mm by GDPs (95% CI, 0.4-13.5), orthodontists (95% CI, 7.6-20.0) and lay people (95% CI, 1.7-15.8).

**Discussion:** Overall, there was a preference for the symmetrical dental centreline and nose position. GDPs and orthodontists were more sensitive to changes associated with the dental asymmetry, whereas lay people were more sensitive to nasal changes.

### The need for routine pre-operative group and hold samples in elective TURBT and TURP patients in Altnagelvin Hospital.

Dr Sinead Donnelly & Dr Niamh Spence

**Introduction:** In our centre, patients undergoing elective transurethral resection of prostate (TURP) and transurethral resection of bladder tumours (TURBT) require a pre-operative group and hold (G+H). Local policies requiring pre-operative G&H were developed as TURP/ TURBT historically had a significant risk of bleeding. However, as intra-operative procedures have improved, the risk of bleeding has reduced [2].

**Aims:** Investigate the rate of blood transfusion in TURP and TURBT patients.

**Methods:** We conducted a prospective analysis of all patients undergoing TURBT/TURP in a two-month period (19/09/2019 -19/11/2019). 44 patients were identified using theatre lab lists and cross-referenced with the electronic labs system to confirm if blood products were issued. Patients requiring transfusion (n=2) were further investigated using patient notes to establish contributing factors and timing of transfusion.

**Results:** 4.5% of those undergoing TURBT/TURP required a transfusion. 0% were intraoperative or emergency transfusions. All transfusions occurred over 48 hours postoperatively.

**Discussion:** Our study found that pre-operative G&Hs do not improve patient outcomes. At a cost of £23.77/sample, there is potential to make significant savings without compromising patient care. Our results are in keeping with larger studies performed in other centres [3]. Pre-operative G&H could be performed selectively on those deemed higher risk at pre-operative assessment.

1 Routine preoperative tests for elective surgery: summary of updated NICE guidance - BMJ 2016; 354 doi: <https://doi.org/10.1136/bmj.i3292> (Published 14 July 2016) Cite this



as: BMJ 2016;354:i3292 <https://www.bmj.com/content/354/bmj.i3292>

2 Rassweiler, J, Teber, D, Kuntz, R. Complications of transurethral resection of the prostate (TURP) – incidence, management and prevention. *Eur Urol* 2006; 50: 969–980.

3 Smith, H., Falconer, R., Szczachor, J., & Ahmad, S. (2018). Routine preoperative group and save for TURP and TURBT – need and cost effectiveness. *Journal of Clinical Urology*, 11(1), 33–37.

### Sedentary behaviour among General Practitioners: A systematic review.

Dr Richard Mayne

**Introduction / Aims:** Primary aim of gaining quantitative data on levels of sedentary behaviour among GPs and GPSTs, to identify to what extent GP is a sedentary occupation. Secondary aim of gathering qualitative data regarding barriers and facilitators to reducing sedentary behaviour among GPs and GPSTs.

**Methods:** Sequential, mixed-methods model.

Stage 1: Online questionnaire based on the International Sedentary Assessment Tool distributed to GPs and GPSTs throughout Northern Ireland.

Stage 2: Accelerometer study. Purposive, varied sample of 20 participants, based on questionnaire responses, comprising individuals with a range of demographic characteristics and sedentary behaviour. Accelerometers will be worn continuously on the middle of the thigh for a period of seven-days.

Stage 3: Semi-structured interviews. Purposive, varied sample of 6 participants of the accelerometer study will be asked questions related to sedentary behaviour in the GP setting.

**Results and Discussion:** Quantitative data will be analysed to determine current levels of sedentary behaviour in the GP setting. Qualitative data will be analysed thematically to determine barriers and facilitators to reducing sedentary behaviour in the GP setting. Study has been modified due to Covid-19 pandemic.

### Social Capital and Mental Health Among Black and Minority Ethnic Groups in the UK

Dr Jordan Bamford

**Introduction:** Black and minority ethnic communities are at higher risk of mental health problems.

**Aims:** We explore differences in mental health and the influence of social capital among ethnic minority groups in Great Britain.

**Methods:** Cross-sectional linear and logistic regression

analysis of data from Wave 6 (2014–2016) of the Understanding Society databases.

**Results:** In unadjusted models testing the likelihood of reporting psychological distress (i) comparing against a white (British) reference population Indian, Pakistani, Bangladeshi and mixed ethnic minority groups recorded excess levels of distress; and (ii) increasing levels of social capital recorded a strong protective effect (OR=0.94: 95% CI 0.935, 0.946). In a subsequent series of gender-specific incremental logistic models-after adjustment for sociodemographic and socioeconomic factors Pakistani (males and females) and Indian females recorded higher likelihoods of psychological distress, and the further inclusion of social capital in these models did not materially alter these results.

**Discussion:** More research on the definition, measurement and distribution of social capital as applies to ethnic minority groups in Great Britain, and how it influences mental wellbeing is needed.