NHS HIGHLAND
Research, Development and Innovation
12th June 2025

DELEGATE PACK

How will NHS organisations meet the set targets?

What are the barriers to improving productivity?

Why is drugs and alcohol misuse a problem in Scotland?

What are the biggest drivers of poor mental health?

Why are hospital bed numbers falling?

Should a drug or alcohol problem be treated as a health condition?

Can NHS achieve significant efficiency savings?

Why is obesity a problem in the UK?

What are plans for mental health improvements?

Has Covid-19 care become more common?

Does NHS offer poor value for money?

How can GPs help patients living with obesity?

RD&I 2025 CONFERENCE

What do NHS leaders need?

Can mental health problems be prevented?

What measures are taken to manage the situation?

ADDRESSING NHS CHALLENGES: CAN WE ANSWER DIFFICULT QUESTIONS?

What actions

What actions are

Are there opportunities

What is the

Contents

1. Welcome to the NHS Highland Research Development & Innovation Conference

The NHS faces a wide range of large-scale problems. Pretty much everyone knows this, but finding solutions is difficult and the challenges are complex. In our RDI Conference this year, we aim to identify some of the biggest issues facing us – obesity, finance, drugs and alcohol, mental health and delayed discharge. Sometimes these together can create the perfect storm, and we need to think of robust system-based solutions to address them. Our keynote Speakers will aim to give their thoughts into solving these 5 difficult questions.

So, I would like to welcome you to the 2025 NHS Highland Research, Development and Innovation Annual Conference, which is about asking these difficult questions as well as finding some possible solutions.

We hope you enjoy their insights and engage in the Panel DEBATE to discuss these difficult questions.

Just before lunch is our poster session on the Mezzanine Area on the first floor, where there will be around 30 stimulating posters on display. Some of the poster authors will be present at this time, giving you the opportunity to discuss their work.

Following on from the morning session is our usual delicious lunch in the Street area (catered by Hampers & Champers Inverness).

We would encourage you to visit the exhibition stands (in the Street and Mezzanine area) which will showcase ideas and innovations. Businesses and exhibitors are always keen to look for collaborations and activities with other organisations and with individuals with bright ideas.

In the afternoon we have a very busy programme with presentations in each breakout session.

At the end of the day we will have our plenary session as usual in the 'Street', and will be giving out prizes for best poster and best breakout presentation in each group.

I hope you have a really wonderful day, meet and network, and get involved in everything. As always let us know during or after the day if we can help you in any way. That's what we're here for!!

If you get lost or have a burning question, just ask one of our conference staff.

Best Regards

Frances Hines

RD&I Manager

2. Getting here

RD&I Conference 2025 will be held at the UHI House (formerly Centre for Health Science), Inverness.

Address: Old Perth Road, Inverness, IV2 3JH

Telephone: 01463 255000

Website: https://www.uhi.ac.uk/en/campuses/uhi-house/

Travelling by public transport:

The centre sits within the Raigmore Hospital estate and is served with a regular bus service provided by Stagecoach https://www.stagecoachbus.com/promos-and-offers/north-scotland/inverness-city-network

Travelling by car:

The Centre for Health Science is situated just off the A9 on Old Perth Road, within the grounds of Raigmore Hospital. Please follow signage for Raigmore Hospital from both North and South bound carriage ways.

Parking is available at UHI House - entry through the barrier.

Please note there is charge for parking at the Centre:

Up to 30 minutes	*Free*
Up to 2 hours	*£2.00*
Up to 4hours	*£3.00*
Up to 6 hours	*£3.50*
Up to 10 hours	*£5.00*
Up to 12 hours	*£5.50*
Up to 18 hours	*£8.00*
Up to 24 hours and each 24-hours period or part there of thereafter	*£9.00*

Travelling to Inverness by Train:

The nearest train station is Inverness. Taxis are normally available at the front of the station building.

List of Taxi Companies:

Capital Taxis - 01463 80 80 80
Inverness Taxis - 01463 22 22 22
A2B Taxis - 01463 80 70 60

Wi-Fi

The following Wi-Fi networks are available at the conference venue:

UHIvisitor – this will take you to a prompt to sign in

3. Programme

09.00 –09.30	**REGISTRATION AND COFFEE –** the Street area
09.30 – 12.30	**KEYNOTE SPEECHES AND DEBATES -** the Auditorium
09.30 – 09.35	***Welcome –*** Frances Hines, Research, Development and Innovation Manager NHS Highland
09.35 – 09.50	***Research, Development and Innovation in Highland -*** Dr. Beth Sage Research Development and Innovation Director and Consultant Respiratory Physician NHS Highland
09.50 – 10.10	***Delayed Discharge -*** Dr Gordon Marnoch, Researcher and Author
10.10 – 10.30	***Mental Health -*** Dr Neil McNamara, Clinical Director, Mental Health, Learning Disability & DARS, Consultant Psychiatrist (Rehabilitation), NHSH
10.30 – 10.50	**TEA/COFFEE BREAK – the Street area**
10.50 – 11.10	***Obesity -*** Dr Joanne Cecil, School of Medicine, Population and Behavioural Sciences, University of St Andrews
11.10 – 11.30	***Drugs & Alcohol -*** Frances Matthewson, Research and Intelligence Specialist, Public Health Team, NHSH & Bev Fraser, Strategic Lead, Substance Misuse Service, NHSH
11.30 – 11.50	***NHS and Financial Pressures -*** Carol Calder, Finance and Performance, Audit Director, Performance Audit and Best Value, Audit Scotland & Bernadette Milligan - Audit Manager, NHS overview reports, Audit Scotland
11.50 – 12.30	***Engaging debate between speakers where there are no easy answers to thought-provoking questions from the audience***
12.30 – 14.00	**POSTER SESSION –** the Mezzanine **EXHIBITION STANDS -** the Street area / the Mezzanine **LUNCH -** the Street area
14.00 – 16.00	**BREAKOUT SESSIONS**
	GROUP A **Chair: Charlotte Barr, Lead Research Nurse, RD&I** **Location: Classroom 2**
14.00 – 14.20	**Janet Adamson** - Buy Local, Save Money!
14.20 – 14.40	**Ross Wilson** - "I Didn't Realise How Many Opportunities There Were": Medical Students' Perceptions Following Teaching on Remote and Rural Healthcare in Scotland
14.40 – 15.00	**Connie MacKinnon** - Opportunities and limitations of using tumour specific variants in cell free DNA (cfDNA) isolated from pleural effusions to diagnose pleural mesothelioma
15.00 – 15.20	**Ahmed Hussein** - A digital solution for Tele-med CCU-ECG governance
15.20 – 15.40	**Antonia Pritchard** - MyMelanoma: Genetic Studies
15.40 – 16.00	**Colette Mustard** - Using tumour cell-free DNA in lung effusion to diagnose cancer
	GROUP B **Chair: Anna McIver, Governance Lead, RD&I** **Location: Classroom 3**
14.00 – 14.20	**Gordon Anderson** - Music: The Attention Shortcut
14.20 – 14.40	**Jane MacKinnon** - Visual pathology in children exposed to maternal opiates in NHS Highland

14.40 – 15.00	**Michelle Beattie** - How can we assertively outreach those most at risk of drug-related death within 48 hours of an A&E visit?
15.00 – 15.20	**Philomena Hallford** - The impact of genetic background on risk to developing schizophrenia.
15.20 – 15.40	**Marie Simpson** - A Holistic and Integrated Approach to Addressing Health and Care Challenges Through Digital Innovation
15.40 – 16.00	**Jay Evans -** "Last mile" maternal health in remote settings using smart SMS
GROUP C **Chair: Lee Heaney, Innovation Manager, RD&I** **Location: Classroom 4**	
14.00 – 14.20	**Owen McDonald** - Can we continue to weight for Wegovy
14.20 – 14.40	**Michael MacKenzie** - Universal Healthcare Challenges in Kenya and the NHS: Opportunities for bi-directional learning, Reverse Innovation and Shared Solutions
14.40 – 15.00	**Emma Coghill** - Targeted Nitric Oxide Delivery Using MOFs: A Multifunctional Approach to Combat Vascular Complications in Arterial and Venous Devices
15.00 – 15.20	**Jacob Roberts** - Medical nanotechnology - enhanced materials and photonics for healthcare settings
15.20 – 15.40	**Shannon Cowie** - A review of morbidity and mortality outcomes in a cohort of elderly patients referred by NHS Highland for Transcatheter Aortic Valve Implantation (TAVI)
15.40 – 15.55	**Duncan Peters** - From Bottles to Breakthrough: NHS-Safe, On-Demand Sterile Water with Zero Consumables
15.55 – 16.10	**Frances Hines** - Obesity - A new North of Scotland research and innovation project - for interest and comment

16.00 – 16.15	**COFFEE/PLENARY REMARKS/PRIZES FOR BEST POSTER & PRESENTATION IN EACH BREAKOUT SESSION -** The Street area

4. Keynote speakers

Beth Sage

Director of Research, Development and Innovation,
Consultant in Respiratory Medicine and Honorary Senior Lecturer University of Aberdeen

Beth has been Director of Research Development and Innovation at NHS Highlands since 2020. She sees the division as playing a vital role in transforming health outcomes for people throughout the Highlands and ensuring equality of access to clinical research and innovative healthcare solutions

Gordon Marnoch

Researcher and Author

Gordon Marnoch held academic positions at several universities, including the University of Aberdeen and Ulster University, until his retirement in 2022. In Northern Ireland, he served as Director of Postgraduate Research Studies at Ulster and collaborated with the Health and Social Care Leadership Centre to deliver a postgraduate management development program for clinicians and social workers.

During his tenure at Aberdeen, Gordon led multiple research projects focusing on innovation in primary care, clinical leadership, and healthcare management. He also directed a multidisciplinary primary care leadership program on behalf of the Scottish Government. In the early years of the Scottish Parliament, he advised the Health and Community Care Committee on their inquiry into the delivery of community care.

As a researcher, Gordon has published books on healthcare management and over 50 academic articles, including a study on the bed-blocking issue in the Scotland, published 25 years ago. He lives in Aberdeen and continues as an active researcher and author.

Neil McNamara

Clinical Director, Mental Health, Learning Disability & DARS, Consultant Psychiatrist (Rehabilitation), NHSH

Neil is a consultant psychiatrist in rehabilitation and clinical director for adult mental health services in the Highland HSCP. He trained in Edinburgh and worked across the south east of Scotland before moving to the Highlands 20 years ago. His main area of clinical interest has always been in the care and support of people affected by psychosis. He makes no claims to be an established academic researcher but has been fortunate to develop partnerships with others and has some time dedicated to providing a clinical perspective to the Causes Of Schizophrenia : Immunology & Genetics Network (COS:IGN), based at the UHI. The intention of this project has been to draw a link between plausible pathways contributing to the development of illness and future interventions which may make a difference in real world settings. There is an increasing focus on the health inequalities faced by people psychosis (including cardiovascular disease, diabetes and obesity) and exploring how to make an impact on this in our remote and rural setting. Neil will offer a personal perspective on challenges in supporting mental health research and future opportunities to collaborate across our services.

Dr Jo Cecil

School of Medicine, Population and Behavioural Sciences, University of St Andrews

Jo Cecil is a behavioural scientist and lecturer in the School of Medicine at the University of St Andrews. She has research interests in consumption behaviour, obesity, healthcare communication and wellbeing. Her research aligns directly with interest in health behaviour interventions and the interface of the healthcare practitioner and patient, and follows an interdisciplinary approach, straddling psychological, behavioural and physiological domains. She has expertise in mixed methods research methodology and has led external funded research as Principal and Co-Investigator. Jo has served as a member of the Program Committee and Board of Directors for the Society of Ingestive Behaviour, the Implementation Group for UK UGRAD Nutrition in Medical Education, the Scottish Nutrition Committee and acts as external examiner for MSc, Postgraduate Diploma and Postgraduate Certificate in Clinical Education at the University of Edinburgh.

Frances Matthewson

Research and Intelligence Specialist, Public Health Team, NHS Highland

Frances has worked mainly as a data analyst within the NHS in Scotland for over thirty years. Within NHS Highland, her roles have covered Service Planning and Redesign and she currently works as Research and Intelligence Specialist for the Highland Alcohol and Drugs Partnership which is hosted by the Department of Public Health. Her interests in Mental Health were established early on in her career undertaking data developments in Public Health Scotland, research on suicide rates in NHS Highland and through her work as a National Improvement Advisor on a Mental Health Improvement Programme within the Scottish Government.

Recent research interests have centred around understanding the context of young people's drug-related deaths in Highland. Frances is keen to work with partners to develop research areas which aid understanding and result in improvements to reducing harms and deaths from alcohol and other drugs. She has recently undertaken studies in Public Health and has enjoyed refreshing her programming language skills in R and Python.

Bev Fraser

Strategic Lead for Drug and Alcohol Recovery Services (DARS), NHS Highland

Bev has experience working within drug and alcohol and mental health services, focusing on service development through identification and analysis, and addressing areas for improvement. Her expertise lies in quality improvement methodology, which she believes is integral to enhancing the quality of care for patients within NHS Highland. By promoting the philosophy that quality improvement is everyone's responsibility, she aims to foster a culture of continuous improvement that will lead to better patient outcomes and an improved experience for both patients and staff.

Bev is a registered mental health nurse (RMN) and hold a PG Cert in Quality Improvement in Health care. She qualified in 1994 and has always worked within mental health services. She has worked collaboratively with other health boards within Scotland.

Carol Calder

Finance and Performance, Audit Director, Performance Audit and Best Value, Audit Scotland

Carol has over 30 years' experience in the Scottish public sector. She joined Audit Scotland in 2003 following a career in strategic planning in Local Government. Having previously overseen the Local Services portfolio since 2007, she has been Audit Director for Health and Social Care since June 2024. She is responsible for overseeing the delivery of a programme of performance audits in health and social care including the annual NHS Overview report.

Bernie Milligan

Audit Manager, NHS overview reports, Audit Scotland

Bernie has 25 years' experience in the public and third sectors in Scotland, working in policy, research and project management roles. She joined Audit Scotland in 2019 and has led on audits in health, local government and digital transformation. As Audit Manager she managed the delivery of the NHS in Scotland Report 2024, the Spotlight report on Governance in the NHS in Scotland and is now working on the NHS overview report for 2025.

5. BREAKOUT SESSIONS

GROUP A
Chair: Charlotte Barr, Lead Research Nurse, RD&I
Location: Classroom 2

A1	**Buy Local, Save Money!**
Name of presenting author	Janet Adamson
Organisation	University of the Highlands and Islands
The Highlands-based UHI biomedical sciences laboratories have, over many years, collaborated on numerous NHSH projects, in many different disciplines. With our locally based facilities, we have provided technical expertise and cost-effective use of instrumentation for genetics, immunology, mass spectrometry and medical nanotechnology, allowing us to participate in diverse projects including novel coatings for catheters and renal tubing, NAFLD biomarkers, oat-rich diets and diabetes. Our facilities continue to provide a base for UHI and NHSH participation in local, national and international research programs.	
Names and organisation of all other authors	Antonia Pritchard, University of the Highlands and Islands

A2	**"I Didn't Realise How Many Opportunities There Were": Medical Students' Perceptions Following Teaching on Remote and Rural Healthcare in Scotland**
Name of presenting author	Ross Wilson
Organisation	NHS Highland, Medical Education Department
Background: Recruitment of doctors to remote and rural Scotland is a current priority for government, the National Health Service (NHS) and higher education institutions owing to challenges posed by an ageing population. We explored early perceptions of remote and rural healthcare amongst Year 1 medical students following a dedicated teaching day. Methods: 30 Year 1 medical students were asked about their views on remote and rural healthcare and career intentions before and after a day of interactive lectures, workshops and simulation. We performed a practical thematic analysis of written responses. Outcomes: Students accurately described the geography and infrastructure of rural Scotland and recognised the associated challenges for healthcare delivery and workforce retention. They highlighted differences in population demographics, ethical considerations and the professional reward of working within small, close-knit communities. Students viewed remote and rural doctors as generalists with broad specialty knowledge, non-technical skills and a good work-life balance, finding these qualities appealing. However, they held misconceptions that remote and rural doctors were less qualified than	

their urban counterparts and were uncertain on rural training pathways. Most students remained interested in remote and rural careers after the teaching day. Learning points and take-home messages: Early exposure to remote and rural healthcare helps medical students to understand rural generalism as a career path in Scotland. Targeting misconceptions around training and qualifications may enhance recruitment to rural careers in the future.

Names and organisation of all other authors	Dr Dana Al-Khatib, NHS Highland

A3	**Opportunities and limitations of using tumour specific variants in cell free DNA (cfDNA) isolated from pleural effusions to diagnose pleural mesothelioma**
Name of presenting author	Connie MacKinnon
Organisation	UHI
Pleural mesothelioma (PM) is a rare cancer of the lung developing from the mesothelial serosa cells of the pleura. It is associated with a poor prognosis and is highly associated with prior exposure to asbestos. PM can be difficult to diagnose due to a combination of the growth pattern of the tumour, the invasive nature of the biopsy procedure and the frailty of the patient. Some patients with PM develop a build-up of fluid around their lungs as their first clinical symptom. This fluid can make breathing difficult and is routinely drained as part of standard care. Currently, a cytological test can be performed to identify if PM cells are present in the fluid, however, while this is a specific test, it lacks sensitivity. In other malignancies, the use of liquid biopsy to identify cell free DNA (cfDNA) originating from tumours has been investigated as a method of diagnosis. cfDNA are short (typically 120-220bp) double stranded fragments of DNA released into bodily fluids via cellular breakdown in normal physiological and pathological conditions. Currently, there is limited research into the detection of cfDNA in the pleural fluid of mesothelioma. This study aimed to investigate the potentials and limitations of next generation sequencing (NGS) of the cfDNA derived from pleural fluid of PM patients to be used as an accurate test for the presence of cancer and for the type of tumour present.	
Names and organisation of all other authors	Colette Mustard, Genetics and Immunology Department, Division of Biomedical Science, UHI Nicole Brace, Genetics and Immunology Department, Division of Biomedical Science, UHI Elizabeth Sage, NHS Highland Jenny Symmons, NHS Bristol Anna Bibby, NHS Bristol, University of Bristol Antonia Pritchard, Genetics and Immunology Department, Division of Biomedical Science, UHI

A4	**A digital solution for Tele-med CCU-ECG governance**

Name of presenting author	Ahmed Hussein
Organisation	NHS Highland

Introduction

The aim of this quality improvement project was to establish and develop a real-time

electronic record to track suspected ACS patients records from pre-hospital ECG email to

the CCU triage to intervention.

Method

Data including demographics, symptoms, referrer information, triage location, and

outcomes were collected through paper-based records and digital data extraction. Paper-based ECG, digital form and feedback for suggested developments were also analysed. A

digital form to be used by CCU staff was created in several iterative stages and tested prior to implementation on December2020.

Discussion

Implementation showed benefits such as enhanced collaboration, improved

governance, and better management of patient data. However, challenges included the

time-consuming nature of the digital system, missing patient identification numbers, and

data completeness issues.

Since implementation over >10,000 digital forms have been completed.

Outcome

The implementation of the digital form resulted in enhanced real time sharing of triage

decisions between departments (CCU and A+E / acute receiving unit). It also improved the accuracy and easy of data collection thus improving governance. However, challenges

remained, particularly the lack of joined up data systems that link patients from initial to final diagnosis, intervention and outcome.

Development

The development plan includes optimising the digital form for quicker data entry and

retrieval, addressing the inclusion of patients without identification numbers, expanding the system's scope to include other cardiac disorders, and implementing a clinical decision support system using machine learning techniques for ECG analysis. And the most important development would be to integrate all the above date into one system linking the patient’s progress from preadmission to intervention and longer-term outcomes.

Names and organisation of all other authors	Charles Knoery, Division of Rural Health and Wellbeing, Institute of Health Research and Innovation, UHI Charlie Bloe, NHS Highland Raymond Bond, Centre for Personalised Medicine, Ulster University

	Aaron Peace, Altnagelvin Hospital, Londonderry, Northern Ireland Stephen James Leslie, NHS Highland

A5	**MyMelanoma: Genetic Studies**
Name of presenting author	Antonia Pritchard
Organisation	University of the Highlands and Islands
Background: MyMelanoma is a collaboration between people who have had a melanoma, clinicians and academic researchers to answer questions with direct clinical relevance, as identified by patient and clinical consultation. Aims: The major goal is to enrol 20,000 melanoma patients to answer research questions under one of four topics: (i) The genetic predisposition to melanoma and how genes modify risk to other cancers; (ii) The reason some patients have adverse responses to therapy; (iii) Lifestyle and environmental factors that influence risk to melanoma, tumour progression or response to therapy; (iv) Biomarkers associated with disease progression or recurrence. Methods: Participants who have ever been diagnosed with a melanoma enrol online and answer a series of questionnaires via a personalised participant portal. Based on these answers, participants can be asked to join specific projects under the MyMelanoma umbrella. Participant consent includes passive follow-up using linked NHS medical records, allowing long-term assessment of clinical outcomes. As well as word of mouth, in-clinic advertising and patient group support, MyMelanoma was awarded one of the first NHSDigiTrials study support opportunities and has made use of schemes such as the NIHR “be part of research” and the SHARE registry. Genetics Project: At the University of the Highlands and Islands, we are leading the MyMelanoma study of genetic predisposition to melanoma, which was the first project initiated under the MyMelanoma banner. This includes familial melanoma, with identification of high penetrance variants in people with family history of cancer, and assessment of low penetrance genome wide associations with uveal melanoma.	
Names and organisation of all other authors	MyMelanoma Research Team, University of Oxford

A6	**Using tumour cell-free DNA in lung effusion to diagnose cancer**
Name of presenting author	Colette Mustard
Organisation	UHI
Malignant pleural mesothelioma (MPM) is an aggressive type of cancer that forms within the lining of the lungs. It is traditionally associated with occupational asbestos exposure and can occur many years after the initial exposure. Around 90% of patients with MPM will present with fluid around their lungs (known as a pleural effusion) however, MPM can be difficult to distinguish from other causes of pleural effusion (such as lung cancer) and patients often must undergo several biopsies for further	

investigation. The standard treatment for pleural effusion is to drain the fluid from the patient's lungs to allow them to breathe easier. The drained fluid contains cells that have been shed from the lungs, from which DNA can be extracted. This DNA can be used to identify genetic changes that are specific to certain types of cancer, including MPM. We have partnered with NHS Highland and a company called Biocaptiva to investigate whether we can develop a new minimally invasive liquid biopsy using the large quantities of pleural fluid drained from the patient's lungs. A highly sensitive and specific diagnostic test from this fluid, which is removed as part of standard care, would provide a significant improvement in current procedures for the patients, reducing diagnosis times and distressing clinical procedures, as well as offering considerable cost savings to health providers worldwide.

Names and organisation of all other authors	Connie Mackinnon, UHI

GROUP B
Chair: Anna McIver, Governance Lead, RD&I
Location: Classroom 3

B1	**Music: The Attention Shortcut**
Name of presenting author	Gordon Anderson
Organisation	Memory Tracks Ltd
In a world of fragmented focus, music acts as a shortcut to the brain. While words and visuals have to work to break down cognitive resistance, music bypasses much of that resistance by appealing directly to the brain's emotional and pattern-recognition centers. That's why advertising, social media content, and even political campaigns increasingly rely on memorable music — it's a proven, powerful tool to seize and hold attention. The MedTracks medication adherence app - developed with NHS Highland - has shown how we can harness this shortcut. There is more we can do in the areas of Alcohol Misuse and Drugs, Obesity, and Mental Health When the 'noise' of life is deafening, a well-placed melody can be the one thing that cuts through.	
Names and organisation of all other authors	

B2	**Visual pathology in children exposed to maternal opiates in NHS Highland**
Name of presenting author	Jane MacKinnon
Organisation	NHS Highland

Introduction

Prescribed methadone improves pregnancy outcome, however, opiates are increasingly prescribed for pain management in pregnancy. Visual pathology linked to opiate exposure in utero has been reported and persists long-term. Targeted visual screening of infants exposed to opiates was commenced in NHS Highland in 2015.

Method

Between 2015 and 2023, all infants born to mothers who were known to have taken opiates during pregnancy were referred for visual screening at 6 months. Perinatal data was collected from Badgernet. Visual outcome was recorded from NHSH patient records and from pre-school visual screening.

Results

85 infants were identified as being exposed to opiates in utero. 75 children completed visual screening and were included in the study: 37 males, 38 females. Average gestation: 37+6 weeks. Average birth weight: 2948g. 34 mothers were on prescribed methadone during pregnancy, 10 were prescribed buprenorphine, and 31 were on opiates prescribed for pain management. Only 19 mothers used methadone alone. Polydrug use was common.

Average age at first vision screening was 9.5 months. 8% had a retrospective diagnosis of delayed visual maturation. 11.5% had horizontal nystagmus and 19% had a manifest squint. 51% failed their pre-school visual screening. Visual pathology was present in 29.6% of children exposed to opiates prescribed for analgesia.

Conclusion

Visual pathology is common in this cohort of infants exposed to opiates in utero. There is a concerning incidence of delayed visual maturation, nystagmus, squint and refractive error. We recommend targeted visual screening of infants exposed to opiates due to the known benefit of early intervention.

Names and organisation of all other authors	Megan Quinn, NHS GGC

B3	**How can we assertively outreach those most at risk of drug-related death within 48 hours of an A&E visit?**
Name of presenting author	Michelle Beattie
Organisation	University of the Highlands and Islands

People most at risk of drug related harm or death frequent the Emergency Department (ED) but current systems are not timely enough to outreach them quickly. Scotland's drug death rate of 327 per million population annually is the highest recorded in Europe. Remote and rural areas present additional challenges due to dispersed populations and services. Proactive outreach offers a protective effect, but little evidence exits about how to implement this.

This project aimed to implement the use of the Trigger Checklist (TC) and assertive outreach within 48 hours for those at high risk of drug-related harm within a rural ED and explain how the TC can be optimised in the ED.

Model for Improvement was used to test and implement the TC. Small scale Plan, Do, Study, Act cycles were used to test and adapt the Trigger Checklist. Realist methodology was used to understand how to optimise TC completions. Theories were devised and continually refined using literature and interviews with key stakeholders. To date 27 TC have been received from the ED. Of those, all were visited by recovery workers within 48 hours. Of the 27, 19 (79%) were supported within 48 hours, 2 were outreached within 7 days, 3 were referred to other services and 3 were not outreached. Theory refinement is ongoing but early findings will be presented at the conference.

Names and organisation of all other authors	Lesley Campbell, NHS Highland

B4	**The impact of genetic background on risk to developing schizophrenia.**
Name of presenting author	Philomena Hallford
Organisation	Division of Biomedical Sciences UHI

Schizophrenia is a debilitating neurological condition with a prevalence of ~1% in the population, and a heritability of between 64-81%. Genome wide association studies have identified 287 genetic loci associated with schizophrenia. Common risk variants such as low penetrant single nucleotide polymorphisms (SNPs), familial high penetrant rare coding variants (RCVs) and copy number variants (CNVs) have been identified. Known genetic variants account for approximately only 50% of the estimated heritability, indicating there are more potential genetic variants remaining to be identified. Environment and lifestyle factors such as stress, drug use and immune system dysfunction can also contribute to increased risk of developing schizophrenia.

Human induced pluripotent stem cells (hiPSC) are unspecialised cells reprogrammed from somatic body cells such as fibroblasts, and which can be differentiated to give disease relevant cell types to study neurodevelopment disorders. Several studies using these cells have shown disrupted phenotypes associated with schizophrenia.

This study will investigate the effect of genetic background on risk of developing schizophrenia using hiPSC derived neural progenitor cells (NPCs) from schizophrenia patients with different genetic backgrounds, and from healthy controls. In addition, the CRISPR Cas 9 precision gene editing system will target schizophrenia associated RCVs and CNVs to produce novel isogenic iPS cell lines with and without schizophrenia associated mutations.

Morphological and functional studies, such as cellular proliferation, neural migration and gene expression studies, will investigate potential differences between both the iPSC derived cells from healthy donors and schizophrenia cell lines and the genetically engineered isogenic cell lines.

Names and organisation of all other authors	

B5	**A Holistic and Integrated Approach to Addressing Health and Care Challenges Through Digital Innovation**

Name of presenting author	Marie Simpson
Organisation	Digital Health & Care Innovation Centre

The Rural Centre of Excellence (RCE) is a £5M UK government programme of living labs delivered by the Digital Health & Care Innovation Centre (DHI) as part of the Moray Growth Deal. This Research and Development (R&D) ecosystem in the northeast of Scotland enables industry to access service and citizen test bed opportunities to develop needs-led digital health and care solutions.

The RCE comprises 5 independent living labs, underpinned by a technical infrastructure which tests an example of a localised digital front door using national platforms. These include a Community Connections service directory to meet a citizen and service desire for a 'one stop shop' resource, and a citizen controlled Personal Data Store (PDS) to overcome cross sector data silos and minimise the citizen's need to repeat their story. Together, the living labs span the care continuum creating an integrated health, care and third sector suite of digital tools which support a shift in the balance of care from reactive, to a digital-first approach which maximises opportunity for supported self-management and a predictive/preventative approach to release capacity and direct finite statutory resources. Innovation pathways being developed and tested in Moray include weight management, type 2 diabetes, occupational therapy, care in place, technology enabled care, smart housing, and mental wellbeing.

DHI work in parallel with the national digital health and care strategic infrastructure and act as a pathfinder to develop and test solutions which can be scaled and adopted. The RCE is now gaining significant interest both nationally and internationally.

Names and organisation of all other authors	

B6	**"Last mile" maternal health in remote settings using smart SMS**
Name of presenting author	Jay Evans
Organisation	IH Mobile Health
Names and organisation of all other authors	

GROUP C
Chair: Lee Heaney, Innovation Manager, RD&I
Location: Classroom 4

C1	**Can we continue to weight for Wegovy**
Name of presenting author	Owen McDonald
Organisation	NHS Highland Public Health

In October 2023 the SMC approved Semaglutide for weight loss for adults with a BMI greater than 30 and at least one obesity-related condition. NHS Highland has no established pathway for accessing Semaglutide for weight loss.

In the face of the crisis in Scotland where 33% of adults are obese and 67% are overweight, effective interventions are needed. The growing body of evidence shows these drugs are effective not just for weight loss, they increase health-related quality of life while reducing cardiovascular and all-cause mortality.

What is the catch?

Analysis suggests up to 20,000 individuals in NHS Highland could be eligible for these drugs. At a cost of around £2,000 for a two-year course the financial impact is enormous while cost-savings may not be realised for decades. In a time of scarce resources prioritisation is required to ensure financial sustainability.

As a decision is awaited on what a health board delivered weight management drug pathway will look like, a private market has grown. This has attracted criticism for a lack of scrutiny in prescribing with a potential for patient harm. Further to this, there is a risk of a two-tier health system where those with means access these medicines privately while those who do not will have to wait. This is a concern as obesity often affects those from our most deprived communities.

Finally, the pharmaceuticalisation of weight management may absolve commercial interests of their responsibility in fuelling the obesity crisis, the so-called commercial determinants of health cannot be forgotten.

Names and organisation of all other authors	

C2	**Universal Healthcare Challenges in Kenya and the NHS: Opportunities for bi-directional learning, Reverse Innovation and Shared Solutions**
Name of presenting author	Michael MacKenzie
Organisation	Infectious Diseases & Global Health, NHS Highland

Names and organisation of all other authors	

C3	**Targeted Nitric Oxide Delivery Using MOFs: A Multifunctional Approach to Combat Vascular Complications in Arterial and Venous Devices**
Name of presenting author	Emma Coghill
Organisation	UHI- Division of Biomedical sciences

Nitric oxide (NO) has emerged as a crucial factor in various biological processes, including vasodilation and platelet aggregation prevention. Existing procedures for cardiovascular interventions carry the potential for radial artery spasm, resulting in patient discomfort and frequently resulting in procedural complications at an early stage. Additionally, current issues with PICC line use include a high risk of thrombosis, infection, and catheter-related complications due to prolonged vascular contact and poor hemocompatibility. This project investigates the utilisation of metal-organic frameworks (MOFs) as an innovative approach for storing and delivering NO in a biologically relevant and targeted manner. These materials present a potential strategy to mitigate the occurrence of radial artery spasm during cardiovascular interventions and inhibit thrombosis, and infection in PICC lines. The study evaluates the cytotoxicity of polymer materials incorporating MOFs and NO, while also examining how storage-related changes in MOFs and varying exposure durations influence biocompatibility. The NO release profile from these materials has also been analysed. Artery function and the impact of materials on contractile and endothelial function have been explored, revealing promising effects. Furthermore, the study examines the potential of NO-MOF materials in inhibiting platelet aggregation and adhesion across varying incubation intervals in platelet suspensions. The unique feature of direct NO release from MOFs holds promise for antithrombotic intervention and this research provides valuable insights into the potential of NO-releasing MOF/polymer materials for use in varying medical devices.

Names and organisation of all other authors	

C4	**Medical nanotechnology - enhanced materials and photonics for healthcare settings**
Name of presenting author	Jacob Roberts
Organisation	University of the Highlands and Islands

At the Life Sciences Innovation Centre, UHI Inverness, we are working on several projects focusing on medical nanotechnology. We are aiming to produce nanomaterials with enhanced wear-resistance and antimicrobial activity, and to evaluate their effectiveness and suitability for use in healthcare settings. We will examine the potential for antimicrobial nanomaterials to reduce the transmission of hospital-acquired infections via common touch-point surfaces; and wear-resistant nanomaterials will be assessed for their potential to extend the lifecycles of surgical instruments. We are also working on developing nanomaterial substrates for surface-enhanced Raman spectroscopy, a plasmonic sensing

technique for the rapid and sensitive detection of molecules of interest. This presentation will provide an overview of these projects and highlight potential areas of collaboration.	
Names and organisation of all other authors	Prof. Alistair Kean, University of the Highlands and Islands

C5	**A review of morbidity and mortality outcomes in a cohort of elderly patients referred by NHS Highland for Transcatheter Aortic Valve Implantation (TAVI)**
Name of presenting author	Shannon Cowie
Organisation	General Internal Medicine

Background

The Scottish population is ageing, with an estimated 50% increase in the over 60s by 2033 (1). Aortic stenosis is a common condition that occurs with ageing and treatment options can include Transcatheter Aortic Valve Implantation (TAVI). The aim of this review of clinical practice was to better understand morbidity and mortality outcomes in a cohort of elderly patients referred by NHS Highland for TAVI to guide future clinical referrals.

Methods

A retrospective analysis was carried out on patients who underwent TAVI between May 2012 and October 2021. A total of 67 patients were included. Data were collected from a variety of sources including Clinical Portal, SCI Store and from the Highland Archive Centre. Data collected included patient demographics, pre- and post-procedure place of residence, mobility, medications, social care needs and co-morbidities. Data were also collected on cause of death.

Results

The 5-year mortality for those aged 70-79 years (64.2%) and aged 90 or over (66.7%) was higher than those aged 80-89 years (53.6%). The most common cause of death was cardiovascular disease (25.0%) and respiratory disease (25.0%). Mortality at 5 years was higher in those with 6-10 co-morbidities at time of referral (88.9% vs 55.6%). All those on 11 or more medications at referral had died within 5 years. Mortality at 5 years was higher in those who were non-care home residents prior to referral (80.8% vs 60%). Mortality was also associated with pre-referral diagnosis of diabetes, CKD, hypertension and chronic respiratory conditions.

Discussion

Data collected highlights the importance of frailty markers in predicting mortality. Limited data could be collected on morbidity outcomes retrospectively due to lack of information available. Considering the ageing population, it is important to better understand the long-term outcomes, in terms of return to pre-morbid function and overall quality of life, in this subset of patients.

Names and organisation of all other authors	Professor Stephen Leslie, NHS Highland Dr Jonathan Watt, NHS Highland

C6	**From Bottles to Breakthrough: NHS-Safe, On-Demand Sterile Water with Zero Consumables**
Name of presenting author	Duncan Peters
Organisation	IF Water

This session presents the findings from a recently completed NHS innovation pilot evaluating a new point-of-use water purification technology for clinical applications. The tested system—designed to produce sterile-grade water without filters, membranes, or consumables—was trialled within an NHS setting for six months.

Key findings show significant cost savings by replacing bottled and sterile water with on-demand purification. The pilot site reports a £22,000 saving over bottled water use in one LDU over 5 years. Importantly, the system required no changes to infrastructure, no consumable replacement cycles, and minimal staff input.

From a sustainability perspective, the environmental impact was substantial. The switch removed the need for plastic packaging, transport, and energy-intensive bottling, translating into a carbon saving of 43 tonnes CO_2e across the Public Dental Centre over 3 years, contributing directly to NHS Net Zero targets.

The system was independently verified by a UKAS-accredited laboratory and confirmed to exceed standards for steam sterilisation and endoscopy water user cases. Real-time performance data from the NHS pilot confirms consistent water quality and reliability.

This talk is especially relevant to clinicians and operational leads relying on clean water for patient safety, estates teams seeking low-maintenance, reliable infrastructure, and sustainability officers working toward carbon reduction commitments. It provides a clear model of how new technologies can reduce operational burdens while enhancing care delivery and environmental responsibility.

Join us to explore a clinically-validated innovation with immediate, measurable impact for the NHS.

Names and organisation of all other authors	

C7	**Obesity - A new North of Scotland research and innovation project - for interest and comment**
Name of presenting author	Frances Hines
Organisation	NHS Highland

Why obesity in RDI? Since the obesity sandpits in London earlier this year, the North of Scotland Innovation Hub has been considering how the NHS might be supported in developing and testing out some new ways of integrating services for reducing weight, preventing obesity and obtaining better overall health and wellbeing, and ultimately preventing multiple clinical conditions at a population level. Including discussions about culture and other determinants of obesity, about behaviour change and about developing and managing different forms of intervention from the medical to the societal change, this set of thoughts about a research, development and innovation programme welcomes thoughts, comments and critical considerations.

Names and organisation of all other authors	

6. Posters

Please take the time to view the posters and discuss projects with the authors. Posters will be judged and the winner will be announced during the closing plenary.

Poster 1	**Visual pathology in children exposed to maternal opiates in NHS Highland**
Name of presenter	Jane MacKinnon
Organisation	NHS Highland
• **Introduction:** Prescribed methadone improves pregnancy outcome, however, opiates are increasingly prescribed for pain management in pregnancy. Visual pathology linked to opiate exposure in utero has been reported and persists long-term. Targeted visual screening of infants exposed to opiates was commenced in NHS Highland in 2015.	

- **Methods**: Between 2015 and 2023, all infants born to mothers who were known to have taken opiates during pregnancy were referred for visual screening at 6 months. Perinatal data was collected from Badgernet. Visual outcome was recorded from NHSH patient records and from pre-school visual screening.
- **Results:** 85 infants were identified as being exposed to opiates in utero. 75 children completed visual screening and were included in the study: 37 males, 38 females. Average gestation: 37+6 weeks. Average birth weight: 2948g. 34 mothers were on prescribed methadone during pregnancy, 10 were prescribed buprenorphine, and 31 were on opiates prescribed for pain management. Only 19 mothers used methadone alone. Polydrug use was common.
- Average age at first vision screening was 9.5 months. 8% had a retrospective diagnosis of delayed visual maturation. 11.5% had horizontal nystagmus and 19% had a manifest squint. 51% failed their pre-school visual screening. Visual pathology was present in 29.6% of children exposed to opiates prescribed for analgesia.
- **Conclusions:** Visual pathology is common in this cohort of infants exposed to opiates in utero. There is a concerning incidence of delayed visual maturation, nystagmus, squint and refractive error. We recommend targeted visual screening of infants exposed to opiates due to the known benefit of early intervention.

Names and organisation of all other authors	Megan Quinn NHS GGC Alanis Brydon NHSH Emma Day NHSH

Poster 2	**What do cardiac patients need beyond their medical management?**
Name of presenter	Julie Munro
Organisation	NHS Highland & UHI

- **Background:** Following a cardiac event, patients report a range of physical, emotional and social concerns. Clinical interventions are essential for secondary prevention, but there is need for alternative delivery models to reduce pressure on overstretched acute services. Traditional rehabilitation programmes have limited reach. Patient needs outwith their medical management are under explored. A holistic approach to addressing needs may aid a more positive recovery. The project will explore the current risk factor data and patient unmet needs.
- **Methods**: Phase 1: Secondary data analysis. Using existing clinical data to describe current risk factor prevalence in the local population. Phase 2: Exploratory sequential mixed methods design. Patient interviews to understand lived experiences. Thematic analysis will inform the development of an online survey.
- **Results:** Phase 1: Patient demographics and risk factors will be displayed, sample n=110. 65% male, 68% reported low physical activity; anxiety and depression reported in 21% of patients. Phase 2: Qualitative data from ongoing data collection will be thematically analysed

to report patient priorities and needs. Mixed methods analysis of the online survey will provide quantitative data and scalability of the results. Open text response will be thematically analysed for comparison with the themes identified in the initial patient interview. Outcomes will focus on the nature of unmet needs, and the relevance and feasibility of community-led programmes to meet the broader aspects of care. • **Conclusions:** Patients attending cardiac rehabilitation have a high level of physical and medical but also psychosocial needs. The best way to address these is unknown.	
Names and organisation of all other authors	Trish Gorely, UHI Michelle Beattie, UHI Mikaela MacKenzie, NHS Highland Kerry Wilson, NHS Highland Stephen J Leslie - NHS Highland

Poster 3	**Can we continue to weight for Wegovy**
Name of presenter	Owen McDonald
Organisation	NHS Highland Public Health

In October 2023 the SMC approved Semaglutide for weight loss for adults with a BMI greater than 30 and at least one obesity-related condition. NHS Highland has no established pathway for accessing Semaglutide for weight loss.

In the face of the crisis in Scotland where 33% of adults are obese and 67% are overweight, effective interventions are needed. The growing body of evidence shows these drugs are effective not just for weight loss, they increase health-related quality of life while reducing cardiovascular and all-cause mortality.

What is the catch?

Analysis suggests up to 20,000 individuals in NHS Highland could be eligible for these drugs. At a cost of around £2,000 for a two-year course the financial impact is enormous while cost-savings may not be realised for decades. In a time of scarce resources prioritisation is required to ensure financial sustainability.

As a decision is awaited on what a health board delivered weight management drug pathway will look like, a private market has grown. This has attracted criticism for a lack of scrutiny in prescribing with a potential for patient harm. Further to this, there is a risk of a two-tier health system where those with means access these medicines privately while those who do not will have to wait. This is a concern as obesity often affects those from our most deprived communities.

Finally, the pharmaceuticalisation of weight management may absolve commercial interests of their responsibility in fuelling the obesity crisis, the so-called commercial determinants of health cannot be forgotten.

Names and organisation of all other authors	

Poster 4	**Contributing from the Highlands: Raigmore Hospital's Role in the UK and Ireland-Wide MOSAICC Study of Myeloproliferative Neoplasms**
Name of presenter	Dr Frances Buckley
Organisation	NHS Highland

- **Background:** Myeloproliferative neoplasms (MPNs) are rare blood cancers with poorly understood causes. The MOSAICC (MyelOproliferative neoplasmS: An In-depth Case-Control) study is a UK and Ireland-wide investigation into environmental, occupational, and genetic risk factors for MPNs, alongside their impact on quality of life.
- **Methods**: Scottish recruitment was supported by three NHS sites: Raigmore Hospital (Inverness), Aberdeen Royal Infirmary, and the Beatson West of Scotland Cancer Centre (Glasgow). Raigmore and Aberdeen serve large rural populations. Across all sites, ~600 MPN cases and 200 matched controls participated. Data on demographics, lifestyle, and occupational exposures were collected via structured interviews with a trained interviewer. Quality of life and symptom burden were captured using validated questionnaires. Participants also provided blood, saliva, and toenail samples for biomarker analysis.
- **Results:** Raigmore recruited 22 MPN cases (PV, ET, PMF) and 8 controls (August 2023–March 2025). As a rural site, Raigmore faced logistical challenges—particularly in arranging blood sample collection due to the remoteness of participants and limited local phlebotomy services. This was overcome through flexible scheduling, close coordination with local GPs, and strong engagement from clinical teams, enabling successful recruitment and sample collection.
- **Conclusions:** Raigmore's involvement enhances the MOSAICC study by ensuring representation of rural Scottish populations. Its contribution supports analysis of environmental exposures (e.g. trace elements in toenails) and genetic factors through the Blood Cancer UK–funded MPN Discovery project. Findings will help clarify MPN aetiology and may guide future prevention and symptom management strategies.

Names and organisation of all other authors	CHIEF INVESTIGATOR Prof Lesley Anderson, Interdisciplinary Institute & Biostatistics and Health Data Science, University of Aberdeen. PRINCIPAL INVESTIGATORS · Frances Buckley, Raigmore Hospital, Inverness · Principal Investigators at each clinical site. COLLABORATORS · Dr Charlene McShane, Centre for Public Health, Queen's University Belfast · Prof Andrew Duncombe, University Hospital Southampton NHS Foundation Trust · Prof Mary Frances McMullin, Belfast Health and Social Care Trust · Prof Lin Fritschi, School of Public Health, Curtin University, Australia

	· Dr Ruben Mesa, University of Texas Health San Antonio Cancer Center, USA · Dr Frank De Vocht, Population Health Sciences, Bristol Medical School

Poster 5	**Taking Primary Care to New Places: An Innovative Approach to Addressing Primary Care Access for those Experiencing Homelessness and Other Barriers to Healthcare**
Name of presenter	Dr Alexandra Dallas
Organisation	NHS Highland
Those experiencing severe and multiple disadvantage are more likely to have difficulty accessing Primary Care Services. The Inverness Homeless Healthcare Service identified proportion of their caseload had complex physical health needs but were not attending a GP- could this be addressed? A weekly outreach GP clinic was commenced at Inverness Foodstuffs as a pilot. The aim was to provide comprehensive assessments and ease the transition to mainstream Primary Care. Those with either no GP registration or those with clear barriers to GP engagement were seen by a GP and Homeless Service Nurse. Detailed needs assessments were completed and participants were linked with services and Primary Care, in addition to having appropriate immediate clinical interventions. Of the 26 individuals seen during the pilot, 87% of had a physical health need and 83% had a mental health need. Longer consultation times were possible, allowing a holistic overview of the person's needs, a difficult feat in a standard 15-minute Primary Care appointment. An ongoing Primary Care need was identified in 87.5%, and via communication and support, this was completed in 54.5%. Prior to assessment, 46% did not have local GP registration. On completion of the project, 3 of the participants had not registered with a GP and there was a clear reason in each of these cases. Next steps included the addition of a support worker to the team. Feedback included "absolute God-send, lifesaver" (service user), "a life transformed… Having the healthcare service at Inverness Foodstuff is breaking down barriers" (Inverness Foodstuffs Board)	
Names and organisation of all other authors	Beverley Fraser, Strategic lead for Drug and Alcohol Recovery Service

Poster 6	**MATPACT: An innovative approach to finding Scotland's forgotten and building a safety net for justice-system involved individuals struggling with substance use**
Name of presenter	Bev Fraser
Organisation	NHS Highland
MATPACT: An innovative approach to finding Scotland's forgotten and building a safety net for justice-system involved individuals struggling with substance use	

In Scotland, 19% of individuals who died from drug-related causes had been in police custody within the previous six months. Custodies confirming the use of illicit drugs during assessment were not offered healthcare referrals, with referrals only initiated by police if interventions were required. This system resulted in inequitable care and missed opportunities for harm reduction.

Leveraging innovation and creativity, the team developed The MATPACT (Medication Assisted Treatment Prevention and Care Toolkit), which identified 73.2% of individuals not currently receiving services but requiring support. The project was called 'Finding Scotland's Forgotten Generation'. The project successfully met its aim to increase the number of referrals to health and reduce missed opportunities for referrals to custody healthcare from 53% to 12%

The team used quality improvement methodology to identify quality issues, understand the problem and develop a theory of change. Current processes were mapped identifying gaps for high risk patients. They used the model for improvement as their approach

By recording data over time the team have seen an increase in patients referred to custody healthcare, the distribution of take home naloxone, BBV testing and referrals to outreach and core services. There has been an increase in detection of people at risk of drug related harm and an increase in harm reduction being offered. This should have an impact on drug related deaths within 6 months of being in custody

Names and organisation of all other authors	Paul Rusk - NHS Highland

Poster 7	**Forecasting future hip fracture incidence in NHS Highland to aid service planning and policy**
Name of presenter	Sarah Griffin
Organisation	NHS Highland

- **Background:** Hip fractures in older populations are one of the most frequent reasons for emergency admission and a major public health issue. In this study we aimed to forecast likely increases in incidence to aid service planning, policy and prioritisation.
- **Methods**: Hospital activity for NHS Highland (NHSH) residents aged 50yrs and over was sourced from Scottish Morbidity Records provided by Public Health Scotland. Non-elective episodes of hip fracture were selected based on ICD-10 codes S720-722 in any diagnostic position and were broken down by age, sex, financial year, urban-rural classification, and deprivation. Future population projections were from National Records of Scotland. All analyses were conducted in R. Models compared were time series modelling; a fixed rate model; and Poisson regression modelling.
- **Results:** There were 8,964 patients in the dataset. The incidence of hip fractures for NHSH increased 58% from 2000/01 to 2022/23. The modal age was 85-89yrs, with 77% of fractures occurring in those aged over 75yrs. The age-standardised rate of fractures was two-fold higher in women than men. Age-sex standardised rates of hip fractures decreased since

2001/02. Changes in demography generated a forecasted 19% increase in hip fractures for NHSH between 2022 and 2030 using both regression and fixed rate models. • **Discussion:** A19% increase is a concern both due to increased disability and resource utilisation. This work is being used to advocate for a national target/indicator for age-sex standardised rate of hip fractures to help move the management and prevention of hip fractures, and other osteoporotic fractures.	
Names and organisation of all other authors	

Poster 8	**A socio-ecological autopsy approach to understanding the context of drug-related deaths among young people in the study area (age 16-25)**
Name of presenter	Dr Stephanie Govenden
Organisation	NHS Highland
• **Aim:** This study explores the life experience, drug using histories, and the interactions of a group of young people with services prior to their death. The socio-ecological autopsy approach looks beyond the immediate cause of death to identify broader contextual factors that may have contributed to a death. • **Methods**: The study developed a socio-ecological autopsy approach informed by social autopsy methods and social ecology and risk environment frameworks. Health, social work, police and post-mortem records were collated and analysed and summary narratives, chronologies and descriptive statistics produced. • **Findings:** Almost all twenty-one deaths identified were due to multi-drug toxicity mainly heroin mixed with other substances. Almost all the young people had reported mental health issues such as anxiety, depression, self-harm and previous overdose before they died. Most grew up in precarity and poverty in deprived areas. In their short lives, most of these young people experienced multiple adversities in childhood and as young adults, particularly in the year preceding their death. • **Conclusions:** Complex and fragmented services struggled to respond holistically to early signs of difficulties and to the young people's cumulative experience of trauma and adversity, mental ill-health and drug-related harms. There is a need for a radical rethink of systems to enable integrated youth-centred approaches that meet the needs of those at risk of drug-related deaths and to address the broader social and structural contexts of drug deaths.	
Names and organisation of all other authors	Frances Matthewson, Highland Alcohol and Drugs Partnership Professor Aileen O'Gorman, University of the West of Scotland

Poster 9	**"I Didn't Realise How Many Opportunities There Were": Medical Students' Perceptions Following Teaching on Remote and Rural Healthcare in Scotland**
Name of presenter	Ross Wilson
Organisation	NHS Highland

- **Background:** Recruitment of doctors to remote and rural Scotland is a current priority for government, the National Health Service (NHS) and higher education institutions owing to challenges posed by an ageing population. We explored early perceptions of remote and rural healthcare amongst Year 1 medical students following a dedicated teaching day.
- **Methods**: 30 Year 1 medical students were asked about their views on remote and rural healthcare and career intentions before and after a day of interactive lectures, workshops and simulation. We performed a practical thematic analysis of written responses.
- **Outcomes:** Students accurately described the geography and infrastructure of rural Scotland and recognised the associated challenges for healthcare delivery and workforce retention. They highlighted differences in population demographics, ethical considerations and the professional reward of working within small, close-knit communities. Students viewed remote and rural doctors as generalists with broad specialty knowledge, non-technical skills and a good work-life balance, finding these qualities appealing. However, they held misconceptions that remote and rural doctors were less qualified than their urban counterparts and were uncertain on rural training pathways. Most students remained interested in remote and rural careers after the teaching day.
- **Learning points and take-home messages:** Early exposure to remote and rural healthcare helps medical students to understand rural generalism as a career path in Scotland. Targeting misconceptions around training and qualifications may enhance recruitment to rural careers in the future.

Names and organisation of all other authors	Dr Dana Al-Khatib - NHS Highland Dr Morven Wilson - NHS Highland Dr Sheena Murdoch - NHS Highland

Poster 10	**Focused rigidity casting: offloading pressure from complex foot wounds using innovative removable casting options is a vital aspect of limb salvage**
Name of presenter	Fiona Main
Organisation	NHS Highland

Living with a diabetes foot ulcer can impact quality of life and have significant healthcare costs (Main, 2021). Foot ulceration can occur due to abnormal pressures in patients with sensory peripheral neuropathy and if left untreated can lead to amputation (IWGDF, 2023). Offloading

abnormal pressures in a diabetic foot is an important facet of a complex multi-disciplinary management approach which can be challenging and difficult and is often overlooked (Fletcher et al, 2024). Focused rigidity casting (FRC) is an inexpensive, offloading strategy that is bespoke for each patient and furthermore is a practical offloading casting tool for podiatry and multidisciplinary teams (MDT) in limb salvage. Furthermore, FRCs can be taught by advanced podiatrists supported by educational resources and in-person training especially if guidelines are followed in practice (Chadwick, 2021; NHS Highland, 2024). NHS Highland recognises that upskilling and empowering the podiatry team in utilising FRC as an alternative removable casting option is key in limb salvage. In remote and rural regions FRCs can be made within the MDT foot clinic and reviewed locally near the patient's home. This reinforces the importance of team collaboration and careful communication as a cornerstone of effective offloading (Chadwick 2021).

Names and organisation of all other authors	Jane Gorman - NHS Highland

Poster 11	**Investigation of underlying pre-treatment metabolic dysfunction in a subgroup of Schizophrenia patients**
Name of presenter	Emma Knighton
Organisation	UHI

- **Background:** Patients with schizophrenia present at first episode of psychosis with underlying metabolic perturbations when compared to age matched healthy controls. This has been shown to be more prevalent in cerebrospinal fluid but some evidence exists in the periphery also and not only includes glucose metabolism, but also mitochondrial function. This project aims to investigate underlying genetic mechanisms for the presenting metabolic alterations in first-episode psychosis.
- **Methods**: Genetic studies that investigated the predisposition to (a) schizophrenia (b) metabolic syndrome and (c) type-II diabetes were interrogated for any overlapping tagged genetic loci. The distance between lead variants were calculated and ranked, then genes in the regions within a 75Mb range were identified. The linkage disequilibrium (LD) between these lead variants were assessed and any that were in different LD blocks were dismissed. The functions of the genes in the remaining regions were then investigated.
- **Data to date:** The known roles of proteins encoded by genes in the 'variant-distance' ranked list were investigated using PubMed, OMIM, gnomAD, SCHEMA and NCBIgene. Genes with a known/potential function in metabolic processes, were expressed in brain tissue and had been previously shown to have a role in schizophrenia were ranked highest. The top candidates have been identified as: NPAS3, EFNA5, MTRFR, PID1, BDNF.
- **Future work:** Functional cellular models using lines such as lymphoblastoid cells and induced pluripotent stem cell (iPSC) derived neuronal cells, created from schizophrenia patient biosamples, will identify the impact of genetic variants predisposing to schizophrenia on metabolic function in selected of these top genes.

Names and organisation of all other authors	Antonia Pritchard at University of the Highlands and Islands

Poster 12	**Reducing the Cost of UTI Diagnosis: A Superabsorbent Polymer-Based Point-of-Care Device**
Name of presenter	Gillian Maxwell
Organisation	UHI

Uncomplicated urinary tract infections (UTIs) are a substantial burden on the NHS, accounting for ~3% of all GP consultations and 800,000 hospital admissions in 5 years. They also account for ~20% of antibiotic prescriptions in primary care, at a cost of ~ £47 million, which contributes to antimicrobial resistance, indirectly costing the NHS even more. Currently there are 3 options for dealing with uncomplicated UTIs. Blind prescription of a broad-spectrum antibiotic; sending a sample away for a full culture to allow more targeted prescribing, taking ~72 hrs; or carrying out a urinary dipstick test. Although the dipstick test is cheaper and quicker than a full culture, they are unreliable and give no indication on what the most appropriate antibiotic to prescribe is. There is a need, therefore, for a quick test which accurately identifies a UTI and its antimicrobial resistance profile.

We are creating a colour-based product using superabsorbent polymers, which when rehydrated with urine, will swell and change colour in the presence of bacteria. By using processes within bacterial cells to produce the colour, our product will not only detect the majority of UTIs; but will also indicate what the most effective antibiotic is. Our aim is to make this test fast enough for same day results; and as it doesn't require any complex technology, it will be cheap and easy to use in any location, such as doctor's surgeries, pharmacies or even at home. This will take the financial burden of testing away from hospitals and primary care.

Names and organisation of all other authors	David Howarth - iDE8 Ltd, Annika Ainslie - iDE8 Ltd, Janet Adamson - UHI, Ian Megson - Life Science Consultancy

Poster 13	**Service Evaluation of the Percutaneous Coronary Intervention Centre at Raigmore Hospital - a remote and rural district general hospital**
Name of presenter	Emily Wright
Organisation	Warwick Medical School, University of Warwick

Coronary heart disease (CHD) is the single biggest killer in Scotland and can lead to occlusion of the vessels in the heart. CHD can present as Acute Coronary Syndrome (ACS), an umbrella term that includes ST-elevation myocardial infarction (STEMI), in which percutaneous coronary intervention (PCI) should be performed to reduce long-term complications or even death.

The PCI centre at Raigmore Hospital opened in 2010. Prior to opening, patients received either thrombolysis therapy or were transferred to Aberdeen, a minimum 2-hour ambulance journey away, increasing the risk of long-term complications. This project aimed to evaluate the PCI centre looking at the growth since opening and the standard of care provided in-comparison to the national key performance indicators (KPIs) set out by the British Cardiovascular Intervention Society (BCIS). This review identified a 78.9% increase in annual PCI cases over the last 10-years, in addition to an increase in percentage of Acute referrals (62% to 75%), with a 451.7% increase in the annual number of Primary PCI (PPCI) cases, highlighting how the service has developed to be able to accept more increasingly complex cases. Compared to national KPIs, since opening as a 24/7/365 service, the in-hour and OOH service have a median Door-to-Balloon time for PPCI within the 60-minute target time (median in-hours = 32 mins, OOH = 41 mins). In addition, the service exceeds the target of 75% of patients (in-hour = 84%, OOH = 79%). Further work should be carried out to work with the emergency services to improve ECG-to-Balloon time.	
Names and organisation of all other authors	Professor Stephen Leslie and Dr Jonathan Watt, Consultant Cardiologists, NHS Highland

Poster 14	**A review of morbidity and mortality outcomes in a cohort of elderly patients referred by NHS Highland for Transcatheter Aortic Valve Implantation (TAVI)**
Name of presenter	Dr Shannon Cowie
Organisation	NHS Highland

- **Background:** The Scottish population is ageing, with an estimated 50% increase in the over 60s by 2033 (1). Aortic stenosis is a common condition that occurs with ageing and treatment options can include Transcatheter Aortic Valve Implantation (TAVI). The aim of this review of clinical practice was to better understand morbidity and mortality outcomes in a cohort of elderly patients referred by NHS Highland for TAVI to guide future clinical referrals.
- **Methods**: A retrospective analysis was carried out on patients who underwent TAVI between May 2012 and October 2021. A total of 67 patients were included. Data were collected from a variety of sources including Clinical Portal, SCI Store and from the Highland Archive Centre. Data collected included patient demographics, pre- and post-procedure place of residence, mobility, medications, social care needs and co-morbidities. Data were also collected on cause of death.
- **Results:** The 5-year mortality for those aged 70-79 years (64.2%) and aged 90 or over (66.7%) was higher than those aged 80-89 years (53.6%). The most common cause of death was cardiovascular disease (25.0%) and respiratory disease (25.0%). Mortality at 5 years

was higher in those with 6-10 co-morbidities at time of referral (88.9% vs 55.6%). All those on 11 or more medications at referral had died within 5 years. Mortality at 5 years was higher in those who were non-care home residents prior to referral (80.8% vs 60%). Mortality was also associated with pre-referral diagnosis of diabetes, CKD, hypertension and chronic respiratory conditions.

- **Discussion:** Data collected highlights the importance of frailty markers in predicting mortality. Limited data could be collected on morbidity outcomes retrospectively due to lack of information available. Considering the ageing population, it is important to better understand the long-term outcomes, in terms of return to pre-morbid function and overall quality of life, in this subset of patients.

Names and organisation of all other authors	Professor Stephen Leslie (Cons Cardiologist NHS Highland), Dr Jonathan Watt (Cons Cardiologist NHS Highland)

Poster 15	**Souls Shaped By Our Land: A Systematic Review of Rural Infant Mental Health Provision**
Name of presenter	Viviane Rodgers
Organisation	NHS Highland CAMHS - Argyll and Bute

There is a growing acceptance of the need for specialist infant mental health services in Scotland, with the Scottish Government pledging to support health boards in delivering expert care.
There is to be an additional focus on island, rural and more remote populations.
McFadyen and Love (2020) produced a detailed paper, 'Wellbeing for Wee Ones – Summary Report', in which Scottish infant mental health service provision was mapped.
Infant mental health "refers to babies' social and emotional development in the first years of life.
A systematic review was conducted of published literature about infant mental health services in rural communities. Fifteen papers from across the globe were sourced from nine databases, spanning from 2012 to 2022.
Four models were identifed, with home visiting being the most prevalent intervention, followed by a consultation model, interagency working, establishing a specialist clinic and finnally the creation of an association for infant mental health.
There is some evidence that a consultation model (Allen, 2012; Vuyk, 2016; Taylor, 2019) Child Parent Psychotherapy (CPP) (Barnett, 2014) or Video Interactive Guidance (VIG) (Knoche, 2012) would be an effective intervention in rural settings.

Names and organisation of all other authors	

Poster 16	**Feasibility and acceptability of remote and hybrid neuropsychological assessment in rural settings**

Name of presenter	Oisín Young
Organisation	NHS Highland

Neuropsychological tests assess cognitive functions such as memory, problem-solving, and attention. These can be conducted in-person and via video call. This study explored factors influencing experiences of both formats to inform future improvements.

Structured questionnaires gathered feedback from clinicians and service users. Eight clinicians completed questionnaires on 88 assessments, while 50 service users provided feedback. Questionnaires assessed satisfaction, experience, and psychological distress. Feasibility was defined as more than 50% service user participation, and acceptability as clinician and service user satisfaction exceeding 50%. The study also explored factors affecting satisfaction, such as confidence and experience with remote methods, service users' travel distance, psychological distress, and seasonal variations. Data were analysed using SPSS to identify patterns and relationships.

The study aimed for over half of the assessments to be conducted remotely, but only 46.6% met this criterion. Despite this, clinicians and service users expressed high satisfaction with remote assessments. Key findings included a negative relationship between service users' technological confidence and satisfaction. Clinicians with more experience using remote methods reported higher satisfaction. Service users found remote assessments more convenient, but 60% still preferred in-person assessments. Satisfaction was not significantly affected by prior healthcare experience, psychological distress, or the time of year.

This study highlights the acceptability of remote neuropsychological assessments despite not meeting feasibility criteria. Participation rates were lower than expected, suggesting personal preferences and environmental conditions may influence format choice. Flexible assessment options are needed to meet diverse needs.

Names and organisation of all other authors	Dr Ruth Sumpter, NHS Highland Dr Jessica Fish, NHS Highland

Poster 17	**PHOENIx (Pharmacist and third sector Homeless charity worker Outreach Engagement Non-medical Independent prescriber Rx)**
Name of presenter	Jennifer O'Loan
Organisation	HIPER (Highlands and Islands Pharmacy Education and Research)

People experiencing homelessness are among the most marginalised, destitute and vulnerable group of people in the UK. Despite most homeless persons being in their late 30s, most have 7 different health problems. This is on a par with people aged 85 years living in their own homes. Most homeless persons die before they reach 43 years of age and many deaths are preventable if they receive care but homeless persons find it difficult, amidst all their competing needs, to seek help until it is too late. Most health services operate by appointment, in buildings, whereas homeless persons are displaced and may be far from their health providers leading to fragmented care. Health

conditions often remain underdiagnosed, untreated and they drop out of care unintentionally, because of their chaotic circumstances. Drug overdose, repeat cycle of homelessness, high use of emergency departments are common.

PHOENIx is a multicentre randomised control trial. Eligibility criteria are homeless (includes unstable accommodation), recent non-fatal overdose and involvement in criminal justice service. Participants are randomised to usual care or intervention.

Intervention aims to increase access to holistic preventative primary healthcare and improve the socioeconomic factors associated with homelessness. Participants are offered weekly input for a pharmacist and third sector charity worker focusing on providing "whole person" help for all health and social care needs.

Outcomes measured include healthcare utilisation including hospital admissions, GP contacts and Scottish ambulance call outs, Time from randomisation until first Emergency department visit, death and hospitalisation and patient reported measured.

Names and organisation of all other authors	Dr Gordon Rushworth- HIPER (Highlands and Islands Pharmacy Education and Research) Dr Alexandra Dallas- NHS Highland Andrea Sutherland- New Start Highland Dr Richard Lowrie- University of Edinburgh Jane Moir- University of Edinburgh

Poster 18	**A Holistic and Integrated Approach to Addressing Health and Care Challenges Through Digital Innovation**
Name of presenter	Marie Simpson
Organisation	Digital Health & Care Innovation Centre (Rural Centre of Excellence in the Moray Region)

The Rural Centre of Excellence (RCE) is a £5M UK government programme of living labs delivered by the Digital Health & Care Innovation Centre (DHI) as part of the Moray Growth Deal. This Research and Development (R&D) ecosystem in the northeast of Scotland enables industry to access service and citizen test bed opportunities to develop needs-led digital health and care solutions.

The RCE comprises 5 independent living labs, underpinned by a technical infrastructure which tests an example of a localised digital front door using national platforms. These include a Community Connections service directory to meet a citizen and service desire for a 'one stop shop' resource, and a citizen controlled Personal Data Store (PDS) to overcome cross sector data silos and minimise the citizen's need to repeat their story. Together, the living labs span the care continuum creating an integrated health, care and third sector suite of digital tools which support a shift in the balance of care from reactive, to a digital-first approach which maximises opportunity for supported self-management and a predictive/preventative approach to release capacity and direct finite statutory resources. Innovation pathways being developed and tested in Moray include weight management,

type 2 diabetes, occupational therapy, care in place, technology enabled care, smart housing, and mental wellbeing. DHI work in parallel with the national digital health and care strategic infrastructure and act as a pathfinder to develop and test solutions which can be scaled and adopted. The RCE is now gaining significant interest both nationally and internationally.

Names and organisation of all other authors	

Poster 19	**The HOPE app – A tool to support Overdose Prevention and Engagement in Highland**
Name of presenter	Andrew Kyle
Organisation	NHS Highland

- **Background:** Drug-related deaths in Scotland are high and have seen a significant rise since 2013. Digital technology to prevent and respond to overdoses has the potential to save lives.
- **Description of model of care/intervention:** The Highland Overdose Prevention and Engagement (HOPE) app was created with input from people with lived experience and experts from NHS Highland. The HOPE app is a source of information for people with drug and or alcohol problems, as well as their families or friends, which helps prevent overdose and encourages engagement with services that can help.
- **Effectiveness:** The HOPE app launched on the 8th April 2021. In 2024, 803 people had downloaded and interacted with the app. In 2024, there were 14,000 views of pages. In 2024, the top pages for viewing included the Main Menu, Overdose Information, Other Support, about and Drug & Alcohol support.
- **We have received feedback including:** "Fantastic app which will be an invaluable tool in both supporting those at risk and helping to address the sad loss of life due to substance use". "An invaluable tool for everyone. Really easy to navigate with clear, concise advice".
- **Conclusion and next steps:** Drug use can be complex; the app provides a range of information to address different types of use and provides signposting for further support. People have greater access to digital solutions that help keep them safe and connect with supportive services.

Names and organisation of all other authors	Eve MacLeod, Highland Alcohol and Drugs Partnership

Poster 20	**Planet Youth: An evidence based primary prevention approach to improving health outcomes of children and young people through reducing and delaying substance use.**
Name of presenter	Vicki Clark

Organisation	NHS Highland

Between 2019-2023, 10.5% of drug-related deaths in Highland were for people aged 15-24 years, compared to 5.6% in Scotland. There was a lack of focused prevention in Highland despite primary prevention of adolescent substance use being a key public health priority. To make improvements an upstream, primary prevention whole systems approach was required and the Planet Youth (PY) approach showed characteristics of effective prevention work.

The improvement journey was initiated through this identified need for change. In 2021 the NHS Highland Health Improvement team and Highland Alcohol and Drugs Partnership carried out the first PY survey in 5 Pilot schools in Highland. The PY team then shared the data with a Strategic Coalition group consisting of a wide range of stakeholders. Survey data from 2021 was used to better understand the current system and identify where improvements could be made. This led to the creation of an action plan which concentrated on specific change ideas focusing on 41 indicators. How well these changes had been implemented was then assessed through evaluation.

Of the 41 indicators linked to the 2021 action plan, by comparison, the 2023 survey data showed that 11 indicators were worse, 5 were the same and 25 were better. 61% of the indicators showed improvement. It is too early to see trends emerging with only 2 data points however the initial results are promising.

Names and organisation of all other authors	Lindsay Broomfield, NHS Highland

Poster 21	**From Bottles to Breakthrough: NHS-Safe, On-Demand Sterile Water with Zero Consumables**
Name of presenter	Duncan Peters
Organisation	IF Water

This session presents the findings from a recently completed NHS innovation pilot evaluating a new point-of-use water purification technology for clinical applications. The tested system—designed to produce sterile-grade water without filters, membranes, or consumables—was trialled within an NHS setting for six months.

Key findings show significant cost savings by replacing bottled and sterile water with on-demand purification. The pilot site reports a £22,000 saving over bottled water use in one LDU over 5 years. Importantly, the system required no changes to infrastructure, no consumable replacement cycles, and minimal staff input.

From a sustainability perspective, the environmental impact was substantial. The switch removed the need for plastic packaging, transport, and energy-intensive bottling, translating into a carbon saving of 43 tonnes CO_2e across the Public Dental Centre over 3 years, contributing directly to NHS Net Zero targets.

The system was independently verified by a UKAS-accredited laboratory and confirmed to exceed standards for steam sterilisation and endoscopy water user cases. Real-time performance data from the NHS pilot confirms consistent water quality and reliability. This talk is especially relevant to clinicians and operational leads relying on clean water for patient safety, estates teams seeking low-maintenance, reliable infrastructure, and sustainability officers working toward carbon reduction commitments. It provides a clear model of how new technologies can reduce operational burdens while enhancing care delivery and environmental responsibility. Join us to explore a clinically-validated innovation with immediate, measurable impact for the NHS.

Names and organisation of all other authors	

Poster 22	**Scaling Up Antimicrobial Stewardship and Safe Antibiotic practices in Eastern Province, Zambia: Discussing a "Hub and Spoke model"**
Name of presenter	Njobvu Neverson
Organisation	Chipata Central Hospital, Zambia

Chipata Central Hospital (CCH) is now a recognized AMS centre of excellence in Eastern Province. During this project it has implemented an AMS programme using a hub and spoke model at three districts spoke sites, providing training, forming AMS committees, conducting GPPS and developing district-level action plans and guidelines. Supported by NHS Highland (Scotland), the programme has collaborated with a range of stakeholders. A one health approach was used and AMS interventions spanned primary, secondary health facilities, farming and veterinary sectors and the wider public domain.

Careful planning, team work, high level managerial support, strong leadership, knowledge sharing and goal setting were key achievements in influencing project goals. Tracking factors that hinder progress has also been an important project achievement . Examples of these include limited resources at spoke sites (e.g. drug availability, lab capacity); public behaviours and expectations, staff behaviours (e.g. poly pharmacy + empirical prescribing); and other competing priorities at hospital levels. Recognition of individual spoke site challenges, has helped tailor AMS interventions appropriately. Key features of success include the dedication of the AMS committee and enrolment of CCH pharmacist in the Africa Leader Fellowship for AMS. Distinctive features were the community AMS awareness activities and radio broadcasts across eastern province. Specific examples of organisational change include the implementation of antimicrobial prescription charts across all sites, AMR ward rounds, and implementation of protocol-guided antimicrobial procurement with an antibiogram to support prescriptions.

The hub and spoke model have been efficient in the implementation of the AMS programme by providing a structured and co-ordinated one health approach, creating a working synergy to reach common goals across the spoke sites, and delivering community engagement interventions. The Hub

has an overview of the spoke network and has been able to rationalise its resources accordingly, sharing knowledge efficiently and adapting interventions to the unique needs of each spoke site.	
Names and organisation of all other authors	

Poster 23	**Colon Capsule Endoscopy: The challenges faced by clinicians and researchers in integrating a proven waiting-list reducing innovation**
Name of presenter	Ruari Jardine
Organisation	NHS Highland
An AICE project poster about getting patient data and working as part of a horizon project. The poster will give a brief description of CCE and its benefits, the challenges faced thus far and how we are working to overcome them.	
Names and organisation of all other authors	

Poster 24	**Music: The Attention Shortcut**
Name of presenter	Gordon Anderson
Organisation	Memory Tracks Ltd
In a world of fragmented focus, music acts as a shortcut to the brain. While words and visuals have to work to break down cognitive resistance, music bypasses much of that resistance by appealing directly to the brain's emotional and pattern-recognition centers. That's why advertising, social media content, and even political campaigns increasingly rely on memorable music — it's a proven, powerful tool to seize and hold attention. The MedTracks medication adherence app - developed with NHS Highland - has shown how we can harness this shortcut. There is more we can do in the areas of Alcohol Misuse and Drugs, Obesity, and Mental Health. When the 'noise' of life is deafening, a well-placed melody can be the one thing that cuts through.	
Names and organisation of all other authors	

Poster 25	**System Change in the NHS - Challenges of Achieving Effective System Change (An Opinion Piece)**
Name of presenter	Frances Hines
Organisation	NHS Highland

This poster brings together some of the key issues that face the NHS and considers how changes need to be made to find fully integrated system-based changes for the future.

NHS Highland, along with all other NHS Boards / Trusts need to look to the horizon to think about how we will deliver our services in the future, what we will need to change and what new approaches we will need to incorporate to make these changes acceptable, implementable and robust.

One of the key issues facing NHS Highland is the combination of the five challenges - obesity / mental health / drugs & alcohol / finance and delayed discharge. Together these challenges, along with managing multiple long-term conditions, the need for better health prevention and reduction in health inequalities means that currently our services struggle with keeping people well, out of hospital or discharged on time.

We need to find ways to empty hospitals and reserve them for those who have to be there which will lead to greater benefit to patients, to overall health and wellbeing and to greater health service efficiency and reduction of costs. This is not a report on current research, development or innovation - it is an opinion piece designed to stimulate debate - acceptance, rebuttal or comment.

Names and organisation of all other authors	

7. Exhibitor zone

We have several exhibitors who will be available to discuss their work during the catering breaks. Please take the opportunity to browse the exhibits. The exhibition areas are located in the 'Street' on the ground floor and on the first floor Mezzanine area.

Exhibitor - SRUC Rural and Veterinary Innovation Centre	**Location: The Street**
SRUC Opened in 2024, the Rural and Veterinary Innovation Centre (RAVIC) is SRUC's new £12.5m facility linking science and industry to help address planetary health challenges and grow the natural economy. RAVIC's mission is to help drive growth through collaborative enterprise and innovation for Scotland's health, agriculture, and aquaculture industries. It will provide critical expertise and infrastructure to better manage challenges including antimicrobial resistance, zoonotic disease, and the effects of climate change through applied research, innovation, education, and consultancy.	

Exhibitor - NHSH RDI, Clinical Research Facility	**Location: Mezzanine**
NHS Highland na Gàidhealtachd RD&I NHS Highland Clinical Research Facility. Come and meet our staff to find out more about the current studies we are delivering , opportunities to be part of research for patients and staff and patient and public involvement in what we do.	

Exhibitor - NHS Highland Smoke-Free Service	**Location: The Street**
NHS Highland na Gàidhealtachd Specialist Advisers provide Smoking Cessation Services across the NHS Highland area. The NHS Highland Smoke-Free Service provides a range of support options to suit everyone who is motivated to quit or cut down smoking, vaping or use of any nicotine containing products. Our exhibition stand looks at the costs of smoking to NHS Scotland and NHS Highland in terms of hospital admissions, long-term limiting physical and mental health conditions, smoking attributable deaths, years of healthy life lost and how we are working as a service to raise awareness of the impacts of smoking, vaping and tobacco products and support those who join our service.	

Exhibitor - NHSH RD&I, Innovation	Location: The Mezzanine

NHS Highland Innovation identifies and co-develops promising innovative technology products. We test whether innovation can help solve major healthcare delivery challenges. Our Triple Helix approach combines NHS, industry and academic expertise to improve care today and in the future.

Exhibitor - Digital Health & Care Innovation Centre's Rural Centre of Excellence in the Moray Region	Location: The Street

The Digital Health & Care Innovation Centre (DHI) are a national resource, key enabler and catalyst for change, occupying a unique and visible position at the heart of the Scottish innovation ecosystem for digital health and social care. We work in parallel with the national digital health and care strategic infrastructure and act as a pathfinder by researching, developing, and testing needs led and service embedded digital solutions to meet health and care challenges, with relevance for adoption at scale. The Rural Centre of Excellence (RCE) is a £5M R&D project funded by the UK government and managed by DHI under the Moray Growth Deal. Due to its transformational potential, the programme of work is attracting significant national and international interest, putting the north of Scotland in a strong position to influence and shape how future services are delivered and received.

The RCE comprises 5 independent living labs, underpinned by a technical infrastructure which tests an example of a localised digital front door using national platforms. These include a Community Connections service directory to meet a citizen and service desire for a 'one stop shop' resource, and a citizen controlled Personal Data Store (PDS) to overcome cross sector data silos and minimise the citizen's need to repeat their story. Together, the living labs span the care continuum creating an integrated health, care and third sector suite of digital tools which support a shift in the balance of care from reactive, to a digital-first approach which maximises opportunity for supported self-management and a predictive/preventative approach to release capacity and direct finite statutory resources. Innovation pathways being developed and tested in Moray include weight management, type 2 diabetes, occupational therapy, care in place, technology enabled care, smart housing, and mental wellbeing. It is also supported by a skills and workforce package to ensure digital inclusion and upskilling for staff and citizens.

Come and visit our stall to find out more, and get involved in this exciting transformational programme.

Exhibitor - IF Water	Location: The Street

Introducing MedicalOne.
The only high purity low maintenance medical water purifier in healthcare.

Exhibitor - The Data Lab	Location: The Street

The Data Lab is Scotland's innovation centre for data and AI, hosted by the University of Edinburgh and part of the National Innovation Centre Programme funded by the Scottish Funding Council. Through hubs in Edinburgh, Glasgow, and Aberdeen, we foster innovation through collaboration, build skills and grow talent, and champion Scotland's data science community. We help Scotland maximise value from data and AI and lead the world to a data-powered future.

8. Delegates

First name	Surname	Role / Job Title (if applicable)	Organisation / NHSH Department
Adam	Giangreco	Head of Business Development	SRUC Rural and Veterinary Innovation Centre
Ahmed	Hussein	Internal Medicine Trainee year 3	NHS Highland
Alexandra	Dallas	GP with Drug and Alcohol Recovery Service and Homeless Healthcare Service (NHS Highland)	Drug and Alcohol Recovery Service and Homeless Healthcare Service (NHS Highland)
Alison	Rutter	Research Assistant	UHI
Andrew	Moss	Associate Planning & Strategy Director	Optum
Andrew	Kyle	Health Improvement Specialist	NHS Highland - Health Improvement Team
Andrew	Kyle	Health improvement specialist	NHS Highland - Health improvement
Anna	Robertson	Cancer Trials Data Manager	Cancer Trials / RDI
Anna	McIver	RD&I Governance Lead	Research, Development and Innovation (RD&I) NHS Highland
Annabel	Ross	Medical Director	Highland Consulting Room
Anne	Fraser	Primary Care Mental Health Team Lead	NHS Highland
Antonia	Pritchard	Reader (Genetics and Immunology)	University of the Highlands and Islands
Arlene	Johnstone	Head of Mental Health, Learning Disability and DARS	HHSCP - NHSH Mental Health Services
Ashwin	Bantwal	Consultant Psychiatrist	New Craigs Hospital
Avril	Donaldson	Primary Care Research Nurse	Clinical Research Facility
Bernadette	Milligan	Audit Manager	Audit Scotland
Beth	Sage	Director of Research, Development and Innovation, Consultant in Respiratory Medicine and Honorary Senior Lecturer University of Aberdeen	NHS Highland
Bev	Fraser	Strategic Lead	NHS Highland - Drug and Alcohol Recovery Services
Brian	Williams	Deputy Principal (academic and research)	UHI
Carol	Calder	Audit Director	Audit Scotland
Carolyn	Hunter-Rowe	Head of Public Health Intelligence	Public Health
Cat	Clark	Specialist Midwife - Smoking, Drugs and Alcohol	NHS Highland - Public Health - Health Improvement team
Catriona	Macdonald	Project manager	Centre for Sustainable Delivery - NHS Golden Jubilee

First name	Surname	Role / Job Title (if applicable)	Organisation / NHSH Department
Charlotte	Barr	Lead Research Nurse	NHS Highland
Chris	Cunningham	RD&I Facilitator	NHS Highland RD&I Division
Claire	Dawson	Specialty doctor	Highland Eating Disorder Service
Clare	Bradley	Research Dr	NHSH RDI
Colette	Mustard	Research Assistant	UHI
Connie	MacKinnon	PhD Student	UHI
Daniel	Scott	GP partner and IT lead	Dingwall Medical group
David	Vermaak	Senior Project Officer	Strategy & Transformation
Denise	Campbell	Senior Data Manager Cancer Trials	R,D& I, NHS Highland
Derek	McGhee	Dean for Research and Innovation, UHI	UHI
Dev	Srivastava	Cons	Anaesthesia
Donna	Patience	Senior Data Manager	RD&I
Duncan	Peters	Founder	IF Water
Eddie	Gilmartin	Rural General Hospital Manager	NHSH Caithness General Hospital
Elizabeth	McDonald	Clinical Educator NQP	NHS HIGHLAND
Ellen	Packham	Commercial Partnerships Manager	UHI
Emma	Coghill	Research assistant- One health	UHI- Division of Biomedical sciences
Fiona	Tait		Right Medicine Pharmacy
Fiona	Main	Advanced Practice Podiatrist	NHS Highland
Frances	Buckley	Consultant Haematologist	Haematology Dept, NHS Highland
Frances	Matthewson	Research and Intelligence Specialist	Highland Alcohol and Drugs Partnership
Frances	Hines	Research Development and Innovation Manager	NHS Highland
Gillian	Maxwell	Biosensor Development Scientist (KTP Associate)	The University of the Highlands and Islands
Gordon	Marnoch	Researcher in public policy	Formerly Ulster University
Gordon	Anderson	CEO	Memory Tracks Ltd
Hazel	Smith	Unscheduled Care Programme Manager	NHSH - Corporate Services
Jacob	Roberts	Research assistant - medical nanotechnology	University of the Highlands and Islands
Jane	MacKinnon	Consultant Ophthalmologist	Ophthalmology, NTC-H
Jane	Urquhart	Clinical trials assistant	RD&I
Janet	Adamson	Laboraotry Manager	University of the Highlands and Islands
Janet	Scott	Consultant in Acute & Research Medicine	NHS Highland
Jay	Evans		IH Mobile Health
Jenn	Cargill	Health Improvement Adviser	NHS- Public Health dept
Jennifer	Nicholls	RDI Administrator	Research, Development & Innovation

First name	Surname	Role / Job Title (if applicable)	Organisation / NHSH Department
Jennifer	O'Loan	Pharmacist	HIPER (Highlands and Islands Pharmacy Education and Research)
Jill	Jones	Clinical Trials Assistant	R D + I Department
Jill	MacRae	Advanced Practice Dietitian	NHS Highland Nutrition and Dietetics
Jo	Cecil	Dr	University of St Andrews/ School of Medicine
Joanna	Matheson	Clinical Research Nurse	NHS Highland
Jonny	Sibbring	Primary Care Out of Hours Project Manager	Argyll and Bute Primary Care Team
Julie	Munro	PhD student	NHS Highland Cardiology - Highland Heartbeat Centre
Kate	Patience-Quate	Deputy Nurse Director	Corporate NMAHP
Katharine	Jones	Salaried GP	Alness & Invergordon Medical Practice, NHS Highland
Kathleen	Watson	Pharmacy Assistant - clinical trials	Raigmore pharmacy NHS Highland
Keith	Farrell	CEO	HHVL Ltd
Kenneth	Barker	Clinical Lead	National Green Theatres Programme, CfSD
Kim	Maclean	District nurse team lead	NHS Highland
Kiersten	Henderson	Research Nurse	Cancer Trials, NHS Highland
Kirsty	Rolland	IMT3	Acute Medicine
Lana	Bloy	Staff nurse	Ward 2C, Raigmore hospital
Laura	Murphy	Practice Manager	Cromarty Medical Practice - part of Riverside Highland Medical Group (RHMG).
Laura	Hulse	Consultant Nurse	NHS Highland
Laura	O'Keeffe	Clinical Research Nurse	R,D & I
Laura	MacLennan	Lead Cancer Research Nurse	NHSH Cancer Clinical Trials
Laura	Mcilhatton	Research, Development & Innovation Finance Lead	NHS Highland
Lee	Heaney	Innovation Manager	NHS Highland
Leigh	Mair	Health Systems Engagement Lead	Boehringer Ingelheim
Linda	Birnie		Thinking Space
Lorien	Cameron-Ross	Speciality Doctor Clinical Research Facility	NHS Highland
Lorna	Youngson	Specialty Research Doctor	Clinical Research Facility, RD&I Division
Louise	Muir	Data Manager	NHS Highland - Cancer Trials
Louise	Benson	Health Improvement Adviser	Public Health, Smoking Cessation
Lucy	Fraser	Head of Innovation	Albyn Housing Society
Lucy	Storey	ANP	Burnfield MP

First name	Surname	Role / Job Title (if applicable)	Organisation / NHSH Department
Marie	Simpson	Programme Manager	Digital Health & Care Innovation Centre
Mary	McKenzie	Senior Pharmacy Technician	NHS Highland Pharmacy Department
Mary	Miller	Clinical Research Nurse	RD &I
Michael	MacKenzie	Consultant Physician	Infectious Diseases & Global Health, NHS Highland
Michelle	MacDonald	Project and Finance Administrator	DHI
Michelle	Beattie	Senior Lecturer	University of the Highlands and Islands
Muriel	Crout	People Partner	NHSH People and Culture
Neil	McNamara	Consultant Psychiatrist	NHS Highland
Neil	McPhail	Consultant Clinical Oncologist	Dept of Clinical Oncology, Raigmore
Neverson	Njobvu	Pharmacist	Chipata Central Hospital
Nikki	Beaton	Project Coordinator	RDI
Nini	Ochuba	Business Development Executive	The Data Lab
Oisín	Young	Trainee Clinical Psychologist	
Oliver	Wain	Senior Health Improvement Specialist	Public Health, NHSH
Owen	Mills	Head of Clinical Technology	NHSH Medical Physics & Bio-Engineering
Owen	McDonald	Specialist Registrar	NHS Highland Public Health
Padraig	Lyons	Specialist registrar, Public Health Medicine	NHS Highland
Pamela	McKay	Lecturer Nursing	UHI
Paul	Nairn	Regional Planning Manager	NHSH / Strategy & Transformation
Philomena	Hallford	Research Technician/PhD student	Division of Biomedical Sciences UHI
Rachael	Campbell	Research Nurse	R,D&I Department, Cancer Trials
Rachel	Mackay	Senior Data Manager	Cancer Trials
Rebecca	Baird	Specialty Doctor	Infectious Diseases
Rebecca	Clark	ERAS Practitioner	Orthopaedics
Richard	Lowrie	Project Manager	NHSH - Strategy & Transformation
Roisin	Johnston McCallum	Clinical Nurse Manager	Medical Division, Raigmore Hospital
Rosemary	Clarke	Consultant Medical Biochemist	Blood Sciences
Ross	Wilson	Medical Education Fellow	NHS Highland Medical Education Department
Sam	Mcphail	Nurse lecturer	Uhi
Sandra	Dekker	Health Protection Nurse	NHS Highland
Sarah	Hobbs	Health Improvement Adviser	NHS Highland / Health Improvement
Sarah	Griffin	Senior Public Health Intelligence Specialist	Public Health

First name	Surname	Role / Job Title (if applicable)	Organisation / NHSH Department
Shannon	Cowie	IMT2 Doctor	General Internal Medicine
sheena	murdoch	neurology consultant	NHS Highland
Stephanie	Govenden	Consultant Community Paediatrician	Child health and public health
Steve	Leslie	Cardiologist	NHSH
Stewart	Murdoch	Conventional Imaging Team Lead	NHS Highland - Radiology Department
Tatyana	Brown	RD&I Project Manager	NHSH RD&I
Tracy	Ligema	Head of TEC & Digital Transformation	HSCP
Una	Taylor	Inpatient and Oncology clinical trial pharmacist	NHSH Pharmacy
Valerie	Anderson	Clinical Research Nurse	NHS Highland RD&I
Zoe	Urquhart	Senior Pharmacy Technician Cancer Clinical Trials	Pharmacy Department