RESEARCH & DEVELOPMENT CONFERENCE

22ND NOVEMBER 2023

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Oral Presentations

1st Prize

Does the Introduction and Standardisation of a rapid response emergency call system reduce cardiac arrest calls within secondary hospital sites?

Mrs Vanessa Jones, Acute Deterioration Lead, Cwm Taf Morgannwg University Health Board

2nd Prize

Children and young people's social connections during inpatient mental health care

Dr Gavin John, Lecturer, Cardiff University

3rd Prize

Ethnographic Study of Communication in Radiology Departments

Mr Rory Clark, PhD Student, Swansea University

Poster Presentations

1st Prize

Supporting Antibiotic Stewardship in Primary Care via Point-of-care testing (POCT) for acute respiratory tract infections

Mr Leon Arrowsmith-Hill, PhD Student, University of South Wales

2nd Prize

Primary Care Health Professionals' Approach to Clinical Coding: A Qualitative Study

Dr Aled Davies, GP and Clinical Research Fellow, Cardiff University

3rd Prize

Implementation of a Heart Failure Management Programme (HF-MP) to improve patient access to services throughout their Heart Failure journey: A service improvement evaluation

Mr Rhys Williams, Specialist Clinical Pharmacist, Cwm Taf Morgannwg University Health Board

Local Ferritin Reference Intervals

Dr Alan Dodd, Cwm Taf Morgannwg UHB Biochemistry

Background

A reference interval (RI) , or normal range, of 15-300µg/L was introduced across Wales as part of Standardisation, based in part on guidelines from the British Society of Haematology.

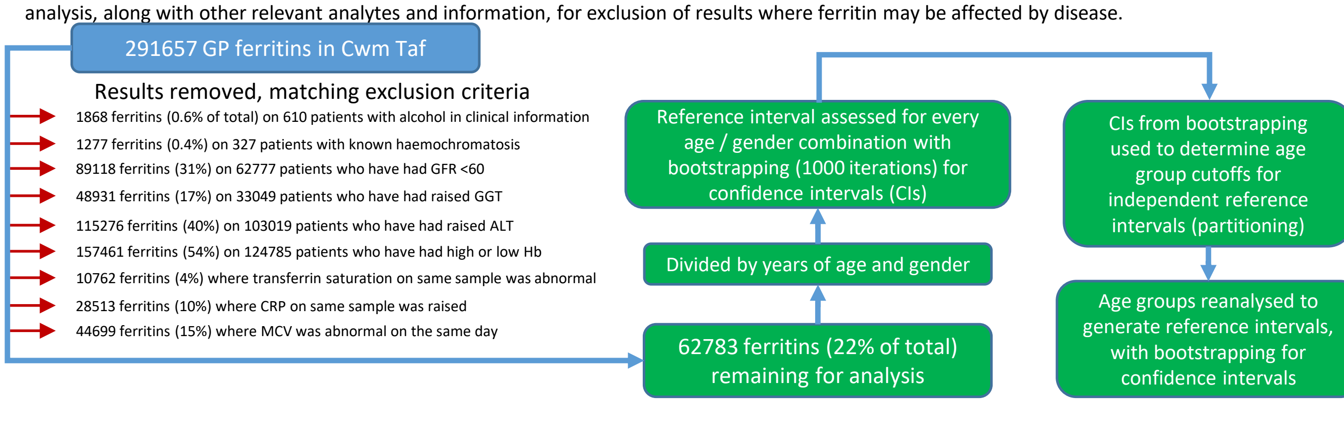
Investigation of a case of an unexplained high ferritin showed results to be within the reference interval when tested with other assays. Comparison of results in sample exchange indicated that the local (Roche) assay systematically gives results approximately double that of other assays, and a single reference interval is inappropriate.

Published RIs were examined but found to not reliably encompass all ages with sufficient data.

The local laboratory database was therefore interrogated to determine the RIs indicated by Cwm Taf data.

Data processing

Primary Care ferritin results in the Cwm Taf laboratory IT system (excluding Bridgend locality) from late 2013 onwards were extracted for anonymous analysis, along with other relevant analytes and information, for exclusion of results where ferritin may be affected by disease.



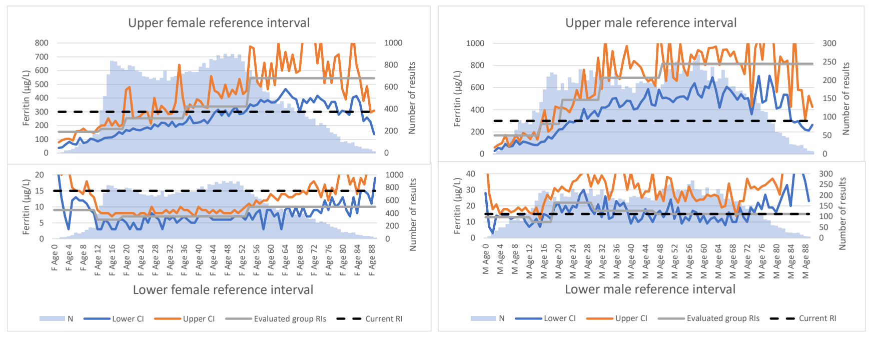
Data was initially fitted with log-parametric models. However a nonparametric approach was found to result in narrower RIs than any parametric model used, and was therefore used to produce final RIs.

Results

Age group		Males 0-12	Males 13-18	Males 19-29	Males 30-46	Males 47+
N		768	1042	2050	2874	5027
Central 95%	Group RI	15-107	17-177	32-325	33-465	26-536
(µg/L)	*95% CIs*	*14-15, 93-125*	*15-19, 158-190*	*30-36, 309-356*	*29-35, 439-509*	*24-27, 516-558*
Central 99%	Group RI	13-169	10-272	22-489	17-689	15-815
(µg/L)	*95% CIs*	*7-14, 128-192*	*9-12, 203-285*	*19-25, 450-577*	*14-20, 651-814*	*13-17, 753-880*

Age group		Females 0-11	Females 12-18	Females 19-35	Females 36-53	Females 54+
N		861	3823	8731	9641	7696
Central 95%	Group RI	13-102	9-113	10-163	10-223	15-347
(µg/L)	*95% CIs*	*13-14, 92-111*	*8-9, 104-119*	*9-10, 159-168*	*10-10, 216-230*	*14-16, 326-366*
Central 99%	Group RI	9-155	6-176	7-253	7-339	10-544
(µg/L)	*95% CIs*	*7-12, 135-178*	*6-7, 154-194*	*6-7, 235-271*	*6-7, 326-356*	*9-10, 483-595*

Evaluated RIs are wider than those standardised across Wales for almost all age groups. This can suggest inadequate exclusion of disease, however age and gender related RIs generated compare well to published ranges (e.g. Snozek et al, Clinical Biochemistry 2021, CALIPER paediatric RIs).



95% upper and lower confidence intervals for the 99.5th (upper graph) and 0.5th (lower graph) reference interval by year of age and gender shown (blue and orange lines).

Final evaluated reference interval for combined groups (grey), as well as the current national standardised reference interval (black dash) for comparison. Final evaluated **age-group** intervals are typically between the upper and lower confidence interval for each **independent age**.

Conclusion

Strengths:

Age and gender related reference intervals generated compare well to published ranges.

The local study provides greater detail with a dramatically more comprehensive dataset, across a wider age range, and also an increased confidence that intervals are appropriate for the local population of Wales.

Weaknesses:

All RIs are dependent on the quality and the cleanliness of the data, and retrospective analysis is particularly susceptible. Any widening of a reference interval must be approached with caution due to the risk of the new range normalising pathological results. This is particularly true with a non-parametric approach.

This study also lacks data at the extremes of age, and RIs generated may therefore not be applicable for e.g. neonates.

Outcomes:

The next step will be to engage with Haematology Standardisation to discuss implementation of amended reference intervals.

Key to this discussion will be the implications on diagnosis and treatment of both anaemia and iron overload.

Exploring Prescribers' Reasons for Prescribing PIPERACILLIN/TAZOBACTAM (PTZ)

in Cwm Taf Morgannwg University Health Board (CTMUHB)

Siân Price, Specialist Antimicrobial Pharmacist, Princess of Wales Hospital

Background

Use of broad-spectrum antibiotics such as PTZ increases the risk of antibiotic-resistant infections and *Clostridium difficile* (1)

Appropriate antibiotic prescribing (2) in CTMUHB should be based on one or more of the recommended prescribing principles (RPP)

- **In line with CTMUHB guidelines (3)**
- **Based on culture and sensitivity results**
- **On the advice of a microbiologist**

Previous snap-shot audit in 2022 classed 56% (n=16) PTZ prescriptions as inappropriate (4)

Method

The study was designed to explore and describe prescribers' reasons for inappropriate prescribing of PTZ across CTMUHB

- Cross-sectional study across 3 acute hospital sites
- Electronic, anonymous, questionnaire sent to all medical and non-medical prescribers (NMPs)
- Quantitaive data was subject to descriptive analysis with thematic analysis for qualitative repsonses

Results

92

prescribers responded
66 medical
26 non-medical

96%

knew about the guidelines and where to access them

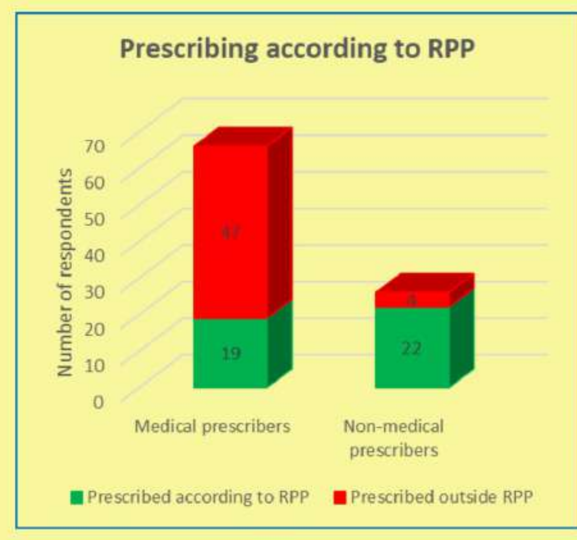


Figure 1: Prescribing according to RPP by medical and non-medical prescribers

55%

of responders had prescribed PTZ outside of RPP

59%

stated non-compliance with RPP was due to 'consultant/senior preference'

Conclusion

'Prescribing etiquette' and medical hierarchy in secondary care appears to be the biggest influence on prescribing (5) with 'consultant/senior preference' being the most common reason given for prescribing outside of the RPP. This practice seems to impact medical prescribers more than NMPs. Further research in the form of focus groups or interviews with senior doctors is required to explore in more depth the reasons why they use PTZ outside of the RPP.

References

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2 Public Health Wales. EYE on antibiotics. Start Smart then Focus Audit Tool. 2020 [accessed 3 May 2022]. Available from: https://sstf.cymru.nhs.uk
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4 Johanson-Brown L. Piperacillin/Tazobactam Prescribing in the Princess of Wales Hospital: A Snapshot Audit. 2022.
5 Charani E, Castro-Sanchez E, Sevdalis N, Kyratsis Y, Drumright L, Shah N et al. Understanding the determinants of antimicrobial prescribing within hospitals: The role of "prescribing etiquette". CID. 2013; 57:188-196.

Acknowledgements: Dr. Emma Davies, Principal Pharmacist, Cwm Taf Morgannwg University Health Board

Psychology Involvement in Early Supported Discharge for Stroke

A Service Evaluation (December 2022 – March 2023)

Dr Tom Wright, Clinical Psychologist & Marion Lewis, Assistant Psychologist

Introduction

UK Stroke guidelines recommend rehabilitation programs involve a stroke-skilled clinical psychologist or neuropsychologist to aid in the assessment, formulation, and treatment of people with stroke (National Clinical Guideline for Stroke). In addition, psychologists can help facilitate an understanding of these problems for stroke survivors, support them and their families adjust to their life-changing circumstances, and provide training, clinical supervision, advice and support to the MDT.

Method

This project presents data routinely collected by the Psychology team within the Early Supported Discharge (ESD) service. ESD offer a six-week home rehabilitation service for stroke survivors following an acute and/or rehabilitation admission to hospital. Data was collected from December 2022 to March 2023 when both the clinical psychologist and assistant psychologist were re-instated in CTMUHB ESD for stroke (both 0.4 WTE).

Results

The most common primary intervention was psycho-education, typically involving guidance on patient-specific CT/MRI scans and current difficulties, as well as validation/reassurance regarding fatigue and sleep difficulties.

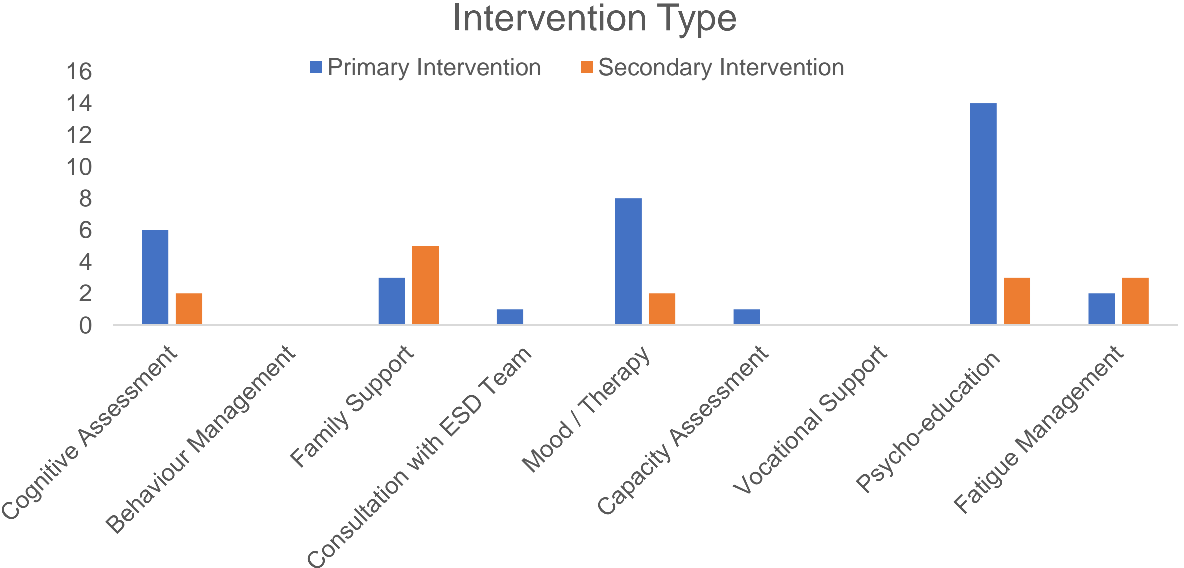
Therapeutic work was the second most frequent intervention, typically focusing on:

- improving low mood and anxiety
- introducing patients to the grief process during stroke rehabilitation
- providing techniques to manage distress in the short term, such as mindfulness, deep-breathing exercises, progressive muscle relaxation, and safe-space imagery.

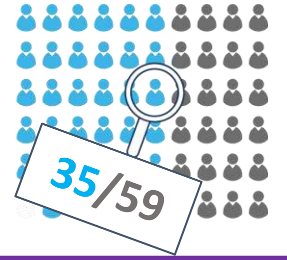
Secondary interventions – those delivered after or alongside primary intervention – were most commonly focused around providing family support and additional fatigue management strategies. Family support typically involved:

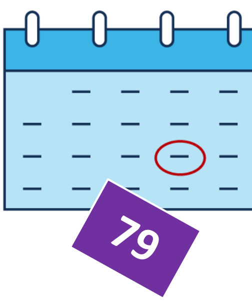
- highlighting changes in family roles and identity
- establishing healthy forms of communication and behaviour change.

Fatigue management typically introduced patients to strategies to manage fatigue in the short-term.



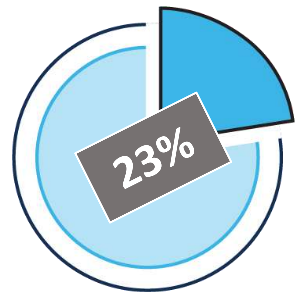
Over the duration of this project, 59 patients were treated by ESD, **35 of whom were seen by Psychology (59.3%).**





A total of **79 individual appointments** were delivered and patients were seen on average 2.3 times by Psychology. The number of sessions ranged from 1 to 5, and the most common number of sessions being 1.

The clinical psychologist saw approximately twice as many patients **(20)** as the assistant psychologist **(11)** with 4 joint cases.



Eight patients were cognitively screened **(23% of patients seen)**, typically using the Repeatable Battery for the Assessment for Neurological Status (RBANS).

Discussion

Patients were frequently identified to the Psychology team by the ESD team, usually around the mid-point (week 3 or 4) after getting to know the patient better. This only allowed short intervention windows for psychology before discharge, with patients typically seen in weeks 5 and 6.

The ESD referral form does not include options for referrers to identify Psychology needs. However, the presence of ACE/cognitive screening measures, GAD-7 & PHQ-9 scores, plus social considerations, are all suitable indicators that Psychology staff would use to decide whether a patient warrants a Psychological assessment.

The lack of referral for challenging behaviour may be a reflection of the lower severity of cognitive and physical difficulties experienced by ESD patients. In addition, the majority of patients seen in ESD were signed off on long-term sickness, had opted not to return to work anyway, or were retired prior to stroke.

Conclusion

This project highlights the unique contributions of the psychology team to patients and their family wellbeing, and demonstrates the ongoing need for specialist clinical psychology services in ESD.

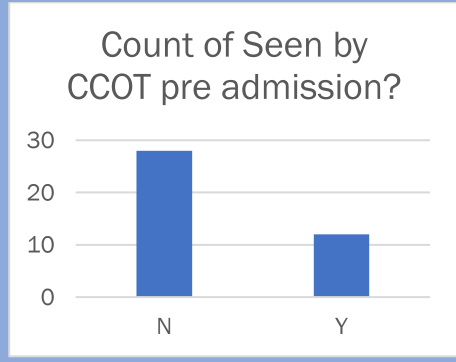
National Clinical Guideline for Stroke for the UK and Ireland. London: Intercollegiate Stroke Working Party; 2023 May 4. Available at: www.strokeguideline.org

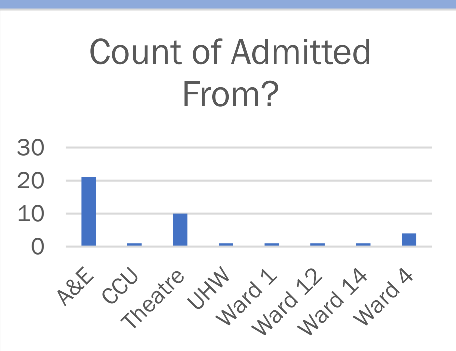
ROYAL GLAMORGAN HOSPITAL

Critical Care Outreach – Service Evaluation

A 24/7 Critical Care Outreach Team (CCOT) service is available with a member of the team providing a visible presence each shift & supporting staff in providing critical care outside of the ITU/HDU area.

Despite this there are some areas where CCOT is not utilised to support staff in caring for the acutely deteriorating patient, & where Critical Care input may be delayed. This Service Evaluation is aimed at identifying why this is occurring & subsequently how to improve engagement with CCOT, with the hope of improved patient care as final outcome.

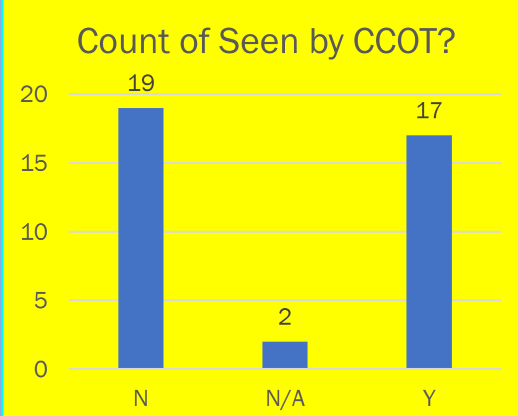


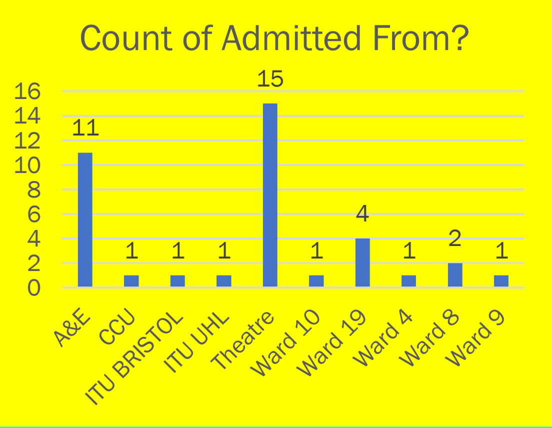


A 1-month pilot found 70% of Critical Care admissions were NOT reviewed by CCOT prior to admission – with a high percentage of these admitted from A&E (Feb 2021)

Increased engagement on a shift-to-shift basis with A&E staff was implemented which led to the development of a flowchart & poster encouraging CCOT utilisation displayed in all areas of A&E (Oct 21 – Feb 23)

By July 2023 utilisation of CCOT by A&E staff has increased from 25% to 57% of patients admitted to Critical Care from A&E. 52% of all Critical Care admissions remain not reviewed by CCOT pre-admission – whilst this remains too high, it is improving. (Aug 2023)





Nia Bromage. CCOT, RGH.

Workplace experience of menopause in CTMUHB

Dr Gemma Hobson, Public Health Wales, UK
Dr Nicola Dennis, University of Birmingham, UK

INTRODUCTION

This work explores the impact of menopause symptoms on the working lives of NHS staff in CTMUHB. CTMUHB has a workforce with a significant proportion of older female workers, many of whom will experience menopause symptoms in the workplace.

In recent years there has been a much greater recognition by some employers of the need to support female employees experiencing the menopause. Despite an increased desire to improve women's experiences, the evidence base around how best to support female employees experiencing the menopause is currently lacking. Understanding whether such services make a difference to women's working lives is vital to ensure women are being supported effectively despite challenges presented by their menopause symptoms.

METHODS

For this service improvement study, four focus groups were held between January and March, 2023. Women who experienced symptoms related to menopause were invited to participate via a local women's network. The groups took place online via MS Teams to allow staff in both clinical and non-clinical roles to participate.

14 women with lived experience of menopause took part, with participants aged between 34 and 59 years. Focus groups lasted up to 1.5 hours using a semi-structured facilitation approach, with women asked to describe their menopause experience and their role in the organisation. Transcripts were analysed using the framework approach.

RESULTS

Menopause symptom experience was multifaceted and varied, and dependent on factors such as medical history, social support and personal management strategies. All women involved in the focus groups felt that their symptoms had negatively impacted their experience in the workplace. A variety of symptom management strategies had been used including hormone replacement therapy, flexible working hours, working from home, changes to uniform, peer support and lifestyle changes, with varying levels of success. Talking to colleagues about shared experiences, discussion of symptoms and management strategies was highly valued by participants. Some women were reticent to ask for support at work even though they felt the workplace response was likely to be positive.

Three core themes emerged from the focus group conversations:

Theme 1: Experiences of menopausal symptoms and symptom management. This theme encompassed three sub-themes: symptom experiences; disruptive impact of seeking healthcare; and negative impact on family and partners.

"It's so bizarre. I'm laughing because I can be completely fine one minute and then a gibbering wreck the next. It feels to me like it's a guessing game" – Participant 5

"I feel like you become withdrawn from family members, friends, social life, and then there's a worry then, like obviously will people forget about you because you don't want to be this person" – Participant 9

"Nobody tells you about the joint pain, the muscle ache, the low mood, losing your hair and chronic fatigue, low libido, wanted to throttle everybody in my sight, don't really know what's going on in my head with the brain fog." – Participant 9

"[My GP said] I think you're just depressed because you're not having hot flushes. So, we tried antidepressants. Every time I had my antidepressant review, I brought it up again… I would say, can I just stop you there? I don't think I have an issue [with depression]" – Participant 1

Theme 2: Impact of menopause on work. This theme explored the impact of a number of specific symptoms: brain fog, sleep disruption and fatigue, anxiety and vasomotor symptoms.

"It is just crap. Sometimes seeing the patients … I'm having to desperately scan through pages and pages of notes to remember who they are" – Participant 10

"I need to check I've typed it out correctly so it's just a constant worry and that adds to my anxiety and my stress" – Participant 9

"you can't take it off cause you've got your patient in front of you and I know in the first wave of lockdown we had to wear the full body suit with the visor and everything and I was with this chap once and the perspiration was just like dripping off me. It was collecting in my new gloves which was disgusting" –Participant 4

"you take the apron off which has held the sweat in and you literally look like you've got some sort of like psychedelic pattern on you" – Participant 4

"I'll just say the feeling like a fraud thing is a really key theme" – Participant 4

Theme 3: Impact of work on the menopause. This theme encompassed two sub-themes: support or lack of support from management and peer support.

"we are in a service that could be a little bit more flexible, but I just think that the NHS is so like archaic." – Participant 5

"You're never in a space where people ask you about your own experiences, so you know that in itself, its, I feel, emotional" – Participant 6

"It's a very understanding team and there's a lot going through the same. So we're all yeah sympathising with each other". – Participant 1

DISCUSSION

Peer support is well received by women in the workplace, but it is crucial that opportunities are delivered in a culture where women feel they are able to step away from their core duties to attend and engage with opportunities such as Menopause Café's and lunchtime learning sessions. Further work is needed as participants in these focus groups might not be representative of the full NHS and broader workforce. Conducting focus groups entirely online might also have influenced the group dynamics.

The evidence for effective workplace interventions for women experiencing menopause symptoms is currently lacking. There is considerable scope for further high-quality evaluations of interventions designed to support women in the workplace.

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Dennis, N. and Hobson, G., 2023. Working well: Mitigating the impact of menopause in the workplace-A narrative evidence review. Maturitas, p.107824.

This project was possible thanks to the CTM Public Health Team, the CTM Wellbeing Team, and the staff who volunteered to participate in the focus groups. Particularly thanks are due to Dr Marysia Hamilton-Jones and Philip Daniels for supervising the project.

The impact of an in-reach service on Heart Failure pharmacotherapy at the Princess of Wales Hospital during 2022; A retrospective review

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Morgan K, Chapman C, Lucas-Jones S, Williams R, Vaughan-Jenkins S, Williams G, Sharhani J, Appalanaidu N, Wong A[1]
[1]*Princess of Wales Hospital, Bridgend, Wales, United Kingdom. Cwm Taf Morgannwg University Health Board.*

Introduction

The STRONG-HF trial provided strong evidence for the safety and efficacy of rapid up-titration of quadruple pharmacotherapy in patients with Heart Failure with reduced ejection fraction (HFrEF) in terms of symptomatic relief and mortality. [1].

This process is commenced in hospital where patients can have their medications adjusted daily under close observation for tolerability. The HF in-reach service run by HF Specialist Nurses (HFSN) at PoWH aims to review those admitted with a diagnosis of HF and to optimise their medications pre-discharge.

This work seeks to evaluate the discharge medication regimen of those reviewed by the HF in-reach service at PoWH.

Methodology

- Retrospective review of patients reviewed as in-patients by the Heart Failure Specialist Nursing Team between March & December 2022
- Medical records reviewed using Welsh Clinical Portal (WCP)
- Data collected including location of stay as an inpatient, length of stay, ejection fraction at diagnosis
- Data securely stored on 'Microsoft Excel' database.
- Review of discharge medication.

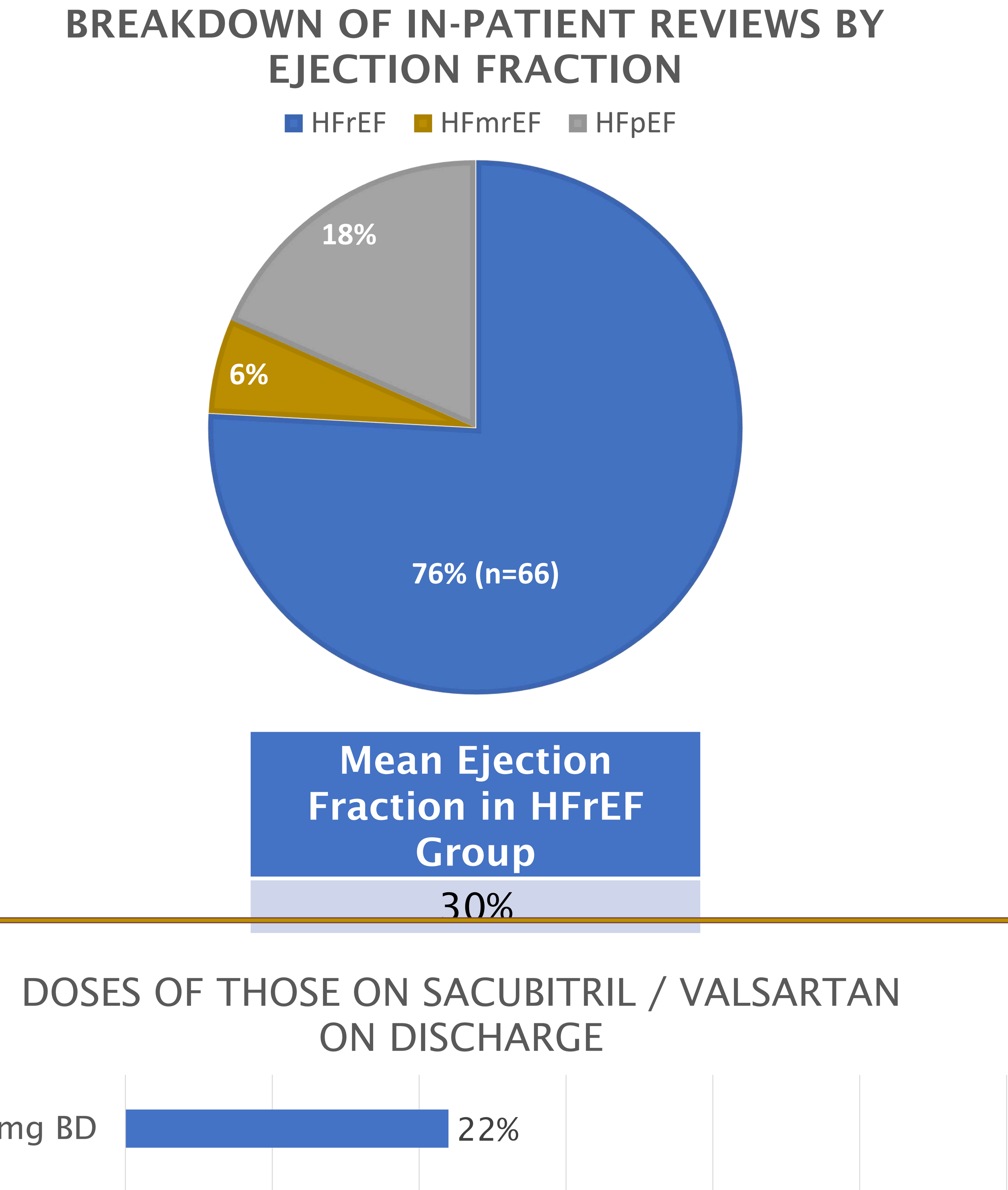
Results

91 In-Patient Reviews → 3 excluded due to missing data → 88 patients reviewed in data set; 2 patients reviewed twice

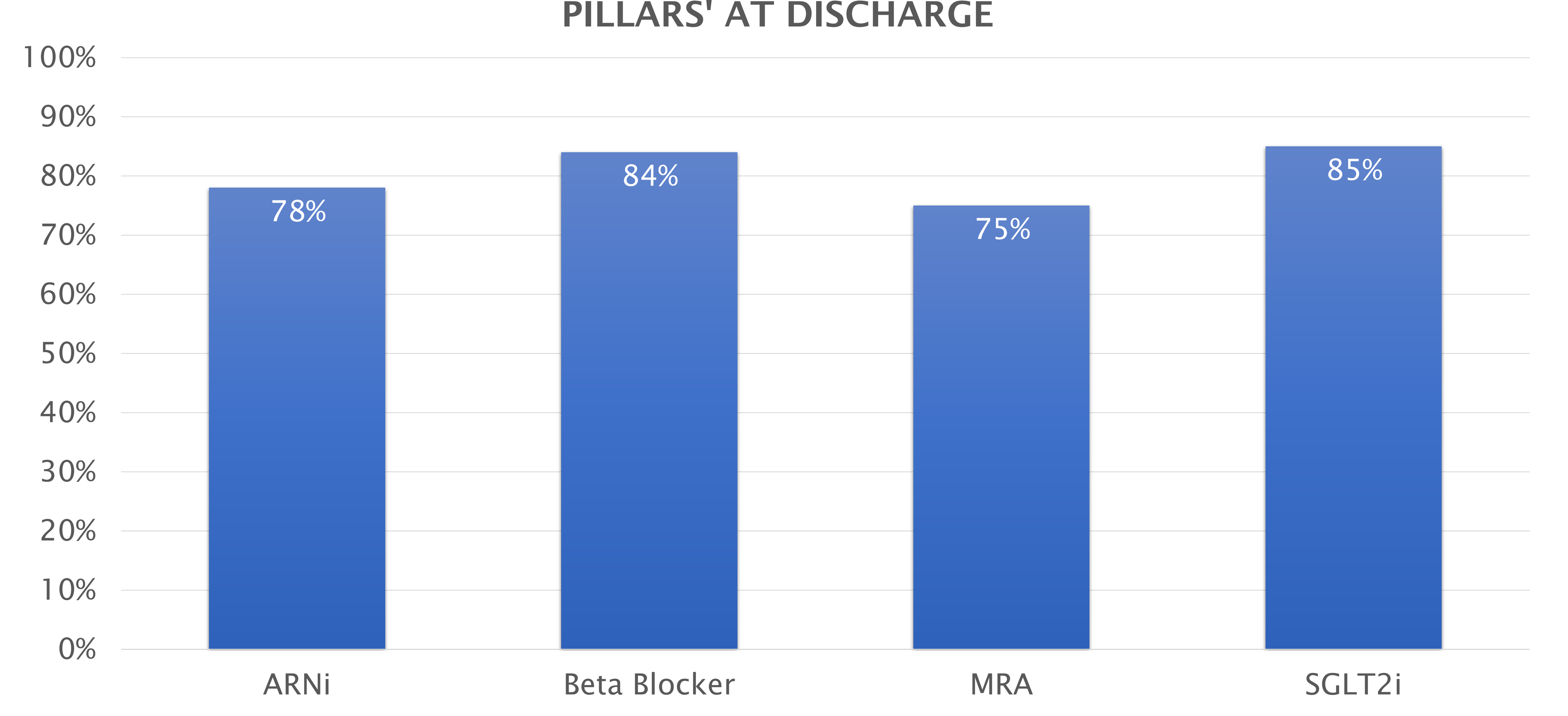
Average Length of Stay	
HFrEF	19 Days
HFmrEF	21 Days
HFpEF	18 Days

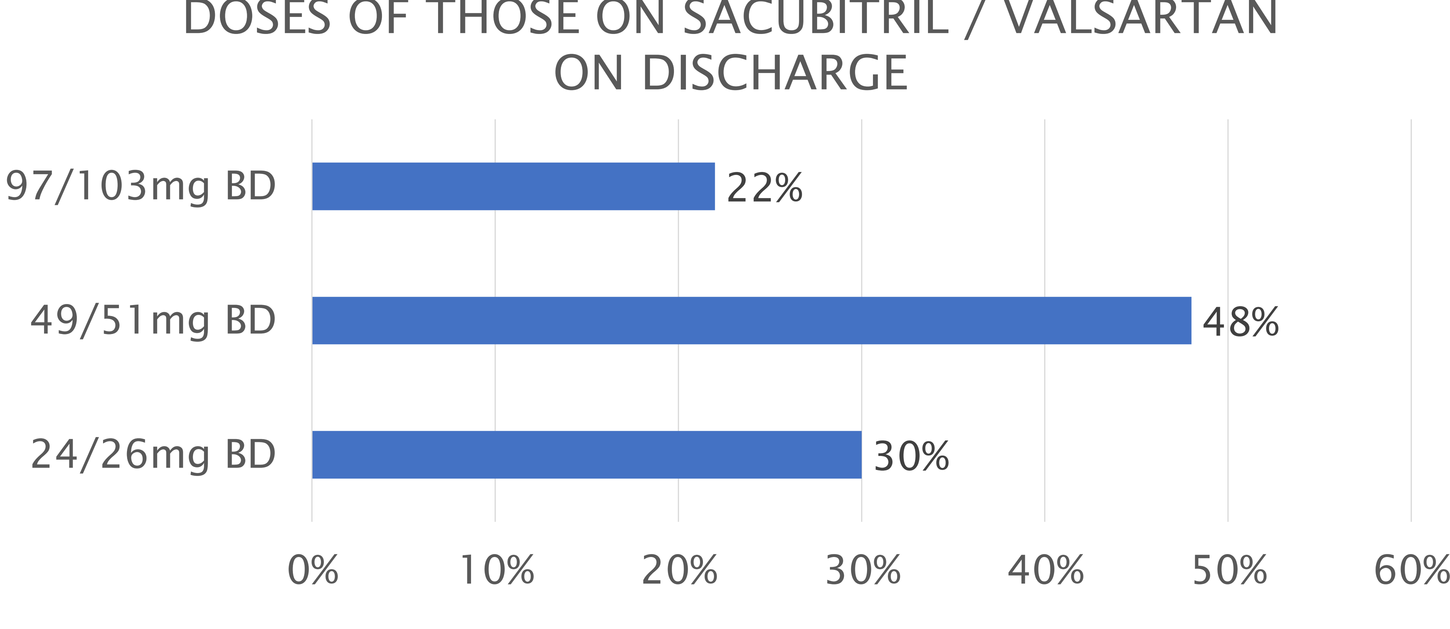
Average Age
74.8 years

Mortality	
In Hospital	7% (n=6)
Since Discharge	31% (n=27)



Mean Ejection Fraction in HFrEF Group
30%





COMMON BARRIERS TO UPTITRATION

Hypotension
Hyperkalaemia

- 20% of those on MRA uptitrated to GDMT dose (50mg) pre discharge.
- 6 patients up-titrated to full GDMT dose of ARNi, MRA & SGLT2i on discharge.

Discussion

A total of 91 in-patient assessments were undertaken by the HFSN team between March & December 2022. Records from 3 patients were unable to be located due to missing details. 2 patients were reviewed twice on separate admissions. 76% (n=66) had HFrEF with a mean ejection fraction of 30%.

Of the HFrEF group, the percentage of patients initiated on ARNi, Beta Blocker, MRA and SGLT2i was 78%, 84%, 75% and 85% respectively.

70% of patients on ARNi were up-titrated to at least the intermediate dose of 49/51mg twice daily whilst an inpatient with 22% of patients up-titrated to the highest recommended dose of 97/103mg twice daily. 20% (n=10) of those on an MRA were up-titrated to recommended dose of 50mg before discharge.

Common barriers to up-titration were found to be hypotension, hyperkalaemia and individual intolerances.

Conclusions

The STRONG-HF study has provided good evidence base for the safety and benefits of rapid up-titration of guideline directed medical therapy for HFrEF. This work shows that the in-reach service is helping achieve good rates of in-patient up-titration,

More work is required to further evaluate barriers to up-titration and to identify methods to overcome these where able.

Acknowledgements

Thank you to the whole Cardiology team at the Princess of Wales Hospital, Bridgend for all their support.

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1. Mebazaa A, Davison B, Chioncel O, Cohen-Solal A, Diaz R, Filippatos G, Metra M, Ponikowski P, Sliwa K, Voors AA, Edwards C, Novosadova M, Takagi K, Damasceno A, Saidu H, Gayat E, Pang PS, Celutkiene J, Cotter G. Safety, tolerability and efficacy of up-titration of guideline-directed medical therapies for acute heart failure (STRONG-HF): a multinational, open-label, randomised, trial. Lancet. 2022 Dec 3;400(10367):1938-1952. doi: 10.1016/S0140-6736(22)02076-1. Epub 2022 Nov 7. PMID: 36356631.

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Awen Hub
Byw'n Dda Gydag Anawsterau Niwrolegol
Living Well With Neurological Difficulties

Living well with neurological conditions in Merthyr Tydfil and Rhondda Cynon Taff: Evaluating Awen Hub

Authors : Marion Lewis, Dr Siobhan Moore, Dr Tom Wright

Introduction

Neurological difficulties have a profound impact on individuals' psychological wellbeing and quality of life, which is compounded by inequitable access to support[1]. Mild neurological difficulties are often trans-diagnostic in nature and not always evidenced by neuroimaging, with affected individuals often ineligible to access specialist neurological services which cover the CTMUHB. Awen Hub is one of the first NHS therapeutic service to focus on supporting individuals with mild to moderate neurological difficulties.

Awen Hub

The service sees individuals who have lived with a neurological condition and those with newly acquired difficulties as a result of a new injury to the head or because of a health condition. Its remit is to support the psychological impact of living with a neurological condition as well as those wanting to return to/or maintain employment, vocational activities, or reintegration into their local community. The service opened to new referrals in December 2022 and focused on supporting individuals in the RCT and Merthyr Tydfil areas to optimise psychological and cognitive functioning. Awen Hub is a goal-focused service and individuals are discharged once they have met their therapeutic targets. This promotes psychological self-efficacy and reduces dependency on a service for long-term support.

Referrals

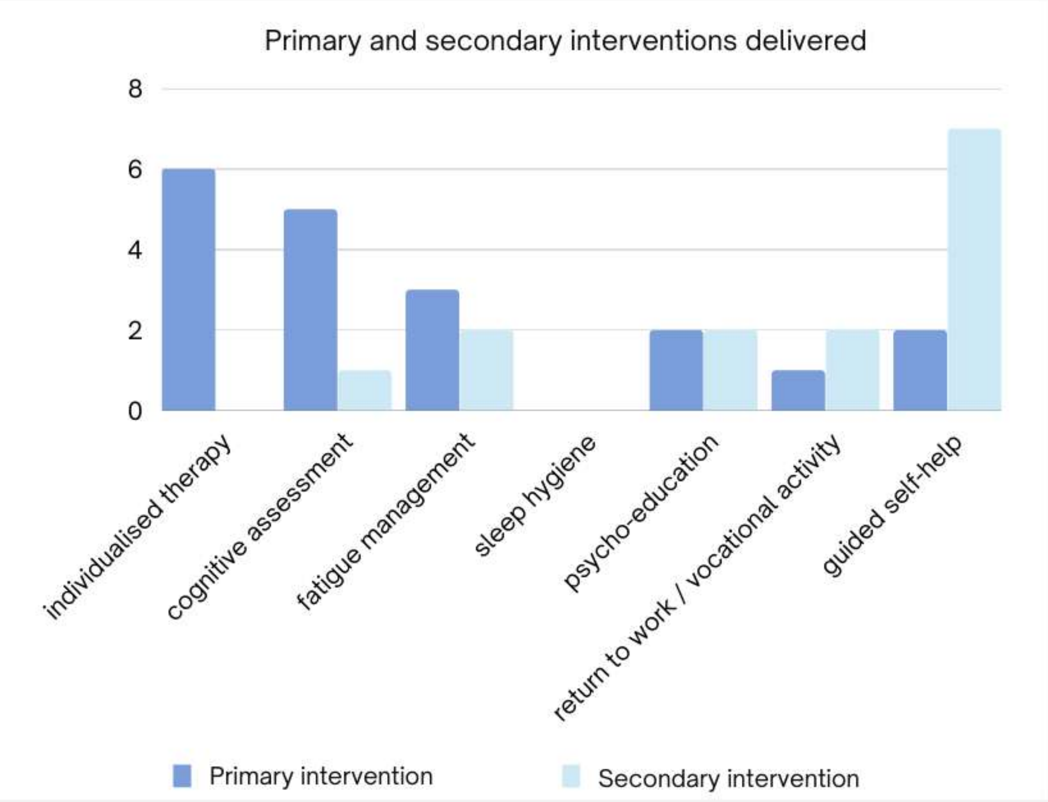
Between December 2022 and June 2023, Awen Hub received 62 referrals, and accepted 46. The main neurological issues presented were stroke, epilepsy, and mild traumatic brain injury. 44% of the rejected referrals were due to the person being referred already being supported by another neurological service. Based on referral trends, a minimum of 78 new referrals would be expected per year. The mean age of patients was 50 years (range=22-88), with 59% male.

Methodology

Routine service data collected between December 2022 and June 2023 was analysed, including: patient referral data; primary and secondary interventions delivered; core outcome measures on quality of life, mood, fatigue, and employment status; and service user feedback.

Results

The most common primary interventions were individualised therapy and cognitive assessments, and the most common secondary intervention was guided self-help to manage and cope with cognitive changes.



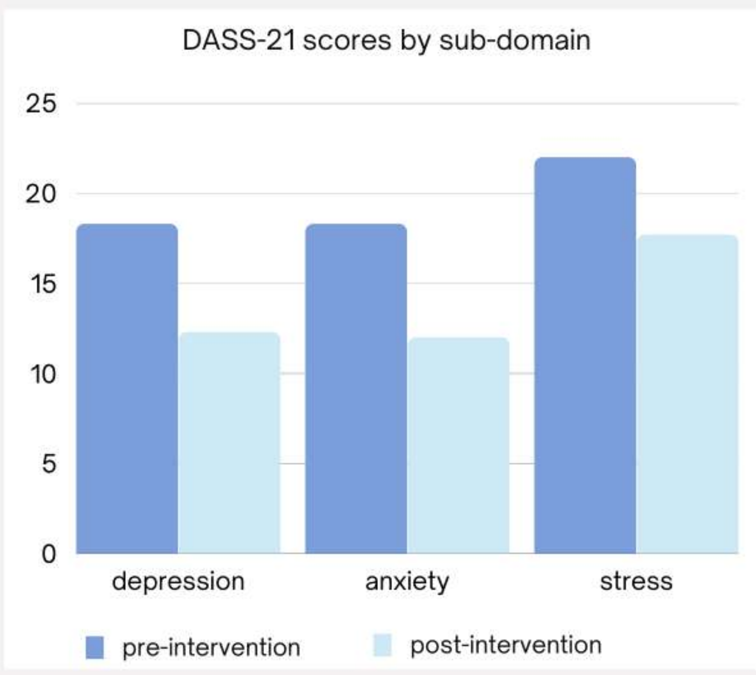
Fatigue management was the third most common intervention delivered and was measured using the Fatigue Assessment Scale. On average, scores went from "severe" to the lower end of "mild-moderate" fatigue, which demonstrates significant clinical change post-intervention.

Patients' overall quality of life was measured by the World Health's Organisation Quality of Life assessment tool. Improvements were seen in two subdomains, psychological wellbeing and social relationships, which are domains targeted by Awen Hub.

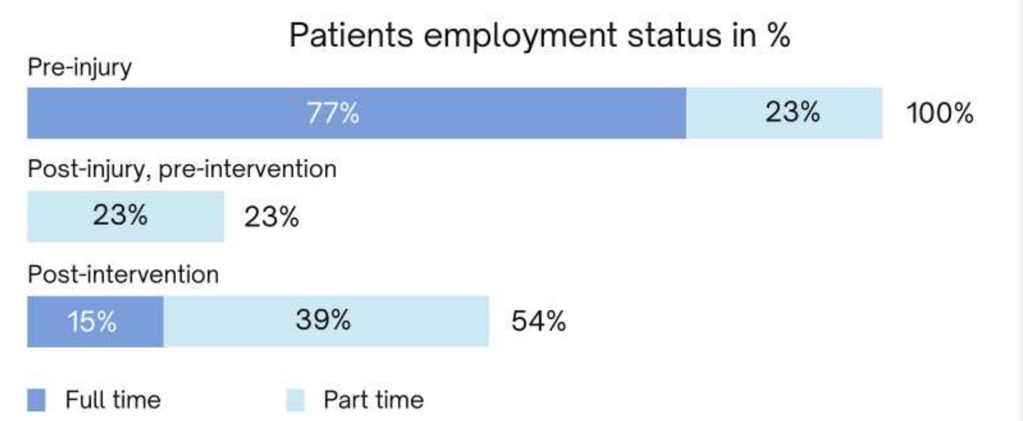
The improvement on the psychological wellbeing domain correlates with the clinical improvement observed on the Depression, Anxiety and Stress Scale (DASS-21).

All three domains improved by one clinical category:

- Depression: reduced from "moderate" to "mild"
- Anxiety: reduced from "severe" to "moderate"
- Stress: reduced from "moderate" to "mild"



Awen Hub also focused on supporting individuals wanting to get back to some form of activity (work, education, or community involvement). The Meaningful Activity Measure recorded the level of activities pre-injury, post injury/pre-intervention, and post-intervention. The number of patients in some form of employment more than doubled post-intervention.



Qualitative feedback suggested patients were also more confident in their abilities post-intervention. The vast majority of our patients were not in education or involved in the community prior to their injury and/or the intervention, thus no difference was found pre- and post-intervention.

Conclusion

Routine outcome findings show the value of Awen Hub and the positive contribution to those that accessed the service. This indicates that individuals with mild to moderate neurological conditions benefit from a bespoke service targeting cognitive, emotional, and fatigue difficulties. This evaluation also provides encouraging evidence that, when supported by bespoke interventions, individuals are able to re-enter the employment sector. Unfortunately, due to changes in the neurological funding streams and staffing levels, the service was closed to new referrals in June 2023.

Reference: [1] CTMUHB Quality & Safety committee public report, Agenda item 6.8, STROKE UPDATE, 18/05/2021

PATIENT SATISFACTION SURVEY FOR ABSORBABLE SUTURE USE IN SKIN SURGERY

Authors: Drs Omowunmi Ashaolu, Abdullah Mukit, Sandeep Kamath.

Dermatology Department, Princess of Wales Hospital.

INTRODUCTION

With the onset of the COVID-19 Pandemic, the British Society for Dermatology Surgery published guidance to Dermatologists with recommendations to avoid non urgent clinics and surgeries, restrict number of visits, abbreviate waiting and treatment times.

The use of dissolvable sutures was one of the methods considered to help in reducing visits thereby eliminating the risk of additional exposure for patients and medical staffing during the pandemic.

OBJECTIVES

The aim of this survey was to evaluate patient reported outcome and satisfaction of absorbable sutures for skin surgeries.

	ABSORBABLE SUTURES	NON ABSORBABLE SUTURES
DEFINITION	Absorbable sutures undergo degradation in tissues losing their tensile strength within 60 days	Are not digested by body enzymes or hydrolysed in body tissue
PRO	They do not have to be removed thereby decreasing patient anxiety and discomfort especially in paediatric and anxious patients. Saves cost and time Allows flexibility when scheduling postop visits	Are considered strong Unlikely to break prematurely Elicit minimal inflammatory response

METHODS

This Survey was carried out at the Dermatology Department of the Princess of Wales Hospital between March 2021 and December 2021. It was approved by the Research and Development Protocol of the Hospital.

We recruited consecutive patients (Identified Retrospectively) who had absorbable sutures following excision as part of treatment of their skin cancer between March 2021 and December 2021.

Following the procedure, a sterile pressure bandage was applied to the entire wounds. The dressing was to be kept dry for 24 hours. Upon removal of the dressing, petroleum jelly from a new tube was to be applied to the suture sites with a cotton tip applicator and a new dressing consisting of a sterile non sticky gauze pad and adhesive tape daily after washing the site with tap water and gentle soap.

They were asked to do this until the sutures dissolved and the site was completely healed. The absorbable sutures were left in place until dissolution. Patients were called a few months after their repair to assess patient satisfaction on type of suture placed and future suture preference.

RESULTS

Parameters:

- 100 patients participated in the survey, 53 males and 47 females.
- Age range: 31 – 91 years

willingness for use of AS in future

6
94
yes no

Results

- Mean time for absorbable suture resolution was 2 weeks
- Our survey found out that there was a high patient satisfaction in suture type used for their skin cancer treatment.
- Most patients (94%) would prefer absorbable sutures in future
- Convenience and lack of suture removal visit were cited as the main reasons for this preference.
- General patient satisfaction did not differ across age and sex.

CONCLUSION

We have reported good patient satisfaction and preference in patients with absorbable sutures.

Thus, based on high reported satisfaction, absorbable sutures can be considered an excellent option for Dermatological Surgeries.

Further multicentre randomised trials with larger cohorts will be required.

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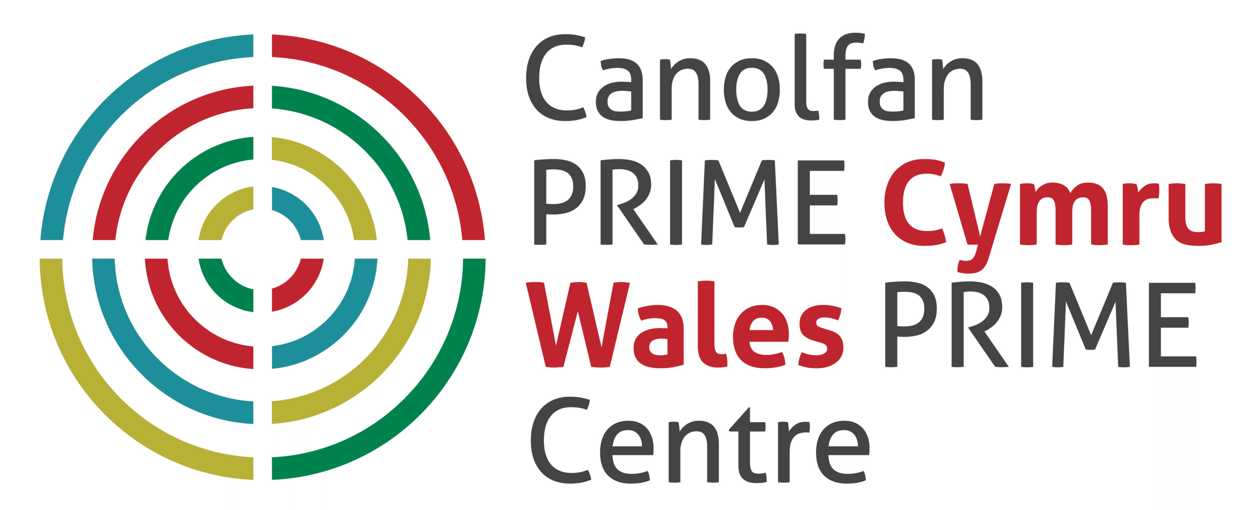

Primary care health professionals' approach to clinical coding: a qualitative study

Dr Aled Davies, Prof Fiona Wood, Dr Harry Ahmed.

Division of Population Medicine, School of Medicine, Cardiff University

Background:

- Clinical coding in primary care using Read and SNOMED-CT codes forms an essential part of every patient's electronic health record (EHR)[1,2].
- Every member of the primary care team will enter a clinical code in a patient's EHR:
  - Clinicians entering clinical information,
  - Nursing staff inputting information about disease prevention and chronic disease management,
  - Administrative staff extracting information from secondary care correspondence and transferring these into clinical codes.
- How staff working in primary care decide what code to use is variable[4].
- This is complicated by the huge array and variety of problems that present in primary care, most of which are symptoms and signs that require time and further investigation before a definitive diagnosis can be reliably coded[5].

Aim:

To understand how clinical and non-clinical staff working within general practice use clinical coding in their day-to-day work, the barriers and facilitators they face when using clinical coding and their motivation to use clinical coding through qualitative, semi-structured interviews. We aim to identify commons themes and differences that might exist.

Methods:

- We used an interpretive descriptive approach[13], and the reflexive thematic coding to understand the experiences of primary care staff of clinical coding.
- General practice staff were recruited with the support of Cwm Taff University Heath Board and Health and Care Research Wales to participate in an online semi-structured interview.
- Informed consent was audio-recorded prior to participation as outlined in NHS Health Research Authority (2020): Seeking consent in COVID-19 research[14].
- Interviews were conducted by AD between February 2023 and June 2023. No incentives were offered for taking part. All interviews were audio-recorded and transcribed verbatim by a professional transcription company.
- Interviews were coded in NVIVO 12

Summary of main findings:

In this qualitative study involving people working in general practice who use clinical coding in their day-to-day work, we identified a number of themes around the experiences of using clinical coding. Thematic analysis identified problems in using clinical coding, motivating factors to use clinical coding, and a number of approaches that can make the process easier.

This study has provided insight into an area of work within primary care that is poorly understood and often neglected in research. It highlights the decisions and thought processes that clinical and non-clinical staff have to undertake in their day-to-day work and the difficulties they encounter in trying to overcome these.

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IRAS no.: 316115

CTM R&D Sponsor & Funder reference: CT/1643

References on request.

Results

Table 1. Demographics of 19 participants recruited

Sex	Male	6/19 (31.6%)
	Female	13 (68.4%)
Age range	18-29	2 (10.5%)
	30-39	9 (47.4%)
	40-49	3 (15.8%)
	50-59	4 (21.1%)
	60-69	1 (5.3%)
Role in practice	Administrative *	8 (42.2%)
	GP/Doctor~	9 (47.3%)
	Pharmacy (in-house)ɸ	2 (10.5%)
Health board area	Aneurin Bevan UHB	2 (10.5%)
	Betsi Cadwalader UHB	2 (10.5%)
	Cardiff and Vale UHB	2 (10.5%)
	Cwm Taf Morgannwg UHB	3 (15.8%)
	Hywel Dda UHB	9 (47.4%)
	Swansea Bay UHB	1 (5.3%)
	Powys UHB	0 (0%)
Training in clinical coding	Yes	5 (26.3%)
	No	13 (68.4%)
	Don't know	1 (5.3%)

Key to role types:

* Administrative includes practice manager, assistant practice manager, clinical coder and IT manager
~ GP/Doctor includes GP partners, GP locums, Salaried GPs and Doctors undertaking GP training (GP registrars)
ɸ Pharmacy (in-house) includes pharmacists and pharmacy technicians based in the GP practice

Themes (Using interpretive descriptive approach[13])

- The daily task of coding
- Making coding easier
- Coding challenges
- What and when to code?
- Motivation
- Coding through COVID 19

Focus on the theme of 'coding challenges'

'when we get summaries like the code is 'had a chat to patient', and then all free typed is 'patient has been diagnosed with prostate cancer stage four' and it is like none of this is on their medical record! But if you look at their record they've had 30 encounters of 'had a chat with the patient'.' [Participant ID 4, Administrative].

'if you've got 10 minutes to see a patient, you're probably spending seven to eight minutes of that clinically. But that means that you have a very limited amount of time to document and to keep your surgery on time, so that I think is my biggest pressure when it comes to coding. I don't have the time to search for the right code, there just simply isn't … it's a cause for frustration' [Participant ID 12, GP/Doctor].

'you can free text, but that won't come up in a report or if a GP is looking for it and it was 12 months ago' [Participant ID 7, Administrative]

'sometimes clinicians will put a lot of things in free text so obviously that doesn't put them [patients] on registers either.' [Participant ID 02, Administrative].

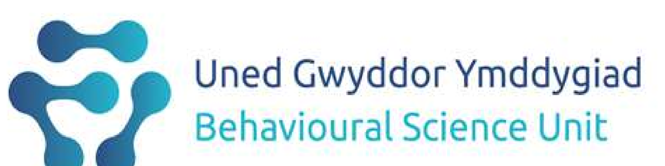
'…even for med reviews you have about 12 different ones [codes]. Well we can't use 12 different ones then to use them for searches for claims for example.' [Participant ID 01, Pharmacy (in-house)]

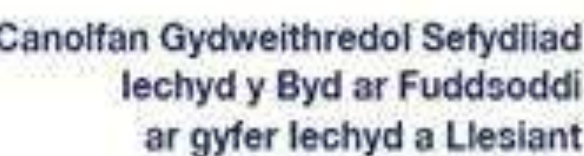
Implications:

Previous research has focused on discrete aspects of clinical coding but not the self-reported experiences of all staff members using clinical coding in general practice. Our qualitative, semi-structured interview approach allowed participants to voice their experiences in their own words, allowing for a rich and detailed accounts. The quality of clinical coding and how people working in primary care generate and code data has implications for:

- Researchers and policy makers that rely on primary care data to make decisions
- For individual practices wishing to undertake quality improvement and audit activities
- Ultimately for patient care on an individual level

Understanding how clinicians and non-clinicians input data and convert it into meaningful codes is vitally important. From this study it is evident that people care about the process and see its importance for a number of different reasons, ranging from patient care to financial benefits, but the process itself has a number of pit-falls and difficulties associated with it. People working in primary care want a more intuitive and less burdensome system, but also a system that allows for nuances involved with choosing the right code in the right situation. With developments in digital technology, the way in which clinical coding integrates with the EHR system is an obvious target for improvement. However, there are more human approaches that could improve clinical coding such as training and education around its use, which could be in-cooperated into the GP training curriculum, and up to date national standards/guidelines that would help guide individuals and organisations to improve and standardise the way they use clinical coding.





Factors influencing midwives' conversations about smoking and referral to specialist support; a qualitative study informed by the Theoretical Domains Framework.

Authors: Nicky Knowles[1 3], Dr Megan Elliott[2], Dr Alice Cline[1], Professor Helen Poole[3]

[1] Public Health Wales Behavioural Science Unit [2] Cwm Taf Morgannwg University Health Board [3] School of Psychology, Liverpool John Moores University

Background

- Smoking tobacco during pregnancy is a **major public health concern**.
- Smoking prevalence amongst pregnant women in Wales is significantly higher than the other UK nations.
- In 2021, **12%** of women in Wales and were recorded as smokers at delivery [1].
- Pregnant women are more likely to **quit smoking** and remain **abstinent** if they receive spe**cialist behavioural support** [2,3].
- In Wales, the **Help Me Quit (HMQ) for Baby** service offers an opt-out, personalised, evidence-based smoking cessation support, however, **uptake** of HMQ for Baby is **low**.
- Reasons for low uptake include **low awareness** of services, **lack** of access to **information**, negative **perceptions** of services and **misperceptions** about smoking.
- The role of the **midwife** is critical to supporting pregnant women to access services and make a quit attempt.

Aim

To explore the perspectives of midwives and to identify **challenges** and **enablers** they experience in initiating conversations about smoking with pregnant women and discussing referral to specialist support.

Midwife having a **conversation** about smoking with a pregnant person

Target behaviours

Midwife making a **referral** to smoking cessation support (HMQ for Baby)

Methods

- Qualitative study using semi-structured interviews (n=7) to explore midwives views and experiences of discussion smoking in pregnancy and referring to HMQ for Baby.
- Semi-structured interview guide developed based on research questions and Theoretical Domains Framework [4].
- Framework Analysis [5] used to deductively analyse data and map to TDF domains.

Findings

Facilitators

- **Knowledge** of the risks of smoking in pregnancy.
- Smoking perceived a important to midwife's **role** and consistent with safeguarding and welfare focus.
- Carbon monoxide monitor seen as a useful **tool** for supporting conversations about smoking.
- Establishing and maintaining a **relationship** based on mutual trust and respect.
- Receiving **feedback** on referrals and outcomes.

I try not to mention too easily how it can increase risks of miscarriage, but I'll quickly go over it just so that it's said. But without scaring them as well, because that's not really, it's hard to say that to them when they've only just found out they're pregnant and they're really happy.

But smoking … midwives are so passionate about it, … because it's got such a risk of miscarriage, still birth, low birth weight and premature birth. You know, it's a massive risk.

You tell them that the risks and everything, and hopefully they do listen. Some do, some don't, but you know can't force it on them

Barriers

- Perceptions that raising the issue of smoking may **damage** the relationship, or offend, scare or upset the woman.
- Limited knowledge and **confusion** around support available and the opt-out pathway.
- **Limited understanding**/lack of guidance on best practice around vaping and advice for women.
- Varied **skill** level in knowing how best to **frame** conversations, specifically in relation to the opt-out pathway and referral to specialist support.
- Varying levels of **confidence** in ability to influence women's decisions about smoking and accessing specialist support.
- Limited **access** to and/or time to engage in **training**.
- Referral process feels **repetitive**.
- Limited **time** within appointments/conflicting priorities.

Recommendations

- Provide training/education to increase **knowledge** and **understanding** of:
  - The opt-out referral pathway.
  - The service and the support it can provide to women.
  - Evidence-based behaviour change approaches.
  - Recommended advice for pregnant women regarding vaping.
  - The impact behavioural interventions on smoking cessation.
- Enhance **skills** in facilitating conversations that strengthen motivation and commitment.
- Provide examples of how to **frame** the risks of smoking in pregnancy, the opt-out pathway and the support offered by the specialist service.
- Support midwives in **sharing best practice** and approaches to addressing challenges.
- Share **feedback** on referrals and **outcomes** of referrals.
- Enable midwives to engage in **skills-based training**.
- Provide a script to support **explanation** of the opt-out pathway.
- **Simplify** the referral process.
- Enable **access** to resources both for midwives and for pregnant women

Discussion

Key findings

- Provision of smoking cessation advice and referral to specialist services is congruent with the **role** and **identity** of midwives.
- Whilst there are continued **time pressures** and **competing priorities** for midwives, enhancing **skills** and **confidence** in collaborative, **empowering** approaches to addressing smoking could further support in **optimising** the **uptake** of maternity smoking cessation support.

Limitations

- Limited sample size (n=7) due to challenges recruiting midwives, sample only included community midwives those with extensive clinical experience.

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The Benefits of Funded Post-registration Education for Nurses, Midwives and Allied Health Professionals

(Karen Bryant- Davies, Senior Nurse Education, October 2023)

Introduction

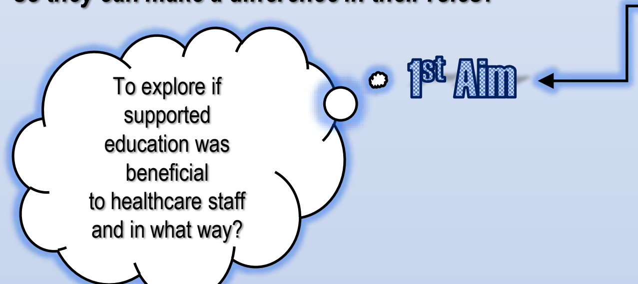
Each year Health Education Improvement Wales (HEIW) provides a significant amount of funding for post- registration education.

HEIW funding is available for nurses, midwives, allied health professionals and healthcare scientists.

The benefits of such funding improves patient care and the potential benefit towards the retention and development of staff.

It is well publicized that nursing is facing its biggest recruitment and retention challenge in the history of the NHS.

By supporting education with funding, can it address the staff recruitment and retention issue by developing staff so they can make a difference in their roles?



2nd Aim

To determine if funded post graduate study develops professionals individually by improving their practice or helped them gain a promotion?

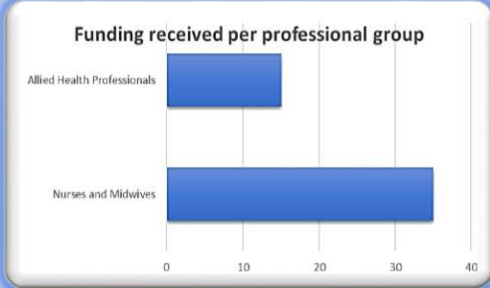
Was there a development of a new service or role?

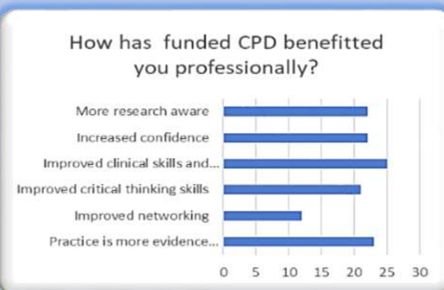
Finally the utilization of service evaluation or a research project following completion of their studies?

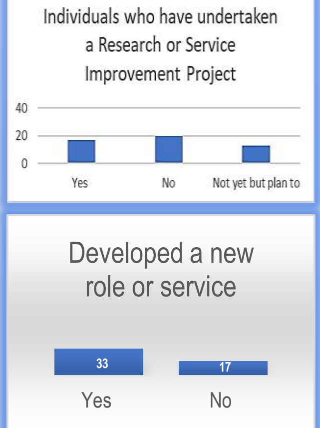
Design, Recruitment & Data Collection

All Nurses, Midwives and Allied Health Professionals who had undertaken and completed a fully funded level 6 or 7 course or module between 2019 -2023 were sent an evaluation form via Microsoft 'Forms'. This included a variety of questions to gather qualitative feedback. No personal information was gathered and the questionnaire was completed anonymously.

Results & Analysis







The response rate was 45%. Whilst this was lower than expected, feedback reinforces the benefits to funded education for which the NHS gets value for money.

Next Step

To ensure both healthcare professionals and patients benefit from funded education evaluations will be requested annually as part of the funding process.

Feedback

"The first year of the MSc has developed my confidence both professionally and personally. I am more aware of the evidence base behind decision-making as well as developing outcome measures, (1st Year MSc Student, 2023).

'Gaining an in depth scientific knowledge of the wound healing process has aided me in making decision to aid wound healing and provide a more evidence based service" (2nd Year MSc Student, 2023).

Evaluation Of Physiotherapy Input For Patients Admitted To RGH With Rib Or Sternum Fractures

Dom Anderson

BACKGROUND

Blunt chest wall trauma patients represent a significant proportion of emergency department presentations***; >15% of all trauma admissions*** (Marthy et al. 2022).

Significant morbidity and mortality risk associated with **rib +/- sternum #s**; ranging from ***10-30%* mortality** (Jones et al. 2011; Witt et al. 2017).

Associated with reduced mobility, impaired tidal volumes and ineffective cough reflex. ***Pulmonary complications*** such as pneumonia, atelectasis, and impaired gas exchange in up to ***30% of cases*** (Battle et al. 2023).

Early, appropriate Physiotherapy (PT) input has consistently been demonstrated to have a clear and salient benefit for both ***patients*** and ***services*** (van Awegen. 2020):

- Reduced prevalence of pulmonary complications
- Reduced mortality risk (Kourouche et al. 2018)
- Reduced length of stay (Curtis et al. 2016) and overall health care burden (Unsworth et al, 2015)

A small series case review highlighted that Physiotherapy input at RGH was highly variable for this patient group; for time taken to receive referral and review, content of sessions and techniques used. This subsequently led to the implementation of the wider service evaluation.

AIM

To establish the current service level provision of Physiotherapy at RGH for patients admitted with rib +/- sternum fractures.

METHODS

Consecutive sampling of all cases *admitted* to RGH via ED were selected for review. All cases were analysed retrospectively using CITO. Cases were identified via a coding search and by reviewing handover lists retrospectively.

•**Inclusion criteria**: All patients **admitted** to RGH with accompanying diagnosis of Rib or Sternum, Jan 01 2023 – July 31 2023
•**Exclusion criteria:** Decision to palliate prior to PT review, Admission of <24hrs, No notes available to review

26 cases identified - 16 had notes available for analysis. The primary outcomes were:
- % of cases with plans for PT review in medical notes
- % of cases actually referred to PT
- % of cases reviewed by PT within 24hrs of admission
- Length of time from admission to a) initial PT review, and b) to sit out of bed on admission
- Content of PT sessions

STUMBL Category	Probability of Complications (%)	No. of cases	No. of RIP	Mean LOS (excl. RIP cases)
0-10	13	0	0	0
11-15	29	0	0	0
16-20	52	4	0	11.3
21-25	70	5	0	26.5
26-30	80	4	2	17.7
31+	88	3	1	5.5

Fig 1. Risk stratification of case presentations. Overall Mortality Rate = 19% vs 4-20% for National estimates (Battle et al., 2012)

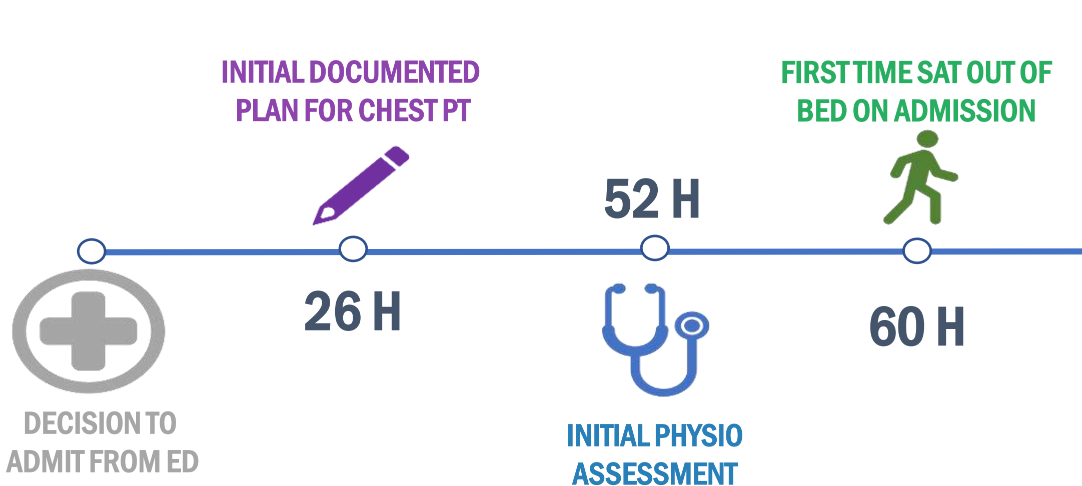
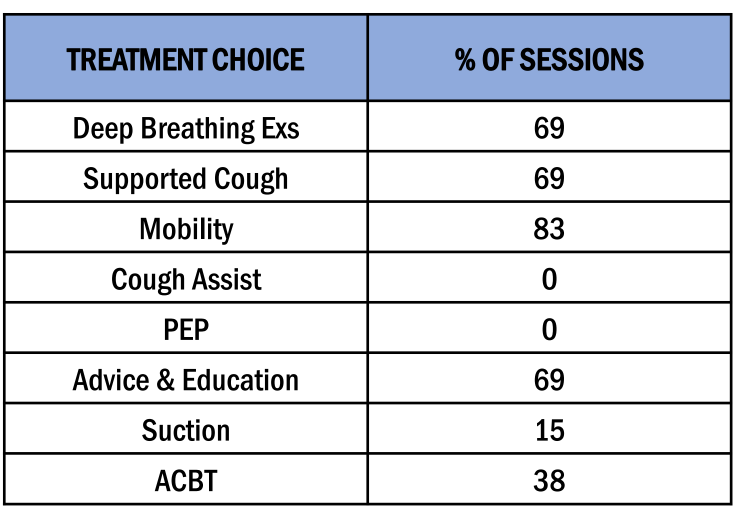


Fig 2. Avg time from decision to admit until key targets



TREATMENT CHOICE	% OF SESSIONS
Deep Breathing Exs	69
Supported Cough	69
Mobility	83
Cough Assist	0
PEP	0
Advice & Education	69
Suction	15
ACBT	38

Fig 3. Frequency of treatment choices in PT sessions

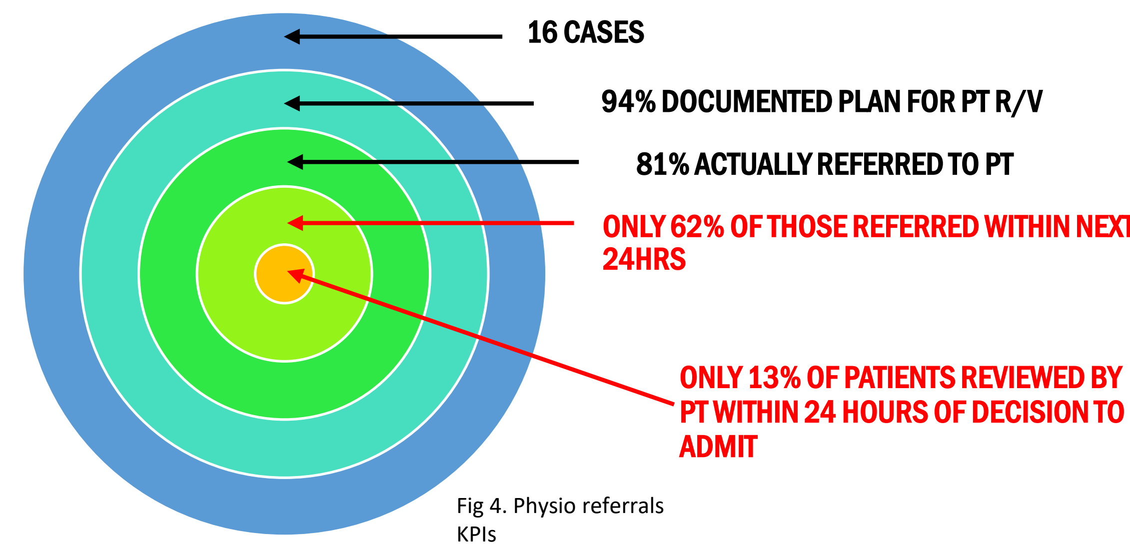


Fig 4. Physio referrals KPIs

KEY SUCCESSES

- ✓ 94% of admissions had medical plans for respiratory PT input
- ✓ >80% of patients reviewed by PT, with the majority being reviewed within 24 hours of a documented medical plan for PT
- ✓ Emphasis on early mobility and sitting out of bed in PT sessions

AREAS FOR IMPROVEMENT

- × Delays in PT receiving referrals
- × Nil referral made for 13% of patients
- × Delays in patients initially sitting out of bed with the MDT – average of 2.5 days
- × Variability in treatment choices amongst PT sessions – with little evidence of adjusting treatment for those most at risk of complications
- × Across the evaluation, the patient group had a mortality rate of 19%

ACTION PLAN

1. Teaching session between ***ED & PT*** on how and when to refer these patients, as well as a refresher re the on-call service
2. To host teaching session for rotational physiotherapy staff on management of these patients, including strategies to manage higher risk presentations ***SILVER TRAUMA***
3. Consider development of ***PT Assessment proforma*** for rib/sternum #s
4. ***To recomplete SE in 12*** months following implementation of action plan
5. Further review into causes for ***prolonged LOS*** for this group
6. Collated ***Mortality Rate*** - to discuss with appropriate parties (ED, surgical, pain team) re. wider review of management of these patients to assess for further areas of improvement

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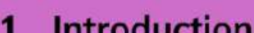
Critical Care Coffee Morning Feedback Service Evaluation



Jade Evans - Assistant Psychologist
Dr Emma-Marie Williams - Principal Clinical Psychologist

1. Introduction

In CTMUHB, coffee mornings are organised 3-4 times a year for Critical Care survivors and their loved ones. These coffee mornings give attendees the opportunity to share experiences, recovery journeys, advice and hope. The coffee mornings are largely unstructured and so we allow the attendees to determine the course of each session.

2. Rationale

Peer-support coffee mornings for Critical Care survivors has no current research surrounding their effectiveness. Therefore, as we are at the forefront of this research, this service evaluation was completed.

3. Aim

This service evaluation explored which aspects of the coffee mornings provide the most value to attendees and ways the service can be improved for the future.

4. Method

119 feedback forms were collected between November 2021-June 2023. Below is the feedback form used:

Thank you for attending the ICU coffee morning - your feedback is important to us to develop this new service.

Are you a patient____ relative___ other_____?

Did you find the session useful? ______________________

What was the best thing about the session for you? ______________________

How could the session be improved? ______________________

Would you attend future sessions? Yes _____ No ____

Would you recommend this to other patients/relatives? Yes _____ No ____

Was the location convenient? Yes _____ No ____

Thank you for your feedback

5. Results

- 100% reported that they found the sessions useful.
- 100% reported that they would attend future sessions.
- 100% reported that they would recommend the coffee morning to other patients/relatives.
- 99.98% of responses stated that the location was convenient.

Using thematic analysis for qualitative responses, 3 themes were identified in response to the best thing about the session. These themes were: *'swapping stories'*, *'I'm not alone'* and *'understanding my experience and symptoms'*.

With response to the how the sessions could be improved, 35% of responses were left blank and a further 35% of attendees stated that they believed nothing could improve the sessions. 2 themes emerged from the remaining 30%. These themes were: *'practicalities'* and *'needs of relatives'*.

6. Narratives

Swapping stories

"Being able to share experiences with like-minded people"

Understanding my experience and symptoms

"Fully explaining my ITU experience"

I'm not alone

"Knowing you're not alone and supported"

7. Conclusion and Outcomes

The theme of 'needs of relatives' highlighted the impact that having a loved one on Critical Care can have psychologically on families and friends. Because of this, we now offer a family support service, bereavement service and 1:1 psychological therapy to relatives.

Through the theme of 'understanding my experience and symptoms', we identified that some attendees wanted more specific teaching during the sessions. Therefore, we plan to add some short educational components to future coffee mornings. We also aim to change our forms to capture feedback on the educational components. We are mindful that 'swapping stories' was an identified theme, so we would like to monitor if we are still achieving a good balance between education and time to 'swap stories'.

Following feedback captured in the 'practicalities' theme, we changed our venues to include accessible parking and no steps, provided name badges and offered longer sessions by merging the 'Covid' and 'non-Covid' groups together.
The overwhelmingly positive responses indicate that the service is important, useful to its users and validates that offering a largely unstructured space for attendees to do this is valuable. We aim to share the results of this service evaluation with the Critical Care team.

The DESTINY Study

Leon Arrowsmith-Hill[1], Mark Williams[1*], Karl New[1], John Geen[3], Bianca Oakley[4], Carolyn Wallace[1]

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GIG CYMRU NHS WALES Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board

GIG CYMRU NHS WALES Bwrdd Iechyd Prifysgol Hywel Dda University Health Board

Background:

The use of D-dimer testing in primary care as a diagnostic tool for Deep Vein Thrombosis (DVT) is based on the test's ability to detect the presence of fibrin degradation products in the blood (D-dimer), which are elevated when blood clots are actively forming and breaking down. DVT is a serious condition where a blood clot forms in a deep vein, usually in the lower leg, thigh, or pelvis, but clots can occur in other parts of the body.

D-dimer levels are usually undetectable or very low in healthy individuals. An elevated D-dimer level might indicate the presence of an abnormally high level of fibrinolysis, which can be due to several conditions, including DVT and pulmonary embolism (PE).

In the context of primary care, D-dimer testing is particularly valuable for its high negative predictive value. This means that a low or normal D-dimer level is a strong indicator that a DVT is not present, which can be reassuring and reduce the need for more invasive and expensive tests like venography or ultrasound in patients with a low probability of thrombosis.

The use of D-dimer testing as part of a diagnostic algorithm that includes clinical assessment ad pre-test probability scoring systems, such as the Wells score for DVT, can improve the test's specificity. Patients with a low pre-test probability and a negative D-dimer test can safely be ruled out for DVT, reducing the burden on healthcare resources and the patient's exposure to potentially harmful investigations.

Objectives:

The aim of this study was to determine whether POC Dimer can safely exclude potential DVT's at Primary Care, using the Roche Cobas H232 and Lumira Dx POC assays, whilst comparing to the Latex-enhanced Particle Immunoturbidimetric (LPIA) D-dimer assay at Secondary Care. The study will also use a Well's Risk Score in combination with a D-dimer test to stratify the risk of developing a VTE.

Method:

75 suspected DVT patients have been recruited to the study and tested for D-dimer across the 3 assays. POC testing using the Roche Cobas H232 and LumiraDx is conducted during patient consultation at primary care. The Roche Cobas H232 uses a 150µl venous sample, obtained from the patients appointment with a run time of <8 minutes. The LumiraDx uses a 15µl capillary fingerprick sample with a run time of ≤7 minutes. Remaining venous sample obtained from the patient appointment is sent to secondary care for routine analysis using the lab D-dimer (LPIA).
Suspected DVT patients are also risk scored using DVT Well's scoring.

Clinical feature	Points
Active cancer* (treatment ongoing, within 6 months, or palliative)	1
Paralysis, paresis or recent plaster immobilisation on the lower extremities	1
Recently bedridden for 3 days or more or major surgery within 12 weeks requiring general or regional anaesthesia	1
Localised tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
Calf swelling at least 3 cm larger than asymptomatic side	1
Pitting oedema confirmed to the symptomatic leg	1
Collateral superficial veins (non-varicose)	1
Previously documented DVT	1
An alternative diagnosis is at least as likely as DVT	-2

Clinical probability simplified score	Points
DVT likely	2 points or more
DVT unlikely	1 point or less

Image 1. DVT Well's Scoring System

Image 2. Lumira Dx POC

Image 3. Roche Cobas H232 POC

Demographics and Well's Score Data :

Well's Risk Score of Suspected DVT Patients (n=75)	
Mean Age (years)	59 ± 19
Male (n, %)	45 (34)
Female (n, %)	55 (41)
Wells < 2	35
Wells ≥ 2	40

Table1. Patient demographics and Well's risk score.

Results :

Mean D-dimer Results (± SD)	
LumiraDx	868 ± 789 (ng/mL)
Roche Cobas H232	429 ± 375 (ng/mL)
Lab LPIA	716 ± 902 (ng/mL)

Table2. Mean D-dimer results..

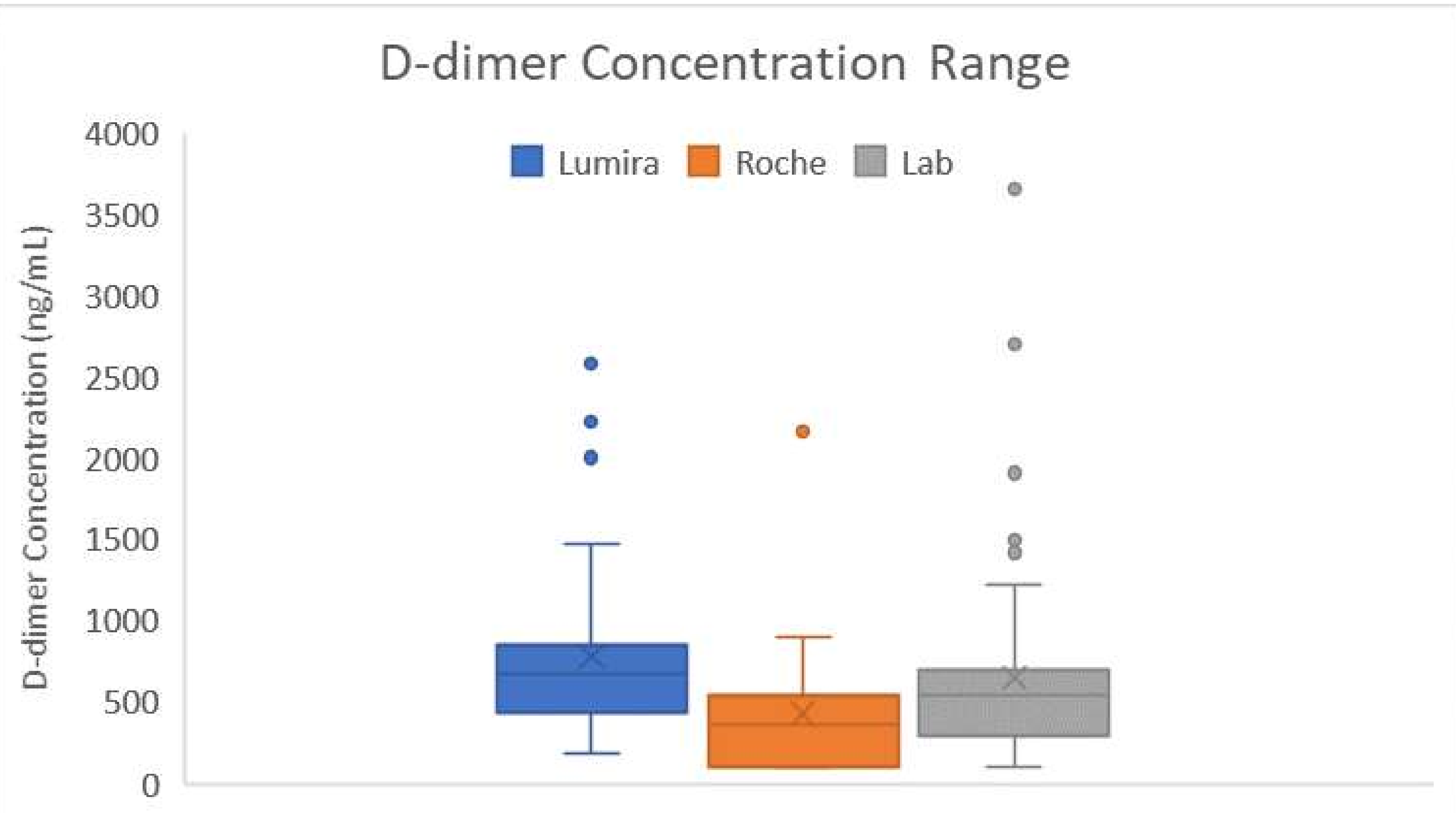


Figure1. D-dimer Concentration Ranges.

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	4817967	2	2408983	4.036536	0.0193	3.046721
Within Groups	1.06E+08	178	596794.7			
Total	1.11E+08	180				

Table3. One-Way Annova of the 3 assays.

Results & Discussion :

Using the LumiraDx POCT, the mean ± SD D-dimer concentration was 868 ± 789 ng/mL (range 190-2582 ng/mL), with 45 of 75 patients testing positive (60%), a D-dimer concentration above 500ng/mL being positive. Testing using the Roche Cobas H232 produced a mean ± SD D-dimer concentration of 429 ± 375 ng/mL (range 100-2160 ng/mL), with only 25 out of 75 patients testing positive (33%). The lab LPIA assay mean ± SD D-dimer concentration was 716 ± 902 ng/mL (range 190-2 ng/mL), with 25 out of 75 patients testing positive (52%).

Analysis of the 3 datasets using a One-way Annova determined that there was a significant difference across the means of the assays (P=0.019), and also between the means of the Roche and Lumira (P=0.001). There is no significant difference between the means of the Lab LPIA and Roche (P=0.06), or the Lab LPIA vs the Lumira assay (p=0.29). The high variation in the means across the 3 tests highlights the risk of false positives or negatives at the 500ng/ml cut off, which could lead to a potentially fatal misdiagnosis.
Patients have been asked to consent to accessing to their medical records at the end of the study, to determine patients final diagnosis if sent for ultrasound imaging. We can then identify whether a greater sensitivity and higher mean translates to improved rates of successfully ruling out DVT in a primary care setting with POCT.

Conclusion: POCT has demonstrated high accuracy and sensitivity for detecting D-dimer in primary care. Patient follow up and evaluation of final diagnosis will help determine if DVT's can be safely ruled out in a primary care setting.

*In fond memory of Professor Mark Williams.

Acknowledgements: Cwm Taf Morgannwg University Health Board and its patients for allowing the study to take place. CTMUHB Research and Development Department for their ongoing support.

The rs2228145 variant of the IL-6R gene impacts on *in-vitro* cellular responses to the SARS-COV-2 spike protein.

S Sarwar, K Rees, R Aicheler, L Butcher, S Potter, R Rowlands, R Webb
Department of Biomedical Sciences, **Cardiff Metropolitan University**

Introduction.

We aimed to develop an *in-vitro* model system that could yield insights regarding the impact of a polymorphism (NCBI access code: rs2228145) within the interleukin-6 receptor (IL-6R) gene, a key inflammatory gene in COVID-19 pathology. To do this, we determined the IL-6R genotype of 3 monocytic cell-lines (U937, THP-1, MM6) and investigated their responses to SARS-CoV-2 spike protein (SP) treatment.

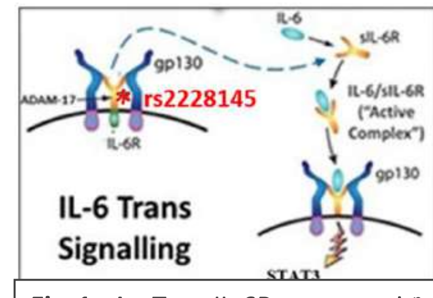


Fig 1: A→T at IL-6R gene posit^n 1073 leads to Asp→Ala^{358} amino acid change, enhanced sIL-6R shedding & IL-6 Trans signalling

Results.

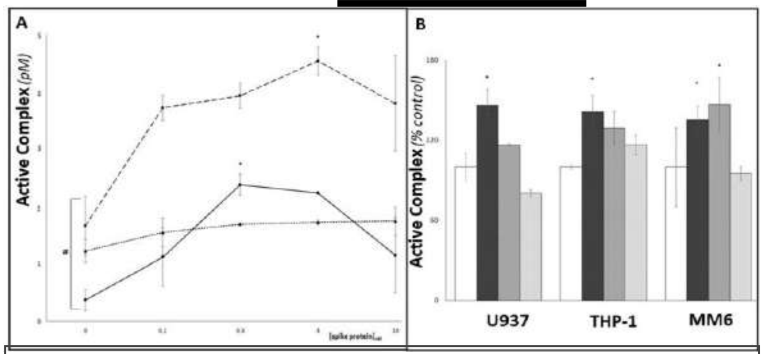


Fig 3: SP increases 'Active Complex' in an ACE2-dependent manner A U937 (line), THP-1 (dots), MM6 (dashes). **B:** ACE2 blocking Ab (2 μg/ml [dark grey]-20 μg/ml [light grey bars]).

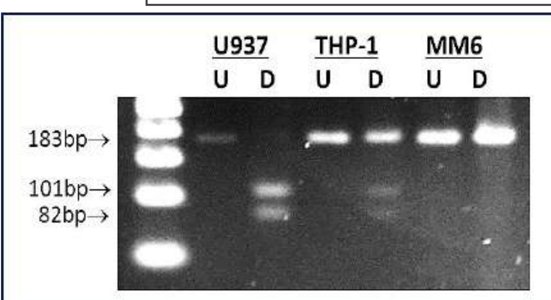


Fig 2: rs2228145 genotyping assay. Lane 1: DNA ladder; L 2: U937: AA genotype; L 3: THP-1: AC genotype; L 4: MM6: CC genotype

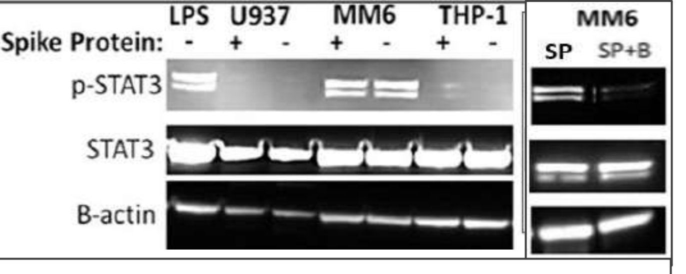


Fig 4: SP increases STAT3 phosphorylation in an ACE2-dependent manner. pSTAT3, STAT3, ß-actin in U937, THP-1, MM6±1nM SP. (Inset: MM6 SP+ACE2 blocking Ab (B))

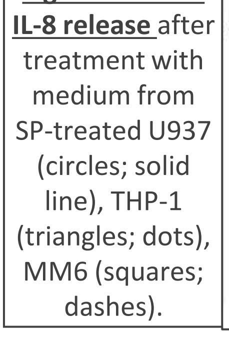
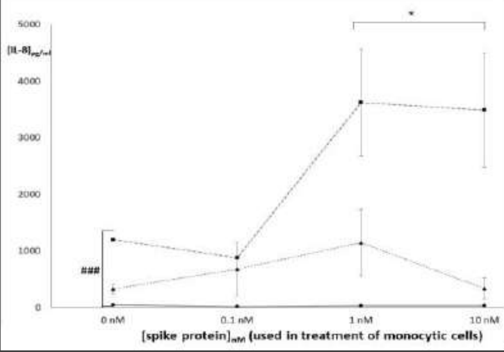


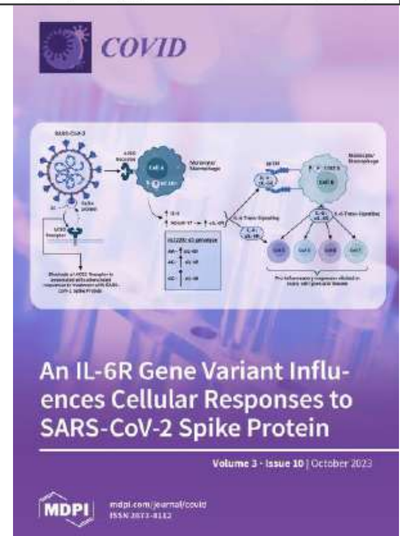
Fig 5: A549 cell IL-8 release after treatment with medium from SP-treated U937 (circles; solid line), THP-1 (triangles; dots), MM6 (squares; dashes).

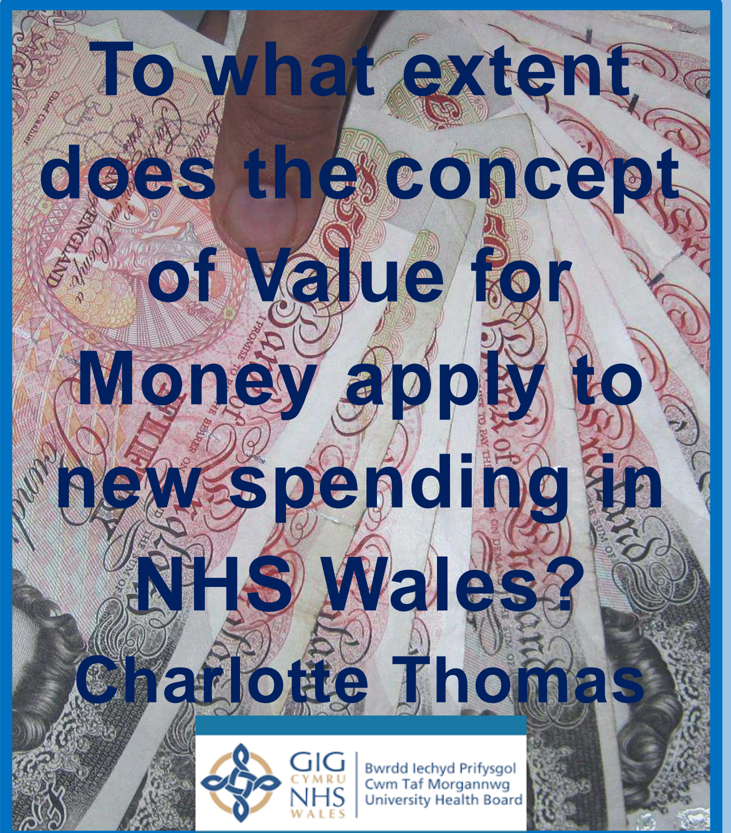


Discussion:

- **THP-1, MM6 & U937 exhibit AA, AC & CC IL-6R genotypes.**
- IL-6R genotype-linked increased SP-induced sIL-6R shedding → enhanced pro-inflammatory IL-6 Trans-signaling (STAT3 phosph^n) in CC cells ***(also in CC COVID-19 patients?).***
- Supernatants from SP-treated CC cells → downstream inflammatory responses (eg. A549 cell IL-8 secretion) ***(reflecting ↑systemic inflamm^n risk in CC COVID-19 patients?)***

Conclusion: More research is needed to extend this preliminary study, but IL-6R genotype as a novel biomarker may in future aid in the treatment and management of COVID-19.





To what extent does the concept of Value for Money apply to new spending in NHS Wales?

Charlotte Thomas

The Aim

The aim of this project was to analyse the concept of Value for Money, and why it is important.

It investigates the extent to which it influences financial decision making for new revenue investments in the Welsh NHS, and the enablers that help Health Boards to deliver this.

It investigates whether there are any variations between the requirements of HM Treasury and WG in this area, and actual delivery, and tests what might help to close the gap .

The Background

NHS spending has risen significantly since the start of the Pandemic, culminating in Welsh Government (WG) currently allocating over half of its devolved budget to Health and Social Services. (Welsh NHS Confederation, 2017)

But to what extent are those responsible for administering the NHS at both national, and Health Board level, effectively working to ensure that all of its funding is used in the most optimal way to achieve the intended outcomes?

Not very well, if current media portrayals are to be believed. Paediatrician Alastair Sutcliffe, writing recently in the Telegraph, described how the NHS is riddled with waste, despite simple and obvious ways to save money. (Sutcliffe, 2023).

The Method

The data collection strategy included a systematic literature review of seven HM Treasury and WG Policy Documents. This review helped to inform how the concept of Value for Money was understood by Government, and how this in turn influenced their expectations of public funded bodies to ensure delivery of that concept.

Study interviewees were selected on the basis of the job positions that they held, and the way that their lived experiences of NHS processes would 'enhance understanding of the phenomenon under study', a key recommendation on effective research design. (Sargeant, 2012).

ORGANISATION	NO OF INTERVIEWEES
cavuhb	3
ctmuhb	5
Welsh government	2
Welsh Value in Health Centre	1
Audit Wales	1

Figure 1 numbers of interviewees by organisation

The Results

Because of the complexity underpinning the concept, getting Value for Money in health means far more than satisfaction with what you receive in return for the money you pay, at the cost and quality you expect. Although there is hope from both the literature and the data as to the growing recognition that Value is not just about cost, this becoming business as usual for health boards seems a long way off, because of the amount of change required to scale this new approach.

Discussion

It concludes that an alternative definition of Value for Money should be used within health settings. If adapted *to 'Robust management of all available resource, delivering Improved and evaluated outcomes for the local population'*, it would help to ensure that all resource, including new investment, is considered in terms of economy, efficiency, and effectiveness, and that evaluation becomes business as usual.

Bike Park Wales and the changing trends of facial injuries: a six-year review

C Williams, S Mustafa

Introduction:

Mountain Biking injures are of high velocity and carry a significant risk of injury of traumatic impacts. Those attending BPW must sign an 'Acceptance of Risk Form' before use of the trails. Surprisingly, there is no age limit for participation at BPW.
BPW highly recommend the use of full-face protection helmets with higher levels of protection and set EN1078 standard as a minimum requirement for helmet protection.

Aims:

- Follow previous work completed in 2013-2016.
- Evaluate Bike Park Wales injuries treated by the OMFS Cwm Taf Morgannwg UHB team and identify trends in facial injuries.
- Reduce both the number of trauma cases attending A&E and the significance of injury sustained.

Method:

Patients presenting to A&E between 01/01/2017 and 31/12/2022 were included.
Data collection was from A&E attendance card coding for Bike Park Wales (BPW) and Maxillofacial codes and patients taken to theatre from A&E within 30 days of injury at BPW.
2018 records were reviewed and 220 selected for inclusion as Maxillofacial Trauma in Relation to Bike Park Wales.

Results:

Patient Demographics

- Average Age: 36
- Age Range: 11 to 69
- M 93% (183) : F 7% (14)
- 6% (11) from Cwm Taf Morgannwg UHB catchment area (Fig. 1)
- Brought In By Ambulance 34% (67)
- Polytrauma 66% (130)

Fig. 1

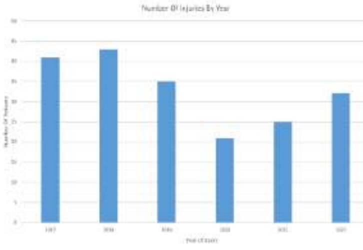


Fig. 2

Number Of Injuries

Average number of injuries 33 OMFS injuries per year

Spring and Summer are busiest months.

Results:

Injuries Sustained

- Lacerations most common (Fig. 3)
- 12% of patients sustained at least one facial fracture
- 49% of patients underwent suture of lacerations under local anaesthetic (Fig. 4)

Fig. 3

Injury and Helmet type

16 full-face helmet

- 12 lacerations and abrasions
- 3 no OMFS injury
- 1 zygoma fracture
- 0 Dental Trauma
- No OMFS admissions, three local OMFS review

1 half face helmet

- Laceration and abrasions
- No admission, No follow up

179 helmet

- 15 with facial fractures
- 8 were multiple facial fractures
- 23 with Dental Trauma
- 15 admissions under OMFS
- 44 admission under other specialties

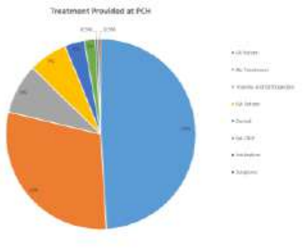


Fig. 4

Conclusion:

Patients have suffered minor injuries through to complex life threatening polytrauma.

Increase in number of annual injuries compared to 2013-2016 review (97% increase)

- Attributed to use of BPW A+E code and increased BPW popularity.

Increase in polytrauma from 48% to 66%.

Use of full-face helmets is likely to significantly reduce the frequency and severity of facial injuries.

This in turn is likely to reduce the pressure on our emergency services and NHS resources.

Ways Forward:

Improve documentation of:

- Helmet type – creation of helmet checklist
- OMFS code E3334 and BPW code E3333 on A+E cards (particularly in Trauma calls)

Safety discussion with BPW regarding service evaluation findings and use of mandatory full-face helmets.

Liaise with local major trauma centre regarding BPW patients.

References:
1. 2023 Beic Parcio Cymru Ltd. Available from: https://www.bikeparkwales.com/ [Accessed on 23 Apr 2023]
2. Brewer E. 2016. Maxillofacial Trauma in Relation to Bike Park Wales

With thanks to:
1. Mr Mustafa – project lead
2. Esther Brewer – first BPW project author
3. Prince Charles Hospital service evaluation team

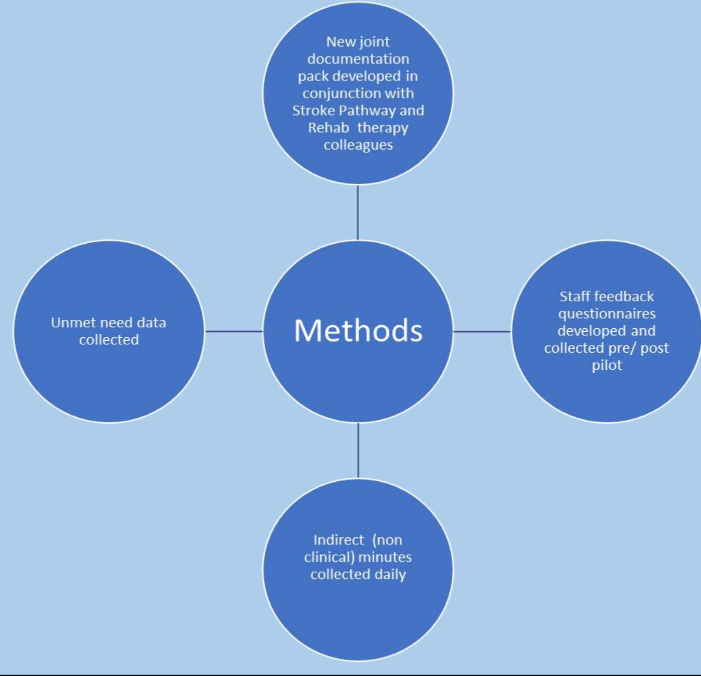
Improving Efficiency: the implementation of joint Occupational Therapy and Physiotherapy notes on an acute stroke ward (QI Project)

Background:

On a daily basis, Occupational Therapists (OT) and Physiotherapists (PT) spend a high proportion of time completing separate documentation following joint OT and PT sessions. This impacts on direct clinical therapy time for patients and a high unmet need with regards to rehabilitation across both professions. A joint OT/PT notes pilot was carried out on the Stroke Ward at Prince Charles Hospital between December 2022—May 2023.

Aims:

- To improve efficiency on the acute stroke ward at Prince Charles Hospital – reducing time spent on completing and duplicating documentation across OT and PT.
- Increase direct clinical care and intervention to patients to the level recommended by national stroke guidelines



Staff Feedback:

"I find joint notes highly beneficial in terms of time management, shared learning and ensuring a more holistic understanding of the patients and their deficits and goals"

"The joint notes have made much improvement to my use of time on the ward. There were often times after a joint session where myself and the Physiotherapist would be writing the same set of notes but separately. The joint note working has helped with efficiency as therapists"

"The biggest benefit for me is the ability to be able to complete multiple joint sessions and split the notes (it becomes a joint effort). Also allows for more cohesive MDT working"

Patient Experience:

- Reduced duplication of assessment—subjective history collection and neurological assessment
- Improved MDT working and prioritisation of caseload

Factors Impacting Results:

- Consistency of therapy staff—annual leave, sickness, rotational staff
- Rotational staff training need— neurological assessment, use of new documentation
- Different methods of data collection OT vs PT

Next Steps:

- Further review and audit of current documentation pack with the view to explore use on all acute stroke wards and stroke rehab in CTM
- Standardisation of documentation and joint working between OT/PT within Stroke in CTMUHB

Julie Thomas — Clinical Specialist Occupational Therapist **Jessica Watts — Team Lead Physiotherapist**

Staff Perceptions of the use of the Patient Dignity Inventory (PDI) in Palliative Care Services.

April Lloyd & Dr. Daniel Stubbings

Introduction & Project Aims

Psychological distress can be commonly unidentified and untreated in palliative care services due to a lack of confidence among staff members in assessing psychological distress. The PDI (Chochinov, 2006) is a validated tool used to identify and explore the cause of an individual's dignity-related psychological distress.

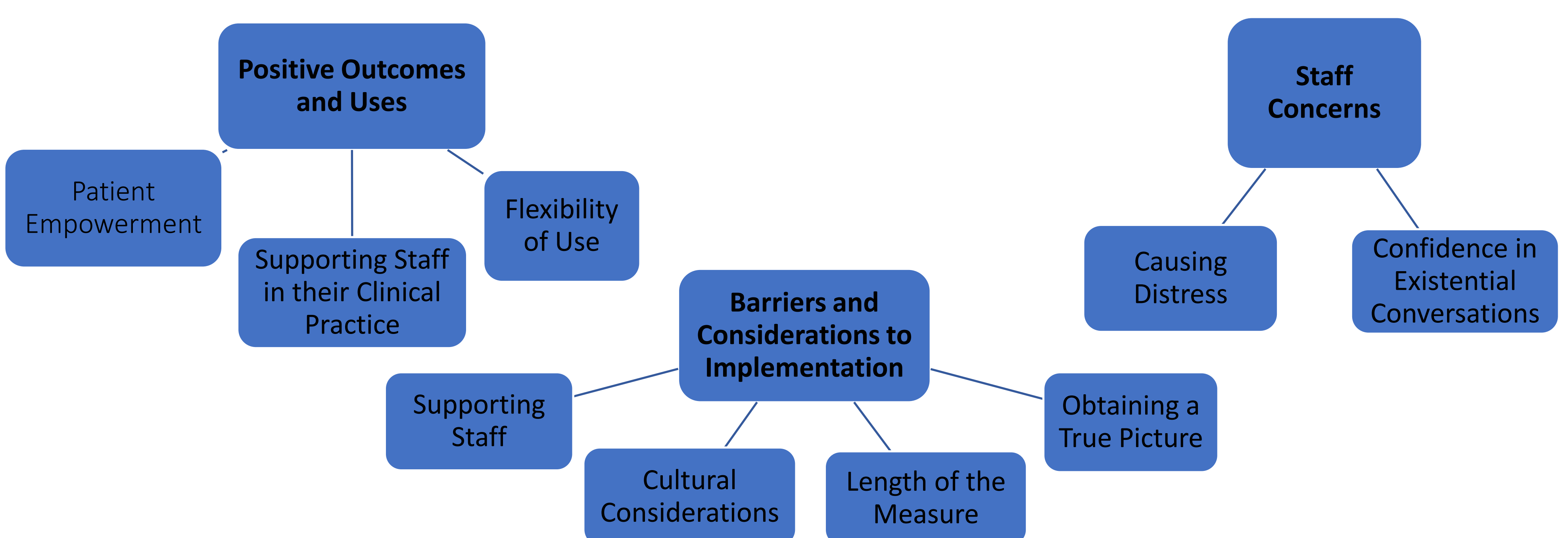
Aims: To obtain the perceptions of specialist palliative care staff in CTMUHB on the possible value and barriers to implementing the PDI in the service, to support the identification and understanding of psychological distress.

Method

7 Specialist Palliative Care Staff were interviewed about their perspectives of the PDI. The data was analysed via a semantic thematic analysis, using the six-step procedure by Braun and Clarke (2006).

Findings

The themes and subthemes identified in the data were:



Discussion & Service Recommendations

Findings suggest that the PDI would be useful to implement in the service to identify previously unknown needs, but the following recommendations were made to improve staff confidence in administering the PDI:

- To provide staff training on the administration of the measure and managing responses
- To provide a signposting document with additional information for staff
- For junior staff to shadow senior staff members prior to independent administration

Future Research

To address the limitations of this study, such as the generalisability of the findings and that staff were interviewed prior to administering the measure, research with a focus on the following would provide further valuable insight into the suitability of the PDI:

- Explores patients' perspectives of the PDI.
- Obtains staff perspectives after undertaking the measure.
- Ascertains the suitability of the PDI in various cultures.

Acceptability of a novel blood-based colorectal cancer screening tool in non-responders (RAMAN-CRC): a qualitative study

A M Tang[1,2], E A Williams[1,2], S Chandler[1], K Nelson[2], F E R Woods[2], B Williams[3], A Gjini [3], J Hepburn[4], G W Fegan[2], D A Harris[1]

[1]Swansea Bay University Health Board [2]Swansea University [3]Public Health Wales[4]Involving People Network, Health and Care Research Wales

Background

- Faecal screening uptake is lower in population subgroups such as males, particular ethnic minorities, regions of social deprivation and younger people.[1-4]
- Fear of subsequent invasive tests such as colonoscopy, along with health beliefs such as cancer fatalism, underestimation of cancer risk and the gap between intention to participate and action
- Lack of non-invasive testing to confirm or exclude CRC.[5]
- Little work to date has explored attitudes and acceptability of these tests for cancer exclusion as an alternative to invasive diagnostics in the non-responder population.

Aim

- To explore the reasons for poor engagement in bowel screening in Wales
- To determine the acceptability of the combination of the novel blood test and existing faecal test – "Raman-FIT" – to diagnose colorectal neoplasia.

Methods

- Anonymised postal questionnaires sent to 500 consecutive people who were eligible for bowel screening but failed to engage.
- Non-engagement: failure to respond after 24 weeks despite a reminder letter 12 weeks after the initial invitation.

Questionnaire:

- Short demographics self-report
- 18-point questionnaire addressing barriers to screening
- 14-point questionnaire addressing thoughts about a new test
- Feelings towards the faecal screening test were assessed using the 12-point Disgust Propensity and Sensitivity Scale Revised (DPSS-R) score
- Free text box - what is the most important reason behind why the screening test is not used.

Disgust propensity (individual's tendency to experience disgust)

I avoid disgusting things
I feel repulsed
Disgusting things make my stomach turn
I screw my face up in disgust
I experience disgust
I find something disgusting

Disgust sensitivity (how unpleasant an individual considers experiencing disgust).

When I feel disgusted, I worry that I might pass out
It scares me when I feel nauseous
When I notice that I feel nauseous, I worry about vomiting
It scares me when I faint
It embarrasses me when I feel disgusted
I think feeling disgust is bad for me

Results

Patient demographics

48 respondents, response rate of 9.6%.
Median age was 72 years (SD 2.07, range 69 – 75 years).
58.3% (n=28) respondents were male, 41.7% (n=20) respondents were female.
Most respondents (83.3%, n=40) were retired and married (62.5%, n=30) and with a smaller proportion divorced (14.6%, n=7) or widowed (14.6%, n=7).
37.5% (n=18) of patients have previously participated in bowel screening, while 37.5% (n=18) patients have participated in other screening programmes.
Family history of bowel cancer in 10.4% (n=5) patients.

Emerging themes - Tell us what you would say is the most important reason that you do not use these screening tests?

*"I think in its present state it is **too fiddly** & would **prefer a blood test** if one was available."*
*"Especially **due to the current pandemic**, I feel the **testing system is unhygienic and inappropriate**."*
*"I have **arthritis in my hands** and find it **messy and difficult**."*
*"I do not like **taking the sample.**"*

*"After **doing 2 screening tests**, which were **negative** I **didn't see the point of continuing** with the test."*
*"I've had ulcerative colitis for 40 years, haven't had a flare up for many a year but **I am seen at the gastroenterology clinic yearly** and I know I can phone to be seen in between appointments if necessary. **I also have a colonoscopy every 3 years**. (I did phone and say this when I first had the sample kit)."*
***"I meant to complete the test** but kept forgetting and then **realised I had already had a negative test** in Cornwall **just before** moving back to my hometown in Cardiff in **July 2019**."*
*"I have had **occasional bleeding piles** through my life, which I think c**ould give you a false positive**. I have had **previous colonoscopies which have found nothing but not recently**."*

*"I suffer with anxiety. **I get nervous about the specimen test**."*
*"Because **I am afraid** of **what the test may or may not reveal** and I would **maybe constantly be worrying**. My **mother** complained about **symptoms**, but GP **did nothing until it was too late**."*
***"Anxious** that I do not **complete the process correctly** – I found the **process frightening and unpleasant**."*
*"I find it is **very disgusting** to take a sample from my own poo **I can't bear the smell** of human poo."*
***"Nervous and embarrassed**. Friends have had it and say it's painful and embarrassing."*
***"Unpleasantness** of handling/**taking sample** of faeces."*
*"The reason I didn't send the last BST in was because **I was going through a stressful time it got lost and then I thought my age was against me."***

*"To be honest when I receive the pack, **I have every intention of doing the test** (as **I strongly believe screening is excellent)** however as I write this (it sounds feeble) **but with being busy working – it goes out of my radar**. **To be honest if I was sent one now in the next month, I would make sure that I would do the test."***
***"I have done every test,** but past year it came before **holiday** then **house renovation**, then **COVID** and **I forgot about doing it**."*
*"I have no reason not to participate in the testing program, when I received the testing kit last year, **I was abroad for a few months,** so it was not completed for this reason. **If I was to receive the kit again, I would complete it."***
***"I regret** not completing my last postal screening test, which **I completely forgot receiving**. **I have now found the test and will ensure that I post it within the next few days**. If not received, I would appreciate if you can post out another test. Thanking you."*
*"I hold my hand up! I had the kit put it safe and went abroad. **Forgot about the test**. Had a reminder then went abroad again. On return had an alleged **heart problem which took priority**. Perhaps if the test was time bound, I'd have given it the attention it deserved."*

*"**Laziness.** I did the test when asked and posted it off but **forgot to put the date**, so it wasn't tested. "*
*"Nervous and embarrassed. Friends have had it and say it's **painful and embarrassing**."*
*"Because I am afraid of what the test may or may not reveal and I would maybe constantly worrying. **My mother complained about symptoms, but GP did nothing until it was too late**."*
*"Having to **wait so long** for the results."*
*"**Not sure of accuracy** of testing."*

Other health matters …."*In 1998 I was diagnosed with a pituitary tumour and I've had 4 cranial ops to render it dormant. I have more recently had bladder cancer stage 3. I think **I am fed up with visiting hospitals!!"***
*"Already have **incurable prostate cancer**."*
*"Lived abroad since 2010. Back to UK 2019. Diagnosed cancer in Portugal. **Ongoing treatment in UK 2020**. Re: RAMAN-FIT: Not applicable now but would take it!"*

Trait disgust - mean DPSS-R total score for the sample was 24.00 (SD 10.16).

No association between respondents who found the faecal test disgusting to a preference for providing a blood sample only (X^2 =0.8167, p = 0.36)
No association between social deprivation and preference towards a blood test (X^2= 0.0127, p=0.91).

Discussion and Conclusions

- There is **strong intention to complete.**
- There is an **appetite for blood testing** as an alternative to faecal testing in this population of non-responders.
- Potential for blood tests to be used as a tool to **improve compliance** and **increase bowel screening uptake**.
- Further work is needed to validate the Raman blood test in a screening population to establish its test performance and cost-effectiveness.

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PREDICT-EV; Altered coagulation in Transient Ischaemic Attack (TIA) patients

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[1] Centre for Cardiovascular Health and Ageing, Cardiff Metropolitan University

[2] Prince Charles Hospital, Cwm Taf Morgannwg University Health Board

BACKGROUND

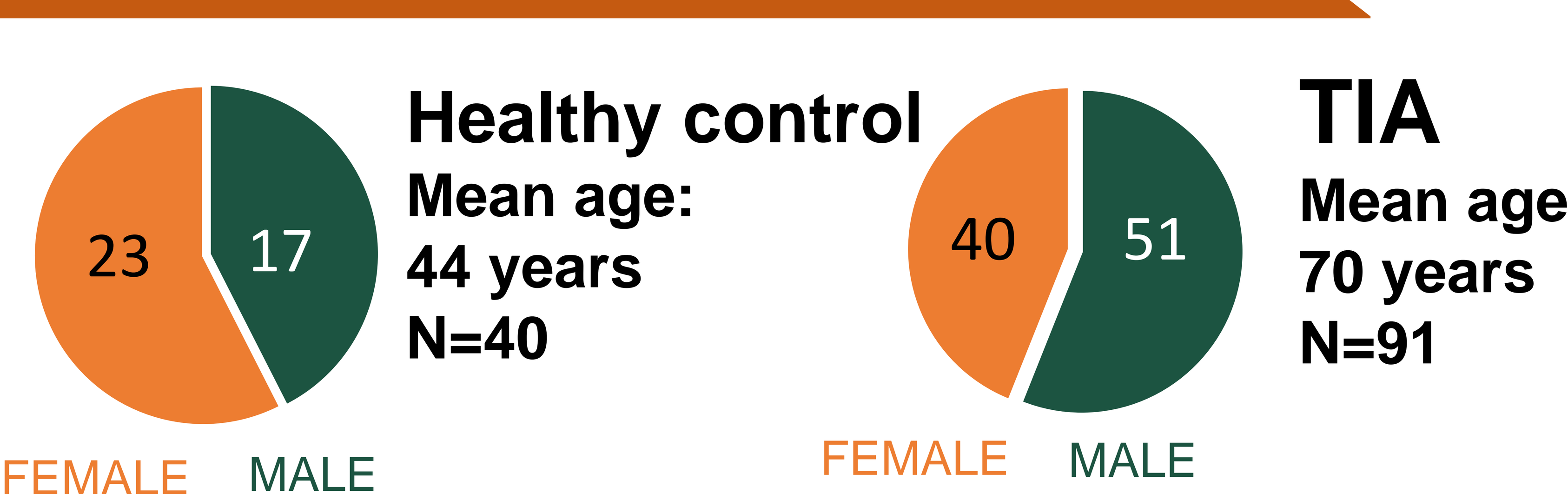
Stroke is the second leading cause of death worldwide and is the fourth in Wales. One quarter of stroke patients previously suffer a transient ischaemic attack (TIA) or mini stroke (1).

Stroke patients have increased coagulative risk and show increased fibrinogen levels, but little is known for TIA patients (2).

For stroke physicians and nurse practitioners who evaluate TIA patients, the problem is the ability to identify and stratify risk and to determine which patients require a tailored intervention to prevent a future stroke.

Aim: To Determine if coagulation is altered post-TIA and assess fibrin clot formation in TIA patients and healthy control subjects.

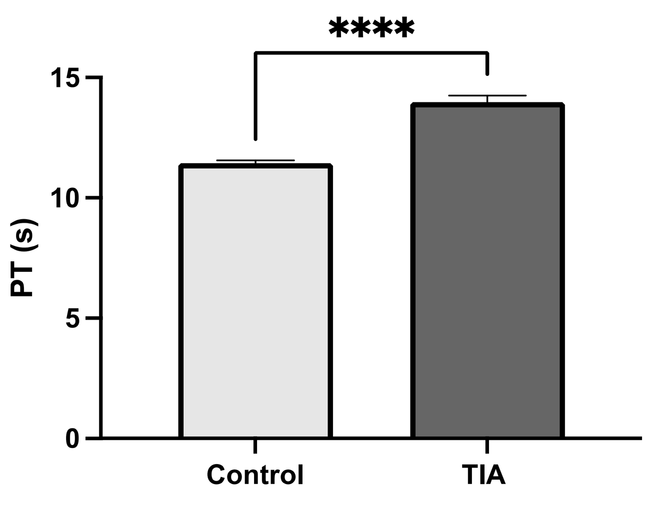
METHODS

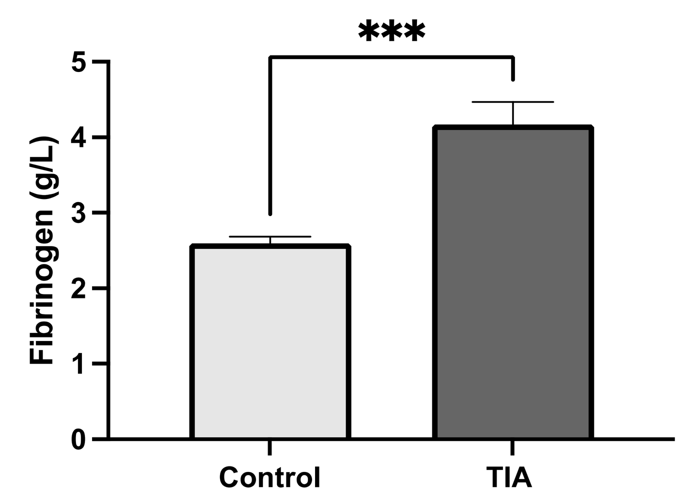


- Clinical testing: full blood counts, PT, APPT, fibrinogen, D-dimer, CRP.
- Coagulation screening on subject plasma to assess clot formation and lysis using Thrombin and Tissue Plasminogen Activator (TPA).
- Fluorescent Fibrinogen assay to assess clot structure.

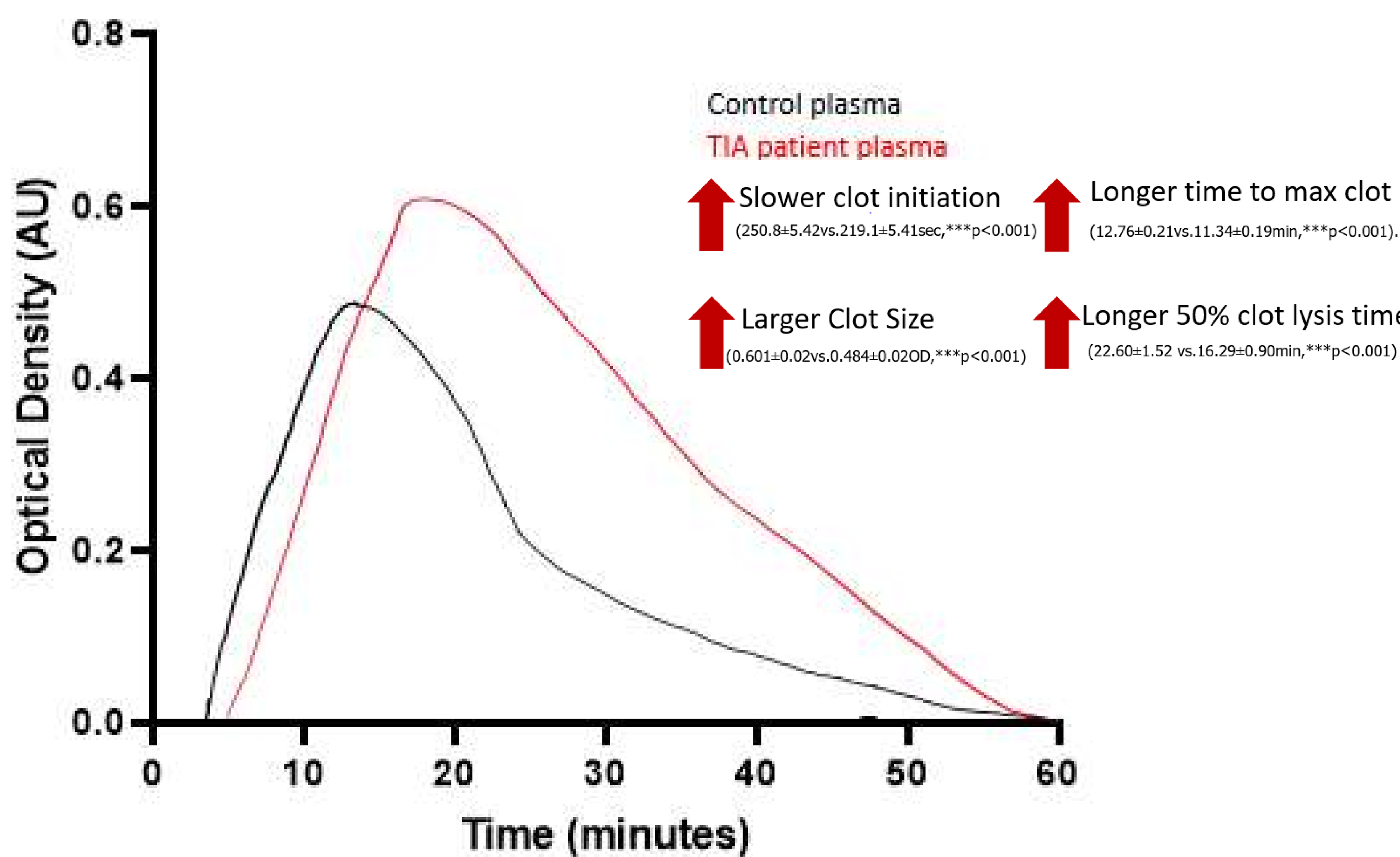
RESULTS

A. Longer PT time and increased fibrinogen levels in TIA patients



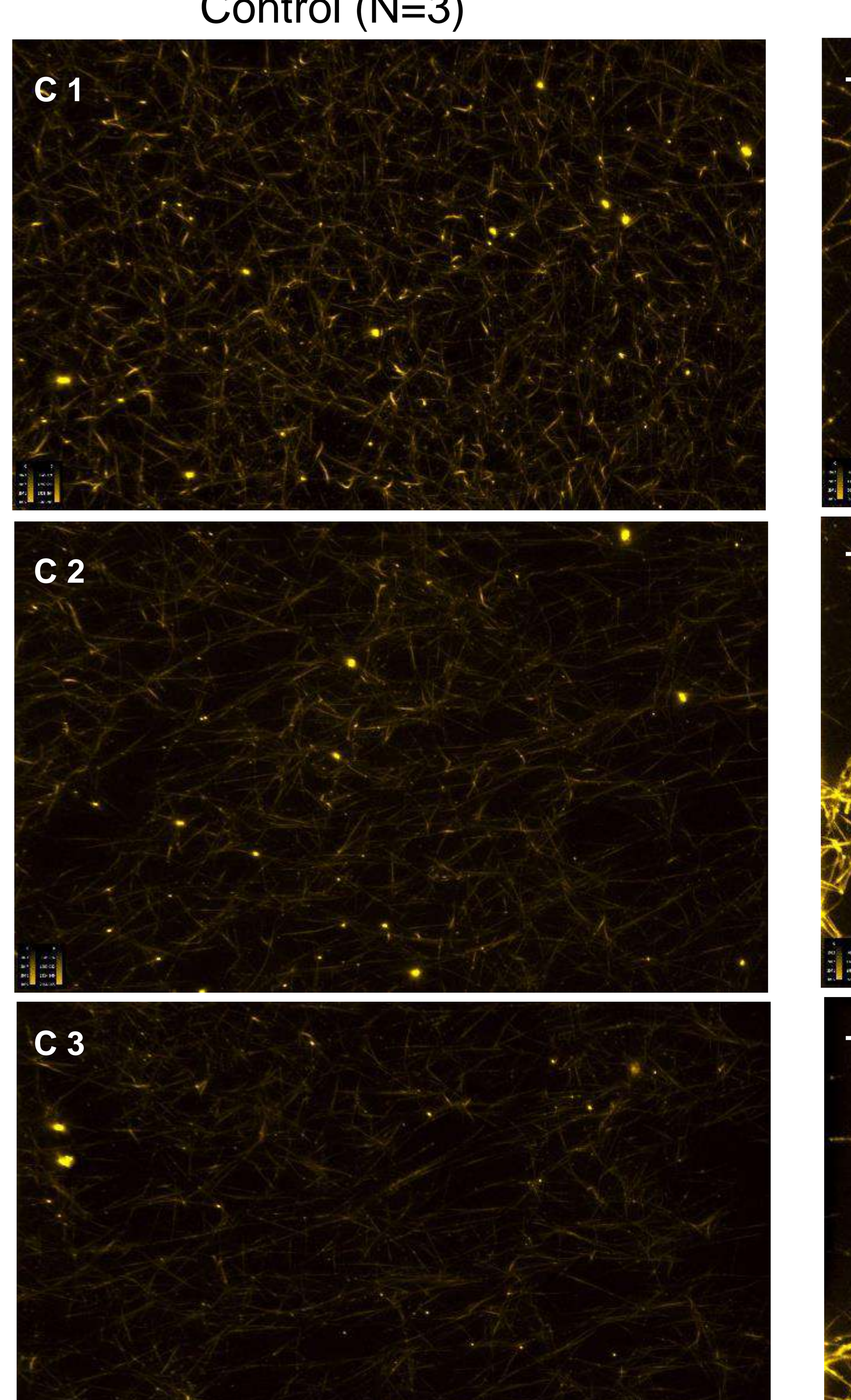


B. Coagulation trace for subject plasma

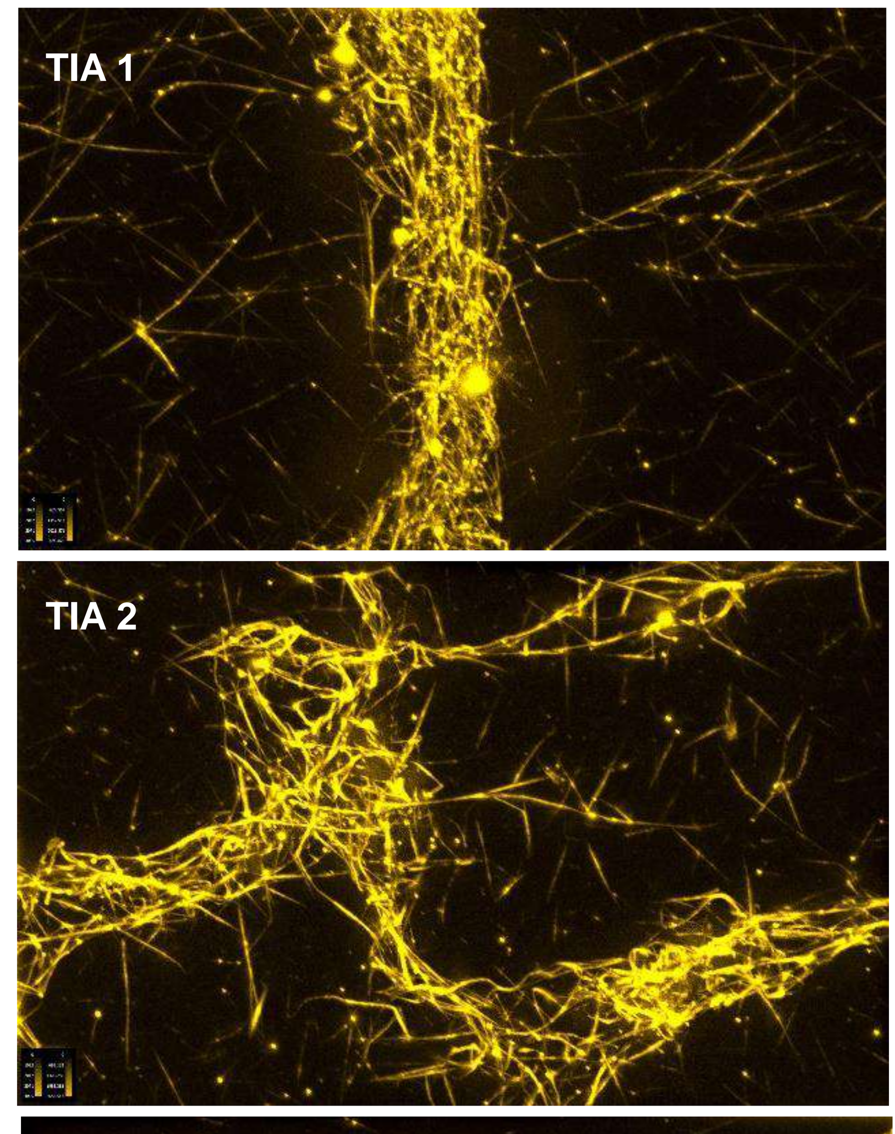


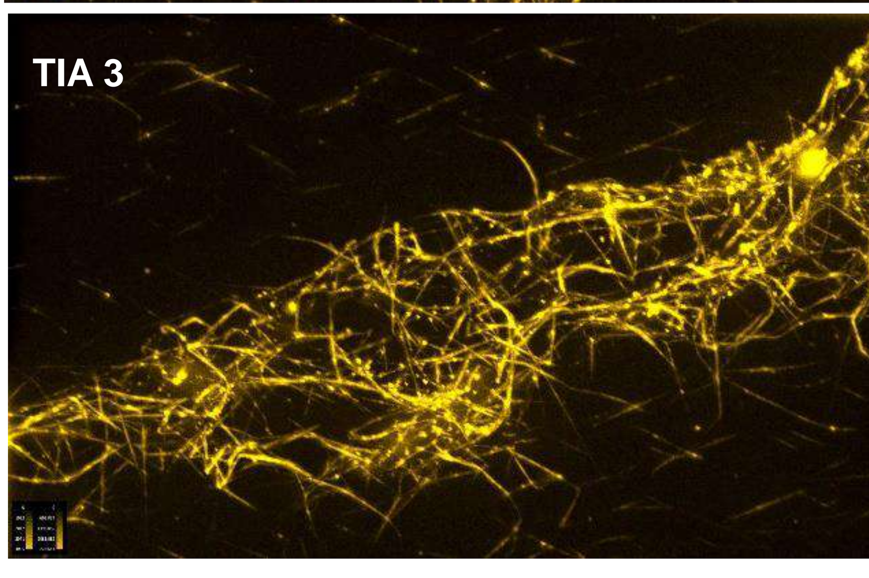
C. Fluorescent fibrinogen clotting assay to assess clot structure

Control (N=3)



TIA patients (N=3)





CONCLUSIONS

Prolonged PT (A) post-TIA most likely reflects consumption of circulating coagulation factors and results in a slower clot formation as seen in the *ex vivo* clotting assay (B).

Increased fibrinogen levels in TIA patients (A) also potentiates larger and stronger clots formed. In agreement, the fibrin clot formed using TIA patient plasma was more resistant to lysis, suggesting a modified structure and strength. TIA patient clots appeared denser and fibrin strands clustered together (C), potentially due to increased fibrinogen concentrations and interactions with pro-thrombotic extracellular vesicles.

Presently, a coagulation screen is not part of routine haematological and biochemical testing for TIA patients, despite altered coagulation being evident post TIA. These vital results could identify those at a greater risk of suffering a future stroke, informing the treatment plan post TIA. Whether these changes to coagulation are predictive of future stroke risk is still under investigation.

ACKNOWLEDGEMENTS

We thank the study recruits and the clinical research team at CTMUHB; Caroline Hamilton, Meryl Rees,, Brian Tennant, Rhian Beynon, Keri Turner and Alan Dodd.

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Implementation of a Heart Failure Management Programme (HF-MP) to improve patient access to services throughout their Heart Failure journey: A service improvement evaluation

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INTRODUCTION

To reduce both hospital admissions and mortality, guidelines recommend the use of multidisciplinary Heart Failure management programmes (HF-MPs); beginning with correct investigations for a timely and accurate diagnosis, initiation and up-titration of guideline-directed medical therapies (GDMT), education and follow-up. The optimal implementation of a HF-MP requires a multidisciplinary team (MDT) that is active throughout the course of Heart Failure (HF); from onset, through critical events, periods of apparent stability, and its terminal stages.[1,2]

The Princess of Wales Heart Failure Service was successful in obtaining workforce bids to expand the current service and implement a patient centred HF-MP.

- January 2023: Successful Value-Based Healthcare bid for fourth Heart Failure Specialist Nurse (HFSN) to increase patient access to Advanced Care Planning (ACP) and Palliative Care services.
- April 2023: Number of pharmacist-led HF clinic sessions increased from two to four sessions per week.

Previous service evaluations have successfully demonstrated the benefits to patients of a HFSN and HF specialist pharmacists in the outpatient setting; the service now aims to support HF patients currently admitted to hospital (de novo patients, decompensated HF, non cardiovascular (CV) causes) and increased support for patients throughout their HF journey, including advanced care planning (ACP).

AIM

To evaluate the impact of a patient-centred multidisciplinary Heart Failure Management Programme (HF-MP), through analysis of the following:

1. **Increased outpatient Pharmacist-Led clinics**
2. **Heart Failure Specialist Nurse conducted**
   - **Inpatient (in-reach) reviews**
   - **Ambulatory (same day) review**
   - **Advanced care planning / collaboration with palliative care**

METHODOLOGY

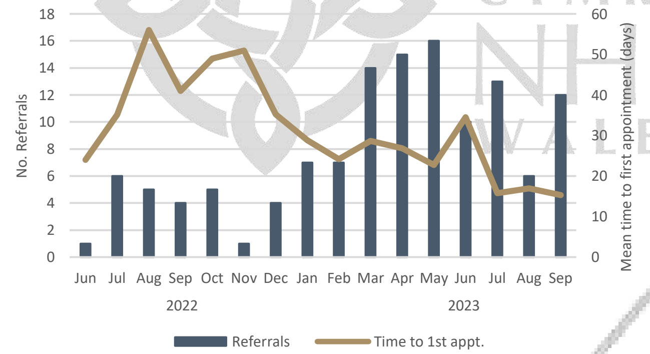
A prospective analysis of pharmacist-led clinic data and HFSN service data. All data were collected with bespoke Microsoft Excel® database and clinical information collected from Welsh Clinical Portal.

RESULTS

Staff Member	Year	2022	2023									
	Month	Jul - Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOT
HF Pharmacists	No. referrals	25	7	7	14	15	16	10	13	6	12	100
	Mean time to 1st appt. from date of referral (days)	45	29	24	29	27	23	35	16	17	15	23
HFSN	Inpatient (In-Reach) Reviews	45	4	NA	24	11	29	54	63	39	26	250
	Ambulatory Review	109	17	8	8	8	20	22	49	45	33	210
	ACP / Palliative Care	2	2	0	1	0	6	3	4	7	3	26

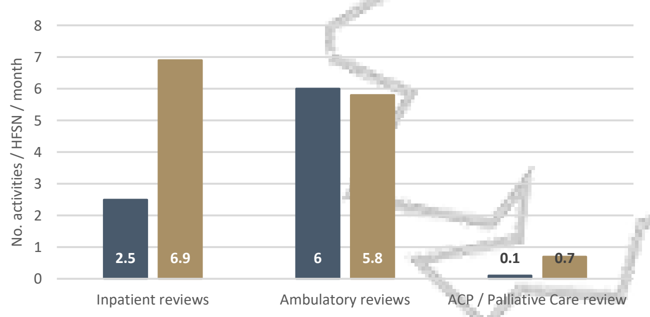
Table 1: Summary of HF pharmacist and HFSN activity from July – December 2022 and January – September 2023.

PHARMACIST–LED CLINIC



Graph 1: Number of referrals made and mean time to first appointment in the Pharmacist-Led Clinic

HEART FAILURE SPECIALIST NURSES (HFSNs)



Graph 2: Mean number of activities per Heart Failure Specialist Nurse (HFSN) per month

RESULTS & DISCUSSION

A significant increase in the number of referrals were received to the Pharmacist-Led clinic, with the mean number of patients increasing from 4 (2022) to 11 (2023) per month. Despite a nearly three-fold increase in referrals, a reduction in the time taken to first appointment was also observed, with the current wait time approximately 15 days (reduction from 45 days at baseline).

Redirection of outpatient workload has resulted in a significant increase in the number of inpatient reviews, ambulatory (same day) reviews and palliative reviews / ACP performed. Despite an increase in the number of HFSN within the team, the average number of inpatient reviews and ACP conducted per HFSN had increased ***(see graph 2)***. There was no change in the number of patients offered ambulatory appointments per HFSN, but increase in workforce has allowed a greater number of reviews overall.

Current evidence suggests that rapid initiation and up-titration of GDMT reduces hospitalisation and mortality. Implementation of the current HF-MP has yielded greater inpatient reviews, increased outpatient capacity and a reduction in waiting times to first appointment. It is likely that greater numbers of inpatient HFSN reviews are likely to drive a further reduction in Pharmacist-Led clinic waiting times ***(see image 1)*** and further increase outpatient HF service capacity.

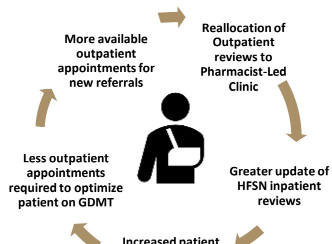


Image 1: Benefits of implemented HF-MP

Further evaluation will be required to assess patient outcomes, including update of GDMT, HF biomarkers (left ventricular ejection fraction and natriuretic peptide levels), hospitalisation and mortality.

CONCLUSION

Implementation of HF-MPs can lead to improved access to HF care both from ambulatory and in patient settings. MDT approach to HF care allow deliverance of prudent healthcare throughout the journey of patients with heart failure.

ACKNOWLEDGEMENTS

Many thanks to Amy Foxhall (Secretary to HF pharmacists), Adrienne Davies (Secretary to HFSN), Sian Tossell (Secretary to Dr Wong) and all the staff from the Regional Cardiology Day Unit for their continued and unwavering support.

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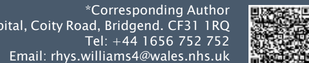

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'Be stronger' programme

Providing a musculoskeletal physiotherapy service in local leisure centres

Mike Harrop, Lewis Jon-Hudd, Alex Boe, Ben Smart, Owen Jones, Jack Corney, Jon Williams

Outpatient Physiotherapy Departments - Prince Charles Hospital, Ysbyty Cwm Cynon

What is the need?

Our aims:

- To increase the number of times patients with musculoskeletal (MSK) conditions perform strengthening exercises per week
- To increase patient's self-efficacy to perform strengthening exercises independently

UK government physical activity guidelines:

- Perform strengthening exercises twice per week

However…

- These government guidelines are not widely understood
- Patients demonstrate poor compliance with continuation of strengthening exercises after discharge from physiotherapy
- Need to develop a positive culture around the importance of strengthening exercises to improve health

In combination with 'A healthier Wales' longterm plan (1)
→ Goal to treat patients closer to home

Our vision: place physiotherapists in local leisure centres / gyms to bridge the gap between hospital and community rehabilitation

What have we done?

Physiotherapy teams spend one afternoon per week in:

Rhydycar Leisure centre, Merthyr Tydfil (since 2021)
→ Linked with Prince Charles Hospital

Sobell leisure centre (since early 2023)
→ Linked with Ysbyty Cwm Cynon

This intervention enables the team to take patient through high level exercises and complex rehab, needed to return to:

- functional activities
- sports
- manual work

For patients with a high frailty score / poor physical health:

- Introduction to gym environment and strengthening exercises
- Build new skills / knowledge

These sessions are delivered as one-to-one sessions or as small groups

Community leisure facilities

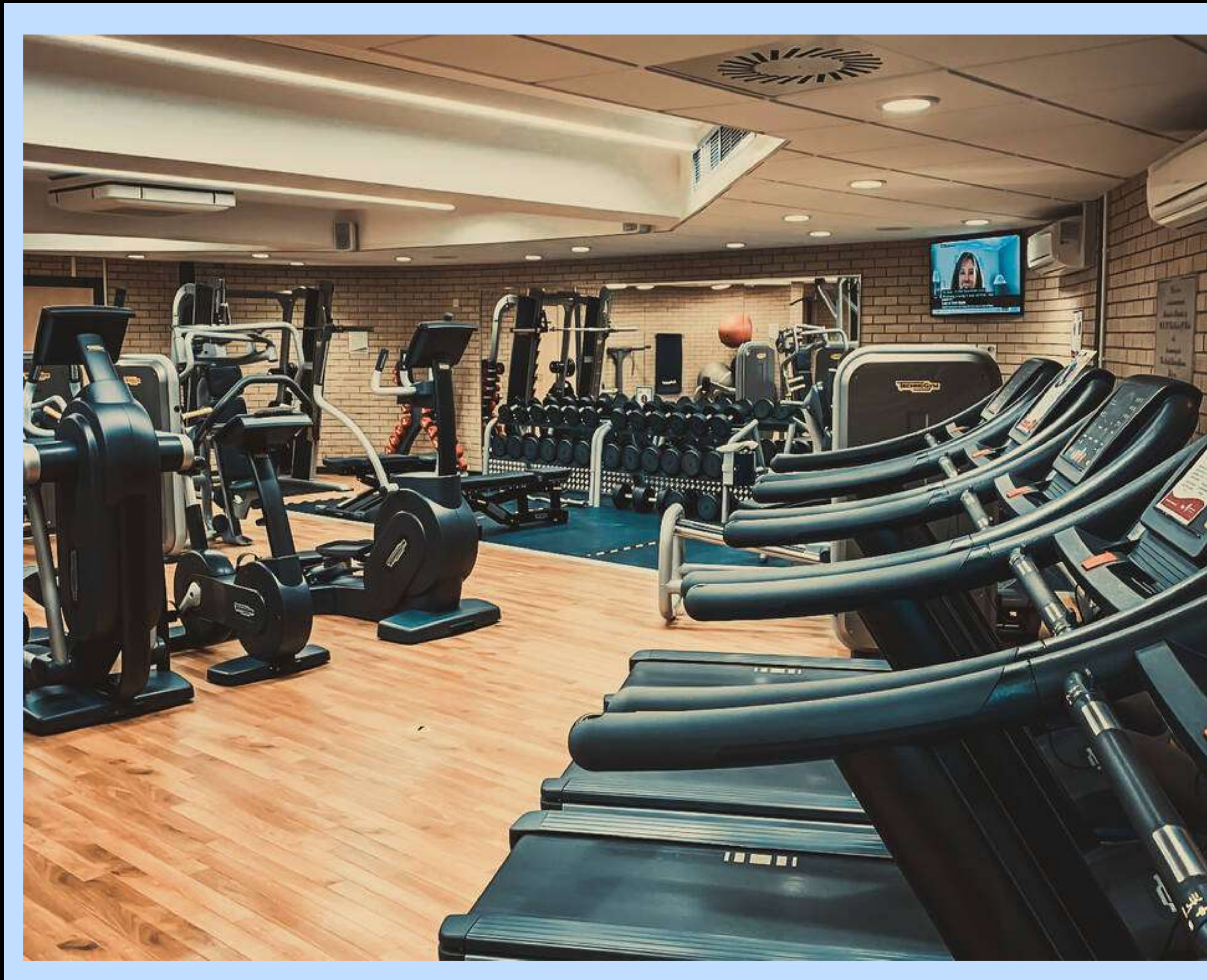

Image 1: facilities available at Rhydycar leisure centre

Feedback

- Patients report moderate to high levels of increased confidence to exercise independently
- Enjoy being shown equipment and being made bespoke exercise programs
- Found clinicians knowledgeable and were likely to recommend the service

Follow up interviews

- Most patients keen to continue with exercise

Sobell: 50% have gone on to join the gym
Rhydycar: 20-30% joined gym

What next?

Aim: for every hospital in Cwm Taf to be linked with one leisure centre

- Plan to expand to Dewi Sant / YCR / POW

Challenges

- Currently leisure centres are providing facilities for free
- They benefit from new memberships; is this enough?
- Need to prove value and secure funding from health board

References

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Increasing uptake of Fluenz vaccination in two-year-olds through appointment times and dates: A pilot intervention in Cwm Taf Morgannwg University Health Board

A Collaboration between Cwm Taf Morgannwg University Health Board and Public Health Wales Vaccine Preventable Disease Programme

Authors: Charlotte Todd [1], Dr Megan Elliott [1], Caroline Harris [2], Rhian Meaden [1], Rhianydd Davey [1], Mark Gall [1], Hayley Gale [1], Hawys Youlden [2], Rosemary Jones [2], Dr Simon Cottrell [2]

[1] Cwm Taf Morgannwg University Health Board [2] Public Health Wales

Contact: CTM_ImmunisationService@Wales.nhs.uk

Background

- In 2021-22, uptake of Fluenz in two-year-old children was low in Wales (47%) and CTM (44.6%). The Welsh Government target is 75%.
- Vaccination of 2-year-old children is important to protect themselves and others from flu.
- Fluenz is generally delivered to 2-year-olds in CTM UHB via GP practices.
- Drawing on insight from the approach for routine immunisations, an evidence review and local insight gathering, a recommendation was made to:

Fluenz Uptake in Two-Year-Old Children in 2021/22 (Target, Wales, CTM)

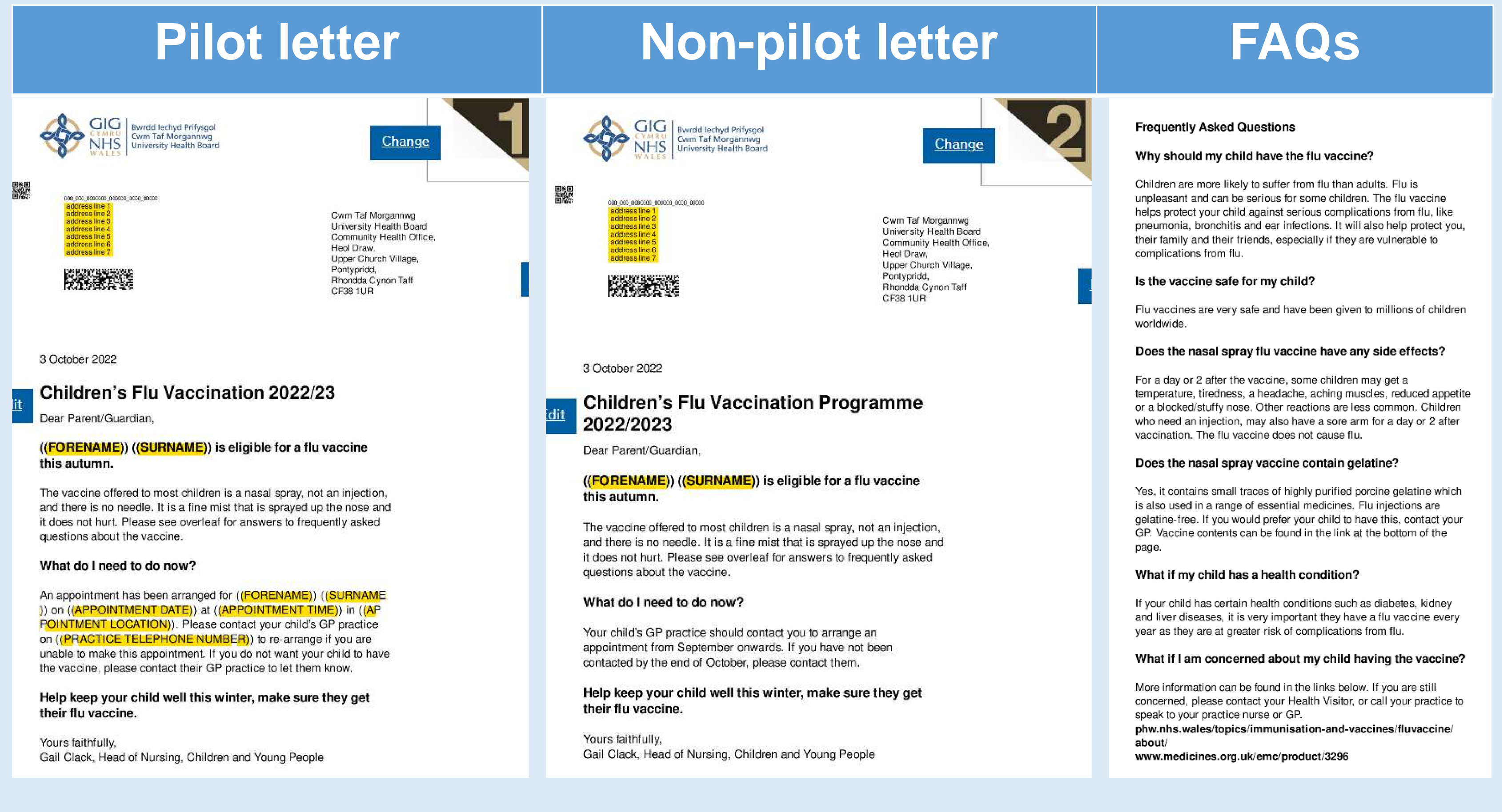
Pilot test the effect of giving parents/guardians of two-year-old children an **appointment date and time** for their Fluenz vaccination in General Practice.

Evaluation methods

- Mixed-methods evaluation using quantitative GP practice-level Fluenz uptake data from Audit+ and qualitative data generated from interviews & surveys with participating practices & stakeholders.
- Resource implications of invitation mechanism calculated and compared with resource use for standard practice.

The Pilot Intervention in 2022/23 Influenza Season

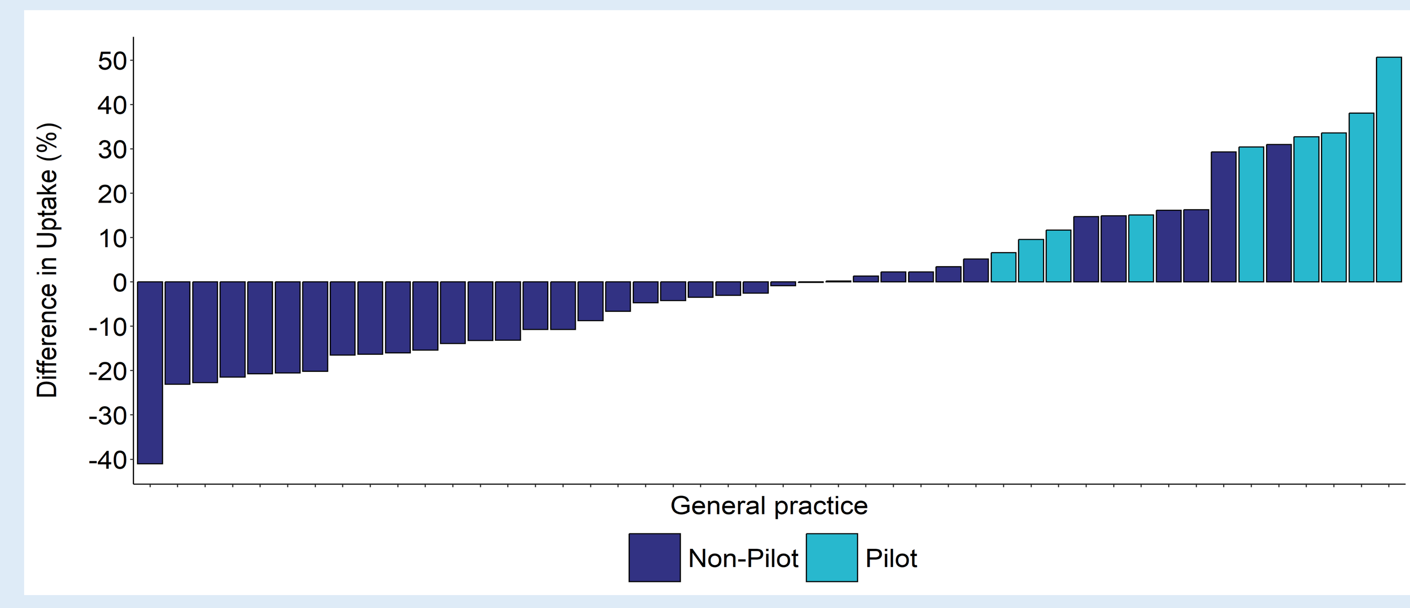
- Nine GP Practices selected based on previous low Fluenz uptake.
- Practices booked clinics in October/November 2022 and sent details to Child Health teams.
- Child Health teams sent personalised letters with set appointments to children in pilot GP Practices via UK Government Notify system.
- All children in non-pilot Practices also received a personalised letter, but no appointment time/date. They were asked to proactively telephone their GP to make an appointment.
- All letters were bilingual and accompanied by a bilingual FAQ sheet.
- Letters sent in September 2023, at least two weeks prior to clinic.



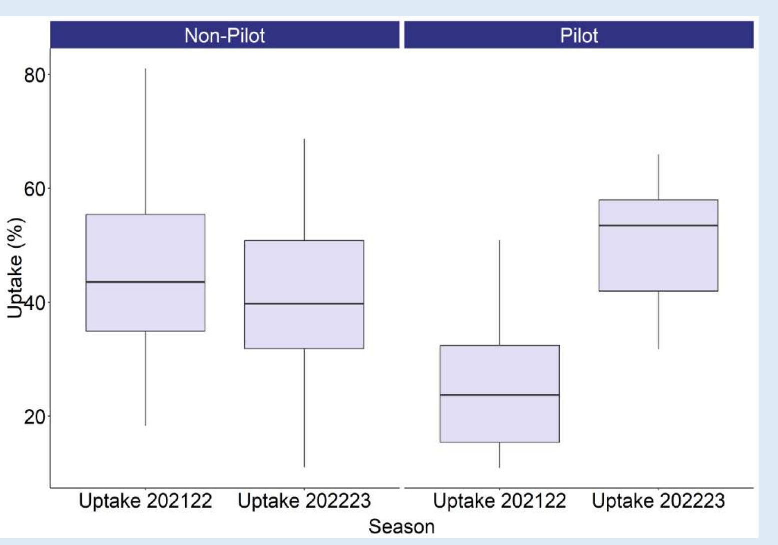
Findings

Quantitative

- Increases in Fluenz uptake for two-year-old children were seen in all pilot practices.



- The median change in uptake for pilot practices was +30.4%, compared with -4.7% for non-pilot practices.



Qualitative

- **Advantages**: Saved administration time, helped with planning & management of clinics.
- **Disadvantages**: Wasted clinical time from DNAs. Some patients reported not receiving letters.
- **Suggestions for improvement**: Sending letters earlier, sending reminders, giving parents the option to decline via text/other format after invite, having dedicated clinic slots but inviting parents to make appointments.
- Practices highlighted the need for additional parental education about Fluenz.

"Less time needed for sending out letters initially" (Practice G)

"Some clinics were [quieter] than others which meant the Nurse was waiting around, although it did give her time to send out further letters with appointments" (Practice F)

"Everything was much quicker and slicker" (Child Health Team)

Resource Implications

- £2,089.62 to use Notify to send letters to all two-year-old children (n=3,666)
- Same price to send letters with/without appointments.
- Cost comparison to manually sending letters:
  Notify = £0.57 per child Manual = £0.81 per child **Overall saving = £879.84**

Recommendations

- Issue appointment times and dates for Fluenz vaccination for 2-year-olds in low performing Practices.
- Utilise time lost to DNAs for nursing staff to issue reminders, or undertake recall activities for vaccinations.
- Explore opportunities for digital response systems to enable parents/guardians to directly decline/reschedule appointments as early as possible.

Limitations

- Pilot evaluation was not a controlled experiment, with no randomisation. Unable to conclude that increase was due to intervention.
- Selected practices were amongst lowest performing, lower baseline.
- Potential observer bias with practices who may have made additional efforts to increase uptake.
- Unable to test effect of text message reminders due to low completion of telephone number datasets in Child Health.

Acknowledgements Thanks to all those who participated in the delivery and evaluation of the pilot including the pilot practices, child health and GMS primary care teams.

Clinical Education Engagement and Development Programme.

Janet Gilbertson (CTMUHB), Rebekah O'Rourke, David Hain, Julia Fernando (Transformation Partners.)

'when we strive to become better than we are, everything around us becomes better too' (Paulo Coelho)

Action Learning Methodology

In 2021 the Clinical Education function embarked on a process of engagement and development in order to work more collectively, understanding a clear shared purpose, enabling clarity and utilisation of all available resources across the function and improving staff experience and wellbeing within their working lives. An external consulting team worked with the Head of Clinical Education to develop the programme of work and process for delivery.

An integration of theory and practice, based on action science and systems psychodynamic principles, utilised an action learning approach, to undertake a non-didactic learning method that fostered greater role-based awareness, skill development and practice of all participants. Seven key intervention types were used ranging from whole team gatherings to 1:1 leadership role consultations.

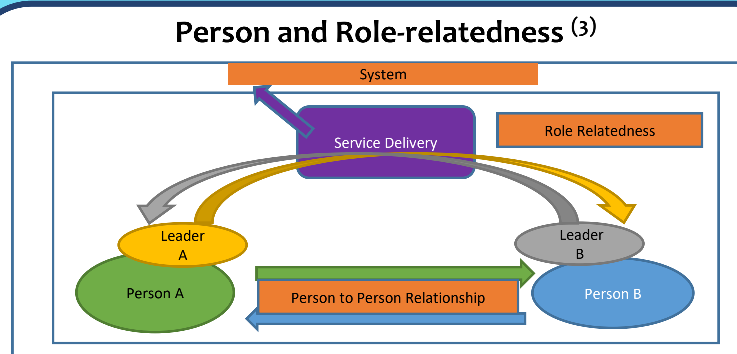
Adaptive Leadership

Raising the heat

- Technical Problem
- Limit of Tolerance
- Productive range of distress
- Threshold of Learning
- Disequilibrium
- Adaptive Challenge

Raising the Heat
- Questions
- Naming observations
- Making Hypothesis
- Get skin in the game
- Working with the minority voice
- Using silence
- Speaking from the 'I'

Person and Role-relatedness [3]



Results & Discussion

Many traditional development programmes take an individual view of development. This programme design took a systemic view of how each of the parts interconnected and were influenced by each other. This work expanded beyond individuals to a focus on a nested team approach within a broader department and in particular the multiple roles that people take up within the team.

The focus on the leadership team members, on their own effectiveness and leadership of the broader team was also central to the process. That there are multiple roles that leaders have in an organisation. A team member of a leadership team is a different role to leading a team. Understanding these differences and subsequent behaviours is important for improved and sustained leadership practice.

Practicing skills in the 'here and now' of working with each other was also a key enabler. Having a consultant that could contain and support an ongoing process of connecting with each other provided a consistent frame for team members. Links could be made between the different sessions and events that took place with patterns of behaviour in roles being observed and discussed at collective and individual levels. When the team was able to address underlying root causes, long standing challenges and begin to discuss impacts of behaviours in roles, shifts could occur.

Overarching, the work done by the Clinical Education team has resulted in improved collaboration, shared decision making and collective problem solving beyond individual members and teams. The design of the process allowed for ongoing reflection, adjustment and learning in how roles were taken up and has benefited the work and impact of the Clinical Education team overall.

Assessing patient safety culture in a Welsh neonatal unit

Stephen Chooi, Iyad Al-muzaffar

OBJECTIVES: This study aimed to provide a baseline assessment of the patient safety culture in a neonatal unit in Wales, to provide an overview of factors that contribute to patient safety, to identify strengths and weaknesses, and to use the information to plan for improvement.

INTRODUCTION: In recent years, safety in neonatal units has been highlighted, and considered high priority on the healthcare quality program. Safety culture is believed to contribute and greatly influence the quality and safety of patients in the neonatal unit. Assessing safety culture is the first step toward improving patient safety.

METHODOLOGY: All staff working in the neonatal unit at Prince Charles Hospital were invited to participate in a web-based Survey on Patient Safety Culture (SOPS®) Hospital Survey version 2.0. The study period was from June 7 to 17, 2023. Positive response rate to 10 patient safety culture composite measures and 2 outcomes (overall patient safety rating and the number of safety events reported in the past year) were analysed. Composite measures with a positive rate of 75% or more are identified as strengths, measures with 50-75% have potential for improvement, and those with less than 50% as weaknesses.

RESULTS: 100 staff members were invited to participate in the study. 37 surveys were completed, giving us a response rate of 37%. 32% of participants were neonatal nurses and 46% were doctors. 49% of respondents reported no patient safety events, while 30% reported 1-2 events in the past year. The patient safety composite measures with the highest positive rates were "Teamwork" at 91%,"Supervisor, manager, or clinical leader support for patient safety" at 81%, and "Organisational learning - continuous improvement" at 76%. The remaining 7 composite measures' positivity rates ranged from 62 to 69%, identifying potential areas for improvement.

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CONCLUSION: This patient safety culture study has identified strengths; it has also found areas for improvement, such as inadequate staffing to handle the workload, a lack of interest in patient safety from hospital management, and not reporting mistakes that have been caught before reaching the patient. The next step is to use this information to develop an action plan to improve patient safety in our neonatal unit.

Figure 1: Summary of responses to 'In the past 12 months, how many patient safety events have you reported?'.

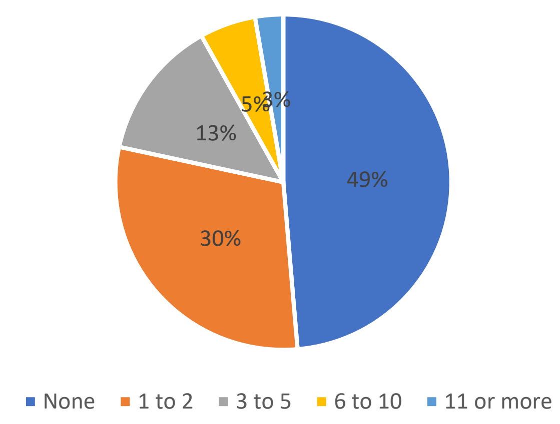
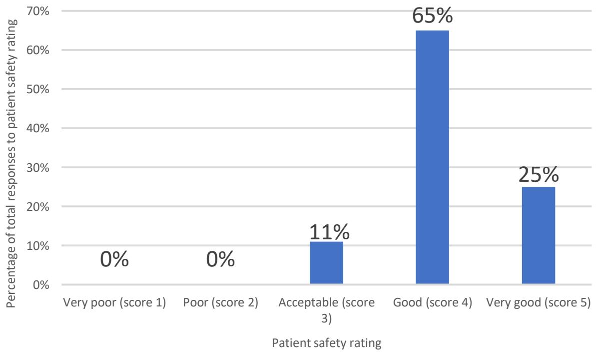


Figure 2: Summary of responses to 'How would you rate your unit/work area on patient safety?'.



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An Evaluation of Physiotherapy Input for Infective Exacerbation of Chronic Obstructive Pulmonary Disease (IECOPD) Admissions at Royal Glamorgan Hospital

Alex Szuplewski & Dom Anderson

BACKGROUND AND AIMS

The Global Initiative for Obstructive Lung Disease report (2023) defines IECOPD as an acute worsening of respiratory symptoms, beyond the day-to-day normal variation. 45% of patients typically experience 2 or more episodes per year (Dhamane et al. 2015); presenting with dyspnoea, increased sputum load and fatigue (Holland et al. 2014)

RGH averaged 30 IECOPD admissions per month from July – Dec 2022, representing a significant demand on the acute site. National BTS/ACPRC guidelines suggests Physiotherapy input is key to optimising outcomes for both patients and the service.

For the individual, timely Physiotherapy input has been identified to lead reduced risk of mortality on admission, and improved quality of life post discharge (Lenferink et al. 2017; Marti et al. 2020). At a service level, physiotherapy input for IECOPD patients has been demonstrated to reduce length of stay, readmission rates and subsequent health care burden (DeGaris et al. 2020).

The aim of this evaluation was to establish the service level provision of Physiotherapy for patients admitted to RGH with IECOPD - identifying areas of good practice, and areas for improvement.

METHODOLOGY

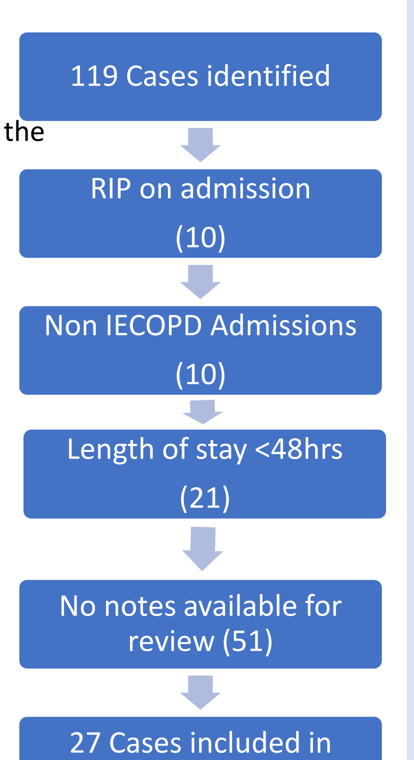
Cases were identified retrospectively for the period between 01/01/23 and 31/03/23 via a coding search and screening of patient notes for; AMU, ward 19, respiratory team outliers list. All consecutive cases within the time period were considered for inclusion

Inclusion Criteria - admitted with IECOPD to RGH between 01/01/2023 & 31/03/2023.

Exclusion Criteria - Admission <48hrs, No Diagnosis of IECOPD, RIP on Admission, No notes available to review on CITO.

A data proforma was developed to collect data retrospectively from patient records for the following outcomes:

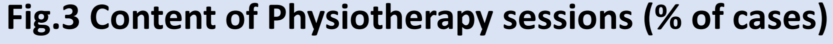
1. % of patients referred to Physiotherapy
2. Days from Admission to review
3. Days from Admission to Mobility review
4. Content of Physiotherapy Sessions
5. % of appropriate patients referred to the community Respiratory Exercise Group/Pulmonary Rehab (REG/PR)

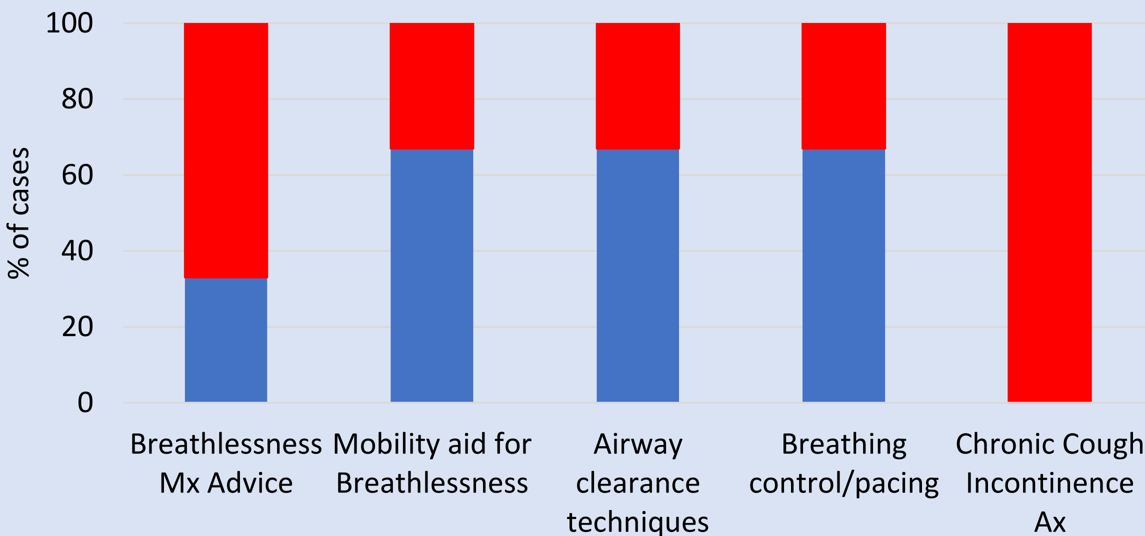


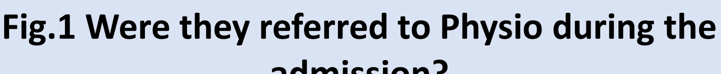
Average delay from admission to Physiotherapy Assessment

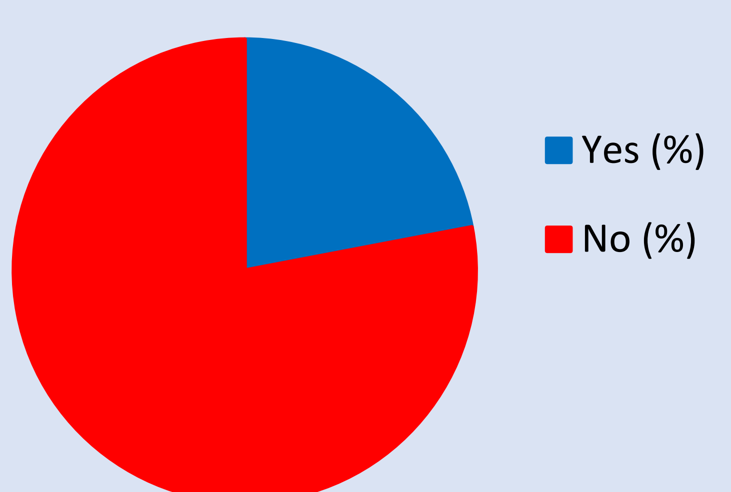
100%

Of cases had a functional review on initial Physio Assessment









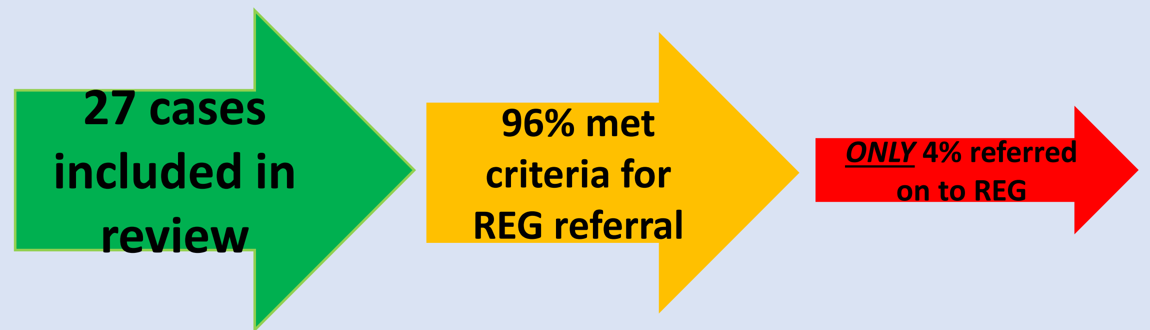


Fig.4 Respiratory Exercise Group Referrals

CONCLUSION

As previously discussed, the majority of patients admitted with IECOPD have been demonstrated to benefit from PT involvement. This evaluation highlight several shortcomings:

1. ***Majority of patients were not referred*** on for a Physiotherapy review. This may be a combination of factors including lack of awareness from the managing teams for the need for PT input, and the processes of referring to Physiotherapy. ***It may be beneficial to move to a process of referring 'out'*** of Physiotherapy service for respiratory patients, rather than waiting for a referral 'in'. This may partially address the delays in Physiotherapy input - ***currently at 4 days.***

2. Whilst the ***majority of patients receiving physiotherapy input received care in line with best practice*** (early mobilisation, advice and education on airway clearance & breathlessness management), the results clearly demonstrate there is ongoing need for improvement in PT input for patients existing on the caseload; most notably for chronic cough incontinence assessments; further discussion is required re. where is the most appropriate setting for this assessment to take place - either in the acute setting, or as part of the primary & community care assessment.

3. Finally, ***pulmonary rehab*** has been demonstrated to be one of the most effective treatment options for managing and preventing COPD related admissions, and subsequent use of healthcare resources. Currently at ***RGH only 4 % of patients*** appropriate for the service are being referred in to the group from the acute site. This is a significant concern for optimizing both patient and service level outcomes. Following the review there has been ***ongoing work between the acute Physiotherapy team at RGH and the community services*** to establish how best to improve this performance.

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BE PREPARED; Head and Neck cancer patients feedback on Macmillan Multi-professional Pre-Treatment clinics within CTMUHB Head and Neck MDT.

Menna Payne, Kerry Davies, Lindsey Jose (SLT)Rhian Thomas, Louise Mullane (DT) Jane Wall, Helen Hembrow, Rebekah Norton (CNS)

The presence of a head and neck cancer and/or the side effects of treatment such as surgery or chemo-radiotherapy, can have significant side-effects for patients. The NICE guidelines (2016) suggest that all patients should have pre-treatment information to support the treatment process and access to dedicated Speech and Language Therapists and Dietitians. The guidelines also suggest that all patients should be aware of who their key worker is. Within CTMUHB patients attend a pre treatment clinic which is supported by Macmillan Clinical Nurse Specialists, Dietitians and Speech and Language Therapists with the aim of providing patients with the support and information they need to improve their cancer journey.

Aim: To obtain patient feedback regarding whether:
- confidence in understanding more about their diagnosis and treatment increased after the appointment
- awareness of their key worker increased after the appointment
- overall levels of distress/concern reduced after the appointment
- any suggestions for improving the service/feedback regarding usefulness of the session

Method: 15 patients were asked to complete a questionnaire prior to their appointment. They were then asked the same question after the appointment. Comparisons were made between their confidence after the appointment. The data was entered into MS forms

Q1 Confidence in understanding where cancer is

Not at all confident
Not confident
Confident
Extremely...
0 5 10 15 20
After Before

Compassion

Q5. Confidence in understanding the impact on eating/drinking/swallowing

Extremely confident
Confident
Not confident
Not at all confident
0 5 10 15
After Before

Q2 Confidence in understanding what happens next

Not at all confident
Not confident
Confident
Extremely confident
0 5 10 15 20
After Before

Kindness

Q6 Confidence in importance of good nutrition

Not at all confident
Not confident
Confident
Extremely confident
0 5 10 15 20
After Before

Q3 Confidence in understanding side-effects

Not at all confident
Not confident
Confident
Extremely confident
0 5 10 15
After Before

Time to talk

Q7 Confidence in understanding impact on speech/voice

Not at all confident
Not confident
Confident
Extremely confident
0 5 10 15

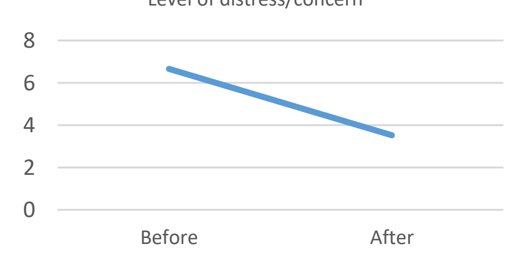
Q4. Confidence in how to access support

Not at all confident
Not confident
Confident
Extremely confident
0 5 10 15
After Before

Support

Do you know who your key worker is?

20
10
0
Before After
Yes No



Conclusion: Unanimous positive feedback with clear improvements In confidence/understanding. Reduction in distress. Key words show impact of intervention and delivery of holistic, patient-centred care.

Recommendations: To continue to provide high quality multi-professional pre treatment clinics in current format

Stroke Association

PREDICT-EV; Are TIA mimics as important for stroke risk as TIA?

J O Williams[1], R M Raven[1], J Geen[2], J White[3] & P E James[1]

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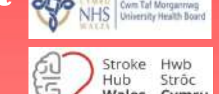
[2] Clinical Biochemistry Service, Prince Charles Hospital, Merthyr Tydfil, Cwm Taf Morgannwg University Health Board
[3] Stroke Services, Department of Medicine, Prince Charles Hospital, Merthyr Tydfil, Cwm Taf Morgannwg University Health Board



SCAN ME

Stroke and TIA

- Stroke is a leading cause of death and disability worldwide[1].
- TIA patients, experience short-lasting stroke like symptoms and are **4 TIMES** more likely to suffer a stroke within 12 months.[2]
- Only 50% of patients attending TIA clinics are diagnosed with TIA, the rest are passed for further investigation and diagnosis.

Extracellular Vesicles (EV)

- EV are nanosized particles, produced by all cells.
- Often increased in disease and previously associated with cardiovascular pathologies[3,4].
- Endothelial derived EV are produced following endothelial damage and express markers of parent cell activation.

Study Objective

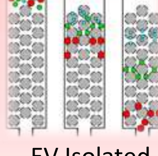
Are TIA mimics associated with stroke risk?

Recruitment Strategy & Methods

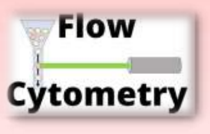
- Participants were recruited for the PREDICT-EV study from TIA clinic at Prince Charles Hospital, Merthyr, UK.
- 40 Healthy Controls and 20 TIA Mimics were compared with 104 TIA patients.

Cohort Characteristics Gathered

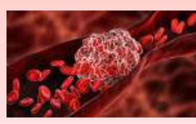
Blood Sample Taken



EV Isolated

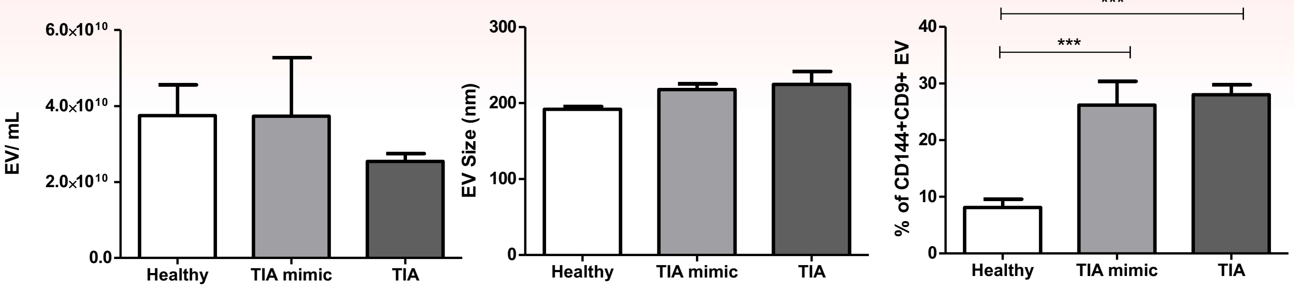


EV Characterised



Thrombotic Potential?

Preliminary Data



- Despite total EV number and size not differing between groups, endothelial EV proportion was higher in TIA mimic and TIA patients.

Conclusion

Endothelial EV have been associated with increased thrombotic risk. Patients who have TIA mimic have elevated levels of endothelial EV, similarly to that seen in TIA patients. Therefore, TIA mimic is likely to be associated with increased stroke risk.

The Bigger Picture

Endothelial EV may express different antigens which will affect their pro thrombotic nature. Therefore, further work is required to determine if endothelial EV populations isolated from TIA mimic patients have differential antigen expression to those isolated from TIA patients.

Acknowledgements

We would like to thank and acknowledge our study recruits and the clinical research team at CTMUHB; Caroline Hamilton, Meryl Rees, Rhian Beynon, Keri Turner and Alan Dodd.

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Exploring the acceptability of the ViSTA-BP intervention across the community pharmacy sector in Cwm Taf Morgannwg University Health Board.

Sarah Brown[a], Bev Woods[b], Emma Williams[b], Britt Hallingberg[a], Barry McDonnell[a], Delyth H James[a]

a Cardiff Metropolitan University b Cwm Taf Morgannwg University Health Board

Introduction

Hypertension affects around 30% of the UK population and is the leading modifiable cause of cardiovascular disease[1]. Despite available evidence-based treatments, nonadherence to antihypertensive medication is prevalent.

Health psychology theory suggests that individuals form ‘illness representations’ through their beliefs about a condition and its treatment. Accurate illness representations, i.e., those that are in line with reality, support medication adherence[2].

Visualising the internal processes of an illness can enhance the accuracy of illness representations[3].

ViSTA-BP (**V**isualisation to **S**upport **T**reatment **A**dherence in High **B**lood **P**ressure) is a digital visual intervention developed for use within a pharmacist-led consultation. It comprises an interactive digital visual and an accompanying spoken narrative.

ViSTA-BP enables individuals to visualise and conceptualise hypertension and how it affects the circulatory system using personalised real-time animations.

The purpose of ViSTA-BP is to support medication adherence through improving understanding of hypertension and its potential consequences and increasing perception of medication necessity.

Previous studies explored VISTA-BP’s feasibility and acceptability as a researcher-led and subsequently trained pharmacist-led consultation, finding the intervention acceptable to patients and pharmacists.

However, recruitment for the pharmacist-led consultations was low. Feedback suggested that contextual issues within the community pharmacy setting may have influenced the opportunity and motivation to deliver the intervention.

As the pharmacists were all employed by one community pharmacy chain in Cwm Taf Morgannwg University Health Board (CTMUHB), the identified barriers to the intervention delivery may be unique to the employer.

Aim

To explore the acceptability of a community pharmacy-based hypertension visualisation intervention (ViSTA-BP) with community pharmacists from a range of settings in CTMUHB.

Method

- Pharmacists were purposively from community pharmacies in CTMUHB to explore views from a range of settings. CTMUHB partners facilitated recruitment by providing access to pharmacist networks.
- Acceptability of ViSTA-BP was investigated through qualitative semi-structured interviews.
- Template Analysis[4], a form of thematic analysis, was used to guide data interpretation.
- The Theoretical Framework of Acceptability[5] was used as a lens through which to explore acceptability, considering the affective attitude towards the intervention, burden, intervention coherence, ethicality, opportunity costs, perceived effectiveness and self-efficacy.

Results

Five pharmacists were recruited from a target of ten, from independent pharmacies (n=2), large multiples (over 200 outlets) (n=2), and large chains (20-200 outlets) (n=1). Recruitment proved challenging due to the lack of permanently employed pharmacists and pharmacist availability. Interview length ranged from 25-61 minutes.

Yeah, it’s something that’s really easy to play with, isn’t it, so… and, as I say, it’s not overly complicated, so it’s, it’s a discussion point and just sort of an aide memoire (CP02, large multiple)

I think it’s very good to try and get someone to take their medication. I don’t know how practical it would be in, in our community pharmacy… in that if it’s not funded, you know, it’s just not going to be top of our priority. To try and fit it in with everything else we do, to try and find time to sit down with someone. (CP04, Independent pharmacy)

Pharmacists:

- Felt that ViSTA-BP could be beneficial for patients and was a useful tool for pharmacists.
- Believed the delivery of VISTA-BP was within a community pharmacists’ skillset.
- Felt that management of acute conditions and dispensing workload were current priorities, therefore they were uncertain about the future feasibility of ViSTA-BP within the community pharmacy setting.
- Identified time pressures and competing workload priorities as barriers to delivery.
- Suggested that incorporating ViSTA-BP within a remunerated service and ensuring appropriate staffing to enable delegation of tasks could facilitate intervention delivery.

I think that's the…probably the biggest benefit to them [patients], and it involves them in their care. It’s not just this was your prescription go and take it, because you have to, because I'm telling you, it's why. And so I think it's more it's more; it involves them more. So I think it would hit on that motivational aspect. They’re motivated as to being involved and looking after themselves. (CP05, large chain)

It's just a case of balancing that with keeping a dispensary running and how that's going to work. (CP05, large chain)

Conclusions

These results mirror previous findings, suggesting that while positive attitudes towards ViSTA-BP were reported in all settings studied, the previously identified barriers and facilitators are commonly experienced across the sector. Low recruitment to the study further highlights the challenges faced by pharmacists when committing to additional activities.

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PEG Dependency in Head and Neck Cancer patients undergoing radiotherapy

Miss Rhian Thomas BSc (Hons) – Highly Specialist Head and Neck Dietitian – Cwm Taf Morgannwg University Health Board.

Introduction

Head and Neck Cancer patients often require enteral feeding. The side effects of treatment as well as possible obstruction from the tumour itself can impact the ability to take adequate nutrition orally. Methods of administering enteral nutrition can include a nasogastric tube (NGT) or a Percutaneous Endoscopic Gastrostomy (PEG). PEG Dependency has been reported as between 7% (1) – 10.7% (2) at six months post treatment.

Aim:

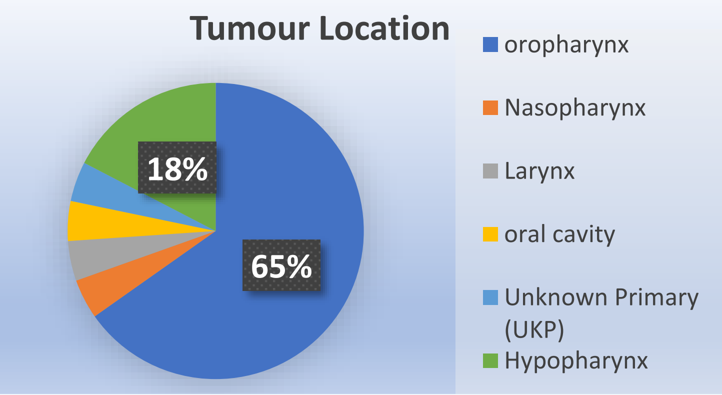
To determine the duration of PEG dependency post treatment in the local population.

Method:

Retrospective data was gathered on patients who were treated with curative intent with radiotherapy (RT) with or without chemotherapy in 2019 and 2020 who had a PEG placed prophylactically.

Results

23 patients met the inclusion criteria



Tube dependency post treatment

Timescale	Number of patients using PEG	Number of patients receiving 100% of nutrition via PEG
End of treatment	22	16
3 months post treatment	11	7
6 months post treatment	5 (22%)	4

Clinical details of patients receiving 100% of nutrition via PEG at 6 months

	Tumour location	Tumour staging	Treatment
Patient 1	Tongue Base	T4N0M0	ChemoRT
Patient 2	UKP	TxN2bM0	ChemoRT
Patient 3	Nasopharynx	T2N2M0	Induction chemo and chemo RT
Patient 4	Tonsil	T4aN1M0	ChemoRT

Conclusion:

Patients in this study group were PEG dependent for longer than reported in the literature (22%) 80 % of patients receiving enteral nutritional at 6 months were receiving 100% of their nutritional needs via the PEG.
The small sample size may have effected the results compared to national data.

Recommendations

Further examination of the current data would be beneficial to understand the influencing factors on PEG dependence. Factors could include nutritional status and swallow function at diagnosis and level of input from Dietetics and Speech ad Language Therapy.
Ongoing data collection would allow further comparison to national data with increased numbers and include the impact of the COVID 19 pandemic.

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Characteristics of High-Risk Adolescents Referred for Enhanced Case Management (ECM) in Wales

Amy Lewis[1], Siân Lavis[1], Dr Aless Roberts[1], Dr Hannah John-Evans[1] & Dr Caroline Hoskins[1]

[1]Forensic Adolescent Consultation Service (FACS)

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Introduction

The ECM approach is a trauma-informed consultation model that supports professionals and services to develop a psychologically informed understanding of the young person at the centre of the intervention. ECM uses the Trauma Recovery Model (Skuse & Matthew, 2018) and supports with consideration of the young person's difficulties, strengths and needs.

Previous research has suggested that adolescents who present to the Youth Justice Services (YJS) across Wales and England commonly share certain characteristics, including; 80% white British, aged between 10 and 17 years, >20% receiving social services provision, 44-65% not engaging in education or training, and engaging in anti-social behaviours (YJS, 2001; Youth Justice Board, 2016; Fielder et al., 2007; The Prince's Trust, 2007).

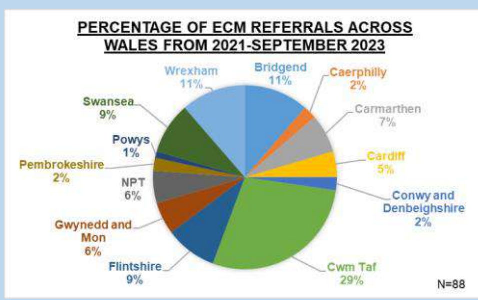
Aims

- ❖ To understand the characteristics of young people referred to ECM from the YJS across Wales
- ❖ To use the information to inform future developments within ECM

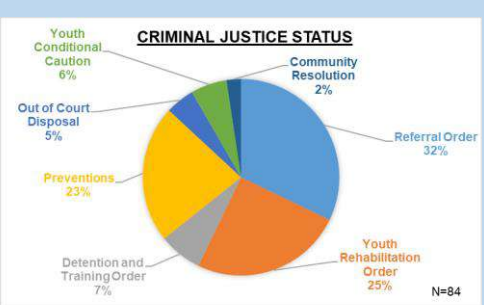
Methods

1. Referrals to ECM were inputted onto an excel database between 2021 and September 2023
2. Characteristics of these young people referred for ECM were analysed using excel

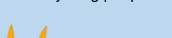
Descriptive Statistics

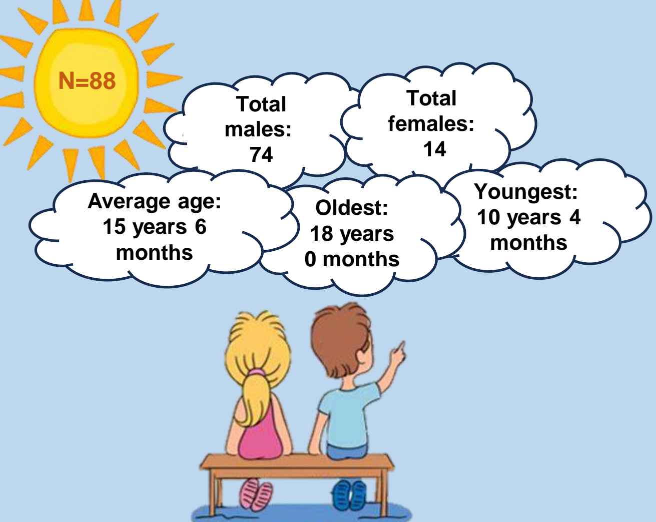


Note. There were no referrals from Newport, Monmouthshire, Torfaen, Ceredigion and Vale of Glamorgan.

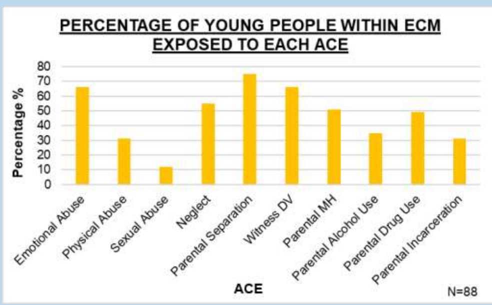


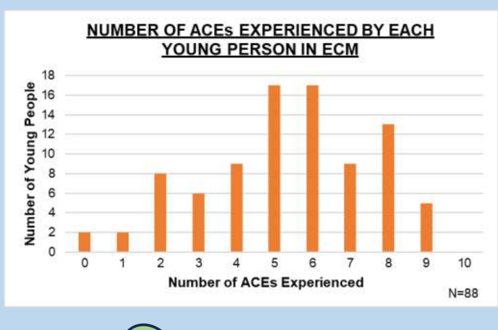
Note. These were at the time of referral. There was no information for four young people.

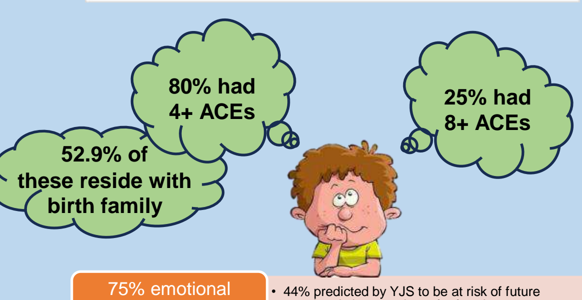




Adverse Childhood Experiences (ACEs)







75% emotional abuse	• 44% predicted by YJS to be at risk of future emotional abuse at time of referral
35% Physical abuse	• 48% predicted by YJS to be at risk of future physical abuse at time of referral
13% Sexual abuse	• 50% predicted by YJS to be at risk of future sexual abuse at time of referral
63% Neglect	• 44% predicted by YJS to be at risk of future neglect at time of referral
35% Physical abuse	• 87% predicted by YJS to be at risk of engaging in future aggressive behaviour at time of referral
75% Witness domestic violence	• 89% predicted by YJS to be at risk of engaging in future aggressive behaviour at time of referral

Conclusions

- Results are from a small sample size of mainly males and white British (93%)
- Evaluation supports professionals to think and develop a trauma-informed approach
- Informs professionals of characteristics of young people within YJS
- FACS to continue collecting data and monitoring ECM referrals
- Future evaluation to conclude in-depth analysis of any relationships and correlations between characteristics
- Future research to compare ECM evaluation with wider YJS population

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The development of an Acute Radicular Pain Pathway (ARPP)

Sian McCarthy, James Smith

Background

Radicular pain is known as pain arising from a spinal nerve root that radiates from the lower back into the leg/ foot, that is usually worse, or equal to back pain. Selective nerve root blocks (SNRB) are used in the management of radicular pain. This is a spinal injection that involves administering a corticosteroid injection together with local anaesthetic, targeting the identified nerve root. The aim of the injection is to reduce the inflammation of the nerve root, subsequently reducing pain for the patient.

If appropriate ,patients in CTMUHB are referred for an MRI scan and after interpretation/ confirmation of nerve root impingement/compression, correlating with the patient symptoms, a SNRB can then be requested. Data from 2021 suggests that patients were waiting up to 68 weeks for this injection form the time of referral. (due to both physiotherapy and radiology waiting times).

Despite the lasting effect of a SNRB' being unpredictable, early intervention supports a better response and improved outcomes

Aims

- To implement an evidenced based pathway offering **effective diagnosis, rapid imaging and prompt management** including access to a selective nerve root block.
- Improve patient outcomes. Severe radicular nerve pain can have a detrimental effect on patients' ability to work, sleep and function. These patients can also develop other problems associated with persistent pain affecting their mental health.
- A faster, coordinated pathway of approximately 10-12 weeks will improve patient flow and allows them to begin their rehabilitation sooner subsequently returning to functional activities and work promptly reducing cost and burden to the NHS as well as improving mental health
- Reduce the need for future intervention (including medication, consultant clinic appointments, surgical intervention, pain team intervention) reducing cost, burden and resource.
- Facilitate early and appropriate onward referral for surgery

(this is supported by the recommendations by NICE)

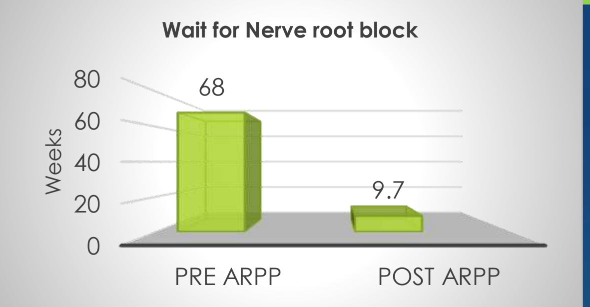
Method

*Liaising with IT and radiology teams regarding pre ARPP waiting times *Research and benchmarking nationally Coordinating with radiology and consultant radiologist regarding pertinent and realistic time scales. * Educating and supporting staff through the initial stages and pathway roll out
* Collecting and calculating data using Microsoft Excel spreadsheet * Interpreting the data and drawing conclusions and future recommendations

Results

- Data was collected over 37 weeks from end of November 2022 to mid August 2023
- Of completed data, 30/51 patients had NRB
- 10 referred/transferred to CAVOC post NRB and symptoms not resolving (1 had Cauda equina syndrome)
- Positive feedback from staff involved, physiotherapy and radiology

The implementation of an evidenced based pathway offers effective diagnosis, rapid imaging and prompt management including access to a selective nerve root block in a timely manner of 10 weeks



Discussion and Implications

- The aim of the proposal was to create a consistent approach in the referral process and management for all patients presenting with acute, severe radicular leg pain across CTMUHB (excluding POW)
- This pathway creates a successful and safe delivery of accessible NRB treatment to patients whom this will have the greatest impact.

Further plans:

- Collect patient-reported experience measures (PREMs)
- Launch in POW to include patient catchment and streamline care across the health board.
- Introduce the ARPP pathway across multi disciplines including orthopaedics, ED for physiotherapy specialists to triage and access pathway if appropriate
- Monitor data and numbers especially if more physiotherapists are given the allowance to refer to radiology using the ARPP

(National Institute for Health and Care Excellence (NICE) guidelines Low back pain and sciatica in over 16s: assessment and management [NICE, 2020a] NHS National Low Back and Radicular Pain Pathway (2017), British Association of Spinal Surgeons (BASS) and GIRFT lumbar spine and radicular pain pathway).

Preliminary exploration of retrospective service data to inform the development of a Realist Evaluation of the Wellness Improvement Service (WISE)

GIG CYMRU NHS WALES | Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board

Authors: Dr Megan Elliott[1], Dr Andrea Gartner[2], Ciarán Slyne[2]

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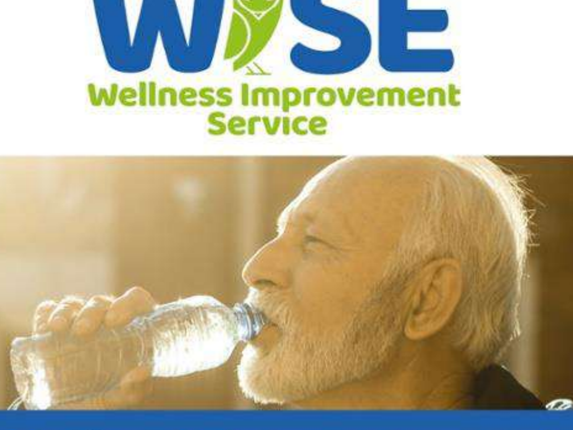
BACKGROUND

- In Wales, **one in three** people live with a chronic condition and **one in five** people are on an NHS waiting list [1].
- Waiting for care has a **profound negative impact** on the **physical** health, **mental** health, **quality of life**, well-being, **mortality**, **health** outcomes and **disease** progression of individuals on waiting lists [2-6].
- Waiting lists impact **primary care**, with increased GP contacts to seek additional help and support for people on waiting lists [8].
- The Welsh Government plan for transforming and improving care highlights the need to draw on health professionals and the third sector to **help people to proactively improve their health**, prepare for treatment, manage their condition and improve their general health and well-being [8].



WISE
Wellness Improvement Service

Patient Empowerment & Self-Management
helps you feel less defined by your health condition

Delivered by trained Wellness Coaches
& supported by Lifestyle Medicine Doctors

PILLARS OF LIFESTYLE MEDICINE

WISE

- In CTM UHB, WISE offers **group coaching sessions** to anyone living with a chronic health condition and/or on an NHS waiting list.
- The service identifies **what matters** to the person and promotes **self-management** and **empowerment** in relation to the six pillars of lifestyle medicine.
- The service offers support **outside of general practice** to alleviate pressures in primary and secondary care.
- Patients access WISE via **self-referral** or **referrals** from a healthcare professional.

AIMS

To undertake **preliminary analysis** of existing WISE service data to inform the development of a **Realist Evaluation** of WISE in CTM UHB.

To explore potential **impact** of WISE, identify **outcomes** and **contextual factors** of interest and **research questions**.

To identify **recommendations** to improve how service data is collected and recorded to **optimise data quality** and undertake regular service evaluation and monitoring.

METHODS

- Anonymised, linked '**before-and-after**' **service data** was available for **n=99** patients. **Age** and **Deprivation Quintile** (based on postcode and Wales Index of Multiple Deprivation; WIMD) was identified for all patients with 'before-and-after' data. Patients were grouped into binary deprivation and age groups, based on 'more deprived' (top two most deprived quintiles) and 'less deprived' (three least deprived quintiles) and age over 60 years and under 60 years for analysis.
- Data was collected as part of **routine service provision** by WISE wellness coaches at '**baseline**' (before participating in WISE) and at '**follow-up**' (3-6 months later).
- Data on **body weight**, **waist circumference** and **well-being** (as measured by Short Warwick-Edinburgh Mental Well-being Scale; SWEMWBS) were included in analysis.
- Descriptive statistics were reported and paired-samples t-tests/Wilcoxon signed-ranks tests were used to compare baseline and evaluation data. Repeated measures ANOVAs were used to test whether the demographic characteristics, deprivation and age, had an impact on well-being.

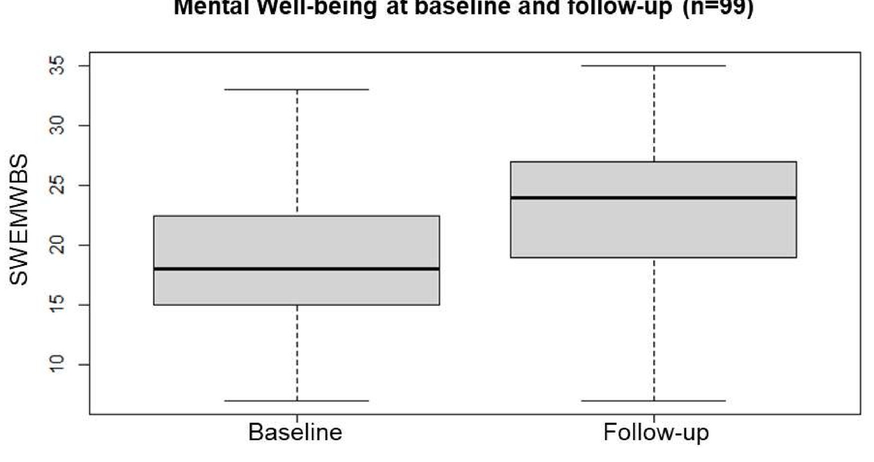
FINDINGS

PARTICIPANT CHARACTERISTICS

- Age range 25-81 years (M = 54.18, SD = 12.65)
- Majority of patients living in two most deprived quintiles of Wales (59.6%)
- Only 9.1% of patients had a healthy body mass index (BMI). Other participants were overweight (22.2%), obese (34.3%) or severely obese (18.2%). No data for 16.2%
- Patients had low well-being at baseline (average SWEMWBS score = 18.76; national average = 23.5)

OUTCOMES

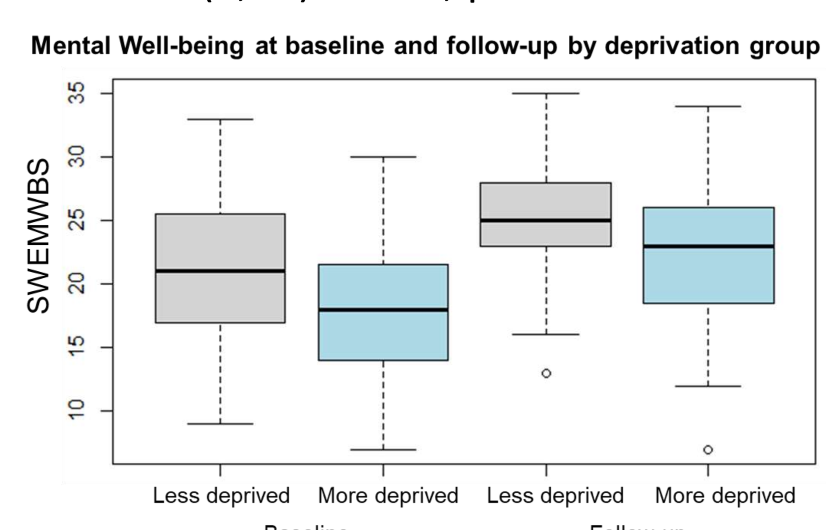
Well-being scores **significantly increased** between baseline and follow-up for all patients: $t(98) = 4.83$, $p < 0.001$



There was **no significant change** in weight (Z = 0.97, p=0.28) or waist circumference (Z = 0.90, p=0.73) between baseline and follow-up.

WELL-BEING BY DEPRIVATION

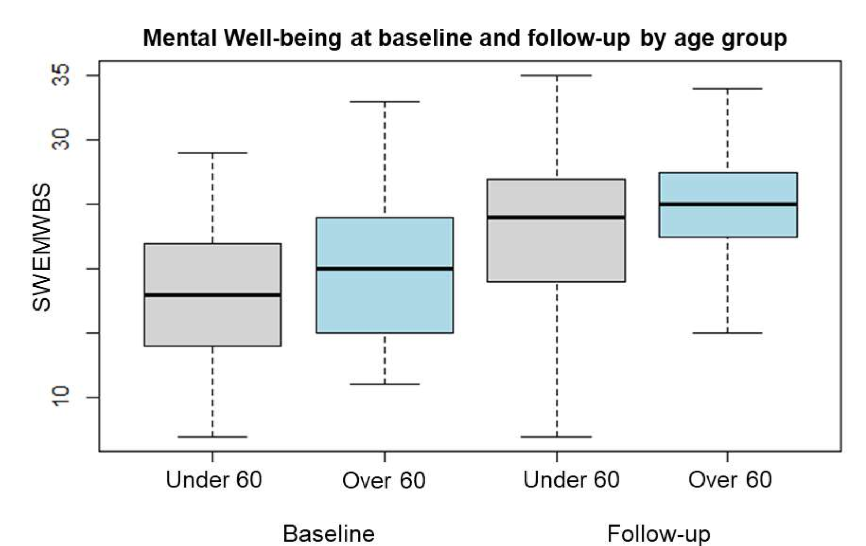
Patients living in more deprived areas had **lower levels of well-being** at baseline and follow-up: $F(1,96)=10.09$, $p<0.0001$.



There was **no significant interaction** between deprivation and baseline/follow-up, meaning that the programme had a **similar effect** for both the more and less deprived groups: $F(1,96)=0.219$, $p=0.6406$.

WELL-BEING BY AGE

Younger patients (under 60 years) had **lower levels of well-being** at baseline and follow-up: $F(1,96)=4.909$, $p=0.029$.



There was **no significant interaction** between age and baseline/follow-up, meaning that the programme had a **similar effect** for both the older and younger age groups: $F(1,96)=0.03$, $p=0.863$.

LIMITATIONS

- **Uncontrolled design** using service data, rather than data collected for research purposes.
- Small sample size (n=99) means **limited statistical power** to detect significant changes in outcomes.
- No data available regarding extent of **engagement** or patients who did not complete.
- Unable to determine whether sample (n=99) are **representative** of all WISE patients.
- Hybrid approach to data collection, thus some **missing data** for weight and waist circumference.
- Not possible to **link** referral information to service data.
- Demographic data not collected within service datasets, limiting analysis of patient characteristics.

DISCUSSION

- Findings provide **preliminary** evidence that the WISE programme may have a **positive impact on mental well-being** for **all patients**, including by binary age and deprivation group. There was **no evidence** for weight or waist circumference change. However, limitations in data quality mean results must be interpreted with **caution**.
- Recommendations for practice: Record patient **demographics** (e.g. gender, date of birth, postcode, ethnicity, employment status) in service dataset. Agree and implement a consistent **coding system** to facilitate **data linkage**. Gather data on reasons for drop outs or **non-attendance** and explore barriers and experiences of non-engagers.
- Recommendations for research: Undertake a **robust, prospective, mixed-methods evaluation**, with a sufficient sample size for statistical power, using a **Realist Evaluation approach** [9] to explore **mechanisms** and **contexts** through which different **outcomes** (e.g. well-being, weight, waist circumference, engagement) are generated, and whether these vary for **different patient groups** and in **different circumstances**.

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Service Evaluation Investigating the Impact of Critical Care Patient Diaries

Erin Roberts & Dr Michelle Smalley
Critical Care Psychology Team

What are Critical Care Patient Diaries?

- Patients admitted to Critical Care are extremely unwell, and may also be sedated for some time during their admission. This commonly leads to patients reporting memory gaps from this time, but they may remember certain distressing events, hallucinations or nightmares from the ICU delirium they experienced, all of which can lead to Post-Intensive Care Syndrome (PICS). Patient Diaries were implemented in CTMUHB in an attempt to reduce distress and the presentation of PTSD at 3-month follow-up clinic review and beyond.
- Patient diaries contain daily entries on each patient's condition and journey through Critical Care. They are written in everyday language by staff (predominantly nursing staff), and document main events of each day, who visited, any significant world events happening etc.
- Studies have found that 95% of patients who receive Critical Care diaries find them helpful, with 90% reporting that it helps them to fill gaps in their memory (1) as well as decreasing anxiety and depression, and improving health-related quality of life (2). Another study concluded that the evidence for the use of patient diaries as an intervention to prevent or improve psychological outcomes is strong (3).

Methods

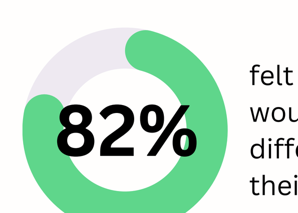
- A mixed methods approach was used, employing qualitative and quantitative measures.
- Critical Care survivors who attended an ICU Peer Support Coffee Morning were asked to complete two short questionnaires: an in-house questionnaire, including Likert scales and opportunities to provide written responses of patient experiences, and the WHOQOL-BREF (a 26 item self-reported quality-of-life measure).

Results

Quantitative: Patient Feedback

- Analysis of numerical data obtained via completion of the questionnaire included 33 service users.
- Of these 33 participants, 11 (33%) received a Patient Diary (10 retrospective diaries and 1 prospective diary).

100% reported finding Patient Diaries helpful, as rated on a Likert Scale.



Quantitative: WHOQOL-BREF

- 11 participants completed the questionnaire: six belonged to the No Diary (ND) condition, and five in the Yes Diary (YD) condition.
- There was no significant difference in quality-of-life scores between the ND and YD condition.

Qualitative: Thematic Analysis

- Thematic analysis revealed four main themes considered to be salient to the participants and service evaluation:

Making sense of experiences

"Answering my questions, knowing what happened everyday I was in the coma, seeing my progression and helping with the strange dreams I had."

Diaries hold importance

"I'm glad I have it and I will read it over and over."

"I read it on my admission anniversary to reflect on my recovery and progress."

Offering an opportunity for reflection

"It let me know about my Critical Care journey and puts what happened to me in perspective so I can reflect on how sick I was."

Feedback on areas for development

"I would have liked more detail about staff names as I struggle with who looked after me and feel it's important to say thank you."

Rationale

- A recent Cochrane review concluded that this is too under-researched an area to support their efficacy in psychological recovery following critical illness yet (4). We know that they help, but we don't know specifically *how* they help and so more research is needed.
- Patient feedback gathered from our ICU Peer Support Coffee Mornings indicates that patients value their diaries. However they come with a time burden on bedside nurses, and so it is important to help the nursing team to understand why diaries are an important use of their time and part of a wider delirium management pathway.
- Critical Care in CTMUHB has been providing patient diaries for many years but only on request. From May 2022 a decision was made to ensure *all* patients in ICU had a 'prospective', in-the-moment diary written for them. The value of diaries in recovery following critical illness has never been evaluated.

Project Questions

Do Patient Diaries improve patient perceived outcomes?

How helpful do individuals find receiving their Patient Diary post-discharge from Critical Care?

Do service users who receive a Patient Diary report a better quality of life than those who do not receive a Patient Diary?

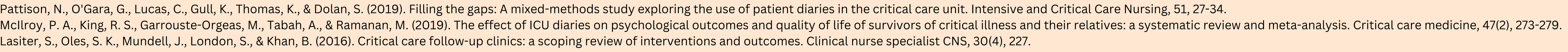
Conclusions

- The basic quantitative data collected by the survey, combined with the thematic analysis, is overwhelmingly indicative that Patient Diaries improve patient perceived outcomes. It also shows that individuals who received a Patient Diary found it invaluable in their recovery from a critical illness. Those without a Patient Diary felt that it would have made a significant difference on their recovery journey also.
- There was no difference in quality-of-life scores between service users with and without a diary.
- While service users report that diaries are "helpful", we need to consider what this means and how we can measure it.

Considerations

- This service evaluation had a relatively small sample size, with only 33 responses to the questionnaire, and just 11 responses to the WHOQOL-BREF. In repeating this service evaluation, perhaps a larger sample size would be needed to more widely reflect views of Critical Care survivors from CTMUHB.
- The sample did not include relatives. Aspects of the thematic analysis indicated the value that relatives also gain from Patient Diaries.
- Was the WHOQOL-BREF the correct measure to use? The disparity between the thematic and numerical data indicates that perhaps the QoL measure utilised in this service evaluation was not the most appropriate choice in measuring the specific impact of Patient Diaries. Perhaps a more specific psychological measure, such as the Acceptance and Action Questionnaire (AAQ), may more explicitly measure the impact of Patient Diaries on psychological outcomes, rather than that of critical illness and recovery as a whole.
- Was the timing correct? This service evaluation was completed retrospectively and so perhaps we missed the window to evaluate the efficacy of the diaries. As part of the ICU follow up clinic, we complete trauma psychometrics with each patient and give them their diary. We could utilise this as a direct measure to evaluate the impact of the diary by re-administering the trauma measures one-month later to evaluate any reduction in scores and hence any psychological benefit. However there is no funding for follow up in Critical Care and so we miss this window of opportunity in CTMUHB.
- Patient feedback is that the diaries are "helpful", and so we need to consider how this psychological construct can be better measured to evaluate their impact on psychological recovery following admission to Critical Care.

References



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Wellness with WNO

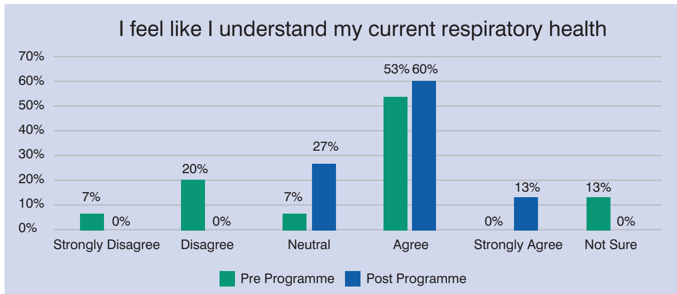
A singing and breathing programme to support people with Long COVID in Wales

Presented by Betsi Cadwaladr University Health Board, Cardiff and Vale University Health Board, Cwm Taf Morgannwg University Health Board and Welsh National Opera

Abigail Tweed Director Milestone Tweed **April Heade** WNO Producer **Sofia Harries** CTMUHB Physiotherapist

INTRODUCTION

This is an evaluation of the pilot **'Wellness with WNO' (Welsh National Opera)**, a collaborative programme which meets the needs of Long Covid patients across Wales, supporting physical rehabilitation, restoring emotional well-being, and reducing anxiety. Opera companies across the world recognised that a musical approach to pulmonary rehabilitation could be an effective tool to support people experiencing breathlessness following Covid-19 infection. Welsh National Opera opened their pilot programme, 'Wellness with WNO' in November 2021. The WNO course was designed and planned by WNO with NHS professionals in Wales. It was supported by Arts Council Wales via the Arts, Health, and Wellbeing Lottery Fund.



RESULTS

Thirty-one people took part in four separate six-week courses between November 2021 and February 2022. There was a 48% participation rate (n=15) in the pre and post programme surveys. Most participants were referred by the Cwm Taf Morgannwg University Health Board and the Cardiff and Vale University Health Board.

Changes to physical health included:

- Improved breathing – 94% of participants reporting the breathing techniques being effective or very effective.
- Those with the worst impairment, MRC4, at the start of the programme all reported an improvement in breathing. The qualitative data also suggests that those with the worst symptoms experienced the most improvements in their breathing.
- Three participants reported using the breathing exercises to increase oxygen levels and prevent hospitalisation during periods of dangerously low oxygen levels.

Changes to mental health included:

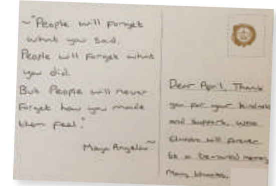
- Increased emotional wellbeing
- Reduced anxiety, depression, overthinking and panic
- Increased confidence – 60% of participants did not feel confident or were not sure they could explain their respiratory health to others at the start of the programme. By the end of the programme 87% were confident to do this.
- Increased shared experiences and connections with others – valuing peer to peer support
- 94% knew where to find out information or who to talk to about their respiratory health, compared with nearly one half at the start of the programme.

AIM

The aim is to utilise operatic singing and breathing techniques to reduce breathlessness and support participants to re-learn diaphragmatic breathing, equipping them with the tools to continue this work at home. In many studies singing has been shown to improve mood and wellbeing and the hope is that this programme brings together medical and musical expertise to also address the mental health and general wellbeing of participants. The evaluation aimed to understand the effectiveness and efficiency of the intervention.

METHODOLOGY

Participants were referred from partner health boards across Wales: CTMUHB, CAVUHB & BCUHB. The courses were held virtually for one hour a week, over six weeks, via Zoom. They were led by an experienced WNO vocal specialist with a host from WNO also present to support the session. Participants were guided through breathing techniques and singing exercises in small groups in a relaxed, informal, non-medicalised and sociable environment.
Both quantitative and qualitative data was collected from participants. The participants, the WNO vocal specialists, programme leaders and health professionals were all asked for their reflections on the impact, content, style, and whole experience of this programme. These reflections have been used to inform this report and the development of the programme.



CONCLUSION

Social prescribing for chronic, complex and less well understood conditions such as Long Covid has the potential to play a significant and impactful part in people's recovery. Singing, as a specific arts-in-health intervention, has been shown to improve quality of life. 'Wellness with WNO' represents the first realistic opportunity for a socially prescribed intervention for people across Wales.
As the evidence grows to support social prescribing and arts-in health interventions:

- What more can be done in Wales to support patients and NHS services through social prescribing?
- What other chronic conditions could be addressed, and recovery supported through social prescribing?
- What further evidence, if any, do we need to gather to persuade commissioners to invest in long term nationwide social prescribing?

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Secondary Care Out-Patient Anticoagulation Service Re-Design as a Result of COVID Pandemic

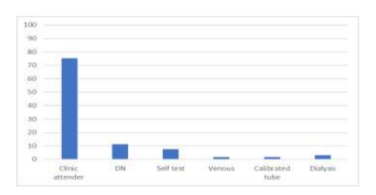
Pharmacy Led Anticoagulation Team, Royal Glamorgan Hospital, Llantrisant.

Background

The COVID pandemic in 2020 prompted the UK government to order the population to remain in their homes to reduce the spread of the virus. Many patients attending the pharmacy led anticoagulation clinics at Royal Glamorgan Hospital were over 70 years of age and had underlying health conditions making them clinically vulnerable. The patients taking warfarin required frequent monitoring and dose adjustments to ensure safety and efficacy. Our service needed to adapt and introduce new ways of working quickly to ensure patient safety was maintained.

The anticoagulation clinic is located in an acute hospital site that was also managing a large number of patients acutely unwell following infection with COVID-19. Attending an acute hospital site for a face-to-face INR check presented a potential risk to clinically vulnerable patients.

Figure 1: Means of INR test as a % of total patients in April 2020.



Aim

To reduce the amount of face-to-face clinic appointments and patient contact in an acute hospital setting.

Methods

Alternatives to face-to-face clinic appointments were identified and patients were provide an alternative method to test their INR or switch to a Direct Oral Anticoagulant (DOAC). Figure 2 shows how the clinic appointments were re-distributed.

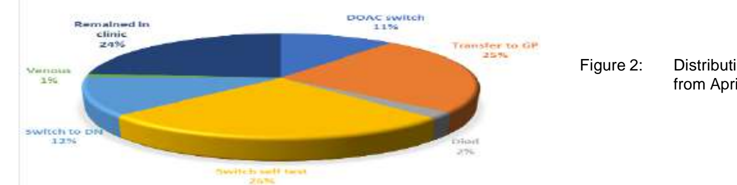
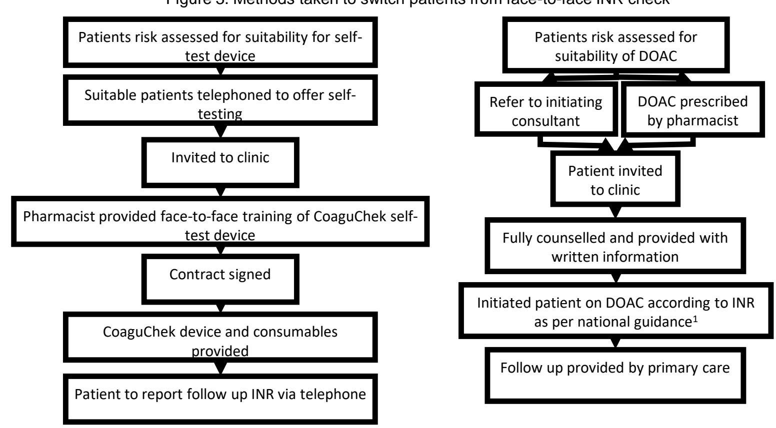


Figure 2: Distribution of total patients from April-June 2020.

The main focus of the re-design was to switch patients to a DOAC or provide patients with a self-test device as shown by the process in figure 3.

Figure 3. Methods taken to switch patients from face-to-face INR check



Results

- 11 patients were identified as clinically appropriate to switch to a DOAC. 11 of these were then switched (100%).
- 27 patients were identified as potential self-testers. 25 of these were successfully trained to test their own INR (93%)

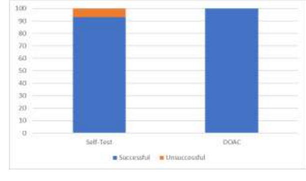


Figure 4: % of patients successfully switched to alternative method.

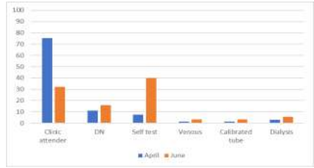


Figure 5 Means of INR test as a % of total patients in April 2020 compared to June 2020.

Between April and June 2020, **156 appointments** at the acute hospital site were avoided due to self-testing.

Conclusions

Successfully reduced the amount of routine clinic appointments while continuing treatment with high risk anticoagulant medication in a safe and effective way. This has resulted in a shift to treating patients closer to home.

Ensured patients are on the most appropriate anticoagulant as directed by latest evidence[2,3].

High rate of success training carefully selected patients to self-test their INR (93%).

Further Work…

Evidence suggests that patients who self test have the same, if not better, outcomes[4]. Feedback from our own patients was very positive.

Further work is underway to evaluate the benefits of self–testing and expanding this area of our service.

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The ASPIRE II Study

Leon Arrowsmith-Hill[1], Mark Williams[1*], Karl New[1], John Geen[3],, Bianca Oakley[4] Carolyn Wallace[4]

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GIG CYMRU NHS WALES Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board

Background:

Acute respiratory infections (ARIs) are a major concern in primary care settings due to their high prevalence and significant impact on public health. ARIs encompass a wide range of illnesses, from common colds and influenza to more serious conditions like pneumonia and bronchitis. These infections can affect the upper respiratory tract (sinuses, nose, and throat) or lower respiratory tract (trachea, bronchi, and lungs).

FebriDx is a point-of-care testing device that helps differentiate between viral and bacterial ARIs. It works by detecting two biomarkers: Myxovirus resistance protein A (MxA) and C-reactive protein (CRP). MxA is an intracellular protein that becomes elevated in the presence of acute viral infections, while CRP is an acute-phase protein that increases with inflammation, often seen in bacterial infections. By simultaneously assessing these two biomarkers, FebriDx can help clinicians determine the likelihood of a bacterial vs. a viral infection.

The use of FebriDx in primary care settings is particularly valuable for antibiotic stewardship. Antibiotic resistance is a growing global health concern, largely driven by the overuse and misuse of antibiotics. Viral infections do not respond to antibiotics, yet they are often inappropriately prescribed for these conditions, partly due to difficulties in distinguishing viral from bacterial infections based on clinical assessment alone.
Rapid and efficient diagnosis and management of ARI's at the primary care level can decrease hospital admissions and the associated healthcare costs, with positive implications for antibiotic stewardship.

Objectives:

The aim of this study was to determine whether introducing a POC assay to Primary Care can distinguish between bacterial and viral infections. The study also aims assess the feasibility of using POCT to support clinician decision making in prescribing antibiotics.

Method:

52 patients presenting symptoms of an ARI have been recruited to the study from Keir Hardie Practice 3 and Meddygfa Glan Cynon Surgery. A 5μL sample of capillary blood is taken via finger-prick prior to the patients consultation with a GP and tested using the FebriDx assay . The capillary sample is run on the FebriDx device and the result is recorded at 10 minutes. The result of the test (Negative, Bacterial or Viral) are presented to the physician for them to use as a clinical decision making tool. The physicians decision on whether to provide antibiotics or not is recorded along with any clinical findings.

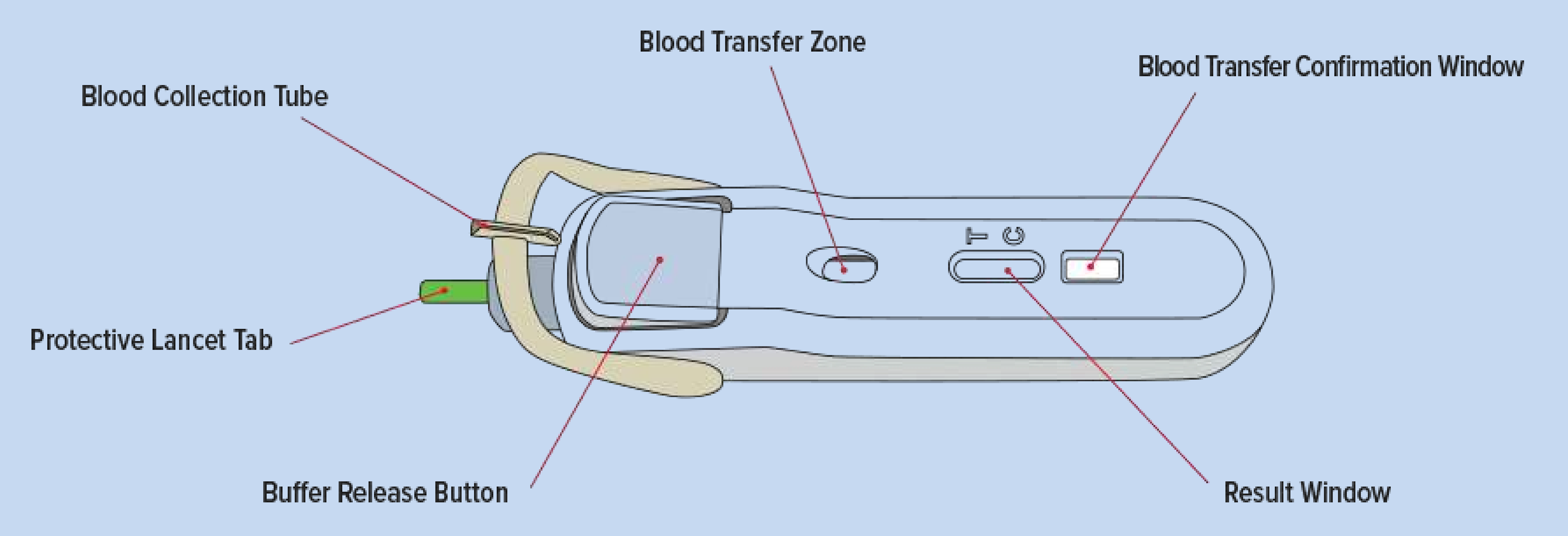


Image 1. FebriDx POCT

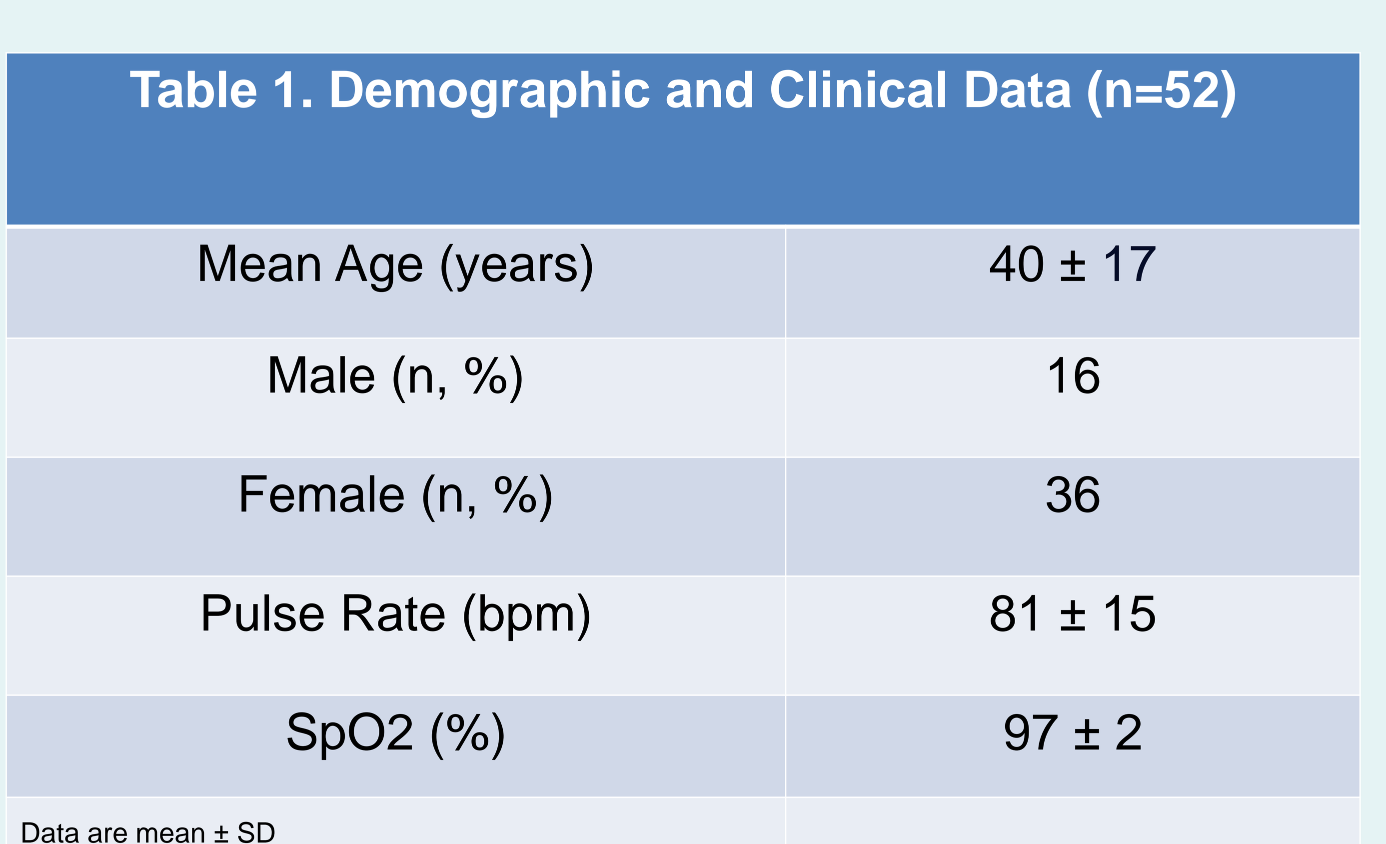


Table 1. Demographic and Clinical Data (n=52)	
Mean Age (years)	40 ± 17
Male (n, %)	16
Female (n, %)	36
Pulse Rate (bpm)	81 ± 15
SpO2 (%)	97 ± 2
Data are mean ± SD	

Results:

The 52 participants produced results in the ratio 30:9:12 (Negative, Bacterial, Viral), with 73% agreement to the physicians decision on whether or not to provide antibiotics following face-to-face consultation.

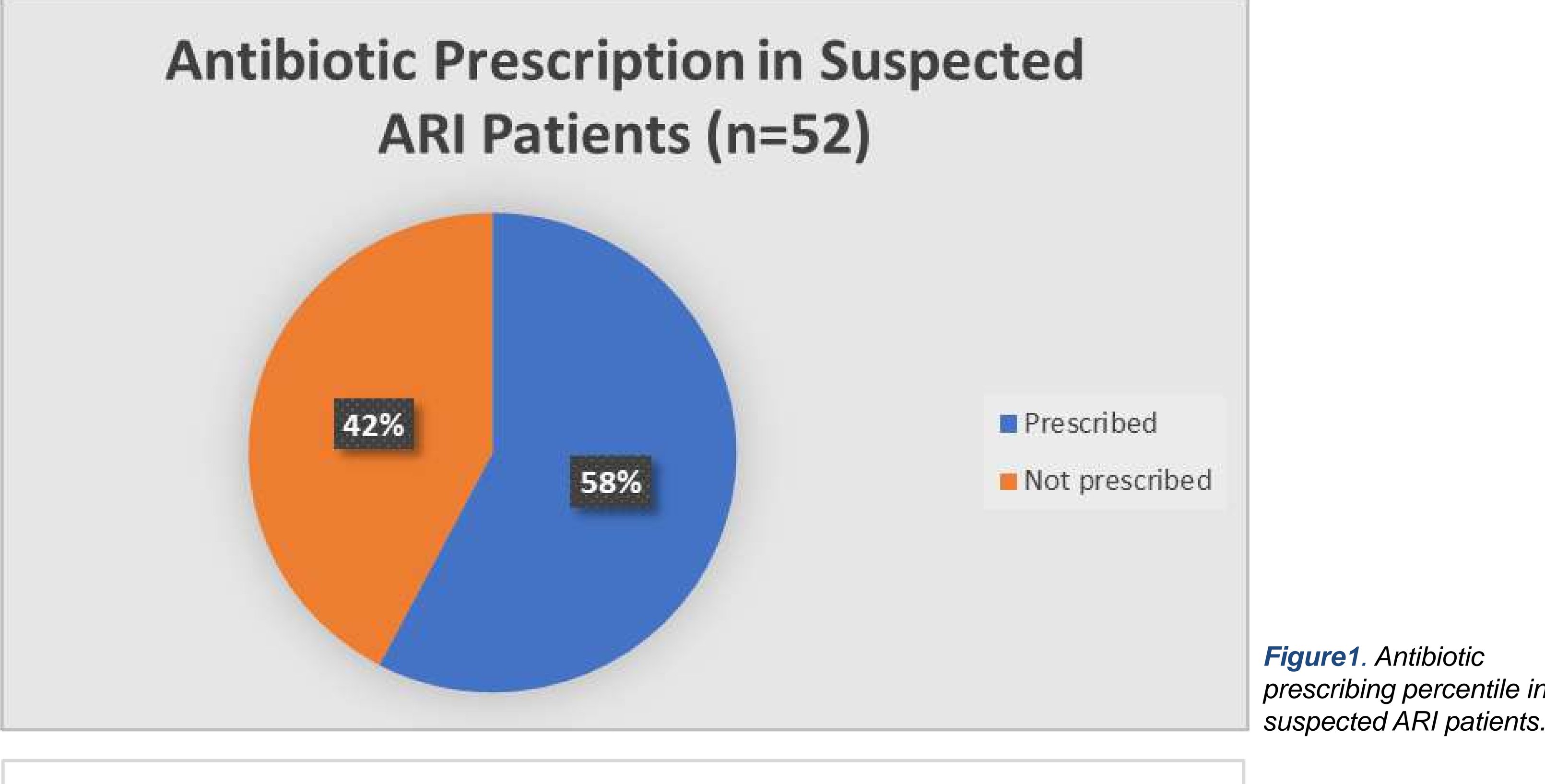


Figure1. Antibiotic prescribing percentile in suspected ARI patients.

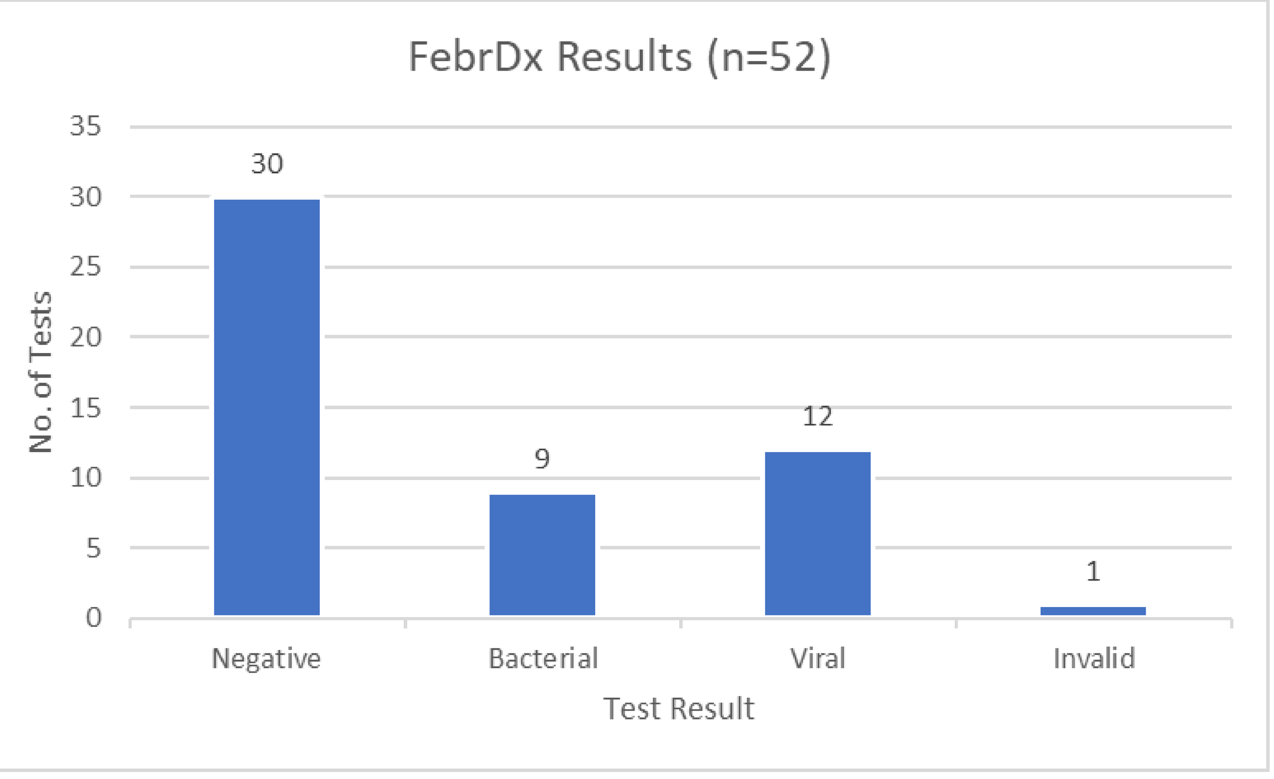


Figure 2. FebriDx Result.

Discussion:

The FebriDx POCT has proven an effective clinical decision making tool where patients present symptoms of clinical uncertainty. The assay has thus far positively aided clinical judgement with high agreement to the physicians decision on whether to prescribe antibiotics. However, concerns over diagnostic accuracy and the absence of a qualitative result still lead clinicians to a subjective interpretation when presented with ARI symptoms.
Introducing the POCT to Primary Care there is also a risk that clinicians might over-rely on FebriDx results, potentially overlooking clinical judgment and patient history.

Follow Up:

Physicians and Healthcare assistants who have interpreted the FebriDx test will later be interviewed to evaluate the use of the device in Primary Care.

Patients have been asked to consent to allowing access to their medical records, and at the end of the study we will ask participating practices to review the medical records of participants to determine if patients sought additional treatment.

Conclusion: Preliminary data indicates that the FebriDx test is a useful clinical decision making tool in areas of clinical uncertainty. Further evaluation of device accuracy via follow up and complete study numbers required to feasibility of introducing to Primary Care.

*In fond memory of Professor Mark Williams.

Acknowledgements: Cwm Taf Morgannwg University Health Board and its patients for allowing the study to take place. CTMUHB Research and Development Department for their ongoing support.

The Development of Physiotherapy Referral Guidance for Critical Care Follow-up Clinics

Maddie Yorath & Emma Miller (Band 5 Rotational Physiotherapists), Dominic Anderson (Band 7 Clinical Respiratory Specialist)

AIM: To develop an onward Physiotherapy referral pro-forma to increase the number of appropriate referrals being made, to community physiotherapy services, for patients attending intensive care follow-up clinics at Royal Glamorgan Hospital.

INTRODUCTION

Critical care survivors continue to present with difficulties far beyond their initial illness and admission:

- ***Reduced quality of life*** *at 3, 6 and 12 month post admission* (Hofhuis et al., 2021).
- ***Functional status -*** 55% have functional difficulties at 1 year post admission (Appleton et al. 2015)
- ***Increased care need -*** 25% of patients have ongoing care needs at 1 year (Griffiths et al., 2013)
- ***Employment -*** 50% reduction in patients reporting employment as their sole source of income at 12 months (Griffiths et al., 2013).

Faculty of Intensive care medicine (2021) and NICE (2017) guidelines highlight the clear need for an multi-disciplinary team (MDT) approach to follow up clinics to optimise patient outcomes and reduce healthcare burden. Physiotherapy input needs to be multifactorial:

- ***Contributing to functional rehab and respiratory recovery***
- ***Return to work and improving independence = reduction in care need***.

Currently, across CTM there is no funding opportunities to support Physiotherapy to attend follow-up clinic, however community services do exist to support patients in their ongoing recovery and rehabilitation. A solution was required to find alternative means to ensure the patient is best supported in their recovery, in the absence of Physiotherapy attendance.

METHOD

Data Collection

- Data was collected (3-month period pre-intervention January → March 2023)
- The number of appropriate onward referrals made and the number of missed potential referral opportunities (based on inclusion criteria for comm services)

Development & Implementation

- Tool developed based off potential missed referral opportunity, using existing referral resources
- Team attended 4 clinic appointments to pilot the tool; including case discussion, educating MDT about services and problem identification

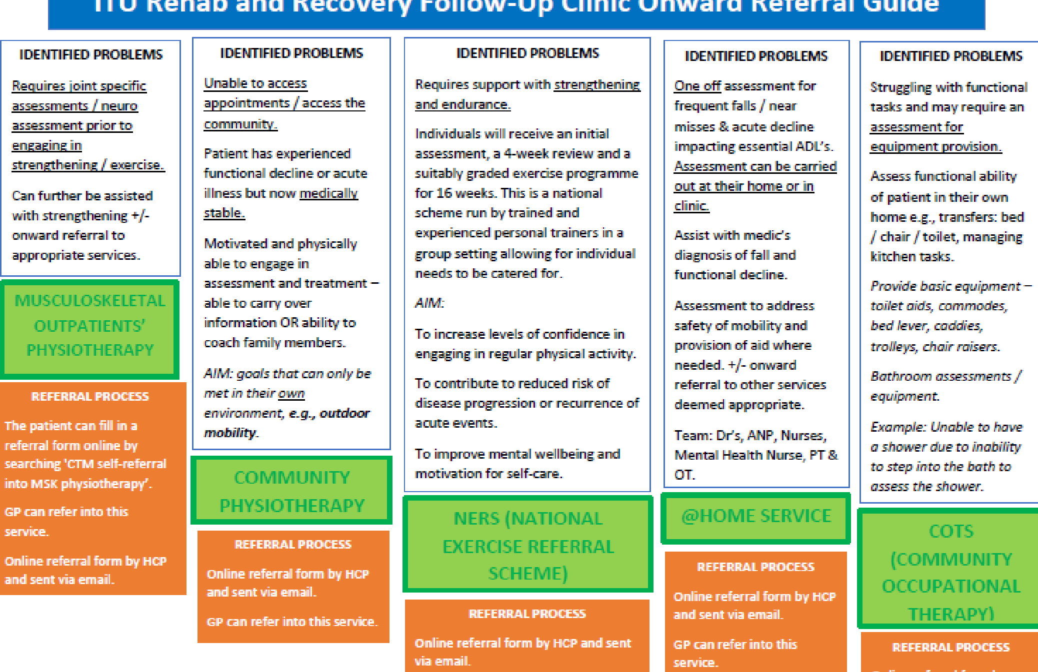
Review

- Quantitative data was then recaptured (3-month period post-intervention April → June 2023) as well as qualitative feedback from clinic MDT clinicians.

"I wanted to say a huge thank you for this – I appreciate the work involved. It will definitely help us when we see follow-up patients in clinic"

DEVELOPMENT & IMPLEMENTATION

ITU Rehab and Recovery Follow-Up Clinic Onward Referral Guide



IDENTIFIED PROBLEMS

Requires joint specific assessments / neuro assessment prior to engaging in strengthening / exercise.

Can further be assisted with strengthening +/- onward referral to appropriate services.

MUSCULOSKELETAL OUTPATIENTS' PHYSIOTHERAPY

REFERRAL PROCESS

The patient can fill in a referral form online by searching 'CTM self-referral into MSK physiotherapy'.

GP can refer into this service.

Online referral form by HCP and sent via email.

IDENTIFIED PROBLEMS

Unable to access appointments / access the community.

Patient has experienced functional decline or acute illness but now medically stable.

Motivated and physically able to engage in assessment and treatment – able to carry over information OR ability to coach family members.

*AIM: goals that can only be met in their own environment, e.g., **outdoor mobility**.*

COMMUNITY PHYSIOTHERAPY

REFERRAL PROCESS

Online referral form by HCP and sent via email.

GP can refer into this service.

IDENTIFIED PROBLEMS

Requires support with strengthening and endurance.

Individuals will receive an initial assessment, a 4-week review and a suitably graded exercise programme for 16 weeks. This is a national scheme run by trained and experienced personal trainers in a group setting allowing for individual needs to be catered for.

AIM:

To increase levels of confidence in engaging in regular physical activity.

To contribute to reduced risk of disease progression or recurrence of acute events.

To improve mental wellbeing and motivation for self-care.

NERS (NATIONAL EXERCISE REFERRAL SCHEME)

REFERRAL PROCESS

Online referral form by HCP and sent via email.

GP can refer into this service.

IDENTIFIED PROBLEMS

One off assessment for frequent falls / near misses & acute decline impacting essential ADL's. Assessment can be carried out at their home or in clinic.

Assist with medic's diagnosis of fall and functional decline.

Assessment to address safety of mobility and provision of aid where needed. +/- onward referral to other services deemed appropriate.

Team: Dr's, ANP, Nurses, Mental Health Nurse, PT & OT.

@HOME SERVICE

REFERRAL PROCESS

Online referral form by HCP and sent via email.

GP can refer into this service.

IDENTIFIED PROBLEMS

Struggling with functional tasks and may require an assessment for equipment provision.

Assess functional ability of patient in their own home e.g., transfers: bed / chair / toilet, managing kitchen tasks.

Provide basic equipment – toilet aids, commodes, bed lever, caddies, trolleys, chair raisers.

Bathroom assessments / equipment.

Example: Unable to have a shower due to inability to step into the bath to assess the shower.

COTS (COMMUNITY OCCUPATIONAL THERAPY)

REFERRAL PROCESS

Online referral form by HCP and sent via email.

RESULTS

% Patients Attending Clinic

100
75
50
25
0

Appropriate Referral | Missed Opportunity | Nil Needs Identified

■ Pre Intervention ■ Post Intervention

"This is so helpful thank you so much"

CONCLUSION

✓ 'Blurred boundary' upskilling approach to clinician roles appears to have led to a more efficient service.
✓ Significant improvement in the number of appropriate onward referrals being made.
✓ Maximizing patient outcomes and recovery.
✓ Supporting the MDT – advantageous to the level of care the service is able to provide, without requiring additional funding.

X Does not replace the need for in-person physiotherapy.
X Ongoing missed opportunities for onward referral
X National guidance is clear on the need for multifactorial multidisciplinary input at follow up clinics.

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Factors Affecting Health & Social Care Staff Engagement with the CTM UHB Winter Respiratory Vaccination Programme 2023/24

Authors: Charlotte Todd, Rhianydd Davey, Margaret Munkley, Rhian Meaden, Emma McGillivray

Contact: CTM_ImmunisationService@Wales.nhs.uk

Background

- All CTM staff are eligible for the winter respiratory vaccination programme, encompassing the COVID-19 booster & influenza vaccine.
- Uptake of winter respiratory vaccinations amongst staff is a focus within CTM, with a national expectation on Health Boards to achieve 75% influenza vaccination uptake amongst frontline Health Care workers.
- Understanding engagement with the winter respiratory vaccination programme is crucial to produce recommendations for current & future staff vaccination programmes.

Aim

To gain insight into associated facilitators & barriers to the staff vaccination programme, & generate recommendations to improve engagement with the programme.

Methodology

- Based on previous evidence reviews & insight into staff vaccination uptake, an online survey was developed.
- The survey was sent to CTM Race Equality Network members, & subsequently widened to all staff via the staff Facebook page.

Findings (n=216)

Quantitative

- 51.4% (n=111) have had or want to have both vaccines together.
- Facilitators to vaccination: receiving in work place, vaccination during working hours, set appointment times.
- Location preference to receive vaccination: at work place via a drop in clinic, at work place via a booked appointment, at work via peer vaccinators.
- Communication preferences: Staff intranet, text messages, letters, staff bulletin/newsletters.

Qualitative

- Facilitators to accepting the influenza vaccine during the 2022/23 season: protection, perceived vulnerability, leading by example, convenience.

"Personal, family & patient protection"

"I get vaccinated due to health & also lead by example"

"An appointment was made for me at work which made it quick & easy to attend"

- Barriers to accepting the influenza vaccine during the 2022/23 season: extenuating circumstances, belief of need, previous adverse effects, accessibility.

"Had covid during time of vaccination"

"Don't think it's needed for someone of my age & fitness"

"Always feel ill after having the flu vaccine, thus decline it"

- Information staff would like to receive about both vaccines: where and when to access, efficacy, effectiveness & safety, side effects (immediate & long term).

"Where and when at my workplace"

"Effectiveness, research carried out, side effects but importantly the frequency of side effects",

"More transparency as there has been some worry re heart side effects"

Recommendations

- Develop staff based FAQs to address information needs/barriers to vaccination.
- Consider facilitators to vaccination whilst planning vaccination clinics, e.g. offer appointments in work place & during working hours & publicise clearly.
- Consider and maximise utilisation of preferred communication platforms.

Limitations

- Responses only received from a very small percentage of CTM staff group.
- Individuals without internet access or who don't regularly access computers as part of their work (e.g. estates staff) may not be well represented.
- Higher response rates are expected amongst those who are most interested in, or have strong views about the topic of the survey.

Harnessing the power of clinically relevant patient-derived materials for the advancement of novel ovarian cancer therapeutics

J Esteves[1], M Quintela[1], L Margarit[1,2], RS Conlan[1], LW Francis[1], D Gonzalez[1]

[1]Faculty of Medicine, Health and Life Sciences, Swansea University; [2]Cwm Taf Morgannwg University Health Board

Introduction- Ovarian Cancer (OC)

- One of the leading causes of death in women worldwide
- Most cases are diagnosed at the late stages which are linked to poorer outcomes.
- Variety of therapeutic options available from platinum-based drugs to targeted therapeutic approaches
- Despite this, the average **5-year survival rate is only 45%**
- Low survival rates show that the efficiency of these treatments is not satisfactory.
- Additionally, there are increasing rates of chemotherapy resistance.
- These figures highlight an unmet clinical need that calls for continued efforts to improve diagnostic and treatment options and improve survival rates.

- Development of accurate and effective therapeutic strategies has been constrained by limited access to patient samples and lack of reliable biological models.
- Through collaborations with Dr. Lavinia Margarit (Cwm Taf Morgannwg UHB), and others across South Wales (e.g., Cardiff and Vale UHB), RBGO group routinely collects and processes patient-derived samples.

In the United Kingdom…

- There are about **7,500 new diagnosed cases per year**
- **4,000** related **deaths** every year

Cancer Research UK, 2021

In Wales…

- Cancer numbers in Wales have been on the rise for the past twenty years, mainly due to increasing population sizes, especially amongst older age groups, who are at highest risk of developing cancer.
- Leading cause of gynaecological cancer-related deaths in Wales

Clinical Cancer Biopsies:

Ovarian tumour, omentum and fallopian tubes

Upon arrival samples are processed for analysis.
Set aside for DNA, RNA and protein analysis and the remaining for tissue culture.

The tissue is enzymatically and mechanically broken-down and placed in a flask where cells attach and grow in monolayers. These cells can then be grown overtime for different purposes and a variety of projects

Extracellular vesicles (EVs) such as exosomes can be isolated from cell cultures from patient-derived samples and provide insight into the disease and therapeutic options for OC

Ascites Fluid Samples:

Preliminary results suggest a significant switch in the transcriptomic profile of ascites spheroids grown in monolayers, illustrating the need of studying these biological entities in their natural 3D conformation.

Spheroids within ascites containing mostly tumour cells, are abundant in advanced stages and are crucial in dissemination across the peritoneal cavity.

NGS techniques such as RNA-Sequencing is essential to understand cellular mechanisms underlying metastatic dissemination.

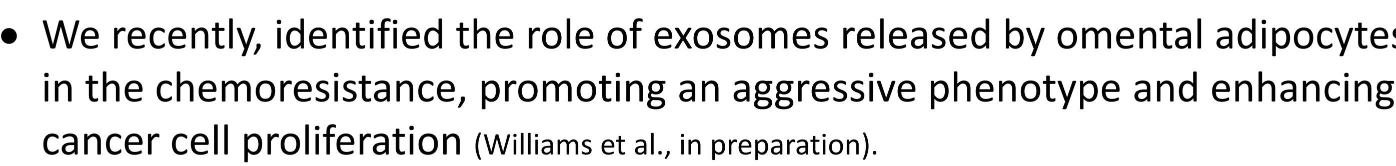
Our biobank at Swansea University contains over 200 patient-derived OC samples that are extensively used to study OC, focussing on improving diagnostics and therapeutic strategies.

Blood samples and Serum Analysis:

•**Circulating tumour DNA** (ctDNA) is the fraction of cell-free DNA (cfDNA) that contains tumour-specific mutations found in the circulation. NGS offers the sensitivity and specificity needed to detect low levels of ctDNA in the bloodstream and identify single gene or genome-wide ctDNA alterations.

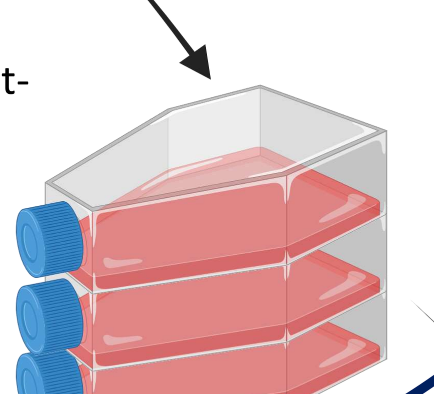
•**Extracellular vesicles** (EVs) carry nucleic acids from origin cells. Tumour-derived EVs are associated to disease progression, metastasis and immune evasion. Analysis of EV's DNA/RNA cargo (e.g., microRNAs) through NGS techniques holds great promise for OC diagnosis, prognosis and treatment response assessment.

Therefore, understanding the mechanisms of EV uptake, loading and delivery is crucial in uncovering their biological role in processes like ovarian cancer progression and in the development of EV-based therapies.



Role of Exosomes in Ovarian Cancer and Therapeutic Potential

- Exosomes are nanosized particles composed of a lipid bilayer, that play a role in cell-to-cell communication.
- Due to their composition EVs are stable in circulation and biocompatible, they can circulate without an immune response.
- Making them a great source of interest in research for it's potential therapeutic use for drug delivery.



- We recently, identified the role of exosomes released by omental adipocytes in the chemoresistance, promoting an aggressive phenotype and enhancing cancer cell proliferation (Williams et al., in preparation).
- These findings have identified a potential therapeutic opportunity to tackle ovarian cancer (Pisano et al., 2020).
- Therapeutic exosomes have been proven effective anti tumour agents against a range of cancers and are in advanced stage clinical trials (Krikun et al., 2004).

Ask me more about this.. This is my PhD project!

Conclusion

- The RBGO group at Swansea University has an exciting research and development portfolio across basic and translational research, encompassing projects that involve the examination of patient-derived biopsy samples.
- These clinical samples represent an invaluable repertoire that is extensively used as a platform to study cancer biology, assess drug response and validate biomarker expression levels, amongst other applications.
- Access to these samples have and will continue to lead outstanding research into furthering our knowledge of OC, diagnosis and therapeutic options. With the ultimate purpose of improving outcomes and survival rates.

Acknowledgements

•We would like to thank everyone involved and ongoing collaborations without which this research would not be possible.
•Dr Sadie Jones and the staff at Cardiff and Vale University Health Board, Prof Lavinia Margarit and the staff at Cwm Taff Morgannwg University Health Board and the team at Abertawe Bro Morgannwg University Health Board.
•A huge thanks to all the volunteers that have consented to help us in this journey.
•Lastly, a big thanks to members of the Reproductive Biology and Gynaecological Oncology (RBGO) group.

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A review of medical therapy for Heart Failure in patients receiving CRT devices between 2011 & 2022

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[1]Princess of Wales Hospital, Bridgend, Wales, United Kingdom. Cwm Taf Morgannwg University Health Board.

Introduction

It is well understood that Cardiac Resynchronisation Therapy (CRT) is an effective treatment for some patients who remain symptomatic of heart failure, despite optimal medical therapy. Current guidelines advise considering CRT in patients that continue to have impaired left ventricular systolic function with an Ejection Fraction <35% and a broad QRS in a left bundle branch block morphology.[1]

There have been a number of advances in the field of heart failure pharmacotherapy in recent years. As such, significant changes have been made to guideline directed medical therapy for Heart Failure with Reduced Ejection Fraction (HFrEF), including the use of sacubitril-valsartan, an angiotensin receptor neprolysin inhibitor (ARNi) instead of traditional ACE inhibitors and Angiotensin Receptor blockers (ARBs).

More recently, the use of SGLT2 inhibitors has widely expanded in the field. It's not known if patients who have historically received CRT devices who may continue to experience symptoms have had their medication optimised to take advantage of these developments.

Purpose

This project aims to review the medications of patients who received CRT devices for heart failure between 2011 and 2022 at a district general hospital. The aim being to review those who may have scope for further optimisation of pharmacotherapy.

Methodology

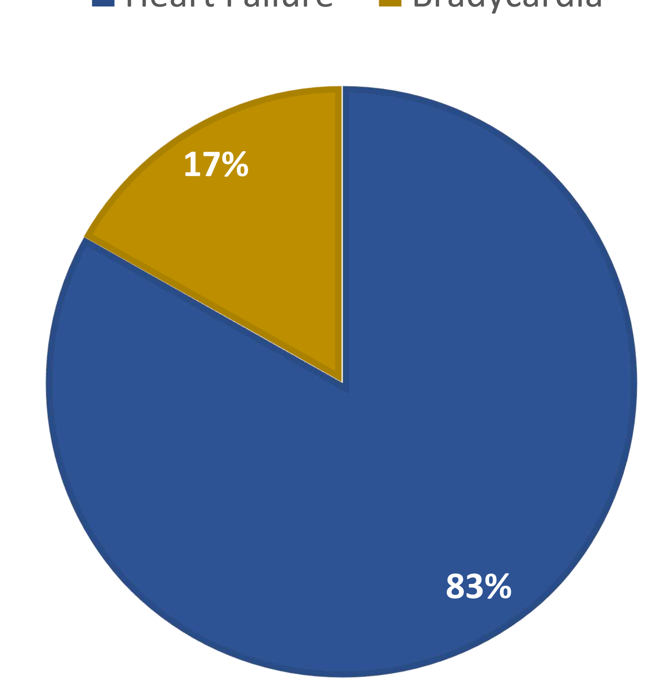
A retrospective review was undertaken of the records of 149 patients who received a CRT device at the Princess of Wales Hospital. The initial cohort list was generated from records kept by the pacing team. After identifying the appropriate cohort of patients, their electronic record was reviewed using the Welsh Clinical Portal (WCP) to review patient demographic information, baseline ejection fraction, follow up ejection fraction indication for CRT implantation, as well as their current up to date prescription.

This information was then collated and their current prescription compared to modern day guideline directed medical therapy for HFrEF to identify targets for potential further optimisation.

Patient Demographics

Total Number of Patients' Records Reviewed	107 (36 deceased and 6 unable to be identified from original cohort of 149)
Mean Age	75
Female Sex	38%

Table 1: Table detailing basic demographic information of patients receiving CRTs

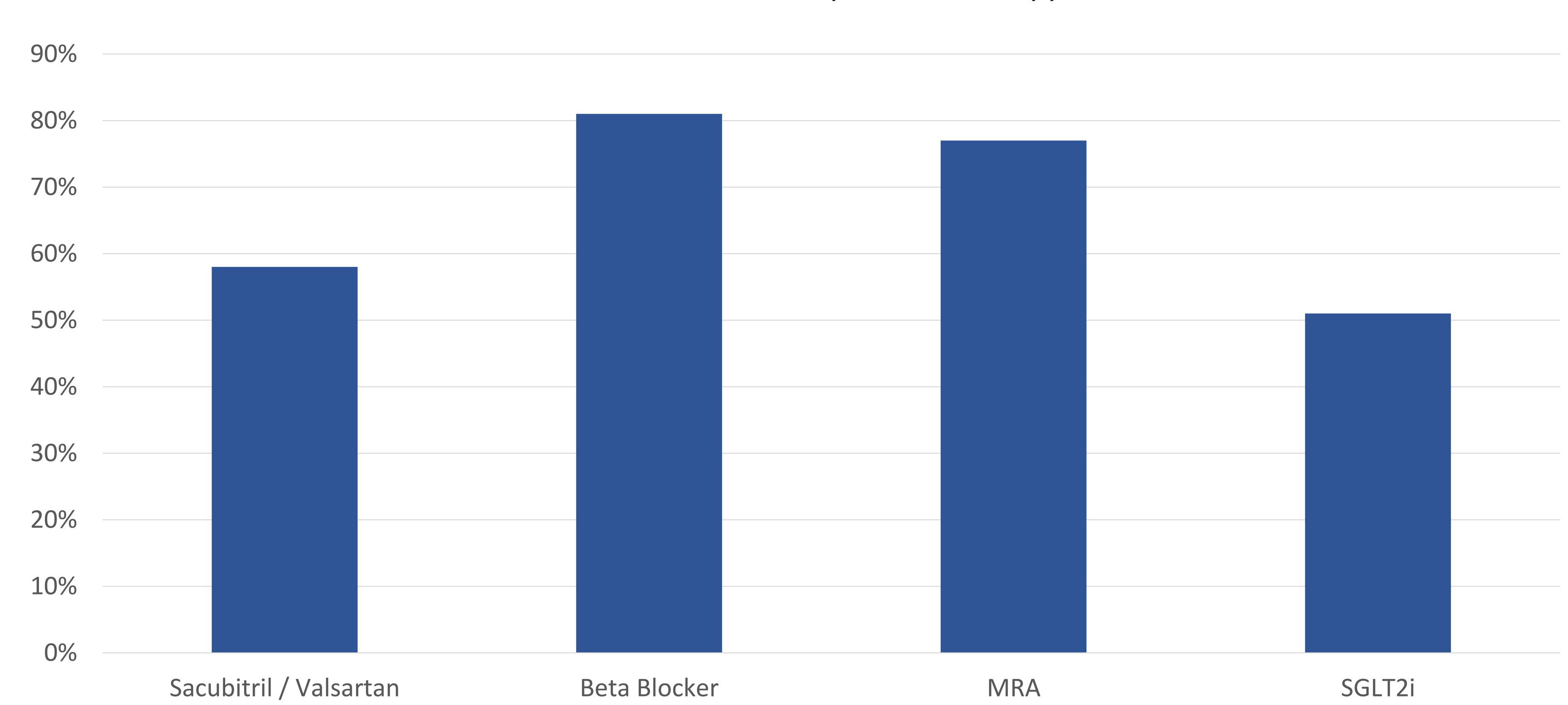


Graph 1: Graph highlighting indication for CRT implantation

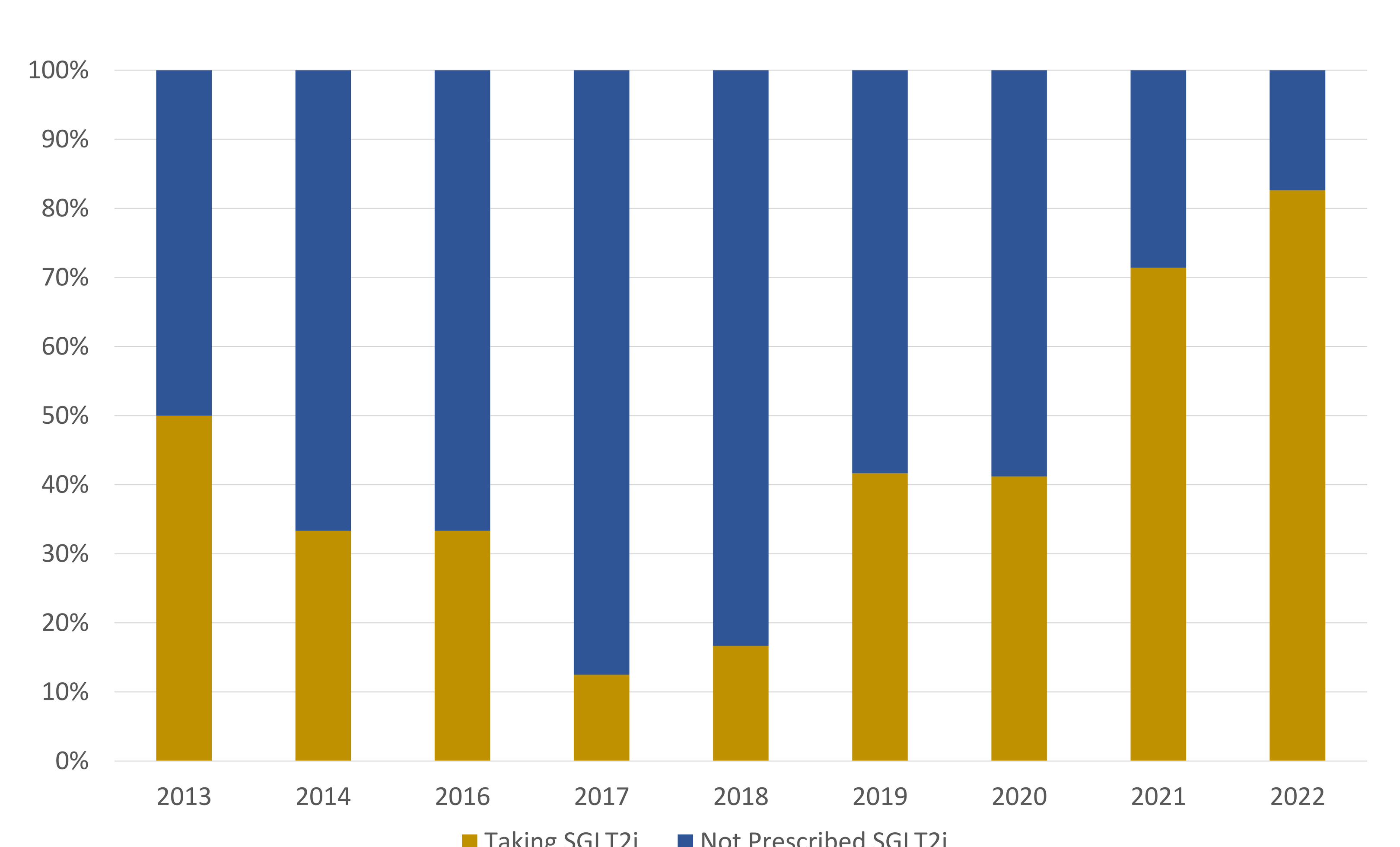
Results

	N=107		
Indication for CRT	Heart Failure Alone	74.7% (n=80)	
	Heart Failure + Other Pacing Indication	8.4% (n=9)	
	Other Pacing Indication	16.8% (n=18)	
Patients who received CRT for a Heart Failure indication (n=89)			
		Baseline	Post CRT
Echocardiographic Markers	Median LV Ejection Fraction	30%	47%
	Ongoing LVEF<40% post CRT	-	21% (n=19)
Current HFrEF Pharmacotherapy	Sacubitril / Valsartan	-	58% (n=52)
	Beta Blocker	-	81% (n=73)
	MRA	-	77% (n=69)
	SGLT2i	-	51% (n=46)

Table 2: Table detailing indications for CRT implantation, difference in LVEF as well as current pharmacotherapy.



Graph 2: Graph showing proportion of patients prescribed each of the 'four pillars of heart failure'



Graph 3: Graph showing proportion of patients prescribed SGLT2i; by year of CRT implantation

Discussion

149 patients received a CRT during the years 2011-2022 at POWH. 36 patients had since passed away and a further 6 patients were unable to be identified due to missing identifiers, leaving 107 patients for review. Of these, 66 (62%) patients were male and 41 (38%) were female. The mean age of patients was 75 years.

89 patients received a CRT for a primary Heart Failure indication, with 9 of these also having another pacing indication. The remainder received a CRT for another indication, most commonly bradycardia.

Those who received a CRT for a Heart Failure indication had a median LVEF pre CRT implantation of 30%, improving to a median of 47% post implantation. 19 patients (21%) of patients continued to have an LVEF of <40% post CRT.

The proportion of patients prescribed sacubitril-valsartan, a beta blocker, MRA and SGLT2i was 58%, 81%, 77% and 51% respectively. Perhaps unsurprisingly, less patients are prescribed sacubitril / valsartan and SGLT2i when compared with MRA and Beta Blockers, that are more conventional therapies for HFrEF. 7 patients who are not taking sacubitril-valsartan continue to have an LVEF <40%, revealing scope for potential optimisation.

Further analysis showed that SGLT2i was more likely to be prescribed to patients who received their CRT more recently; with more than 80% of patients receiving a CRT in 2022 taking the medication, compared with only 50% in those implanted in 2013.

Conclusion

Patients who have received CRT devices in the past may not be fully optimised on modern day guideline directed medical therapy, an area that has evolved significantly in recent years. In particular, some patients may not be prescribed sacubitril-valsartan or SGLT2 inhibitors. These patients should be reviewed and where appropriate, have their medication regimens modernised to improve symptoms, morbidity and mortality.

Limitations

There are a number of potential barriers to achieving guideline directed medical therapy including hypotension, hyperkalaemia, deranged renal function as well as individual drug intolerances and contraindications. These factors will inevitably limit full quadruple therapy for HFrEF and need to be considered when reviewing pharmacotherapy.

Recommendations

1. Reviewing the medications of Heart Failure medications in those with CRTs in situ may allow modernisation of pharmacotherapy where required, or indeed further up-titration of therapy where not previously possible prior to CRT implantation.

Acknowledgements

Thank you to the whole Cardiology team at the Princess of Wales Hospital, Bridgend for all their support.

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Service Development: Improving Patellofemoral Pain Management Through a Patellofemoral Pain Pathway

Owen Jones, John McIntyre, John Rice

Background

- Patellofemoral pain (PFP) is common and persistent with poor recovery rates, up to 75% of people have symptoms for longer than 1 year and over 50% of patients have poor outcomes after 5-20 years[1,2].
- PFP is a common topic for clinical supervision in musculoskeletal (MSK) physiotherapy in Cwm Taf Morgannwg University Health Board (CTMUHB), with frequent requests for unnecessary radiological investigations by both patients and physiotherapists.
- Physiotherapy supported by other secondary adjuncts is the most well-evidenced way of managing PFP[1].
- Quadriceps strengthening reduces PFP by 44-90% and certain exercises may be more tolerable for those with PFP[1,3].
- Certain underutilised and cost-effective adjuncts improve short-term outcomes in PFP[1].
- PFP takes a long time to improve[2], with limited orthopaedic options to manage this condition[4].
- PFP rarely requires radiological investigation[2,5], only a small subset of PFP patients require imaging, so improving clinician knowledge can reduce inappropriate radiology referrals.
- Considering the above, it is prudent to provide clinicians with evidence-based knowledge to effectively manage PFP and confidence to persist with PFP rehabilitation in the absence of early progress.

Patellofemoral Pain Pathway

Self Ref | FCP | ORTHO | GP

Suspected Patellofemoral Pain

Rule out red flags

Physio

Complex presentation or failed previous management

Podiatry

Improving?

Outcome Measures (OM): Isometric quads strength, +/- KOOS-PF, MSK-HQ, TAMPA Scale of Kinesiophobia

Yes; OM and discharge

No. Allow at least 3 months to see some progress. Discuss with clinical specialist. Imaging?

Consider surgical opinion (note limited options)

Discharge with self management

Physiotherapy Assessment and Treatment Plan

Patient presents with patellofemoral pain

Assessment

Other diagnosis: referred pain, tendinopathy, enthesopathy, tibiofemoral pathology

Patellofemoral Pain

Outcome Measures: Isometric quads strength, KOOS-PF, MSK-HQ, +/- TAMPA Scale of Kinesiophobia

Physiotherapy Management

Use dynamometry to assess quads strength.

Exercise Therapy
Consider:
- Quadriceps strengthening
- Open chain quads 90-45 degrees
- Closed chain quads 45-0 degrees
- Hip muscle strengthening

Keep pain ≤4/10 during activity. Should not worsen symptoms.

Biomechanics
Consider:
- Podiatry referral
- Running - increase cadence or shift to forefoot strike (watch increased Achilles load)

Modifiable Risk Factors
- Obesity, signpost if appropriate

Address Pain System
- Reassurance
- Pain education
- Persistent pain management

Symptom Management
Consider:
- Load modification
- Analgesia, NSAIDs

Adjuncts
Consider:
- Patellar taping

Do not use:
- Electrotherapy
- Dry needling
- Biofeedback machines

Improving?

Yes
OM & Discharge

No
Discuss with clinical specialist physiotherapist

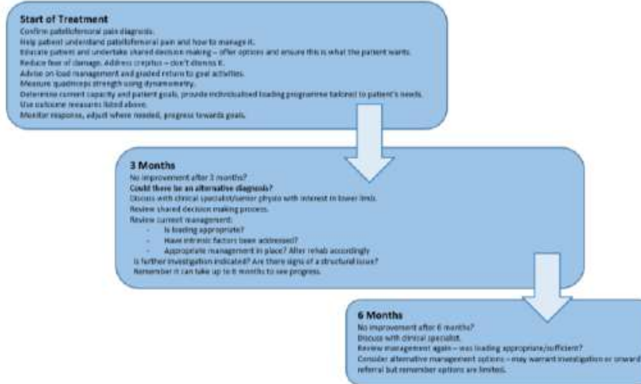
Aims

- **Primary aim: Improve therapist knowledge and confidence in managing PFP**
- **Secondary aim: Ensure quality and satisfaction in the delivery of teaching to therapists**
- **Future aim: Monitor adherence to the evidence-based PFP guidelines**

Method and Audit

- A CTMUHB PFP Pathway was devised through analysis and synthesis of the best evidence for the management of PFP.
- This covered aetiology, epidemiology, biomechanics, psychology, subjective and objective assessment, differential diagnosis, outcome measures, treatment, adjuncts, investigations and onward referral, recommending a treatment pathway and timeline (*above* and *below*).
- The main features of this pathway were presented across the health board, with recommended content for a follow up session in smaller groups.
- Supporting literature for both staff and patients was also generated.
- Prior to and three months after the teaching session, attendees completed a questionnaire regarding self-perceived confidence and knowledge in managing PFP, and the results compared (see *results*).
- Attendees also gave immediate feedback on the quality and delivery of the teaching session (see *results*), with opportunity for qualitative feedback which was analysed thematically.
- All data collected were anonymous and analysed using Microsoft Excel.

Guideline Summary - Patellofemoral Pain Treatment Timeline



Discussion and Future Research

- A recent systematic review and meta-analysis has shown that therapist confidence is important to patients[6], and the results above demonstrate this PFP pathway was effective in improving therapist confidence in assessing and managing PFP patients.
- Little research has been done to show whether improved therapist confidence has a direct impact on patient outcomes, however providing therapists with the most evidenced-based methods of managing challenging pathologies is likely to improve patient outcomes.
- Measuring PFP patient outcomes before and after the training session would be an appropriate way of assessing the effectiveness of this PFP pathway to improve PFP outcomes. Unfortunately this would require significant resources so is outside the scope of this project.
- Pathway adherence is important with any pathway, and although these outcomes above are positive at three months post-delivery there is no data to show the pathway's evidence-based recommendations are being followed. This could be monitored through analysis of the notes of PFP patients. This unfortunately fell outside the timeframe of this project, however will be conducted in the short- to medium-term.

Results

Primary outcome: self-perceived questionnaire

The questions within the self-perceived questionnaire were:

- How much do you understand about PFP?
- How confident do you feel diagnosing PFP?
- How confident do you feel treating PFP?
- Do you like treating PFP?
- How do you most often test quadriceps strength in PFP patients?
- Do you know of any outcome measures specific to PFP?
- How often do you use a validated outcome measure for PFP with PFP patients?
- Are you confident that you know when to refer PFP patients on to orthopaedics?
- How often do you involve other members of the MDT (outside of physiotherapy) when treating PFP?

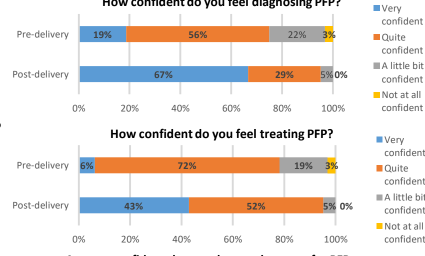
These all had multiple choice answers, and all improved to a larger proportion of positive answers post-delivery. Some results are highlighted in the graphs on the right.

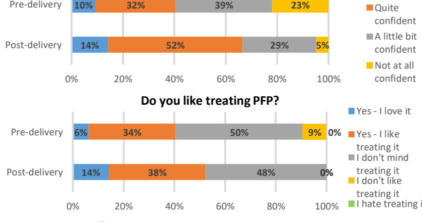
How much do you understand about PFP?

Pre-delivery: 19% | 63% | 16% | 3%
Post-delivery: 48% | 48% | 5% | 0%

0% 20% 40% 60% 80% 100%

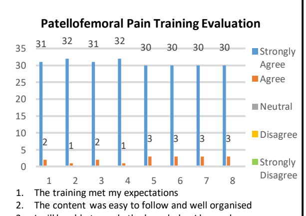
A lot / Some / A little / Nothing





Secondary outcome: therapist evaluation of training session

- 100% of therapists graded the training session overall as "excellent". Feedback for individual statements is displayed in the chart on the right.
- In terms of qualitative feedback (n), therapists felt that it was well presented (3), with good available resources (2), however some would have appreciated having the handouts before the sessions to assist in note-taking (2).
- With regards to the follow up session, most therapists were happy with the recommended follow up session (6), however some would have liked more practical follow up sessions (4) with some exercise suggestions (2).



1. The training met my expectations
2. The content was easy to follow and well organised
3. I will be able to apply the knowledge I learned
4. The trainers were knowledgeable
5. There was good interaction and participation
6. The objectives were relevant to my job role
7. I feel more confident to manage PFP in my role
8. We had sufficient time to question and discuss topics raised

Conclusion

The CTMUHB PFP pathway was effective in improving therapist confidence and knowledge in assessing and managing PFP. The training itself was well delivered, easy to understand, interactive and relevant to therapists' roles.

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Patient acceptability and clinical effectiveness of combined Raman/FIT testing for colorectal cancer diagnosis in primary care (CRaFT study): an acceptability study

Kayleigh Nelson[1], Kym Carter[1], Julie Hepburn[3], Ian Hill[3], Claire Hurlow[1], Claire O'Neill[1], Alethea Tang[1,2], Dean A Harris[1,2]

1. Swansea University, 2. Swansea Bay University Health Board, 3. Involving People Network, Health and Care Research Wales

Background

- Over the last decade there has been an increase in 2WW/suspected cancer referrals. The current colorectal cancer (CRC) referral pathway is inefficient with large numbers of patients referred to secondary care for invasive tests but only a conversion rate of <5% [1]
- CRC has excellent outcomes when diagnosed at the earliest stage. Delays in diagnosis and treatment is multifactorial and is associated with poorer outcomes.[2]
- There is therefore a need for diagnostic pathways to be improved. The Raman blood test, a serum-based test has the potential to transform these pathways, reducing delays.

Research question: What are patient and professional attitudes to a novel pairing of the RAMAN blood test with faecal immunochemical testing (FIT) in primary care as an alternative to straight to test colonoscopy?

Methods

Study period: September 2019 – March 2022

Cohort identified from participants of CRaFT study (symptomatic, age >40) who have consented to be interviewed or on colonoscopy surveillance register

Healthcare professionals (HCP) from both primary and secondary care approached

Semi-structured telephone interviews and Microsoft Teams (for HCP)
Recruitment to interview continued until saturation

Thematic framework approach
All members of qualitative sub-group independently read transcripts before discussing and developing key themes

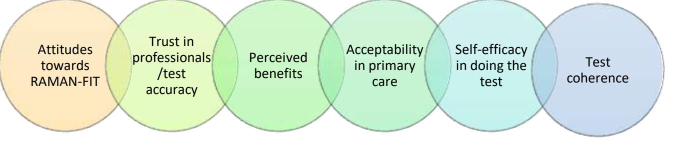
Results

The patient perspective

- 23 participants were interviewed (16 female, 7 male).
- Overall mean age of participants was 63 y/o (range 41-79 y/o).
- Only 2 participants were interviewed in the surveillance group due to the pause of surveillance colonoscopies during the pandemic, reducing opportunity for approach.

	Male (n)	Female (n)	Mean (age)	Range (years)
Referred on USC pathway	4	8	63.5	41-75
Referred on Urgent/Routine pathway	2	7	64.8	44-79
Surveillance	1	1	53.5	44-63

Themes identified from patient interviews



- **91% of interviewed participants** found the RAMAN/FIT test **acceptable** as an alternative to colonoscopy.
- RAMAN-FIT test is an appropriate test but **disliked the handling of faeces**.
- **Trust and confidence in their HCP** in terms of their knowledge of test accuracy in recommending the test.
- Benefits of **convenience**, **speed** as well as the **avoidance of taking bowel preparation or time off work** to undergo invasive investigations.
- **2 out of 23** would **still want a referral for invasive investigation** if they had a negative combined RAMAN-FIT test.
- **Difficulties in completing the FIT test** especially those with poor eyesight, arthritis and diarrhoea
- **Aware the regulatory body approval needed** prior to use and **welcomed the test as a possible screening tool**

The Healthcare Professional perspective

- 12 participants were interviewed (8 primary care, 4 secondary care).

Themes identified from HCP interviews

Theme	
Acceptability in Primary care	• Interest and enthusiasm • Confident as initial test to reassure patients • Need strong evidence
Best use of RAMAN-FIT	• Triage test (rule out test) in low-risk patients
Perceived patient benefits	• Less travel in rural areas • Convenience

- All HCP showed **interest and enthusiasm** in the prospect of the availability of this test.
- Confident with its use as an **initial test to reassure patients** but required **strong evidence** to use it in their clinical practice.
- Would be best in a **triage** setting for low-risk patients.
- Potential benefits to the patient include **less travel** in rural areas, **convenience** and **engagement** in patients with high-risk symptoms who do not want colonoscopy.

Discussion and Conclusions

- There is a role for RAMAN-FIT in the development of a more prudent diagnostic pathway.
- It is an acceptable test compared to current invasive methods and adoption of the test in primary care may improve patient wellbeing.
- As a diagnostic or triage tool, it could improve access to colonoscopy for those who need it most – resulting in timely diagnosis and treatment, including the opportunity to prevent CRC through increased polyp detection and improvement in available screening methods for bowel screening.

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Study published in Health Expectations - Nelson K, Carter K, Hepburn J, Hill I, Hurlow C, O'Neill C, Tang A, Harris DA. Patient and healthcare professionals' perceptions of a combined blood and faecal immunochemical test for excluding colorectal cancer diagnosis in primary care. Health Expect. 2023 Dec;26(6):2655-2665. doi: 10.1111/hex.13796. Epub 2023 Sep 11. PMID: 37697688

Up-and-Coming Studies

Investigation of potential associations between the rs2228145 variant of the Interleukin-6 Receptor (IL-6R) Gene and the pathophysiology of Acute COVID-19/Long-COVID

A collaborative research project between Cwm Taf Morgannwg University Health Board and Cardiff Metropolitan University (funded by the Cwm Taf Morgannwg UHB Academic Partnership Research Fund)

Katie Rees [1], Rebecca Aicheler [1], Lee Butcher [1], Keith Morris [1], Richard Webb [1], Ceri Lynch [2], Lisa Roche [2], Alan Dodd [2], Brian Tennant [2], John Geen [2]

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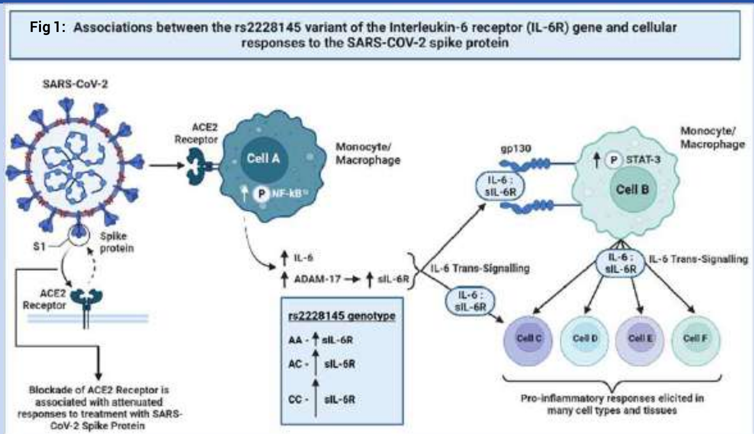
INTRODUCTION



Responses to COVID-19 are variable - in ≈ 10-15% of cases, COVID-19 patients progress to severe disease, in ≈ 5% of cases to critical disease [1], and according to a recent estimate [2] 1.3% of cases worldwide COVID-19 have been lethal. Severity rises with age and with the pre-existence of co-morbidities [1, 3], but these two factors do not explain all observed variability, with variation in inflammatory responses being a key additional factor [1]. Therefore, evaluation of the impact of variability in inflammation-associated genes on responses to SARS-COV-2 infection is a key priority.

Aim: To quantitatively investigate the influence of a genetic variant in the IL-6R gene (Accession Code: rs2228145), on the body's response to COVID-19 infection

METHODS

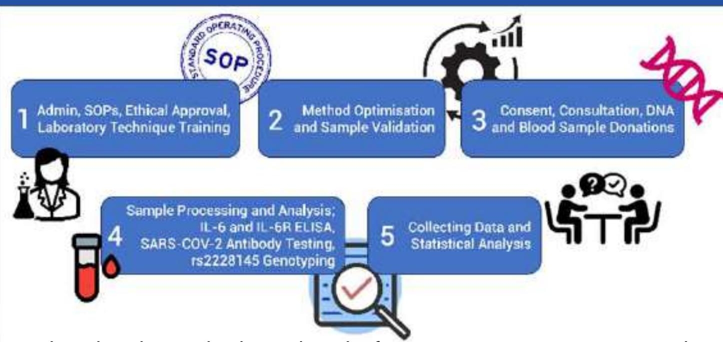


Fig 2: Flow Diagram showing Study Design for CTMUHB/CMU IL-6R/COVID-19 Study

Prospective and Retrospective sampling modes
Power Calculation: Sample Size of n=150 is required

3 Main Cohorts:

1. Acute Severe COVID-19 Patients
2. Long-COVID Patients
3. Healthy Comparators - Staff and Students from CTMUHB or CMU; COVID-Positive/Non-Hospitalised, or NEVER had COVID

- Bespoke COVID-19/Long-COVID-focussed Health Consultations
- PCR/RFLP Assay (using Mouth Swill Samples) used to determine participants' rs2228145 Genotype
- ELISA Assays to quantitate plasma IL-6 and sIL-6R, and serum SARS-COV-2 nucleocapsid antibody, levels
- Statistical Analysis (multi-regression, ANOVA, Chi^2) to evaluate associations between the above parameters and severity of COVID-19/Long-COVID symptoms

RESULTS TO DATE AND FUTURE WORK

In-vitro studies [4]: Pro-inflammatory IL-6/sIL-6R trans-signalling occurs at higher levels in cultures of CC-bearing than AA-bearing or AC-bearing monocytes.

Trans-signalling is maintained at higher levels in CC samples on treatment with SARS-CoV-2 spike protein

In-vivo studies [5]: Participants' rs2228145 genotype can be determined using our PCR/RFLP genotyping assay (Fig 3A). Each inherited C allele increases blood-borne sIL-6R levels (and thus pro-inflammatory trans-signalling by ~50%. CC individuals

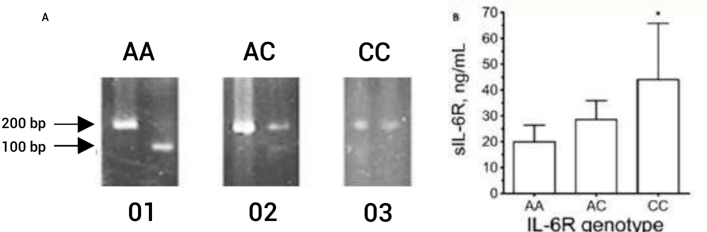


Fig 3: (A) Agarose gel image illustrating banding patterns indicative of rs2228145 genotype
(B) Bar Graph showing rs2228145 genotype's impact on blood-borne sIL-6R levels
(* denotes P<0.05, one-way ANOVA)

Method Optimisation and Validation:
Mouth-swill samples analysed at various timepoints (0h-8h; 4°C) to replicate time-line of sample processing/ transportation from CTMUHB to CMU showed that subsequent DNA yields did not decrease significantly. DNA samples which were frozen for >1-week prior to analysis remain compatible with PCR Protocol (5–50ng gDNA required as starting amount in 50µL PCR)

Participant Recruitment and Current Work:
As of November 2023, a total of 49 Participants (32 from CMU and 17 from CTMUHB) have been recruited. Consultations are currently being conducted, at CTMUHB and CMU. Genetic samples, and plasma/serum samples are being collected, and are soon to be batch-analysed

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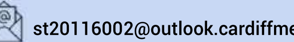
MORE INFORMATION AND RECRUITMENT



Further development and feasibility randomised controlled trial of a digital programme for adolescent depression, MoodHwb: study protocol

Rhys Bevan Jones, Sally Merry, Paul Stallard, Elizabeth Randell, Bryony Weavers, Anna Gray, Elaine Hindle, Marcela Gavigan, Samantha Clarkstone, Rhys Williams-Thomas, Vince Poile, Rebecca Playle, Jonathan I Bisson, Rachel McNamara, Frances Rice, Sharon Anne Simpson.
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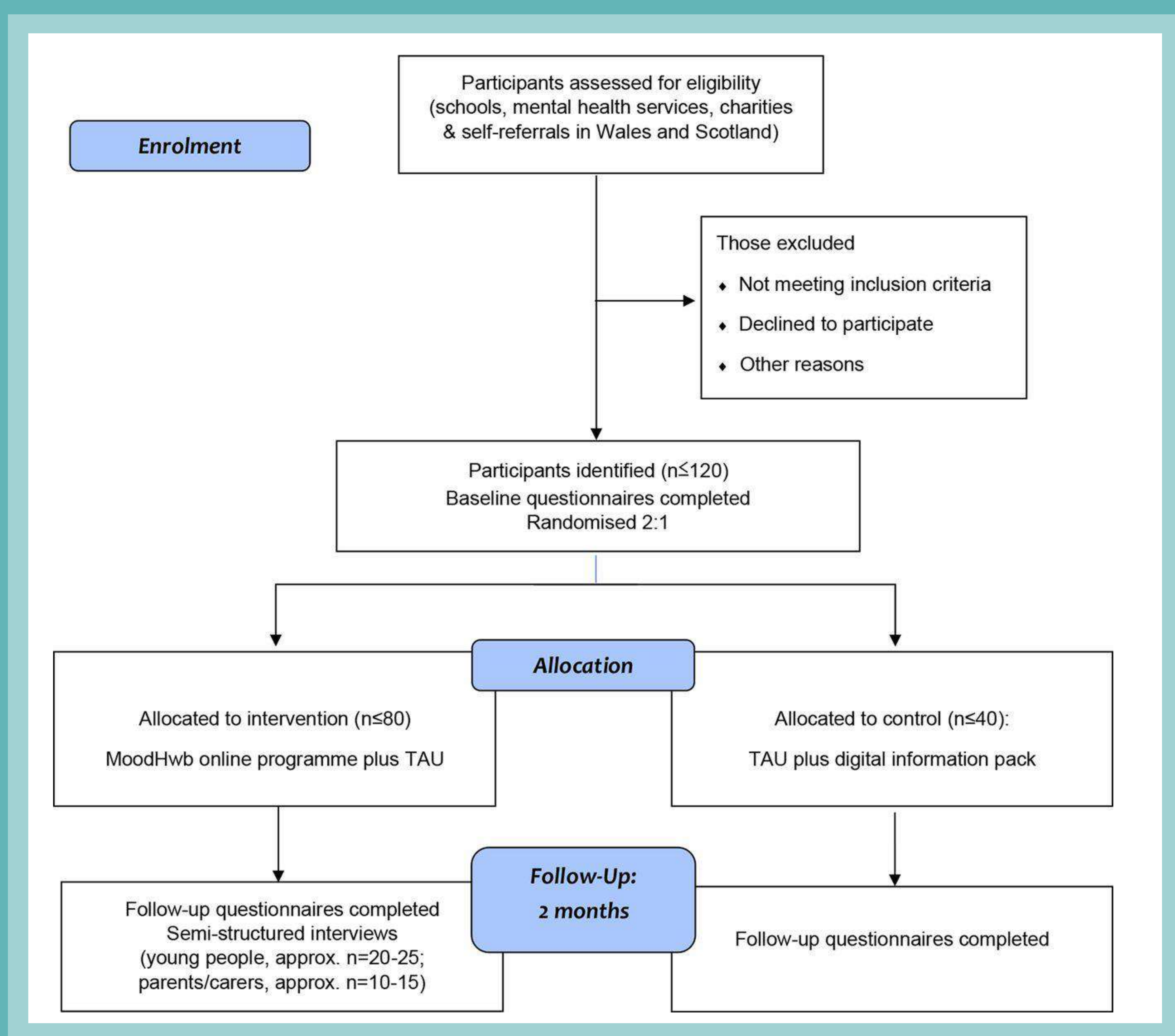
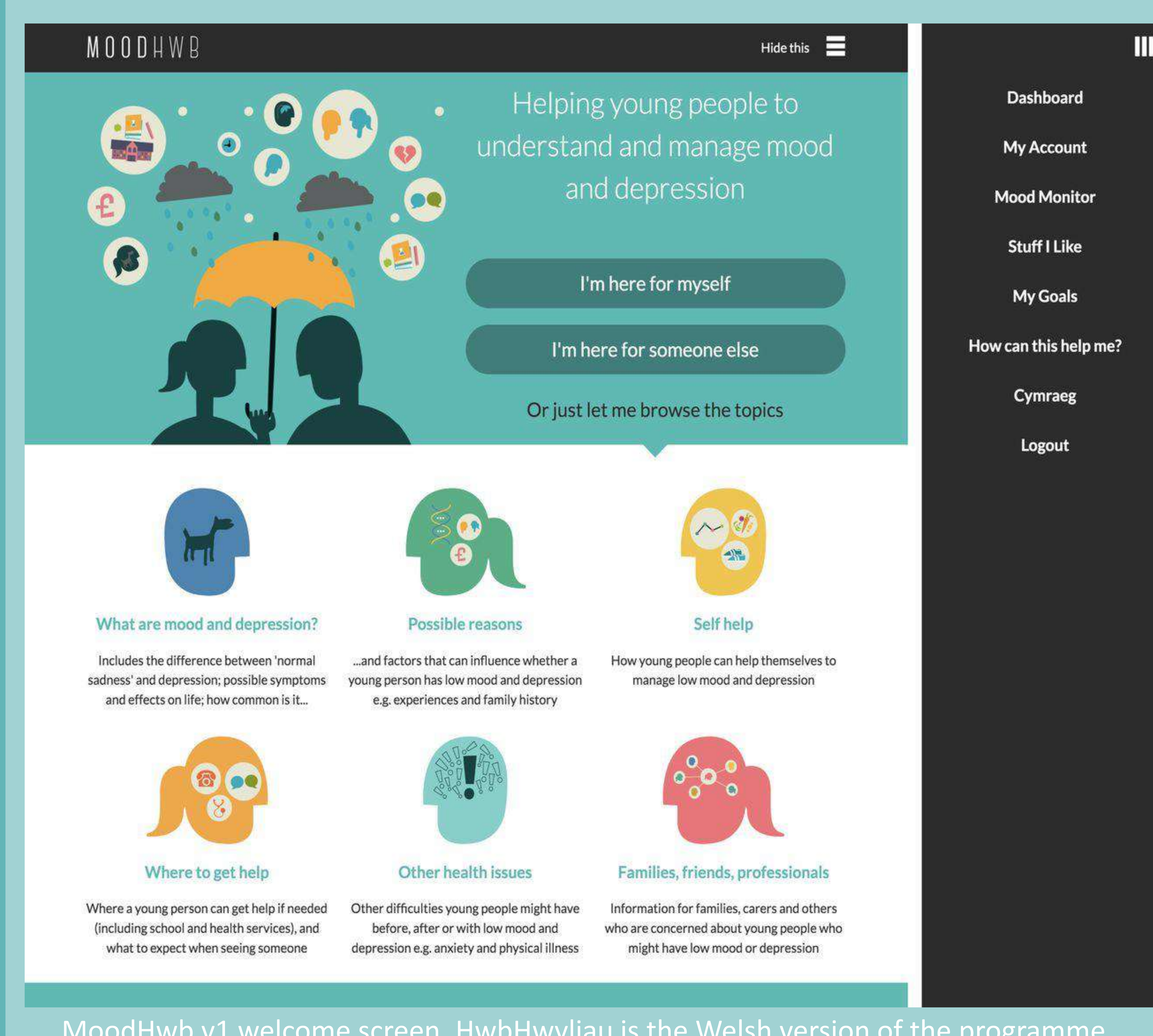
Introduction

A digital programme, MoodHwb, was codesigned with young people experiencing or at high risk of depression, parents/carers and professionals, to provide support for young people with their mood and well-being. A preliminary evaluation study provided support for the programme theory and found that MoodHwb was acceptable to use. This study aims to refine the programme based on user feedback, and to assess the acceptability and feasibility of the updated version and study methods.



Participant flow diagram (NB Web/app usage data will be collected for 6 months after baseline)

Recruitment poster



MoodHwb v1 welcome screen. HwbHwyliau is the Welsh version of the programme.

Methods and analysis

Initially, this study will refine MoodHwb with the involvement of young people, including in a pretrial acceptability phase. This will be followed by a multicentre feasibility randomised controlled trial comparing MoodHwb plus usual care with a digital information pack plus usual care.

Up to 120 young people aged 13–19 years with symptoms of depression and their parents/carers will be recruited through schools, mental health services, youth services, charities and voluntary self-referral in Wales and Scotland.

The primary outcomes are the feasibility and acceptability of the MoodHwb programme (including usage, design and content) and of the trial methods (including recruitment and retention rates), assessed 2 months post randomisation. Secondary outcomes include potential impact on domains including depression knowledge and stigma, help-seeking, well-being and depression and anxiety symptoms measured at 2 months post randomisation.

Implications

Digital mental health technologies such as this have the potential to improve reach and access to therapies at a relatively low cost. MoodHwb will help to address the need for accessible, evidence-based technologies that are developed with user input and evaluated rigorously—and will provide young people and others with more options when looking for support.

To find out more, please visit the study website (ncmh.info/digital-support-study) by scanning this QR code:

References

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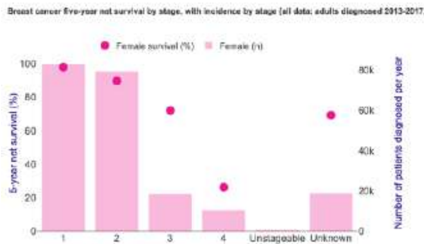
Earlier detection of breast cancer in blood using Raman spectroscopy

Imran Mohamed, Zoe Barber, Kelvin Gomez, Dean Harris

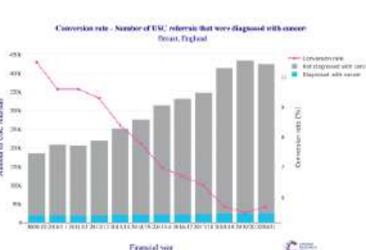
Background

- Breast cancer continues to be the most common cancer in the UK
- Represents 15% of all new cancer cases
- Incidence continues to rise
- Early diagnosis is key to improving survival



Clinical challenge

- Number of referrals continue to increase
- Conversion rate remains low
- Bottleneck for early detection and management



Aim

To establish the performance of Raman spectroscopy in the detection of breast neoplasia in its intended population (symptomatic patients referred to tertiary breast services undergoing triple assessment)

Inclusion Criteria

- Female patients aged 18 years or over
- Confirmed histopathological diagnosis of breast cancer OR benign outcome after assessment from triple assessment clinic
- Willing to provide consent for study participation
- Able and willing to provide blood serum samples

Methods

Prospective cohort pilot observation study across 3 NHS Wales Sites:
SBUHB ABUHB CTMUHB

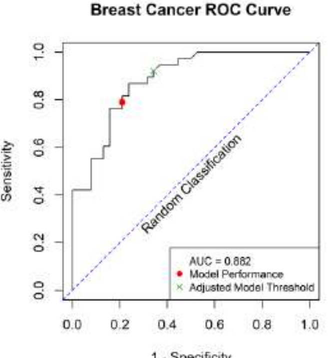
Training a machine learning model
150 cancer patients vs 150 control patients

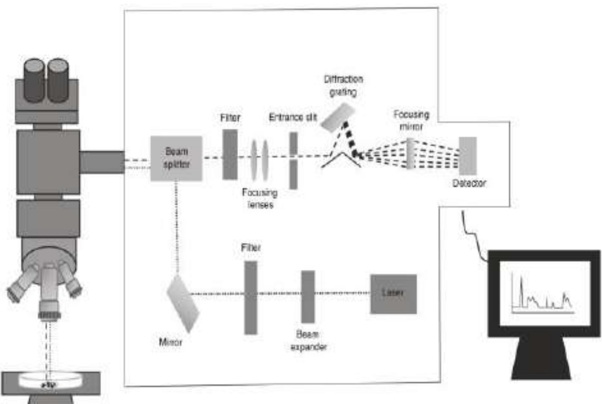
Recruitment to date
147 patients (16 DCIS/LCIS; 124 invasive cancer; 3 B3 lesions; 4 Fibroadenoma)

Patients undergoing surgery as a gold standard pathological comparator will be used to correlate positive samples with a proven diagnosis for training the machine learning (ML) algorithm

Raman Spectroscopy

Preliminary Work
Trained on 38 cancer : 38 control model
Test Sensitivity 93.3%; AUC 0.882





- A vibrational spectroscopic technique
- Used for the detection of disease in tissue and biofluid samples.
- Measures a range of molecular species, producing a spectrum which is unique to the sample.
- The spectra are a 'biochemical fingerprint'
- Offers an insight into the patient's health at any given point in time

Outcomes

- Optimisation of breast cancer detection pathways towards earlier detection and more effective risk assessment of symptomatic patients in primary care.
- Use of a Raman blood test alongside triple assessment may allow more specific triage of symptomatic patients towards improving Single Cancer Pathway (SCP) targets (i.e. in those patients with breast pain or transient symptoms who are referred as USC but with a low cancer detection yield).

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Protocol for an intergenerational randomised controlled trial for the prevention of depression in young people at familial risk: Skills for adolescent WELLbeing (SWELL)

Frances Rice, Victoria Powell, Olga Eyre, Rhys Bevan Jones, Daniel Michelson, Jac N Airdrie, Emma Chubb, Stephan Collishaw, Anita Thapar, Detelina Grozeva, Elizabeth Randeall, Lucy Brookes-Howell, Graham Moore, Neil A Harrison, Rebecca Playle, Jonathan I Bisson, Rachel McNamara

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Background

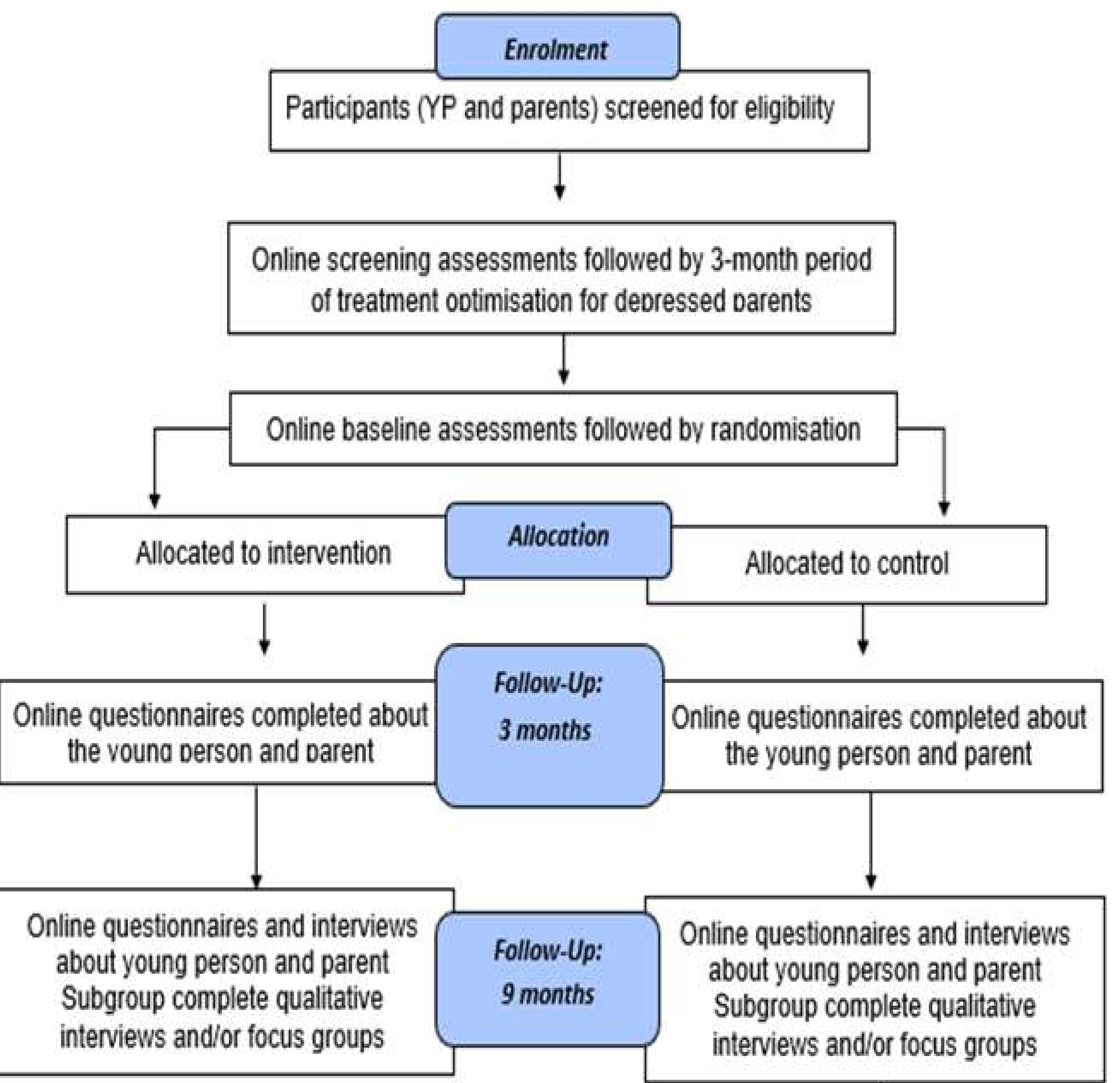
- Young people who have a parent with depression are at elevated risk of developing depression themselves (Rice et al., 2002) and early, scalable preventive interventions are needed for this group (WHO, 2013).
- A previous study found that an in-person group Cognitive Behavioural Therapy (CBT) intervention – Coping with Stress – was effective at preventing depressive episodes in young people with a parental history of depression, but this was modified by current parent depression (Garber et al., 2009).
- The underlying mechanisms that might explain how this intervention works require further investigation.

This study aims to:

1) Test the effectiveness of the SWELL intervention – an updated, online version of 'Coping with Stress' group CBT intervention that incorporates parent depression treatment optimisation for currently depressed parents in preventing depression in young people.
2) Examine the effect of the intervention on secondary outcomes, e.g., quality of life.
3) Assess mechanisms through which the intervention might have its effect, e.g., improved coping skills.

Method

- This randomised controlled trial aims to recruit 400 parents with a history of depression and their child aged 13-17.
- Parents of adolescents who are depressed at the start of the study will receive 12 weeks of depression treatment optimisation, prior to randomization of the young person.
- Young people will be randomised to receive either online group CBT or usual care.
- Questionnaires and interviews will be completed at baseline, 3 months and 9 months.



Inclusion Criteria

- Young person is aged 13-17 years
- They have subthreshold depressive symptoms and/or history of depression
- They have a parent with a history of recurrent depression (≥ 2 previous episodes) who is willing to engage with a depression treatment plan

Exclusion Criteria

- Young person currently meets diagnostic criteria for depression
- They are currently on antidepressant medication, or have completed a course of CBT before
- They have generalized learning difficulties, bipolar disorder, schizophrenia, eating disorder or alcohol/drug dependence
- Parent has bipolar disorder, schizophrenia, personality disorder or post-traumatic stress disorder
- Parent is receiving treatment from secondary mental health services
- Young person or parent is not resident in the UK

SWELL CBT intervention

8 weekly online group wellbeing sessions followed by 3 monthly sessions covering:

- Psychoeducation
- Identifying and challenging cognitions
- Problem solving
- Assertiveness
- Behavioural activation
- Relaxation

Parent treatment optimization

- **Initial consultation** Check-ins every 2 weeks
- **12 weeks in total:** allows time for remission /response & YP intervention within timelines
- **Evidence-based approach** NICE depression guidelines
- **Treatment team:** psychiatrists & mental health support workers

Outcomes of Interest

Primary outcome:
Whether a depression episode occurs in the young person during the 9-month follow up period (time-to-event analysis)

Secondary outcomes:
No. depression free weeks, time to recovery, time to recurrence of depressive episodes; depression symptoms; anxiety symptoms; irritability symptoms; quality of life; developmental competency; functional impairment; individual depression risk score.

Potential mediators:
Negative self-beliefs; self-efficacy and problem solving; perceived stress; behavioral activation; interpersonal relationships.

Summary & Implications

- The results of this study will help inform whether an online group CBT intervention is more effective than usual care in preventing major depressive episode in adolescents at risk of depression. We will also explore potential mechanisms of change and moderators of intervention effectiveness.
- If we find the group wellbeing program works at preventing depression in these young people, we will work with decision makers to ensure it can be made available to those who will benefit.

Patients' and Health Care Professionals' Experiences of Emergency Cancer Diagnoses-A Scoping Review

Karen Wingfield, Cwm Taf Morgannwg University Health Board & Cardiff University; Dr Sarah Fry, Cardiff University; Professor Daniel Kelly, Cardiff University.

Aim

To identify current knowledge about the impact of a cancer diagnosis in an emergency setting on patients and Health Care Professionals (HCPs).

Methods

A scoping review (ScR) was undertaken to provide an overview of evidence. The selection process was separated into patients and HCP's, and to widen the scope for HCPs, the search also encompassed HCPs encounters and perceptions of breaking bad news. The databases searched were Medline, CINHAL, ASSIA, APApsychinfo, SCOPUS, Web of Science and Sociology Request. Google Scholar was used to back chain.

Quality Assessment was undertaken with the Critical Appraisal Skills Programme (CASP) for qualitative evidence.

Inclusion Criteria
Patient and HCP experiences of emergency cancer diagnoses. HCPs encounters and perceptions of breaking bad news.
Published between 2001-2021
English Language papers
16+ age range to include the Adolescents and Young Adults (AYA).

Outcome

More patient focussed evidence was found than HCP (patients 14 v 9 HCPs). These included the UK cancer Patient Experience Surveys (PES) and two AYA studies. In the nine HCP studies, doctors are more commonly researched (6 studies) by survey. In contrast the two papers involving nurses used interviews and focus groups. One paper (Warnock et al 2017) covers a range of HCPs and care workers.

Discussion

Patients and HCPs' are affected when giving and receiving an emergency cancer diagnosis. Four themes were identified.

37% of cancers in Wales are diagnosed via an emergency presentation to hospital. (McPhail et al. 2022)

Communication Experiences between HCPs and Patients

Mixed experiences were found in the literature from both perspectives. Nurses witnessed positive and negative experiences of diagnosis communication (Sanford et al. 2011; Tobin, 2012). Doctors didn't always acknowledge communication cues from patients and families (Korsvold et al 2016).

Co-ordination and Follow Up for Ongoing Management

Lack of co-ordination for follow up or ongoing investigations is highlighted in four patient centered studies (Schaepe, 2011; Gibson et al. 2013; Rankin et al. 2017; Scott et al. 2019). This causes unnecessary distress and anxiety for patients.

Physical Environment Settings for Cancer Diagnosis Disclosure

Less than 33% of doctors in Toutin-Dias et al. (2016) study thought their bad news consultations took place in an appropriate, private, and quiet setting. Conversely a lack of available private space was a theme in the 1st author's pilot study (Wingfield, 2021).

HCP Prior Personal Experience of Cancer

Sanford et al (2011) paper concludes having a previous personal or family cancer experience, positively and negatively impacts on student nurses and their ability to care for this group of patients. Some found having that personal cancer experience beneficial, others remained terrified of cancer.

Conclusion

This ScR has demonstrated limited evidence of HCP experiences with this group of patients. Patient experience papers were reviewed to provide evidence around diagnostic disclosure, co-ordination of care and emergency cancer pathways from the patient perspective. The research reviewed has shown areas of difficulty for HCPs and a lack of contemporary evidence that warrants further exploration. This will be the focus of the 1st author's doctoral research.

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References

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Prepared 15/9/23

ANALYSIS OF CHANGES IN SPUTUM VISCOSITY AND COMPOSITION IN MECHANICALLY VENTILATED PATIENTS IN THE INTENSIVE CARE UNIT – AN OBSERVATIONAL STUDY

Dr Daniel Law BSc MBChB FFICM, Daniel.law@doctors.org.uk. Dr Ceri Lynch MBBCh MRCP FRCA FFICM, Ceri.lynch5@wales.nhs.uk

INTRODUCTION

Invasive mechanical ventilation is one of the hallmark treatments of intensive care therapies and is a life sustaining treatment. Patients receiving invasive ventilation however, are at risk of increased sputum retention in the lower airways[1]. Sputum retention can result in complications such as infection, atelectasis, large airway obstruction and ventilatory failure. Despite the importance of sputum burden on ventilated patients, studies in this area are lacking.

Sputum biophysical properties have been better studied in the muco-obstructive disorders such as cystic fibrosis. However, the mechanically ventilated patient have unique pathological processes that are yet to be studied in relation to sputum biophysical properties. Pathological processes unique to the ventilated patient include; ventilator induced lung injuries, alteration in airway humidity, micro-aspiration past the endotracheal cuff and altered immune responses from critical illness. Additional to contributors to sputum changes, the ventilated patient requires sputum clearance from active suctioning. The cough response is directly medically suppressed for endotracheal tube tolerance and indirectly during deeper sedation or treatments such as muscle relaxants.

Due to be improved understanding of rheological measuring techniques for biophysical properties of sputum[2], it is now possible to describe the alterations that occur during ventilation. Complementing changes to sputum biophysical changes, Fourier's Transform Infrared Spectroscopy can be used to describe molecular changes to sputum that drives the biophysical changes. To our understanding these changes have not been previously described.

With this knowledge we hope to identify treatment targets for sputum burden in the mechanically ventilated patient. Specifically around the use of muco-active drugs. Muco-active drugs are important drugs in the Intensive Care Unit, yet are understudied for their effectiveness in prolonged invasive ventilation.

AIMS

This study is an observational study for patients who require prolonged invasive ventilation. Our primary objectives are to:

1. Measure serial biophysical changes to sputum in patients who are mechanically ventilated
2. Identify changes to sputum molecular composition using FTIR
3. Attribute changes in biophysical properties of sputum change to any molecular compositional changes by comparing rheological measures with FTIR findings

Our secondary aims are to observe alterations to sputum in difference circumstances. These include if:

1. The patient has a chronic respiratory disorder
2. The patient is ventilated for a respiratory condition (such as pneumonia)
3. The patient is started on muco-active drugs
4. The patient is difficult to ventilate
5. The patient develops a ventilator associated infection

METHOD

Thirty patients will be included in this study. Patients are enrolled if they are ventilated within an Intensive Care Unit within Cwm Taf Morgannwg University Healthboard. Sputum samples will be collected daily for up to seven days of their ventilation. Data will be collected from the participants medical notes to inform of factors that may alter sputum composition, as listed in the secondary measures.
Samples will be stored at -80 degrees centigrade until sent for measurement. The two measurements on sputum are:

Rheological Measurement

There are numerous contributors to the changes in properties of sputum in health and disease. However, the main end point that concerns the ventilated patient population are the biophysical properties of sputum[2]. The study of rheology is the best fit for the biophysical properties. Rheology is concerned with viscosity, elasticity and flow points of materials. Overall, from rheological measurement we can provide a measure for the energy required to make sputum flow, helping us address the clinical question of how to more easily aspirate viscus sputum from ventilated patient's lungs.

Rheological measurement will be conducted under an expert of rheology in biological samples. Professor Karl Hawkins has extensive experience in studying rheological changes in sputum samples. Measurements will be taken in Swansea University.

Fourier Transform Infrared Spectroscopy

Fourier transform infrared spectroscopy is a cost effective and timely measurement technique to analyse complex biological materials[3]. By measuring the absorption of infrared light within the sample across different infrared wavelengths a molecular 'finger print' is produced of the sample. Using this finger print changes in sputum composition can be identified.

FTIR can potentially identify changes in the molecular structure of sputum resulting in biophysical changes. This will provide additional and supporting evidence on the mechanistic influences of the changes in sputum resulting in measured changes in any biophysical properties in the sputum in the ventilated patient.

Dr Alan Dodd will conduct FTIR within Cwm Taf Morgannwg University Health Board.

FUTURE PROSPECTS

Initially this study will describe the biophysical and molecular changes to sputum composition over time on a ventilator.

In the future we aim to use these methods in order to test muco-active drugs. Muco-active drugs claim to reduce viscosity of sputum, however there is no evidence at present to confirm that they do. Using measurements in this study we plan to run a randomised control trial to see if sputum viscosity is reduced by muco-active drugs in our patient population.

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Introducing **LIONNS-D2: LIothyrONiNe Sulphate** use in hypothyroid subjects homozygous for the Thr92Ala Deiodinase 2 (**D2**) polymorphism on L-thyroxine alone trial

On behalf of the LIONNS Operational group*

LIONNS-D2

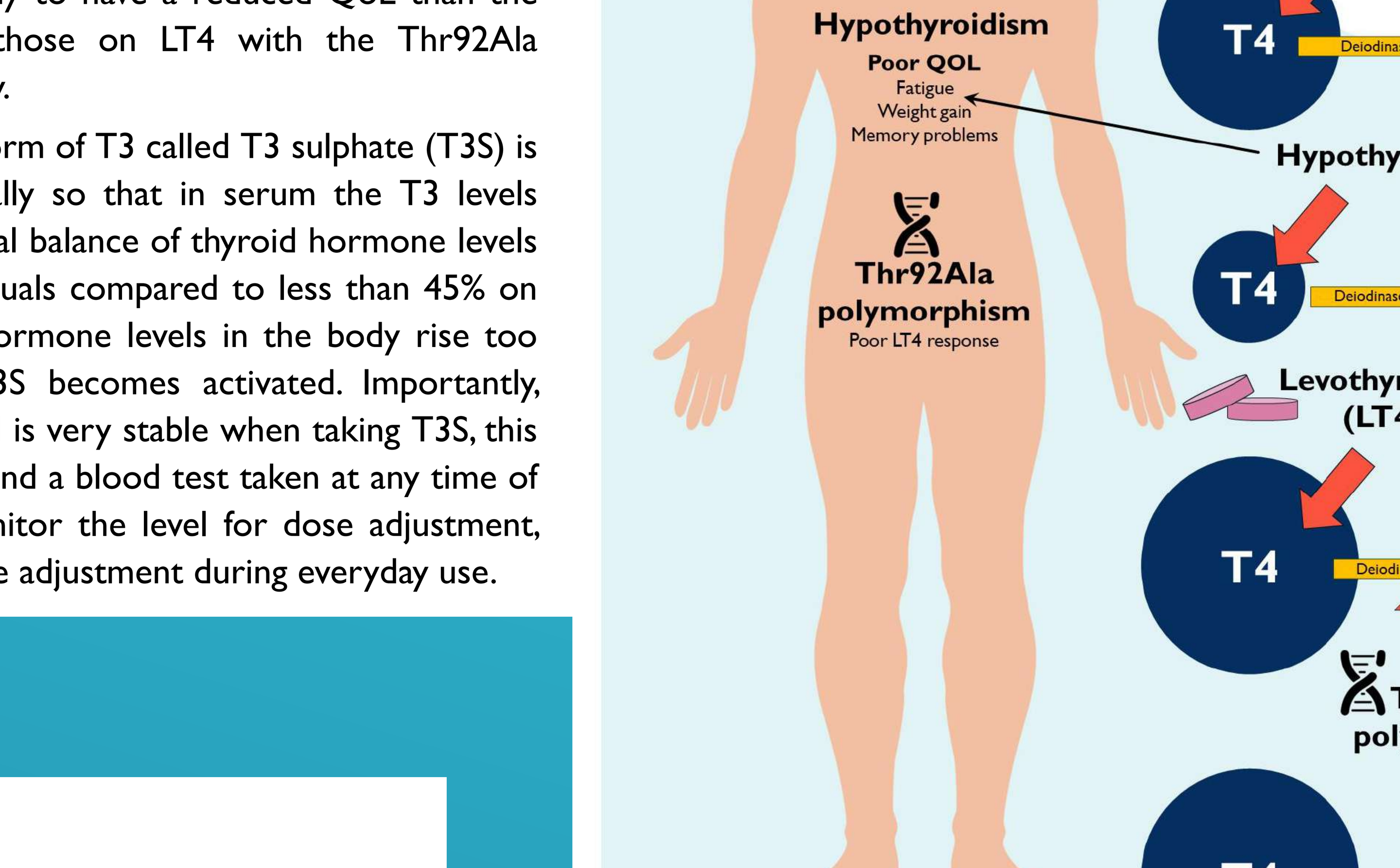
Background

Levothyroxine (LT4) is the third commonest drug prescribed in the UK (>33 million prescriptions issued per year) and is used to treat hypothyroidism which causes symptoms like fatigue, weight gain and memory problems. In most patients, these symptoms improve with a daily dose of LT4 alone but up to 15% still experience disabling symptoms and poor Quality of Life (QoL).

The thyroid gland produces two hormones, thyroxine (T4) and triiodothyronine (T3). T4 is inactive and needs to be converted to "active" T3 in the body to produce its effects. More than 95% of people with hypothyroidism in the UK are treated with LT4 alone which produces a different balance of T4 to T3 in blood (more T4, less T3) than in people with a normal thyroid. In some people, this different balance may be the cause of persistent symptoms. If so, treatment with a combination of LT3 (Liothyronine, supplying additional T3) and LT4 might be helpful.

Some patients have a genetically different form of the enzyme deiodinase 2 (D2) that normally activates T4 to the active T3 called the Thr92Ala polymorphism which is present in ~14% of the population. Patients on LT4 are 22% more likely to have a reduced QoL than the rest of the population, and for those on LT4 with the Thr92Ala polymorphism, it is 200% more likely.

An alternative, naturally occurring form of T3 called T3 sulphate (T3S) is converted back to T3 very gradually so that in serum the T3 levels produced were very stable. A normal balance of thyroid hormone levels could be restored in 90% of individuals compared to less than 45% on LT4 alone. Importantly, if thyroid hormone levels in the body rise too high, an enzyme that destroys T3S becomes activated. Importantly, because the level of T3 in the blood is very stable when taking T3S, this treatment can be given once a day and a blood test taken at any time of day can be used to accurately monitor the level for dose adjustment, making T3S very convenient for dose adjustment during everyday use.



p1. Study rationale

"Our primary objective for this trial is to provide proof of principle that oral T3S given as a once daily dose with LT4 improves symptoms and QoL in symptomatic hypothyroid subjects who are homozygous for the D2 Thr92Ala polymorphism and are currently on LT4 alone."

CI Prof Colin Dayan

Secondary Objectives

a. to provide phase 2 efficacy data for enhanced tissue level thyroid hormone (TH) activity

b. to provide pharmacokinetic profiles for T3S and its conversion to T3

c. to provide medium term (24 week) safety data for T3S

d. to investigate whether interstitial fluid (IF) is a repository for T3S which is utilised for slow release of T3 to the blood stream by a process of desulphation

Progress

The trial will open to recruitment in approx. May 2024 and will recruit 135 participants for screening, of which we anticipate that 76 will be eligible for randomisation. The trial requires at least of those 60 participants to remain in the trial until the end for analysis.

Swansea Trials Unit (STU) will be responsible for overall trial and data management and final analyses.

Eligibility

Inclusion criteria will include:

- Patients with acquired primary hypothyroidism (Hashimoto's, post-surgery or post-radioactive iodine)
- Age between 18-70 years
- On LT4 monotherapy for more than 6 months
- Minimum dose of 1.2 (1.6) mcg/Kg/day or more of LT4 for more than 6 months
- Homozygous for the D2 polymorphism, Thr92Ala
- ThyPro39 Baseline score > 20

Exclusion criteria will include:

- Patients with other causes for hypothyroidism such as congenital and secondary hypothyroidism
- Allergy to components of the Investigational Medical Product
- Comorbidities including cardiac disease, significant hepatic disease, active renal disease
- Concomitant use of drugs affecting TH absorption or metabolism
- Medical or social circumstances reducing likelihood of successfully taking part in all aspects of the trial

Methodology

The LIONNS-D2 trial is a phase 2b, crossover, double blind, randomised controlled trial in hypothyroid patients who are homozygous for the D2 Thr92Ala polymorphism and who have persistent symptoms and a poor QoL despite optimal LT4 monotherapy. The trial is being led by Professor Colin Dayan at Cardiff University. Potential patients will be identified from the **GenThyr cohort**, a group of hypothyroid patients with the Thr92Ala polymorphism based at CTMUHB led by Dr Onyebuchi Okosieme.

Screening will be undertaken at Prince Charles Hospital and Royal Glamorgan Hospital. The team will contact the GenThyr cohort patients who match the initial eligibility criteria and will provide information about the trial and seek consent. There are 19 planned visits for participants if they consent to take part. These are at various locations according to the tests required at that visit:

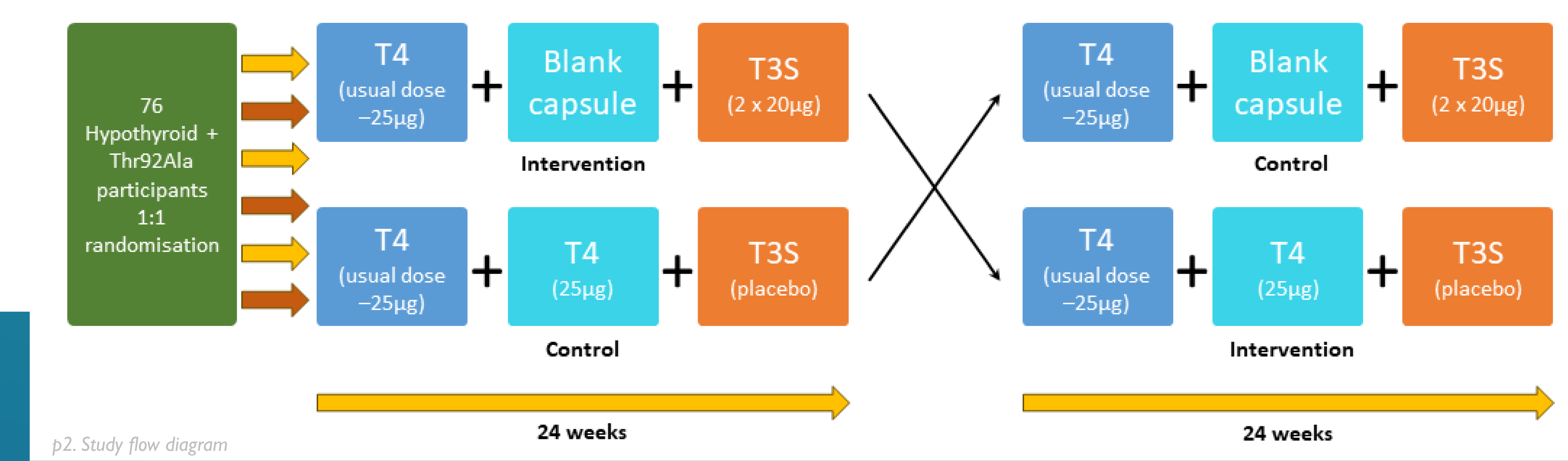
- Routine Review visits for TH, safety tests, blood tests (liver and kidney tests), blood pressure measurement, resting pulse etc will be undertaken in local GP surgeries
- Day Curves, VO2 measurements and IF sampling will be undertaken at the University Hospital of Wales (UHW)
- Body composition DEXA scans will be undertaken at the University of South Wales DEXA scan centre in Treharris.

Participants will be randomised using the Sealed Envelope Ltd web-based randomisation service in a 1:1 allocation to one of two treatment sequences:

Intervention= LT4 + placebo for 24 weeks, followed by LT4 + T3S for 24 weeks

Control = LT4 + T3S for 24 weeks, followed by LT4 + placebo for 24 weeks

As this will be a crossover RCT, participants will act as their own controls.



p2. Study flow diagram

p3. T3S structure

Quick points

- IMP - Triiodothyronine (Liothyronine) sulphate (T3S) oral tablet
- Phase 2 b; Double blind, randomised, placebo controlled, cross-over trial
- Screen 35 Hypothyroid + D2 polymorphism + optimal Levothyroxine monotherapy
- Randomise 76 participants, 1:1 to LT4 +placebo or LT4 + TS3
- ThyPRO39/composite scores at screening versus end of each treatment phase

***LIONNS Operational Group:**
Colin Dayan, Lakdasa Premawardana, Onyebuchi Okosieme, Lynette James, Kym Carter, Gail Holland, Stephen Hiles, Keri Turner, Catrin Vaughan, Lisa Roche, Hannah Davies, Rhian Benyon, Alan Dodd, Steve Luzio

For more information, please contact Dr. Kym Carter k.carter@swansea.ac.uk

Medical Research Council

ReMaCC

Research for enhancing weight management across CTM Communities Group

BACKGROUND

After decades of increases, obesity and overweight rates in Wales are at an all-time high, at 25 and 38%, respectively (WG, 2021).

Cwm Taf Morgannwg University Health Board (CTM UHB) serves 450,000 people across three County Borough Councils: Bridgend, Merthyr Tydfil and Rhondda Cynon Taf. These areas include some of the highest rates of overweight and obesity in Wales and the UK.

Healthy Weight Healthy Wales (WG, 2019), outlines the long term strategy to prevent and reduce obesity in Wales and highlights 4 themes;

- Leadership and Enabling Change
- Healthy Environments
- Healthy Settings
- Healthy People.

This research group will adopt these themes as a guiding framework for our research priorities with a central focus on enabling 'Healthy People' which includes enhancing 'Prevention and early Intervention' and 'Targeted and Specialist services'.

PURPOSE

To inform and improve CTM UHB weight management and type 2 diabetes services, the purpose of the group is to:

build research and evaluation capability, capacity and activity

primarily within the CTM UHB region.

The outputs of the group aim to support CTM UHB and partners to enable 'Healthy People' via the development and provision of high quality weight management interventions or projects that align with the levels of the Adult Weight Management and Children, Young People and Families Weight Management Pathways (WG, 2021).

ReMaCC FUNCTIONS

- Support and lead on funding applications for grant funded research projects.
- Promote the sharing of learning through publication, brief reports, executive summaries and presentations.
- Share our learning with patient, clinical, political and academic communities.
- Establish, maintain, and enhance multi-agency working including the public (e.g., CTM UHB, Academia, Local Authority), private, and third sectors and local population (e.g., patient representatives).
- Include and maintain engagement with patient representatives for the Weight Management Research Group and its projects.
- Identify research priorities and opportunities.
- Provide advice, guidance & support for research and evaluation projects.
- Produce reports of activity and an annual report of ReMaCC outputs.

OBJECTIVES

Short Term (Y1-2)

- Establish a core membership of academic partners across South Wales Universities.
- Identify funding and capacity opportunities for service evaluation and improvement within CTM UHB Weight Management and Type 2 Diabetes Service.
- Produce research and evaluation project framework - titles suitable for a range of student levels.
- Conduct a priority setting workshop for research themes and research questions, and establish a process to enable patient / public involvement with the group.
- Register, at least, two Service Evaluations with CTM R&D – and continue annually.
- Present findings and outputs from Service Evaluations at CTM R&D annual conference.
- Annual Report of the group's activities.

Long Term (Y3-5)

- Extend membership to wider partners and stakeholders, e.g. in primary/secondary education and industry.
- Identify projects for members (or stakeholders/staff enabled by the group) to become Principal Investigators (of larger multi-site projects).
- Identify projects for members (or stakeholders/staff enabled by the group) to become Chief Investigators at CTM.
- Register, at least, one research project via IRAS per year, led by a member of ReMaCC.
- Submit, at least, one grant funding application per year, for external competitive grant funded researcher.
- Publish, at least, two peer reviewed articles per year.
- Disseminate outputs from ReMaCC research activity locally (UHB channels) and nationally (WG/PHW/University channels).

MEMBERS

GIG Cymru NHS Wales – Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board

Dietetics: **Dr Enzo Battista-Dowds (Chair), Madelaine Najjar, Maria Cole (Vice-Chair)**
Research & Development: **Dr Megan Elliott**
Local Public Health Team: **Samuel Belcher**

Teresa Filipponi

Cardiff Metropolitan University – Prifysgol Metropolitan Caerdydd

Katherine Gallimore
Amanda Squire
Rhiannon Harris

If you are interested in joining ReMaCC, please contact Enzo.Battista-Dowds@nhs.wales.uk

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Swansea University | Prifysgol Abertawe | Swansea Trials Unit | Uned Dreialon Abertawe

COLSPECT - Phase two prospective observational single blind multi-site performance evaluation trial of serum Raman spectroscopy in the assessment of FIT-positive bowel screening population

Drew Magowan – Swansea Bay UHB, Dean Harris – Swansea Bay UHB

INTRODUCTION

Bowel screening seeks to detect early-stage colorectal cancer (CRC) and pre-malignant colorectal adenomas (CRA). The faecal immunochemical test (FIT) is currently used as a screening test to determine who requires a subsequent colonoscopy. FIT is known to be approximately 79% sensitive and 94% specific for CRC at low test-positivity thresholds, however, it may miss at least 50% of CRAs. After a positive FIT, up to 30% of colonoscopies are normal, meaning excess use of endoscopy resources. Raman spectroscopy analysis of blood serum has shown good accuracy for detecting CRC and CRAs.

AIM

The aim of this study is to assess the performance of a Raman spectroscopy analysis routine in a FIT-positive screening population. An acceptably accurate blood test may eventually be used as an adjunct to, or instead of, FIT testing in bowel cancer screening.

METHODOLOGY

This study is recruiting FIT-positive screening participants undergoing colonoscopies across Wales. It seeks to obtain 2,200 samples for analysis and outcomes from colonoscopy (cancer/ adenoma/ normal findings) will be used to train and test a machine learning algorithm to allow calculation of the sensitivity and specificity of the device.

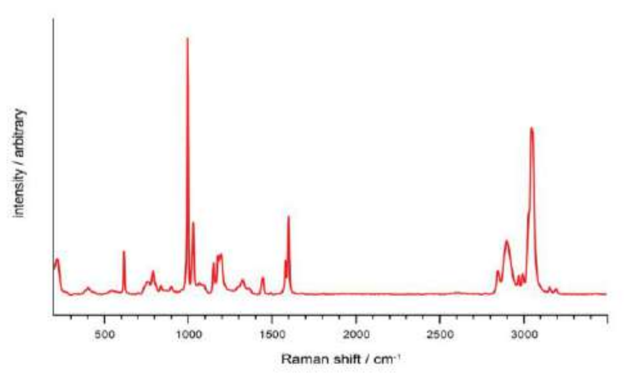


Figure 1 - A Raman spectrum

RESULTS

Recruitment began in late June and we currently have 128 samples gathered from participants recruited across 4 health boards, with many more to come in the next few months. At least 2 further health boards, including CTM, are hoping to start recruitment by the end of 2023. Our aim is to have gathered 2,200 samples by the end of our study period.

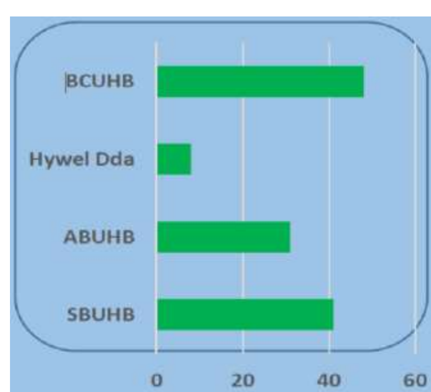


Figure 2 – Current recruitment

UP-AND-COMING RESEARCH STUDY:

Can Probiotics Provide a Winter Boost?

Clare Wright[1], Catherine Goodwin[2], Tom Webberley[3,4], Daryn Michael[4], Daniel John[4] and Sue Plummer[4]

[1]Cwm Taf Morgannwg University Health Board, Wales, UK., [2]Welsh Ambulance Service NHS Trust, Wales, UK., [3]Trialflare, Seastorm Ltd, Cardiff, Wales, UK., [4]Cultech Ltd., Port Talbot, Wales, UK.

Last winter a group of **volunteers took probiotics** and filled in **well-being questionnaires** on the **Trialflare App**.

The results were **really good** showing **improvements** in **tummy symptoms** and **coughs & colds**. There was also indication of reduced **absence from work**.

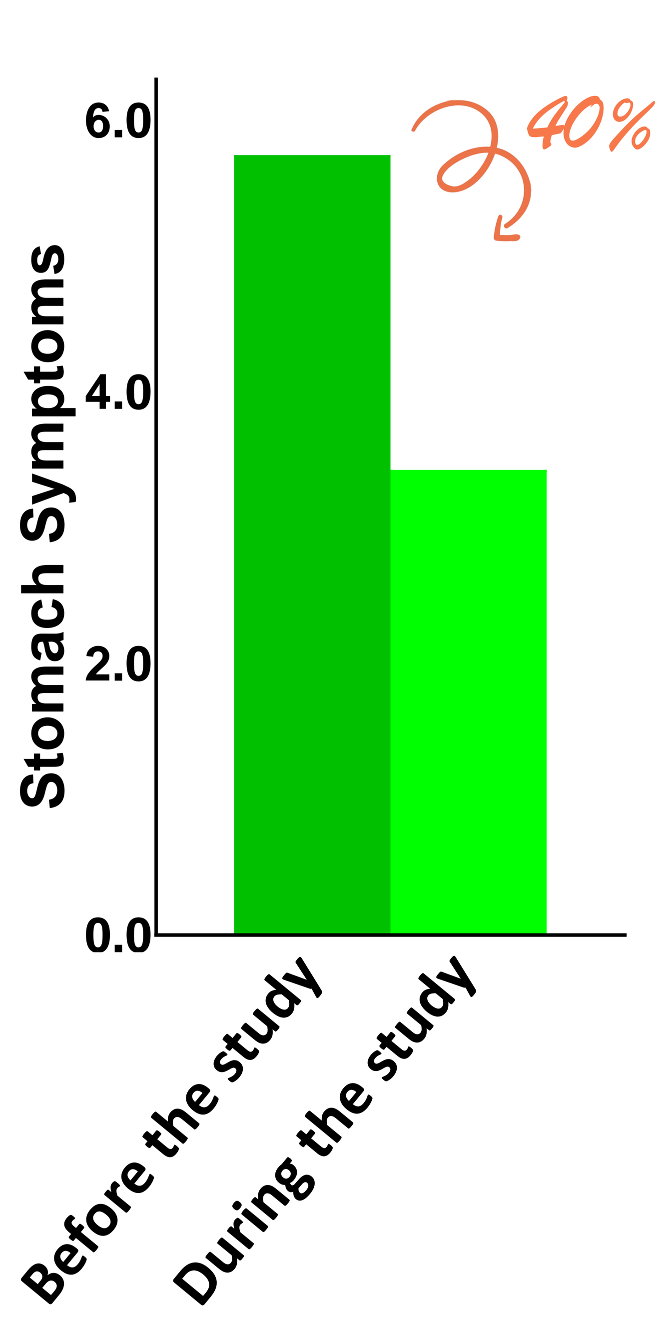
We have designed a **new follow-up study** but this time there will be a **control group** and no-one will know if they are taking a **probiotic** or a **placebo**.

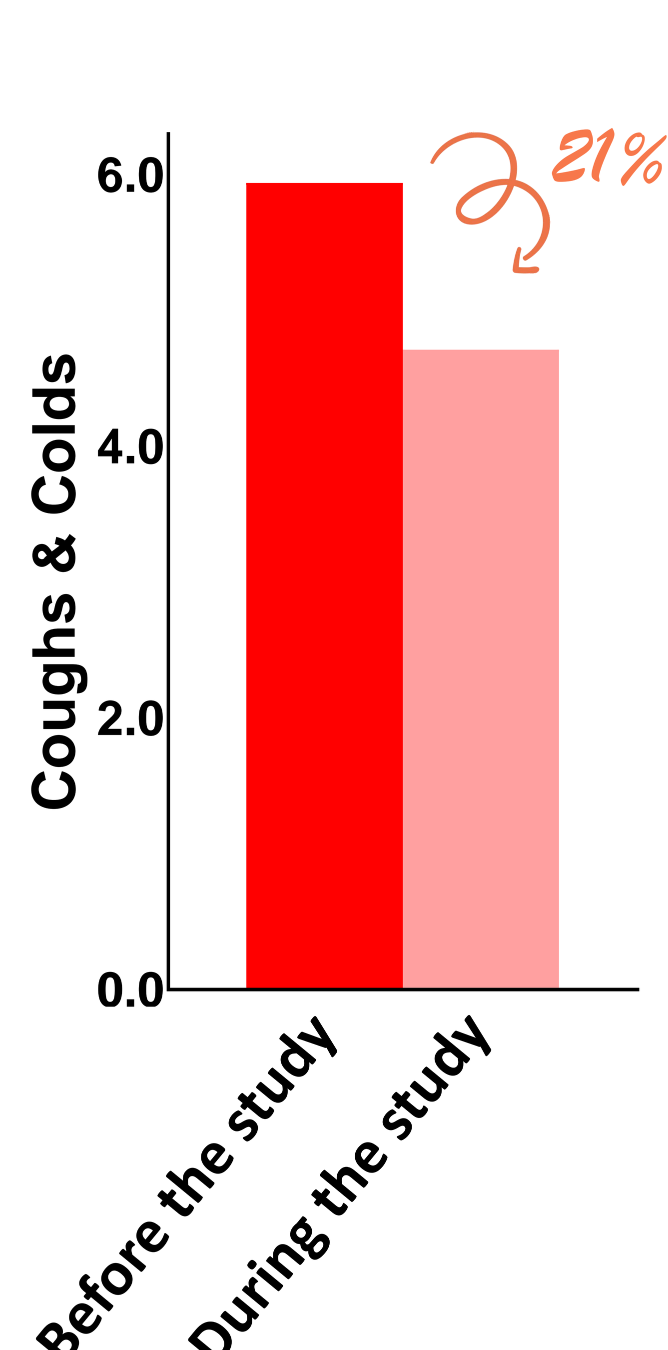
Once again, everything will be done on the **Trialflare App** making it **very easy** for anyone taking part:

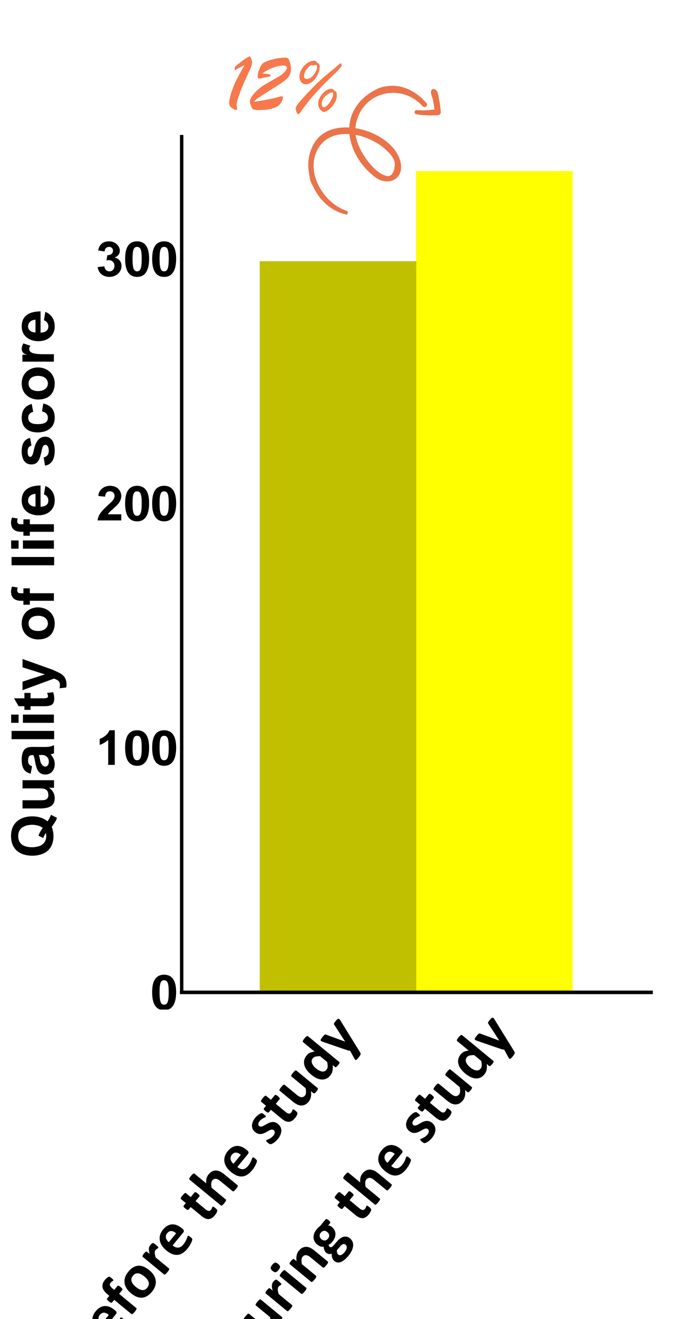
- ✓ **Download the App**
- ✓ **Pick up a pot of product**
- ✓ **Follow some simple instructions**

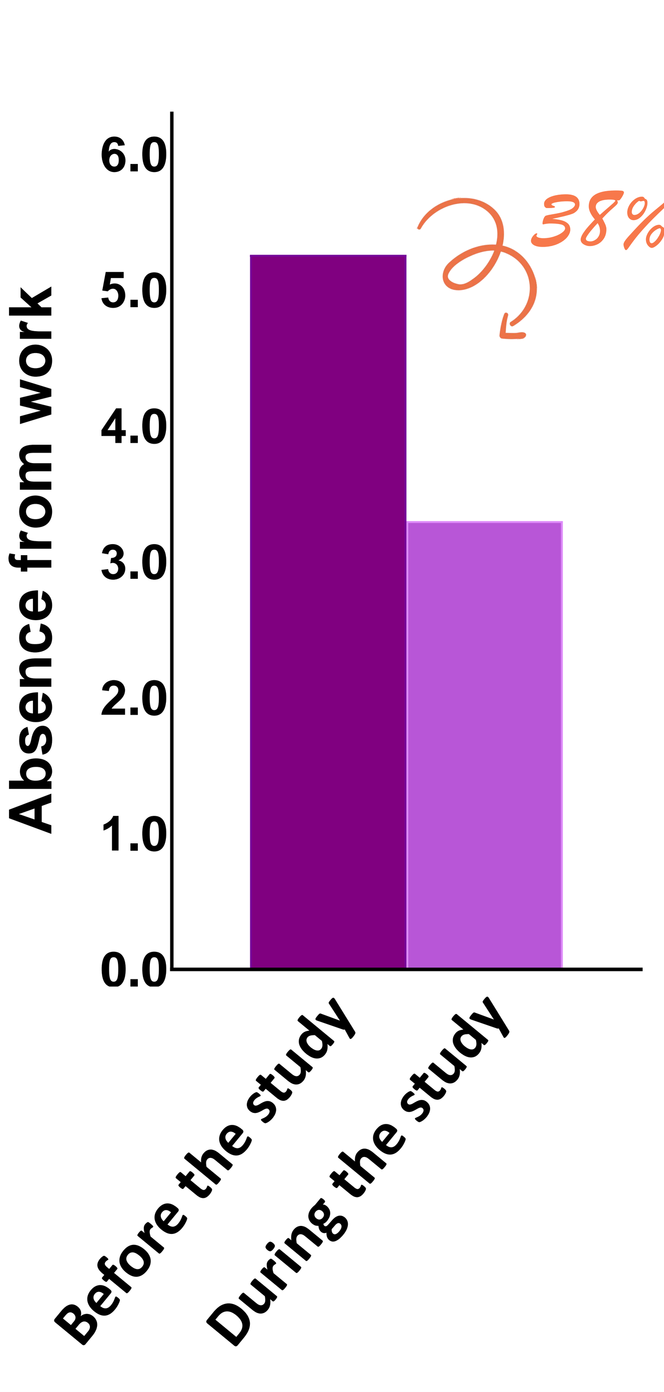
The **Trialflare App** will even remind everyone to take their product and fill in the simple questionnaires.

This is what we found last winter....









We will be recruiting soon so look out for the **emails**, **leaflets** and **posters!**

Children and young people's social connections during inpatient mental health care

Dr Gavin John, RMN, PhD, Cardiff University

Acknowledgements

- Cwm Taf Morgannwg University Health Board and Knowledge Economy Skills Scholarships (KESS2)
- Co-authors/with thanks to : Professor Ben Hannigan, Dr Nicola Evans and Dr Rebecca Playle
- Participants

- Disclaimer- due to the nature of the research, some sensitive/upsetting data will be highlighted

The prevalence of mental health issues in children and young people (CYP)

There has been a marked deterioration in the mental health of children and young people (CYP) in recent years, particularly since the Covid-19 pandemic and now cost-of-living crisis

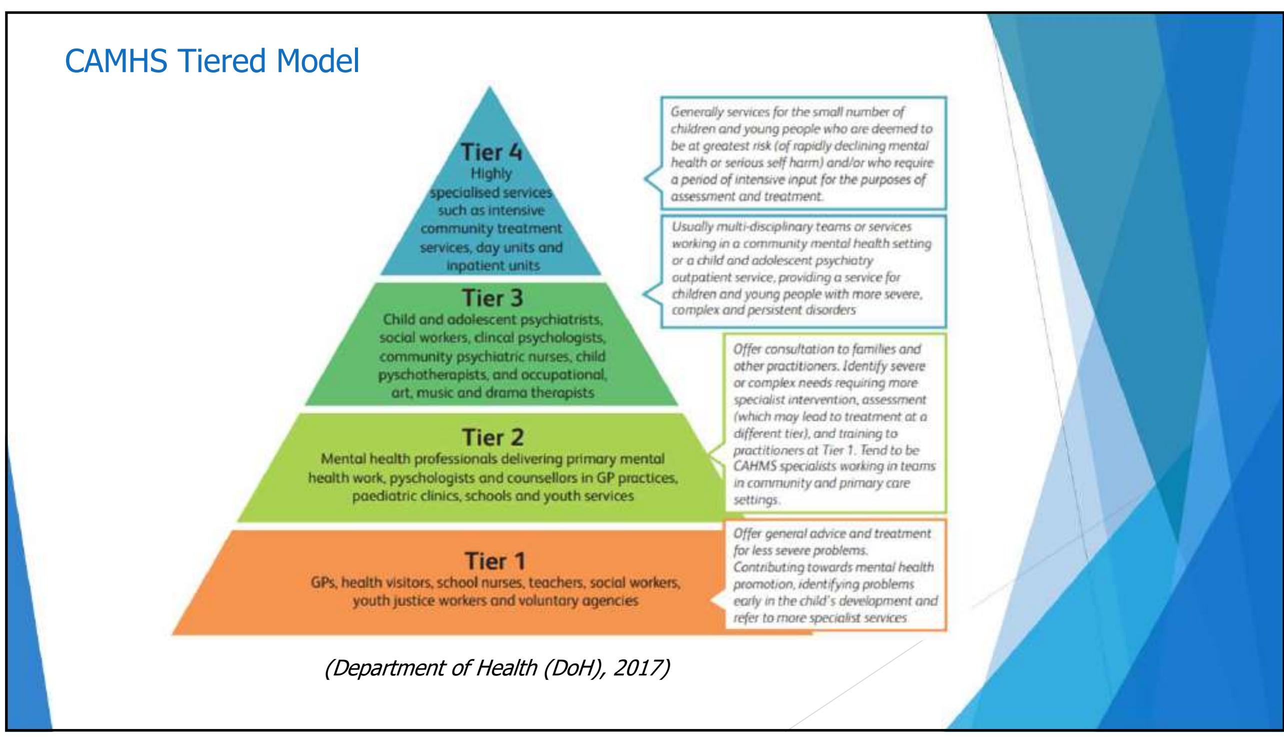
Currently it is estimated that one in six CYP aged seven to 16 were identified as having a mental health difficulty. This has remained stable since 2020, although still an increase from one in nine in 2017 (NHS Digital, 2022)

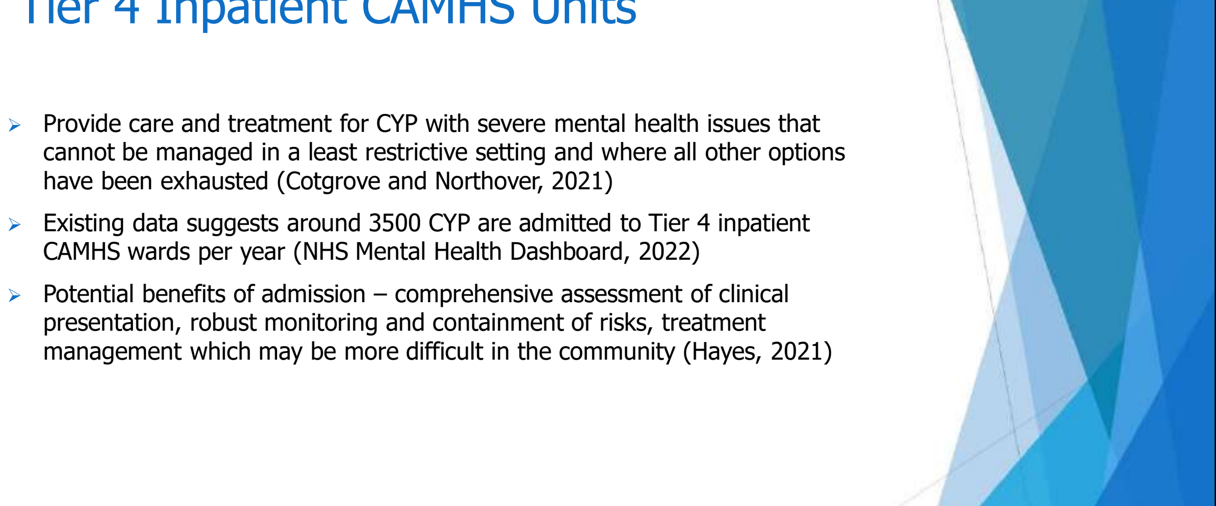
However there has been a year-on-year increase in mental health difficulties for 17-19-year-olds, with rates now suggested to be ***one in four***, an increase from one in six from 2021/2022 (NHS Digital, 2022)

The number of A&E attendances by CYP aged 18 or under with a recorded diagnosis of a psychiatric condition more than tripled between 2010 and 2019 (NHS Digital, 2020)

Child and Adolescent Mental Health Services (CAMHS)

- CAMHS is the name for the NHS services that assess and treat CYP with emotional, behavioural or mental health difficulties. There are local NHS CAMHS around the UK, with services made up of Multi-Disciplinary Teams (MDT) involving nurses, therapists, psychologists, child and adolescent psychiatrists (medical doctors specialising in mental health), support workers and social workers, as well as other professionals


CAMHS Tiered Model
Tier 4
Highly specialised services such as intensive community treatment services, day units and inpatient units
Tier 3
Child and adolescent psychiatrists, social workers, clincal psychologists, community psychiatric nurses, child pyschotherapists, and occupational, art, music and drama therapists
Tier 2
Mental health professionals delivering primary mental health work, pyschologists and counsellors in GP practices, paediatric clinics, schools and youth services
Tier 1
GPs, health visitors, school nurses, teachers, social workers, youth justice workers and voluntary agencies
Generally services for the small number of children and young people who are deemed to be at greatest risk (of rapidly declining mental health or serious self harm) and/or who require a period of intensive input for the purposes of assessment and treatment.
Usually multi-disciplinary teams or services working in a community mental health setting or a child and adolescent psychiatry outpatient service, providing a service for children and young people with more severe, complex and persistent disorders
Offer consultation to families and other practitioners. Identify severe or complex needs requiring more specialist intervention, assessment (which may lead to treatment at a different tier), and training to practitioners at Tier 1. Tend to be CAHMS specialists working in teams in community and primary care settings.
Offer general advice and treatment for less severe problems. Contributing towards mental health promotion, identifying problems early in the child's development and refer to more specialist services
(Department of Health (DoH), 2017)


Tier 4 Inpatient CAMHS Units
Provide care and treatment for CYP with severe mental health issues that cannot be managed in a least restrictive setting and where all other options have been exhausted (Cotgrove and Northover, 2021)
Existing data suggests around 3500 CYP are admitted to Tier 4 inpatient CAMHS wards per year (NHS Mental Health Dashboard, 2022)
Potential benefits of admission – comprehensive assessment of clinical presentation, robust monitoring and containment of risks, treatment management which may be more difficult in the community (Hayes, 2021)

➢However, there are potential risks to CYP being admitted to hospital for mental health care (Hannigan et al, 2015)

- *RiSC* Study (Hannigan et al, 2015)- concepts of 'Dislocation' and 'Contagion'.
- Dislocation - loss of identify, stigma, missing out on normal life, loss of connections to friendships, family and education
- Contagion – CYP picking up unhelpful behaviours from others

Literature gap

The "less obvious" risks such as maintaining contact with friends, family and education are important to CYP receiving inpatient mental health care

- "*There is little evidence to guide and improve practice and services. New research is needed to inform how staff might understand, identify, assess and manage them*" (Hannigan et al, 2015)
- Research was conducted to generate new knowledge underpinning the most effective way of identifying, assessing and managing less obvious risks to CYP during inpatient mental health care – *"Keeping in Touch"* study

"Keeping in Touch" Study

- *Aim* – To explore the interventions and processes that promote or hinder CYP's connections to their friends, family and education during inpatient mental healthcare
- Objectives:
  - To explore how health care, social care and education practitioners facilitate CYP's connections to their friends families and education when in hospital for mental health care
  - To explore CYP's and their caregivers' views and experiences of maintaining connections during admission to inpatient mental health care
  - To assess the suitability of standardised tools used to measure outcomes related to mental health, friends, family and education for CYP in a mental health hospital
  - To identify candidate interventions and processes helping CYP maintain these connections during periods of inpatient mental health care
- Case study design (Yin, 2018) utilising one NHS Tier 4 CAMHS Inpatient Unit as a single case. Philosophically underpinned by social constructivism (Scotland, 2012; Polit and Beck, 2017)
- Nine months of fieldwork

Data collection methods and analysis

Both qualitative and quantitative methods of data collection were applied involving patients (CYP), their caregivers and variety of health, social and education practitioners

26 semi-structured interviews with CYP (n=9), parents/carers (n=6) and health, social and education practitioners (n=11)

Fieldnotes of MDT (n=46) and Individual Care and Treatment Planning (CTP) meetings (n=6)

Organisational policies and procedures collected and reviewed (n=26)

CYP completed three outcome questionnaires relating to mental health (The Strengths and Difficulties Questionnaire (SDQ), friends and family (The Inventory of Parent and Peer Attachment – Revised) (IPPA-R) and education (The Student School Engagement Survey) (SSES) (n=26)

Thematic Analysis (Braun and Clarke, 2006)

Descriptive statistics conducted and demographic data collected

Ethical Approval

- Research protocol, interview schedules, participant information sheets (PIS) and consent forms were developed
- Public and Patient Involvement (PPI) - CYP with previous experience of Tier 4 inpatient CAMHS (Tier 3 CAMHS) and an NHS Tier 4 inpatient Consultant Nurse
- NHS Research Ethics Committee (REC) & Local UHB & R&D approvals – protocol, participant facing materials and IRAS application went to REC. Praised on readability of materials, however there was an emphasis on clear safety protocols

Study Sample

46 CYP were screened for participation, of which 26 took part (questionnaires)

16 CYP were unable to participate due to various reasons (being on extended leave as the study commenced and then discharged, deterioration in mental health)

Met initial recruitment target for interviews of CYP n=6, caregivers n=6 and ward staff n=6 around 6 months in. Decided to keep recruiting participants until data saturation was reached

Summary of demographic data and quantitative results

Demographic data

- 21 Females and 5 males completed questionnaires (n=26)
- The majority of CYP admitted were aged 16 (n=11) (42.3%) and 17 (n=10) (38.5%), followed by 3 who were 15 and 2 who were 14
- The most common diagnosis was emotional dysregulation n=13 (50%) and eating disorder n=10 (38.5%) while 2 patients (7.7%) had a diagnosis of psychosis, and 1 patient (3.8%) had a diagnosis of depression
- Average length of stay was 88 days*. Consistent with previous research (Gill et al, 2016) and (Reavey et al, 2017) and in inpatient units across the UK which stood at 85 days in the year 2019/2020 (Children's Commissioner, 2020)

Questionnaire results

- For the SDQ, CYP were in the 'abnormal banding' for the total difficulties score – suggesting their emotional health and wellbeing was under considerable strain
- For the IPPA-R, CYP scored highest on the 'global' scale and the 'trust' and 'communication' subscales in relation to their mothers, followed by fathers, then friends. Suggesting they had more positive communication and trust with their mothers. Highest scores on the 'alienation' subscale were found in relation to friends, suggesting they felt alienated most by friends
- For the SSES, CYP who were in education prior to admission scored higher scores across the three engagement subscales (emotional engagement, behavioural engagement, cognitive engagement) in comparison to CYP who were not in school prior to admission

Remote connections	Physical connections	Peers in hospital	Impact on families	Connections to education
➢ Mobile phones ➢ Letters/cards ➢ Ward telephone ➢ Social media	➢ Visiting ➢ Home leave ➢ Geographical/ physical distance ➢ Visitors' Suite	➢ Formation of new friendships ➢ Group activities/therapy ➢ Challenges of living in hospital with other CYP	➢ Emotional ➢ Financial ➢ Employment	➢ Inpatient education and reduced opportunities ➢ Interface between inpatient school and school of origin ➢ Impact of health on education

Remote connections with friends and family

Mobile phones

- Time constraints on mobile phones (unit smart phone policy of 1 hour per day* 6-7pm)
- Many CYP felt it was not long enough
- For other CYP, the 1 hour time limit was a welcome relief due to previous experiences of cyberbulling

- Staff were empathetic regarding policy
- Perceived lack of privacy to call or video call family and friends
- The time allocated for phones clashed with the first hour of visiting
- CYP's friends outside hospital were not always available during 6-7pm
- Most appropriate way to keep in touch, particularly for the CYP who lived in remote areas of Wales

Letter/card writing

- A subtle, but personal way of connecting
- Encouraged by education and arts & crafts staff
- Helping CYP when they feel they have missed out on important events such as friends' birthdays

Remote connections with friends and family

Ward Telephone

- CYP contacting caregivers but also staff contacting parents/caregivers
- Policy appeared restrictive (1x15 min or 3x5min calls) however staff were flexible
- Especially helpful to the few CYP who did not have access to a personal smart phone

Social Media

- The most common way CYP kept in touch remotely
- Instant messaging apps (Snapchat, Whatsapp, Facebook Messenger, Instagram)
- Easy of access and instant responses from friends and family
- Concerns around accessing harmful websites (pro-ana) and confidentiality
- Challenging for staff to manage – emphasis on staff being open with CYP and educating them about potential harms of SM, empowering CYP/shared responsibility

"I like to make sure the family are kept up to date with everything that's going on… … I think that it helps in turn with the family keeping in touch." (Interview, Senior Staff Nurse)

"I found it quite hard being away from them… …I felt like I needed to savour every moment they were there. The ward phone is quite a nice facility though, I used to phone them pretty much every day." (Interview, Nia)

"It is really difficult for us to manage. Our hands are tied in some respects with social media. I know that there's been some young people that have made a group chat. We do sit with the young people and try and explain that relationships that develop while in hospital are not always very helpful… … but for young people, it's very difficult for them to take that on board and to listen to us rather than their peer group." (Interview, Senior Staff Nurse)

"…[those] with eating disorders, they would be on Pro-ana websites, Instagram accounts, they've got Instagram accounts where they're friends with anorexic people who will be motivating them. We've had instances of patients taking selfies on the ward with NG tubes in and it's just promoting things. Then we've got safeguarding concerns and confidentiality concerns… …during that initial two-week period of assessment we want them to open up to staff and not be fixated on negative images online." (Interview, Staff Nurse)

Physical connections with friends and family

Visiting

- Unit policy - 6-8pm weekdays, anytime after 12 on weekends, flexible in practice
- A variety of visiting rooms and a family room. Equipped with games, puzzles and books for younger siblings
- Most CYP frequently received visits from friends and family

Home Leave

- The second keyway in which CYP physically stayed connected with friends and family
- Frequently promoted by unit staff to try and maintain some normality in CYP lives
- Decisions around home leave were made in partnership between the MDT, CYP and caregiver, often based on risk and severity of mental health issues (sometimes CYP were unable to have home leave due a deterioration in their mental health*)
- The amount of home leave was gradually built up over time in many cases i.e overnight, 24 hours, 48 hours

Physical connections with friends and family

Geographical Distance

- The physical distance families lived from the unit was a barrier to maintaining contact
- Unit covers a large catchment area
- Many participants lived more than an hour drive from the unit

Visitor's Suite

- Self-contained flat located above the main unit
- Gave CYP and caregivers an opportunity to spend time together in a quiet setting away from the unit
- Especially important for families who lived a distance from the unit or in rural locations
- Gave caregivers an opportunity to stay overnight and for consecutive days on weekends
- Also used to support home leave, in preparation for discharge

Peer relationships in hospital

Formation of new friendships

- CYP formed new friendships
- Shared experiences/understanding of mental health
- Genuine friendships that continued beyond discharge
- Unit staff encouraged CYP to interact with peers

Group activities/therapy

- Group activities and therapy were set up in a way which promoted interactions between CYP

Challenges of living in hospital with other CYP

- CYP 'triggering' each other, scared from observing others in distress i.e self-harm, restraint
- CYP forming relationships that were deemed unhelpful – picking up unhelpful behaviours, encouraging each other to self-harm,
- CYP 'comparing' themselves to others – refusing to eat, competing in regard to weight loss, mimicing/copying anorexic behaviours

Impact on Families

Emotional

- The emotional toll the admission had on parents and caregivers was evident
- Parents were also concerned about CYP's siblings
- To help support caregivers, staff set up 'family meetings' soon after admission

Financial

- Parents and caregivers were affected financially, the frequent travelling between the inpatient unit and home
- Working reduced hours at work due to caring responsibilities
- CYP were also aware of the financial aspect of travelling to the unit
- Travel reimbursement challenges: reimbursement for travel seemed to be a means tested, complex system

Employment

- Parents taking time off work due to stress
- Not all parents were able to keep requesting time off work from their employers

"Her older sister's in the middle of her A levels so we protected her quite a lot… …she doesn't know about the extent of more suicide attempts and self-harm because we're going to save that until after the exams are over" (Interview, Parent)

"My husband and I, either one of us has been here daily, but the family, we're all struggling. Nobody's sleeping, I'm off work. We forget everything… …we're in a bubble, just managing… keeping ourselves going" (Interview, Parent)

"Because of the sort of care and responsibilities, and also the emotional side of things. Her mother's not been able to work anywhere near as much as normal… …It's hard on the outgoings in terms of travel obviously increased. We've probably done close to 7000 miles back and forth since Emma has been admitted (Interview, Parent)

"because of money… …because it's quite a lot of money to come on the train and then going back and even if three people are coming, that's quite a lot of money, you know, they have struggled" (Interview, Joanna)

"I think of myself as being quite IT savvy, but when I've looked at the system I've found it quite complicated, and I do wonder if our families when they're under pressure, stressed already, would be able to navigate that for themselves… …when I've talked to families about it, it does seem to be a barrier to them claiming back their travel cost, even if they can" (Interview, Therapist).

"I've had some time off myself earlier this year for a couple of weeks, because of the stress of the situation and it's taken its toll. Between work and visiting and what not, it's tiring" (Interview, Parent)

Connections to Education

Inpatient education provision and reduced opportunities

- CYP's education needs assessed on admission
- Limited subjects – Mostly national curriculum 'core' subjects Maths, English and Science were taught
- Examinations (although limited)
- Issues regarding provision for A level students
- Limitations of Learning Centre regarding practical assessments
- Limited provision of Welsh language
- Limited education provision for post 16's both in and not in education – focus on vocational skills, careers and further education advice for post 16 and not in education

Interface between inpatient school and school of origin

- Learning Centre staff liaising with mainstream schools
- Mainstream schools providing work and some utilised interactive methods (online learning)
- Slow links/response from some mainstream schools organising work
- Reintegration into mainstream school

"I feel like my Welsh is probably quite rusty because I don't speak it at home. It's only in school… I think if I carry on for much longer then it will start to deteriorate . I don't know what they would be able to do… nobody really speaks Welsh" (Interview, Nia)

"Um I think it mainly works with people up to the age of GCSE as they weren't necessarily sure what to do with an A Level student.

Int: Oh I see, okay.

They were on about getting a science tutor in, which they did but she mainly worked with GCSE so it was harder for her to… she was kind of learning with me as we were going through the biology and chemistry, so it was quite difficult." (Interview, Emma)

"I run two groups looking at budgeting and life skills. Budgeting, it's like a transferable skill, going to the shop with the young people to buy ingredients, that kind of thing. I do life skills too, like how to make a meal, cooking a proper meal.

We also have the careers lady who comes in to speak to post-16s about careers and can get the young people in contact with the right people outside of here, whether it's for an apprenticeships or college." (Interview, Therapist)

Connections to Education

Impact of health on education

- CYP unable to attend Learning Centre due to health deteriorating
- Medication side effects– tiredness/concentration/focus
- CYP anxious over missing school
- Reducing the number of subjects studied
- A focus on health in addition to education

"Callum's clinical presentation and symptoms of Anorexia Nervosa are discussed. Education Worker states that she has met Callum and that he has been enrolled in the Learning Centre, but at present he is too physically unwell to attend. Due to ongoing rapid weight loss, the MDT agree that Callum will need to have an extended period of bed rest until he is physically able to attend the Learning Centre and, in the meantime, the Education Worker will provide work for Callum to do on the ward." (Fieldnote, MDT Meeting)

"Without being too dramatic, or blunt, the way I see it is without Emma coming here, she'd probably be dead… …her physical health was extremely poor when she was in hospital and they were very worried about her physical state, that's why she was brought here under a section… …if she's missed school, if she doesn't follow the path she was probably going to follow before, it doesn't matter" (Interview, Parent)

"It would have worried me a year ago that she wouldn't be in school. I don't really care now. I just want my daughter to be happy again. She's very bright and I have come to terms with the fact that she may not do exams until she's ready, until she's well and if it means she does them at a very different stage, that's fine" (Interview, Parent)

"Sometimes it just doesn't feel right going up [to school] because I just can't concentrate and I feel tired, which I think might be due to the medication." (Interview, Nia)

Contribution to knowledge

This study is the first to explore CYP's connections to their friends, families and education during inpatient mental health care and adds to the growing body of knowledge around adolescent mental health care.

In an era where internet use and social media have rapidly become part of the everyday lives of CYP, this study has contributed to the small knowledge base and report findings specifically in relation to the positive and negative aspects of the internet and social media with adolescents in inpatient mental health care.

This study has highlighted wider barriers and significant challenges facing families which hinder staying connected such as geographical distance, the burden of travel and associated costs and the difficulties encountered when applying for financial reimbursement.

This study also provides new research relating to the daily provision, planning and continuity of CYP's education, an aspect of adolescent inpatient mental health services in which there is a particular lack of research.

It has also highlighted the implications for CYP accessing inpatient education such as the limited provision of subjects and examinations, lack of tuition in additional languages and post 16 education provision.

Adolescent mental health research capacity building within CTMUHB.

Strengths

- CYP with experience of using Tiers 3 and 4 CAMHS were consulted during the design and development of patient facing materials to ensure they were appropriate to be used with CYP in the unit
- The study gained ethical approval from an NHS REC through a rigorously controlled process. It is particularly difficult to gain this approval when conducting research involving vulnerable participants or in certain clinical environments such as inpatient mental health settings
- Another strength of this study was its participants, with the inclusion of multiple perspectives from CYP, caregivers and a variety of inpatient professionals in health, social and education services

Limitations

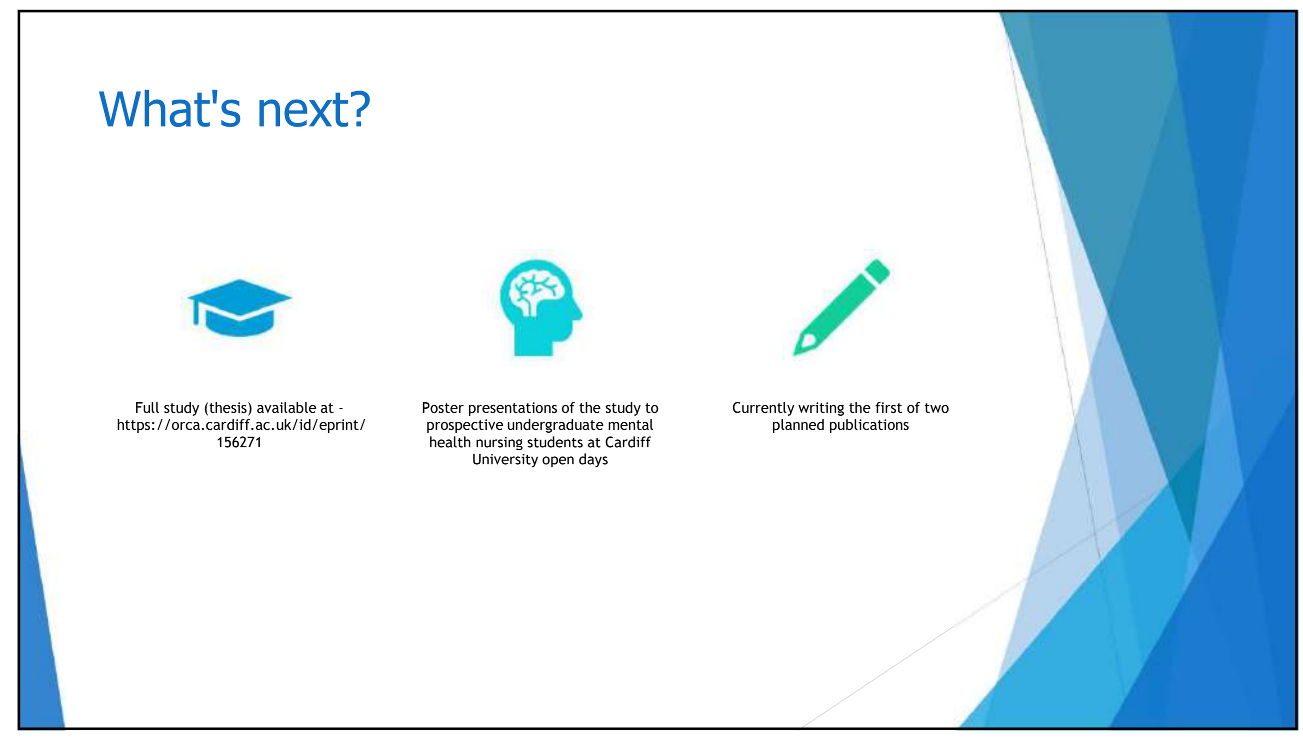
- Researchers previous experience of working in inpatient CAMHS > interpretation of data may have been influenced.
- Direct clinical care team assessing a CYP's capacity and eligibility to participate > potential selection bias.
- Single research site - one of only two available CAMHS units within the region. It may be not possible to generalise how other units manage CYP's connections to friends, family and education.
- Acknowledgement is made that the IPPA-R and SSES may not be appropriate to be used with adolescents in inpatient mental health care as they were intended to be used in different population groups and are not specifically intended to 'measure' connections to friends, family and education.
- Small sample size for questionnaire data - data needs to be treated with caution.
- All female sample recruited into the interview aspect of the study and 21 of 26 questionnaire sample were also female. Representative with regards to gender reported in other adolescent inpatient mental health research .

Recommendations for future research

Future research is needed to determine how supportive interventions such as mobile technology, visiting, home leave, the Visitors' Suite and inpatient education are applied and managed in other adolescent inpatient mental health settings across the UK

There is a particular need to know what is best practice in adolescent inpatient mental health settings with regards to balancing CYP keeping in touch with friends and family through using the internet and social media, while promoting its safe use

This study highlights the need for appropriate questionnaires to measure connections to friends, family and education with adolescents in inpatient mental health settings



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Free T4 (thyroid hormone) reference ranges

Dr Alan Dodd, Principal Clinical Biochemist

Thyroid

- Endocrine gland in neck
- Produces thyroid hormones:
  - **T4, tetraiodothyronine, (thyroxine)**
  - T3, triiodothyronine
  - >99% bound to proteins, inactive
  - FREE hormone biologically active
- Production driven by TSH (thyroid Stimulating Hormone) secretion from pituitary
- Classic negative feedback loop
- Welsh thyroid test – TSH **& free T4**

Role of a clinical biochemist: Making sure results mean something

- TSH 4.10 mU/L (0.27-4.20)
- Free T4 10.4 pmol/L (11.0-25.0) (All-Wales harmonised ranges)
- ?hypopituitarism
  - Pituitary profile
  - Repeat sample
  - Endocrine referral
- Are these results truly abnormal?
  - Is the reference range incorrect?

- Reference interval (range)
- **Typical range** of results seen, in absence of disease
  - ("normal range")
- Fail to flag abnormal -> **missed diagnosis**
- Flag inappropriately in health -> **overinvestigation**

Source of reference ranges – measure in reference population

- Prospective studies:
  - Bleed 100s / 1000s of healthy people
  - Expensive, ethical issues
- Retrospective studies:
  - Use historical data – accessing results easy for laboratories
  - Clinical exclusions historically harder – but essential
  - "Big data" makes easier

SAIL – Secure Anonymised Information Linkage databank

- Run by Swansea University
- NHS supplies SAIL with pan-Wales linked-anonymised data
- SAIL supplies and sells access to secure environment and associated support
- Exceptionally powerful resource
- Access kindly funded by CTMUHB R&D

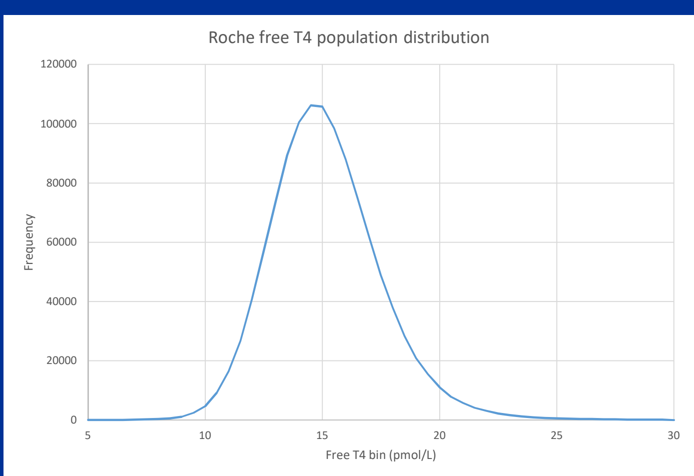
SAIL data

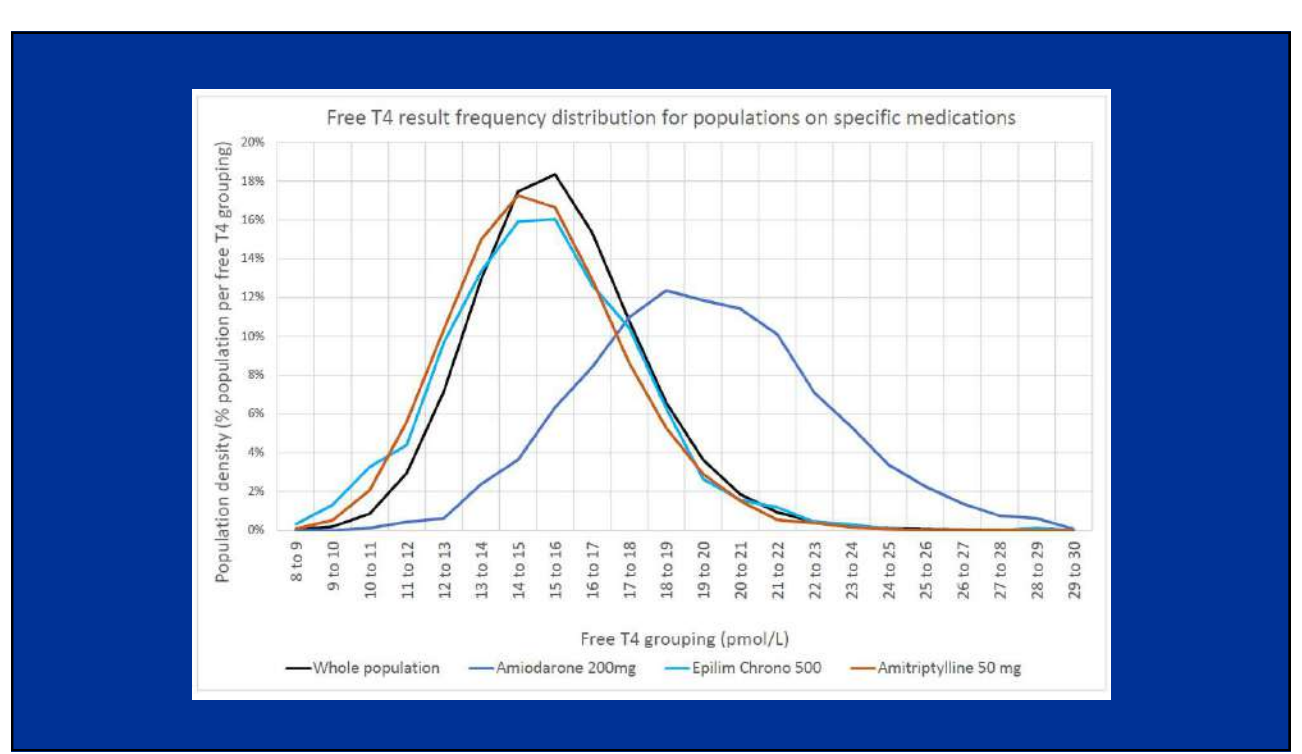
- Pathology results
  - 790 million tests and results from 2007-2019
- Midwifery assessment
  - Dates of estimated conception/delivery (gestational age)
- GP READ codes – 2 billion events recorded
  - Medication prescriptions
  - Tests
  - Diagnoses
  - 160,000 different official READ codes exist
  - Over 2 billion events present in SAIL
- SAIL permits cross referencing of data between databases

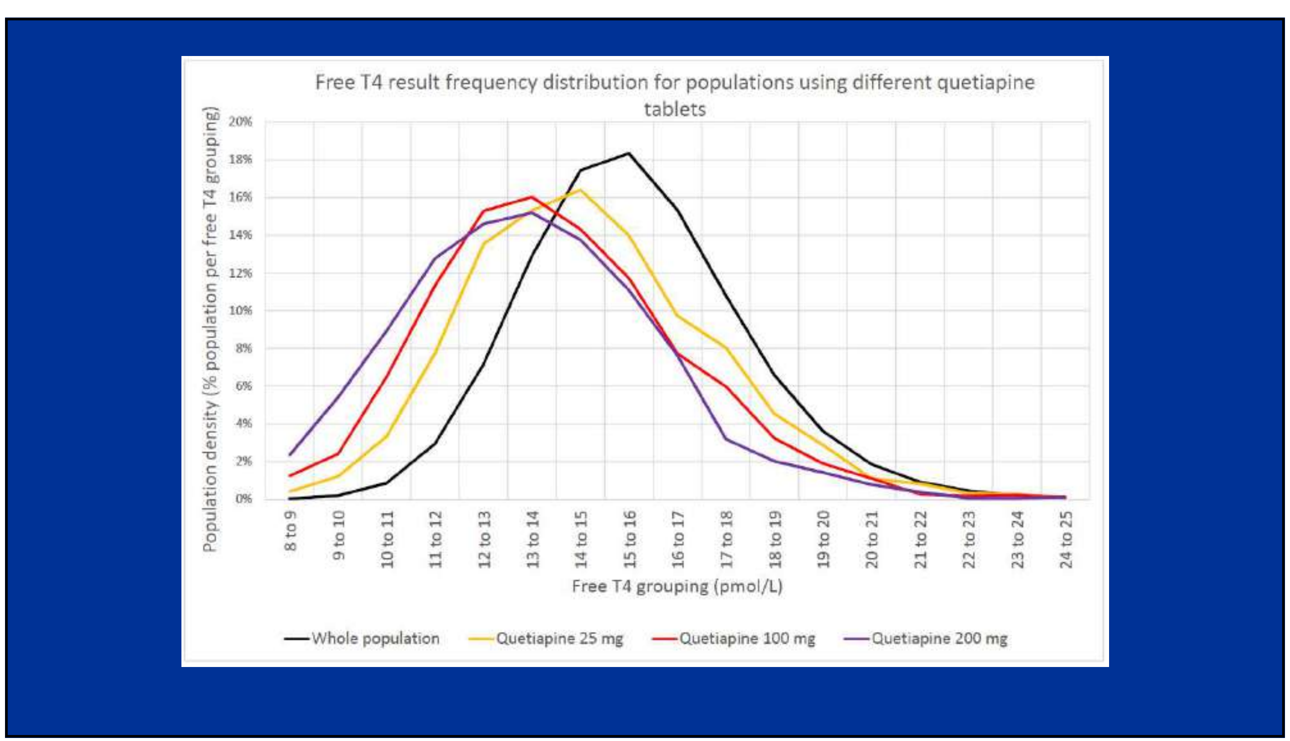
READ V2	Translation
0273.	Tax inspector
4143.	Blood sample sent biochem lab
41C1.	Test result by letter to patnt
S5513	Toe sprain
T523.	Manned kite accident
f923.	Thyroxine sodium 100mcg tablet
da46.	Fluoxetine 60mg capsule

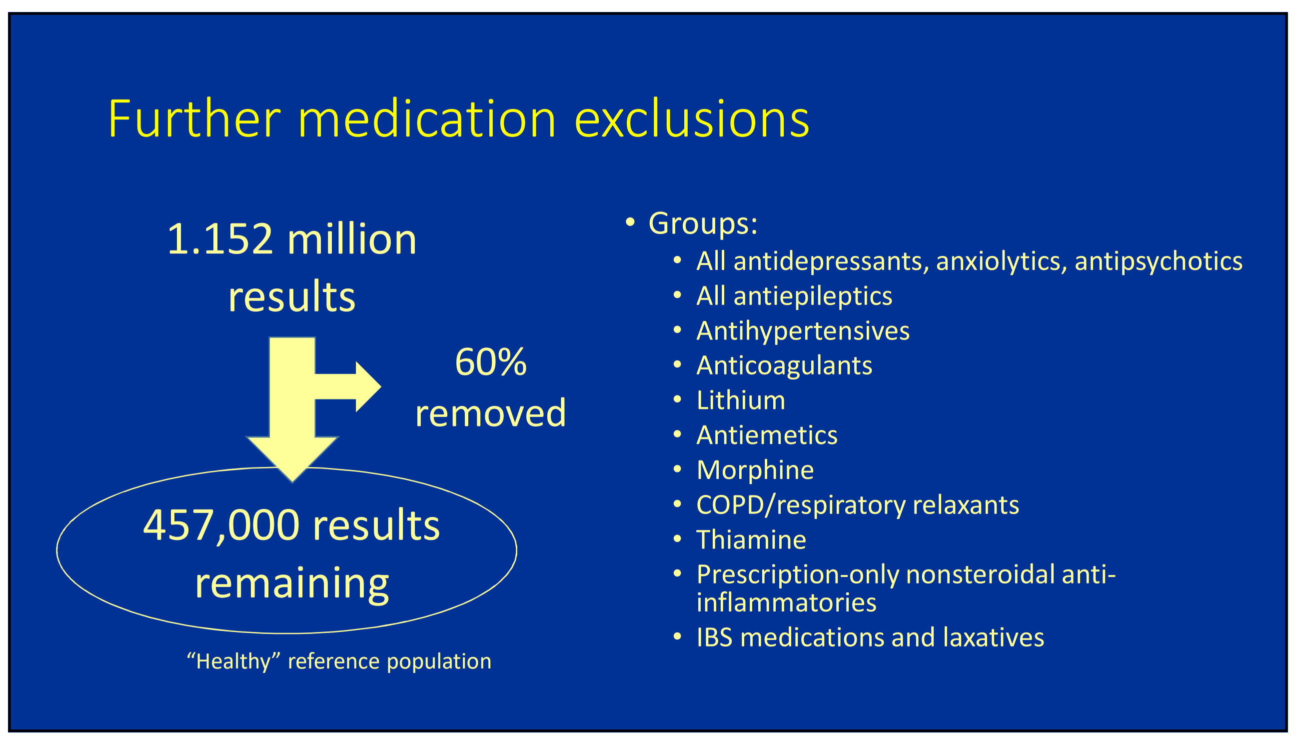
Selecting "healthy" reference population

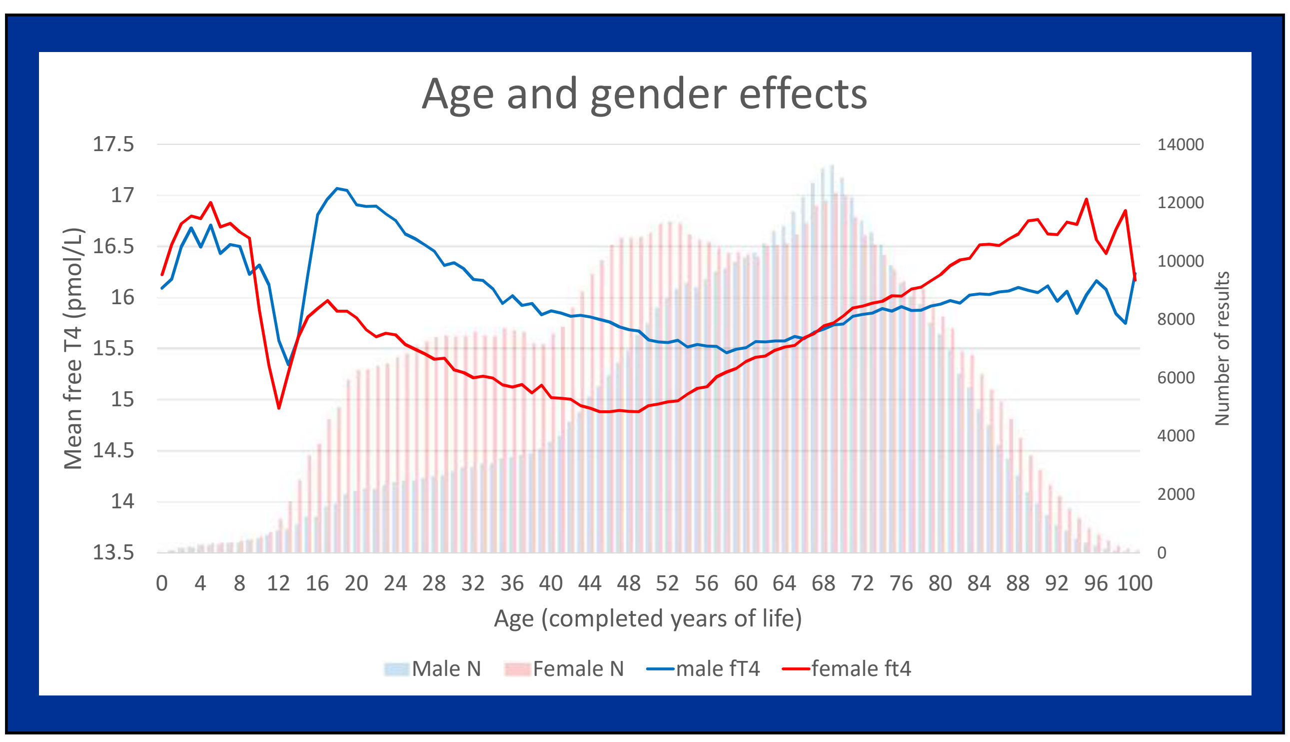
- Selected all free T4 results in SAIL (pan-Wales), where:
- Run by Roche method
- TSH in reference range
- Never on thyroid replacement/suppression
- Patient in primary care
- Not pregnant
- **1.152 million thyroid results**
- Matched all TFTs with 2 billion READ codes
- Looked at codes with biggest shifts in free T4 distribution

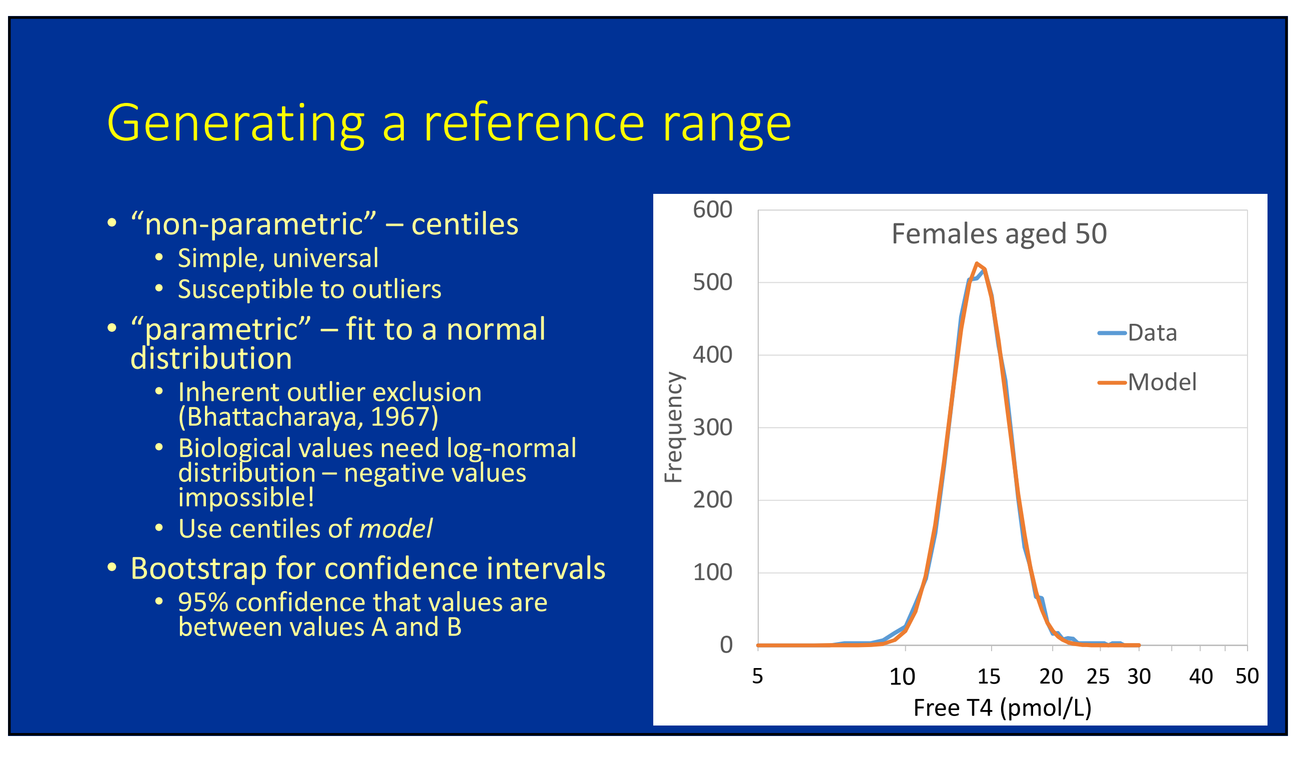


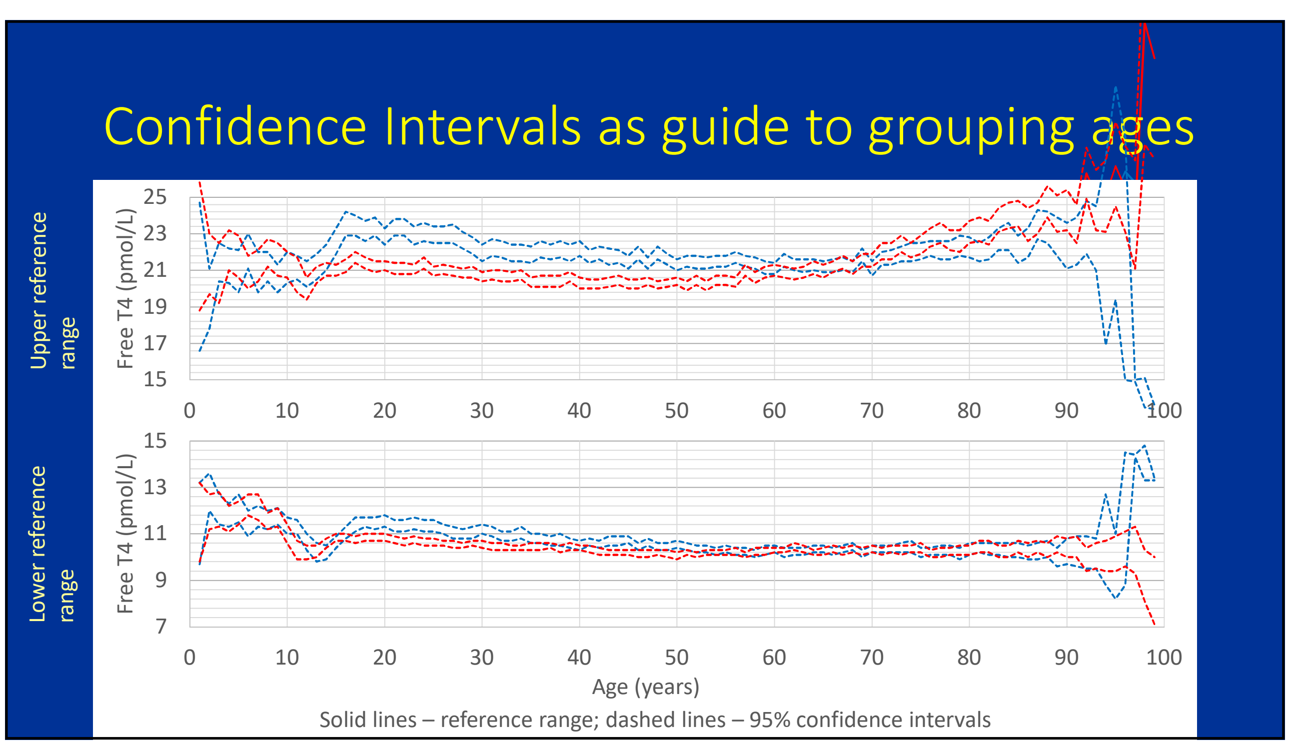


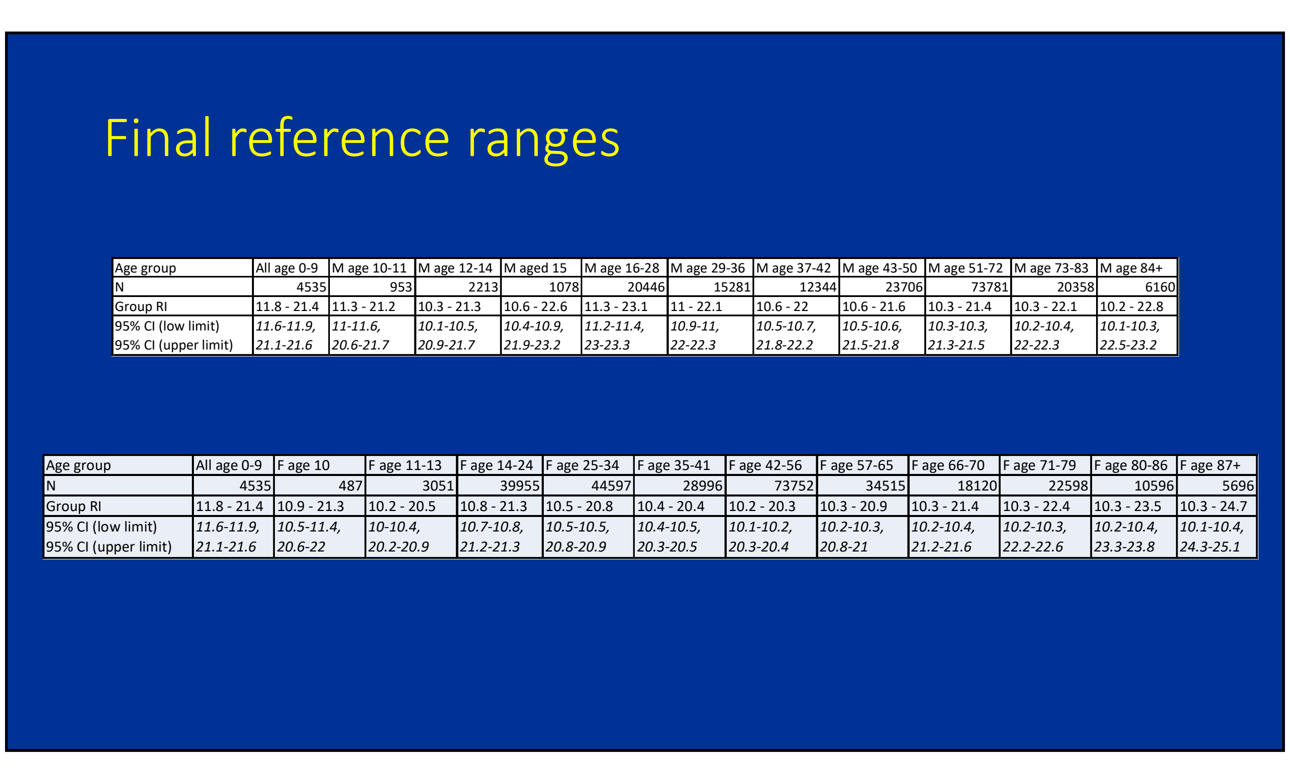

Free T4 result frequency distribution for populations using different quetiapine tablets
Population density (% population per free T4 grouping)
20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
8 to 9
9 to 10
10 to 11
11 to 12
12 to 13
13 to 14
14 to 15
15 to 16
16 to 17
17 to 18
18 to 19
19 to 20
20 to 21
21 to 22
22 to 23
23 to 24
24 to 25
Free T4 grouping (pmol/L)
Whole population
Quetiapine 25 mg
Quetiapine 100 mg
Quetiapine 200 mg


Further medication exclusions
1.152 million results
60% removed
457,000 results remaining
"Healthy" reference population
• Groups:
• All antidepressants, anxiolytics, antipsychotics
• All antiepileptics
• Antihypertensives
• Anticoagulants
• Lithium
• Antiemetics
• Morphine
• COPD/respiratory relaxants
• Thiamine
• Prescription-only nonsteroidal anti-inflammatories
• IBS medications and laxatives


Age and gender effects
Mean free T4 (pmol/L)
17.5
17
16.5
16
15.5
15
14.5
14
13.5
14000
12000
10000
8000
6000
4000
2000
0
Number of results
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100
Age (completed years of life)
Male N
Female N
male fT4
female ft4


Generating a reference range
• "non-parametric" – centiles
• Simple, universal
• Susceptible to outliers
• "parametric" – fit to a normal distribution
• Inherent outlier exclusion (Bhattacharaya, 1967)
• Biological values need log-normal distribution – negative values impossible!
• Use centiles of *model*
• Bootstrap for confidence intervals
• 95% confidence that values are between values A and B
Females aged 50
Frequency
600
500
400
300
200
100
0
5
10
15
20
25
30
40
50
Free T4 (pmol/L)
Data
Model

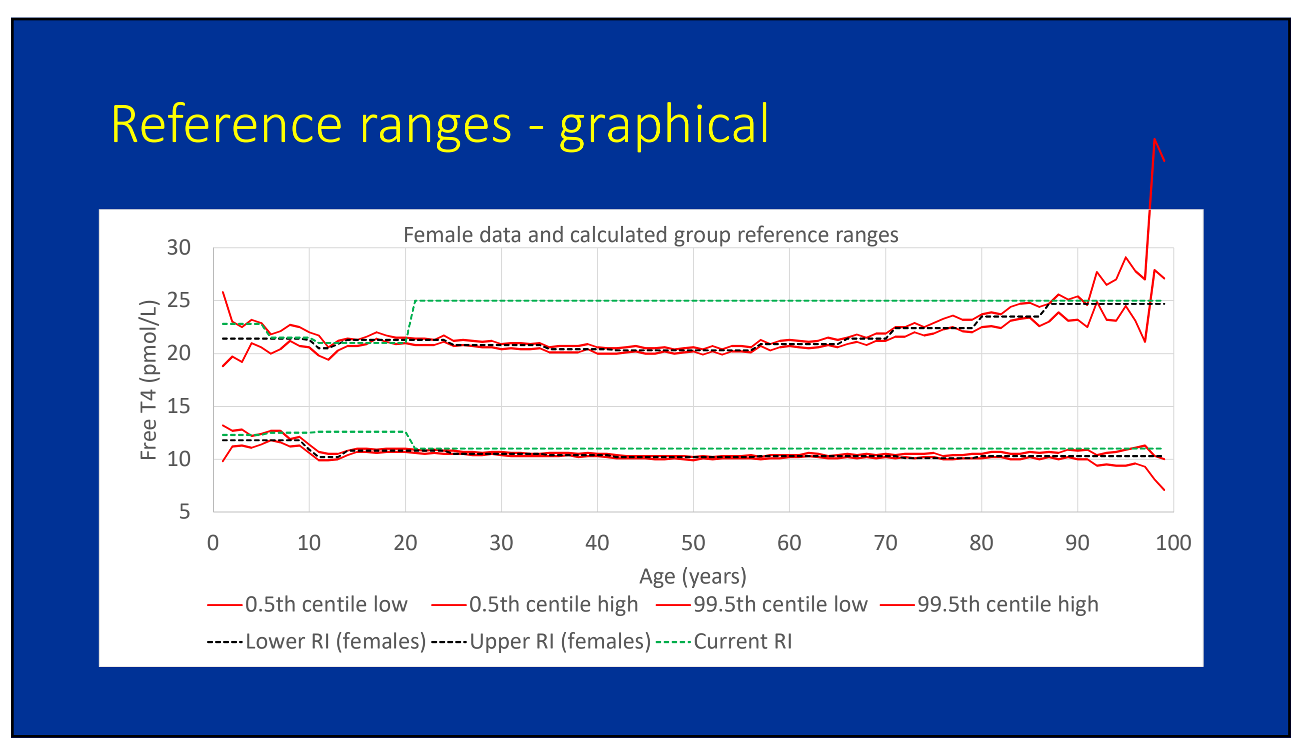


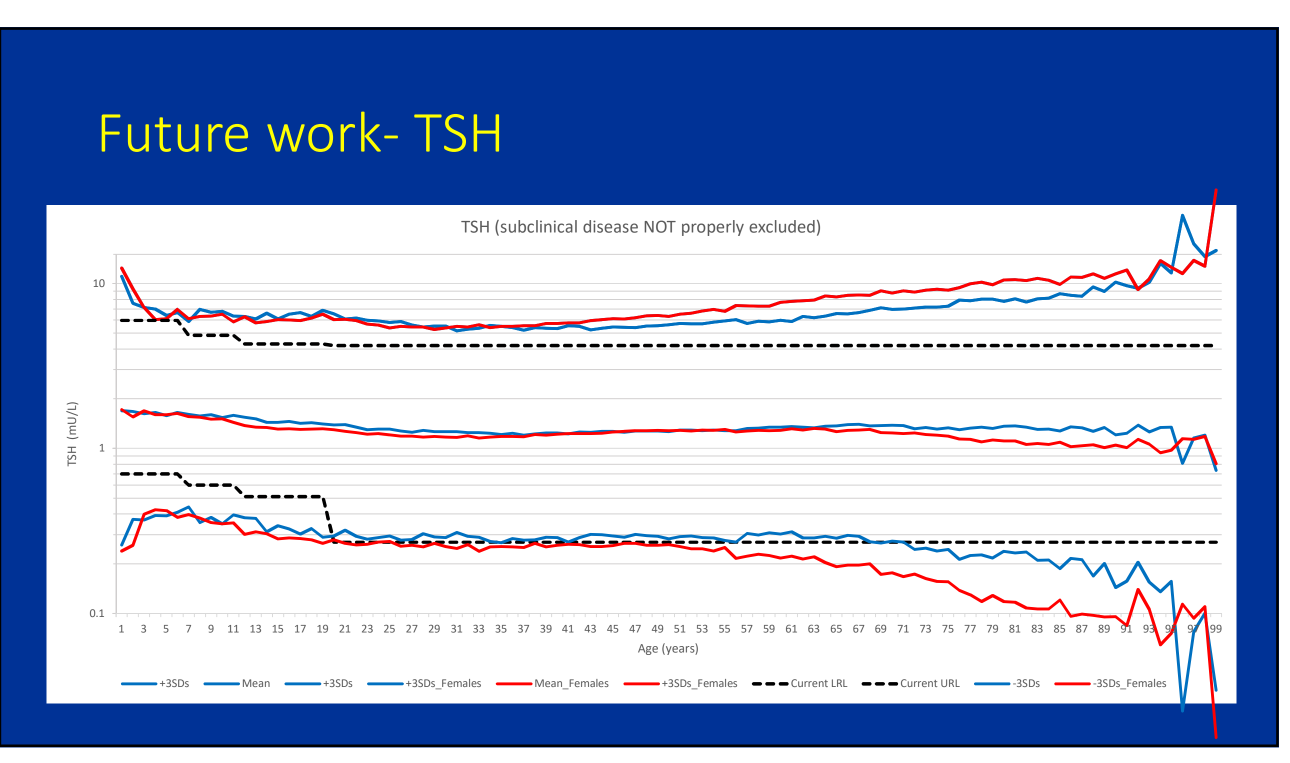


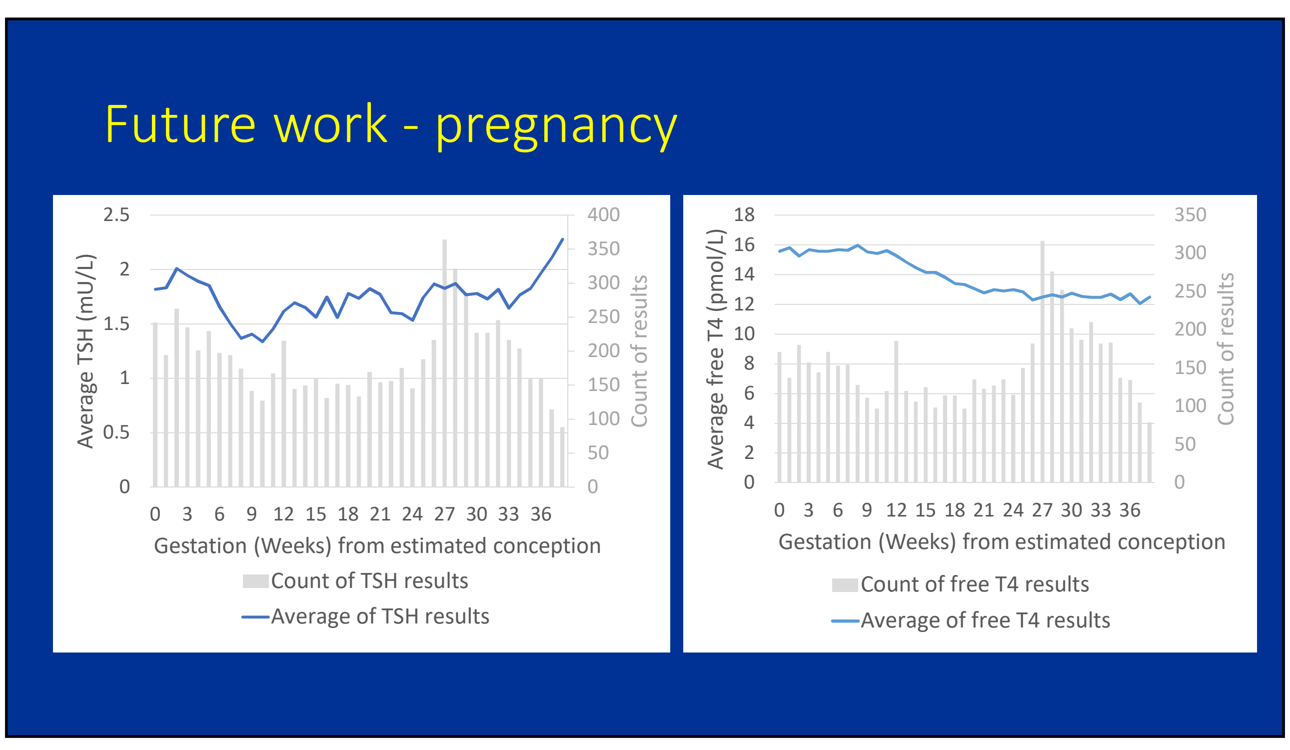
Final reference ranges

Age group	All age 0-9	M age 10-11	M age 12-14	M aged 15	M age 16-28	M age 29-36	M age 37-42	M age 43-50	M age 51-72	M age 73-83	M age 84+
N	4535	953	2213	1078	20446	15281	12344	23706	73781	20358	6160
Group RI	11.8 - 21.4	11.3 - 21.2	10.3 - 21.3	10.6 - 22.6	11.3 - 23.1	11 - 22.1	10.6 - 22	10.6 - 21.6	10.3 - 21.4	10.3 - 22.1	10.2 - 22.8
95% CI (low limit) 95% CI (upper limit)	*11.6-11.9, 21.1-21.6*	*11-11.6, 20.6-21.7*	*10.1-10.5, 20.9-21.7*	*10.4-10.9, 21.9-23.2*	*11.2-11.4, 23-23.3*	*10.9-11, 22-22.3*	*10.5-10.7, 21.8-22.2*	*10.5-10.6, 21.5-21.8*	*10.3-10.3, 21.3-21.5*	*10.2-10.4, 22-22.3*	*10.1-10.3, 22.5-23.2*

Age group	All age 0-9	F age 10	F age 11-13	F age 14-24	F age 25-34	F age 35-41	F age 42-56	F age 57-65	F age 66-70	F age 71-79	F age 80-86	F age 87+
N	4535	487	3051	39955	44597	28996	73752	34515	18120	22598	10596	5696
Group RI	11.8 - 21.4	10.9 - 21.3	10.2 - 20.5	10.8 - 21.3	10.5 - 20.8	10.4 - 20.4	10.2 - 20.3	10.3 - 20.9	10.3 - 21.4	10.3 - 22.4	10.3 - 23.5	10.3 - 24.7
95% CI (low limit) 95% CI (upper limit)	*11.6-11.9, 21.1-21.6*	*10.5-11.4, 20.6-22*	*10-10.4, 20.2-20.9*	*10.7-10.8, 21.2-21.3*	*10.5-10.5, 20.8-20.9*	*10.4-10.5, 20.3-20.5*	*10.1-10.2, 20.3-20.4*	*10.2-10.3, 20.8-21*	*10.2-10.4, 21.2-21.6*	*10.2-10.3, 22.2-22.6*	*10.2-10.4, 23.3-23.8*	*10.1-10.4, 24.3-25.1*


Reference ranges - graphical
Female data and calculated group reference ranges
Free T4 (pmol/L)
30
25
20
15
10
5
0
10
20
30
40
50
60
70
80
90
100
Age (years)
0.5th centile low
0.5th centile high
99.5th centile low
99.5th centile high
Lower RI (females)
Upper RI (females)
Current RI


Future work- TSH
TSH (subclinical disease NOT properly excluded)
TSH (mU/L)
10
1
0.1
Age (years)
+3SDs
Mean
+3SDs
+3SDs_Females
Mean_Females
+3SDs_Females
Current LRL
Current URL
-3SDs
-3SDs_Females

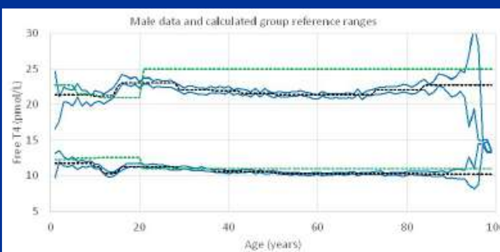


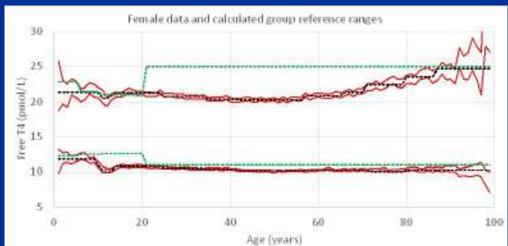
Future work – from SAIL to an NHS solution?

- Welsh NHS working on National Data Repository (NDR)

Conclusion

- Reference ranges for the Roche free T4 assay have been generated for Welsh population
  - Lower than existing All-Wales standardised ranges
  - Age and gender variation exists
  - Implementation should improve result interpretation and patient care
- Future work will generate reference ranges for TSH and for use in pregnancy





Acknowledgements

- R&D – funding access, support with IRAS.
- SAIL team – database support.
- DHCW – software setup.
- Biochemistry consultant team (Brian Tennant, Kelly Mitchem, Prof Geen), Prof Okosieme – Endocrine advice.

- Questions?

The effectiveness of virtual reality technology and mindfulness training in promoting emotional wellbeing amongst NHS staff

Authors:

Laura Fleetwood & Bethan Huffstickler

Affiliations:

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Rescape Innovation

Background

Covid-19 caused staff to report:

Higher levels of stress, anxiety and depression

Worse sleep quality

Higher rates of burnout, trauma and vicarious trauma

Wellbeing support for staff was imperative

Mindfulness interventions have been consistently linked to improvements in wellbeing
(Lomas et al., 2017; Burton et al., 2016; Byron et al., 2014)

Mindfulness based living course

But could we be offering more?

- DR:VR headsets were purchased as a potential aid for staff wellbeing
- Escapism tracks
  - Wildlife experiences
  - Beach & hiking scenes
  - Under water scene
- 8 session relaxation course
  - Mindful breathing
  - Progressive muscle relaxation
  - Mindful listening
- Games

Rationale

Mindfulness interventions can improve wellbeing of healthcare professionals, however lack of time to attend is a barrier for staff.

(Lomas et al., 2017; Burton et al., 2016; Byron et al., 2014).

VR technology is effective in enhancing mindfulness and providing beneficial relaxation interventions to healthcare staff

(Michael et al., 2019)

91% of staff expressed a difficulty in accessing VR sessions during breaks in work

(Michael et al., 2019)

Limited data is available on the use of VR technology to enhance wellbeing in healthcare staff at home

Aims

- To measure the effectiveness of VR-based mindfulness and relaxation for improving sleep, depression, anxiety, stress and professional quality of life in NHS staff
- To measure the effectiveness of attending an eight-week Mindfulness-Based Living Course for improving sleep, depression, anxiety, stress and professional quality of life in NHS staff

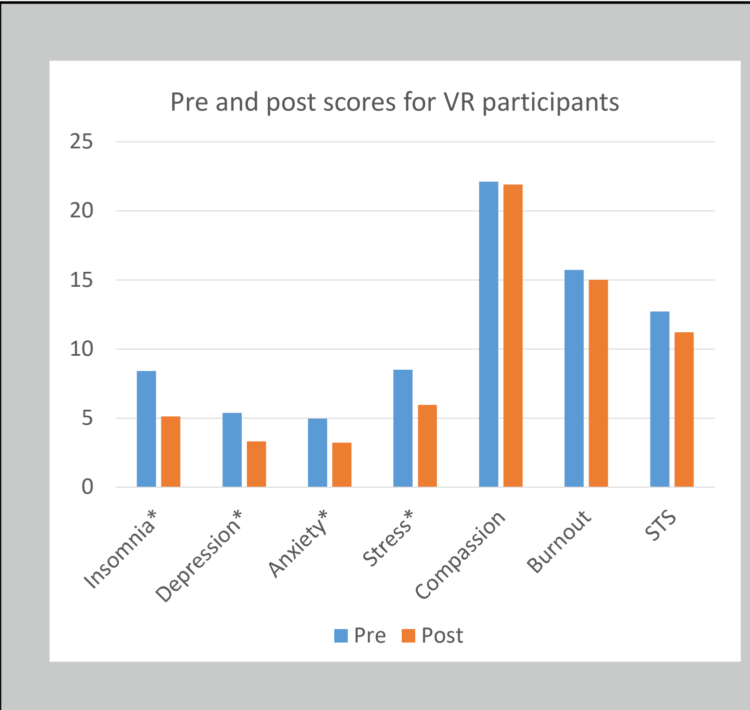
Informing Employee Wellbeing service in CTM and nationally

Research questions

1. Do participants experience an improvement in depression, anxiety, stress, sleep and professional quality of life after 8 weeks of mindfulness and relaxation intervention?
2. Are there any differences in clinical effectiveness depending on the intervention participants received (i.e. Mindfulness-Based Living Course or a VR Headset)?
3. What long-term impact, if any, is there for each intervention? How does this differ?
4. How do staff experience relaxation/mindfulness as taught by a VR Headset or MBLC (e.g. teaching/training technique, time, barriers to engagement, etc.)
5. Are there any differences in demographics (e.g. gender, age, job role, etc.) and selection reasons between those who select MBLC and those who select the VR Headset intervention?

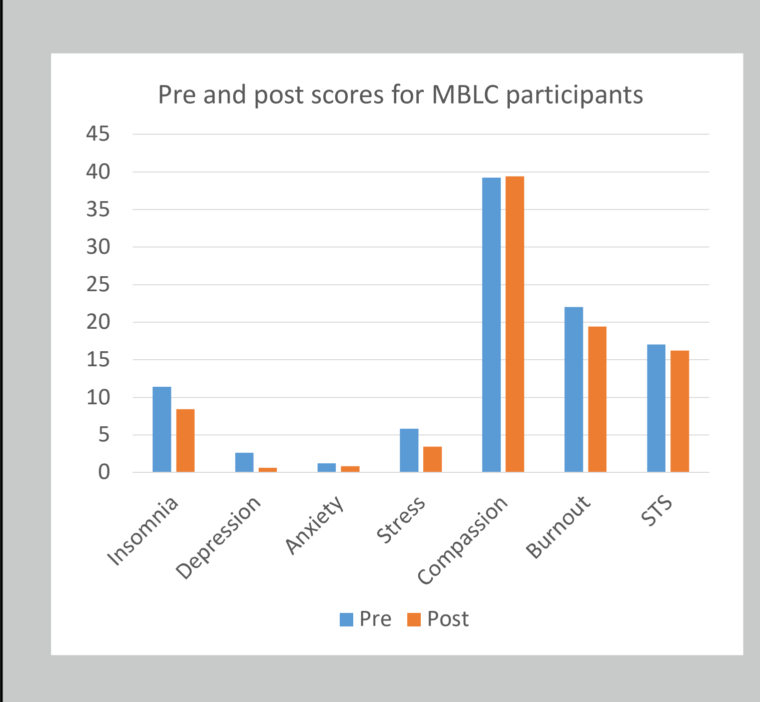
Methodology

- Participants – CTM employees requesting VR headset or MBLC through wellbeing service are invited to participate in project
- VR headset loan period – 8 weeks to use at home
- MBLC – 8 online sessions, 2 hours weekly
- Measures: mixed methods approach
  - Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995)
  - Insomnia Severity Index (ISI; Morin, 1993)
  - Professional Quality of Life Scale (ProQOL; Stamm, 2009)
  - Qualitative feedback: participant's experiences of VR intervention



Results to date

- Preliminary results were drawn from 24 VR participants that completed the study at the time of preliminary analysis
- Paired samples t-tests demonstrated significant decreases in post-intervention scores for insomnia ($p<.001$), depression ($p=.047$) anxiety ($p=.005$) and stress ($p<.001$)



Results to date

- 5 MBLC participants had completed the study at the time of preliminary analysis
- Analysis not appropriate due to small sample
  - Data collection is ongoing

Challenges

- Recruitment of participants
  - VR headsets are available as part of the Wellbeing Service offerings
  - 200 staff members have loaned a headset in this time period, 24 have completed the study
- Drop out rate
  - To date, 53 staff members have opted in: 24 completed, 33 dropped out, 6 outstanding
- Retrieving headsets at the end of the loan

What now?

- Preliminary analysis demonstrates significant differences in pre and post VR intervention scores for insomnia, anxiety, stress and depression
- Early analysis provides a promising indication that VR technology has the potential to be a useful intervention for improving the wellbeing of NHS staff
- Study has been extended and ongoing data collection will address sample size issues in preparation for the final analysis
- Qualitative analysis will be completed during final analysis
- Further exploration into VR mindfulness and sleep

An exploration of the impact of virtual reality-based mindfulness on sleep quality among healthcare professionals

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Clinical Application of Antibody Drug Conjugates and Exosomes as Advanced Therapeutics for Ovarian Cancer

Dr Claire Donnelly

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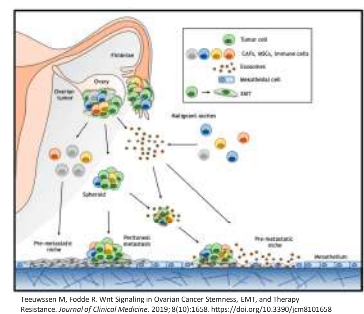
Ovarian Cancer (OC)

- Ovarian cancer has the largest mortality rate of all gynecological cancers
- Poor survival due to late diagnosis, and acquired chemotherapy resistance
- Heterogenous disease, with several subtypes, distinct prognosis, molecular features and pathogenesis
- Specific and sensitive biomarkers urgently needed for tumour detection
- Combination of targeted therapeutics with current chemotherapeutic agents may improve patient survival
- May also offer alternative therapies for platinum resistant cancer patients

- Endometrioid, cisplatin resistant endometrioid & high grade serous models used in this study, along with patient derived samples



Teeuwssen M, Fodde R. Wnt Signaling in Ovarian Cancer Stemness, EMT, and Therapy Resistance. *Journal of Clinical Medicine*. 2019; 8(10):1658. https://doi.org/10.3390/jcm8101658

Endometrioid Carcinoma

Precursor lesion: endometriosis

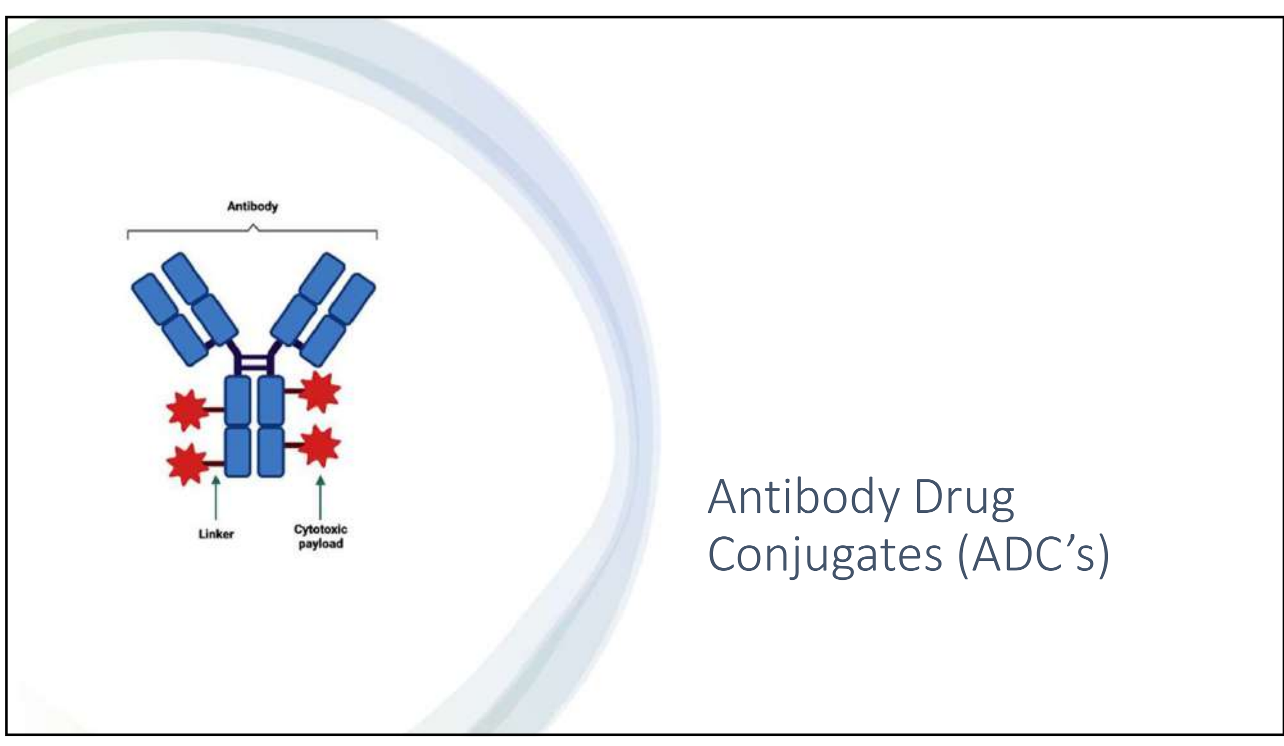
Mutations: PTEN, CTNNB1

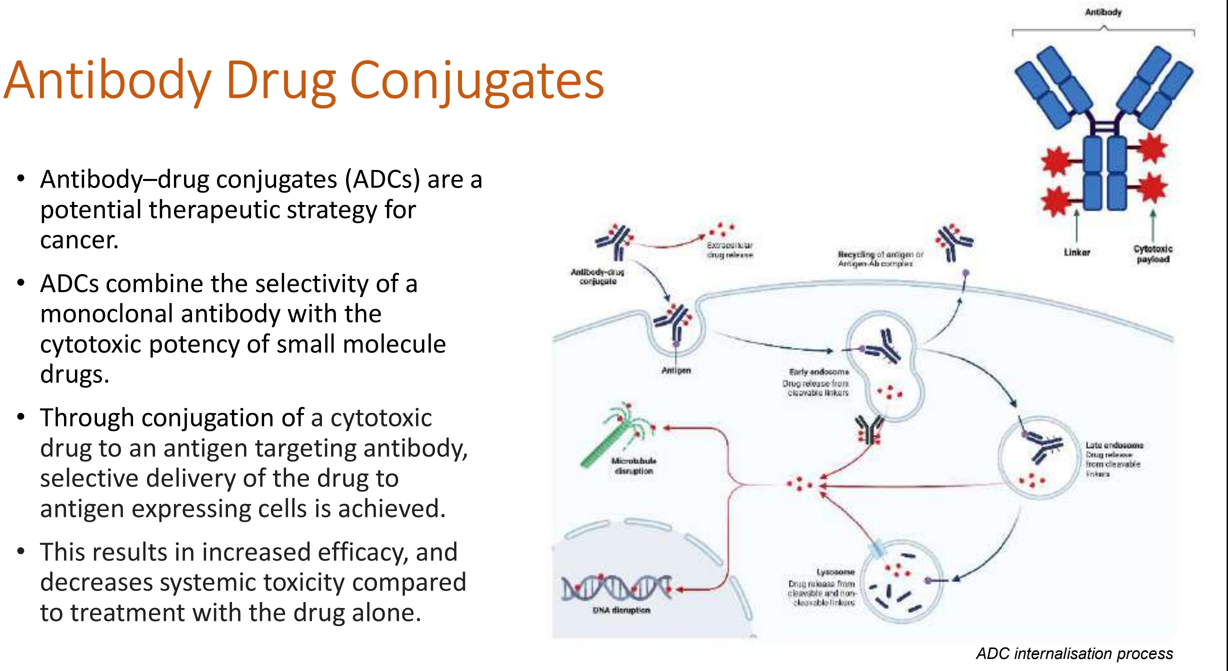
High Grade Serous Carcinoma

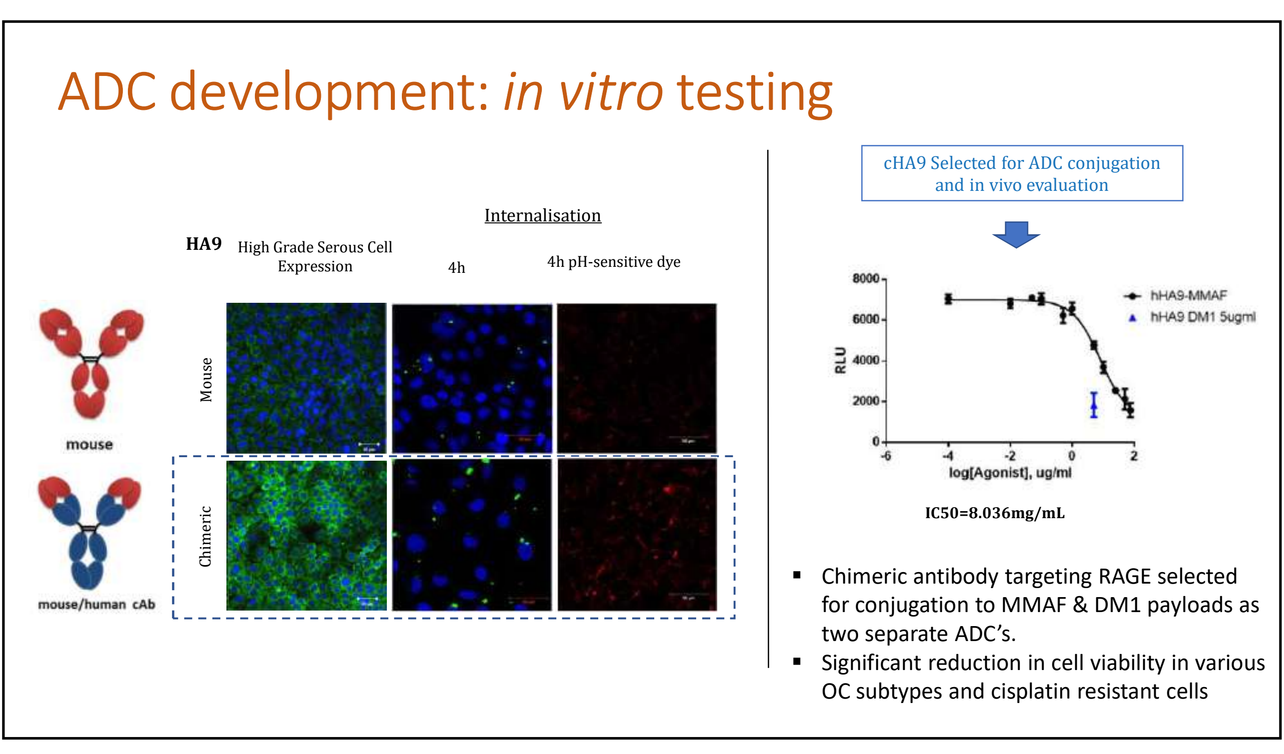
Precursor lesion: serous tubal intraepithelial carcinoma

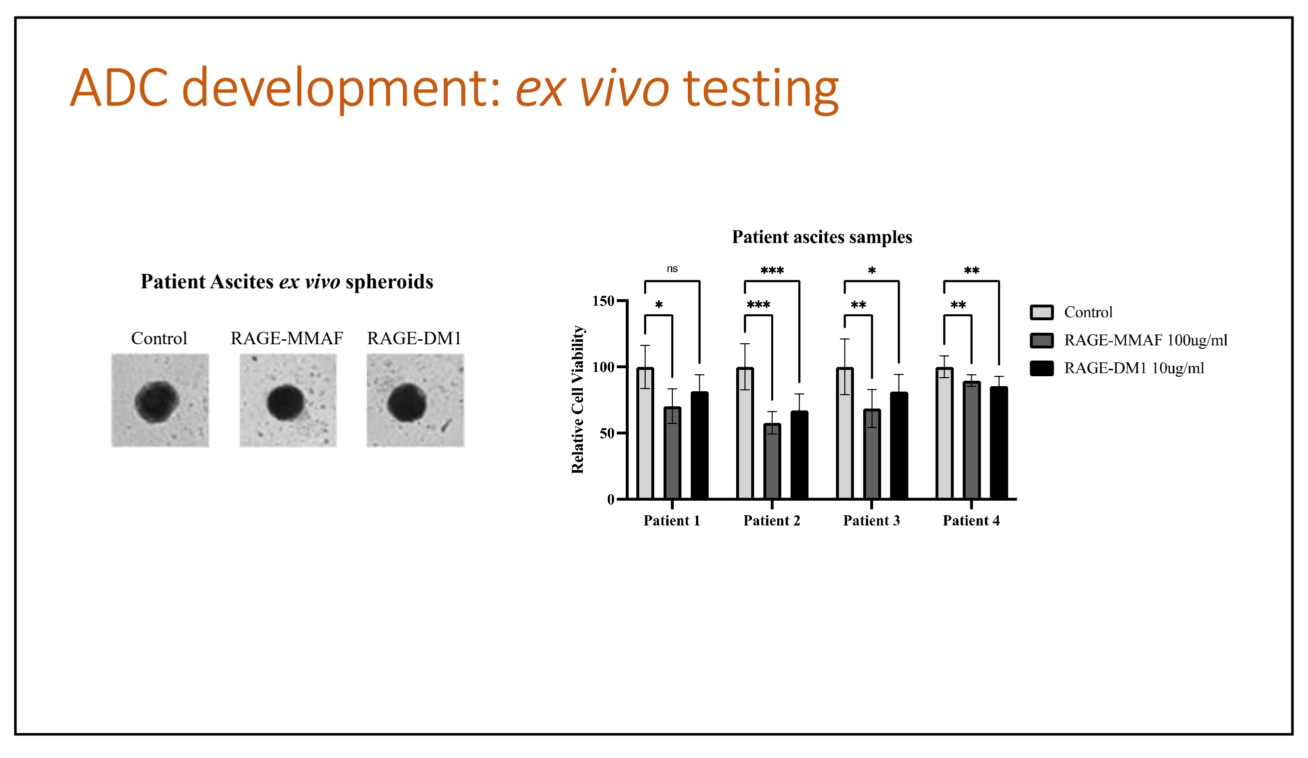
Mutations: TP53, BRCA1/2, HRD

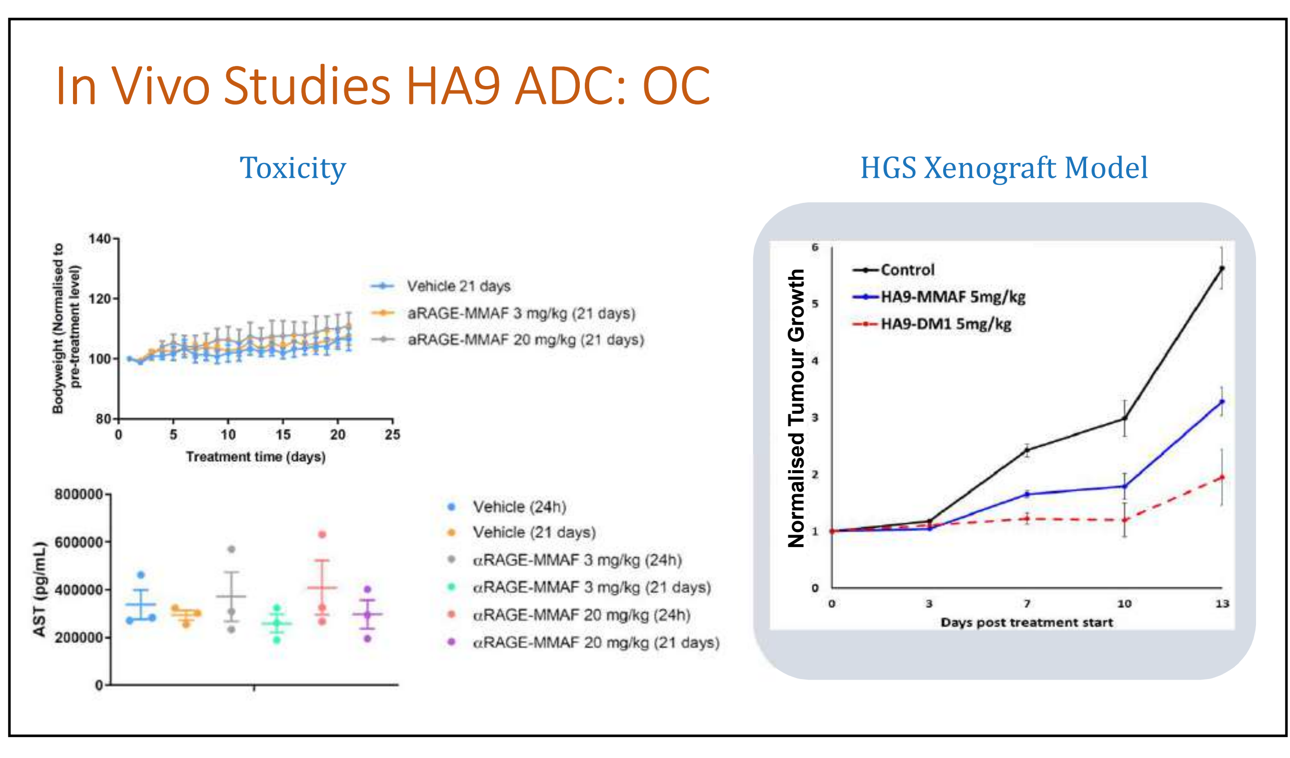
Aviles D, Warshal D, Buchbinder M, et al. Influence of Aberrant Epigenetic Changes and the Tumor Microenvironment in Ovarian Cancer Metastasis. In: Sergi CM, editor. Metastasis [Internet]. Brisbane (AU): Exon Publications; 2022 May 3.

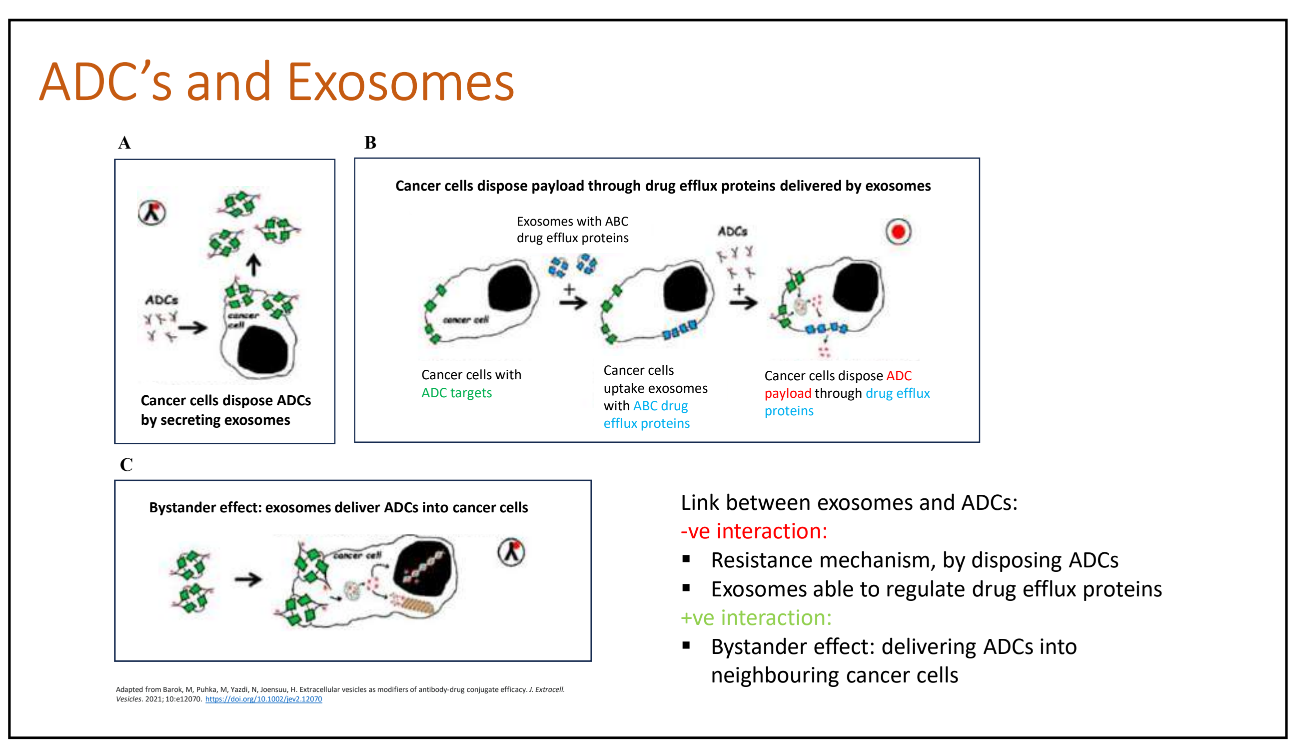

Antibody
Linker
Cytotoxic payload
Antibody Drug Conjugates (ADC's)

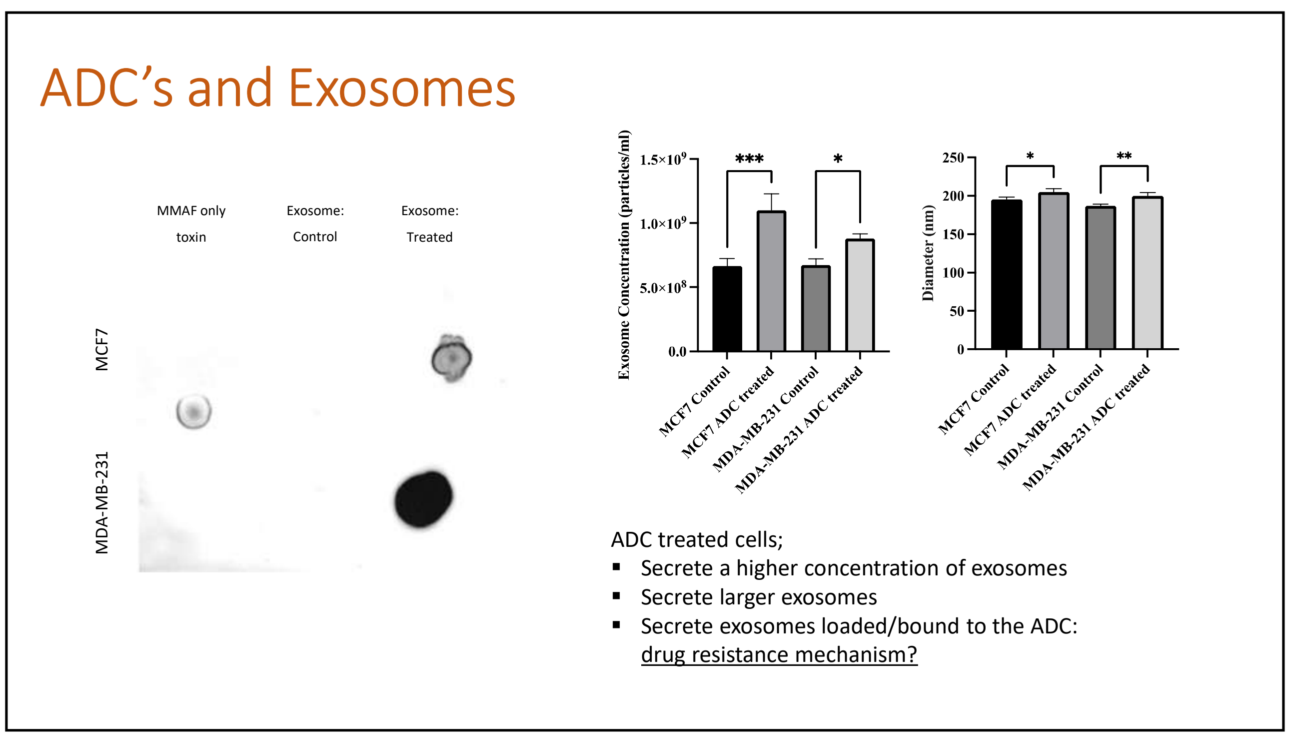

Antibody Drug Conjugates
• Antibody–drug conjugates (ADCs) are a potential therapeutic strategy for cancer.
• ADCs combine the selectivity of a monoclonal antibody with the cytotoxic potency of small molecule drugs.
• Through conjugation of a cytotoxic drug to an antigen targeting antibody, selective delivery of the drug to antigen expressing cells is achieved.
• This results in increased efficacy, and decreases systemic toxicity compared to treatment with the drug alone.
Antibody
Linker
Cytotoxic payload
Antibody–drug conjugate
Antigen
Microtubule disruption
DNA disruption
Early endosome
Late endosome
Lysosome
ADC internalisation process

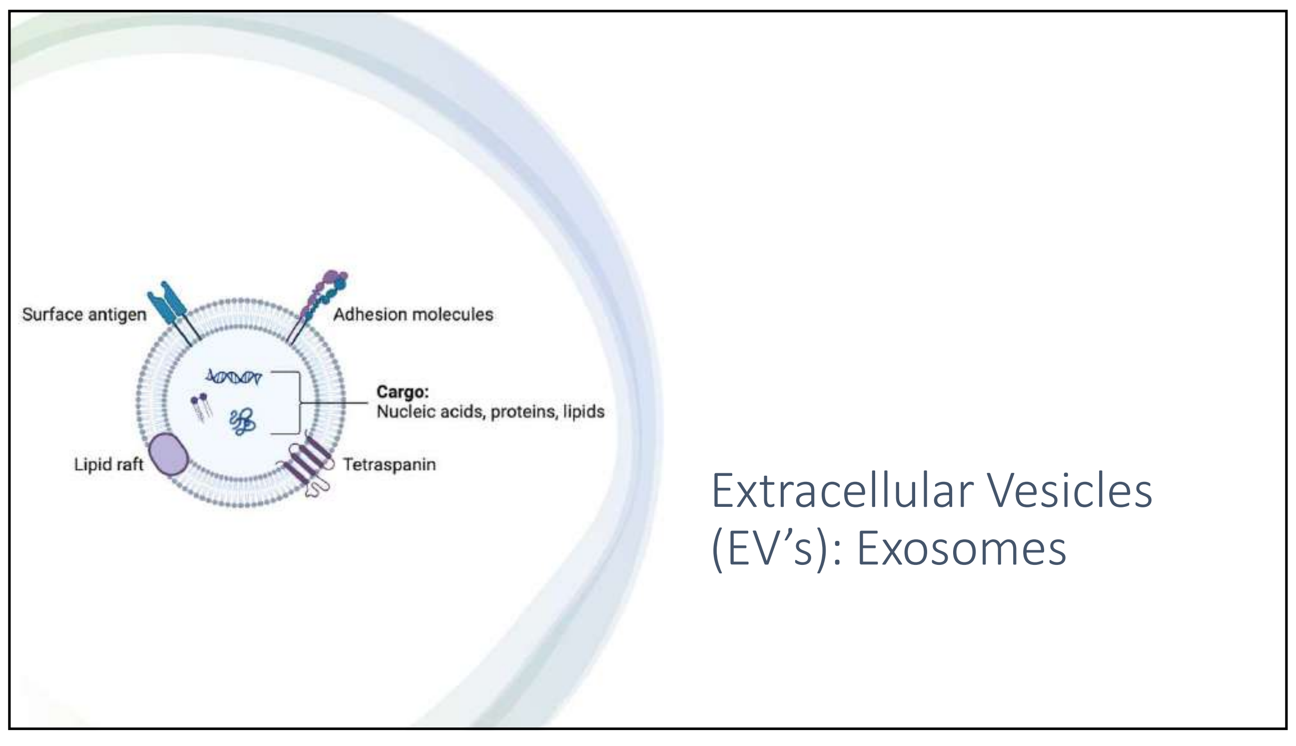

ADC development: in vitro testing
Internalisation
HA9
High Grade Serous Cell Expression
4h
4h pH-sensitive dye
Mouse
Chimeric
mouse
mouse/human cAb
cHA9 Selected for ADC conjugation and in vivo evaluation
RLU
log[Agonist], ug/ml
hHA9-MMAF
hHA9 DM1 5ugml
IC50=8.036mg/mL
Chimeric antibody targeting RAGE selected for conjugation to MMAF & DM1 payloads as two separate ADC's.
Significant reduction in cell viability in various OC subtypes and cisplatin resistant cells


ADC development: ex vivo testing
Patient Ascites ex vivo spheroids
Control
RAGE-MMAF
RAGE-DM1
Patient ascites samples
Relative Cell Viability
Patient 1
Patient 2
Patient 3
Patient 4
Control
RAGE-MMAF 100ug/ml
RAGE-DM1 10ug/ml


In Vivo Studies HA9 ADC: OC
Toxicity
HGS Xenograft Model
Bodyweight (Normalised to pre-treatment level)
Treatment time (days)
Vehicle 21 days
aRAGE-MMAF 3 mg/kg (21 days)
aRAGE-MMAF 20 mg/kg (21 days)
AST (pg/mL)
Vehicle (24h)
Vehicle (21 days)
αRAGE-MMAF 3 mg/kg (24h)
αRAGE-MMAF 3 mg/kg (21 days)
αRAGE-MMAF 20 mg/kg (24h)
αRAGE-MMAF 20 mg/kg (21 days)
Normalised Tumour Growth
Control
HA9-MMAF 5mg/kg
HA9-DM1 5mg/kg
Days post treatment start

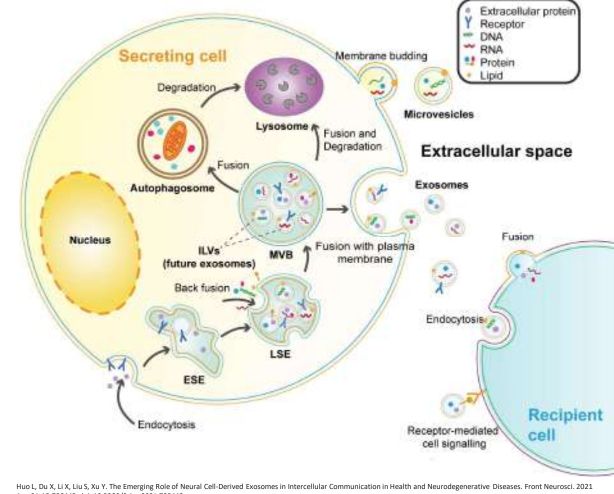

ADC's and Exosomes
A
ADCs
cancer cell
Cancer cells dispose ADCs by secreting exosomes
B
Cancer cells dispose payload through drug efflux proteins delivered by exosomes
Exosomes with ABC drug efflux proteins
ADCs
cancer cell
Cancer cells with ADC targets
Cancer cells uptake exosomes with ABC drug efflux proteins
Cancer cells dispose ADC payload through drug efflux proteins
C
Bystander effect: exosomes deliver ADCs into cancer cells
cancer cell
Link between exosomes and ADCs:
-ve interaction:
Resistance mechanism, by disposing ADCs
Exosomes able to regulate drug efflux proteins
+ve interaction:
Bystander effect: delivering ADCs into neighbouring cancer cells
Adapted from Barok, M, Puhka, M, Yazdi, N, Joensuu, H. Extracellular vesicles as modifiers of antibody-drug conjugate efficacy. J. Extracell. Vesicles. 2021; 10:e12070. https://doi.org/10.1002/jev2.12070


ADC's and Exosomes
MMAF only toxin
Exosome: Control
Exosome: Treated
MCF7
MDA-MB-231
Exosome Concentration (particles/ml)
1.5×10⁹
1.0×10⁹
5.0×10⁸
0.0
***
*
MCF7 Control
MCF7 ADC treated
MDA-MB-231 Control
MDA-MB-231 ADC treated
Diameter (nm)
250
200
150
100
50
0
*
**
MCF7 Control
MCF7 ADC treated
MDA-MB-231 Control
MDA-MB-231 ADC treated
ADC treated cells;
Secrete a higher concentration of exosomes
Secrete larger exosomes
Secrete exosomes loaded/bound to the ADC: drug resistance mechanism?

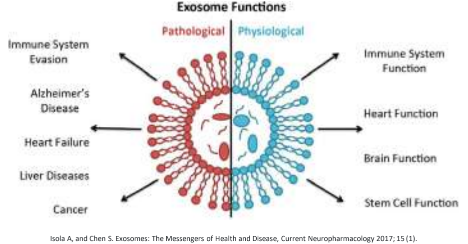

Surface antigen
Adhesion molecules
Cargo:
Nucleic acids, proteins, lipids
Lipid raft
Tetraspanin
Extracellular Vesicles (EV's): Exosomes

Exosomes

- Exosomes are a type of extracellular vesicle
- Formed through the endosomal pathway, and secreted by exocytosis
- Act as key moderators of many processes including intercellular communication
- The cargo contained in exosomes is influenced by cellular origin, determining their functions
- Exosomes exhibit both tumour promoting and suppressing roles

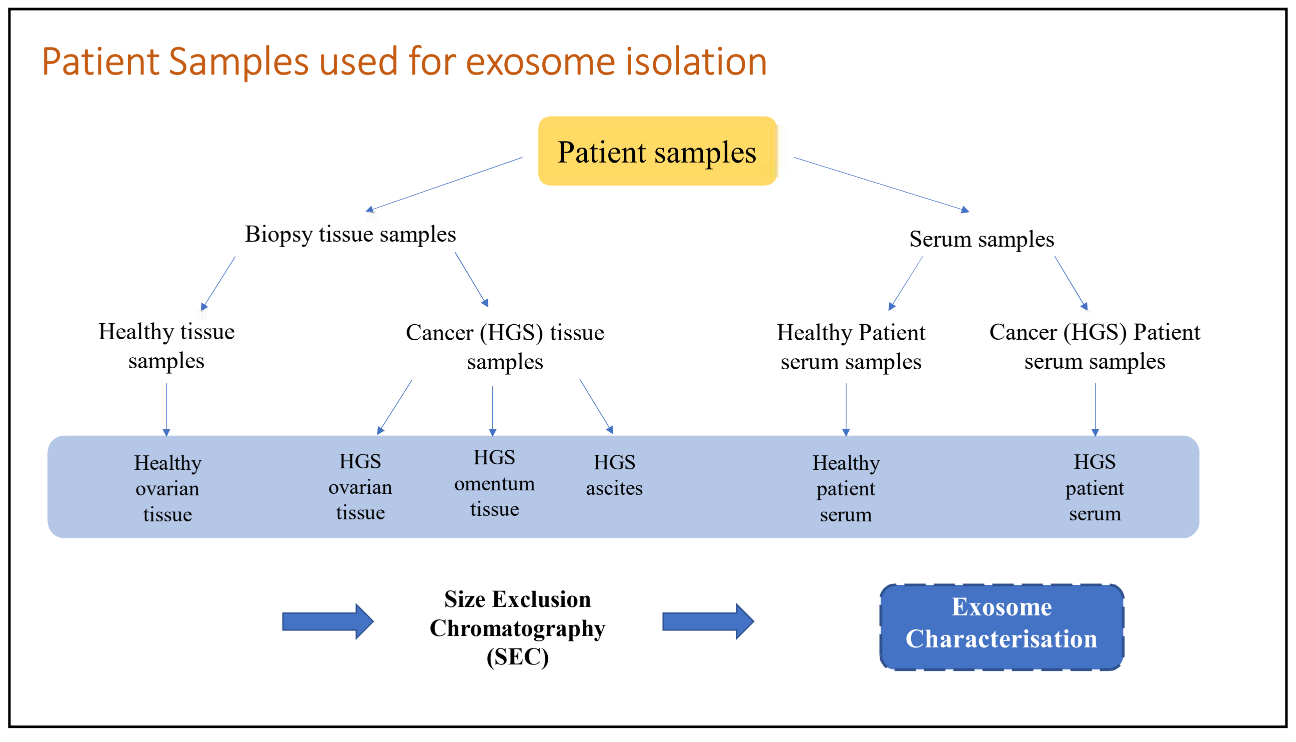


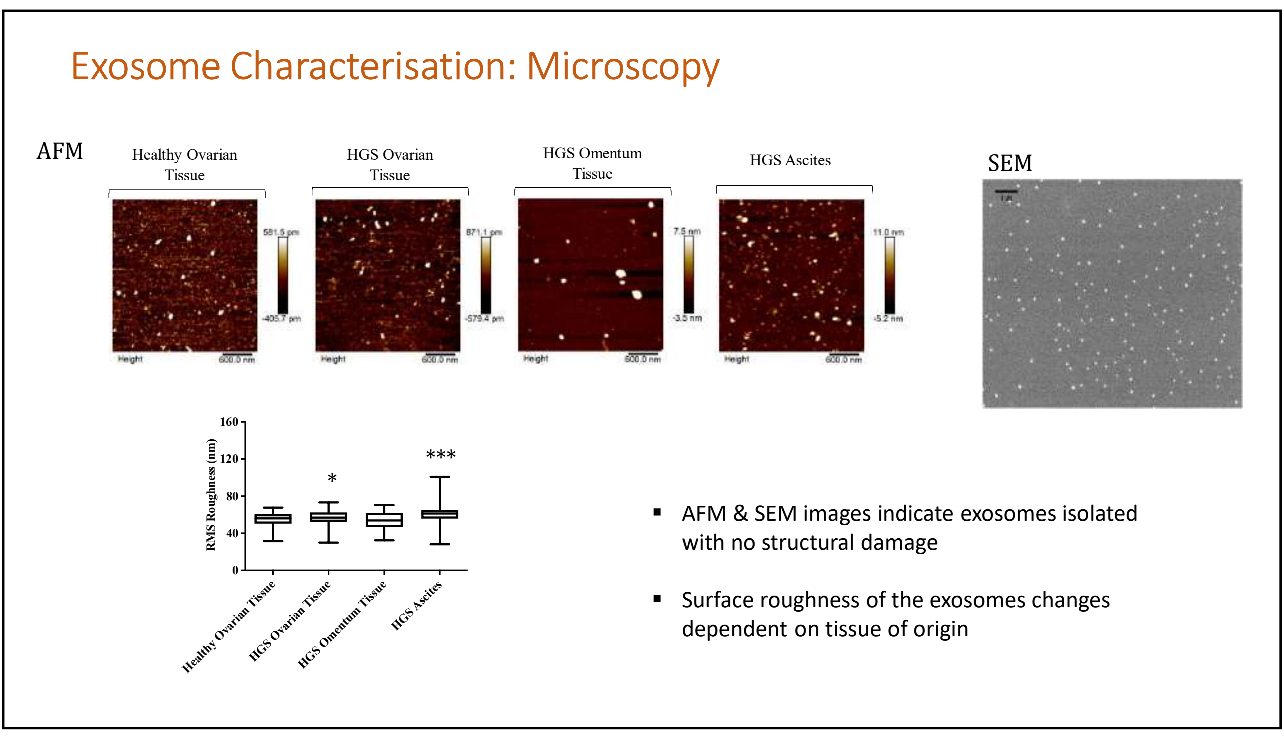
Huo L, Du X, Li X, Liu S, Xu Y. The Emerging Role of Neural Cell-Derived Exosomes in Intercellular Communication in Health and Neurodegenerative Diseases. Front Neurosci. 2021 Aug 31;15:738442. doi: 10.3389/fnins.2021.738442.

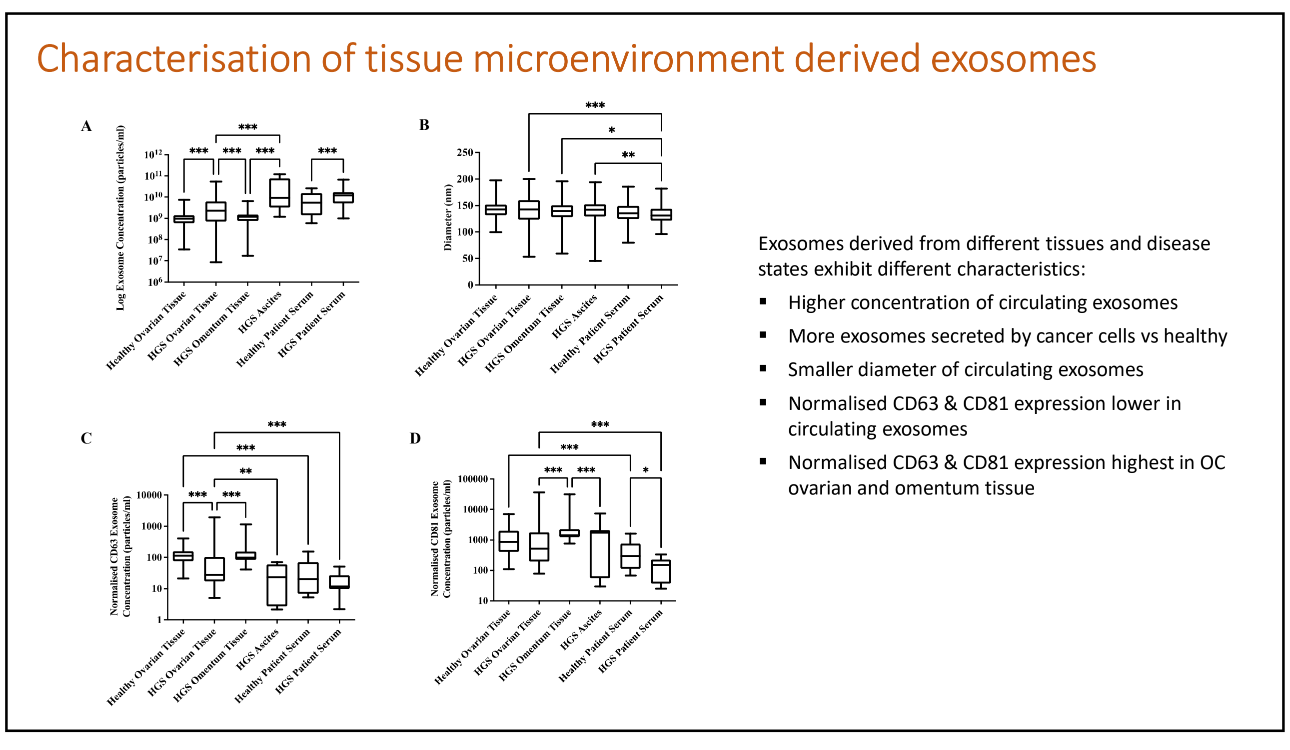


Isola A, and Chen S. Exosomes: The Messengers of Health and Disease, Current Neuropharmacology 2017; 15 (1). . https://dx.doi.org/10.2174/1570159X14666160825160421

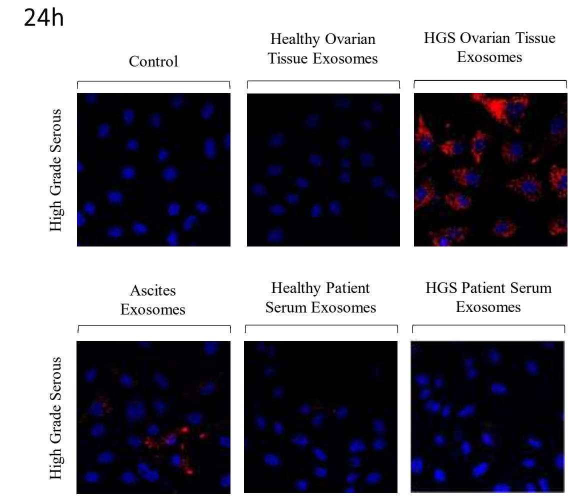
- A need to better understand exosome functions and characterise cancer derived exosomes
- Explore the therapeutic potential of exosomes derived from healthy cells




Exosome Characterisation: Microscopy
AFM
Healthy Ovarian Tissue
HGS Ovarian Tissue
HGS Omentum Tissue
HGS Ascites
SEM
RMS Roughness (nm)
160
120
80
40
0
*
***
Healthy Ovarian Tissue
HGS Ovarian Tissue
HGS Omentum Tissue
HGS Ascites
AFM & SEM images indicate exosomes isolated with no structural damage
Surface roughness of the exosomes changes dependent on tissue of origin


Characterisation of tissue microenvironment derived exosomes
A
Log Exosome Concentration (particles/ml)
B
Diameter (nm)
C
Normalised CD63 Exosome Concentration (particles/ml)
D
Normalised CD81 Exosome Concentration (particles/ml)
Healthy Ovarian Tissue
HGS Ovarian Tissue
HGS Omentum Tissue
HGS Ascites
Healthy Patient Serum
HGS Patient Serum
Exosomes derived from different tissues and disease states exhibit different characteristics:
Higher concentration of circulating exosomes
More exosomes secreted by cancer cells vs healthy
Smaller diameter of circulating exosomes
Normalised CD63 & CD81 expression lower in circulating exosomes
Normalised CD63 & CD81 expression highest in OC ovarian and omentum tissue

Internalisation of patient derived exosomes into OC cells



- Exosomes shown to internalise within 24h
- Uptake rate dependent on tissue of origin and disease status
- HGS ovarian tissue and omentum derived exosomes had the largest uptake

- Uptake linked to expression of surface proteins?

Exosome treatment

High Grade Serous OC Cells, 24h

Relative Cell Viability: 0, 50, 100, 150, 200

Control; Healthy Ovarian Tissue EV's; HGS Ovarian Tissue EV's; HGS Omentum Tissue EV's; HGS Ascites EV's; Healthy Patient Serum EV's; HGS Patient Serum EV's

** * *** *

High Grade Serous OC Cells, 72h

Relative Cell Viability: 0, 50, 100, 150, 200

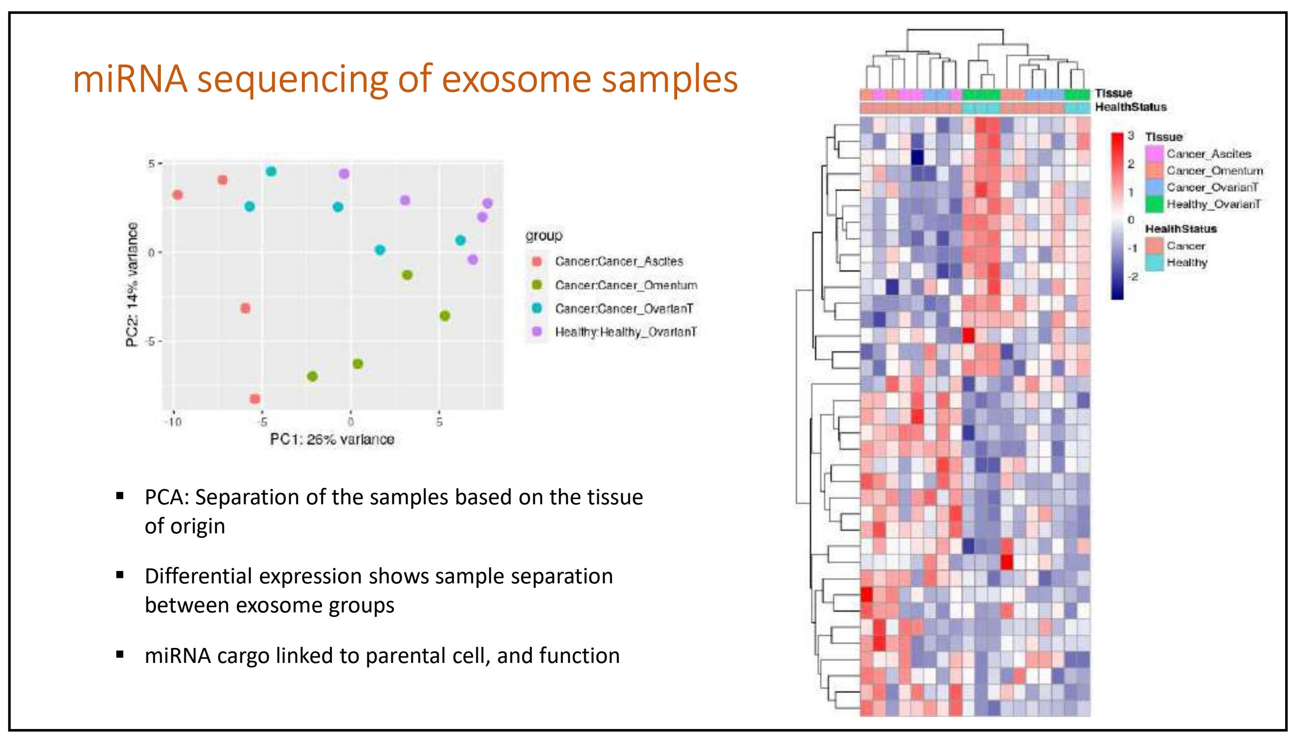
Control; Healthy Ovarian Tissue EV's; HGS Ovarian Tissue EV's; HGS Omentum Tissue EV's; HGS Ascites EV's; Healthy Patient Serum EV's; HGS Patient Serum EV's

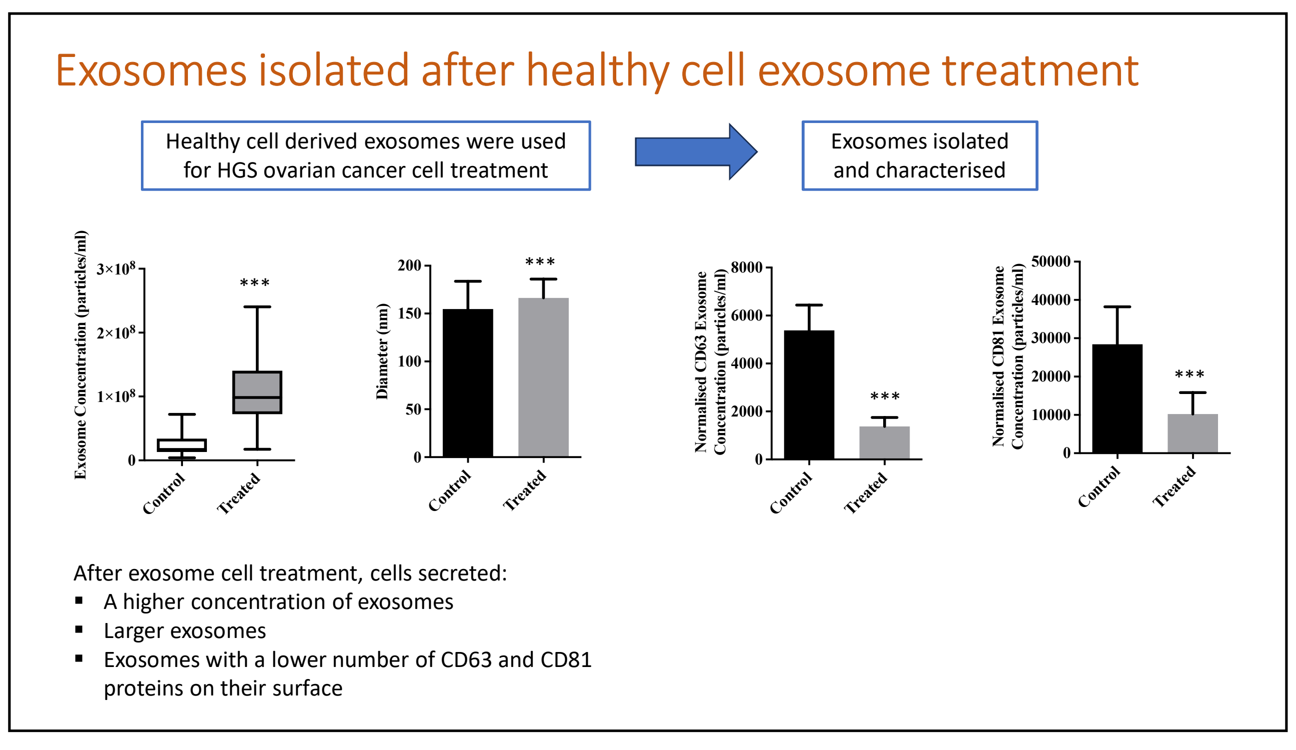
* ***

All Treated Cell Lines Relative Cell Viability	24h	48h	72h
Healthy Ovarian Tissue	106.77	104.38	97.07
HGS Ovarian Tissue	111.84	108.86	110.08
HGS Patient Omentum	111.86	113.48	103.18
HGS Patient Ascites	123.36	130.71	109.05
Healthy Patient Serum	93.02	85.58	81.41
HGS Patient Serum	104.64	102.83	87.71

- Exosomes shown to affect cell viability
- Cancer derived exosomes result in proliferation 24-48h post treatment
- Healthy derived exosomes result in reduction of cell viability 72h post treatment

- No direct link between uptake and viability


miRNA sequencing of exosome samples
PC2: 14% variance
PC1: 26% variance
group
Cancer:Cancer_Ascites
Cancer:Cancer_Omentum
Cancer:Cancer_OvarianT
Healthy:Healthy_OvarianT
Tissue
HealthStatus
Cancer_Ascites
Cancer_Omentum
Cancer_OvarianT
Healthy_OvarianT
Cancer
Healthy
PCA: Separation of the samples based on the tissue of origin
Differential expression shows sample separation between exosome groups
miRNA cargo linked to parental cell, and function


Exosomes isolated after healthy cell exosome treatment
Healthy cell derived exosomes were used for HGS ovarian cancer cell treatment
Exosomes isolated and characterised
Exosome Concentration (particles/ml)
Diameter (nm)
Normalised CD63 Exosome Concentration (particles/ml)
Normalised CD81 Exosome Concentration (particles/ml)
Control
Treated
***
After exosome cell treatment, cells secreted:
A higher concentration of exosomes
Larger exosomes
Exosomes with a lower number of CD63 and CD81 proteins on their surface

Summary

- Chimeric HA9 antibody chosen based on basal expression and internalisation experiments
- Both antibody alone and ADC showed minimal toxicity
- Efficacy experiments show significant reduction in cell viability/tumour growth after ADC treatments
- ADC treatments shown to alter cell secreted exosomes
- Exosomes characterised from patient samples exhibited significantly different characteristics
  Potential biomarkers?
- Exosomes shown to influence cell viability

Future experiments:

- Antibody-dependent cellular cytotoxicity & phagocytosis: assessing effector cross-talk
- Exploring the potential for HA9 antibody humanisation
- Exosomes will be explored as modifiers of ADC efficacy

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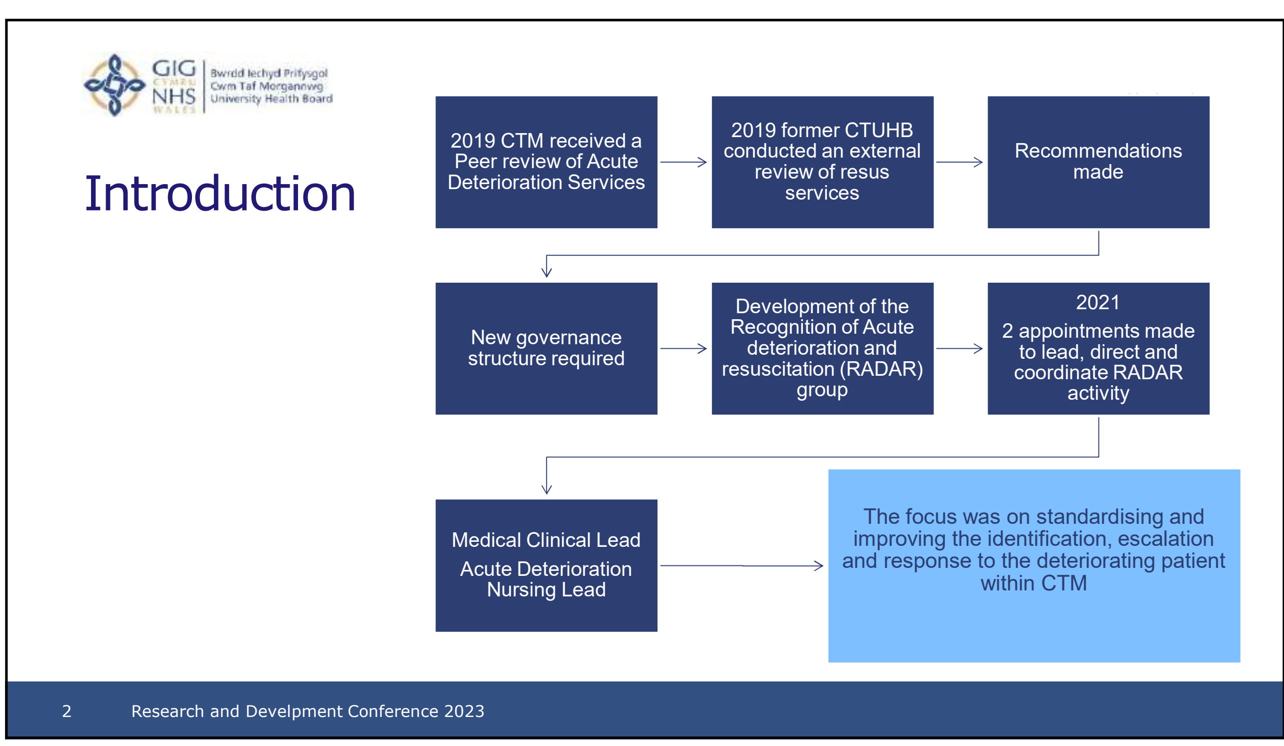
Does the introduction of a Rapid Response System reduce the number of Cardiac Arrest Calls?

Vanessa Jones Acute Deterioration Lead CTMUHB
Research and Development Conference 2023

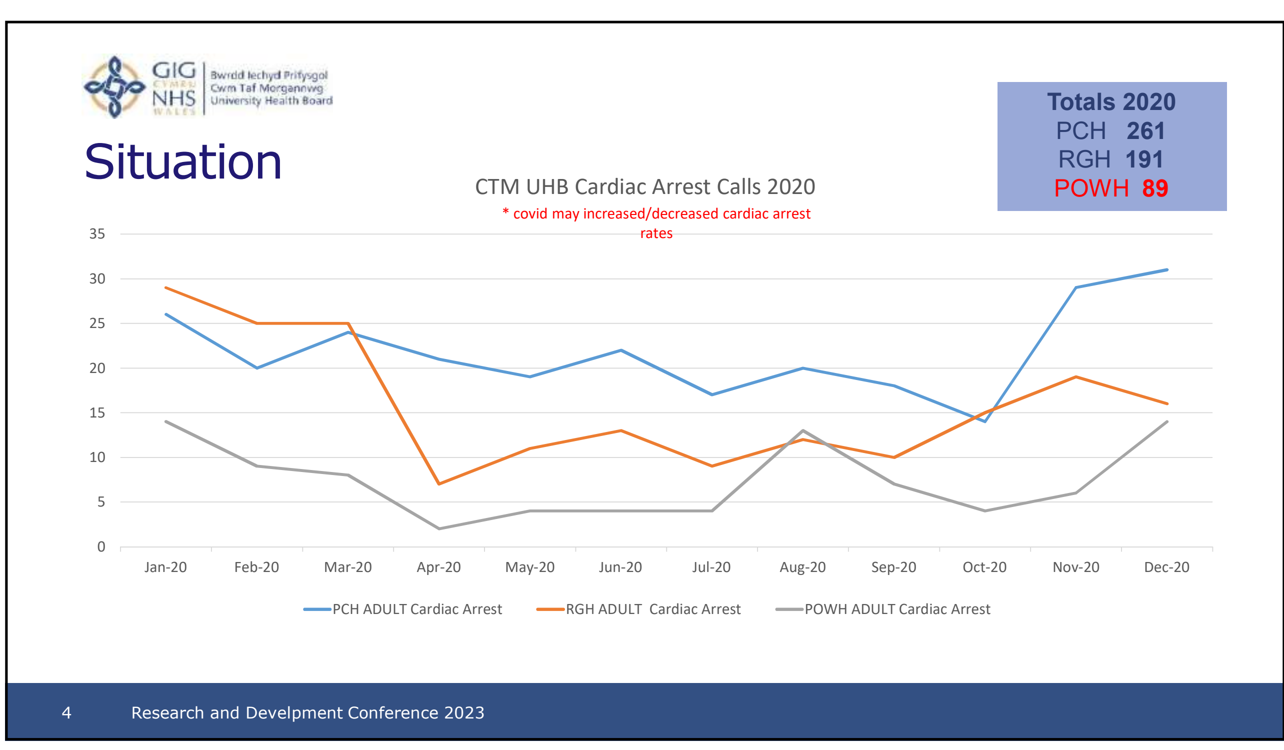
Introduction



SITUATION

Different processes in place within CTMUHB in the identification, escalation and response to the deteriorating patient which included:

- Different National Early Warning Scoring (NEWS) chart which is used to identify the 'at risk' patient of deterioration.
- No Standardisation in the escalation and response to the deteriorating patient within CTM Princess of Wales (POWH) had a well established Rapid Response (RR) emergency call system which was a used prior to a cardiac arrest call.
- Data from POWH suggested a much lower incidence in Cardiac Arrest (CA) calls



Evidence for Rapid Response

- Patients admitted to acute care hospitals are at risk of clinical deterioration.
- In hospital cardiac arrest is associated with a mortality risk of approximately 80%.
- Deterioration is associated with an increased risk of potentially preventable in-hospital mortality and morbidity
- The Resuscitation Council UK cite studies that show that 50-80% of in-hospital cardiac arrest patients have a period of deterioration before the cardiac arrest occurs.
- Deterioration may not be recognised or recognised and not acted upon or there is inadequate response to the deterioration.
- According to the International Society of Rapid Response systems (ISRRS) rates of cardiac arrest on general wards can therefore be seen as an indicator of an organisation's ability to appropriately identify, triage, and respond to patients who are deteriorating in hospital
- The introduction of a Rapid Response System RRS has been shown to be associated with a reduction in the risk of In Hospital Cardiac arrests in three meta-analyses.

The epidemiology of in-hospital cardiac arrests in Australia and New Zealand

Intern Med J, 46 (2016), pp. 1172-1181

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Aim

To standardise the process of escalation and response to the 'at risk' patient, by the introduction of a Rapid Response emergency call to both Prince Charles and Royal Glamorgan hospital and evaluate if the introduction of a rapid response system reduces cardiac arrest calls

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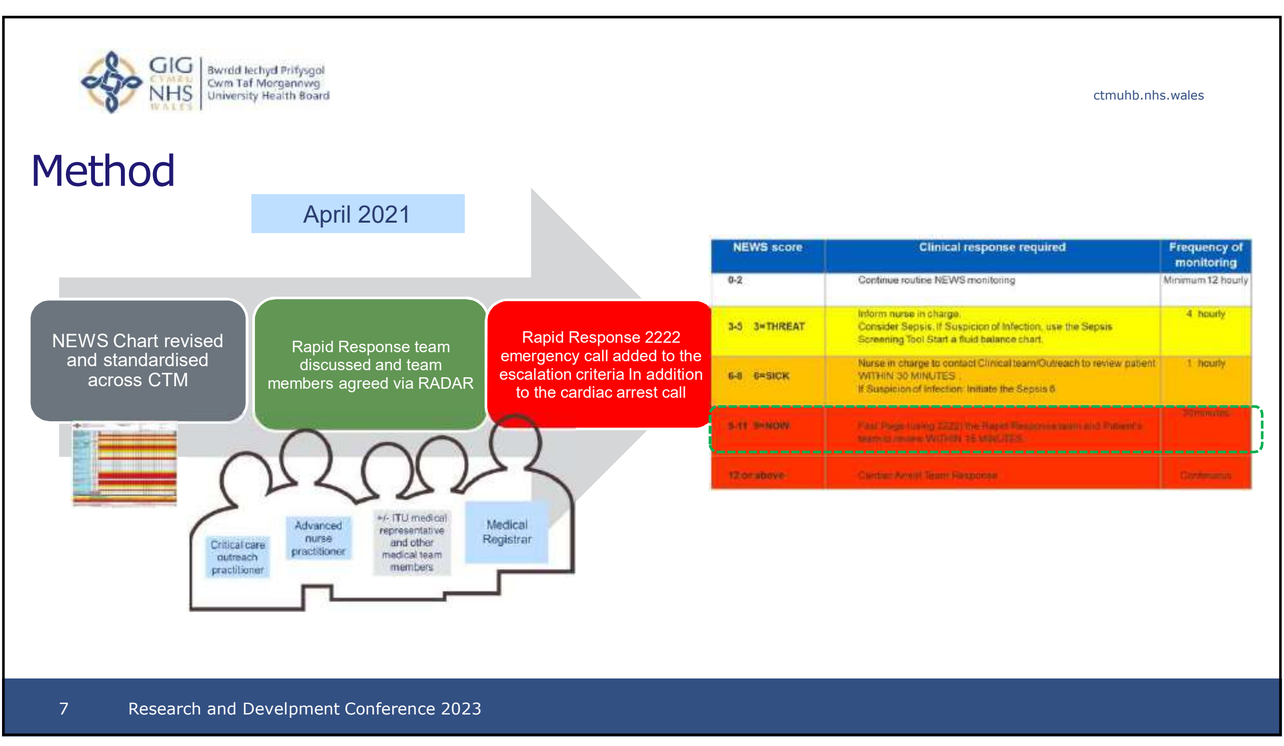

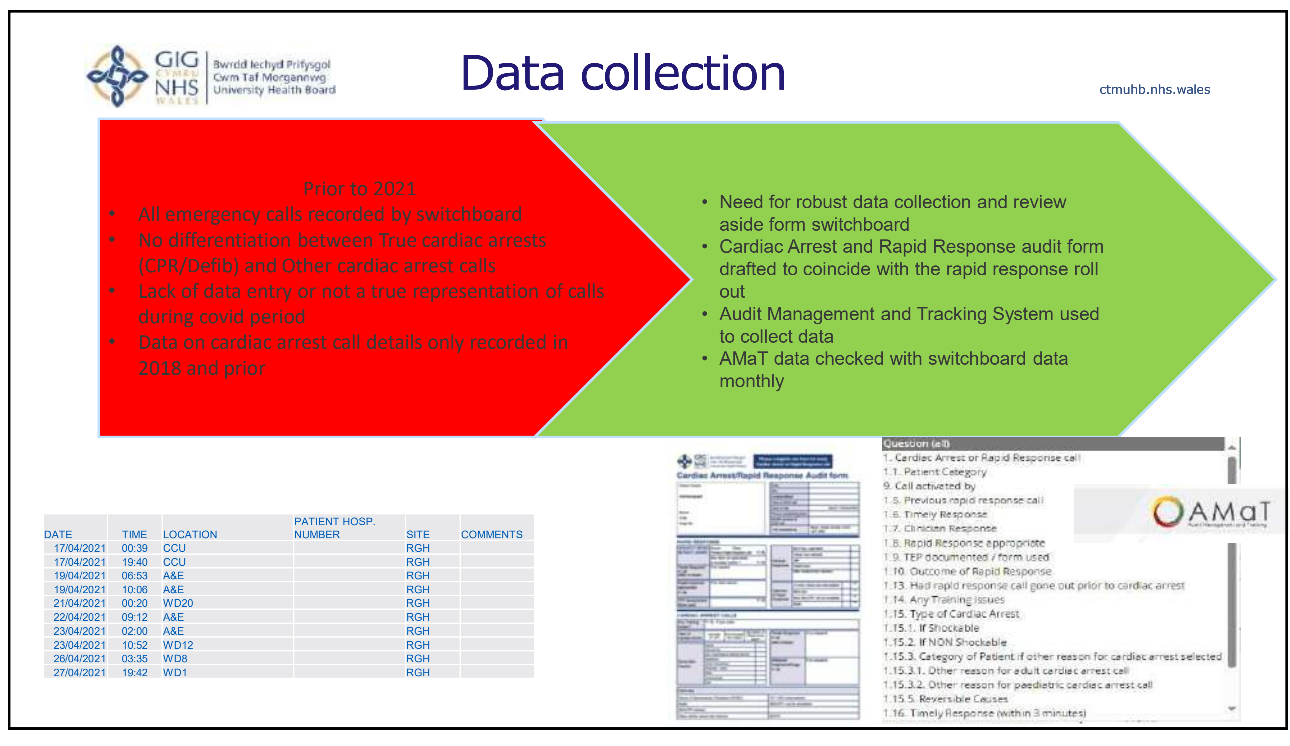

DATE	TIME	LOCATION	PATIENT HOSP. NUMBER	SITE	COMMENTS
17/04/2021	00:39	CCU		RGH	
17/04/2021	19:40	CCU		RGH	
19/04/2021	06:53	A&E		RGH	
19/04/2021	10:06	A&E		RGH	
21/04/2021	00:20	WD20		RGH	
22/04/2021	09:12	A&E		RGH	
23/04/2021	02:00	A&E		RGH	
23/04/2021	10:52	WD12		RGH	
26/04/2021	03:35	WD8		RGH	
27/04/2021	19:42	WD1		RGH	

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Limitations to Data Collection

- Not all cardiac arrest call data entered on AMaT system therefore not able to fully record number of 'True' cardiac arrests
- Data input dependant on Critical Care Outreach Team (CCOT) service (only 1 team 24/7) leading to gaps in data collection as CCOT attend all CA/RR
- Reliance on Switchboard call data which is not able to distinguish True cardiac arrest call from other causes

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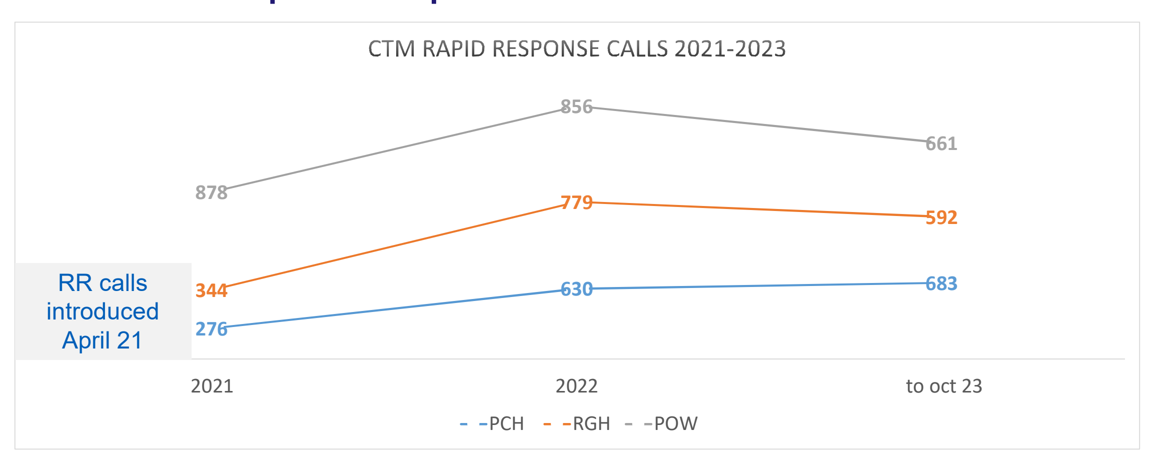
Results: Rapid Response Calls



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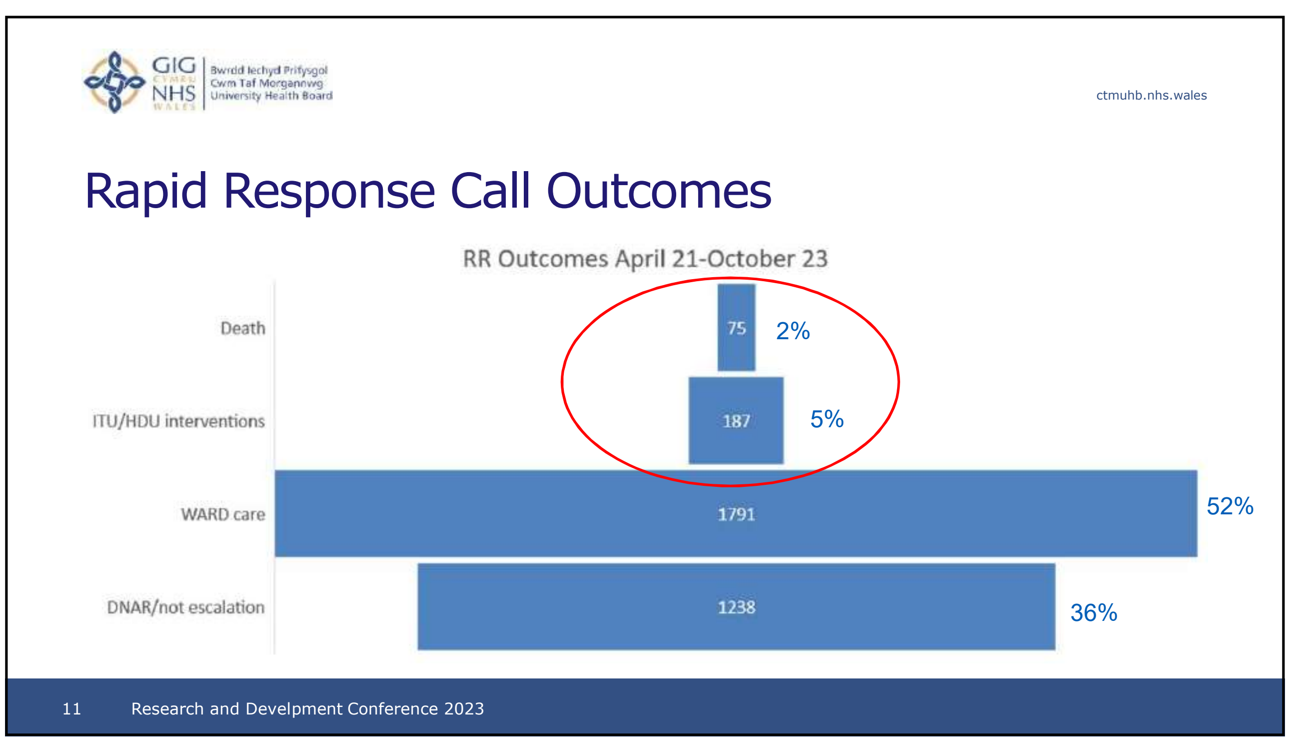
GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board
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Rapid Response Call Outcomes
RR Outcomes April 21-October 23
Death
75
2%
ITU/HDU interventions
187
5%
WARD care
1791
52%
DNAR/not escalation
1238
36%
11
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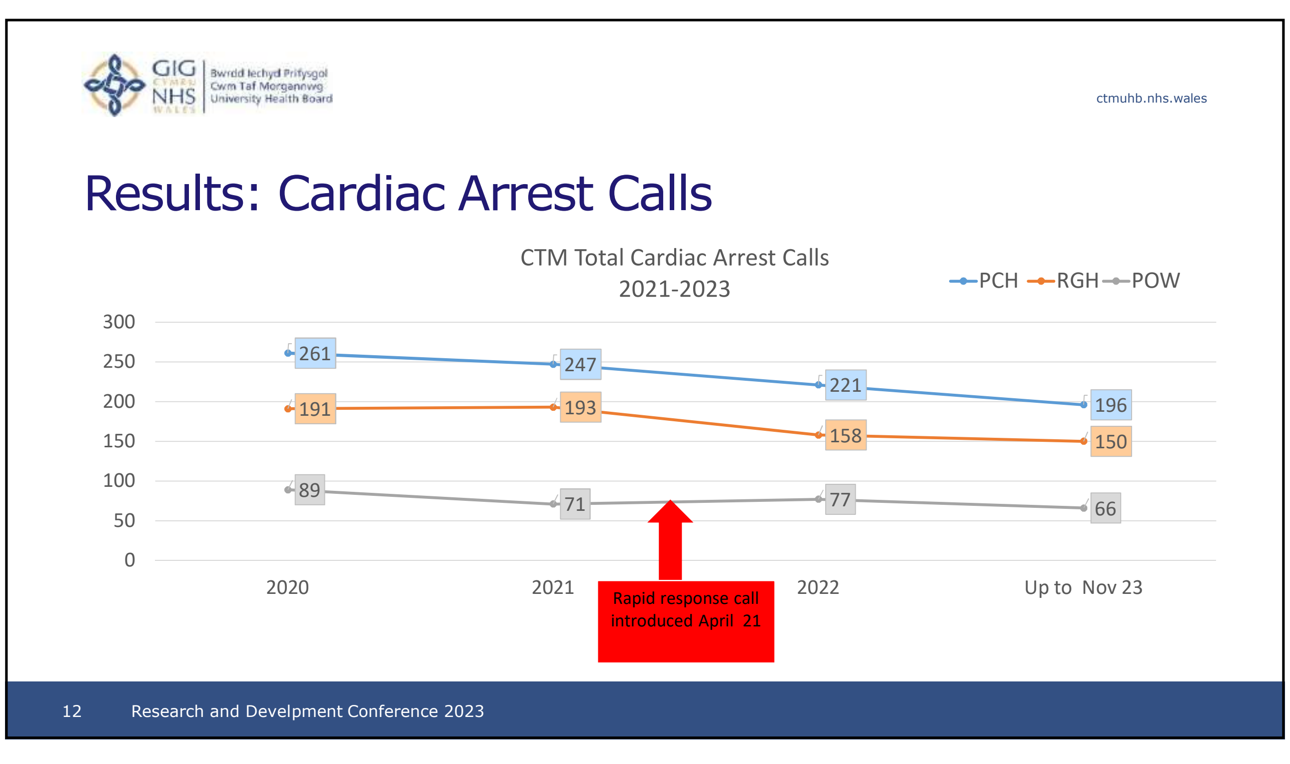
GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board
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Results: Cardiac Arrest Calls
CTM Total Cardiac Arrest Calls 2021-2023
PCH
RGH
POW
300
250
200
150
100
50
0
261
247
221
196
191
193
158
150
89
71
77
66
2020
2021
2022
Up to Nov 23
Rapid response call introduced April 21
12
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Discussion

- RR calls increasing since the introduction into RGH/PCH April 21
- CA calls reducing in RGH/PCH but still high-Particularly in PCH compared to POWH why?
- Not all data entered into AMAT to review whether True arrests or other calls
- What are the 'True' ward cardiac arrest numbers (*an indicator of an organisation's ability to appropriately identify, triage, and respond to patients who are deteriorating in hospital)*

- Further Data Analysis?

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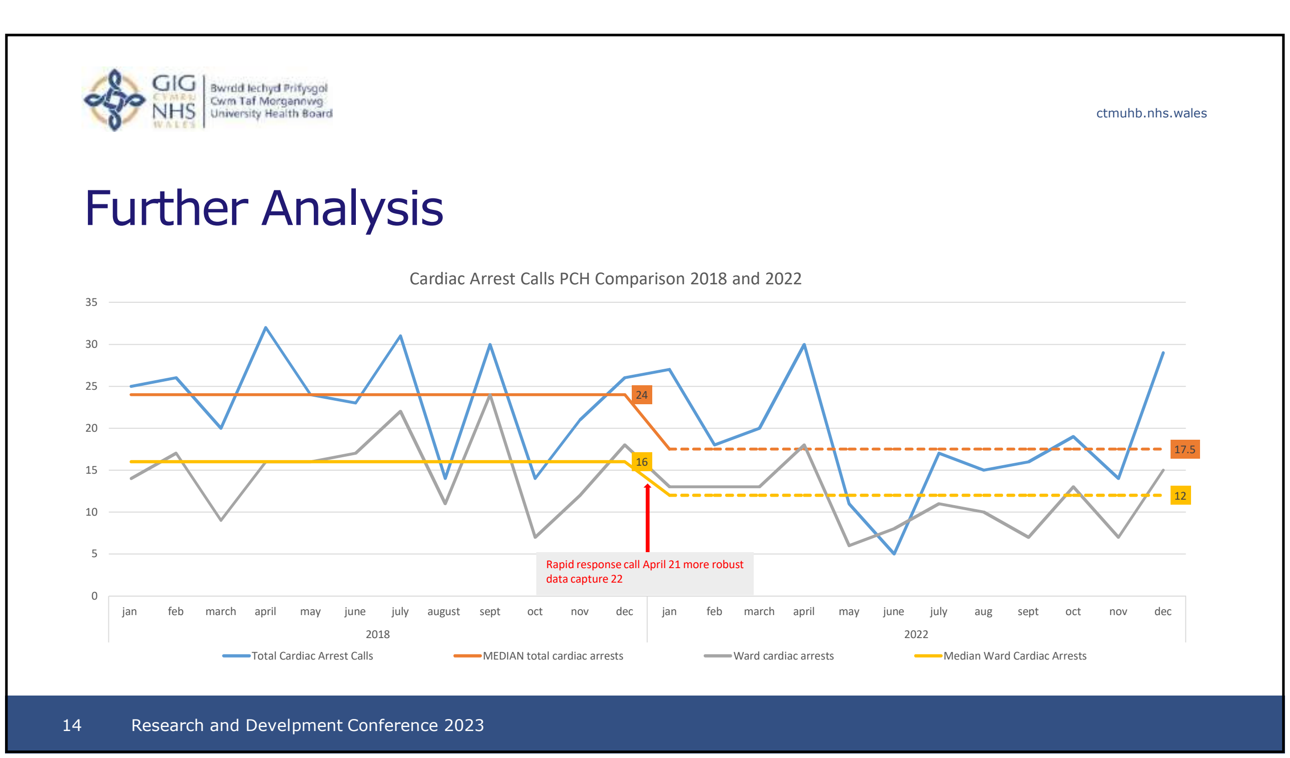

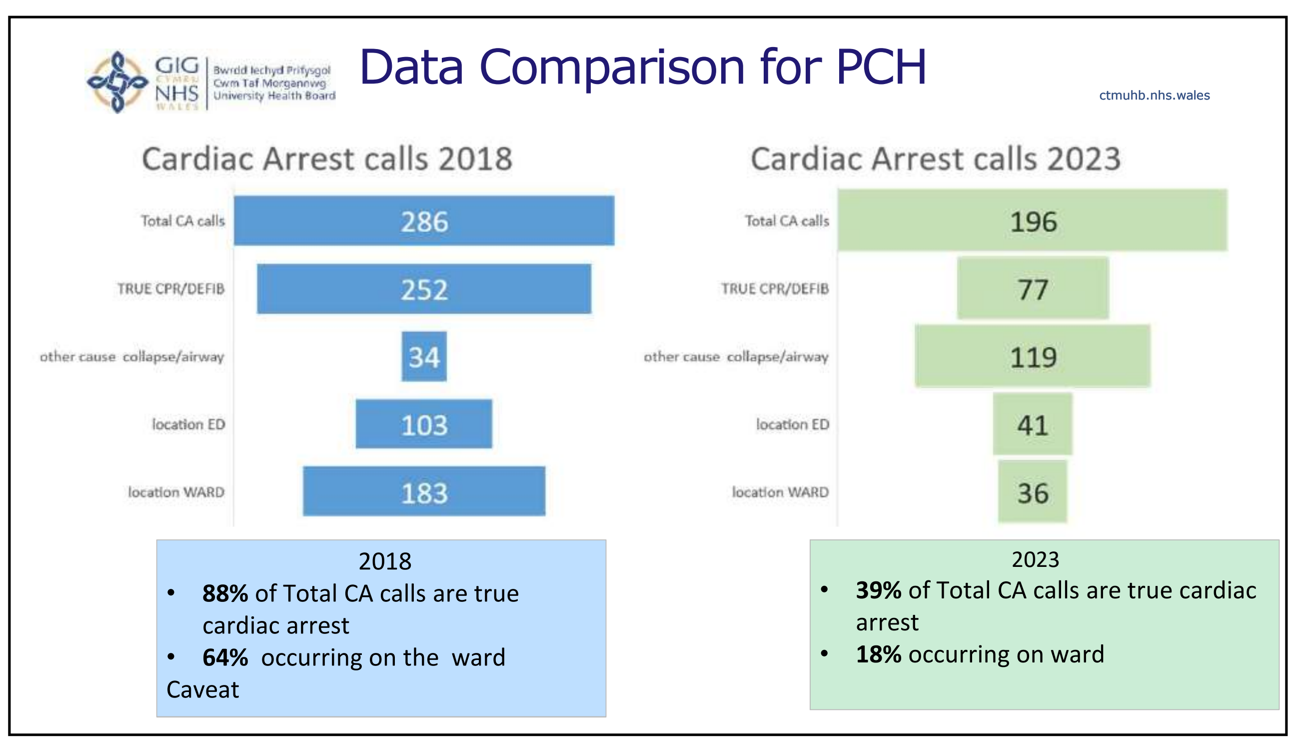

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Conclusion

- Lots of data exists, getting the right data is key
- The introduction of a rapid response system has reduced total cardiac arrest calls within RGH and PCH since its introduction in April 2021
- Additional work is required to ensure all data is captured
- Further data analysis is required to establish if there is a reduction in 'True' cardiac arrest calls over time

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Next Steps

- Continue to capture data via AMaT
- In-depth monthly review of all Cardiac Arrest to establish preceding events and predictability (*an indicator of an organisation's ability to appropriately identify, triage, and respond to patients who are deteriorating in hospital)*
- More analysis on Rapid Response and Cardiac Arrest outcomes survival to discharge
- Introduction of Treatment Escalation Plans (TEPs) to evaluate the effects on RR and CA rates and outcomes

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Thanks for listening

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Acknowledgements

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Bethan Harding Resuscitation Manager
The Resuscitation Team across CTM
Critical Care Outreach Teams across CTM
Administration Team Resuscitation
Jenine Bull data entry clerk POWH
Clinical audit for Audit Management and Tracking System (AMaT)
Switchboard

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An Exploratory Mixed-Methods Investigation of Adult Hearing Aid Users and the Relationships of Hearing Aid Use with Anxiety, Depression, Loneliness, and Social Inclusion

Dr Jonathan Arthur (Ph.D.)
Consultant Clinical Scientist (Audiology)
Head of Audiology
Honorary Senior Lecturer in Audiology
Fellow of the Academy of Healthcare Science

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Why did I complete this research?

- Patient perception of hearing aids – is hearing aid stigma a factor ?
- Societal perception of deafness versus sight loss –embedded in sociological history or perception?
- Some patients use their hearing aids consistently, whereas others do not – why is that?
- Many patients struggle with their hearing in a psychosocial context – anecdotal and evidence to support
- Uniqueness of CTM UHB patients ?– some high reliance on their NHS services, poorer overall health, poly pharmacy, adherence to hearing aid rehabilitation?

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Some relevant aspects of the literature

- In the UK, it is estimated that between 10 and 11 million people have hearing loss (Henshaw, Sharkey, Crowe, & Ferguson, 2015)
- This is projected to rise to nearly sixteen million people by 2035 (Action on Hearing Loss, 2011)
- Hearing loss is THE most important modifiable factor for preventing cognitive problems in 45-65 year olds (Livingston et al., 2020)
- Studies across the globe indicate that hearing aid ownership (uptake) is between 1% and 40% (Knudsen, Öberg, Nielsen, Naylor, & Kramer, 2010)
- Hearing aid fitting is the most commonly used rehabilitation for age related deafness (Ferguson et al., 2017; Pronk et al., 2011).

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Overarching Research Questions

1) What are the relationships between subjective measures of use and data-logging measures of use (a more objective method of measuring hearing aid use)?

- Analysing self reported use with data logs (Phase I)

2) Are there associations between the volume of hearing aid use and psychological and psychosocial measures?

- Analysing the above with multiple PROMS (Phase II AND III)

3) What are the reasons surrounding variable use?

- Using a qualitative (focus group and small group interviews) to understand the detail (Qualitative phase)

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Research Rationale

- At the time of data collection no study has investigated hearing aid use in a cohort of participants living in Wales
- Previous Welsh studies were based on analogue hearing aids and self-reported hearing aid use measures (Wilson & Stephens, 2003; Stephens et al., 2001
- No qualitative studies, using thematic analysis, were retrieved that explored **digital** hearing aid use in Wales.

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Research Design

- Sequential explanatory mixed methods design.
- Quantitative then Qualitative
- Spread over 3 quantitative and 1 qualitative phases

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Phase I

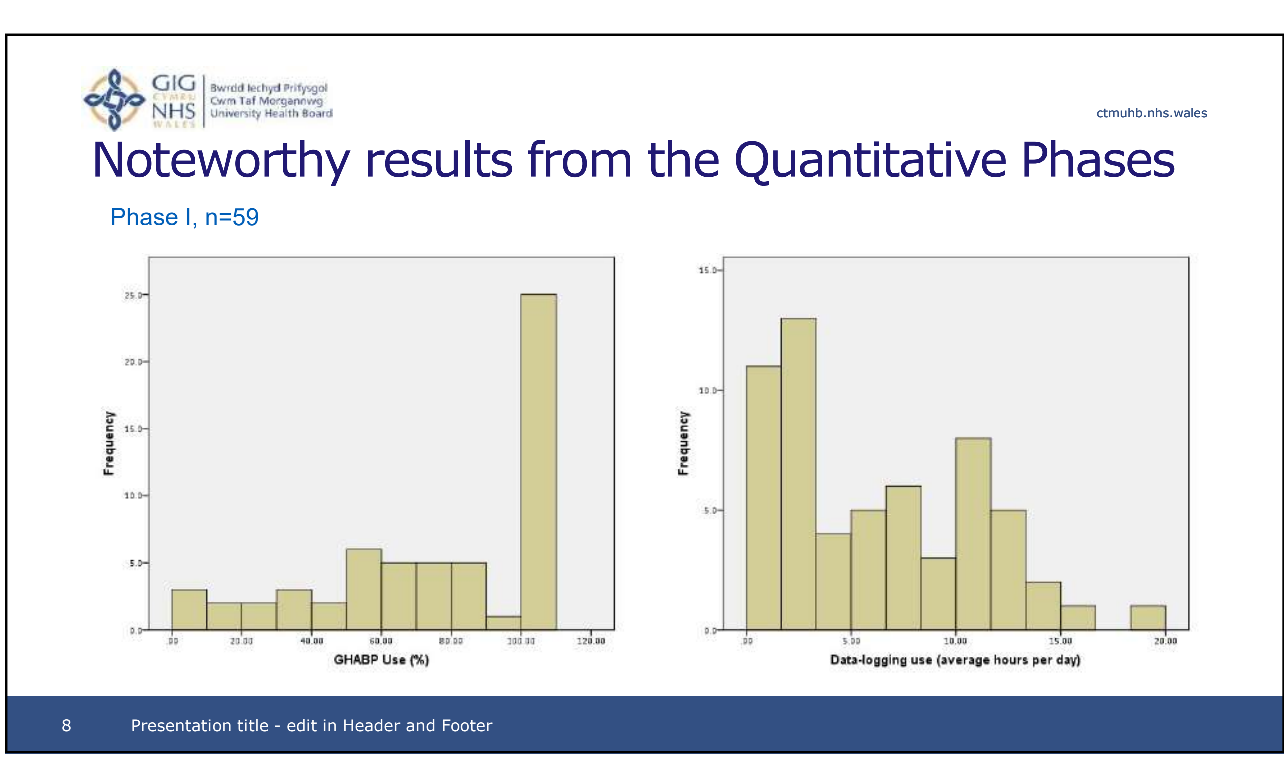
- Analyses of **Data-logs** and The Glasgow Hearing Aid Benefit Profile GHAB (Gatehouse, 1999)
- GHAB measures over two stages - self-reported auditory disability and handicap (at first contact)
- At follow up - **hearing aid use**, residual disability, satisfaction, and benefit with hearing aids

Phase II

- **Data-logs**
- **GHAB (hearing aid use construct)**
- HADS questionnaire (Zigmond & Snaith, 1983)

Phase III

- **Data-logs**
- **GHAB (hearing aid use construct)**
- **HADS questionnaire (Zigmond & Snaith, 1983)**
- The International outcome inventory for hearing aids (IOI-HA) Cox and Alexander (2002)
- The University of California Los Angeles Loneliness Scale (UCLA-LS) (Russell, 1996)
- The Social and Communities Opportunities Profile) (Huxley et al., 2012)



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Continued

- Mean data-logging use (6.30 hours per day) and mean GHABP (use) (72.85%) correlate moderately (0.59, ρ=<0.01).
- It is highly likely that the GHABP use is inflated
- In phase II there was a week inverse association between hearing aid use (both measures) and the anxiety construct of the HADS **-0.30 (ρ<0.05) and-0.25 (ρ<0.05)**
- In phase III the data log use is inversely associated with the UCLA-LS. Suggesting that as loneliness increases, the hours of hearing aid use decrease (r=-0.44, ρ=0.01, one tailed)

-0.30 (ρ<0.05) -0.25 (ρ<

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Qualitative investigation

- 3 groups (*n*=3, *n*=2, *n*=6)
- Transcribed verbatim
- Braun and Clarke's (2006) six-step framework for thematic analysis used

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Theme 1 – The patient journey

Subthemes included

1) Towards acceptance of hearing loss and hearing aids
    1) Noticing hearing problems
    2) Impact of hearing disability
    3) Motivation towards help seeking
    4) Accepting stigma

2) Avoidance reinforcement
    1) Stigma
    2) Denial in help-seeking behaviours

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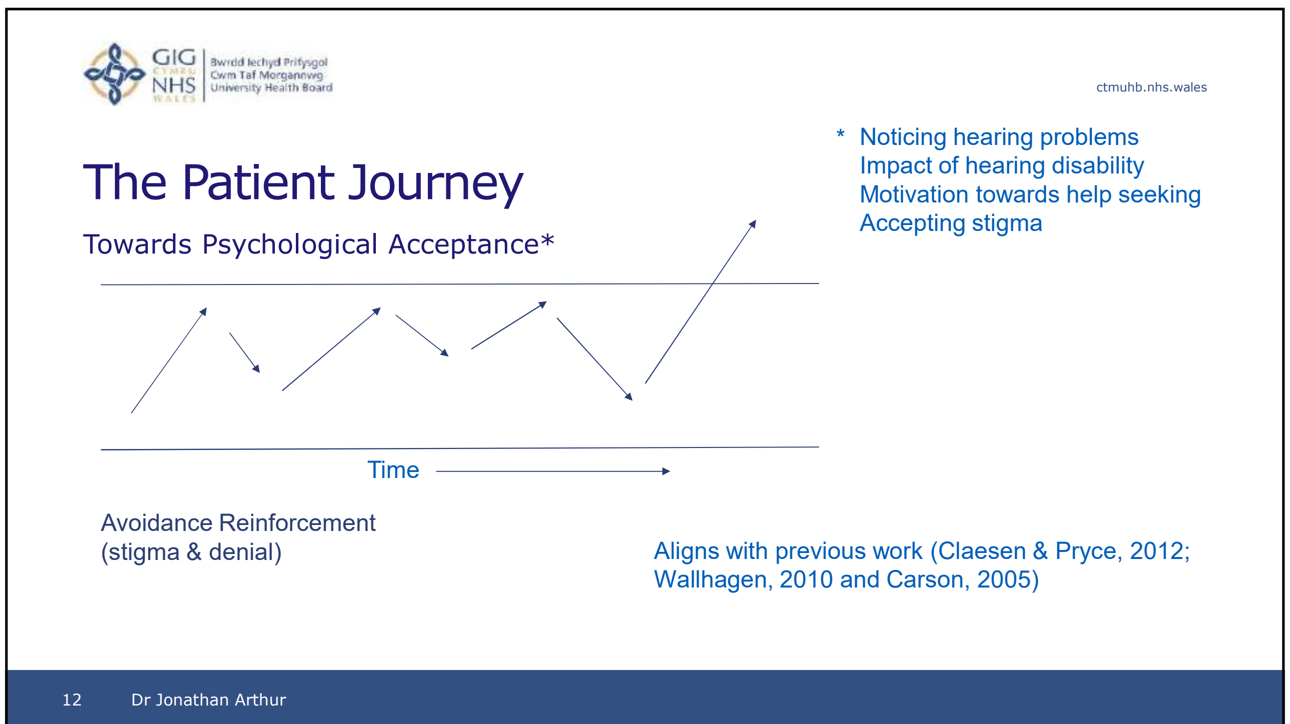

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Examples – Avoidance reinforcement - Stigma

"Before I finished work May of last year, I was in the ambulance service, and I was aware I was having problems hearing what was being said by whoever was in the passenger seat in the front. I would have been very conscious in the beginning to go to work in the job I was doing wearing hearing aids." (SG2)

"I think if there was more of a choice to offer the smaller sized ones [hearing aids], *I think you may have… and that was out there for the public to know, then I think you might have more people coming forward then admitting they have a problem and they need hearing aids. With a lot of people, I think the cosmetic side is more important to them; the way they look is more important than what they actually do."* (SG2)

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Avoidance Reinforcement - Denial

"It was just denial. I think you are aware your hearing is going, but you don't think it is as bad as they are making out it is." (SG2)

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Theme 2 – Hearing Aid Use

1. Type of hearing aid user
   1. Consistent user
   2. Intermittent user
2. Motivation towards use
   1. Active involvement in listening activities
   2. Passive involvement in listening activities
   3. Humour
   4. Impact of hearing disabilities on others
   5. Link with retirement
3. Barriers towards use
   1. Practical management of the hearing aid
   2. Challenging listening situations
   3. Stigma

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Noteworthy findings from the qualitative phase

- Despite the research questions surrounding hearing aid use, the patient journey towards help seeking and hearing aid uptake was a theme that could not be ignored
- Findings align with previous research regarding the "push pull" towards help seeking, although previous research was carried out with participants who were help seekers and different methodologies (Claesen & Pryce, 2012; Wallhagen, 2010 and Carson, 2005)
- The participants reflected on stigma in the context of listening to music with earphones. They felt that this might serve to de-stigmatise hearing aids in time
- Concept of multifaceted denial- three emerging forms of denial are simple denial (Manchaiah et al., 2015), projected denial, and reflected denial. More carefully controlled studies required

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Conclusions

- Novel findings discovered- hearing aid use and its association with the majority of the PROMS used– emerging evidence surrounding the importance of hearing aid use with psychological wellbeing.
- Seeking help, obtaining a hearing aid and using it is not a trivial subject – more needs to be done to encourage help seeking behaviour and avoid delays especially in the dementia context.
- Some audiology researchers have used motivational interviewing as a rehabilitative support, this could be employed (Solheim, Gay, Lerdal, Hickson, & Kvaerner, 2018; Aazh, 2016).
- More patient support may be helpful, especially in partnership with the third sector.
- Plan co-productive activities to support this work

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Morrissey's story !

"Back in 1984, **Morrissey came under fire for donning a hearing aid** on stage while performing on Top of the Pops. He was accused of mocking the hard of hearing community, but it later came to light that the singer was actually trying to show solidarity with a deaf fan who felt **ashamed of their own hearing aid**"

Thanks for listening

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Thanks for listening

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Special thanks to:

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Dr Darren Edwards – Swansea University

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Do genetic factors determine the response to thyroid hormone replacement? Update on the Genetics of Thyroid Hormone Replacement study (Genthyr)

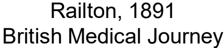
Professor Onyebuchi Okosieme

Consultant Endocrinologist, Cwm Taf Morgannwg Health Board
Honorary Professor, Cardiff University School of Medicine

Co-authors: Alan Dodd, Peter Taylor, Lakdasa Premawardhana, John Geen, Colin Dayan
on behalf of the Genthyr Study Collaborators

Medical
Research
Council

Hypothyroidism



Railton, 1891
British Medical Journey

Institution for *"cretins"*, Interlaken, Switzerland,
Wellcome Library, Wellcomecollection.org

Hypothyroidism

George Murray
1865-1939

NOTE ON THE TREATMENT OF MYXŒDEMA BY HYPODERMIC INJECTIONS OF AN EXTRACT OF THE THYROID GLAND OF A SHEEP.

Read in the Section of Therapeutics at the Annual Meeting of the British Medical Association held in Bournemouth, July, 1891.

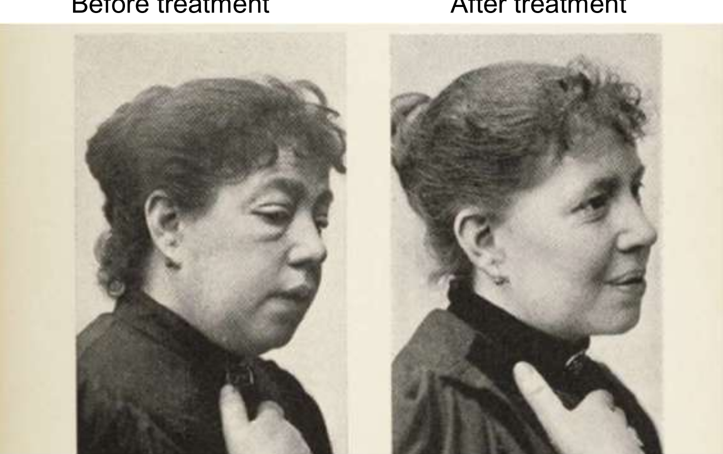
BY GEORGE R. MURRAY, B.A., M.B.CAMB., M.R.C.P.LOND.,
Newcastle-on-Tyne.

MYXŒDEMA has until recently been considered an incurable disease. Since the pathology of this remarkable condition, however, has become more fully understood, hopes of the

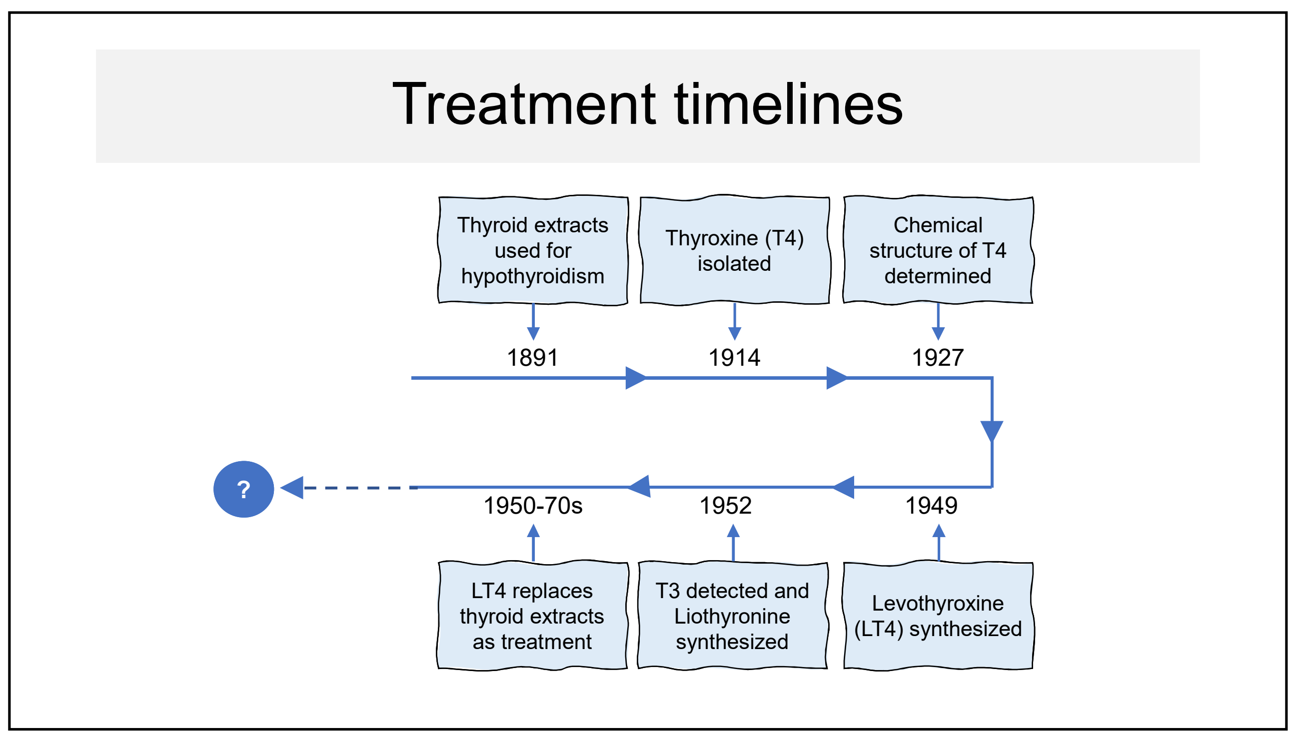
Murray, GR BMJ 1891, 2:796-797.

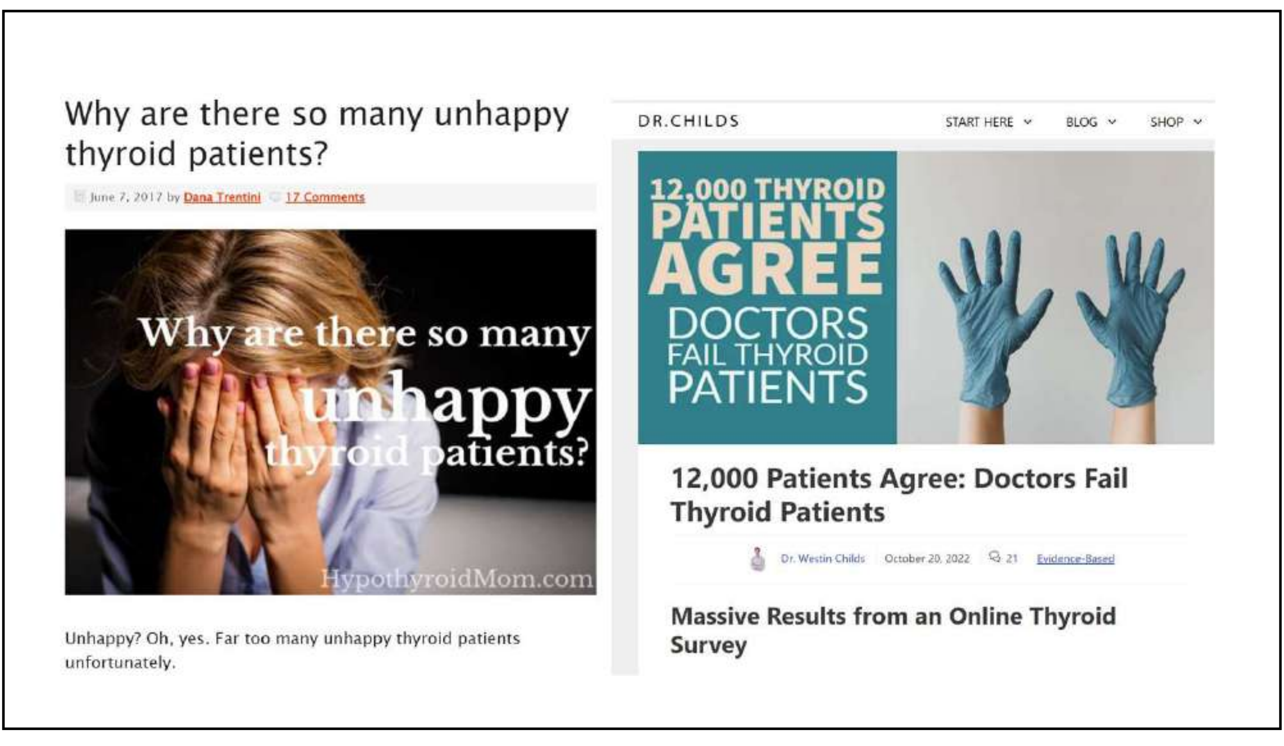
Hypothyroidism

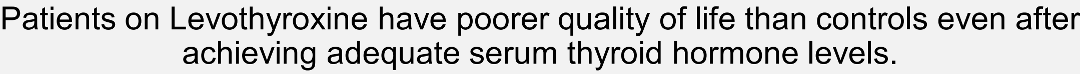
Before treatment After treatment



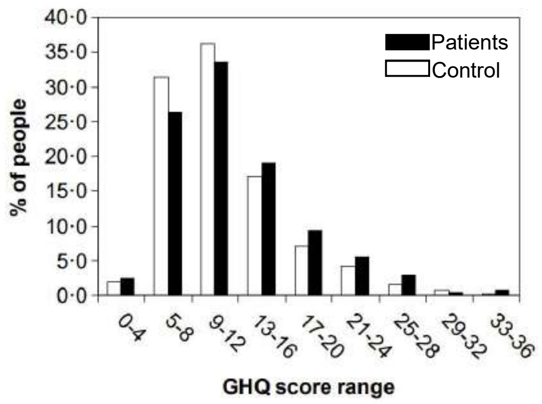
Wellcome Library, Wellcomecollection.org

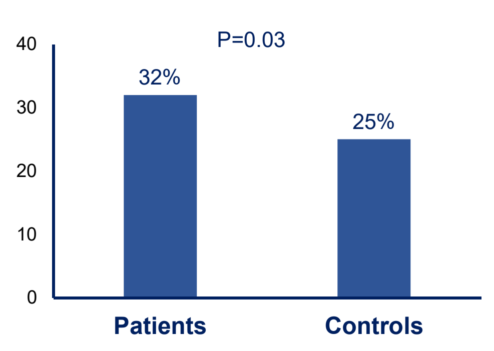

Treatment timelines
Thyroid extracts used for hypothyroidism
Thyroxine (T4) isolated
Chemical structure of T4 determined
1891
1914
1927
?
1950-70s
1952
1949
LT4 replaces thyroid extracts as treatment
T3 detected and Liothyronine synthesized
Levothyroxine (LT4) synthesized


Why are there so many unhappy thyroid patients?
June 7, 2017 by Dana Trentini 17 Comments
Why are there so many unhappy thyroid patients?
HypothyroidMom.com
Unhappy? Oh, yes. Far too many unhappy thyroid patients unfortunately.
DR.CHILDS
START HERE
BLOG
SHOP
12,000 THYROID PATIENTS AGREE
DOCTORS FAIL THYROID PATIENTS
12,000 Patients Agree: Doctors Fail Thyroid Patients
Dr. Westin Childs
October 20, 2022
21
Evidence-Based
Massive Results from an Online Thyroid Survey



Patients on Levothyroxine have poorer quality of life than controls even after achieving adequate serum thyroid hormone levels.

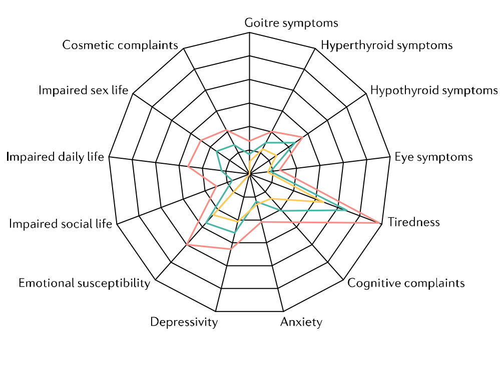




% with reduced well-being (i.e., caseness)

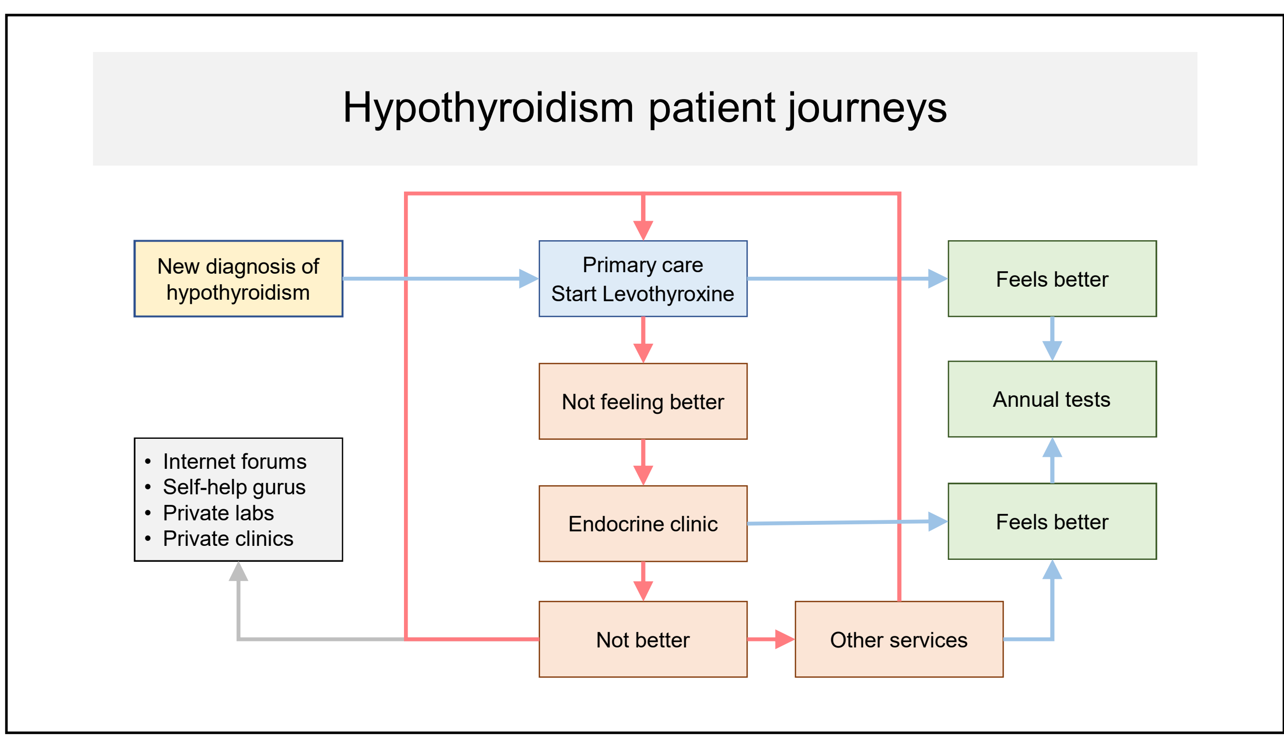
P Saravanan, WF Chau, N Roberts, K Vedhara, R Greenwood and CM Dayan, 2002, Clinical Endocrinology

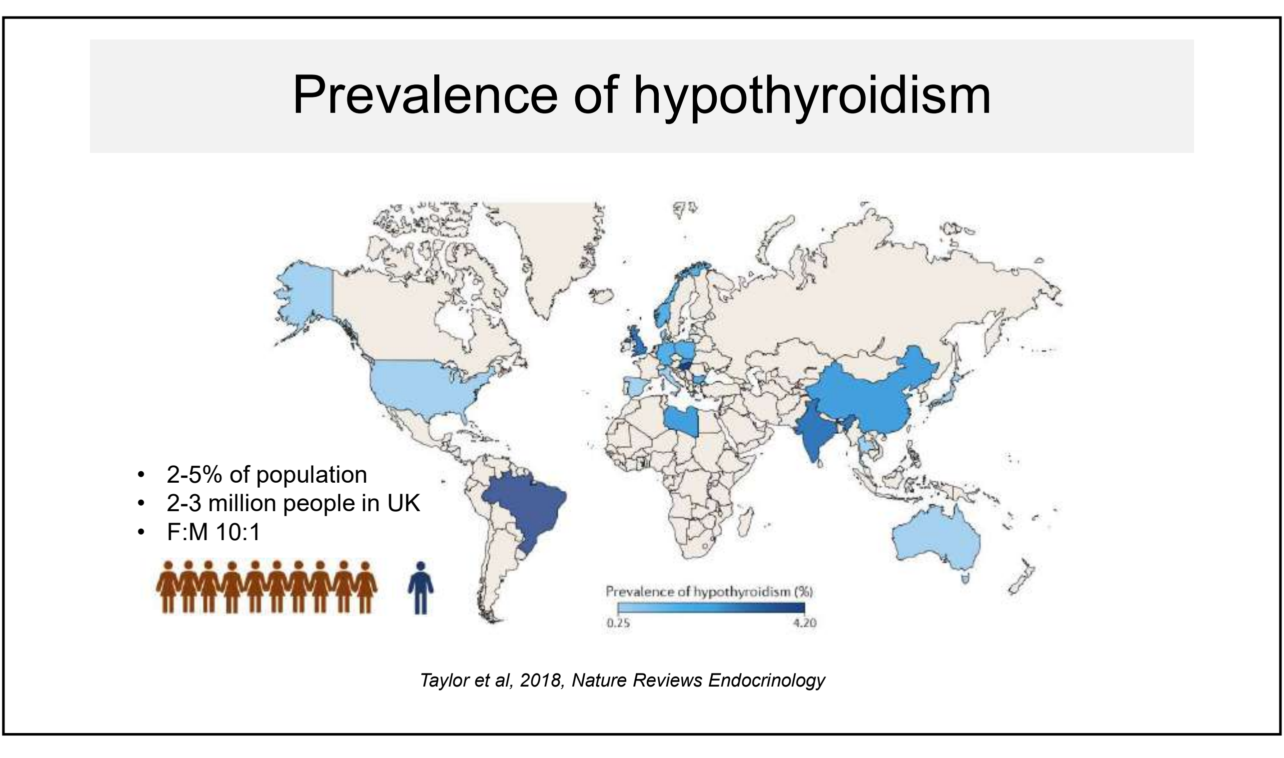
Levothyroxine improves symptoms in patients with hypothyroidism, but deficits remain



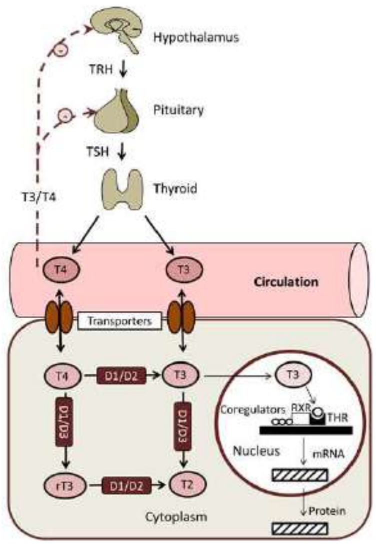
Before treatment
After treatment
Normative data

- Changes in QoL before and after treatment with Levothyroxine
- Prospective thyroid clinic study, Denmark, n=78
- QoL assessed pre and post (6-months) Levothyroxine initiation
- Compared to normative data from controls
- Most aspects of ThyPro improved but deficits remained
- *Winther et al, 2016*


Hypothyroidism patient journeys
New diagnosis of hypothyroidism
Primary care Start Levothyroxine
Feels better
Not feeling better
Annual tests
Internet forums
Self-help gurus
Private labs
Private clinics
Endocrine clinic
Feels better
Not better
Other services

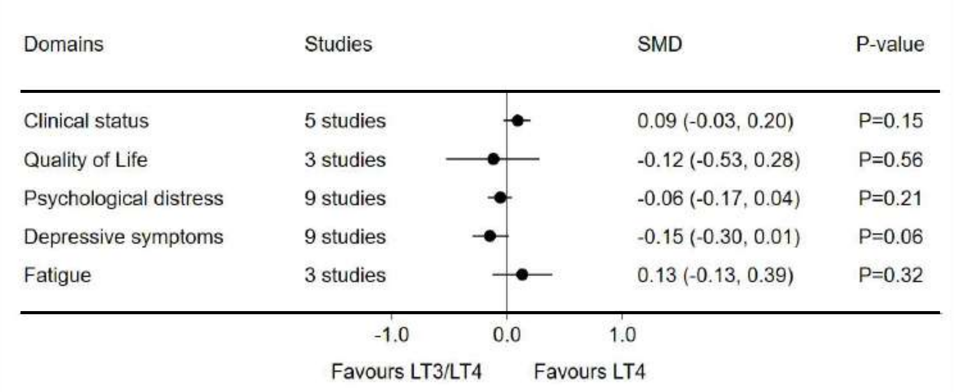

Prevalence of hypothyroidism
2-5% of population
2-3 million people in UK
F:M 10:1
Prevalence of hypothyroidism (%)
0.25
4.20
Taylor et al, 2018, Nature Reviews Endocrinology

Could the problem be genetic?



- T3 - biologically active hormone
- T4 - pro-hormone
- T4 converted to T3 by the action of key deiodinases: DIO1, DIO2
- The rs225014 polymorphism in the DIO2 gene affects thyroid hormone action in tissues and brain
- DIO2 Genotypes
  - Homozygous TT (wild-type)
  - Heterozygous CT
  - Homozygous CC (minor allele)

Meta-analysis of LT3/LT4 combined therapy vs T4 monotherapy

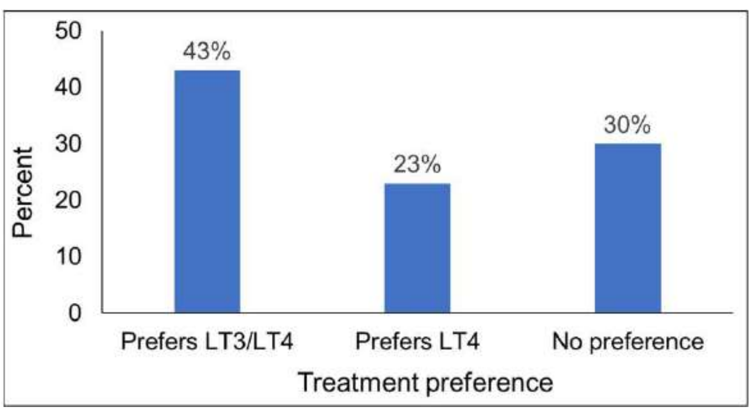


Domains	Studies	SMD	P-value
Clinical status	5 studies	0.09 (-0.03, 0.20)	P=0.15
Quality of Life	3 studies	-0.12 (-0.53, 0.28)	P=0.56
Psychological distress	9 studies	-0.06 (-0.17, 0.04)	P=0.21
Depressive symptoms	9 studies	-0.15 (-0.30, 0.01)	P=0.06
Fatigue	3 studies	0.13 (-0.13, 0.39)	P=0.32

18 RCTs, 1563 participants, low to moderate risk of bias

Millan-Alanis et al, 2021

Treatment preference: LT3/LT4 combined therapy vs T4 monotherapy



6 RCTs, 253 participants, low to moderate risk of bias

Millan-Alanis et al, 2021

Meta-analysis conclusions

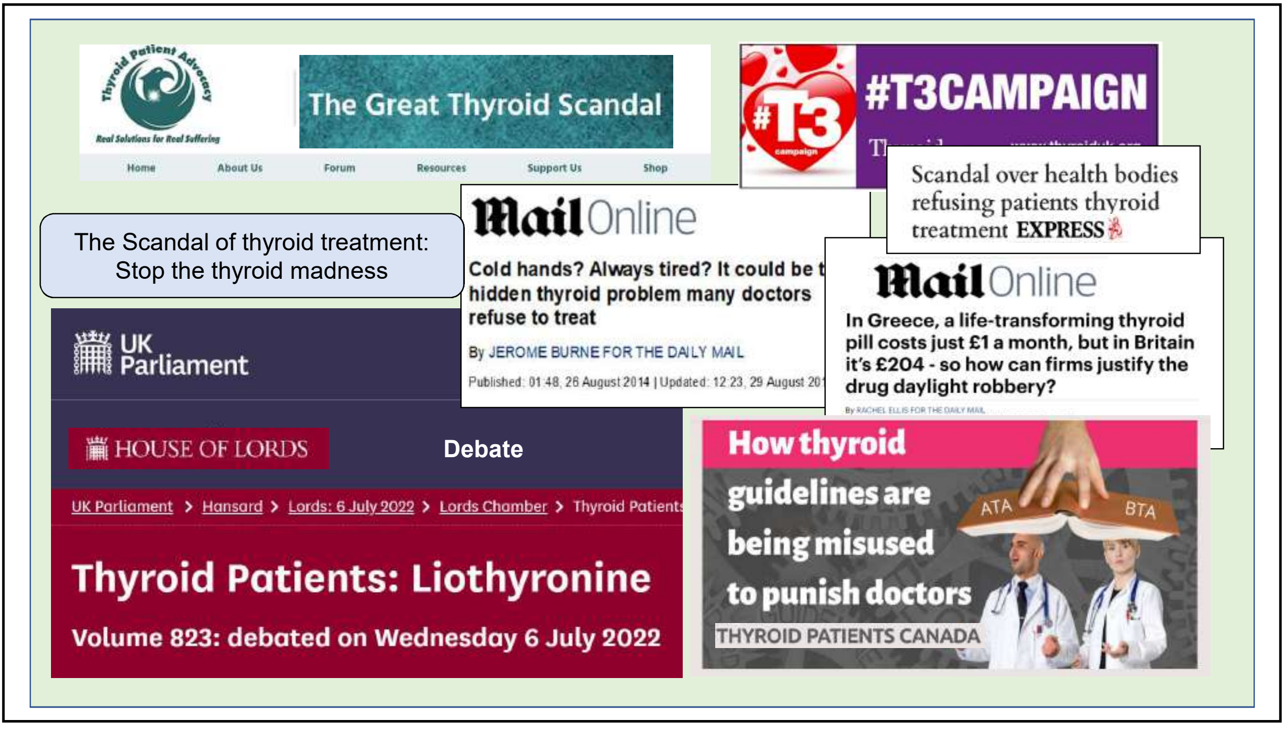
"The body of evidence at low-to-moderate certainty demonstrates that there is no difference in clinical and surrogate outcomes *between LT4/LT3 combined therapy and LT4 monotherapy for the treatment of adult patients with hypothyroidism with the exception that* patients preferred the use of combined therapy*. Adverse events and reactions appear to be similar across groups, however, this observation is only narrative".*

Millan-Alanis et al, 2021

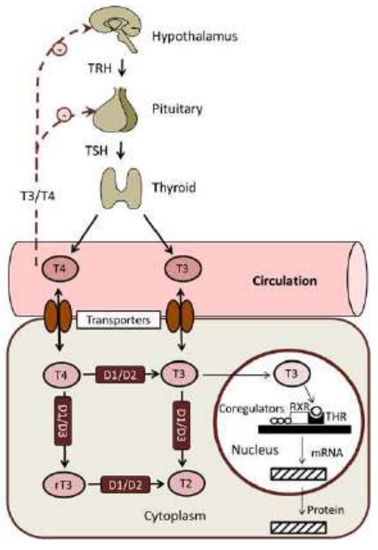
International Guidelines on treatment of hypothyroidism

- European Thyroid Association (ETA)
  - *Wiersinga, 2012*
- American Thyroid Association (ATA)
  - *Jonklaas, 2014*
- British Thyroid Association (BTA)
  - *Okosieme, 2016*
- UK NICE guidelines
  - *2019*
- BTA/Society for Endocrinology (SFE)
  - *Ahluwalia, 2023*

- Levothyroxine (T4) – standard of care
  - Recognition of subset who do not respond to T4 alone
  - T3/T4 may be considered in individuals who do not respond to T4 alone: ETA/BTA/ATA after the exclusion of comorbidities
  - More research is needed



Could the problem be genetic?



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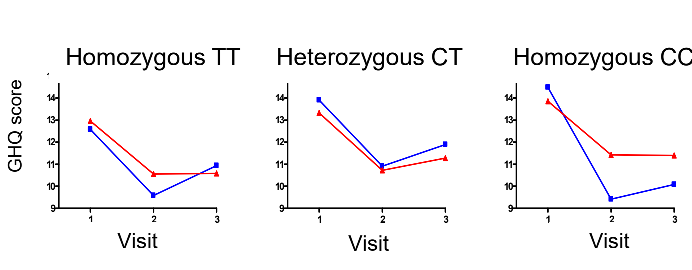


Panicker JCEM 2009;94:1623–9.

Patients with the CC genotype of the DIO2 gene have:

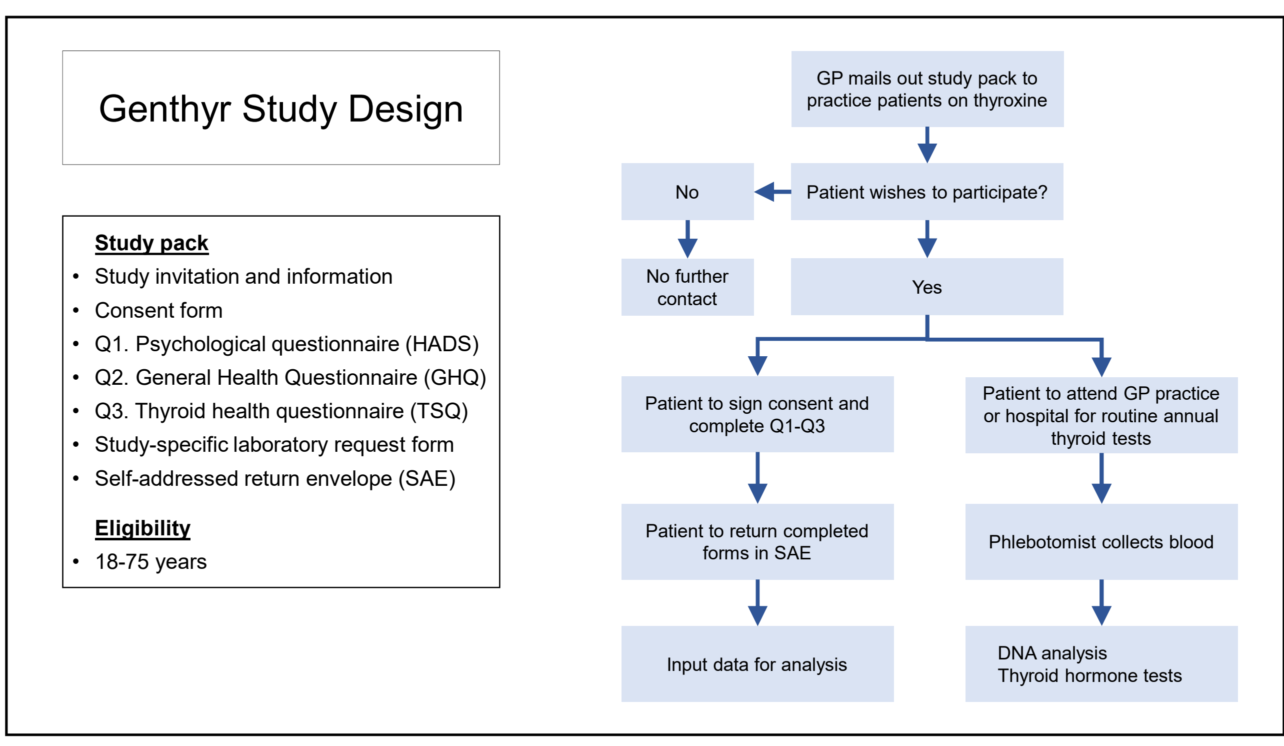
- ❑ Worse baseline psychological well-being (i.e., higher GHQ scores)
- ❑ Better response to combination therapy in patients with hypothyroidism (i.e., lower GHQ scores)

Genetics of Thyroid Hormone Replacement Study, GENTHYR Study

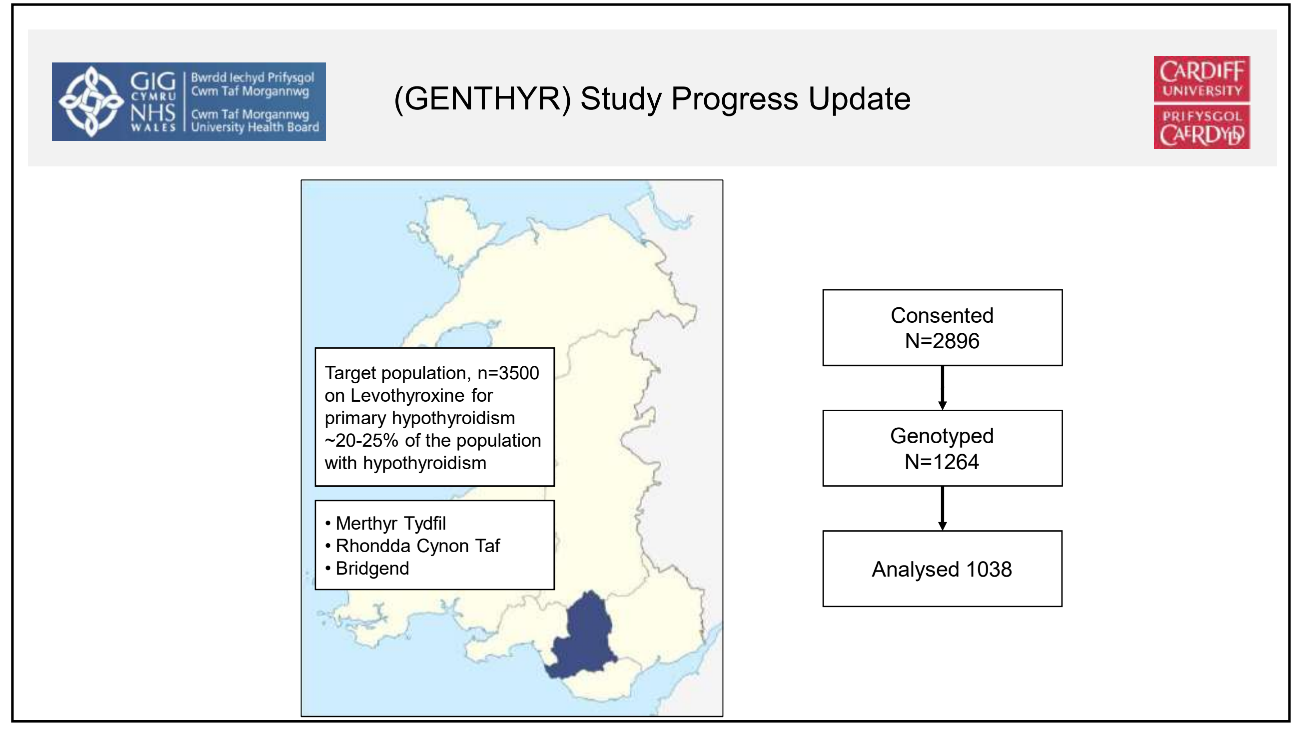
- Objectives
  - To determine if the homozygous CC genotype of the rs225014 single nucleotide polymorphism (SNP) in the DI02 gene is associated with increased psychological morbidity
  - To identify a cohort of individuals with the CC genotype who would be eligible for a pharmacogenomically driven intervention trial to determine if combination Levothyroxine (T4) and Liothyronine T3 (T3) can improve psychological well being.

Study end points

- Primary end points:
  - Quality of life (QoL) by DIO2 genotype
    - Q1. Psychological questionnaire (HADS)
    - Q2. General Health Questionnaire (GHQ)
    - Q3. Thyroid health questionnaire (TSQ)



Genthyr Study Design
Study pack
• Study invitation and information
• Consent form
• Q1. Psychological questionnaire (HADS)
• Q2. General Health Questionnaire (GHQ)
• Q3. Thyroid health questionnaire (TSQ)
• Study-specific laboratory request form
• Self-addressed return envelope (SAE)
Eligibility
• 18-75 years
GP mails out study pack to practice patients on thyroxine
Patient wishes to participate?
No
No further contact
Yes
Patient to sign consent and complete Q1-Q3
Patient to attend GP practice or hospital for routine annual thyroid tests
Patient to return completed forms in SAE
Phlebotomist collects blood
Input data for analysis
DNA analysis
Thyroid hormone tests



GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg
Cwm Taf Morgannwg University Health Board
(GENTHYR) Study Progress Update
CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD
Target population, n=3500 on Levothyroxine for primary hypothyroidism ~20-25% of the population with hypothyroidism
• Merthyr Tydfil
• Rhondda Cynon Taf
• Bridgend
Consented N=2896
Genotyped N=1264
Analysed 1038

Genthyr cohort characteristics

Patient characteristics	All	TT genotype	CT genotype	CC genotype	P-value
N (%)	1038	405 (39%)	485 (46%)	148 (14%)	
Demographics					
Age (mean, SD)	57.7 (12.1)	56.4 (12.3)	58.5 (11.9)	58.5 (11.9)	0.04
Female, N (%)	888 (86.3%)	354 (88.1%)	407 (84.6%)	127 (87.0%)	0.32
Thyroid function					
TSH mU/L (median, IQR)	1.81 (0.72, 3.10)	1.84 (0.76, 3.15)	1.71 (0.62, 2.91)	2.11 (0.73, 3.63)	0.22
FT4 pmol/L (mean, SD)	18.5 (4.2)	18.5 (3.6)	18.5 (4.5)	18.4 (4.2)	0.86
Levothyroxine dose					
LT4 dose, mcg/d (mean, SD)	98 (44)	98 (45)	100 (44)	93 (45)	0.27
Dose ≥100 mcg/day, N (%)	572 (55%)	222 (55%)	274 (56%)	76 (51%)	0.54

GENTHYR: Association between DIO2 genotype and quality of life

	CT/TT genotype		CC genotype			
	Ref	N	Odds ratio	95% CI	P-value	N
All patients						
HADS Anxiety case	Ref	777	1.19	(0.81, 1.77)	0.36	130
HADS Depression case	Ref	777	1.24	(0.85, 1.81)	0.27	130
GHQ-12 case	Ref	794	1.37	(0.93, 1.99)	0.11	134
On LT4, ≥100 mcg/d						
HADS Anxiety case	Ref	439	1.01	(0.59, 1.74)	0.96	65
HADS Depression case	**Ref**	**439**	**1.86**	**(1.10, 3.14)**	**0.02**	**65**
GHQ-12 case	**Ref**	**448**	**1.88**	**(1.11, 3.18)**	**0.02**	**67**
On LT4, <100 mcg/d						
HADS Anxiety case	Ref	338	1.45	(0.82, 2.57)	0.20	65
HADS Depression case	Ref	338	0.78	(0.43, 1.40)	0.41	65
GHQ-12 case	Ref	346	0.99	(0.57, 1.73)	0.98	67

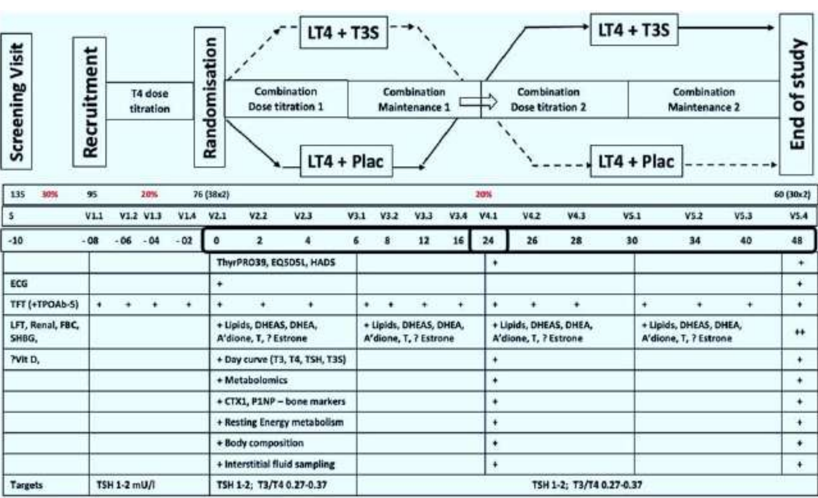
Estimates adjusted for age, sex, TSH, and Levothyroxine dose. HADS, Hospital Anxiety and Depression scale; GHQ-12, General Health Questionnaire,12-question version; Higher scores indicate higher morbidity. GHQ-12 was scored by both the Likert method (0–3 per question, maximum 36) and the GHQ binary scoring method (0, 0, 1, 1, maximum 12). A score of 3 or greater by the GHQ binary scoring method is taken to indicate caseness. HADS Anxiety or Depression caseness is defined as a score of >8. LT4, Levothyroxine, mcg/d, micrograms per day, CI, confidence interval

LIothyrONiNe Sulphate (T3S) use in hypothyroid subjects on T4 homozygous for the Thr92Ala Deiodinase 2 (D2) polymorphism - the LIONNS-D2 study

Objectives

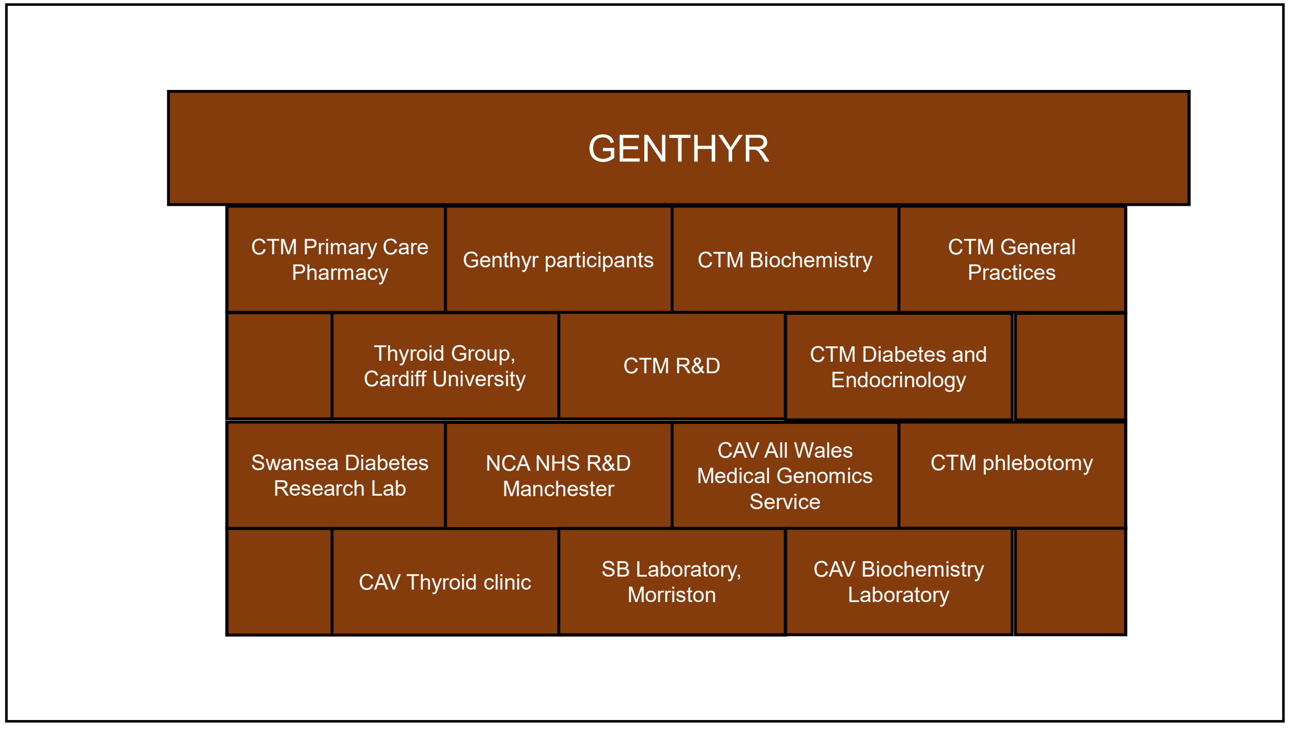
1. Proof of principle that T3S improves symptoms and quality of life in hypothyroid participants with the DIO2 polymorphism
2. Medium term (24 week) safety data for T3S
3. Pharmacokinetic profiles for T3S
4. Randomised cross-over design

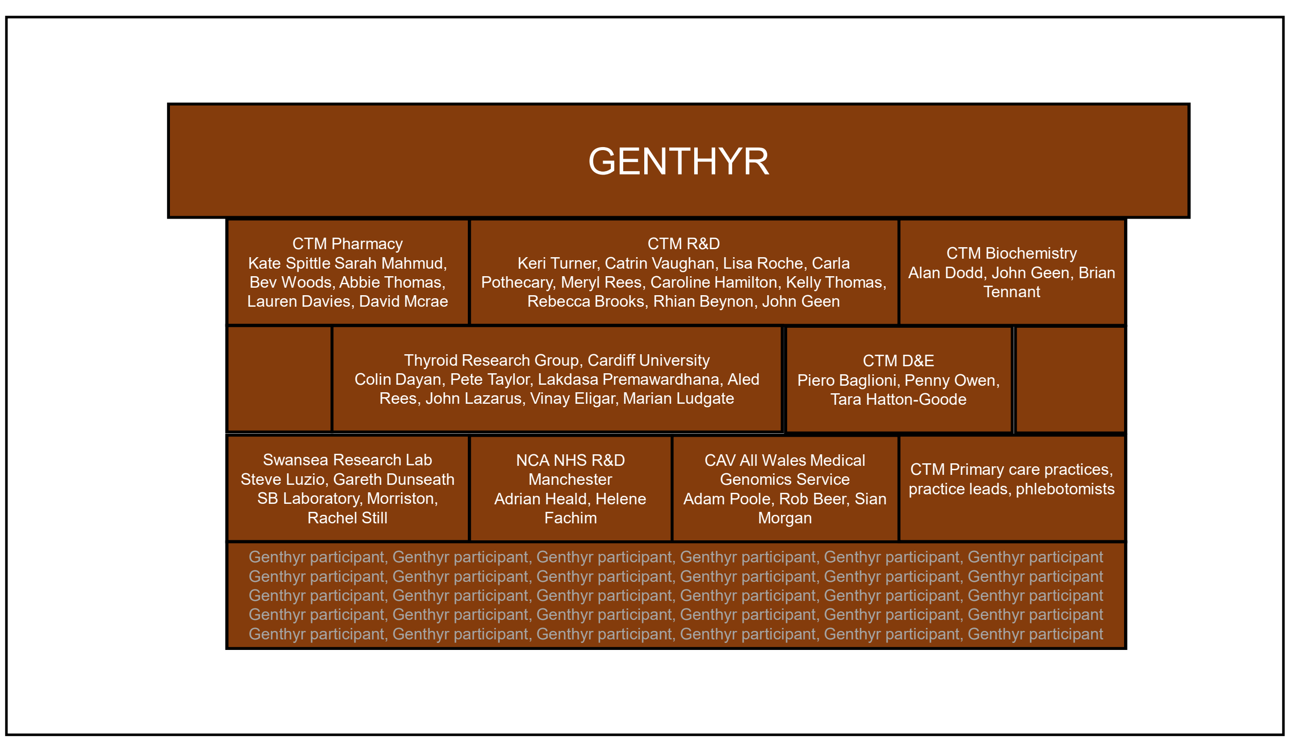
LIothyrONiNe Sulphate (T3S) use in hypothyroid subjects on T4 homozygous for the Thr92Ala Deiodinase 2 (D2) polymorphism - a phase 2b, crossover, double blind, randomised controlled trial - the LIONNS-D2 study



GENTHYR Study - Summary

- On course to achieve recruitment target
- Preliminary analysis: CC genotype is associated with a poor response to Levothyroxine treatment in patients on >100 mcg daily of Levothyroxine.
- Driver for successful MRC application: LIONNS-D2
- Exemplar of collaboration




GENTHYR
CTM Pharmacy
Kate Spittle Sarah Mahmud, Bev Woods, Abbie Thomas, Lauren Davies, David Mcrae
CTM R&D
Keri Turner, Catrin Vaughan, Lisa Roche, Carla Pothecary, Meryl Rees, Caroline Hamilton, Kelly Thomas, Rebecca Brooks, Rhian Beynon, John Geen
CTM Biochemistry
Alan Dodd, John Geen, Brian Tennant
Thyroid Research Group, Cardiff University
Colin Dayan, Pete Taylor, Lakdasa Premawardhana, Aled Rees, John Lazarus, Vinay Eligar, Marian Ludgate
CTM D&E
Piero Baglioni, Penny Owen, Tara Hatton-Goode
Swansea Research Lab
Steve Luzio, Gareth Dunseath
SB Laboratory, Morriston, Rachel Still
NCA NHS R&D Manchester
Adrian Heald, Helene Fachim
CAV All Wales Medical Genomics Service
Adam Poole, Rob Beer, Sian Morgan
CTM Primary care practices, practice leads, phlebotomists
Genthyr participant, Genthyr participant, Genthyr participant, Genthyr participant, Genthyr participant, Genthyr participant
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Happy ending…
Before treatment
After treatment
A
B
C
D
Kim, 2015, NEJM

Diolch Yn Fawr

ctmuhb.nhs.wales

Evaluating a Population Health Management approach to winter fuel poverty in the Taff Ely Primary Care Cluster

CTMUHB R&D Conference - 22 November 2023

Population Health Management Unit & Taff Ely Frailty Service

Fuel poverty in RCT

ctmuhb.nhs.wales

30% Excess Winter Deaths attributed to a cold home[3] with increased risk of strokes, heart attacks, respiratory diseases and falls[5]

Rhondda Cynon Taf area
Ageing population

Life expectancy at birth significantly **lower** than Welsh average for **both females** and **males**[6]

37.1% of the population of Taff Ely live in most deprived quintile

Poor housing costs Welsh NHS approx.
£1Billion
per annum[4]

45% Welsh Households in Fuel Poverty

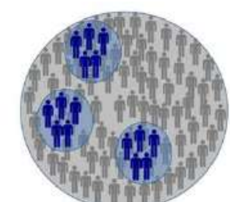
8% in severe Fuel Poverty (April 2022)[1]

Primary Care services in Taff Ely Cluster report pressures, higher staff attrition rates and increased demand *prior* to the winter period

ctmuhb.nhs.wales

Why a Population Health Management approach?

- **Population Health Management** can improve population health by **data driven planning** and **delivery of proactive care** to achieve **maximum impact** for the health and wellbeing of the population.
- **Linked datasets** are used to segment, stratify and model the local 'at risk' and 'rising risk' cohorts that in turn are used to design, **target** and **personalise interventions** to **deliver proactive care** and proportionate universalism to reduce health inequalities.



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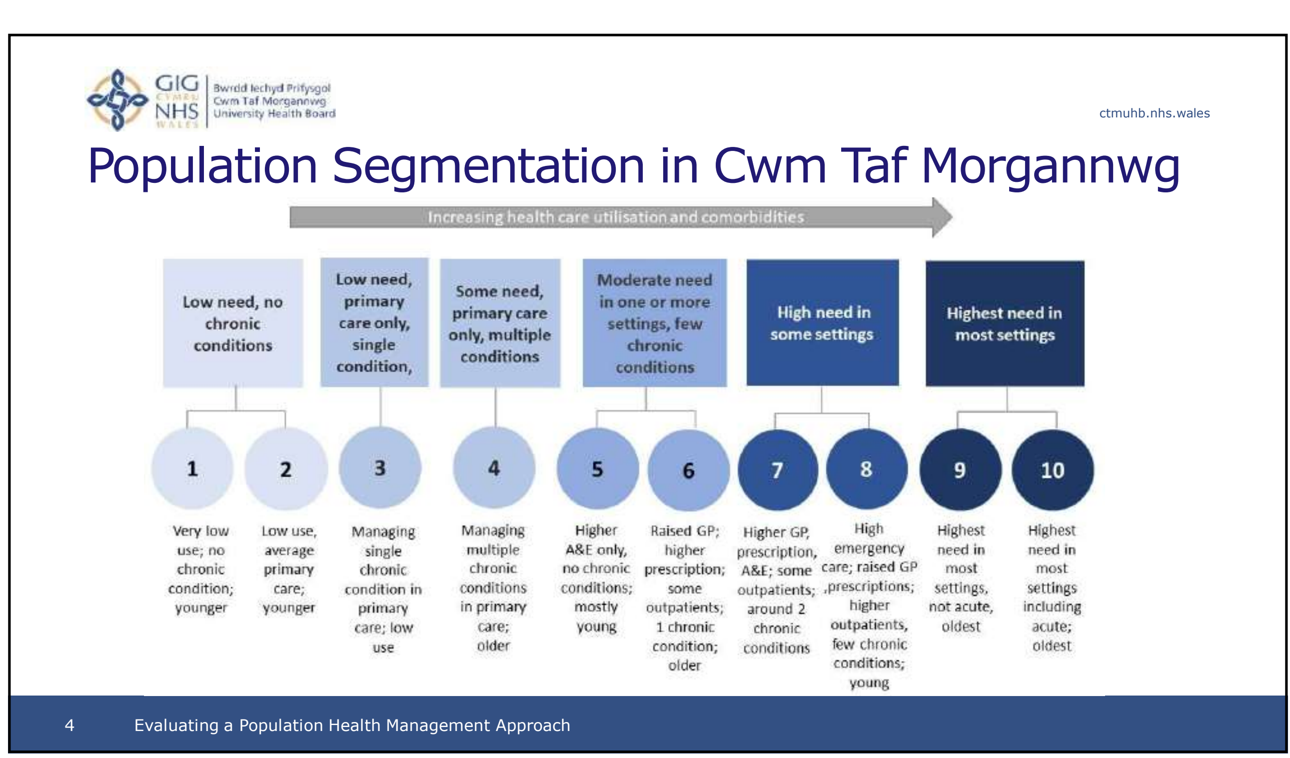
Population Segmentation in Cwm Taf Morgannwg



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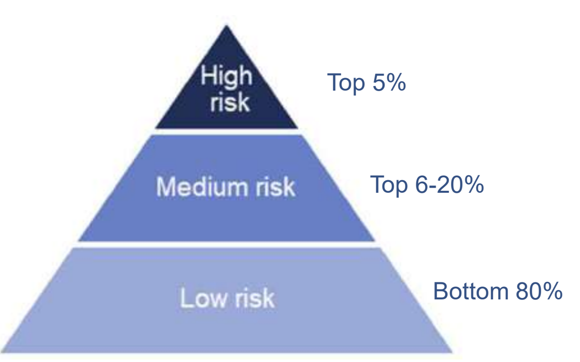
Risk of Emergency Admission

Risk Stratification looks at who is most at risk of having an emergency hospital admission in the next 12 months.

All patients are ranked based on the probability of an emergency hospital admission in the next 12 months with the top 5% being high risk, top 6-20% medium risk and the bottom 80% low risk



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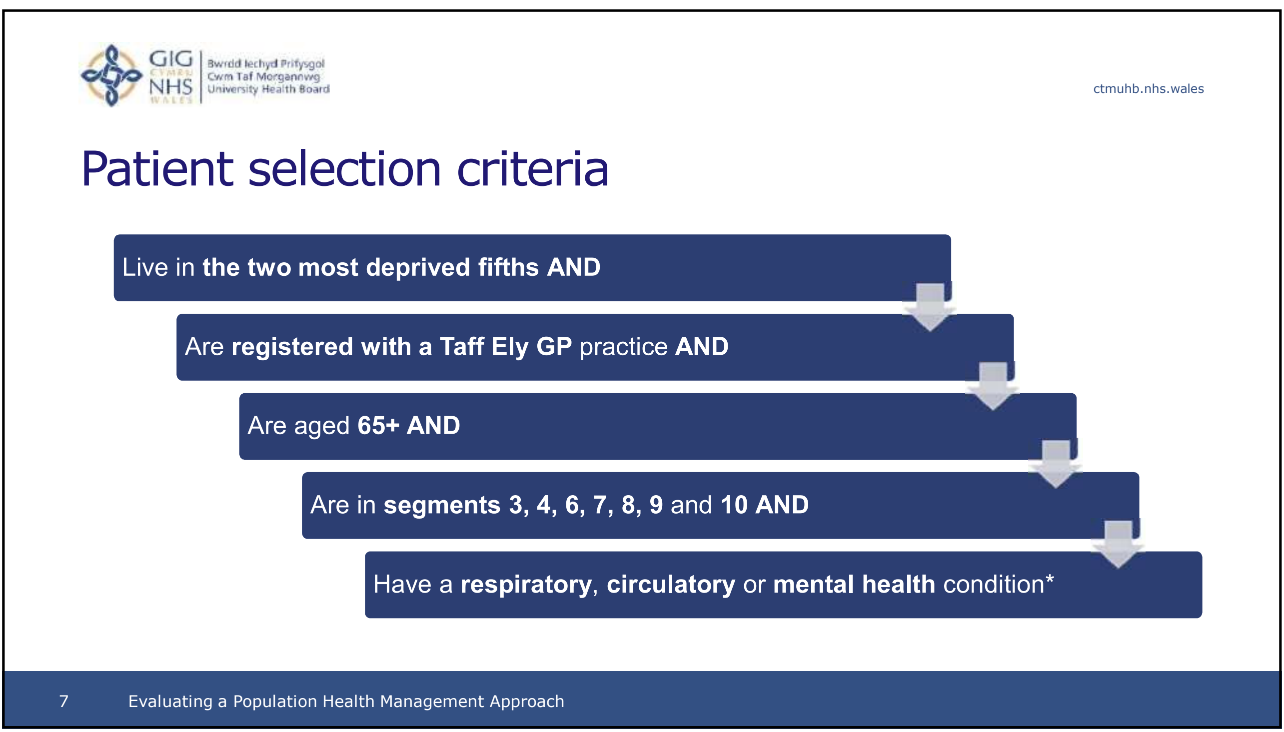
Project aims

- **Lessen burden of fuel poverty** by **improving opportunities for preventative care** closer to home
- **Feasibility of using Population Segmentation and Risk Stratification data**
- **Reduce winter pressures** in Primary Care
- Assess whether some **emergency admissions** and **A&E attendances** could be avoided



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Implementation and Intervention

- **The Frailty Service contacted patients** between December 2022 and March 2023, conducting **'What Matters' based conversations** to determine patient need and the support.
- Where appropriate, patients were referred directly to one or more services/interventions by linking with social prescribing services, third-sector organisations, allied health professionals, rehabilitation services and social services.

8 Evaluating a Population Health Management Approach

Results

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3,235 patients identified

625 patients contacted

196 patients referred
- **-117 to frailty**
- **-26 to RCT together**
- **-43 to NEST**
- **-25 to other services**

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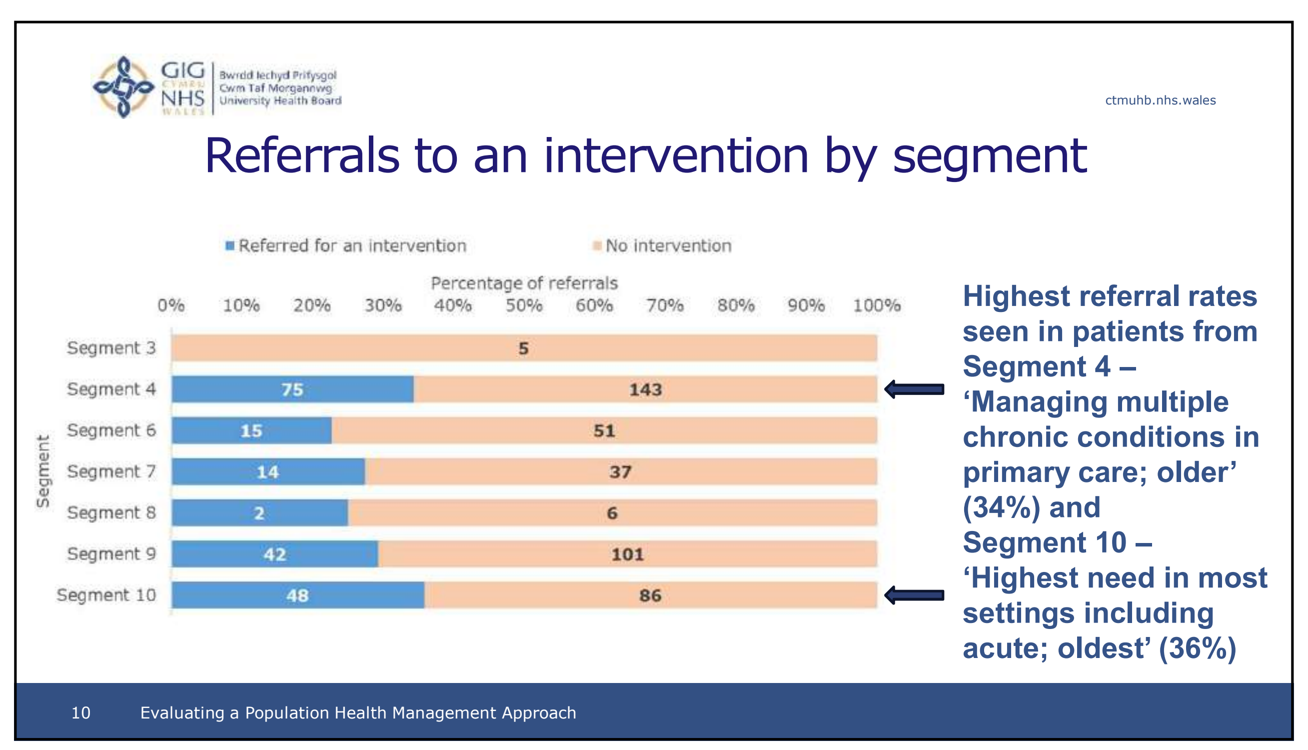
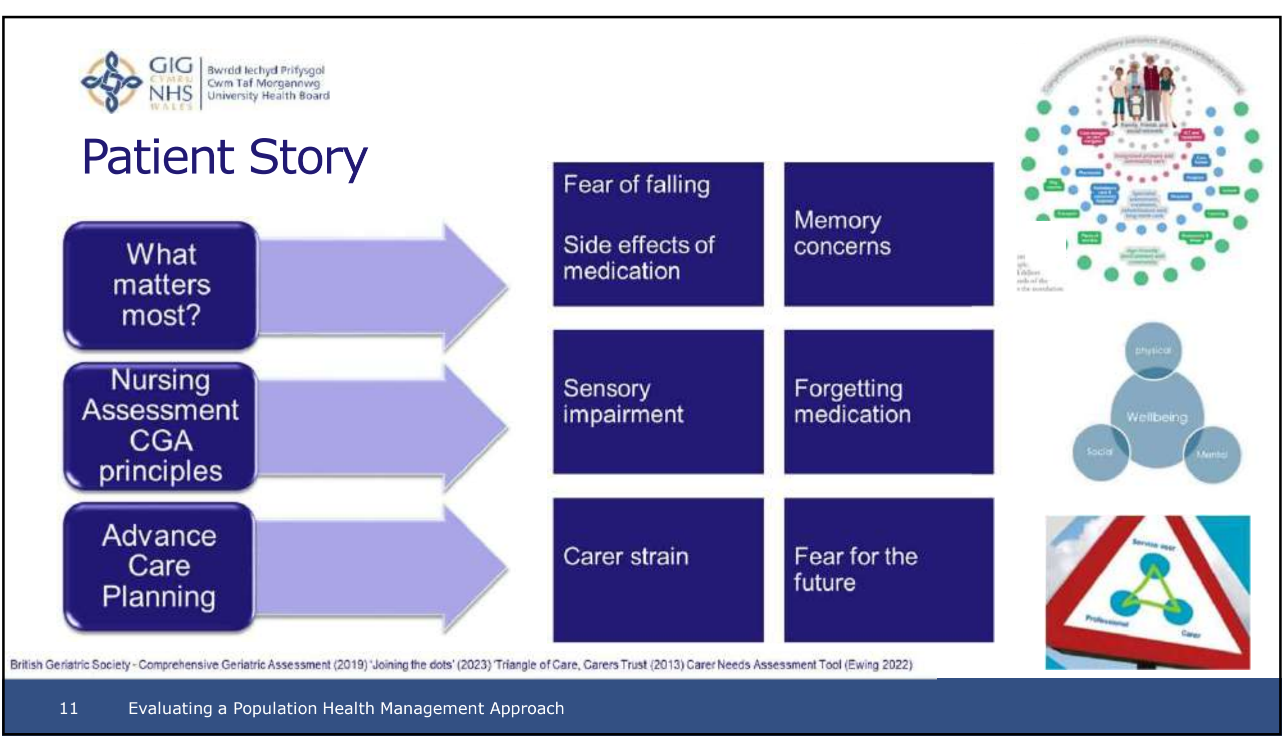
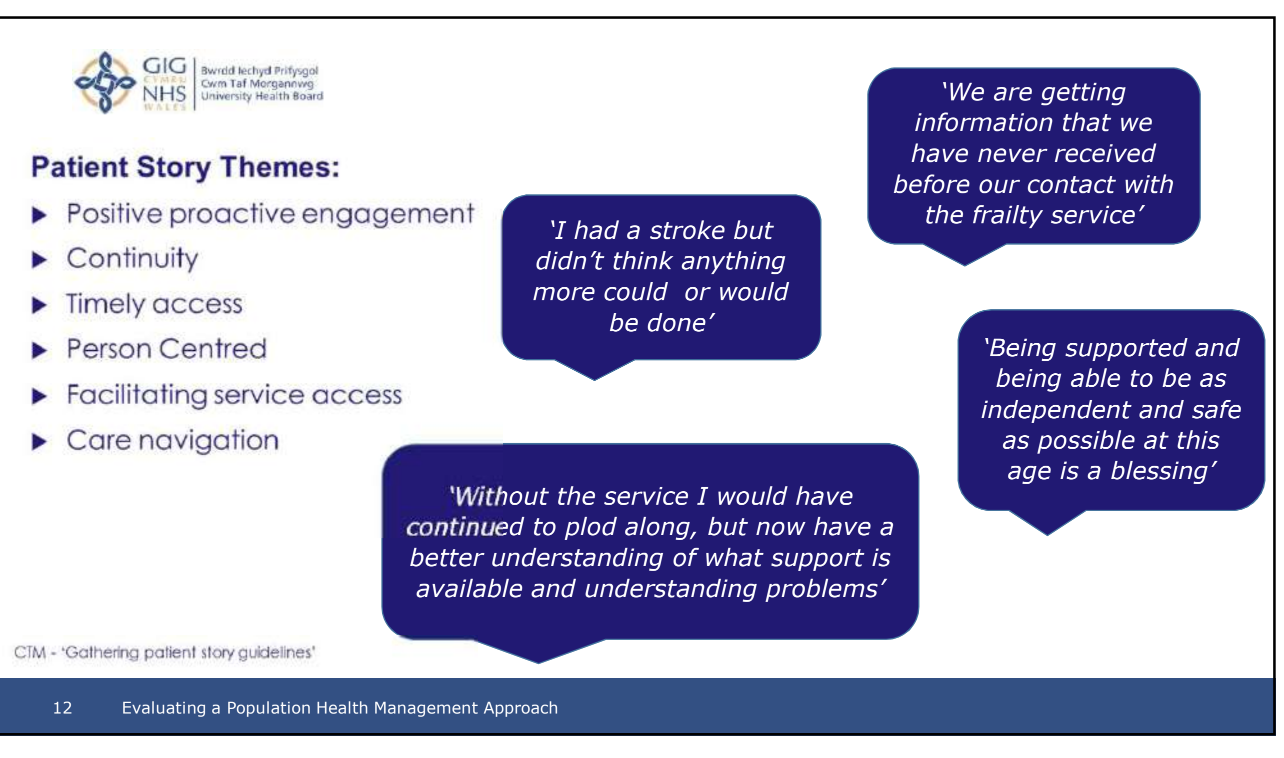
Referrals to an intervention by segment




GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board
Patient Story
What matters most?
Nursing Assessment CGA principles
Advance Care Planning
Fear of falling
Side effects of medication
Memory concerns
Sensory impairment
Forgetting medication
Carer strain
Fear for the future
Wellbeing
British Geriatric Society - Comprehensive Geriatric Assessment (2019) 'Joining the dots' (2023) Triangle of Care, Carers Trust (2013) Carer Needs Assessment Tool (Ewing 2022)
11 Evaluating a Population Health Management Approach


GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Cwm Taf Morgannwg University Health Board
Patient Story Themes:
Positive proactive engagement
Continuity
Timely access
Person Centred
Facilitating service access
Care navigation
'I had a stroke but didn't think anything more could or would be done'
'We are getting information that we have never received before our contact with the frailty service'
'Being supported and being able to be as independent and safe as possible at this age is a blessing'
'Without the service I would have continued to plod along, but now have a better understanding of what support is available and understanding problems'
CTM - 'Gathering patient story guidelines'
12 Evaluating a Population Health Management Approach

Where Next?

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- First application of Population Health Management in Wales
- Explore wider PHM approaches in CTM
  - further application into Frailty Service delivery
  - implementation and evaluation in primary and secondary care settings using community based approaches
- Review current value, impact and utility of Population Segmentation and Risk Stratification data in CTM
  - develop evidence base for PHM in Wales
- Influence national PHM agenda

13 Presentation title - edit in Header and Footer

Contact us

ctmuhb.nhs.wales

For more information, please visit the PHM Unit webpage

Population Health and Population Health Management - Cwm Taf Morgannwg University Health Board (nhs.wales)

Get in touch

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Taff Ely Frailty Service - CTMUHB.TaffElyFrailtyNurses@wales.nhs.uk

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@cwmtafmorgannwg
Find us on

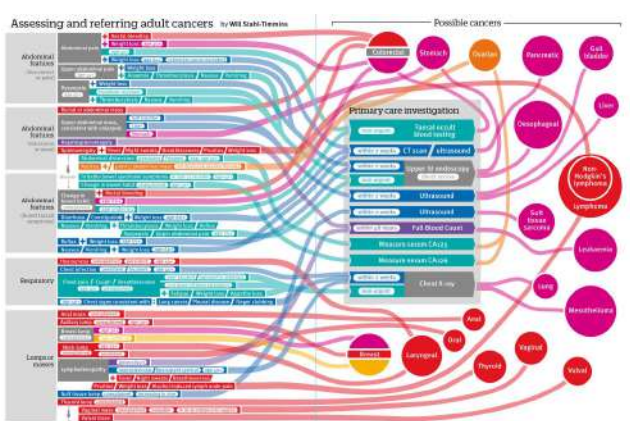
A novel blood based triage test for colorectal cancer in primary care: a pilot study

Professor Dean Harris

Swansea Bay University Health Board

Colorectal Cancer detection

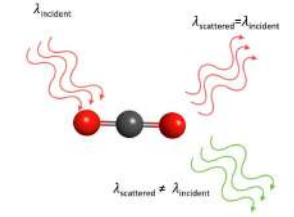
- Symptoms have poor sensitivity/specificity
- 10-20% of GP consultations are for bowel complaints
- High number of referrals to 'rule out' bowel cancer (increase of 50% in four years)
- Only 1:10 urgent suspected cancer (USC) referrals have cancer: high patient anxiety



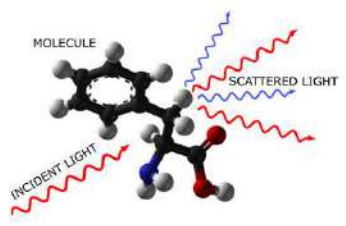
A ‘new’ and alternative approach for liquid biopsy

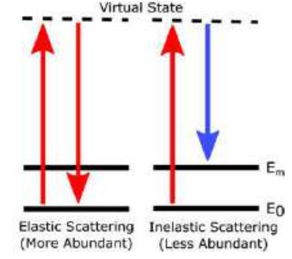
Raman Effect

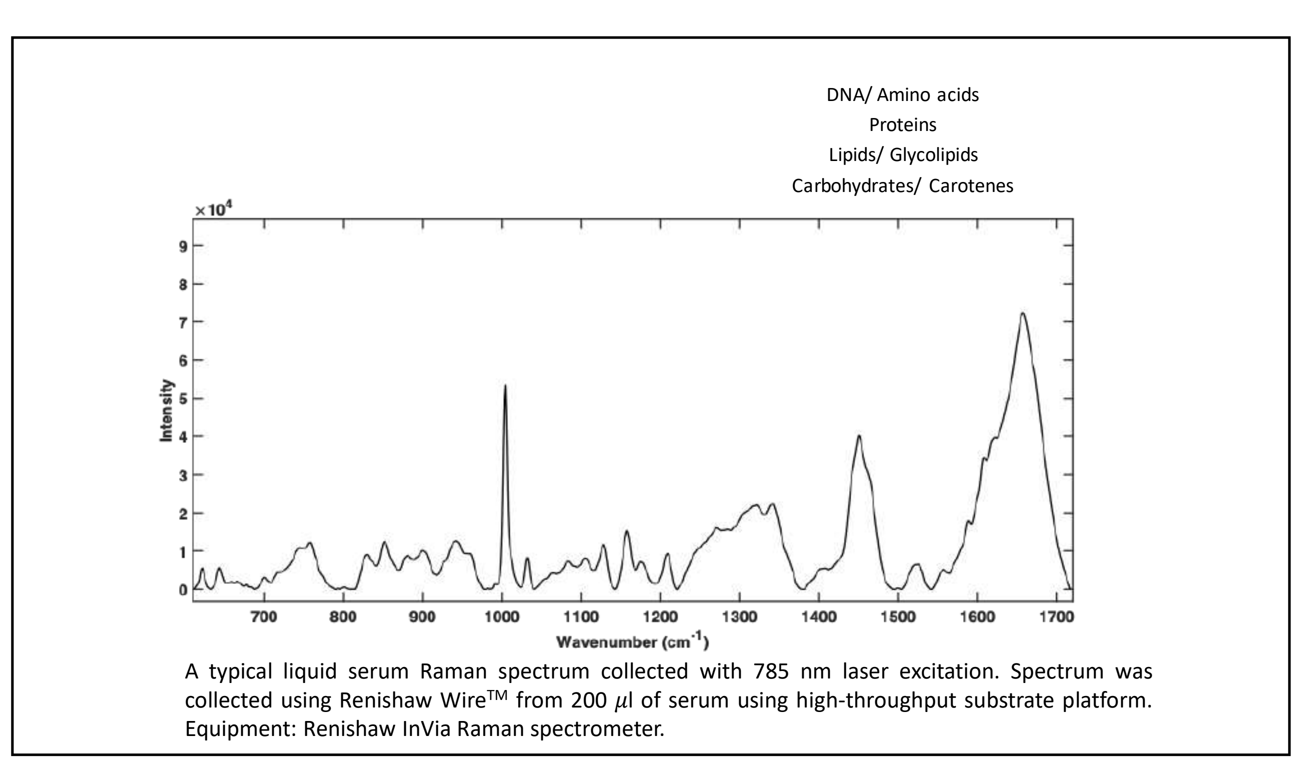
- Reagent-free approach
- Costs kept low
- Vibrational spectroscopy approach using liquid state matrix (serum)
- Creates a ‘barcode’ for the hallmarks of cancer
- Measures downstream metabolites
- Akin to metabolomics techniques



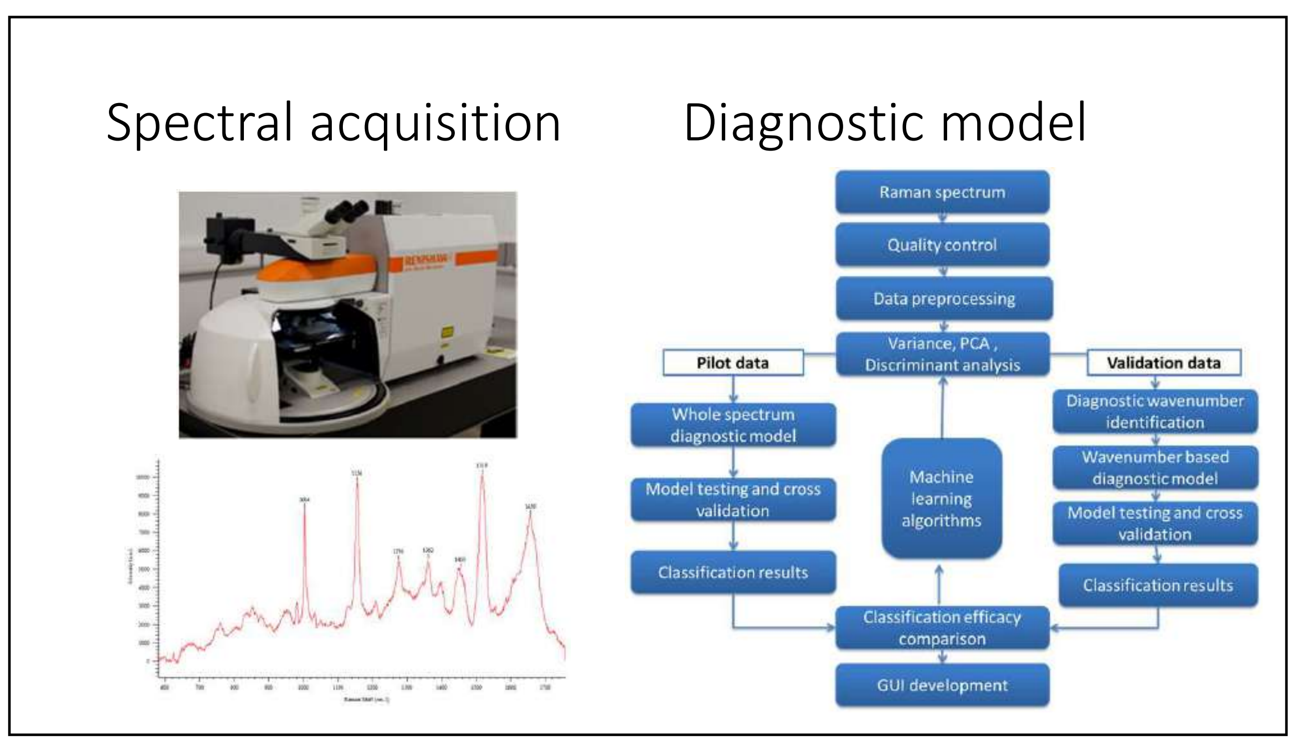
Sir CV Raman Explaining Raman Effect

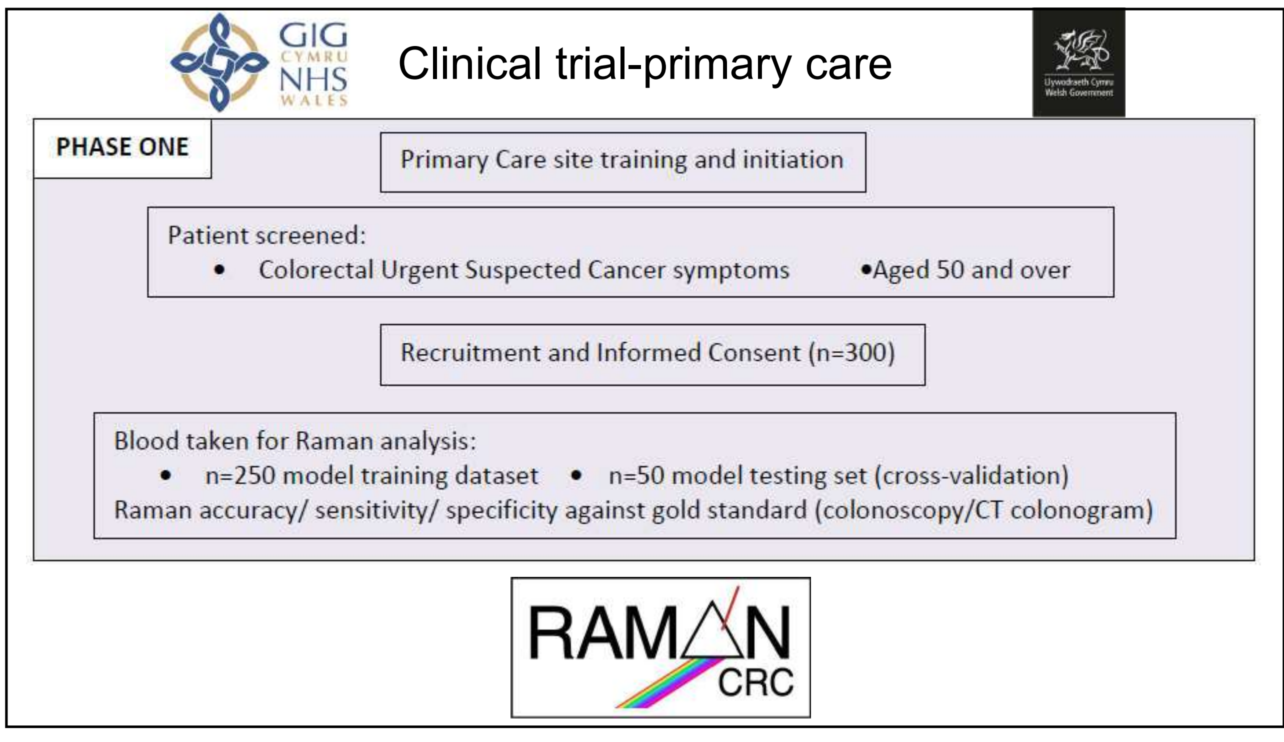


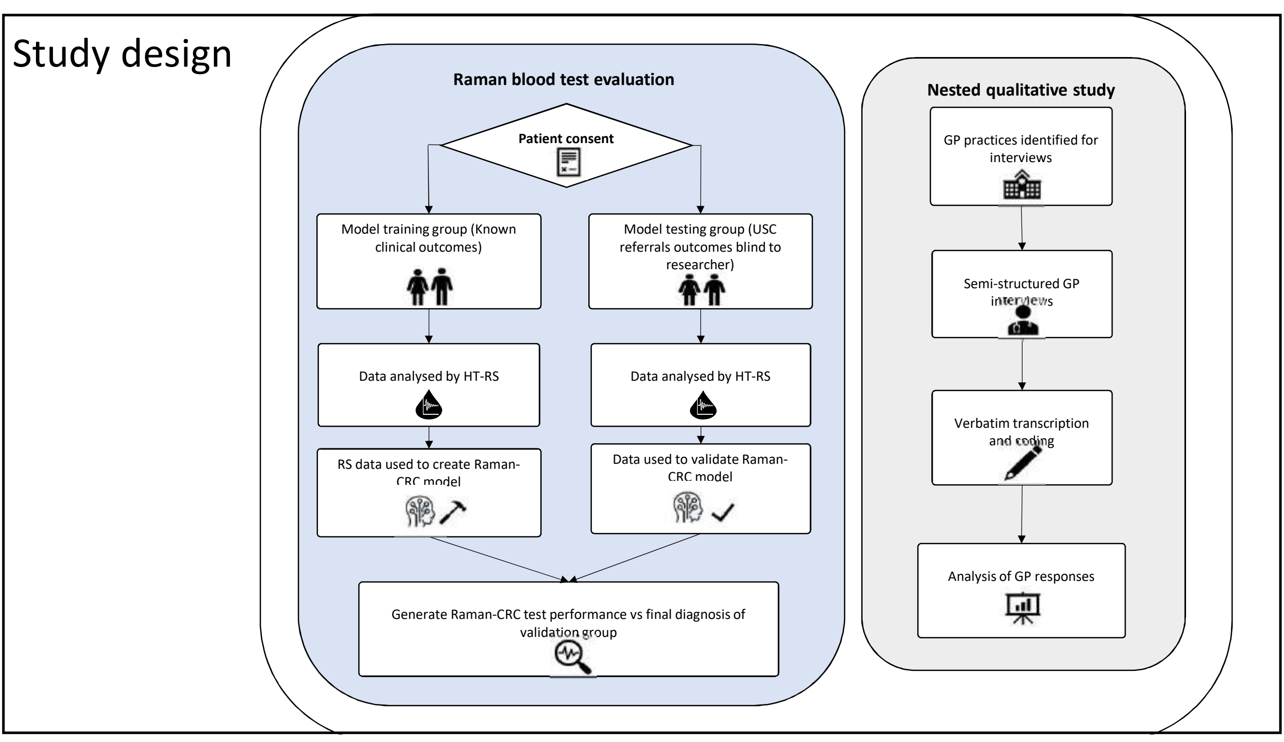


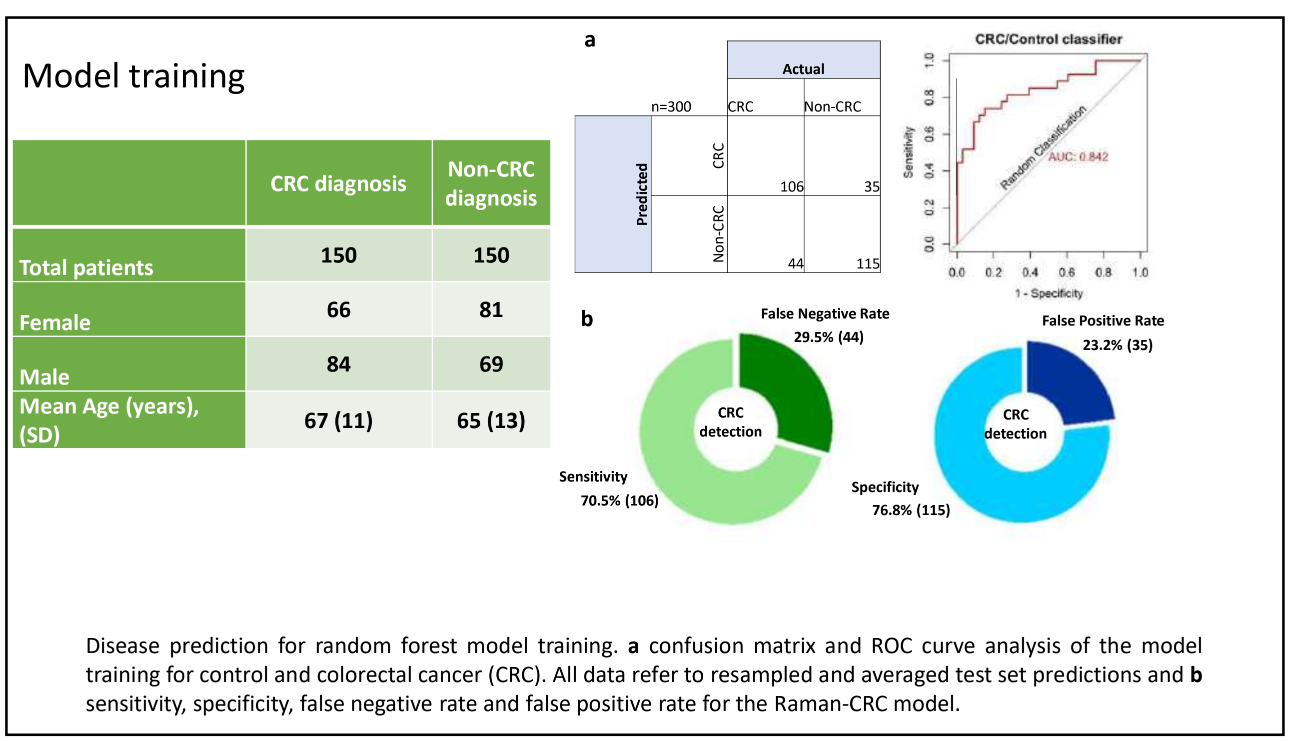


A typical liquid serum Raman spectrum collected with 785 nm laser excitation. Spectrum was collected using Renishaw Wire^{TM} from 200 μl of serum using high-throughput substrate platform. Equipment: Renishaw InVia Raman spectrometer.


Spectral acquisition
Diagnostic model
Raman spectrum
Quality control
Data preprocessing
Variance, PCA, Discriminant analysis
Pilot data
Validation data
Whole spectrum diagnostic model
Model testing and cross validation
Classification results
Machine learning algorithms
Diagnostic wavenumber identification
Wavenumber based diagnostic model
Model testing and cross validation
Classification results
Classification efficacy comparison
GUI development


GIG CYMRU NHS WALES
Clinical trial-primary care
Llywodraeth Cymru Welsh Government
PHASE ONE
Primary Care site training and initiation
Patient screened:
• Colorectal Urgent Suspected Cancer symptoms •Aged 50 and over
Recruitment and Informed Consent (n=300)
Blood taken for Raman analysis:
• n=250 model training dataset • n=50 model testing set (cross-validation)
Raman accuracy/ sensitivity/ specificity against gold standard (colonoscopy/CT colonogram)
RAMAN CRC





Model training

	CRC diagnosis	Non-CRC diagnosis
Total patients	150	150
Female	66	81
Male	84	69
Mean Age (years), (SD)	67 (11)	65 (13)

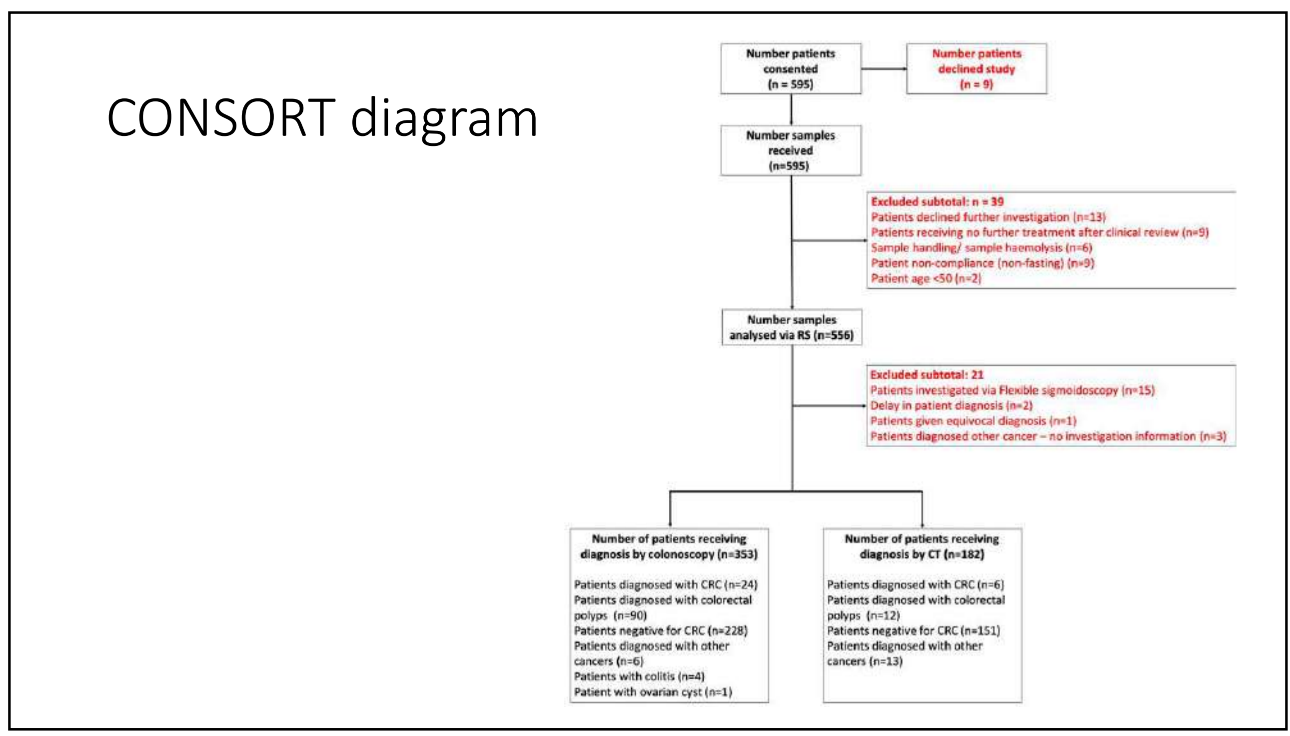
Disease prediction for random forest model training. **a** confusion matrix and ROC curve analysis of the model training for control and colorectal cancer (CRC). All data refer to resampled and averaged test set predictions and **b** sensitivity, specificity, false negative rate and false positive rate for the Raman-CRC model.

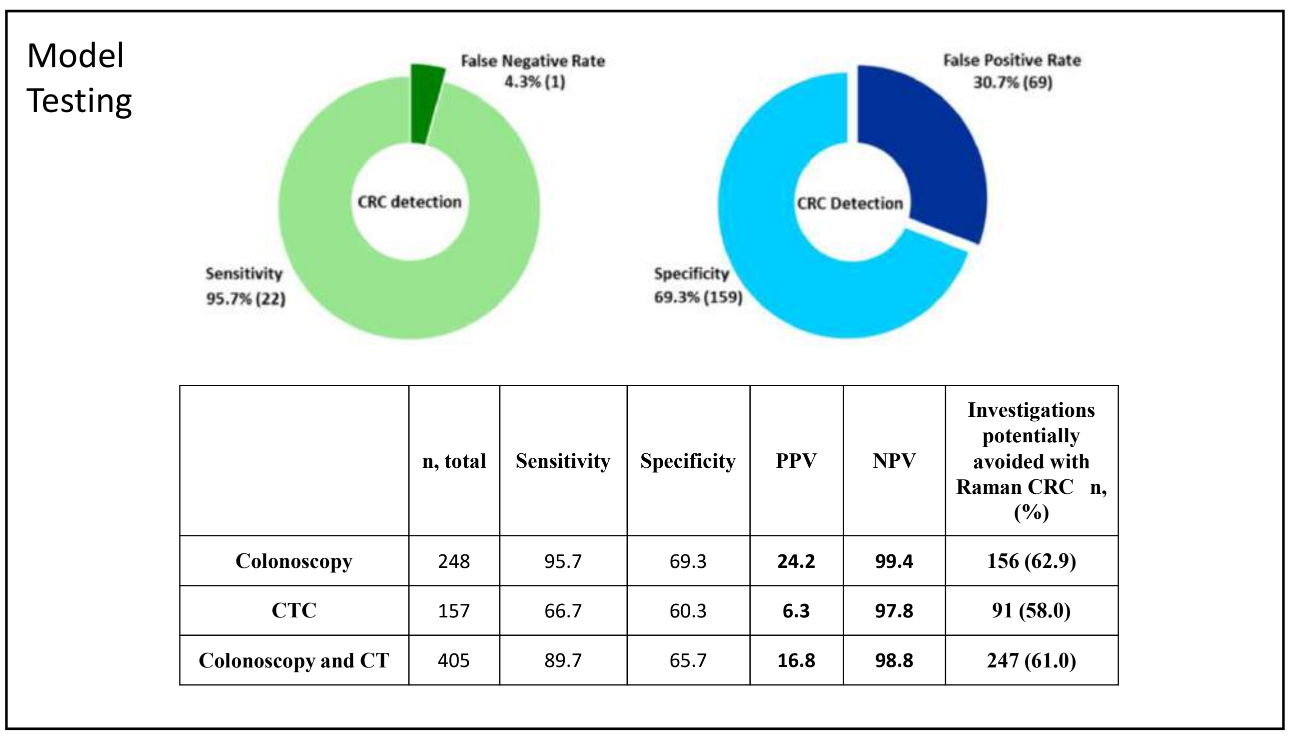
Symptom details

		CRC diagnosis	Non-CRC diagnosis
	Participants, n	29	506
Sex	Male	23	241
	Female	6	265
	Median age (range)	71 (51-87)	70 (50-92)
Presenting symptom:			
	rectal bleeding	15 (52)	163 (32)
	change in bowel habit	19 (66)	414 (82)
	loose stool	11 (36)	282 (56)
	increased frequency	13 (45)	217 (43)
	urgency	4 (13)	82 (16)
	incomplete emptying	4 (14)	84 (17)
	constipation	6 (20)	162 (32)
	abdominal pain	9 (30)	195 (39)
	anal pain	2 (7)	23 (5)
	abdominal mass	1 (3)	21 (4)
	rectal mass	3 (10)	16 (3)
	anal mass	1 (3)	12 (2)
	loss of appetite	3 (10)	59 (12)
	weight loss	10 (33)	152 (30)
	Haemoglobin (median;range)	125(71-161)	133 (63-207)
	Ferritin (median;range)	30 (6-617)	75 (4-2427)
	CEA (median;range)	6 (1-2385)	2 (1-1149)

Final diagnosis breakdown

	Tumour location	Initial diagnostic test		Total
		Colonoscopy	CT colonogram	
Colorectal Tumours				
	Right side	6	2	8
	Left side	7	1	8
	Rectal	10	3	13
Other tumours				
	Pancreatic	1	3	4
	Prostate	2	1	3
	Lung	1	2	3
	Bladder	1	1	2
	Renal	0	1	1
	Peritoneal/ovarian	0	1	1
	Breast	1	1	2
	Hepatocellular cancer	0	1	1
	NET	0	1	1
	Anal SCC	1	1	2
Non-malignant disease				
	Colorectal polyps	90	12	102
	Colitis	4	0	4
	Ovarian Cyst	1	0	1
Control		228	151	379





	n, total	Sensitivity	Specificity	PPV	NPV	Investigations potentially avoided with Raman CRC n, (%)
Colonoscopy	248	95.7	69.3	**24.2**	**99.4**	**156 (62.9)**
CTC	157	66.7	60.3	**6.3**	**97.8**	**91 (58.0)**
Colonoscopy and CT	405	89.7	65.7	**16.8**	**98.8**	**247 (61.0)**

Clinical Proof of Concept

Table 2 Raman-CRC model performance for different cancer stages versus FIT

	Sensitivity for UICC guidance stages			
Stage	**I**	**II**	**III**	**IV**
Raman-CRC	50% (*n* = 4)	90% (*n* = 10)	100% (*n* = 12)	100% (*n* = 3)
FIT[27]	73% (65%–79%)	80% (74%–84%)	82% (77%–87%)	79% (70%–86%)

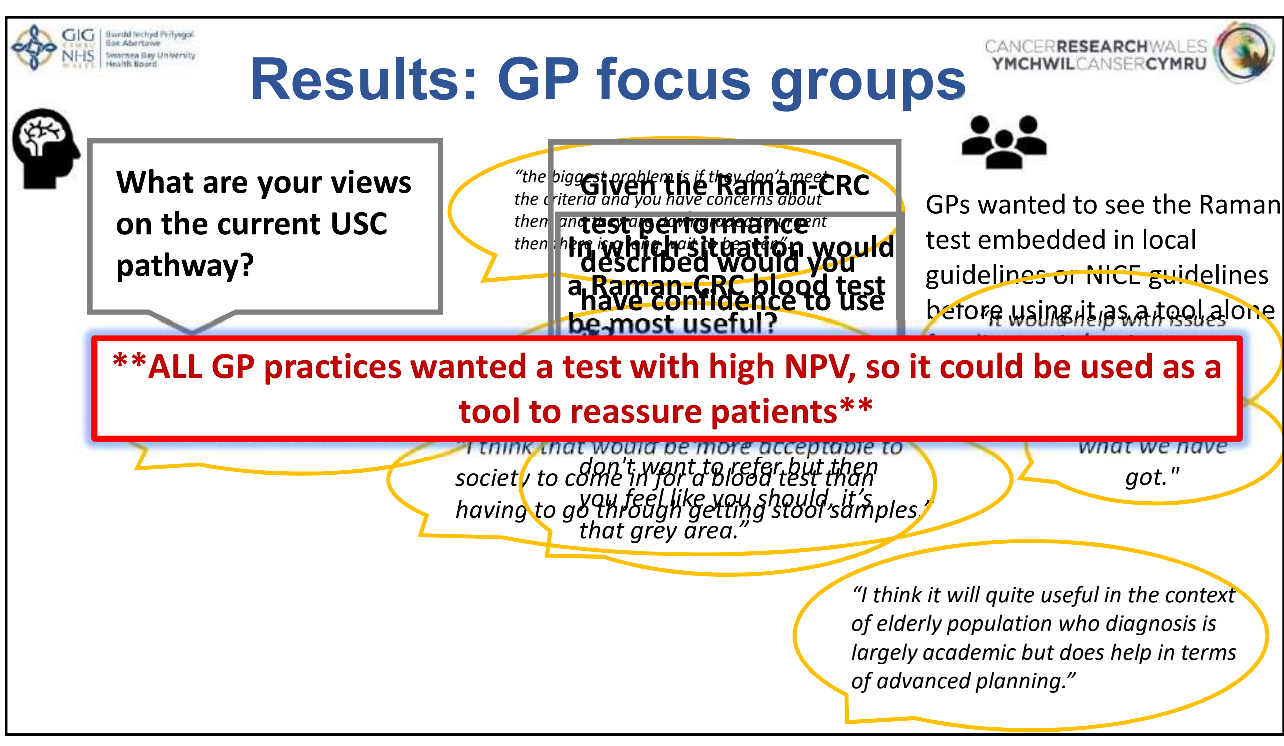
CRC = colorectal cancer. FIT = faecal immunochemical test.

Jenkins, Cerys, et al. "A novel blood based triage test for colorectal cancer in primary care." *BJGP open* (2022).

Comparison of Raman-CRC test performance with NG12 pathway and FIT

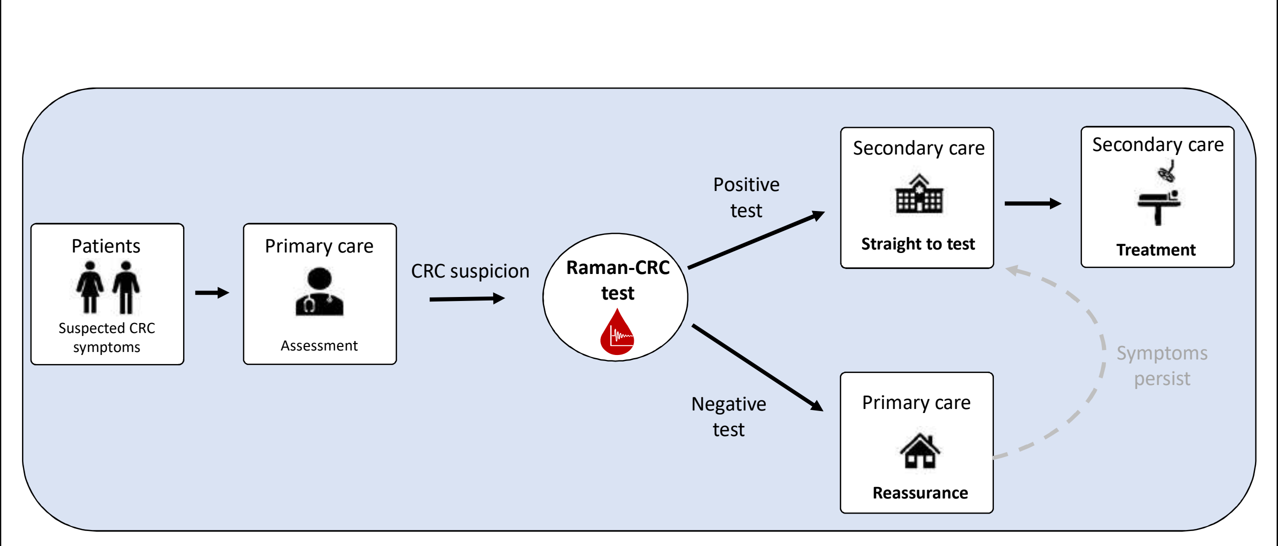
	NICE NG12 pathway [a,b]	**FIT [b] (threshold 10ug/g)**	**Raman-CRC**
Sensitivity	93	90.9	95.7
Specificity	35	83.5	69.3
PPV	9	16.1	24.2
NPV	98	99.6	99.4
Number needed to scope[c]	29.9[b]	6.2	4.1

[a] From Turvill (https://bjgp.org/content/66/648/e499 , https://doi.org/10.3399/bjgp16X685645)
[b] NICE-FIT study (doi.org/10.1111/codi.15593)
[c] Number needed to scope (NNS) to detect one cancer=number of positive tests/number of cancers detected



Theme	Focus Group Response	Subtheme	Evidence
Perceptions of current USC pathway		Care taken to use pathways appropriately Difficulty in referring patients who do not fit criteria. System pressure for early diagnosis	"The biggest problem [with current referral process] is if they don't meet the criteria and you have some concerns about them/…/then there is a long wait there to be seen." (GP 4, practice 2) "I've had a couple of cases where you try and communicate that clinical concern, that gut instinct/./And you will get criteria-based rejection." (GP 2, practice 5) "It doesn't allow for atypical presentations does it? Sometimes you do just have that gut feeling when you see someone and there is no leeway to get that through." (GP 1 & 2, practice 4) "I think we GPs are frightened/criticized for referring as USC not urgent, but the waiting time for urgent, that's the one that we are concerned about" (GP 1, practice 3)
Utility of Raman-CRC as a triage tool		Managing the 'grey' areas. Provides reassurance to patient and GP Help to meet early diagnosis targets	"It's another tool in your box. If you think its barn door then it doesn't matter what a blood test shows does it, but for those nebulous areas [it's useful]." (GP 1, practice 2) "It's very good at saying you haven't got cancer so you can be reassured." (GP 2, practice 1) "Sometimes it's difficult to reassure people because they are worried about it; without any further tests being done. So if there was a test like the Raman test and they are available it would add that reassurance. Not only to the public but also to us as well." (GP 2, practice 2)

Theme	Focus Group Response	Subtheme	Evidence
Utility of Raman-CRC as a diagnostic tool		Specificity of the test Potential as a non-invasive diagnostic tool.	"Its [specificity] could do with being a bit better… Its fine, but any improvement would be a bonus… It's better than what we have got." (GP 1, practice 4) "I think it will quite useful in the context of elderly population who diagnosis is largely academic, but does help in terms of advanced planning." (GP1, practice 5) "It is less invasive where people lack capacity, i.e. people in care homes with significant mental illness, it would be a good test." (GP 2, practice 5)
Acceptability of Raman-CRC test in practice		Reducing patient anxiety Convenient for patient More evidence needed	If there was a test like the Raman test and they are available it would add that reassurance. Not only to the public but also to us as well… You may not need to do any further investigations." (GP 2, practice 2) "If you've got a negative [Raman] test result whilst awaiting the colonoscopy, you can say 'look there's a 98% chance it's not going to be cancer'. How relieving it that whilst waiting for it…..it would be a huge weight off his mind and reduce a lot of patient anxiety." (GP 3, practice 5)



Proposed new clinical pathway incorporating Raman-CRC testing as a triage tool in primary care. Symptomatic patients with a negative Raman-CRC test are reassured in primary care, relieving pressure on secondary care diagnostic services. The pathway could lead to earlier diagnosis and a reduction in time to treatment when a positive test is combined with a straight to test pathway.

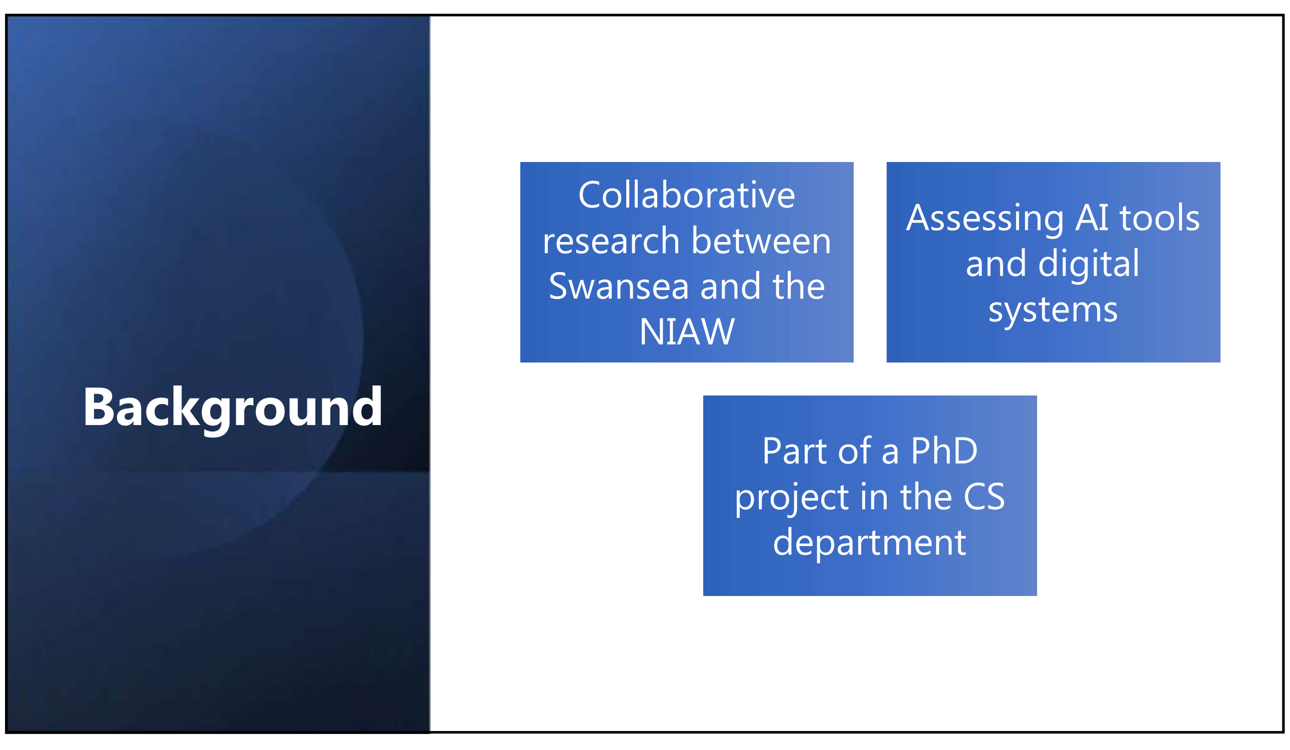
Conclusion

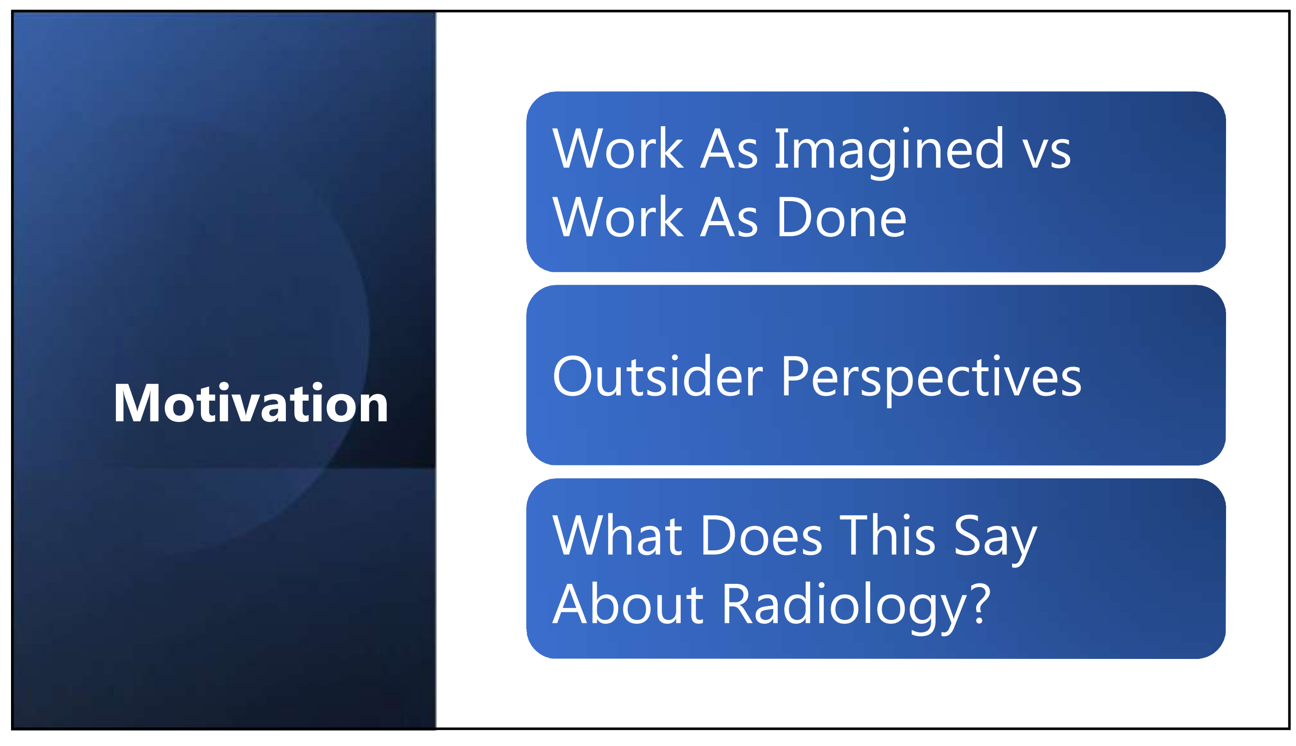
- Raman-CRC had a sensitivity of 95.7% and an NPV of 99.4%.
- Potential to reduce demand for colonoscopy by 62%
- GPs were positive about the idea of a blood test to triage referrals, would be comfortable to report results back to patients from this type of test and felt it would be an acceptable test for patients.
- GP interviews confirmed that NPV was most important metric for the test performance as a triage tool.
- Results used to develop combined Raman and FIT study (CRaFT)

It Works Better When I Do That: Interaction and Communication In Radiology Departments

Rory Clark, Phillip Wardle, Tom Owen, Matt Jones, Martin Porcheron

@RoryDoesHCI
r.s.clark@swansea.ac.uk


Background
Collaborative research between Swansea and the NIAW
Assessing AI tools and digital systems
Part of a PhD project in the CS department


Motivation
Work As Imagined vs Work As Done
Outsider Perspectives
What Does This Say About Radiology?

Research Questions

How do radiologists author reports?

Are tools fit for purpose?

How do radiologists utilise technology when communicating results?

Methods

Structured Interviews

Observations

Interviews

Structured Interviews

5 Questions to assess demographic information

2 Questions to investigate perspectives

Methods

Observations

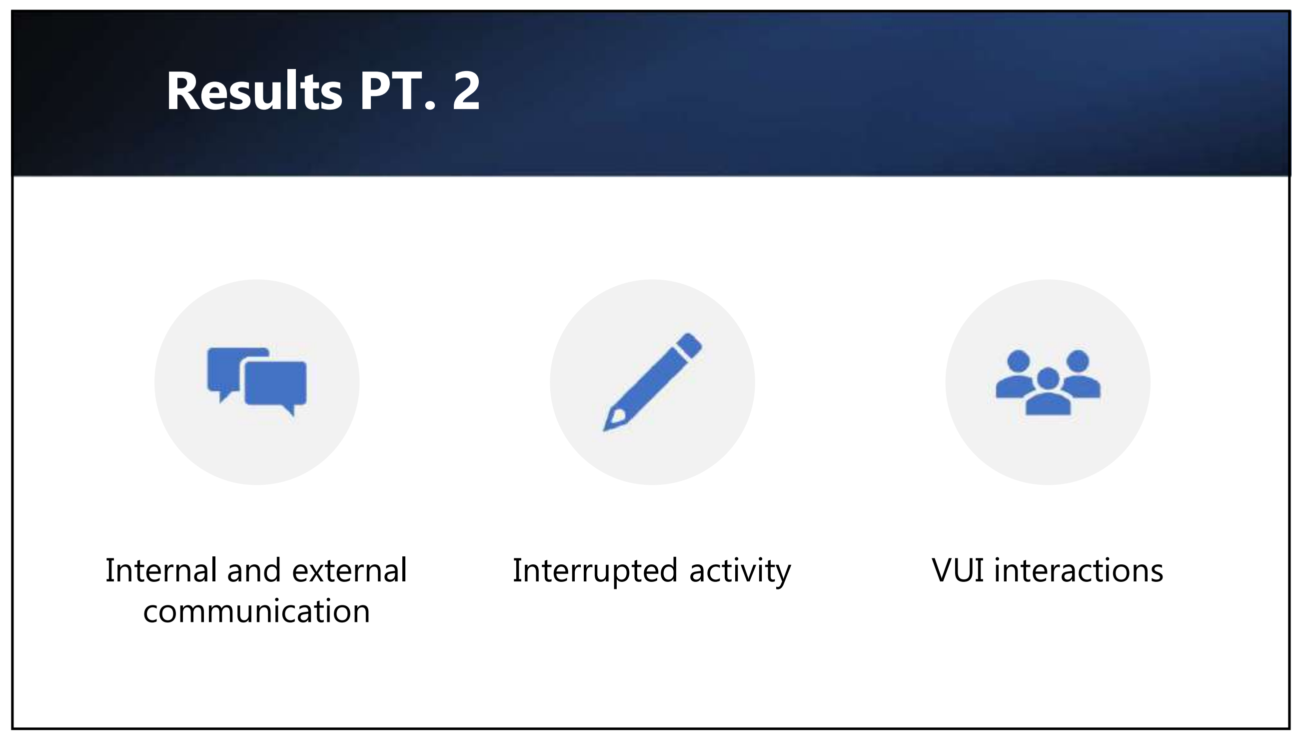
Over-The-Shoulder

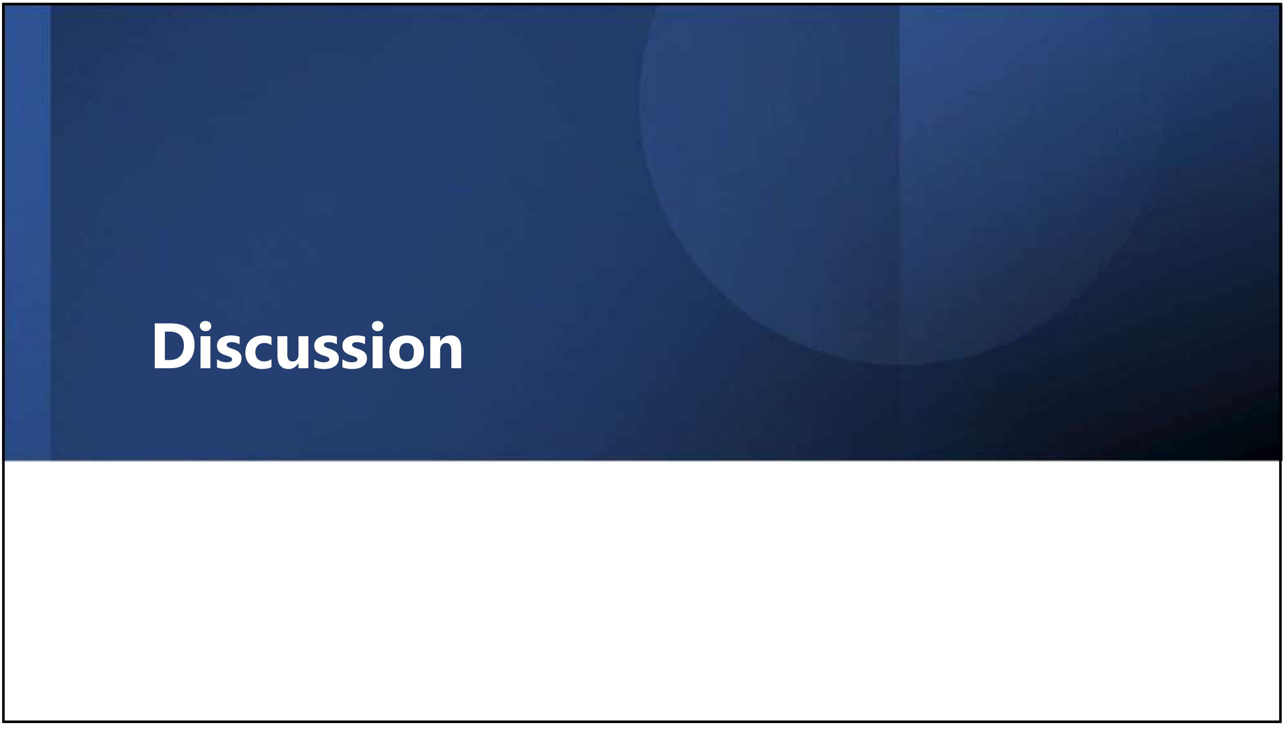
Non-Interventional

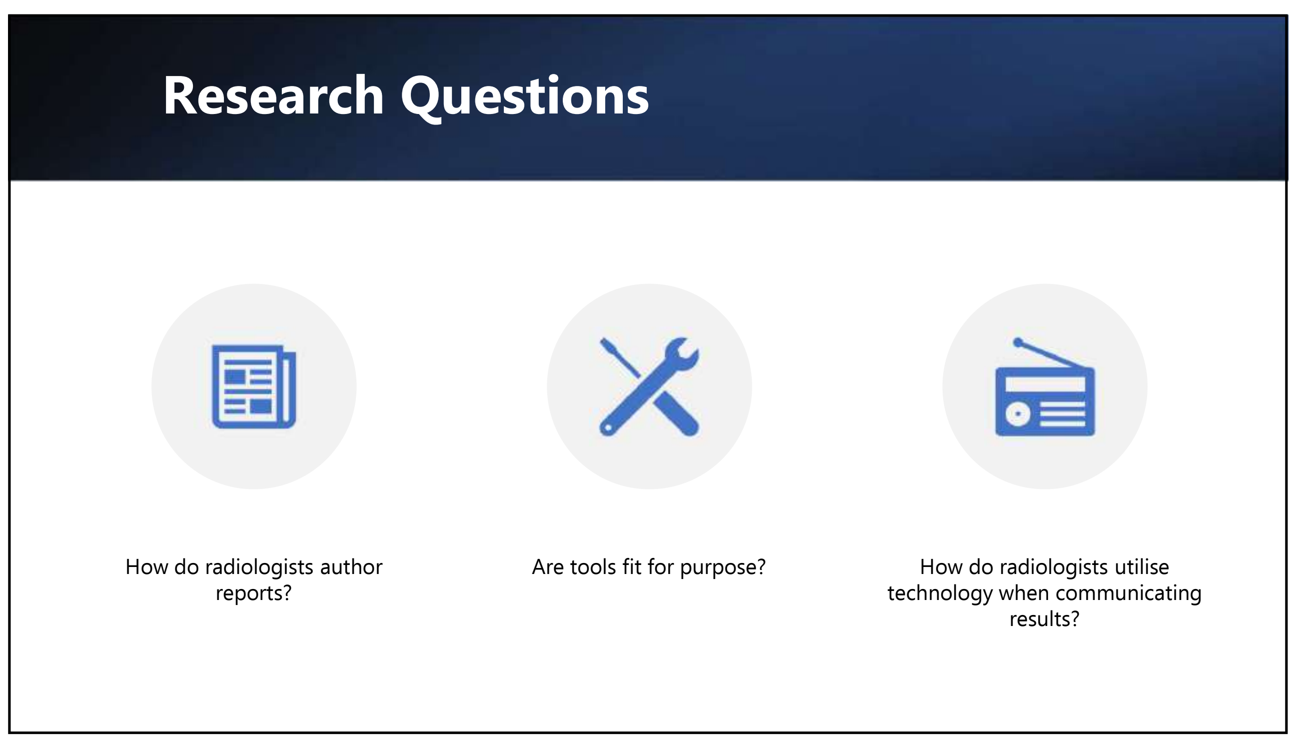
Results PT. 1

Lack of standardization

Gatekeepers




Discussion


Research Questions
How do radiologists author reports?
Are tools fit for purpose?
How do radiologists utilise technology when communicating results?

Conclusions

WHY DID I DO THIS?

- Importance of Outsider Perspectives
- Including Academia Is Important
- Highlight the role of users