NHS Research Scotland (NRS) Primary Care Publications Newsletter No. 3, February 2024

Dear colleagues

Welcome to the third issue of our Publications Newsletter.

Below you will find recent publications from studies that the Network and GP practices across Scotland have supported. We hope this will help the practice to keep up to date with the literature, and that GPs find it useful for their appraisal. The papers are presented in order of project name.

Best wishes

www.nrs.org.uk/primarycare

Project: **ADxDA**

Title of paper: **Patient views on asthma diagnosis and how a clinical decision support system could help: A qualitative study**

Reference: Health Expectations 2023; 26: 307-317

Authors: Canny, A, Donaghy, E, Murray, V, *et al.*

url: https://doi.org/10.1111/hex.13657

Summary: **Introduction**: Making a diagnosis of asthma can be challenging for clinicians and patients. A clinical decision support system (CDSS) for use in primary care including a patient-facing mode, could change how information is shared between patients and healthcare professionals and improve the diagnostic process.

Methods: Participants diagnosed with asthma within the last 5 years were recruited from general practices across four UK regions. In-depth interviews explored patient experiences relating to their asthma diagnosis and to understand how a CDSS could be used to improve the diagnostic process for patients.

Results: Seventeen participants undertook interviews, including 3 parents of children with asthma. Being diagnosed with asthma was generally considered an uncertain process.

Participants felt a lack of consultation time and poor communication affected their understanding of asthma and what to expect. Had the nature of asthma and the steps required to make a diagnosis been explained more clearly, patients felt their understanding and engagement in asthma self-management could have been improved. Participants considered that a CDSS could provide resources to support the diagnostic process, prompt dialogue, aid understanding and support shared decision-making.

Conclusion: Undergoing an asthma diagnosis was uncertain for patients if their ideas and concerns were not addressed by clinicians and were influenced by a lack of consultation time and limitations in communication. An asthma diagnosis CDSS could provide structure and an interface to prompt dialogue, provide visuals about asthma to aid understanding and encourage patient involvement.

Project: **App for AF**

Title of paper: **Increasing Medication Adherence Among Adults With Atrial Fibrillation**

Reference: CSO report 2023

Authors: Neubeck L, on behalf of the research team

url: https://www.cso.scot.nhs.uk/wp-content/uploads/HIPS1839-1.pdf

Summary: **Aims**: This study co-designed a mobile health app aimed at increasing oral anticoagulant medication adherence in an atrial fibrillation (AF) population. It aimed to test the mobile intervention to identify the most valid, reliable, and practical measure of medication adherence in this population. The study was a feasibility RCT to test whether the app intervention was acceptable or not. The trial focused on evaluating whether it is practical and possible to recruit, keep AF participants in the study and identify patient barriers and facilitators to engaging with an app-based intervention.

Key findings:

- AF patient co-design resulted in the development of an AF nurse avatar-based medication adherence mobile health app.
- The 2 questionnaires used to assess medication adherence (the Medication Adherence Rating Scale and Beliefs about Medications Questionnaire) were practical and acceptable. Patients were unwilling to take part when blood tests were requested, but this coincided with the COVID pandemic and difficulties accessing healthcare services.
- A mobile health app intervention was acceptable to patients, but they perceived greater benefit for those with newly diagnosed AF who have yet to establish medication adherence routines and behaviour patterns.

Project: **CHIPPS 6 (final RCT)**

Title of paper: **Evaluation of effectiveness and safety of pharmacist independent prescribers in care homes: cluster randomised controlled trial**

Reference: BMJ 2023;380:e071883

Authors: Holland R, Bond C & Alldred DP *et al.*

url: https://doi.org/10.1136/bmj-2022-071883

Summary: **Objective**: To estimate the effectiveness, cost effectiveness (to be reported elsewhere), and safety of pharmacy independent prescribers (PIPs) in care homes.

Design & setting: Cluster RCT, clusters based on triads of a PIP, a general practice, and one to three associated care homes. The clusters were across England,

Scotland and Northern Ireland.

Participants: 49 triads and 882 residents of care homes aged ≥65 years, taking at least one prescribed drug.

Intervention: Each PIP provided pharmaceutical care to ~20 residents across one to three care homes, with weekly visits over six months. PPIs developed a pharmaceutical care plan for each resident, did medicines reviews/reconciliation, trained staff, and supported with medicines related procedures, deprescribing, and authorisation of prescriptions. Participants in the control group received usual care.

Main outcomes measures: The primary outcome was fall rate/person at six months, adjusted for prognostic variables. Secondary outcomes included quality of life (EQ-5D by proxy), Barthel score, Drug Burden Index, hospital admissions, and mortality.

Results: The average age of participants at study entry was 85y; 70% were female. 697 falls (1.55 per resident) were recorded in the intervention group and 538 falls (1.26 per resident) in the control group at six months. The fall rate risk ratio for the intervention group compared with the control group was not significant (0.91, 95% CI 0.66 to 1.26) after adjustment for all model covariates. Secondary outcomes were not significantly different between groups, with exception of the Drug Burden Index, which significantly favoured the intervention.

A third (185/566; 32.7%) of PIP interventions involved medicines associated with falls. No adverse events or safety concerns were identified.

Conclusions: Change in the primary outcome of falls was not significant. Limiting follow-up to six months combined with a small proportion of interventions predicted to affect falls may explain this. A significant reduction in the Drug Burden Index was realised and would be predicted to yield future clinical benefits for patients. This large trial of an intensive weekly pharmacist intervention with care home residents was also found to be safe and well received.

Project: **CLASP**

Title of paper: **Experiences of using a supported digital intervention for cancer survivors in primary care: a qualitative process evaluation**

Reference: J Cancer Surviv (2023)

Authors: Smith J, Essery R, Yardley L *et al.*

url: https://doi.org/10.1007/s11764-023-01412-2

Summary: **Background**: Increasing healthy behaviours (e.g. physical activity) can improve cancer survivors' quality of life. Renewed is a digital intervention developed to provide behaviour change advice with brief healthcare practitioner support. A three-arm RCT(Renewed, Renewed with support or a control condition) suggested that prostate cancer survivors in the supported arm had slightly greater estimates of improvements in quality of life compared to other cancer survivors. This study explored participants' experiences using Renewed to understand how it might have worked and why it might have provided greater benefit for prostate cancer survivors and those in the supported arm.

Methods: Thirty-three semi-structured telephone interviews with cancer survivors

(breast, colorectal, prostate) from the Renewed trial explored their experiences of using Renewed and their perceptions of the intervention. Data were analysed using inductive thematic analysis.

Results: Some participants only used Renewed modestly but still made behaviour changes. Barriers to using Renewed included low perceived need, joining the study to advance scientific knowledge or 'to give back', or due to perceived availability of support in their existing social networks. Prostate cancer survivors reported less social support outside of Renewed compared to participants with other cancers.

Conclusion and implications for cancer survivors: Renewed may support healthy behaviour changes among cancer survivors even with limited use. Interventions targeting individuals who lack social support may be beneficial. Cancer survivors' experiences may inform the development of digital interventions to better serve this population

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Project: Dying in the Margins

Title of paper: Dying in the Margins: uncovering the reasons for unequal access to home dyiing for the socio-economically deprived

Reference: Academic blog, University of Glasgow

Authors: Richards N and Quinn S

url: http://endoflifestudies.academicblogs.co.uk/dying-in-the-margins-reflections/

Summary: Drs Naomi Richards and Sam Quinn reflect on the challenges they met whilst running their study during the Covid-19 pandemic.

Project: **Exploring Patient experience of Remote Hypertension Management in Scotland During Covid 19 Qualitative Study**

Title of paper: **Patient experiences of remote hypertension management during COVID-19: a qualitative study**

Reference: Journal of Cardiovascular Nursing, Volume 22, Issue Supplement 1, August 2023

Authors: Michale S, Hanley J & Paterson M

url: https://doi.org/10.1093/eurjcn/zvad064.023

Summary: **Background**: Telemonitoring of blood pressure [BP] managed within primary care is effective in reducing the risk of cardiovascular disease in patients with hypertension. COVID-19 disrupted service delivery and affected the support of people living with hypertension. It is unknown how patients self-managed their BP during the pandemic.

Purpose: To understand patients' experience of hypertension service delivery in Scotland during the COVID-19 pandemic, with a focus on the use of remote BP telemonitoring technology.

Methods: Qualitative individual semi-structured telephone interviews were conducted between April and November 2022. Interview transcripts were analysed

using the framework approach.

Results: We interviewed 43 participants (23 male and 20 female) from 6 primary care practices. From the views of 25 patients utilising telemonitoring technology and 18 who did not, we identified five overarching themes that represented participants' experiences of hypertension services delivery during the pandemic:

- Adapting NHS services. Covid-19 disrupted routine services and resulted in infrequent in-person health checks for BP, asthma, and diabetes for both groups and a lack of primary care feedback for non-telemonitored patients' home-monitored BP.
- Navigating access to services. Gaining timely and/or in-person access to services was challenging. Also, there was fear and delay in access because it was viewed as a source of covid infection.
- Telemonitoring. Remote telemonitoring permitted telemonitoring participants to continue receiving hypertension management during the pandemic.
- Self-management of BP. Some non-telemonitoring participants were motivated to self-measure BP readings using home monitoring equipment to increase self-care for hypertension and lifestyle. Also, some telemonitoring participants were empowered to self-manage medication changes.
- Experiences of covid. Upon contracting the covid-19 virus, some participants experienced an immediate increase in their BP, and post-virus, longer-term increased BP readings and/or feelings of chest discomfort and breathlessness.

Conclusions: The covid-19 pandemic disrupted care for patients with hypertension and although it was clear that service delivery had been adapted, patients were unwilling to access the NHS due to covid-19 risk and found access to effective primary care support difficult. When compared to non-telemonitoring, telemonitoring provided a more direct link to the primary care team who were able to manage hypertension remotely. The service disruption may have longer-term implications for patient health outcomes; however, this study suggests there is greater scope for self-management of hypertension than currently recommended.

Project: **GPs experiences of and challenges in treating patients with severe mental illness for cardiovascular disease**

Title of paper: **What are the challenges / barriers for GPs in prescribing cardioprotective medication to patients with severe mental illness (schizophrenia, bipolar disorder, major depression)? A qualitative study in Edinburgh and Glasgow health board areas.**

Reference: SAPC conference 2023 Abstract

Authors: Vettini A, Brennan G, Mercer S & Jackson C

url: https://sapc.ac.uk/conference/2023/abstract/what-are-challenges-barriers-gps-prescribing-cardioprotective-medication

Summary: **Problem**: People with severe mental illness (SMI) die 10-20 years sooner than the general population, partly due to increased cardiovascular disease (CVD) risk. Data indicates poorer outcomes may be partly due to GPs lower prescribing rates

of cardioprotective medication to SMI patients. To our knowledge, no previous study has investigated GPs' views of SMI cardioprotective medication thus we explored their potential challenges.

Approach: 15 semi-structured qualitative interviews were conducted via Teams in Oct-Nov 2022 with GPs in NHS Lothian and NHS Greater Glasgow & Clyde. Qualitative data were audio- recorded, transcribed and analysed using NVivo software and thematic analysis.

Findings: Whilst GPs were aware that patients with SMIs had increased risks of CVD, reasons for lack of routine prescribing of cardioprotective medications in some of these patients were themed around: challenges/barriers, enablers and structural/contextual factors. Lack of funding and the general practice crisis has resulted in GPs being unable to optimally care for their SMI patients. They feel forced to 'firefight', managing only urgent health conditions, rather than using primary prevention.

Prescribing cardioprotective medication was viewed as dissonant with holistic medicine, as CVD risk was perceived as outwith SMI patients' priorities. These patients are less likely to attend with overall diminished treatment engagement. Moreover, frequent unmet basic needs as well as multiple and complex needs require attempts at addressing first. Thus, GPs were highly concerned about concordance.

Structural/contextual barriers included general practice being currently severely under-funded with workforce shortfalls and recruitment and retention problems. Backlogs of COVID-19 untreated patients' conditions played into an already weakened state of general practice.

Resultantly, fostering the depth of doctor-patient relationship required to have 'those really difficult but really important conversations' and continuity of care is challenged. Severe problems with IT systems and technology for identifying at-risk patients and suitably screening and monitoring them was acute. Problems with integrated care and communication between physical and mental health teams were cited, as well as mental health services long waiting lists.

Many GPs aspire to initiating cardioprotective medication proposing potential solutions e.g. facilitating strong doctor-patient relationships via appropriate continuity of care and embedding key MDT staff such as mental health nurses and pharmacists. Addressing patients' lifestyle factors as fundamental first before medication could, or should, be considered was salient.

Consequences: The findings fill a gap in a highly under-researched area and have implications for planning and delivery of improved, inclusive, and integrated healthcare, especially for vulnerable, and often excluded, patient groups such as those with SMI. Future research in this area should explore experiences of SMI patients and other practitioners.

Project: **Inflammatension**

Title of paper: **Vascular phenotypes in early hypertension**

Reference: J Hum Hypertens 37, 898–906 (2023)

Authors: Murray, E.C., Delles, C., Orzechowski, P. *et al.*.

url: https://doi.org/10.1038/s41371-022-00794-7

Summary: The study characterises vascular phenotypes of hypertensive patients utilising machine learning approaches.

Newly diagnosed and treatment-naïve primary hypertensive patients without co-morbidities (aged 18–55, n=73), and matched normotensive controls (n=79) were recruited.

Blood pressure (BP) and BP variability were determined using 24 h ambulatory monitoring. Vascular phenotyping included measurement of pulse wave velocity (PWV), pulse wave analysis-derived augmentation index (PWA-AIx), and central BP; EndoPAT™-2000® provided reactive hyperaemia index (LnRHI) and augmentation index adjusted to heart rate of 75bpm. Ultrasound was used to analyse flow mediated dilatation and carotid intima-media thickness (CIMT).

In addition to standard statistical methods to compare normotensive and hypertensive groups, machine learning techniques including biclustering explored hypertensive phenotypic subgroups.

We report that arterial stiffness (PWV, PWA-AIx, EndoPAT-2000-derived AI@75) and central pressures were greater in incident hypertension than normotension. Endothelial function, percent nocturnal dip, and CIMT did not differ between groups. The vascular phenotype of white-coat hypertension imitated sustained hypertension with elevated arterial stiffness and central pressure; masked hypertension demonstrating values similar to normotension.

Machine learning revealed three distinct hypertension clusters, representing ‘arterially stiffened’, ‘vaso-protected’, and ‘non-dipper’ patients. Key clustering features were nocturnal-and central-BP, percent dipping, and arterial stiffness measures.

We conclude that untreated patients with primary hypertension demonstrate early arterial stiffening rather than endothelial dysfunction or CIMT alterations. Phenotypic heterogeneity in nocturnal and central BP, percent dipping, and arterial stiffness observed early in the course of disease may have implications for risk stratification.

Project: **LACE: Leucine and ACE inhibitors to treat sarcopenia**

Title of paper: **Effect of perindopril or leucine on physical performance in older people with sarcopenia: the LACE randomized controlled trial**

Reference: Journal of Cachexia, Sarcopenia and Muscle2022;13: 858–871

Authors: Witham MD & the LACE study group

url: https://doi.org/10.1002/jcsm.12934

Summary: **Background**: This trial aimed to determine the efficacy of leucine and/or perindopril in improving physical function in older people with sarcopenia.

Methods: This was a two-by-two factorial RCT. Participants were ≥70y with sarcopenia, defined as low gait speed and/or low handgrip strength plus low muscle mass from 14 UK centres. They were randomized to perindopril 4 mg or

placebo, and to oral leucine powder 2.5 g or placebo thrice daily. The primary outcome was the between-group difference in the short physical performance battery (SPPB) score over 12-month follow-up by repeated-measures mixed models. Results were combined with existing systematic reviews using random-effects meta-analysis to derive summary estimates of treatment efficacy.

Results: 320 people were screened and 145 randomized (original target 440). For perindopril (n=73) versus no perindopril (n=72), median adherence was lower (76% vs. 96%; P< 0.001). Perindopril did not improve the primary outcome (95%CI −1.2 to 1.0, P=0.89). No significant treatment benefit was seen for any secondary outcome including muscle mass (95%CI −1.1 to 0.3, P = 0.27). More adverse events occurred in the perindopril group (218 vs. 165), but falls rates were similar. For leucine (n=72) versus no leucine (n=72), median adherence was the same (76% vs. 76%; P=0.99). Leucine did not improve the primary outcome (95%CI −1.0 to 1.1, P=0.90). No significant treatment benefit was seen for any secondary outcome including muscle mass. Meta-analysis of ACE inhibitor/ARB trials showed no clinically important treatment effect for the SPPB (95%CI −0.4 to 0.2).

Conclusions: Neither perindopril nor leucine improved physical performance or muscle mass in this trial; meta-analysis did not find evidence of efficacy of either ACE inhibitors or leucine as treatments to improve physical performance.

Project: **LOng COvid Rehabilitation In Scotland: an Evaluation (LOCO-RISE)**

Title of paper: **Exploring the perceptions and experiences of community rehabilitation for Long COVID from the perspectives of Scottish General Practitioners' and people living with Long COVID: a qualitative study**

Reference: PRE-PRINT – not yet peer reviewed

Authors: Cooper K, Duncan E *et al.*

url: https://doi.org/10.1101/2023.11.06.23298096

Summary: **Objectives**: To explore the experience of accessing Long COVID community rehabilitation from the perspectives of people with Long COVID and GPs.

Design: Qualitative descriptive study employing one-to-one semi-structured virtual interviews analysed using the framework method.

Participants: Eleven people with Long COVID (1 male, 10 female; 40-65y, and 13 GPs (5 male, 8 female) recruited from four health boards in Scotland. GP interviews were conducted July - Sept 2022

Results: Four key themes were identified: i) The lived experience of Long COVID; ii) The challenges of an emergent and complex chronic condition; iii) Systemic challenges for Long COVID service delivery, and iv) Perceptions and experiences of Long COVID and its management, including rehabilitation.

Conclusions: There are several patient, GP, and service-level barriers to accessing community rehabilitation for Long COVID. There is a need for greater understanding by the public, GPs, and other potential referrers of the role of community rehabilitation professionals in the management of Long COVID. There is also a need for community rehabilitation services to be well promoted and accessible to the people with Long COVID for whom they may be appropriate.

Service providers need to consider availability and accessibility of Long COVID rehabilitation and ensure adequate interprofessional communication and collaboration to enhance the experience for people with Long COVID.

Project: **MetforTime**

Title of paper: **Morning exercise and pre-breakfast metformin interact to reduce glycaemia in people with Type 2 Diabetes: a randomized crossover trial**

Reference: PRE-PRINT (not yet peer reviewed)

Authors: Pena Carrillo BJ, Cope E, Gurel S *et al.*

url: https://doi.org/10.1101/2023.09.07.23295059

Summary: Exercise is recommended in the treatment of Type 2 Diabetes (T2D) and can improve insulin sensitivity though previous evidence suggests that exercise at different times of the day may have opposing outcomes on glycaemia. Metformin is the most commonly prescribed initial pharmacological intervention in T2D, and may alter adaptions to exercise. It is unknown if there is an interaction between metformin and diurnal exercise outcomes. We aimed to investigate glycaemic outcomes of moderate intensity morning vs. evening exercise in people with T2D being prescribed metformin monotherapy.

In this study, nine male and nine female participants (age 61±2 year, mean±SEM) completed a 16-week crossover trial including 2- week baseline recording, 6 weeks randomly assigned to a morning exercise or evening exercise, and a 2-week wash-out period. Exercise arms consisted of 30 minutes of walking at 70% of estimated max-HR every other day. Glucose levels were measured with continuous glucose monitors and activity measured by wrist-worn monitors. Food-intake was recorded by 4-day food diaries during baseline, first and last 2 weeks of each exercise arm.

There was no difference in exercise intensity, total caloric intake, or total physical activity between morning and evening arms. Acute glucose area under the curve (AUC), was lower (p=0.02) after acute morning exercise (180.6±16.1 mmol/L) compared to baseline (210.3±18.0 mmol/L). Acute AUC glucose was significantly lower (p=0.01) in participants taking metformin before breakfast (152.5±10.59 mmol/L) compared with participants taking metformin after breakfast (227.2±27.51 mmol/L) only during the morning exercise arm. During weeks 5-6 of the exercise protocol, AUC glucose was significantly lower (p=0.04) for participants taking metformin before breakfast (168.8±5.6), rather than after breakfast (224.5±21.2) only during morning exercise.

Our data reveal morning moderate exercise acutely lowers glucose levels in people with T2D being prescribed metformin. This difference appears to be driven by individuals that consumed metformin prior to breakfast rather than after breakfast. This beneficial effect upon glucose levels of combined morning exercise and pre-breakfast metformin persisted through the final two weeks of the trial. Our findings suggest that morning moderate intensity exercise combined with pre-breakfast metformin intake may benefit the management of glycaemia in people with T2D.

Project: **PTP1B**

Title of paper: **Myeloid PTP1B deficiency protects against atherosclerosis by improving cholesterol homeostasis through an AMPK-dependent mechanism**

Reference: J Transl Med 21, 715 (2023)

Authors: Oliver H, Ruta D, Thompson D *et al.*

url: https://doi.org/10.1186/s12967-023-04598-2

Summary: **Objective**: Atherosclerosis is a chronic inflammatory process induced by the influx and entrapment of excess lipoproteins into the intima media of arteries. Previously, our lab demonstrated that systemic PTP1B inhibition protects against atherosclerosis in preclinical LDLR−/− models. Similarly, it was shown that myeloid-specific PTP1B ablation decreases plaque formation and ameliorates dyslipidaemia in the ApoE−/− model of atherosclerosis. We hypothesized that the relevant improvements in dyslipidaemia following modification of PTP1B activation may either result from changes in hepatic cholesterol biosynthesis and/or increased uptake and degradation by liver-resident macrophages. We examined this in animal models and patients with coronary artery disease.

Methods: In this study, we determined the cholesterol-lowering effect of myeloid-PTP1B deletion in mice fed a high-fat high-cholesterol diet and examined effects on total cholesterol levels and lipoprotein profiles. We also determined the effects of PTP1B inhibition to oxLDL-C challenge on foam cell formation and cholesterol efflux in human monocytes/macrophages.

Results: We present evidence that myeloid-PTP1B deficiency significantly increases the affinity of Kupffer cells for ApoB containing lipoproteins, in an IL10-dependent manner. We also demonstrate that PTP1B inhibitor, MSI-1436, treatment decreased foam cell formation in Thp1- derived macrophages and increased macrophage cholesterol efflux to HDL in an AMPK- dependent manner. We present evidence of three novel and distinct mechanisms regulated by PTP1B: an increase in cholesterol efflux from foam cells, decreased uptake of lipoproteins into intra-lesion macrophages in vitro and a decrease of circulating LDL-C and VLDL-C in vivo.

Conclusions: Overall, these results suggest that myeloid-PTP1B inhibition has atheroprotective effects through improved cholesterol handling in atherosclerotic lesions, as well as increased reverse cholesterol transport.

Project: **TASCFORCE**

Title of paper: **Tayside Screening For Cardiac Events (TASCFORCE) study: a prospective cardiovascular risk screening study**

Reference: BMJ Open. 2022 Oct

Authors: Lambert MA, Houston JG, Littleford R *et al.*

url: https://doi.org/10.1136/bmjopen-2022-063594

Summary: **Purpose**: Risk factor-based models struggle to accurately predict the development of cardiovascular disease (CVD) at the level of the individual. Ways of identifying people with low predicted risk who will develop CVD would allow stratified advice and

support informed treatment decisions about the initiation or adjustment of preventive medication, and this is the aim of this prospective cohort study.

Participants: The Tayside Screening for Cardiac Events (TASCFORCE) study recruited men and women aged ≥40 years, free from known CVD, with a predicted 10-year risk of coronary heart disease <20%. If B-type natriuretic peptide (BNP) was greater than their gender median, participants were offered a whole-body contrast-enhanced MRI (WBCE-MRI) scan (cardiac imaging, whole-body angiography to determine left ventricular parameters, delayed gadolinium enhancement, atheroma burden). Blood, including DNA, was stored for future biomarker assays. Participants are being followed up using electronic record-linkage cardiovascular outcomes.

Findings to date: 4423 participants were recruited. Mean age was 52.3y with a median BNP of 7.50 ng/L and 15.30 ng/L for men and women respectively. 602 had a predicted 10-year risk of 10%–19.9%, with the remainder <10%. Age, female sex, ex-smoking status, lower heart rate, higher high-density lipoprotein and lower total cholesterol were independently associated with higher log10 BNP levels.

Future plans: The TASCFORCE study is investigating the ability of a screening programme, using BNP and WBCE-MRI at the time of enrolment, to evaluate prediction of CVD in a population at low/intermediate risk. Blood stored for future biomarker analyses will allow testing/development of novel biomarkers. We believe this could be a new UK Framingham study allowing study for many years to come.

Strengths and limitations: This study is one of the largest MRI/cardiovascular risk studies to be published. The MRI scanning is a novel element to a cardiovascular risk trial, particularly as it is whole body and contrast enhanced. As many of the participants have also signed up to the Scottish Health Research Register (SHARE), it will be possible to link all subsequent blood tests from SHARE with our cohort details to study novel biomarkers as they are discovered.

Project: **TICC PCP**

Title of paper: **Tailored Intervention at Home for Those with COPD & Comorbidity by Pharmacists & Physicians (TICCPCP): Process Evaluation**

Reference: Ann Fam Med. 2023;21 (Suppl 1):3637

Authors: Wood K, Lowrie R, Smith G *et al.*

url: https://doi.org/10.1370/afm.21.s1.3637

Summary: **Context**: Almost 400 million people globally have COPD. People with COPD often have multimorbidity and experience frequent exacerbations leading to hospitalisation. A feasibility study has shown pharmacist home-visits can provide holistic care, improve medication adherence, and reduce exacerbations and hospital admission. A pilot RCT is now investigating the implementation and potential effects of such pharmacist home-visits.

Objective: To examine patient and health care professional (HCP) perceptions of the intervention, acceptability of trial procedures and identify likely barriers and facilitators to future implementation.

Study Design & Analysis: Qualitative interviews as part of a process evaluation

embedded in pilot RCT. Thematic Analysis is being undertaken; we are conceptualising the work of self- management, including the issue of treatment burden and implementation issues through a Normalisation Process Theory (NPT) lens while also utilising the Cumulative Complexity Model to consider factors influencing patient capacity to self-manage.

Setting & Population: 15 patients and 8 HCPs over two sites in Scotland.

Intervention: Tailored intervention in the home for patients with moderate-to-severe COPD and comorbidity by pharmacists and physicians.

Results: The pharmacist intervention was well received by patients and HCPs, it identified and addressed much unmet need. While the intervention was beneficial to most patients it may particularly benefit those of lower socioeconomic status who have experienced more challenges in prior health care and self-management and seemed to more greatly value additional input provided by the pharmacist. Trial procedures were broadly acceptable.

Conclusions: The tailored at home pharmacist intervention was perceived positively by patients and HCPs and trial procedures were acceptable, suggesting that a full-scale trial is feasible. Future research may consider targeting of such interventions towards more socioeconomically deprived individuals.

Project: **VIOLET**

Title of paper: **A Phase 3, Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Efficacy and Safety of Oteseconazole (VT-1161) Oral Capsules in the Treatment of Subjects with Recurrent Vulvovaginal Candidiasis (VIOLET)**

Reference: American Journal of Obstetrics and Gynecology, Volume 226, Issue 2, 2022, p292

Authors: Person K, Brand S, Degenhardt T *et al.*

url: https://doi.org/10.1016/j.ajog.2021.11.1279

Summary: **Objectives**: Recurrent vulvovaginal candidiasis (RVVC) affects nearly 138 million women globally each year. Currently there are no FDA approved treatment options. Two Phase 3 studies evaluated the efficacy and safety of Oteseconazole (VT-1161) in the treatment of women with RVVC.

Methods: 656 patients with a history of RVVC were enrolled at 181 centers in 11 countries. Eligible patients had a vulvovaginal signs and symptoms score of ≥3 and a positive KOH. Following treatment of the acute infection with fluconazole, patients were randomized to 1) 150 mg VT-1161 once-daily for 7 days, then 150 mg once-weekly for 11 weeks or 2) matching placebo regimen for 12 weeks. Patients were followed for 48 weeks.

Results: Over 90% of women randomized to receive oteseconazole did not experience a recurrence during the 48-week maintenance phase compared to approximately 40% in the control group ($p < 0.001$). Subject compliance and study completion was high, and similar in both groups as was the percentage of subjects who had ≥1 treatment-emergent adverse event.

Conclusion: Oteseconazole oral dosing was shown to be effective in the treatment of RVVC and prevention of recurrence of acute VVC episodes during the

Maintenance Phase through Week48. Oteseconazole was safe and well-tolerated.

Project: **Walk With Ease (WWE)**

Title of paper: **Mixed-methods study to assess the relevance, acceptability, and feasibility of implementation for people with arthritis and musculoskeletal conditions**

Reference: Translational Behavioral Medicine, Volume 13, Issue 11, November 2023, Pages 851–866,

Authors: Martin KR, Stelfox K, Macfarlane GJ *et al.* on behalf of the Walk With Ease Research Study Team

url: https://doi.org/10.1093/tbm/ibad032

Summary: Developed in the United States (US), Walk With Ease (WWE) is a popular evidence-based, 6- week community walking programme for adults with arthritis, delivered in either an instructor- led or self-directed format. While WWE has expanded into communities across the USA, it is relatively unknown in other countries. This study, in collaboration with community and patient partners, aimed to examine the relevance, acceptability and feasibility of introducing WWE into a UK context after cultural adaptation.

Participants aged ≥18y with doctor diagnosed arthritis, self-reported joint symptoms in last 30 days, BMI ≥25 kg/m2, and <150 min/week of moderate/vigorous physical activity were recruited from Primary Care and randomized to the WWE programme or usual care.

A mixed-methods analysis approach integrated quantitative data (physical performance assessment; baseline and post-six week programme questionnaire) and qualitative data (narrative interviews exploring participants' pre- and post-WWE experiences and stakeholders' perceptions).

Of 149 participants, the majority were women (70%) aged ≥60 years (76%). Among the 97 receiving the programme, 52 chose instructor-led; 45 chose self-directed. Participants found WWE relevant and acceptable—99% indicating they would recommend WWE to family/friends. Within both WWE formats, mixed differences representing improvement were observed at 6 weeks from baseline for physical performance and arthritis symptoms. Emergent themes included improved motivation, health, and social well-being. WWE is a relevant and acceptable walking programme with scope for wider implementation to support UK health and well-being policy strategies.

Project: **WISH**

Title of paper: **Increased wholegrain intake does not reduce blood pressure and other markers of cardiovascular disease risk in unmedicated pre-hypertensive/stage 1 hypertensive volunteers**

Reference: Proceedings of the Nutrition Society. 2020;79(OCE3):E789

Authors: Amadi IG, Scott K, Moir S, *et al.*.

url: https://doi.org/10.1017/S0029665120007752

Summary: Cardiovascular disease (CVD) morbidity is the main cause of mortality in Western countries. While poor lifestyle and unbalanced nutrition are important determinants for the disease onset, epidemiological evidence suggests that increased intake of particular dietary components, such as wholegrains, can reduce the risk of CVD. The results from a previous study also showed that daily intakes of 3 portions of wholegrain foods over 12 weeks can significantly lower blood pressure in normotensive volunteers. Such an effect would be even more beneficial in people with non-treated elevated blood pressure. This study aimed to investigate the effects of three daily portions of wholegrain foods on markers of CVD risk in unmedicated prehypertensive/stage-1 hypertensive volunteers.

Fifty-nine volunteers (25 men, 34 women) underwent a 14-week cross-over RCT. After a 2- week run in period on a refined diet, volunteers were randomly assigned to a wholegrain diet or a refined diet for 6 weeks, and then switched to the other intervention arm for 6 weeks.

Ambulatory 24h blood pressures (ABP), augmentation index, central aortic pressure, blood lipid and glucose concentrations were measured at baseline and after each intervention period. Differences in changes from baseline between the dietary intervention groups were analysed using two-way ANOVA ($p< 0.05$).

Neither intervention significantly affected systolic ABP. Diastolic ABP and central blood pressures, augmentation index, blood lipids and glucose concentrations remained also unchanged. Daily consumption of three portions of wholegrain cereals over 6 weeks did not beneficially affect conventional risk markers for CVD in non-treated hypertensive / prehypertensive people