



# Health services, policy and workforce development

April 2024

# Administration of Intravenous Iron by a Hospital at Home service

Dr Alex Bunn (Chief Registrar), Laura Sebuwufu (Specialist Pharmacist), Lorna Masson (Advanced Pharmacist), Sophie McGlen (Highly Advanced Pharmacist)  
Acute Hospital at Home, John Radcliffe Hospital, Oxford University Hospitals NHS Trust

## Introduction/Methods

Ferric carboxymaltose (Ferinject) is commonly given for iron-deficiency anaemia when oral preparations are not tolerated, or in heart failure where absorption is reduced. (Figure 1)

Caution is given due to severe hypersensitivity reactions, although these are exceedingly rare

Limited experience in providing IV Ferinject outside the hospital setting. We worked with stakeholders to develop a pathway



Figure 1: Ferinject



## Pathway

IV Ferinject prescribed. Pharmacy reviews and issues prescription

Two nurses visit with an automatic defibrillator and IM adrenaline in case of anaphylaxis

Nurses dilute Ferinject with 0.9% sodium chloride

Infused over 15mins. Monitored afterwards for 30mins for signs of hypersensitivity

## Results (2021-2023)

- 204 home-based administrations of IV Ferinject
- 187 patients
  - 1 non-anaphylactic adverse reaction only
- 89% of patients were aged >70; 1-year mortality for this patient cohort was 37%
- Increasing frequency of administration (Figure 2)

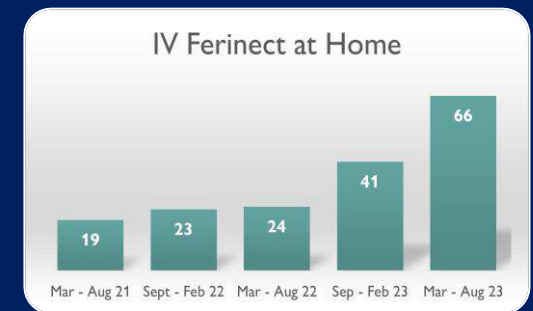


Figure 2

## Conclusions

- Standard operating procedures can be created with stakeholders to enable the delivery of IV Ferinject in the community
- Further analysis is required to calculate potential cost savings



alex.bunn@ouh.nhs.uk

# Optimisation of the Use of Neuro-Radiological Studies in Children with Suspected Papilledema a sample of Norfolk and Norwich (NNUH) as an example

Ali Arfa (MD, MRCP, Medical Ophthalmology Registrar), Simin Arfa (MD, Radiology registrar), Anas Injarie (MD, FRCOphth Consultant Ophthalmologist)

## Introduction:

- Patients with suspected papilledema may have a serious underlying pathology, including brain tumors; needing neuroimaging to investigate the underlying cause
- In 2016, an optometrist was convicted of negligence led to a catastrophic consequence for a child. Since, there has been a noticeable increase in referrals for suspected papilledema.

Deciding when to recommend a neuroimaging examination in a patient can be challenging

The decision of paediatric Neuro-imaging is even more challenging:

- Lack of co-operation before and during the examination
- May need sedation or general anaesthesia for longer imaging such as MRI
- Justification of radiation exposure in the use of ionising radiation

## Aim and methodology:

To optimise the use of Neuro-imaging investigation in children with suspected papilledema, and to implement a traffic light system to facilitate assessments.

All paediatric patients referred from ophthalmology team for Neuro-imaging with suspected papilledema from April 2018 to December 2022

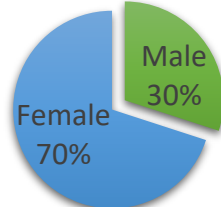
Collected data: Age, gender, presenting symptoms, ophthalmic images and radiology report

Red Flags	Concerning OCT features	OCT Changes
<ul style="list-style-type: none"> <li>- Persistent headaches on waking up disturbed sleep</li> <li>- Confusion/ disorientation</li> <li>- Persistent Nausea/ Vomiting</li> <li>- Reduced vision</li> <li>- New-onset focal Neurology</li> </ul>	<ul style="list-style-type: none"> <li>- Haemorrhages at or near Optic Disc (OD), and Venous congestion</li> <li>- Cotton Wool Spots</li> <li>- Hard Exudate of OD</li> <li>- Loss of previously documented Spontaneous Venous Pulsation</li> <li>- Gross elevation of OD</li> </ul>	<ul style="list-style-type: none"> <li>- Significant increase in RNFL Thickness and changes in OD</li> <li>- Two consecutive changes in RNFL Thickness</li> <li>- Appearance of new suspicious features</li> </ul>

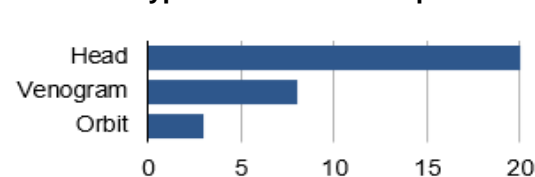
## Results:

Demographics	
Number of patients	20
Age (Average)	12.1
Age (Range)	8-17

## Gender distribution:



## Types of MRI scan Requested:



## Results:

	Numbers	Red Flag symptoms, OCT changes or Concerning OCT features	No Red Flag, No OCT changes, no Concerning OCT features
Patients with radiological findings	4	4 (100%)	0
Patient with unremarkable radiological imaging	16	7 (43.8%)	9 (56.3%)
Total	20	11 (55%)	9 (45%)

	Red Flag symptoms	OCT Changes	Concerning OCT features
Patient with radiological findings	1	1	3
Patient with unremarkable radiological images	5	2	2

\* This figures include overlaps.

## Conclusion:

=> 11 patients had symptoms of Red Flags, OCT changes or worsening OCT Features; All cases who had positive radiological findings or Idiopathic Intracranial Hypertension were among this group  
=> 9 patients did not present any of the concerning features; these scans could possibly be avoided

## Discussion:

Neuroimaging should possibly be reserved for patients with red flag symptoms, concerning OCT features or OCT change.

Traffic light system is used by paediatric neuro-ophthalmology team in assessing paediatric patients suspected papilledema at Norfolk and Norwich University Hospital.

	Action
Normal optic disc and no symptoms	Discharge
Suspicious optic disc and/or non-red flag symptoms	Review at 1-4 months (+red flag advice)
Highly suspicious features, Definite change in OCT and/or red flag symptoms	Scan

# A BREATH OF FRESH AIR

## HOW DOES THE F3 AID BURNOUT RECOVERY IN POST-FOUNDATION YEAR DOCTORS?

RIONA LINN<sup>1</sup>, KEERAN MAHENDRA KUMAR<sup>1</sup>, SNEHA PIMPALNERKAR<sup>1</sup>, ARUNESH RAGUTHARAN<sup>1</sup>, VIRAJ SHAH<sup>1</sup>, ANOUK WIJERATNE<sup>1</sup>, ESTHER CANONICO-MARTIN<sup>1</sup>

<sup>1</sup> Imperial College Business School, London, United Kingdom  
\* All authors contributed equally

## INTRODUCTION

Mass clinician **burnout** in the NHS is an increasingly well-evidenced phenomenon, with adverse work-related stress recently reported to affect **77% of junior doctors**.

Contrastingly, **burnout recovery** within this demographic is sparsely considered in the literature despite its role in addressing **workforce longevity**.

The F3, is a career break taken by junior doctors straight after UK Foundation Training (FT), has risen in incidence, becoming a widely-accepted feature of training pathways (1).

Although burnout is indicated as the primary driver in clinicians' decisions to pursue F3, an organisation-level understanding of if and how clinicians are using F3 for burnout recovery is notably absent.



## METHODS

12 semi-structured interviews with clinicians returning to training post-F3 were conducted, reaching theoretical saturation. Deductive thematic analysis was performed via NVivo and organisational behavioural theory applied to understand data phenomena.

## RESULTS

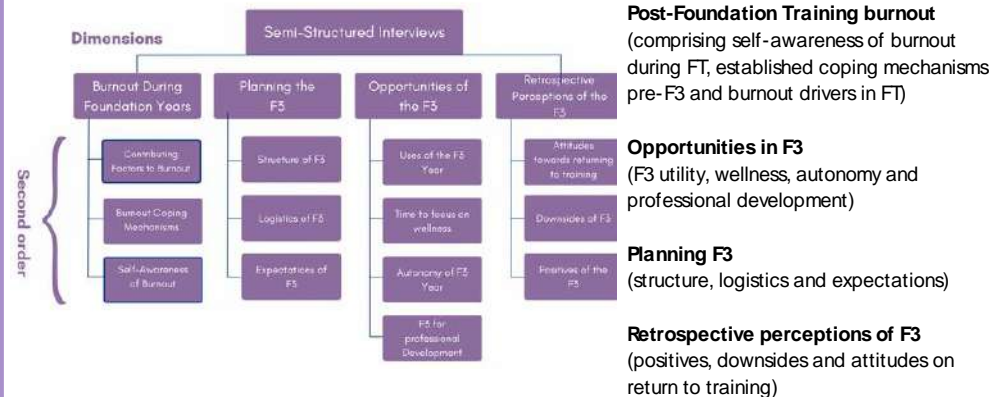
The F3 collectively addressed all 3 clinical features of burnout [2]:

**Emotional Exhaustion**

**Feelings of personal ineffectiveness of work**

**Depersonalisation**

4 dimensions comprising 13 sub-themes emerged from the data:



**Post-Foundation Training burnout** (comprising self-awareness of burnout during FT, established coping mechanisms pre-F3 and burnout drivers in FT)

**Opportunities in F3** (F3 utility, wellness, autonomy and professional development)

**Planning F3** (structure, logistics and expectations)

**Retrospective perceptions of F3** (positives, downsides and attitudes on return to training)

## CONCLUSIONS

The autonomy of F3 enabled clinicians to engage in self-selected recovery activities, forging the ability to craft healthier, enduring relationships with their work. These findings were supported by the “Job Demands Resource Model”.

Time away from clinical practice, enabled clinicians to return to work with a new mindset and a renewed sense of enthusiasm, in keeping with the “Dualistic Model of Passion”. Consequently, clinicians were able to recalibrate their personal career expectations and more effectively manage work boundaries in their careers post F3.

The evidenced advantages of F3 pose additional relevance to NHS workforce strategy planning, and thus 3 organisational-level recommendations to improve support for F3 were evaluated.

## RECOMMENDATIONS

### Credentialing of out-of-training experiences:

- Record and recognise skills gained during F3 year.
- Support through existing systems like Horus e-portfolio or NHS Digital Passport

### Maintaining Contact During F3:

- Provide updates on application processes, job availability, and requirements.
- Create F3-specific communication channels for support.
- Integration with existing SuPPORT program for national rollout.

### Expanding Role of F3 Director:

- Provide guidance to F2 doctors considering F3.
- Offer pastoral support and act as liaison with NHS.
- Trial at trusts, standardise if successful, reflecting the evolving norm of F3.

## FUTURE RESEARCH

- Consider using Copenhagen Burnout Inventory to standardise burnout assessment pre and post F3.
- Investigate effects of burnout in nursing and other allied healthcare professionals
- Longitudinal Cost-Benefit Analysis of suggested recommendations.

[1] Silverton R, Freeth D. The F3 phenomenon: Exploring a new norm and its implications. 2018 [cited 2024 Feb 18]. Available from: [www.hcc.nhs.uk](http://www.hcc.nhs.uk)

[2] Maslach, C., Jackson, S., & Leiter, M. (1996). MB: The Maslach Burnout Inventory Manual. Consulting Psychologists Press. [https://www.researchgate.net/publication/27783643\\_The\\_Maslach\\_Burnout\\_Inventory\\_Manual](https://www.researchgate.net/publication/27783643_The_Maslach_Burnout_Inventory_Manual)



# Dietetic Management Of Irritable Bowel Syndrome: A National Survey Of Dietary Approaches And Decision-making Factors



Arkadeep Dhali<sup>1</sup>; Nick Trott<sup>1</sup>; Mohamed G. Shiha<sup>1</sup>; Imran Aziz<sup>1</sup>; Christian C. Shaw<sup>1</sup>; Rachel L. Buckle<sup>1</sup>; David S. Sanders<sup>1</sup>  
<sup>1</sup>Academic Unit of Gastroenterology, Sheffield Teaching Hospitals NHS Foundation Trust & University of Sheffield, UK

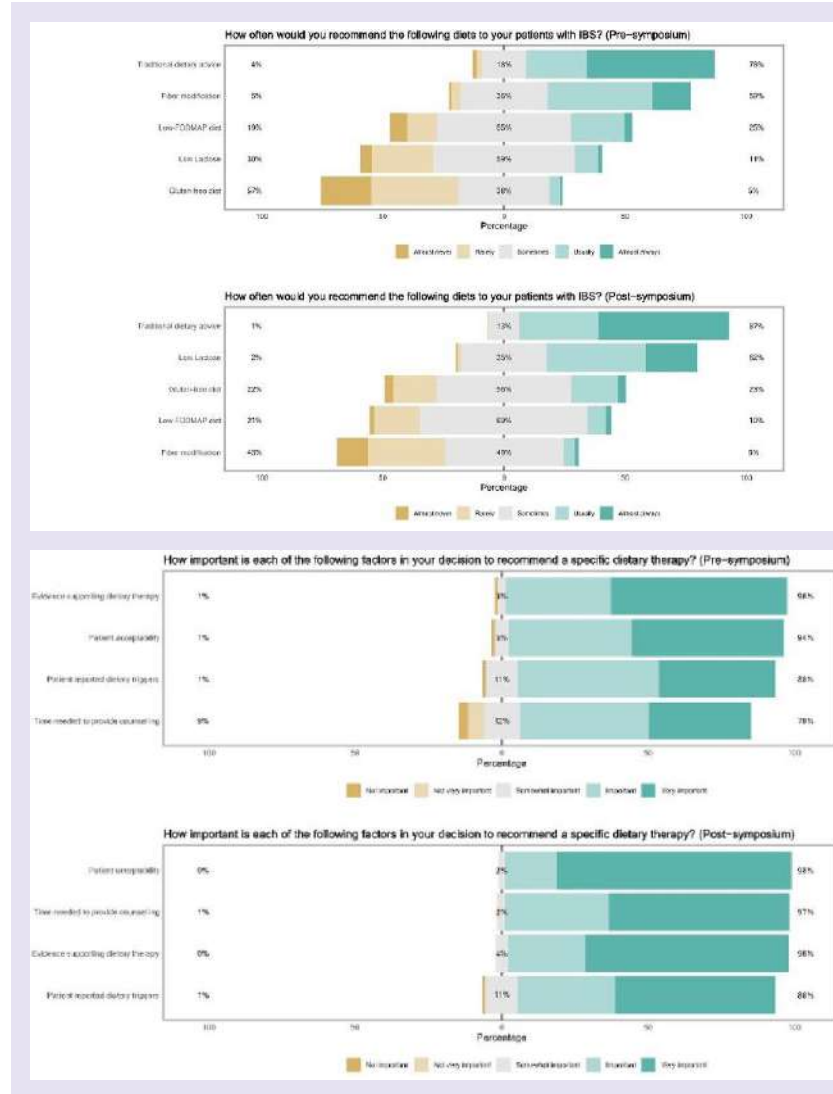
## INTRODUCTION

There has been a growing emphasis on dietary therapies for irritable bowel syndrome (IBS). Furthermore, there has been a growing evidence base for the FODMAP diet, gluten-free diet (GFD), and lactose-free diet. This study examines the dietary approaches employed, the factors influencing dietetic decision-making for IBS interventions, and the patient education methods utilized by registered dietitians, nutritionists, and student dietitians in diverse healthcare settings.

## METHODS

Participants, including registered dietitians and nutritionists, were recruited from diverse healthcare settings at the point of registration for the 4th Sheffield Dietetic Gastroenterology Symposium. A 15-question online survey investigated the practices of dietitians and nutritionists in managing IBS patients, covering dietary approaches, decision-making factors, and patient education. The evidence base for different dietary interventions was provided and a follow-up survey assessed symposium attendees' views on current IBS dietary practices.

## RESULTS



## RESULTS

Out of 731 respondents, primarily registered dietitians (93%) and females (93%), 54% spent 10-50% of clinic time on IBS. Respondents noted that a GFD (34%), low lactose (32%), and traditional dietary advice (TDA) (18%) were the most frequently used dietary interventions that patients try before seeking professional advice. Delegates were asked to rank their dietary intervention preferences pre and post-meeting (after the evidence base had been presented): TDA pre-meeting 75% versus post-meeting 87% (p=0.04), fibre modification 59% versus 6% (p<0.0001), low FODMAP 25% versus 10% (p=0.0001), low lactose 12% versus 62% (p<0.0001) and GFD 6% to 23% (p<0.0001).

## CONCLUSION

TDA remains the choice of diet for dietitians. After our educational event, which was the first of its kind, the use of low-lactose and gluten-free significantly increased. Factors influencing recommendations shifted towards patient acceptability and counseling time. A longer-term follow-up could provide insights into the sustainability of the reported changes in practice.

**Background:** According to the 2023 GMC Workforce report, overseas doctors account for more than one third of the total licensed medical professionals, and for more than half of 2022's newly registered doctors.<sup>1</sup> The challenges faced daily by IMGs were discussed extensively in literature. This resulted in the introduction of enhanced inductions within Trusts, and several hospitals, including our own, have organised peer-support groups for overseas doctors, with a positive impact on IMGs' wellbeing<sup>2-7</sup>

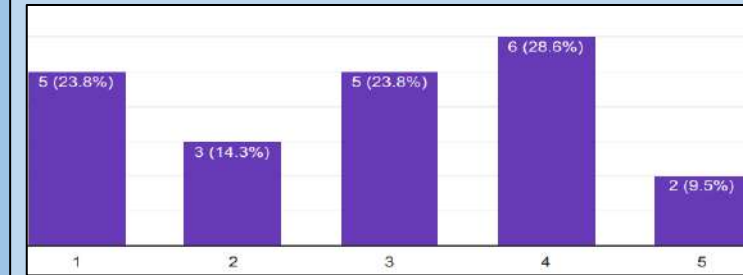
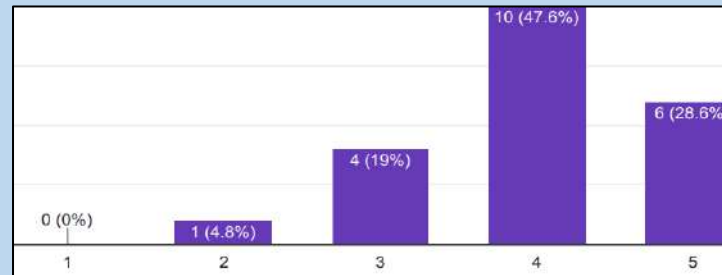
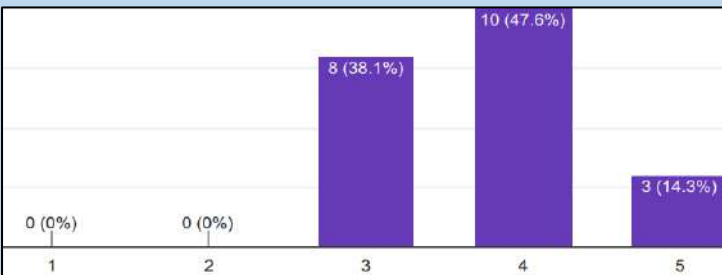
**Methods:** We collected data using a questionnaire distributed to IMGs employed by our Trust in training and non-training positions across several specialties.

**Results:** Twenty-one doctors replied. Twelve (57.1%) were in training. The majority (61.9%) were employed in medical specialties. Eight (38.1%) were at their first NHS job. All had supervisors and 95.2% had e-portfolios.

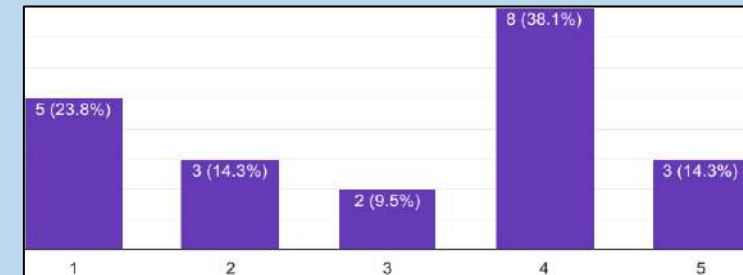
Seventeen (80.9%) worked on-call shifts. The majority (82.2%) understood either well or very well the on-call system and 76.5% and felt overall supported whilst on-call.

Thirteen (61.9%) understood the NHS well or very well (fig. 1). Sixteen (76.2%) felt they received similar or the same support and training opportunities as their British peers (fig. 2). Eleven (52.3%) felt doubtful about their abilities sometimes, and thirteen (61.9%) felt uncertain about their future NHS careers (fig. 3 and fig. 4). Seventeen (80.9%) found a IMG support group beneficial.

**Conclusions:** This audit provides an insight into IMGs' daily struggles and demonstrates that peer-led support groups are beneficial to IMGs. There is an ongoing need for advocacy and support during IMGs' initial adjustment period and throughout their journeys towards specialty training.



**Fig. 3:** Feeling doubtful or not good enough (1: never; 5: all the time)



**Fig. 4:** Anxiety and uncertainty about NHS career (1: never; 5: all the time)

**Fig. 1:** Overall understanding of the NHS system (1: none; 5: very well) **Fig. 2:** Perceived degree of support and opportunities (1: none; 5: same as UK graduates) **Fig. 4:** Anxiety and uncertainty about NHS career (1: never; 5: all the time)

<sup>1</sup>GMC Workforce report 2023; <sup>2</sup>Hashim A. Educational challenges faced by IMGs in the UK. *Adv Med Educ Pract* 2017; <sup>3</sup>Bhat M, Difficulties for IMGs working in the NHS. *BMJ* 2014; <sup>4</sup>Bourne S. What are the biggest challenges IMGs face when starting work in the NHS? *BMJ* 2018; <sup>5</sup>Hodkinson J. NHS launches first standardised induction programme for IMGs. *BMJ* 2022; <sup>6</sup>Ajaz I. Developing an enhanced induction process for IMGs in the NHS. *Future Healthc J* 2022; <sup>7</sup>Allotey J. The impact of peer-led support on the experiences and challenges of IMGs in the internal medicine training programme. *Future Healthc J* 2022

## Introduction

Over-utilisation of laboratory tests occurs among 20.6% of all tests.<sup>1</sup> To reduce over-utilisation, evidence from hospitals in South Africa and globally suggest:

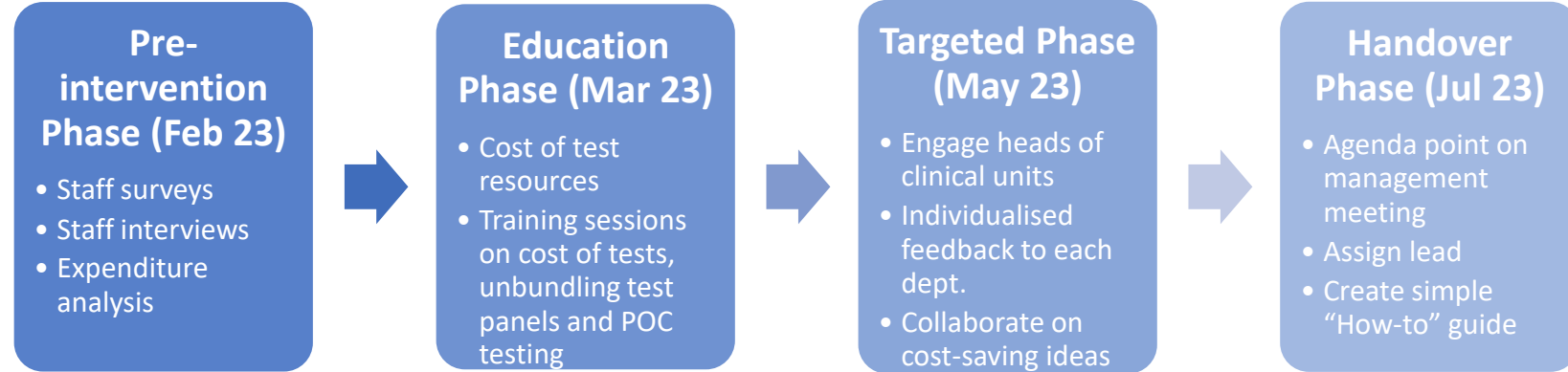
- Unbundling test panels<sup>2-4</sup>
- Increasing cost awareness<sup>2,4,5</sup>
- Regular teaching and feedback<sup>3,4</sup>

## Project Aim

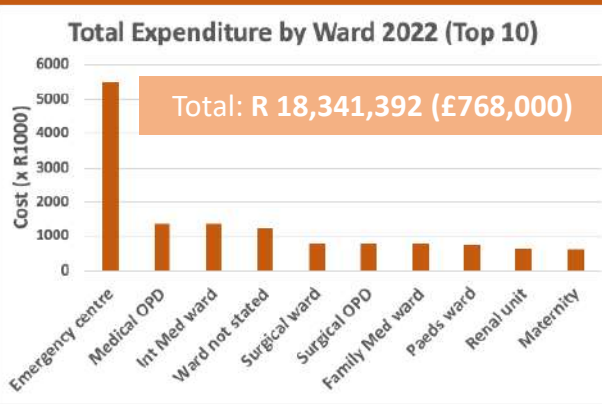
**Reduce expenditure on laboratory investigations at George Regional hospital, South Africa**

## Methodology

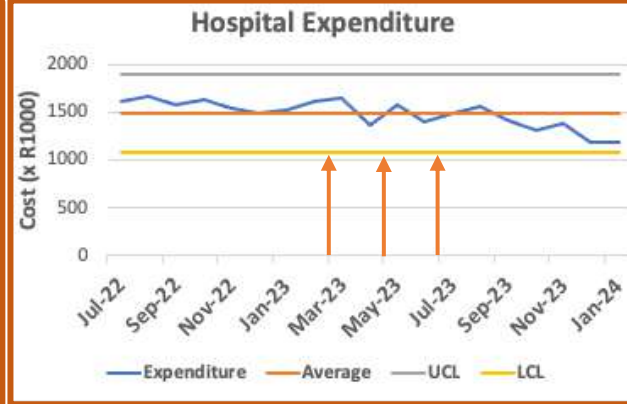
A 6-month (Feb-Jul 2023) quality improvement project, with multiple PDSA cycles/phases, laid out as follows:



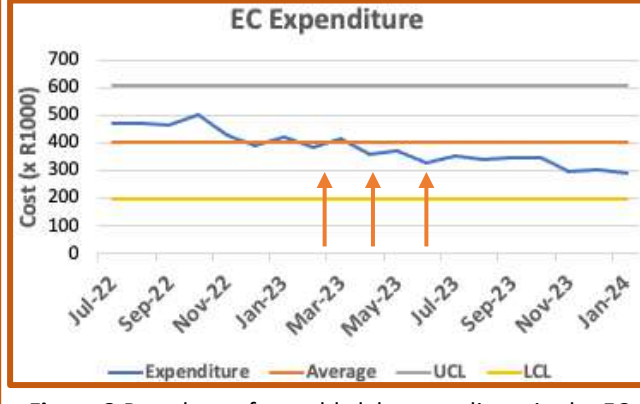
## Results



**Fig 1** Total expenditure on laboratory in 2022 and the contribution of the top 10 wards



**Fig 2** Run chart of monthly lab expenditure across the hospital with arrows indicating intervention time points



**Figure 3** Run chart of monthly lab expenditure in the EC with arrows indicating intervention time points

The emergency centre (EC) reduced expenditure by 29%, and the whole hospital reduced expenditure by 18% (Oct23-Jan24 vs. Oct22-Jan23); this means a projected annual saving of 3,342,843 Rand (~£140,000) across the hospital. There were higher savings in the EC than in other departments. This may be due to strategic intervention here, the presence of POC testing or strong clinical leadership and engagement from the heads of the EC.

## Conclusions

1. This project provided reciprocal learning, including the reinforcement of QI methodology, teamwork and IT skills
2. Multiple PDSA cycles required for significant and sustainable change
3. Engagement of senior team essential
4. This study highlights the value of global workforce development partnerships involving multi-directional healthcare worker learning/development exchange

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3. Attali M, Barel Y, Somin M et al. A cost-effective method for reducing the volume of laboratory tests in a university-associated teaching hospital. *Mt Sinai J Med* 2016;73(5):787-94.
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# Turning the tide on doctors' wellbeing: perspectives and lessons from the UHB Doctor Wellbeing Group

Jennifer Hancox<sup>1</sup>; Matthew Landells<sup>2</sup>; Maxwell Thoburn<sup>1</sup>; Sama Al-Sharifi<sup>1</sup>; Inuri Patabendi<sup>1</sup>; Daniel Prescott<sup>1</sup>; Claire Sutton<sup>1</sup>; Dhruv Parekh<sup>1</sup>; Kerry Mulligan<sup>1</sup>  
<sup>1</sup>University Hospitals Birmingham NHS Foundation Trust; <sup>2</sup>Royal Air Force Medical Services, University Hospitals Birmingham NHS Foundation Trust

## Introduction

- Low levels of morale and wellbeing amongst doctors represent serious concerns for staff health and patient safety.<sup>1</sup>
- At UHB, the "Bewick Report"<sup>2</sup> and National Training Survey<sup>3</sup> demonstrated falling aggregate training benchmarks, high rates of staff sickness and dissatisfaction.
- A trainee-led survey was run as part of a QIP to identify and quantify factors affecting working lives of non-consultant doctors at UHB.
- The "Doctor Wellbeing Group" (DWG) – trainee-led and supported at executive level – was established to target areas of concern and generate measurable change.

## Aims & Methods

- Measure burnout risk and wellbeing amongst non-consultant doctors in UHB.
- Identify key factors affecting wellbeing and areas for urgent intervention.
- Audit rest and wellbeing provision against national, regional, and local charters.<sup>4-6</sup>
- Influence change using robust evidence presented to key stakeholders.
- Data collected via an anonymous online survey between Mar – Apr 2023.

**🔧 Facilities & non-clinical support**

- **60-65%** no rest area
- **69%** no hot food out of hours
- **45%** unaware of Trust welfare service

**📅 Breaks, workload and rotas**

- **37.82%** rarely/never get break on-call
- **33%** no rota with ≥6 weeks' notice
- **57%** issues contacting rota co-ordinator

**🤝 Workplace culture & civility**

- **50%** bullied or intimidated
- **32%** experienced or witnessed sexism
- **16%** experienced or witnessed racism
- **48%** fear reprise if they raise bullying

Figure 1: Key findings from survey thematic analysis

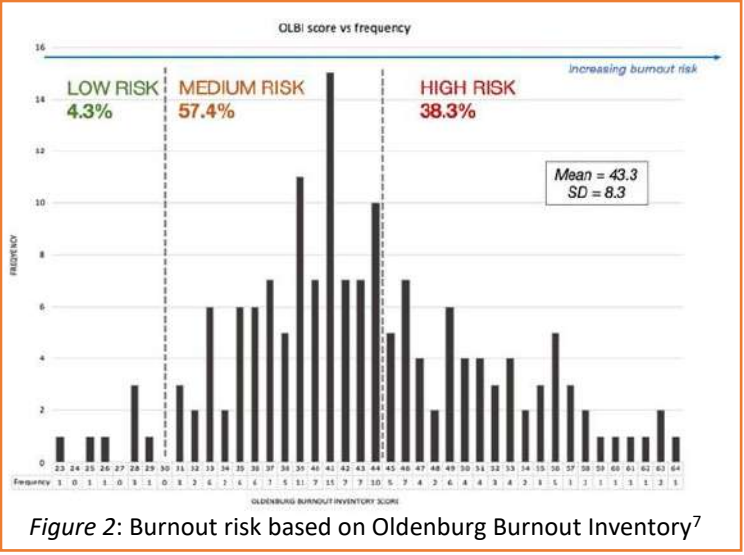


Figure 2: Burnout risk based on Oldenburg Burnout Inventory<sup>7</sup>

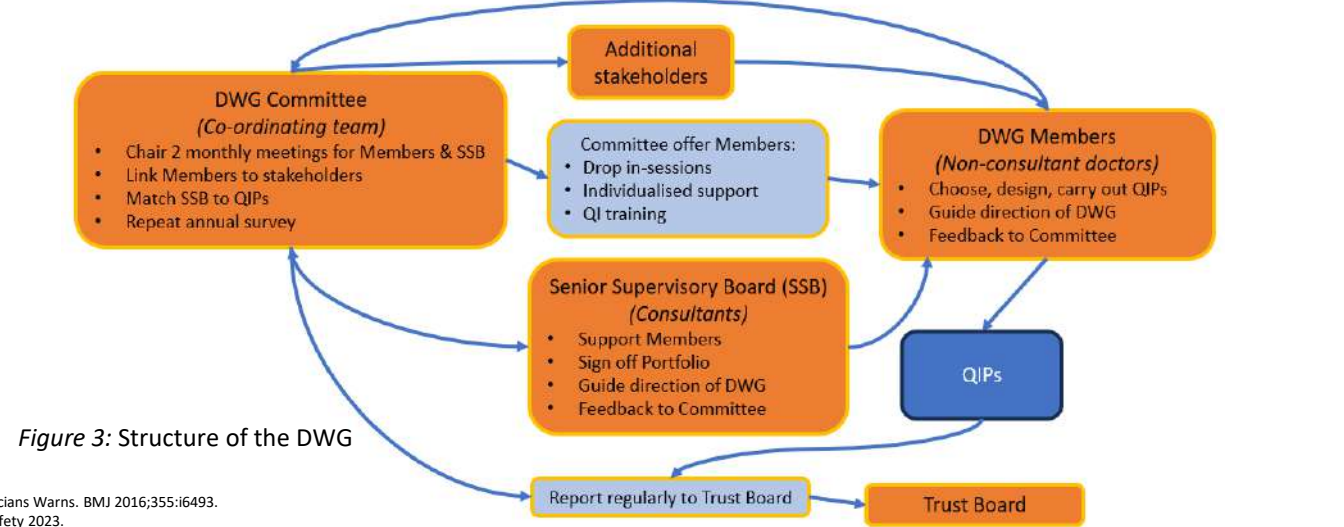


Figure 3: Structure of the DWG

## Results

- 176 responses: 95% aged 25-45, 50% female, 29.1% international medical graduates. Range of training programmes, grades, and locally employed doctors represented. Figures 1 and 2 represent key findings.
- Early interventions: presentations to stakeholders; improving rest/mess facilities; employing extra Wellbeing Officers; drop-in sessions.
- The DWG (Figure 3) supports non-consultant doctor "Members" to run QIPs related to working conditions, supervised by consultants on a "Senior Supervisory Board." Findings fed back to Trust Board.
- The DWG promotes wellbeing, supports portfolio requirements, and aims to implement measurable, sustainable change.

## Conclusion

- Repeat survey planned May 2024 to re-assess and identify improvements and continued challenges.
- Embedding the DWG within Trust structures should support sustained positive change in the years to come.

**References**

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# Front Door Frailty: Improving Acute Frailty service via Pathway Design, Doctor Reallocation and Proactive Triage

Dr Kar Yee Law (Chief Registrar) and Dr Grace Walker (Consultant Geriatrician)



## Background

- There is increasing impetus to improve acute care for older patients<sup>1</sup>.
- NHS England has outlined quality standards for front door frailty services to deliver timely comprehensive geriatric assessments (CGA) by specialist acute frailty team ideally within a purpose-built frailty attuned area<sup>2</sup>.
- In 2021, our acute frailty service, following service disruption and space reconfiguration during the COVID-19 pandemic was faced with significant challenges including loss of a dedicated clinical area, late referrals and unclear pathways to access the service.
- This resulted in 58% of patients being referred to the frailty service via the acute medical take which resulted in delayed assessment and discharge.
- **We sought to increase the number of patients referred directly from the Emergency Department (ED) to acute frailty and to improve the recognition of frailty in the ED.**

## Methods

- To improve flow and efficiency of the service we **re-designed and simplified the referral pathway** to proactively accept patients from rapid access triage in ED (via GP referral or ambulance service).
- A new role of **frailty clerking doctor** was created and allocated to ED to in-reach and initiate assessments for suitable patients to avoid double clerking by both ED and frailty service.
- We moved from a bleep referral system to **SmartPage** (an electronic referral and task management system) and built relationships with the ED through the creation of an **ED consultant lead for frailty**.

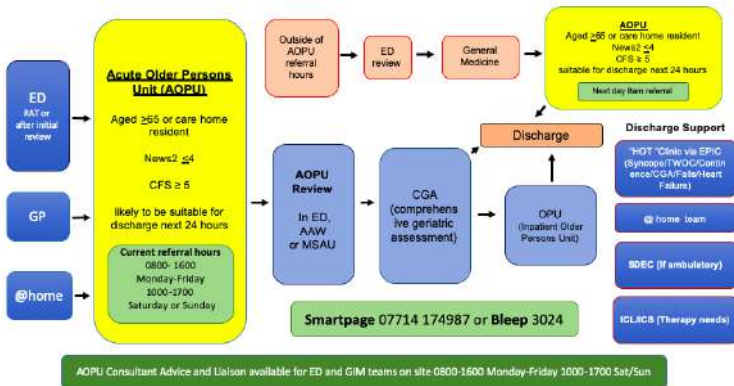


Figure 1. Referral pathway for Acute Older Persons Unit (AOPU)

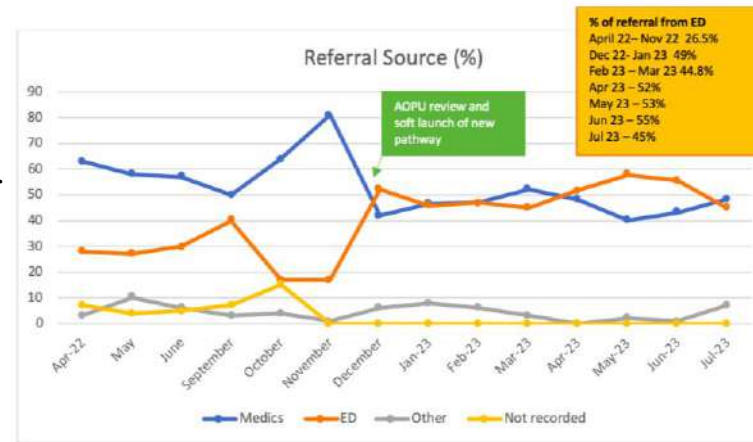


Figure 2. Proportion of patients referred from medical take, ED and other sources 2022-2023

## Results

- Following our service development programme the proportion of **direct referral** from ED to Acute Frailty has **increased from 26.5% in 2021 to average of 53% in 2022 and 2023.**
- The proportion of patients aged 65 and over having a **frailty assessment, clinical frailty score (CFS) and appropriate follow up from ED** has increased from **18% in 2021 to 71% in 2023.**
- **Over 60% of patients were discharged within 48 hours.**

## Conclusion

**We have brought our acute frailty service closer to the front door meaning patients have access to CGA and senior decision makers earlier on in their admission.**

- The **next steps** will be to continue this trajectory and provide direct access to the acute frailty team for referring GPs, care homes and London Ambulance Service.
- We have recruited an **Advanced Clinical Practitioner (ACP)** to support ED and general medicine and are creating an automated **Frailty Dashboard** with KPI such as length of stay and readmission rate with our newly enhanced Electronic Health Records.

References:  
 (1) British Geriatric Society. Front door frailty: Advice on setting up services. <https://www.bgs.org.uk/FrontDoorFrailty>  
 (2) NHS England. London: Unplanned Hospital Care Acute Frailty Service Specifications – Guidance Document

## Introduction

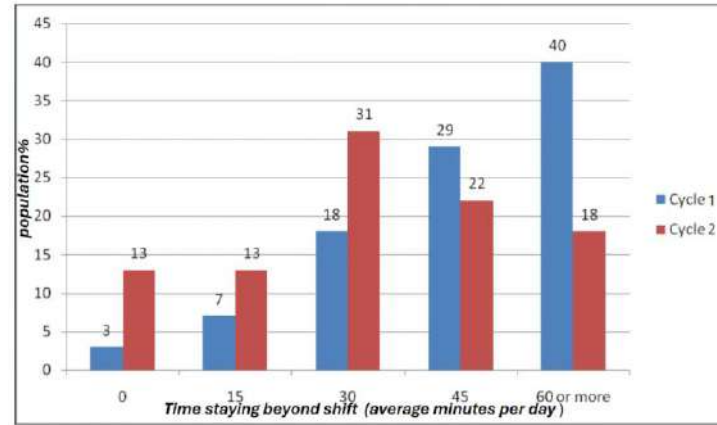
Junior doctors face amplified stressors due to professional demands, role uncertainties, relatively modest compensation considering their extensive training, inadequate leadership or support, and the pressures of meeting assessment and training requirements<sup>1</sup>. Consequently, they are susceptible to burnout and have an elevated risk of developing depression and anxiety<sup>2</sup>.

Tens of thousands of junior doctors are working past the end of their shifts because hospitals are so understaffed, as per NHS<sup>3</sup>. In response to the observed increase in junior doctors voluntarily extending their working hours, a Quality Improvement Project (QIP) was initiated to explore the qualitative aspects of overtime and gain real-time insights into their experiences and work patterns.

## Materials and Methods

Cycle 1 of the Quality Improvement Project (QIP) was conducted from November 3rd to November 10th, 2023.

The findings revealed that 70% of junior doctors reported extensions beyond 45 minutes. Concurrently, staffing shortages were identified, with 37% of junior doctors experiencing inadequate staffing levels on five or more occasions during the study week.



## Results

Results from Cycle 2 of the audit indicated significant improvements following the implementation of interventions. There was a marked decrease in the proportion of junior doctors exceeding their scheduled hours, with only 40% reporting extensions beyond 45 minutes compared to 70% in Cycle 1. Additionally, the percentage of junior doctors experiencing inadequate staffing levels on five or more occasions during the study week decreased from 37% to 9%.

Subsequently, interventions were implemented, including improvements in staffing levels, introduction of morning handovers, and adherence to consultant ward round schedules.

A tailored data collection form was utilized to capture details of overtime occurrences, causes, and workload assessments.

Data for Cycle 2 was collected from January 26th to February 2nd, 2024. Analysis involved utilizing bar graphs for comparison and descriptive statistics to understand trends and factors influencing extended working hours. Confidentiality and voluntary participation were ensured, with ethical approval obtained prior to the study.

Consultant adherence to allocated round times also improved, with only 41% of the time not adhered to in Cycle 2 compared to 71% in Cycle 1. Notably, attendance at scheduled development times increased, with 72% of participants attending in Cycle 2 compared to 40% in Cycle 1. However, limitations of the study include the need for further exploration into individual factors contributing to overtime.

## Conclusion

Overall, this QIP has provided valuable insights into optimizing junior doctors' working conditions and highlights the importance of proactive interventions in promoting a healthier and more sustainable work environment within healthcare settings.

Moving forward, continued monitoring and evaluation will be necessary to sustain these improvements and identify any additional areas for enhancement.

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Continuous support for palliative care patients is an NHS priority

Designing a patient service should seek input from patients and carers



**Aim:** Understanding patient and carer experience of out-of-hours (OOH) palliative care

### Eligibility Criteria:

- Palliative care patients
- UK based OOH service
- Reported experiences of patients and carers
- Published between 2013-2023



7

**Eligible Studies**

180

**Patients and Carers**



**Representing  
England & Scotland**

**Themes**  
**5**

### Easy Access

Minimal waiting times and instructions for using the service are important



### Medication

Delays in prescribing, dispensing and administering medicine are barriers to receiving care

### Continuity of Care

OOH services lack up-to-date information which causes frustration and risks delaying care.



### Models of review

In person and telereviews are valuable, particularly when the HCP knows the patient



### Carers

Carers need support in making decisions



**Conclusion:** To meet patient and family needs, an OOH palliative care service should be easy to use, support decision making and access to medication, and service users should ideally be familiar with the OOH clinician.

The insights from this narrative synthesis are limited due to a small number of studies reflecting a limited population.

There was an absence in the literature of how perspectives are influenced by ethnicity, socioeconomic status, and how needs and experience change across the course of disease

# Case of Ischaemic Hepatitis in Congestive Heart Failure following a period of Hypoperfusion

Dr Rose Ameli - University Hospital Lewisham

## Introduction

Ischaemic hepatitis is a syndrome recognised by the marked, rapid but temporary rise in the blood levels of aminotransferases in pathological conditions such as heart or respiratory failure, or circulatory shock<sup>1</sup>.

## Case Description

- 83-year-old female presented with 7-day history of productive cough with green phlegm, feeling short of breath on mild exertion and new extensive bruising. She was also noted to have sustained a fall after a period of nausea and dizziness.
- Medical history - heart failure with reduced ejection fraction (28% in 2022), ischaemic heart disease, type II diabetes and peripheral vascular disease.
- Social history - She was independently mobile with support from her daughter for certain activities of daily living.
- Examination findings - raised JVP, reduced breath sounds at the lung bases and bilateral pitting oedema to the mid-shins. Dark purple bruising was noted over the left forearm and lower abdomen.

## Methods

Patient data and images were anonymised in accordance with NHS data protection standards prior to inclusion in this case report.

## Imaging



Chest Xray showed classical signs of heart failure.



CT abdomen revealed non-homogenous enhancement of the liver concerning for liver failure or a perfusion abnormality. Nil evidence of portal vein thrombosis.

## Diagnosis

- Relevant blood results - INR 1.8, ALT 1031 U/l, AST 1075 U/l, Lactate 3, WCC 17x10<sup>9</sup>/L and pro-BNP 13,911 pg/mol. Paracetamol level was within normal limits and hepatitis screen and liver autoimmune antibodies were negative.
- Echocardiogram revealed the appearance of global hypokinesia with a severely impaired left ventricular systolic function - estimated ejection fraction 34%. Intermediate probability of pulmonary hypertension.
- Given the history of hypoperfusion and high transaminitis with clear evidence of heart failure, ischaemic hepatitis was diagnosed.

## Treatment

- Primarily treatment was heart failure optimisation. The patient underwent diuresis with intravenous furosemide to good effect, losing 9kg in weight over a period of 7 days. Appropriate community heart failure nurse follow up was arranged.
- N-acetylcysteine was given until transaminases sufficiently decreased and Vitamin K 10mg for 3 days. INR and transaminases normalised after 3 and 9 days, respectively.
- She was treated concomitantly for a lower respiratory tract infection with antibiotics.

## Discussion

- Ischaemic hepatitis needs to be considered in the context of systemic hypotension-related acute hepatitis, particularly with the co-existence of congestive heart failure.
- Other causes of cellular level hepatic necrosis need to be excluded such as drug-induced or viral hepatitis<sup>1,2</sup>.
- The mainstay of treatment is the management of the underlying pathological condition<sup>3</sup>.

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# Improving The Quality Of Bowel Preparation Among Patients Undergoing Colonoscopy In A Quaternary Care Center -A Quality Improvement Project

Dr.Sadhiya Siyad,Dr.Riyas Shaji,Dr.Camilla Jom, Dr.Alan Wesley,Dr.Aswin Surjit,Dr.G N, Ramesh,Dr.Ismail Siyad,Dr.Prasanth Menon,Dr.Geetha Mary Philips- Aster Medcity Kochi,India

## Introduction:

Boston Bowel Preparation Scale (BBPS) is an accepted standard rating scale to assess the quality of bowel preparation for colonoscopy.

It is calculated by summing the degree of bowel visualization/preparation in the three colon segments(ascending, transverse and descending colon) individually.

A high BBPS score can yield better visualization in colonoscopy, thereby decreasing the repetition of procedure and increasing the detection of the pathology.<sup>1-3</sup>

## Materials and Methods:

- Period of study - August 2022 to November 2023
- Target population -All adult patients who underwent colonoscopy at Aster Medcity Kochi,India (Quaternary care center)
- Exclusion criteria - daily fluid restriction < 1.5 liters ,previous colorectal surgery.
- The demographic, clinical and colonoscopy data were collected from the electronic medical records.

## Aim :

**Primary :** improve the quality of bowel preparation among patients undergoing colonoscopy at our center.

**Secondary :** achieve a BBPS score above 7 for all patients undergoing colonoscopy.

## Discussion and Conclusion:

In our QIP there was an improvement of approximately 22% in achieving excellent bowel preparation (score>7).

It will be beneficial both to patients and clinicians when appropriate measures of preparation for a procedure is communicated properly and means to recall by the patient is ensured. This will avoid wastage of resources and improve patient satisfaction.

## Results:

Baseline audit (August 2022) - among 98 eligible patients, 32 (32.32%) patients had a BBPS score of less than 7.

Intervention – Designed information pamphlet for the patients regarding bowel preparation/ pre procedure preparation for colonoscopy.Educated the pamphlet to the patient coordinators to educate the patients.

PDSA (Plan Do Study Act) cycle (October 2023)-among the 130 eligible patients, 89.2% (116) patients had a BBPS score above 7. (Figure 1)

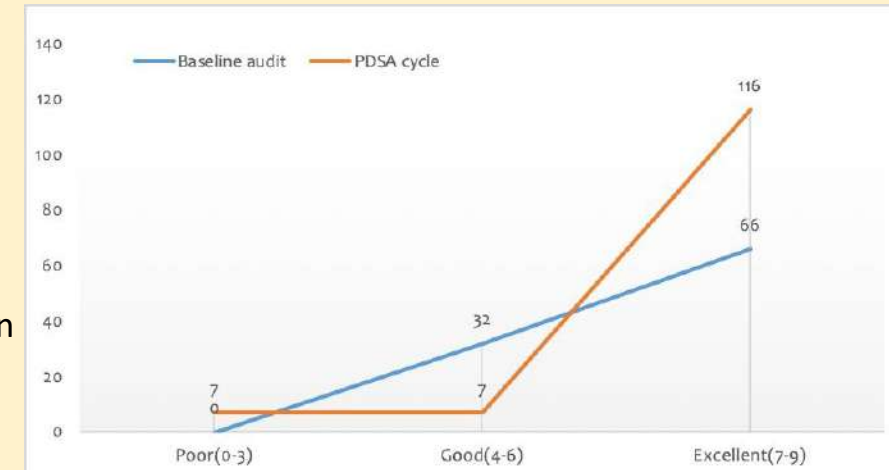


Figure 1 - Compares the Boston Bowel Preparation Scale score before and after the quality improvement intervention.

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# Promote & Encourage Exception Reporting (PEER) Quality Improvement Project

Schnell D'Sa, O'nisa Ali, Omobolade Sonola

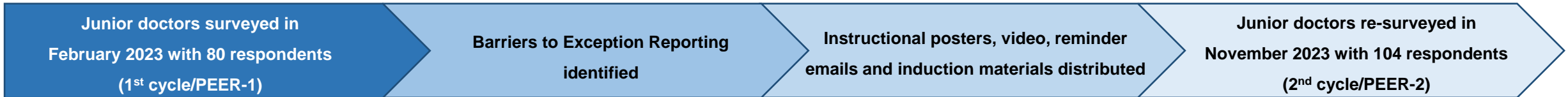


North West Anglia  
NHS Foundation Trust

## Introduction

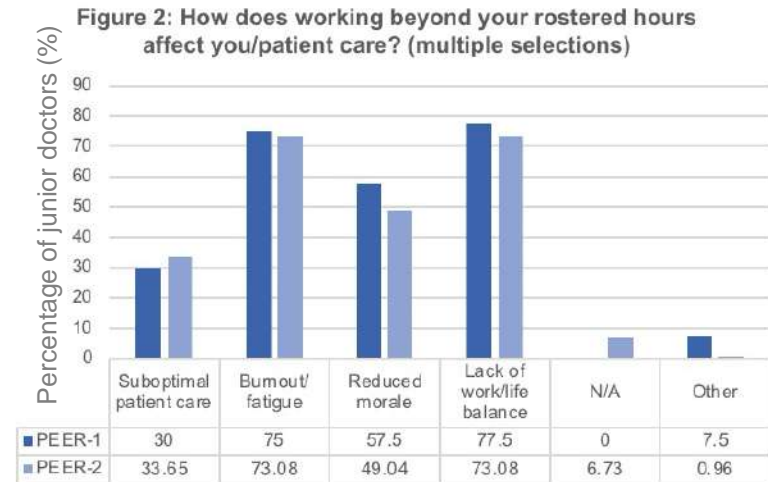
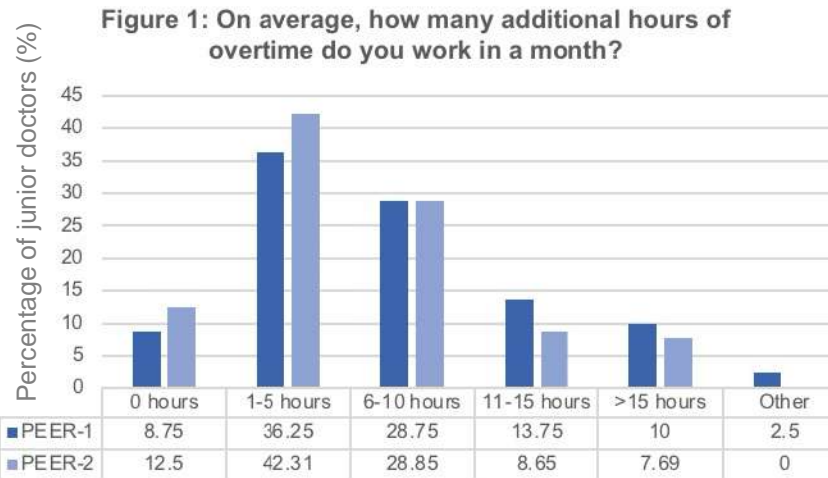
In 2016, NHS England introduced Exception Reporting in the 'Junior Doctors and Dentists in Training' contract. This is a process whereby doctors inform their employer when "their day-to-day work varies significantly and/or regularly from the agreed work schedule" and can receive pay and other resolutions. Understaffing concerns are also highlighted to facilitate appropriate resource allocation. **Our aim is to improve the proportion of junior doctors in North West Anglia Foundation Trust (NWAFT) who understand how to Exception Report and complete the practice.** Additionally, we aim to understand why doctors choose not to Exception Report, and the impact of overtime working on staff and perceived patient safety.

## Methodology



## Results

	PEER-1	PEER-2
<b>Awareness</b> of how-to Exception Report	<b>56.25%</b>	<b>61.54%</b>
Clearly explained in <b>induction</b>	22.5%	29.81%
<b>Unsure</b> if it is appropriate to Exception Report	38.75%	35.58%
<b>'Never'</b> completed an Exception Report	<b>51.25%</b>	<b>42.31%</b>
<b>'Very easy'</b> to Exception Report	6.25%	13.46%
<b>Discouraged</b> by department	<b>8.75%</b>	<b>3.85%</b>
<b>&gt;5 hours overtime</b> in a month	52.5%	45.19%



## Conclusion

The PEER quality improvement project **demonstrated an improvement in the understanding and utilisation of Exception Reporting** among junior doctors at NWAFT. However, multiple barriers to Exception Reporting persist, necessitating further interventions in future PDSA cycles. **To promote sustainability** of our changes, we aim to appoint junior doctor and consultant Exception Reporting champion roles, who can continue to promote and encourage Exception Reporting practices. This quality improvement project is pivotal to promote safe working practices in junior doctors, prevent burnout and optimise patient care.

# BURNOUT IN GLOBAL MEDICAL TRAINING: A NARRATIVE LITERATURE REVIEW

RIONA LINN<sup>1</sup>, KEERAN MAHENDRA KUMAR<sup>1</sup>, SNEHA PIMPALNERKAR<sup>1</sup>, ARUNESH RAGUTHARAN<sup>1</sup>, VIRAJ SHAH<sup>1</sup>, ANOUK WIJERATNE<sup>1</sup>, ESTHER CANONICO-MARTIN<sup>1</sup>

<sup>1</sup> Imperial College Business School, London, United Kingdom  
\*All authors contributed equally

## INTRODUCTION

**Burnout** is a syndrome resulting from chronic workplace stress that leads to **chronic fatigue, lack of enthusiasm, and negative psychological effects** [1].

It is characterised by:

1. Emotional exhaustion
2. Depersonalisation
3. Reduced personal accomplishment [2]

In the medical profession, burnout is especially prevalent due to the demanding nature of the job [3]. This leads to public health concerns and **impacts both doctors and patient care** [4].

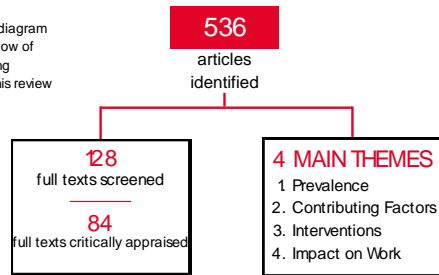
Addressing physician wellbeing is an increasing trend in both literature and **policymaking** [5]. Despite recognition that occupational burnout is widespread within healthcare systems, a collective understanding of burnout in medical training has not been established [6].

This narrative literature review (NLR) aims to synthesise the literature to **understand the current state of burnout in global medical training**.

## METHODS

- Three medical databases (EMBASE, MEDLINE, HMIC) and additional grey literature were searched using a scoping approach with keywords
- Reviewers screened titles and abstracts prior to full text review of selected articles
- Broad eligibility criteria were applied prior to critical appraisal
- 4 main themes and 9 sub-themes identified
- Risk of Bias Assessment used to evaluate NLR findings

Figure 1: The below diagram is a simplified workflow of the PRISMA screening process utilised in this review



## RESULTS

### Prevalence

The prevalence of burnout is associated with temporal, specialty, and personality factors. Initial training stages are linked with higher burnout prevalence, estimating 45% of trainees experiencing burnout symptoms by the end of second year of training [7]. Elevated burnout rates are consistent among surgical trainees [8,9] whilst Nephrology

and Emergency Medicine exhibited elevated trainee burnout due to the increased need to manage critically ill patients. Emotional Intelligence is linked to lower burnout rates, particularly in terms of depersonalization and emotional exhaustion.

### Interventions

Many different interventions have been explored for reducing burnout within the medical profession. Interventions were often targeted

towards one of the seven domains of wellness [7]. Both individual and organisational interventions were discussed in the literature. In particular, positive workplace culture and space to facilitate discussions were highlighted as effective. However the longevity of the effects of implemented programmes was often uninvestigated.

### Contributing Factors

Contributing factors were divided into two main categories: intrinsic and extrinsic factors. Intrinsic factors include traits like dedication and work ethic, paradoxically leading to burnout due to perfectionism and overwhelming workloads. Lack of autonomy, poor rota management, and isolation amplify burnout. Extrinsic factors involve hierarchy and

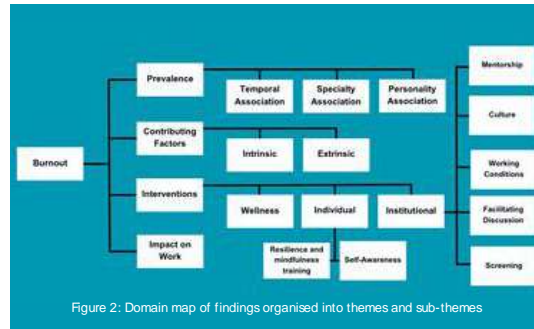


Figure 2: Domain map of findings organised into themes and sub-themes

### Impact on Work

Higher levels of burnout have been linked to increased self-reported medical errors and reduced patient satisfaction. It is also associated

with diminished productivity and unprofessional behaviour, impacting both patient care and the health system. Prioritising physician wellness and addressing burnout could positively affect physician satisfaction, productivity, and patient care. Effective interventions might enhance long-term physician well-being and support the NHS's efficiency goals.

## DISCUSSION

Despite the well-evidenced negative effects of burnout, this review highlighted significant homogeneity in factors facilitating burnout. Irrespective of speciality, country and position in the training pathway, burnout in medical training is highly prevalent globally. Therefore, universal characteristics of medical training must exist, which are conducive to burnout.

Contrastingly, burnout recovery strategies were mostly individual-specific with strong basis surrounding giving protected time to clinicians, promoting wellness approaches over respite and personal engagement.

Despite implementation of preventative approaches by organisations, there is a failure to accept that organisational factors lend a degree of inevitability to burnout, evidenced by the lack of research into burnout recovery strategies. The influence of organisation-level changes, such as those made by the NHS, remain poorly considered within burnout and warrants tailored research given the heterogeneity of the evidence base.

## LIMITATIONS

### PUBLICATION BIAS PHENOMENON:

- Higher likelihood of studies with strong findings being published
- Potential distortion in the data analysed
- Possibility of leaving gaps in understanding due to overlooked or unpublished research

### LIMITED APPLICABILITY:

- 93% of papers were from outside of the UK
- Applying these findings to the context of the NHS might be challenging or inappropriate due to cultural and contextual differences.
- Interpretation of extracted views from studies is influenced by researchers' biases, which was addressed through reviews by multiple researchers.

### METHODOLOGICAL CHALLENGES OF BURNOUT STUDIES:

- Studies exploring burnout rely on self-reported data from participants, which can introduce recall bias.
- The absence of a standardized framework for self-reporting burnout leads to diverse study methodologies.
- Inconsistency poses challenge in interpreting findings.

## REFLECTIONS

Regardless of seniority, all doctors are expected to be leaders. The healthcare system needs to protect leadership qualities to optimise patient care and clinician wellbeing, by addressing burnout.

With increasing job demands and limited resources, burnout is an inevitable and growing problem in healthcare with lasting effects.

Leaders should recognise the issue, educate themselves on the driving factors and take steps to mitigate the problem in order to recruit and retain the best staff. This is especially important in the case of doctors whose training is lengthy and expensive to the taxpayer [10].

Each doctor leaving the workforce due to burnout represents a critical asset and significant financial loss. Failure to acknowledge the issue has the potential to result in a wellbeing crisis amongst the workforce.

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# Improving the efficiency of clerking patients under the acute medical take by introducing allied healthcare professionals to the clerking process

Dr. S. Srivastava, Dr. A. Mohamed, Dr. L. Jullian, Dr. M. Edries, Dr. M. Jalal, Dr. F. Ali, Dr I. Alkaabi, Dr. H. Patel, Prof. N. R. Patel

## Introduction

The acute medical clerking process is a critical stage of a patient's hospital journey, with evidence suggesting it has a positive impact on patient outcomes [1]. The development of clerking pro-formas, shows an improved completeness of essential information [2].

There are several factors that may impair physicians' abilities to perform their roles. However, studies indicate that documentation takes up the largest proportion of time, approximately 25-40% [3].

## Project aims

- The addition of allied healthcare professionals (HCPs) increases the efficiency of admitting patients to hospital by decreasing the time taken to complete documentation.
- The addition of allied HCPs decreases the number of patients waiting to be seen at the start of each subsequent handover.

## Patient population

Patients requiring admission  
(N = 110)

Clerked solely by physician, including documentation  
(N = 55)

Clerking documentation completed by allied HCP and patient reviewed by physician  
(N = 55)

## Methodology

The start and end times taken to clerk a patient were measured.

This time included documenting patients' previous medical history, medications and allergies, social history, investigation results as well as their current presentation.

## Results

The addition of allied healthcare professionals to the clerking medical team decreased the time taken to admit patients to hospital by an average of 29 minutes. This demonstrated a **57% reduction**.

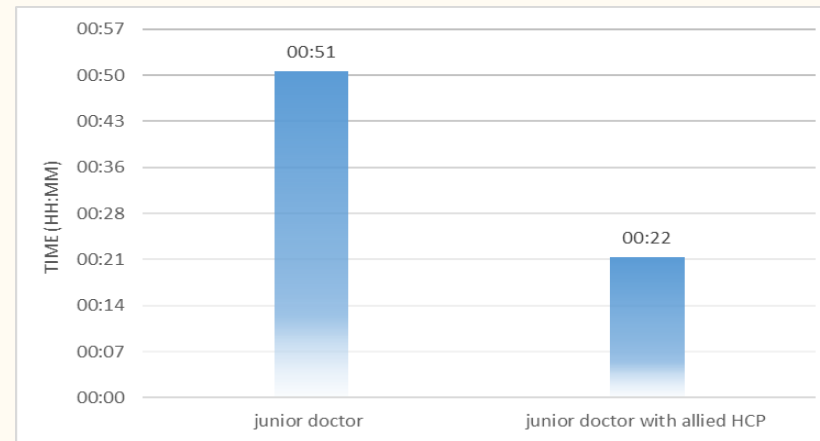


Figure 1. Demonstrating the average time taken for patients to be clerked by a member of the medical team

The number of patients waiting to be admitted at handover was also documented.

Average number of patients waiting to be seen at handover	
No allied HCP on the take	1.78
Allied HCP on the take	0.7
<b>Net reduction in number of patients waiting at handover</b>	<b>2.5 x</b>

Table 1. Demonstrating the average number of patients waiting to be clerked at subsequent handover

The number of patients awaiting clinical review and clerking at subsequent handovers was **reduced by 2.5 times** following the addition of allied HCPs.

## Discussion

The introduction of allied HCPs alleviates the burden of administrative tasks, such as locating and documenting key information. It facilitates physicians to assess and treat patients in a more efficient manner, allowing them to prioritise their time effectively.

This approach has the potential to streamline processes and enhance overall efficiency, thus promoting continuous advancement in patient care and hospital workflow.

Further projects to determine outcomes during winter pressures, for example, as well as staff satisfaction are needed.

## Recommendations

- Continued involvement of allied HCPs in the medical take to assist with documentation and administration.
- Further studies to assess the qualitative impact on Acute Medical Units e.g. completion of VTE assessment

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# Bromley Adults Hospital @ Home : A Collaborative Approach to Care

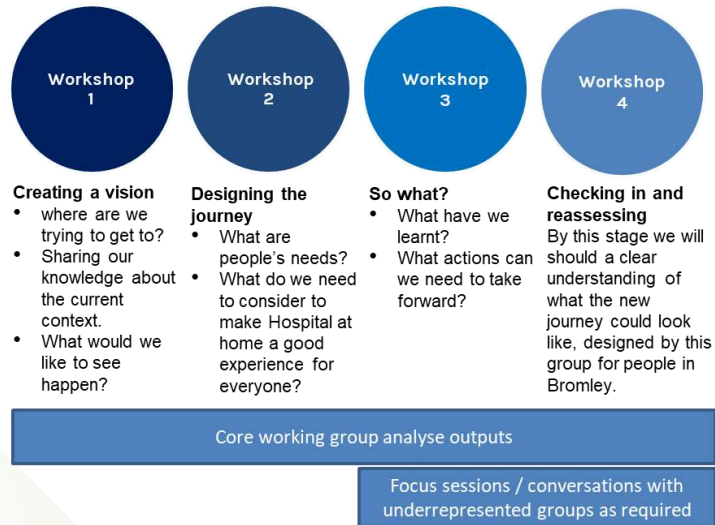
Sophie Collier | Head of Communications, Dr Sovrila Soobroyen | Lead GP for Bromley H@H, Dr Lynette Linkson | Consultant Respiratory Physician and Clinical Director for Bromley H@H, Elliott Ward | One Bromley Programme Lead, Lorna Redpath | Service Lead Bromley H@H.

## Introduction

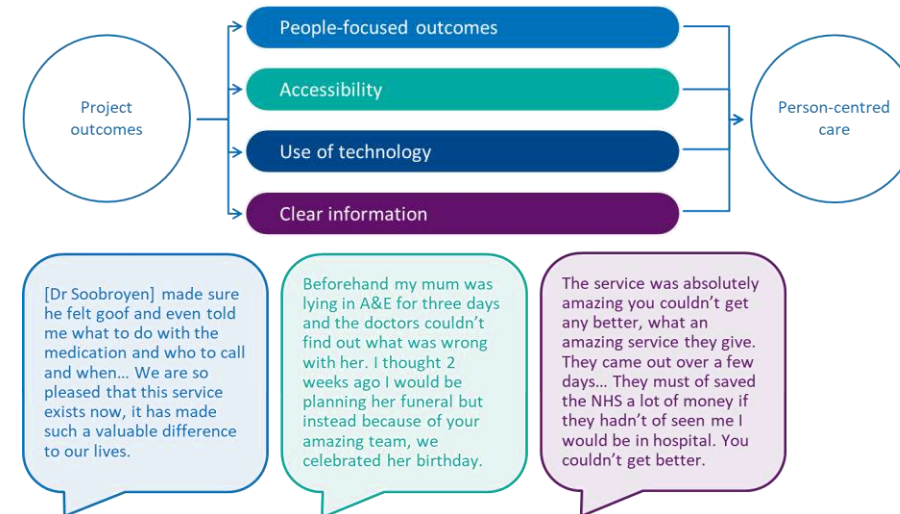
The One Bromley initiative to develop a person-centred Hospital at Home service for adults is a testament to innovative community health. The service was developed in response to the escalating shortage of hospital beds in the UK. Our approach prioritised patient and carer experiences, embedding their voices directly into the service design.

## Method

Co-design methodology engaging patients, carers and healthcare professionals through surveys, workshops and forums.



## Results



## Discussion

This collaborative process has honed the service's focus on patient experience but also fostered a sense of community ownership. The outcomes demonstrate that person-centred care is not just a philosophy but a practicable approach that can be systematically designed and delivered, ensuring a more responsive healthcare provision.

# PHYSICIAN TIME SPENT ON ELECTRONIC-HEALTH-RECORDS IN ALTERNATIVE HOSPITAL CARE MODELS

Tse Yean, Teo<sup>1</sup>; Wan Tin, Lim<sup>1</sup>; Xiaohui, Xin<sup>1</sup>; Ee Won, Leong<sup>1</sup>; Michelle Woei Jen, Tan<sup>1</sup>; Juliana Yin Li, Kan<sup>1</sup>; Hartini Bte, Osman<sup>1</sup>; Wanyi, Kee<sup>2</sup>; Wee Boon, Tan<sup>1</sup>; Mei Ling, Kang<sup>1</sup>; Orlanda Qi Mei, Goh<sup>1</sup>

<sup>1</sup>Singapore General Hospital  
<sup>2</sup>Singapore Health Services

## INTRODUCTION

- Increasing time spent on Electronic Health Records (EHR) for delivery of patient care is often cited as an important cause of healthcare provider burnout<sup>1</sup>.
- During COVID-19, the pressure to lower bed occupancy rates led to new models of care to deliver healthcare in a hospital-at-home (HaH) model, or in a clinic-style setting sited at the emergency department in an ambulatory care team (ACT) model.
- Aim: to see if these alternative models of care can reduce time spent on EHR.

## MATERIALS AND METHODS

- Published methods of time-driven activity-based costing in healthcare were used to create a process map for the journey of a typical patient with uncomplicated rhabdomyolysis and hypertensive urgency using different models of care.
- The amount of time each healthcare provider spent on delivering care and its breakdown was estimated in consultation with experienced clinicians, nurses, and allied health professionals.
- We confirmed these times by observing the actual care processes.

## RESULTS AND DISCUSSION

- In all conditions across all models, residents spend about 4 times more time on patients in total compared to consultants (Table 1).
- Residents spend a higher proportion of time (40% to 63.1%) on EHR compared to consultants (12.5% to 22.6%).
- Compared to conventional inpatient ward based care, residents spent a lesser proportion of time on EHR in alternative models (65% and 90% in HaH and ACT respectively). However, consultants spend a larger proportion of time on EHR in alternative models (1.5 and 1.3 times in HaH and ACT respectively).
- In the HaH model, both consultants and residents spend more time on EHR (12mins vs 4mins and 86mins vs 65mins) but a lesser proportion of time on EHR in the HaH model. This is likely due to the influence of commute time and extra time taken to screen for safety concerns in a new service model.
- In the ACT model, the total physician time spent on the patient is about half of that of the conventional model (61min vs 127min). The absolute time spent on EHR is reduced by 2.3 times in residents and 1.5 times in consultants compared to conventional care. The proportion of time spent on EHR for residents compared to conventional care is reduced (57.1% vs 63.1%).

Table 1. Time (min) spent by physicians on patient care delivery for a patient with one of the following conditions\*#

	Rhabdomyolysis		Hypertensive urgency	
	Conventional inpatient ward based care	Hospital at home (HaH) model	Conventional inpatient ward based care	Ambulatory care team (ACT) model
<b>Resident (Physician)</b>				
Direct patient care	14 (13.3%)	32 (14.9%)	12 (11.7%)	5 (10.2%)
Electronic health records	65 (61.9%)	86 (40%)	65 (63.1%)	28 (57.1%)
Medical communication	12 (11.4%)	19 (18.8%)	8 (7.8%)	3 (6.1%)
Patient communication	14 (13.3%)	38 (17.7%)	18 (17.5%)	13 (26.5%)
Commute		40 (18.6%)		
<b>Total</b>	<b>105</b>	<b>215</b>	<b>103</b>	<b>49</b>
<b>Consultant (Physician)</b>				
Direct patient care	8 (29.6%)	10 (18.6%)	7 (29.2%)	1 (8.3%)
Electronic health records	4 (14.8%)	12 (22.6%)	3 (12.5%)	2 (16.7%)
Medical communication	7 (25.9%)	22 (41.5%)	5 (20.8%)	3 (25%)
Patient communication	8 (29.6%)	9 (17%)	9 (37.5%)	6 (50%)
<b>Total</b>	<b>27</b>	<b>53</b>	<b>24</b>	<b>12</b>
<b>Total physician time</b>	<b>132</b>	<b>268</b>	<b>127</b>	<b>61</b>

\* Time estimates are based on patients with conditions of low severity that respond to treatment without complications, in minutes

# Percentages are presented as a proportion of the total time spent by a physician type

## CONCLUSIONS

- Alternative models of care influence physician time spent on EHR and overall time spent delivering care to a patient differently.
- The ACT reduces overall physician time and time spent on EHR,
- The ACT has potential to increase the efficiency and cost-effectiveness of care and contribute to reducing physician burnout in the global context of a shrinking health workforce.

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PATIENTS. AT THE HEART OF ALL WE DO.

# Economic Evaluation Of HLA-B\*15:02 Genotyping In Asian Australian Epilepsy Patients

Yaron Gu<sup>1,2</sup>, Sophy TF Shih<sup>3</sup>, Nimeshan Geevasinga<sup>4</sup>, Linda Chan<sup>5</sup>, John W Frew<sup>1,2,6</sup>, Deshan F Sebaratnam<sup>1,2</sup>

<sup>1</sup>Faculty of Medicine and Health, University of New South Wales, Kensington, New South Wales, Australia.

<sup>2</sup>Department of Dermatology, Liverpool Hospital, Liverpool, New South Wales, Australia.

<sup>3</sup>The Kirby Institute, UNSW Medicine and Health, Sydney, New South Wales, Australia

<sup>4</sup>School of Medicine, Western Clinical School, University of Sydney, Sydney, New South Wales, Australia

<sup>5</sup>Department of Dermatology, Westmead Hospital, Westmead, New South Wales, Australia.

<sup>6</sup>Laboratory of Translational Cutaneous Medicine, Ingham Institute of Applied Medical Research, Liverpool, New South Wales, Australia

## BACKGROUND

The HLA-B\*15:02 allele has been associated with an increased risk of carbamazepine-induced Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) in specific Asian populations. Whilst HLA-B\*15:02 genotype testing in Asian populations is recommended by several international prescribing guidelines, it is not Medicare Benefits Scheme (MBS) subsidised in Australia. This is in part due to the lack of economic justification for the HLA-B\*15:02 screening test in Australia.

## METHODOLOGY

A cost-utility analysis over a lifetime time horizon was conducted from the perspective of the Australian healthcare sector in a cohort of adult Asian Australian patients with epilepsy being considered for carbamazepine treatment. A model with components of a decision tree and Markov simulation model was developed to simulate clinical trajectories in two alternative strategies: (1) No HLA-B\*15:02 genotyping and the empirical commencement of carbamazepine versus (2) HLA-B\*15:02 genotyping and the commencement of valproate in allele carriers. Primary outcomes were changes in cost and quality-adjusted life-years (QALYs), which allowed for calculation of the incremental cost-effectiveness ratio (ICER). Traditional half-cycle correction was applied to account for transitions occurring at different times during a cycle. A uniform, annual discount rate of 5% per year for all costs and QALYs was applied to the analysis. Sensitivity analyses (one-way and probabilistic) were performed to assess model uncertainty.

## RESULTS

The total and incremental costs, QALYs and ICERs for the two strategies are presented in Table 1. In the base-case analysis, universal genotyping resulted in an average cost of A\$21,928 per patient, compared to A\$21,814 per patient without HLA-B\*15:02 screening over the lifetime time horizon. A total of 18.73322 and 18.74846 QALYs were accrued in the universal screening and current standard of practice arms, respectively. Compared with the current standard of practice, universal HLA-B\*15:02 screening was a cost-effective treatment option at an ICER of A\$15,839/QALYs.

The model was sensitive to variation in the annual cost of levetiracetam. Besides the cost of levetiracetam, ICER values remained less than the standard willingness-to-pay threshold of A\$50,000 across the aggregated results of the one-way sensitivity analyses.

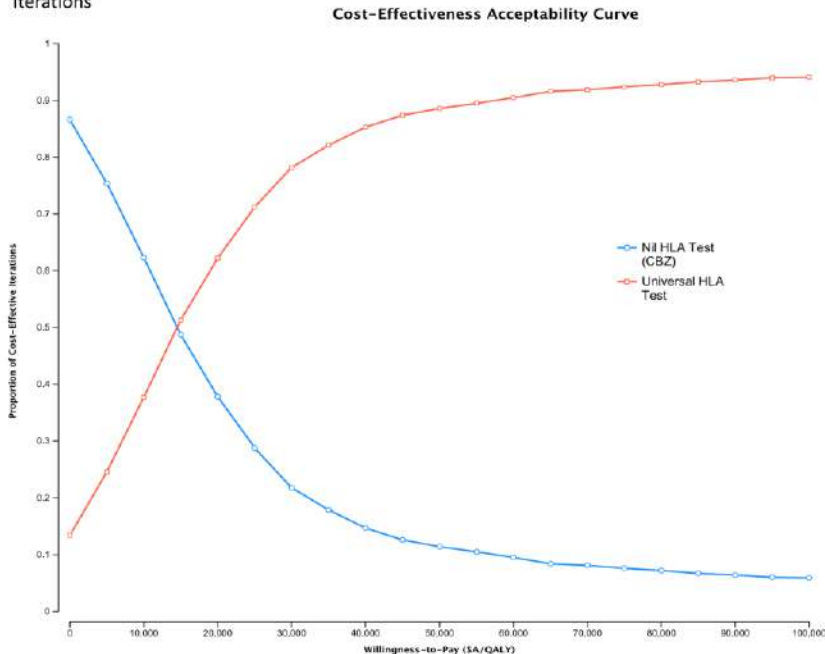
Table 1: Results of the Base-Case Analysis

	Lifetime cost, A\$, mean	Lifetime utility, QALYs, mean	ICER, ΔA\$/ΔQALYs, mean
HLA-B*15:02 Screening	21,928	18.73322	15,839
No HLA-B*15:02 Screening	21,814	18.74846	Baseline

A\$, Australian Dollars; HLA, human leukocyte antigen; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life-year.

Other key contributors towards uncertainty were the positive predictive value of HLA genotyping, the efficacy of levetiracetam, the cost of valproate and the length of stay for SJS/TEN patients. The cost-effectiveness of HLA-B\*15:02 screening decreased when these parameters were decreased.

Universal screening was more cost-effective than current practice in 88.60% of iterations, relative to the A\$50,000/QALY threshold (Figure 1). The cost-effectiveness acceptability curve showed that universal screening was more cost-effective than no screening in a majority of simulations across a willingness-to-pay threshold range of A\$0/QALY to A\$100,000/QALY (Figure 1). Our Monte Carlo simulation demonstrated that if the Australian healthcare system was willing to pay A\$15,000/QALY, then HLA-B\*15:02 genotyping would be the preferable strategy in a majority of iterations



Cost-effectiveness acceptability curve of universal HLA testing (red) and no HLA testing (blue) for Asian Australian patients being considered for carbamazepine therapy. At the willingness-to-pay threshold of A\$50,000/QALY, the genotyping intervention has 88% chance and above to be cost-effective.

## DISCUSSION

To our knowledge, this is the first study to assess the cost-effectiveness of HLA-B\*15:02 genetic screening in Australia. Under the modelled conditions, pre-treatment HLA-B\*15:02 genotyping was a cost-effective strategy at an ICER of A\$15,839/QALY.

The results of the sensitivity analyses reinforced the cost-effectiveness of universal screening, remaining the cost-effective option across a range of values for each input parameter and willingness-to-pay threshold. These results are a promising indication of how routine pre-treatment screening would fare within the Australian healthcare system.

The clinical utility of pre-treatment HLA-B\*15:02 screening has already been demonstrated in Taiwan, where alternative therapies were prescribed in subjects carrying the HLA-B\*15:02 allele and effectively reduced SJS/TEN cases.<sup>1</sup> Published economic evaluations have yielded mixed results, with variations observed across different healthcare systems. Cost-effectiveness for HLA-B\*15:02 screening prior to carbamazepine has been demonstrated for epilepsy patients in Malaysia,<sup>2</sup> Singapore,<sup>3</sup> for US patients with Asian ancestry.<sup>4</sup> In contrast, analyses in Hong Kong,<sup>5</sup> and Indonesia<sup>6</sup> showed that HLA genotyping did not exceed the willingness-to-pay threshold. Given variations in demographics, healthcare systems and costs, international analyses lack external validity for application in Australia.

Pre-treatment HLA-B\*15:02 screening for carbamazepine is already recommended in several Asian countries, as well as in multiethnic countries such as the US and UK for patients of Asian origin. Given that approximately 17% of the Australian population reports Asian ancestry,<sup>7</sup> it stands to reason that pre-treatment pharmacogenomic tests should be considered in this group. At present, MBS rebate coverage for pharmacogenomic testing is limited to thiopurine methyltransferase screening and HLA-B\*57:01 genotyping in the case of abacavir; all others incur out-of-pocket expenses for patients. The collection of more Australian-derived data is crucial towards furthering our understanding of the clinical and economic ramifications of HLA screening amongst Australia's multicultural population. Such efforts will contribute to enhancing awareness and increasing accessibility to pharmacogenomic interventions.

The policy implications of our study are nonetheless clear. Screening for the presence of the HLA-B\*15:02 allele presents a cost-effective strategy in adult epilepsy patients of Asian ancestry in Australia who are candidates for carbamazepine treatment. This study fills an important gap in the extant body of literature by providing economic justification for the MBS subsidisation of HLA-B\*15:02 testing. This preliminary analysis also acts as an important reference for healthcare decision-makers in their consideration of efficient resource allocation. The demonstrated cost-effectiveness of universal HLA-B\*15:02 testing offers a compelling argument for subsidising this test through the MBS, which, in turn, would facilitate safe and equitable access to carbamazepine for Asian Australians with newly diagnosed epilepsy.

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