National Multimorbidity Research Event

Health research today improves lives tomorrow
On behalf of NIHR CLAHRC for East Midlands I am delighted to welcome you to the National NIHR CLAHRC Multi Morbidity Research Event that we are hosting on behalf of the national CLAHRC programme here in the East Midlands.

We know there has been a large increase in the numbers of people living with multimorbidities. It is estimated that in the UK, 65% of people aged 65 or older are living with two or more chronic conditions. The prevalence of multimorbidity has increased from 31.7% in 2002/03 to 43.1% in 2012/13.

The recent RAND Corporation report Future of Health: Findings from a survey of stakeholders on the future of health and healthcare in England commissioned by the NIHR, identified multimorbidity as a key priority for research.

As researchers we are aware that multimorbidity is a complex phenomenon requiring multi-faceted strategies and interventions to improve outcomes. This event showcases the multimorbidity work across all CLAHRCs. The projects described here are a good introduction to the multimorbidity research taking place across the CLAHRC research programme. These projects have been selected for their excellence and their current and likely future impact. The selection includes examples of CLAHRCs working individually with their local partners, as well as examples of cross-CLAHRC collaboration. It highlights the innovative work that is already taking place as well as stimulate further discussion.

CLAHRCs bring world class academics together with NHS providers and commissioners, local health and social care organisations, industry and third sector partners, health research infrastructures, and local Academic Health Science Networks (AHSNs) to tackle key challenges like multimorbidity. As organisations we are at the frontline of providing innovative solutions and support to the NHS and the modern health economy. CLAHRC research and evidence-based implementation are responsive to, and work in partnership with, collaborating organisations, patients, carers and the public. I hope this event can help initiate cross-CLAHRC collaborations that take multimorbidity research forward and devises solutions that help tackle multi-morbidity in the UK.

Patients with multimorbidity have complex health care needs and multimorbidity is a key challenge facing health-care systems globally. In addition, there is lack of evidence based recommendations or people with multimorbidity. This programme of work shows there is huge activity in applied health research on multimorbidity with 61 abstracts being included in this summary report. I hope some of these studies will help generate the evidence needed to manage people with multimorbidity in the future.

I would like to thank all of the CLAHRCs for sharing their work, and the staff who supported the organisation of this event and its supporting brochure. I would also like to thank Tom Yates, Donna Richardson, Nafeesa Dhalwani, Sam Seideu, Umesh Kadam and Michael Bonar of CLAHRC East Midlands. I would particularly like to thank Michelle Brown for all her hard work in co-ordinating the abstracts and for organising the meeting.

All of us at the NIHR CLAHRCs are looking forward to continuing our work and significantly improving patient access and outcomes and the quality of NHS services.

Professor Kamlesh Khunti
Director, NIHR CLAHRC East Midlands
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01 Cardiometabolic multimorbidity, physical activity, and life expectancy: a UK Biobank observational study

What we are doing: We analysed the UK Biobank dataset to assess the association between physical activity with mortality and life expectancy in people with diabetes, with cardiometabolic multimorbidity (a history of two or more of the following: diabetes mellitus, stroke, myocardial infarction), and without any cardiometabolic conditions. We used three different measures of physical activity: subjectively measured by leisure-time physical activity and through a modified version of the International Physical Activity Questionnaire which assessed total physical activity, and in a sub-sample objectively measured by the wrist-worn accelerometer.

Why we are doing it: Patterns of the multimorbidity have particularly shown an increasing prevalence in cardiometabolic conditions. The management of cardiometabolic multimorbidity has become a major challenge for both patients and healthcare professionals, as a recent study found at the age of 60 years, cardiometabolic multimorbidity was associated with 12 years reduced life expectancy. However, to date there is a lack of knowledge proving whether the effects of lifestyle behaviours such as physical activity increase life expectancy in people with cardiometabolic multimorbidity.

What the benefits will be: We found that although people with diabetes or with cardiometabolic multimorbidity have lower life expectancy compared to people without any cardiometabolic conditions, the mortality benefit of physical activity was also found in people with diabetes and cardiometabolic multimorbidity, especially at younger ages. The findings have provided greater insight of a particular cluster of diseases, allowing future self-management interventions involving physical activity to be specifically tailored and implemented for use in those with cardiometabolic multimorbidity.

Who are we working with: We are working with the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care – East Midlands (NIHR CLAHRC – EM), the Leicester Clinical Trials Unit and the NIHR Leicester Biomedical Research Centre.

Study lead: Dr Nafeesa Dhalvani, Lecturer in Epidemiology, Diabetes Research Centre, University of Leicester
Yogini Chudasama, PhD Student, Diabetes Research Centre, University of Leicester

Contact: Yogini Chudasama yc244@leicester.ac.uk

02 Self-management through Structured Education in those with multimorbidity: a randomised controlled trial. MAP: “Movement through Active Personalised engagement”

What we are doing: Through an interactive process of development with public consultation, a group-based intervention was developed, which does not focus on specific diseases. The four-week programme uses peer discussion and sharing, to raise self-awareness, and engage people in health behaviours and self-management. The topics comprise of; moving more, effective communication, managing treatments and mastering emotions. People are encouraged to personalise goals and ongoing support is provided by text message prompts. The programme is being tested in a single centre randomised controlled trial. The primary outcome is step count with follow-up at six and 12 months. Eligible patients are identified during searches in primary care.

Why we are doing it: Patterns of the multimorbidity have particularly shown an increasing prevalence in cardiometabolic conditions. The management of cardiometabolic multimorbidity has become a major challenge for both patients and healthcare professionals, as a recent study found at the age of 60 years, cardiometabolic multimorbidity was associated with 12 years reduced life expectancy. However, to date there is a lack of knowledge proving whether the effects of lifestyle behaviours such as physical activity increase life expectancy in people with cardiometabolic multimorbidity.

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Contact: Yogini Chudasama yc244@leicester.ac.uk

03 Improving the care of people with multiple long-term conditions in primary care: The ENHANCE pilot trial

What we are doing: ENHANCE is a pilot stepped-wedge cluster randomised controlled trial that has tested the feasibility and acceptability of a nurse-led ENHANCE long-term condition (LTC) review for identifying, assessing, and managing osteoarthritis (OA), anxiety and/or depression in patients attending LTC reviews. Specific objectives (process evaluation and research outcomes) were achieved through a theoretically informed mixed-methods approach using participant self-reported questionnaires, a medical record review, an ENHANCE EMIS template, qualitative interviews, and audio recordings of the ENHANCE LTC review.

Why we are doing it: LTCs are important determinants of quality of life and healthcare expenditure worldwide. Whilst multimorbidity is increasingly common in primary care, clinical guidelines and delivery of care remain focused on single diseases, resulting in poorer outcomes. OA and mental health problems are common and frequently co-exist with each other and other LTCs. However, they are seldom prioritised by the patient or clinician in comparison to the other LTCs perceived to be more important, resulting in greater disability, poorer prognosis, and increased costs.

Why we are doing it: Self-management is complex when people have two or more long-term health conditions, as they face changing health priorities and potentially conflicting or contradictory health messages. This influences their engagement with health behaviours and ultimately impacts their health and quality of life. The intervention is aimed at enhancing self-efficacy and engagement with health behaviours to support self-management, to improve health outcomes and quality of life.

What the benefits will be: People will have increased self-awareness of the potential positive impact of self-management on their health, on their lives, and strategies to manage ever-changing priorities. People will be more confident in making healthy lifestyle choices, engage with their healthcare providers, and manage their treatments and medications. Ultimately, this could make their use of health services more effective, slow disease progression and therefore reduce the burden on health services and costs.

Who are we working with: People with two or more long-term conditions, through public-participation groups, were involved in the development of the programme. Stakeholders from primary care, such as specialist nurses, general practitioners and health trainers also contributed. The complex interventions team from Leicester Diabetes Centre developed the intervention, trained a small team of facilitators, and are monitoring delivery of the intervention. A team based at Leicester Diabetes Centre are running the randomised controlled trial and the University of Leicester is sponsoring the study.

Study lead: Kerry Hulley
Contact: Kerry.hulley@uhl-tr.nhs.uk

Who are we working with: The ENHANCE pilot trial is funded by the West Midlands CLAHRC and supported by the NIHR CRN West Midlands, Keele Clinical Trials Unit and the Arthritis Research UK Primary Care Centre, Keele University. The pilot included four GP practices within the geographical areas of NHS Stoke-on-Trent CCG and NHS North Staffordshire CCG. Patients aged 45 years and over and due for their LTC review for identifying, assessing, and managing osteoarthritis (OA), anxiety and/or depression in patients attending LTC reviews. Specific objectives (process evaluation and research outcomes) were achieved through a theoretically informed mixed-methods approach using participant self-reported questionnaires, a medical record review, an ENHANCE EMIS template, qualitative interviews, and audio recordings of the ENHANCE LTC review.

Study lead: Chief Investigator: Prof Christian Mallan
Principal Investigator: Dr Emma Healey
Contact: carol.liptrot@uhl-tr.nhs.uk
The 3D Study: Improving whole person care

What we are doing: The 3D approach promotes continuity of care and offers comprehensive reviews every six months. The reviews are tailored to patients’ individual needs, focuses on improving quality of life and include a care-plan. We evaluated 3D using a large cluster-randomised trial, process evaluation and economic analysis. We compared the 3D approach and usual care in 33 general practices near Bristol, Manchester and Ayrshire. Future CLAHRC West work will include evaluation of implementation of the 3D approach in GP practices around Bristol.

Why we are doing it: Patients with multimorbidity have separate reviews of their chronic conditions from different doctors and nurses, which is inefficient and can result in conflicting advice. Patients complain that no-one treats them as a ‘whole person’ or takes their views into account.

There is international consensus about improving care for people with multimorbidity using a person-centred approach. However, the evidence base for these recommendations is very weak. The 3D study will help to fill this evidence gap, and hopefully improve patients’ quality of life.

What the benefits will be: This study is the largest randomised controlled trial of an approach to improving care for multimorbidity ever conducted. It will enable us to assess the costs and benefits of implementing the 3D patient-centred care model based on international recommendations. If effective, the 3D approach should improve the management of patients with multimorbidity (better quality of life, better mental health, more patient-centred care) while also being more efficient for the health service.

Who are we working with: The study is a collaboration between the Centre of Academic Primary Care at the University of Bristol, with the Universities of Manchester (Prof Pete Bower) and Glasgow (Prof Stewart Mercer).

Other collaborators include:
- Prof Bruce Guthrie - University of Dundee
- Dr Imran Rafi - Royal College of General Practitioners
- Emma Moody - Bristol Clinical Commissioning Group
- Bristol Randomised Controlled Trials Collaboration

Study lead: Prof. Chris Salisbury, NIHR CLAHRC West
Contact: Dr. Theresa Redaniel Theresa.redaniel@bristol.ac.uk

Testing the feasibility of a combined exercise rehabilitation programme for COPD and/or heart failure patients

What we are doing: This study is examining the feasibility of a combined breathlessness rehabilitation programme for adults with Chronic Obstructive Pulmonary Disease (COPD) and/or chronic heart failure. The rehabilitation programme is now clinical care within University Hospital Leicester (UHL) NHS Trust. As well as assessing the feasibility of the programme, the feasibility of collecting various outcome measures will be examined. Outcome measures that are being collected include cardio-metabolic risk, frailty, symptom burden and physical activity.

Why we are doing it: UHL recently commissioned the combined breathlessness rehabilitation programme. However, data is lacking on the feasibility of this rehabilitation programme.

Secondly, a consensus event was held in November 2017 in which experts from cardiac and pulmonary rehabilitation were invited to discuss the outcome measures that should be assessed in a combined rehabilitation programme. The preliminary results from this consensus event have largely guided the outcome measures that are being examined in this feasibility study.

What the benefits will be: This study will be the first to collect data on the new clinical UHL rehabilitation programme. Assessing feasibility will generate information regarding the uptake of participants, the completion rates and the ease of delivering the programme to patients who share a similar symptom, breathlessness. The change in outcome measures from pre to post rehabilitation will also be assessed and this will guide a future trial that is powered to examine these differences.

Who are we working with: This study is a joint partnership between University Hospital Leicester NHS Trust, the National Centre for Sport and Exercise Medicine at Loughborough University and the Leicester Biomedical Respiratory Centre.

Study lead: Professor Tom Wilkinson
Contact: Ms Kate Chappel

GENIE a social network intervention designed to enhance and diversity support for people with long-term conditions.

What we are doing: GENIE is a social networking tool we have developed. It helps people map their network and make best use of their existing contacts and add new ones where needed. People managing various long term conditions are able to enrich their social network and connect to community resources and support to help them manage their health. We are using GENIE across a wide range of conditions and communities.

Study lead: Prof. Sally Singh
Contact: Amy V Jones (PhD student) a.v.jones@lboro.ac.uk

COPD and Burden of Treatment

What we are doing: Qualitative literature study to understand how people with Chronic Obstructive Pulmonary Disease (COPD) and Lung Cancer and their care-givers may experience burden of treatment. This study will identify and describe this burden by observing and interviewing:
- patients with COPD and lung cancers
- care-givers
- healthcare professionals

At outpatient hospital clinics.
Why we are doing it: Social networks are important in health and wellbeing because they are a source of support for people. They can help people make better use of the resources and services that are around them. There has been a dramatic increase in the numbers of people with long-term conditions, with further projected increases of people who live alone trying to manage one or more long-term condition.

What the benefits will be: Social networks that include a diverse set of relationships (local groups and activities, friends, acquaintances, family members and healthcare professionals) have positive effects on health e.g. Healthcare savings of £175 per patient per year, improved health outcomes (blood pressure and quality of life).

Who are we working with:
- Southampton City Council
- IOW NHS Trust, Solent NHS Trust, Dorset CCG
- University of Southampton & University of Manchester
- My Life a Full Life, Age UK (IOW),
- The Heath Foundation
- McMaster University, Canada
- The Mayo Clinic, US
- Isle of Wight Council

Study lead: Professor Anne Rogers
Contact: Dr Ivaylo Vassilev

08 Experiences of long term, life-limiting conditions amongst patients and carers: protocol for a qualitative meta-synthesis and conceptual modelling study

What we are doing: Undertaking a systematic review of the literature to bring together evidence of patient and carer experiences of three long term conditions: COPD, chronic heart failure and chronic kidney disease. This will enable us to better understand patient experiences of multiple long term conditions, their interactions with healthcare services and journeys through care.

Why we are doing it: Over the last 100 years the number of people who have one or more long term, life-limiting conditions has grown. Living with diseases, such as heart attacks and strokes, cancer, diabetes and respiratory diseases can affect a person’s quality of life and general well-being.

Many people with long-term conditions attend numerous appointments in a variety of hospital departments and with their GP. They can have frequent stays in hospital, and often having been discharged they have to return again because their symptoms have got worse and cannot be managed at home. While all of this places pressure on healthcare services, it is often difficult, complicated and costly for patients and carers. Increasingly they are responsible for organising and coordinating their care, taking multiple medications and making lifestyle changes to manage their conditions, all of which have to be carried out alongside the other demands of everyday life.

Who are we working with: NIA meta-synthesis

What the benefits will be: This meta-synthesis of qualitative papers seeks to explore the self-management of long-term conditions in the relatively new context of online communities.

Why we are doing it: Population aging has resulted in an increased prevalence of long-term conditions, which has resulted in increased expenditure on the care for those affted. As a consequence, self-management has become increasingly important in health care delivery. Social ties forged online provide the basic for performing relevant self-management that can improve an individual’s illness experience, tackling aspects of self-management that are particularly difficult to meet offline. Help requires little negotiation online because information and support is gifted to the community by its members.

What the benefits will be: The main gains found were:
- closing gaps in offline knowledge/experience;
- influence of modelling and learning behaviours from others;
- contact that validates illness and negates offline frustrations;
- tie formation and community building;
- narrative expression and cathartic release;
- ability to ask potentially embarrassing questions as online conversations felt more anonymous.

Who are we working with: NIA meta-synthesis

Study lead: Professor Anne Rogers
Contact: Chris Allen

09 Grip Strength Measurement – GRImP study

What we are doing: Measuring grip strength on admission to hospital is simple and inexpensive. Yet, grip strength measurement is not routinely used and our aim is to evaluate the feasibility of using grip strength measurement in everyday clinical practice.

Why we are doing it: The Mayo Clinic, US
Contact: Professor Carl May

10 Long-Term Condition Self-Management Support in Online Communities

What we are doing: This meta-synthesis of qualitative papers seeks to explore the self-management of long-term conditions in the relatively new context of online communities.

Why we are doing it: Population aging has resulted in an increased prevalence of long-term conditions, which has resulted in increased expenditure on the care for those affected. As a consequence, self-management has become increasingly important in health care delivery. Social ties forged online provide the basic for performing relevant self-management that can improve an individual’s illness experience, tackling aspects of self-management that are particularly difficult to meet offline. Help requires little negotiation online because information and support is gifted to the community by its members.

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- ability to ask potentially embarrassing questions as online conversations felt more anonymous.

Who are we working with: NIA meta-synthesis

Study lead: Professor Helen Roberts
Contact: Dr Kinda Ibrahim

11 Implementation of trained mealtime volunteers to help older hospital patients in a range of ward areas (SMART study and The Southampton Mobility Volunteer programme to increase physical activity levels of older inpatients: a feasibility study (SoMoVe).

What we are doing: We have evaluated the practicality and effectiveness of training 65 mealtime volunteers to support and assist older people on hospital wards during mealtimes. From this
research we have now moved to cover six wards in Southampton Hospital and this has been adopted into normal working practice at Southampton Hospital NHS Foundation Trust.

Why we are doing it: Hospitals know many older people do not eat enough - 39% of over 65s admitted to hospital are at risk of malnutrition. This leads to slower recovery and having to stay in hospital longer. A total of 63 volunteers worked 800+ mealtimes and released nursing time valued at £34,000 over 15 months (band 5 nurses). 251 patients in five ward areas had their clinical characteristics recorded highlighting profound anorexia.

What the benefits will be: Our research findings showed that volunteers were a safe option and spent 35-56% time actually feeding patients. The research team has conducted interviews and focus groups with patients, relatives, staff and volunteers. Patients were appreciative of the additional help and enjoyed the opportunity to build a relationship with the volunteers. Volunteers felt appreciated in their role and enjoyed their duties. Comparative work across Wessex shows hospitals that had voluntary meal time did better than those with no system in place.

Who are we working with:
University Hospital Southampton NHS Foundation Trust. Recently the project has received a HelpForce grant of £50k to UHS to develop volunteers further. The Mealtime Assistant Volunteer aligns with the SoMove project which trains volunteers as therapists for physical activity on wards. The combined ideas have been adopted by UHS as part of its ‘Eat, Drink, Move’ campaign.

Study lead: Professor Helen Roberts
Contact: Dr Steve Lim

12 Helping urgent care users cope with distress about physical symptoms: A Randomised Controlled Trial

What we are doing: We want to help people who often use urgent/unscheduled care (accident and emergency departments, walk-in centres, urgent same-day GP appointments) to manage distress caused by health worries. In particular, we want to find out whether Cognitive Behavioural Therapy (CBT), a type of talking therapy, delivered remotely (via video calling or over the telephone) is clinically and cost effective, compared to usual care. We will also wanted to find the best way of delivering this treatment by talking with service users, healthcare professionals, other experts and researchers.

Why we are doing it: For some, worries about health causes extreme distress (health anxiety). Health anxiety leads to increased urgent/unscheduled care use, with little patient benefit. Patients with multimorbidity are at increased risk of health anxiety.

Effective treatment for health anxiety is available but, few take it up. Psychological therapy delivered remotely has engaged patients where anxiety or stigma causes reluctance to access face-to-face mental health services and has equivalent rates of recovery. Given the accessibility and cost benefits, remotely delivered therapy may be a suitable option.

What the benefits will be: This study will help us find out more about how to help people who suffer from health anxiety. The findings may show reductions in symptoms causing distress, improvements in physical and emotional health and a reductions in urgent healthcare service use. It will also provide information on how to engage participants to digital health interventions. It could lead to improved healthcare and inform government policy on the development of services which are more effective and targeted towards individual needs.

Who are we working with:
• We are working with NHS MindTech Healthcare Technology Co-operative who helped to select the video technology.
• We are working with primary and secondary health care providers of urgent/unscheduled care. This includes: Accident and Emergency departments, Outpatient clinics, GP practices, Walk in Centres, NHS Clinical Research Networks and Mental health services.
• We have formed a Network of Practice and hold meetings two to three times a year. The meetings provide opportunities for attendees to help shape the direction of the study and its implementation.

Study lead: Shireen Patel
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13 Access to and outcomes of joint replacement surgery for patients with long-term conditions

What we are doing: The overall aim of this research study is to investigate the variation in access to and outcomes of elective hip and knee replacement surgery for patients with long-term conditions using data that is already collected on patients in the NHS in England (Patient-reported Outcomes Measures and Hospital Episodes Statistics data). The study uses a mixed methods approach involving both qualitative interviews to understand the management of patients across the pathway and quantitative methods to investigate variation in access and outcomes.

Why we are doing it: Many patients undergoing joint replacement surgery have at least one long-term condition; with increasing numbers presenting with multi-morbidity. In a previous study in England it was found that one in five patients undergoing joint replacement surgery had at least two long-term conditions. Evidence suggests that there is wide variation in access to and outcomes of joint replacement surgery according to socioeconomic status, sex and ethnicity. Less attention however, has been given to understanding the impact of long-term conditions.

What the benefits will be: The overall aim of this study is to improve the healthcare provided to patients with long-term conditions. This study seeks to determine whether patients with long-term conditions have different access to and outcomes of hip and knee replacement surgery using patient-reported data. If there are differences, this study will endeavour to understand the impact of this variation and the implications for the NHS.

Who are we working with: A GP in Tower Hamlets CCG, East London and an orthopaedic surgeon at University College London Hospitals NHS Foundation Trust to understand the implications of our findings for the clinical pathway to joint replacement surgery.

Study lead: Bélène Podmore, PhD student, London School of Hygiene & Tropical Medicine
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14 What is the impact of day care services on Older People with Multiple Long Term Conditions: Explore what the models of day care are for older people with moderate to substantial needs and examine its impact on their wellbeing, independence and social isolation and that of their carers. Determine if the professional models care provide better outcomes for older people with multiple long term conditions than voluntary models

What we are doing: The exploratory study aims to open up the discussion around day care within the community. It uses mixed methods: Observations in day centres to understand how services function, followed by staff interviews; People new to day care and carers complete questionnaires when they first start and then again six weeks and 12 weeks later and interviews to better understand their experiences and capture outcomes. Seven services across nine centres engaged with the study recruiting 94 older people plus carers.

Why we are doing it: There is lack of research about day care services. Day care services are changing and evolving due to the context in wider policy and funding. How day care is funded, accessed and paid for has changed considerably for older people. In many areas paid staff services have been outsourcing to charity and voluntary services. This project aims to look if there is a difference in outcomes for older people across service type and geographical area (urban & rural).

What the benefits will be: The study will enable services to better understand the impact they are having on service users’ outcomes (health, wellbeing, independence and loneliness). It will enable a greater understanding of how support for people with long term conditions is being reorganised and reconfigure and assess the impact on older people and their carers.

Who are we working with: Seven day care services across nine centres located in the north have taken part in the study. Services with particular criteria have been selected so that types of services can be compared and outcomes for older people and their families analysed. Two services with paid staff, five services with a mixture of staff and volunteers and two services managed by voluntary. Services are located in urban and rural areas.

Study lead: PhD Student Catherine Lunt / Prof Mari Lloyd-Williams
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15 Frailty Trajectories: Understanding the tipping points across care settings.

What we are doing: We are quantitatively analysing routinely collected administrative data for adults aged ≥65-years within and across various health and social care settings. Regression models and survival analysis will be used to identify predictors of transitions, adverse effects or harm. Factor mixture models will be used to model heterogeneity and classify journeys of care into homogeneous groupings called “care trajectories”.

We are qualitatively exploring the understanding and assessment of frailty among community care staff of various specialties using in-depth, face-to-face interviews.

What the benefits will be: By identifying the key components of tipping points in care trajectories, this project shall aid risk identification across various care settings and facilitate the implementation of effective interventions to reduce multimorbidity in this population.

Who are we working with:
- Cambridgeshire County Council
- East of England Ambulance Trust
- Cambridgeshire and Peterborough CCG
- Eastern Academic Health Science Network (EAHSN)

A Frailty Trajectories PPI group has also been established and consists of members from:
- CPFT PPI group
- Care Network Cambridgeshire
- East of England Citizen Senate hosted by EAHSN
- HealthWatch Cambridgeshire
- Public Involvement in Research into Ageing and Dementia (PIRAD) group

Study lead: Dr Louise Lafortune, Senior Research Associate, Cambridge Institute of Public Health.

Contact: is394@medschl.cam.ac.uk

16 Evaluating the feasibility of the Groups for Health intervention for adults with depression (G4H-D study)

What we are doing: Groups for Health is a transdiagnostic, psychosocial intervention which aims to increase perceived social connectedness and reduce loneliness amongst adults. The aim of the study is to first adapt this intervention to suit the needs of adults with a variety of mental health conditions. Second, we plan to examine the feasibility of delivering this intervention within secondary care mental health services. The results from this study may be used to inform a subsequent definitive trial.

Why we are doing it: We are quantitatively analysing routinely collected administrative data for adults aged ≥65-years within and across various health and social care settings. Regression models and survival analysis will be used to identify predictors of transitions, adverse effects or harm. Factor mixture models will be used to model heterogeneity and classify journeys of care into homogeneous groupings called “care trajectories”.

By exploring the views of frailty among community care staff, this project shall aid the development of educational resources for community care staff and further equip them to identify older adults living with frailty in the community.

Who are we working with: This CLAHRC funded project is a coproduction between CLAHRC researchers and:
- Addenbrooke’s Hospital
- Cambridgeshire Analytics
- Cambridgeshire and Peterborough NHS Foundation TRUST (CPFT)

Study lead: Dr Louise Lafortune, Senior Research Associate, Cambridge Institute of Public Health.

Contact: is394@medschl.cam.ac.uk

17 Multimorbidity and lifestyle factors among adults with learning disabilities: a cross-sectional analysis of the ‘STOP Diabetes’ cohort - How lifestyle relates to the health of people with learning disabilities

What we are doing: We conducted a retrospective secondary analysis of 920 adults (18–74 years) with learning disabilities who had taken part in a region-wide diabetes screening programme in Leicestershire. Multimorbidity was defined as two or more chronic conditions in addition to the person’s learning disability. We looked at the relationship between multimorbidity and age, gender, ethnicity, severity of learning disability, socioeconomic status, physical activity, sedentary behaviour, fruit and vegetable consumption and smoking status.

Why we are doing it: People with learning disabilities face significant health inequalities compared with the general population. They are more likely to have other health problems, are less likely to access healthcare services and often need help to live independently. Although multimorbidity is known to be more common in this population, we have not found any studies looking at the relationship between multimorbidity and other factors. Ultimately, we need to know whether there is anything we can do to reduce multimorbidity in this population.

What the benefits will be: This study has helped to identify the extent of multimorbidity and factors associated with multimorbidity in people with learning disabilities. We found that some of the factors that were associated with multimorbidity, including less physical activity and more sedentary lifestyles, can be changed.

Our findings pave the way for further research using objective physical activity and sedentary measures to determine whether any risk factors can be modified to reduce multimorbidity, with the view to developing prevention strategies.

Who are we working with:
- Janharpreet Singh, BSc Student, University of Leicester
- Caroline Kristunas, NIHR Doctoral Fellow, University of Leicester
- Kamlesh Khunti, Professor of Primary Care and Vascular Medicine, University of Leicester
Sitting with bouts of standing and walking. The impact of breaking up prolonged postprandial metabolic response in post-menopausal women with multimorbidity: The effect of breaking up prolonged sitting with bouts of standing and walking.

What we are doing: Examining the impact of breaking up prolonged sitting with short bouts of standing or walking on post-prandial markers of cardiometabolic health in women at high risk of type 2 diabetes and those with multimorbidity (two or more chronic conditions). Twenty-two overweight/obese, dysglycaemic, postmenopausal women (mean age 67) each participated in two of the following treatments: prolonged, unbroken sitting (6.5 hours) or prolonged sitting broken up with either standing or walking at a self-perceived light-intensity (for five minutes every 30 minutes).

Who are we working with:
- Diabetes Research Centre, Leicester, UK
- Leicester Biomedical Research Centre, Leicester, UK
- University of Glasgow, UK
- Baker IDI Heart and Diabetes Institute, Melbourne, Australia
- University of Leicester

Study leads: Dr Freya Tyrer and Alison Dunkley
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Treatment and health outcome priorities of patients compared to clinicians: a systematic review of studies investigating the treatment and health outcome priorities of multi-morbid patients compared to those of clinicians.

What we are doing: We are carrying out a systematic review to identify existing studies investigating the health outcome and treatment priorities of multi-morbid patients compared to clinicians. We will evaluate the quality of studies and compare and synthesise their findings, in order to assess the extent to which the priorities of the two groups align or differ.

Why we are doing it: Providing individualised, patient-centred care through shared-decision making is key to the management of multi-morbidity and eliciting the patients’ treatment and health outcome priorities are key to the process of shared-decision making. Previous research in a single-disease context has shown that there is a mismatch between patients’ priorities and doctors’ perceptions of patients’ priorities. This systematic review aims to assess whether there could be a mismatch between the health outcome and treatment priorities between clinicians, and patients with multi-morbidity.

What the benefits will be: The findings of this systematic review will help to identify whether there could be a potential barrier to the process of shared decision-making due to a mismatch between patient and clinician health outcome and treatment priorities in multi-morbidity. The findings will also help to highlight areas where further research may be needed, in order to facilitate the process of eliciting multi-morbid patients’ priorities.

Who are we working with: The systematic review is a collaboration between the Leicester Diabetes Centre and SAPPHIRE group, Department of Health Sciences. The work is being overseen by Prof. Kamlesh Khunti, Dr Sam Seidu and Dr Manbinder Sidhu.

Study lead: Dr Harin Sathanapally
Contact: hs333@le.ac.uk

Risk Stratification tools to identify patients with advanced COPD in Primary Care: A comparison of disease severity and multi-morbidity algorithms

What we are doing: We will be comparing a risk stratification algorithm based on patterns of multimorbidity (the John’s Hopkins ACG system) with one based on disease severity (the Dyspnoea Obstruction Smoking Exacerbation (DOSE) score) in patients with COPD using primary care read coded data collected by CPRD (Clinical Practice Research Datalink). We will use these algorithms to estimate prevalence of COPD of different severities and compare how they predict clinical outcomes and health resource utilisation.

Why we are doing it: COPD imposes a substantial health burden to patients, their families and the NHS. The disease burden and future health risk and resource utilisation is greatest for advanced COPD but it is uncertain how best to identify community dwelling patients with advanced COPD using routinely collected primary care data. Moreover, it is uncertain whether future health risk (and resource utilisation) is best predicted from indices of disease severity (such as the DOSE index) or from indices of multi-morbidity (such as the ACG system).

What the benefits will be: The outputs from this research will be new knowledge on the relative contributions of COPD severity and multi-morbidity to disease burden and future health risk. This knowledge has the potential to provide commissioners and providers with crucial intelligence about how to develop and plan integrated disease management pathways that can be implemented locally and nationally.

Who are we working with: This is a collaborative project involving UoL (Steiner, Evans, Greening), UCL/BRC - respiratory (Richardson), Leicester city CCG (Pierce) and Imperial College (Quint). We will be working with the UoL “big data” centre to facilitate the extraction and analysis of relevant data from CPRD.

Study lead: Professor Michael Steiner
Contact: Michael.steiner@uhl-tr.nhs.uk

Police custody staff well-being across seven police forces: Final results across four surveys, each five-months apart.

What we are doing: The study concerns police custody staff well-being focused on five outcomes of work-related stress, mental and subjective well-being, energy and engagement. This saw the development of an integrated multilevel model of organisational culture and climate (IMMOC), designed to support a multilevel survey (including space for open comments at the end). This targeted four roles of Inspector, Sergeant, Detention Officer (public and private) and Custody Officer Assistant in a four-wave panel study across seven English police forces.

Why we are doing it: Police custody is one of the most challenging of police environments, with the treatment of prisoners a source of public and media concern, especially regarding deaths in police custody, and where every action by staff is recorded audibly and visually. This renders staff vulnerable to poor well-being, with the definition of well-being adapted from the World Health Organization’s view as coping with the normal stresses of life, working productively and fruitfully, and contributing to their home and local community.

What the benefits will be: With well-being (as outcome) conceived as a behavioural and/or psychosocial goal, IMMOC...
considers police custody staff well-being in terms of cause and consequence, i.e. the essence of multimorbidity in terms of individual/collective health and its management – the current challenge being the need to tackle high levels of pervasive negative feelings for all custody staff, with custody sergeants presenting the poorest well-being across all five outcomes.

Who are we working with: Targeting the seven police forces participating in the research, the study proposes a multilevel intervention based on the Stress Shield Model of Resilience (Paton et al. 2008), with skills training intended to tackle issues of problem and emotion focused coping. This will be evaluated using two additional police forces, whose conventional stress management training will provide statistical controls. With the original research led by Nottingham Trent University, it is hoped the evaluated intervention will be conducted jointly with Coventry University.

Study lead: Dr C. Rob. M. Werner-de-Sondberg, Coventry University
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22 Education and facilitation to improve clinical decisions and multidisciplinary teamworking with older adults living with multimorbidity: Developing the Core Multimorbidity Intervention Team Programme (COMMIT)

What we are doing: We are developing an education programme for multidisciplinary teams from general practices and other community agencies who are caring for older patients with complex multimorbidity, using:

- Team training, with case-based learning directed towards reducing care burdens, coordinating care and improving person-centredness.
- Team facilitation, supporting teams in the workplace to implement care design improvements.

We have co-designed the programme with local groups of practitioners, patients and educationalists in Birmingham, Devon and Staffordshire, and interviewed stakeholders, and reviewed key policy documents.

What the benefits will be: Intended benefits include:

- For core multimorbidity intervention teams: New learning and facilitation to implement person-centred decision-making and teamworking. Team members will also benefit from opportunities to share experiences, identify best practice and support each other across participating regions.
- For patients: Coordinated care planning and management that encourages engagement, reflects personal priorities and promotes self-care.
- For educationalists: We hope to learn more about how different forms of knowledge and action can be generated and mobilised across health, care and third-sector communities.

Who are we working with: This Programme Development Grant (PDG) is a collaboration between NHS Birmingham South and Central CCG, the Universities of Birmingham, Keele, Plymouth, and Warwick, and University College London. We are also working closely with patients and public advisors, including the CLAHRC-WM Theme 4 PPI Steering Group Committee. COMMIT demonstrates cross-CLAHRC collaboration between CLAHRC-WM and PENCLAHRC. We are planning to submit a joint-bid for a full trial in 2018.

The COMMIT PDG is funded by the National Institute for Health Research.

Study lead: Prof Richard Lilford, University of Warwick
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B.Harris.2@warwick.ac.uk 02476575859

23 The use of anti-psychotic and other psychotropic medication for adults with learning (intellectual) disabilities and additional needs

What we are doing: Through interviews with families and other care-givers, we examined the use of anti-psychotic and other psychotropic medications among a diverse sample of adults with learning (intellectual) disabilities twelve months after they were referred to specialist community teams or assessment, treatment and support of a putative or established additional mental health and/or behavioural condition and/or epilepsy.

Why we are doing it: Studies from large databases have established that psychotropic medication is being used by adults with learning disabilities in the absence of any mental health diagnosis and/or neurological condition for which such medication would be justified. These studies will have included, but will not have been limited to, users of community services. As part of a programme of research into the design and functioning of community learning disability teams, we wanted to carry out examine in more detail the use of psychotropic medication by service users.

What the benefits will be:

- The findings (Clare et al. (2018) Tizard Learning Disability Review, 23), should contribute, both locally and nationally, to the further development and commissioning of comprehensive multi-disciplinary/inter-agency interventions that will minimise reliance on pharmacological interventions.
- The methodology should contribute to the development of a national evaluation of the impact of recent ‘good practice’ guidance. While the use of large databases is invaluable for this task, it should be complemented by small scale, local studies.

Who are we working with: Clinical academic researchers have worked with adults with intellectual disabilities and additional neurodevelopmental and/or mental health and/or behavioural needs, and their families and other supporters, across a large and diverse county (Population of 650,000), practitioner researchers, clinicians and other health and care management staff in the local NHS Trust and Local Authority.

Study lead: Dr Isabel Clare & Professor Tony Holland, CLAHRC East of England at Cambridgehore & Peterborough NHS Foundation Trust and Department of Psychiatry, University of Cambridge.
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24 HEALeD: Characterising the Acute Hospital Experiences of Adults with Learning Disabilities (LDs)

What we are doing: We have focused on two large hospitals in the East of England to (i) benchmark hospital use and outcomes by patients with learning disabilities (LDs) and those without; (ii) document the extent to which the disabilities and/or special needs of the patients with LDs were recognised and accommodated under the provisions of the Equality Act 2010; and (iii) interview key stakeholders to determine what are seen as reasonable and appropriate adjustments.

Why we are doing it: In recent years, acute hospitals have developed a number of initiatives (special policies, staff training, the introduction of learning disability liaison nurses) to address the failings in health care provision to patients with learning disabilities highlighted by Death By Indifference (2007). We wanted (a) to investigate whether these initiatives are leading to discernible and meaningful improvements and (b) to provide campaigners with evidence about which initiatives are helpful to patients with learning disabilities and why.
What the benefits will be:

- We are providing the first empirical data relating to the effect of the initiatives to improve acute hospital services for patients with LDs.
- We have already presented the findings orally and through posters to nursing staff at local, national and regional events, acute NHS Trust Boards, commissioners and health and social care service providers, and researchers, and have established contact with Healthwatch.
- Single and multi-disciplinary practitioner or academic papers to disseminate the findings are in progress.

Who are we working with:
The study is based in two hospitals, in different parts of the Eastern Region, and has been funded by the NIHR’s Research for Patient Benefit Scheme and was designed and developed in collaboration with service users, their families, and social care provider organisations in Cambridgeshire and Northamptonshire. and received the NIHR CRN: Mental Health 2015 scientific meeting award for service user involvement. The Project Management Group has included clinicians, academic researchers and clinical researchers from Cambridge University Hospitals NHS Foundation Trust, the East and North Hertfordshire NHS Trust, the University of Cambridge, and Public Health England.

Study lead: Dr Marcus Redley, Dr Isabel Clare & Professor Tony Holland, NIHR CLAHRC East of England at Cambridge & Peterborough NHS Foundation Trust, and Department of Psychiatry, University of Cambridge

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25 Training nurses in a competency framework approach to support adults with epilepsy and learning (intellectual) disability(LDs): the EpAID cluster randomised clinical trial

What we are doing:

People with learning disabilities and epilepsy have frequently been excluded from clinical research and overlooked by health services. But they are not only at increased risk of epilepsy compared to treatment as usual.

Why we are doing it:

- People with learning disabilities and epilepsy have frequently been excluded from clinical research and overlooked by health services. But they are not only at increased risk of epilepsy compared to treatment as usual.
- People with learning disabilities and epilepsy have frequently been excluded from clinical research and overlooked by health services. But they are not only at increased risk of epilepsy compared to treatment as usual.

What the benefits will be:

- Most specialist community teams for people with learning disabilities include nurses with some experience of managing epilepsy. The trial shows that enabling these nurses to adopt a new approach - a competency framework that is tailored to nurses’ current level of expertise in managing epilepsy and will also direct their continuing professional development - results in more cost-effective epilepsy management.
- Following feedback to participants, the findings are now being written up for submission to practitioner and academic journals.
- The study developed from an earlier research project, funded by the CLAHRC for Cambridgeshire & Peterborough, and was funded by the NIHR’s Health Technology Assessment (HTA) Programme, supported by the CLAHRC EoE.

Study lead: Dr Howard Ring, Consultant Psychiatrist, Cambridge & Peterborough NHS Foundation Trust, and Department of Psychiatry, University of Cambridge

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26 Can transcutaneous vagus nerve stimulation (tVNS) modulation of heart rate variability reduce aggression by adults with developmental or acquired brain injury?

What we are doing:

Using single-case methodology that takes into account the heterogeneity of the individuals in the different groups, we are carrying out a ‘proof of principle’ study. We are investigating the acceptability and feasibility of using transcutaneous vagus nerve stimulation, a non-invasive method for increasing heart rate variability and, which may in turn, reduce the frequency and severity of verbal and physical aggression. Self-report cognitive, behavioural and experiential and informant data are being collected from participants and their families.

What the benefits will be:

- Understanding of the acceptability and feasibility of transcutaneous vagal nerve stimulation as a potential approach to decreasing the frequency and/or severity of aggressive episodes will inform whether, and for whom, its use might be developed further, leading to a clinical trial;
- Analysis of any changes in heart rate variability and cognitive flexibility, will provide new insights into the mechanisms through which any changes in the frequency and/or severity of aggression take place in people with lifelong or acquired conditions.

Who are we working with:

The study is led by clinical academics, collaborating with clinical and/or rehabilitation services for adults with autism and/or learning disabilities, or acquired brain injury across the UK organised by NHS Trusts and/or local authorities, or by a national charity, the Brain Injury Research Trust, www.thedgroupl.orgbrain-injury, and with people with learning disabilities and/or autism, or acquired brain injury and their families and others who care for, or about, them.

- Funding is provided by the CLAHRC East of England and Intelesens Ltd. (Belfast).

Study lead: Dr Isabel Clare, Dr Howard Ring, Dr Fergus Gracey and Dr Peter Watson

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27 Suicide, autism and autistic traits

What we are doing:

Study 1: We examined Coroner’s records in two UK regions to estimate the prevalence of autism spectrum conditions in people who died by suicide (~11%). Study 2: We conducted an online survey to examine autistic traits in adults who had attempted suicide. We found this group had elevated autistic traits compared to the general population, and that adults who had attempted suicide more than once had higher levels of autistic traits than adults who had attempted suicide once.

Why we are doing it:

Research suggests that people with autism spectrum conditions are more likely than members of the general population to experience suicidal thoughts, to make suicidal plans and attempts, and to die by suicide. There are currently many unanswered questions, and our research aims to improve our understanding of this important issue. It is hoped that research in this area can be informative in the development of effective interventions to reduce suicide risk in people with and those without autism spectrum conditions.

What the benefits will be:

- A House of Commons Debate about autism, mental health, and suicide was held on 30/11/2017: https://hansard.parliament.uk/ Commons/2017-11-30/debates/E9395C75-2994-4D3F-B534-75BAAE0BE4A8/AutismCommunityMentalHealthAndSuicide
- Our findings led to three stakeholder events, in which future research directions were discussed with members of the autism community, GPs, coroners, charities, and those bereaved by suicide.

External funding to continue the research has been provided by Autism. The study was carried out by researchers at the University of Cambridge and Coventry University in collaboration with Coroner’s in Cambridgeshire and Derbyshire.

Who are we working with:

A steering group of autistic adults supported the researchers throughout both studies, helping with...
the design and providing feedback as the project progressed. In addition, to help us develop the online survey (Study 2), we consulted five adults who had attempted suicide.

**Study lead:** Dr. Gareth Richards, NIHR CLAHRC East of England at Cambridgeshire & Peterborough NHS Foundation Trust, and Department of Psychiatry, University of Cambridge

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### 28 ABC-DS (Alzheimer’s Biomarkers Consortium of Down Syndrome): Neurodegeneration in Ageing Down Syndrome (NiAD)

**What we are doing:** As part of NiAD (N=180 participants), we are carrying out a five year observational longitudinal study of 45 people with Down Syndrome, aged 25-45 years and above at baseline (with their siblings acting as control participants where possible).

At different time-points, the participants undertake cognitive, neuropsychological and medical assessments, physical examinations, blood screening for genetics, metabolomics, lipidomics, proteomics and neuroimaging (MRI and PET scans for tau and amyloid) and an optional lumbar puncture. Informant interviews are also used.

**Why we are doing it:** By the age of 40 years almost everyone with Down Syndrome will have Alzheimer’s disease brain pathology. However, it is not until their 60s that most will have the clinical symptoms of dementia. Little is known about the nature of the relationship between the onset of dementia symptoms and the underlying neuropathology. If we can find measures in the asymptomatic individual who progresses to develop clinical dementia, then we will be able to target treatment with primary prevention.

**What the benefits will be:**

- The study aims to discover measurements (biological, cognitive or behavioural) that best predict the onset of symptoms and the trajectory of Alzheimer’s disease (progression).
- Better understanding of the process of dementia in people with Down Syndrome will assist them, and their supporters, in future-planning and service commissioning and provision.
- The study will provide an understanding of the pathogenesis of Alzheimer’s disease, the most common form of dementia in the general population.

**Who are we working with:**

- People with Down Syndrome, their supporters, the Down Syndrome Association and other charities, social care providers across the UK.
- Clinical academics (Cambridgeshire & Peterborough NHS Foundation Trust); academic researchers (Wolfson Brain Imaging Centre and the Department of Psychiatry, University of Cambridge).
- NiAD involves seven other sites, all in the USA, led by the University of Pittsburgh. All eight sites collaborate with the other ABC-DS project, led by the University of Columbia;
- Funding: US National Institutes of Health.
- Supported by CLAHRC EoE.

**Study leads:** Dr Shahid Zaman, Consultant Psychiatrist, Cambridgeshire & Peterborough NHS Foundation Trust; Department of Psychiatry, University of Cambridge

Contact: shz10@medschl.cam.ac.uk. For further information: see www.niad-project.org

### 29 A cluster feasibility RCT assessing a diagnostic pathway for the earlier identification of the multi-morbidity of chronic breathlessness.

**What we are doing:** Implementing and testing a new pathway to investigate the multi-morbid causes of chronic breathlessness in primary care compared to usual care.

- Feasibility cluster randomised controlled trial to understand if and how a definitive trial can be done
- Qualitative studies to understand GP and patient experience of both the research protocol, the intervention and usual care

**Why we are doing it:** Many patients with cardiorespiratory conditions experience delayed diagnoses (years) after initial presentation. There is no clear integrated pathway for chronic breathlessness across specialties and health sectors. Local surveys and a pilot cardiorespiratory clinic highlighted the underuse of simple investigations in primary care. 80% of patients had at least two co-morbid conditions causing breathlessness. A simple panel of investigations systematically applied diagnosed over 65% of patients referred to secondary care and diagnosed the majority of the co-morbidity.

**What the benefits will be:** To achieve an earlier diagnosis and earlier treatment for sufferers of chronic breathlessness using a clinically and cost effective approach. The feasibility trial will provide data to inform the definitive trial.

**Who are we working with:**

- Leicester BRC respiratory – Prof Michael Steiner
- Respiratory specialist GP – Dr Noel Baxter
- General Practitioners – Dr Darren Jackson
- Dame Helena Shovelton and Sylvia Lawson – named PPI representatives
- Leicester BRC cardiorespiratory PPI group
- Members of the IMPRESS Primary Care Respiratory Society/ British Thoracic Society collaboration for Breathlessness – Sian Williamson
- Local Clinical commissioning groups – integrated cardiorespiratory STP
- British lung foundation locally – Sarah Gray
- CRN local
- Health economist and statistician to be confirmed

**Study lead:** Dr Rachael Evans

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### 30 Physical activity, multimorbidity, and life expectancy: a UK Biobank observational study

**What we are doing:** We analysed one of the largest datasets to assess the association between physical activity with mortality and life expectancy in people with multimorbidity. We used three different measures of physical activity; subjectively measured by leisure-time physical activity and through a modified version of the International Physical Activity Questionnaire which assessed total physical activity, and in a sub-sample objectively measured by the wrist-worn accelerometer.

**Why we are doing it:** Management of multimorbidity including conditions such as diabetes, stroke, myocardial infarction, and chronic kidney disease has recently become an emerging priority for health care professionals and health care systems. Physical activity is recommended as one of the main lifestyle factors in the management of several chronic conditions worldwide, yet it is not clear whether and to what extent the benefits of physical activity apply to people with multimorbidity.

**What the benefits will be:** We found that although people with multimorbidity have lower life expectancy compared to people without multimorbidity, mortality benefit of physical activity was greater in people with multimorbidity, especially at younger ages. We also found that the difference in life years gained between moderate and high physical activity was small and even as little as additional six minutes or 18 minutes of ‘brisk walking for exercise’ per day on average was associated with 51% and 71% lower risk of mortality, respectively.

**Who are we working with:** We are working with the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care – East Midlands (NIHR CLAHRC – EMI), the Leicester Clinical Trials Unit and the NIHR Leicester Biomedical Research Centre.

**Study lead:** Dr Nafeesa Dhalwani, Lecturer in Epidemiology, Diabetes Research Centre, University of Leicester

Yogini Chudasama, PhD Student, Diabetes Research Centre, University of Leicester

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### 31 Supporting older people to manage their medicines: a scoping review of medicines self-management tools

**What we are doing:** We are conducting a scoping review that aims to identify what tools or resources are available for older people to manage multiple medicines or complex treatment regimens and examine the evidence, if any, of the effects of using these tools or resources as well as in what context and for whom they are beneficial. We have searched electronic databases, grey literature, select paper citations, conference presentations, systematic reviews, and key authors were iteratively searched and are screening 1,874 original papers.
Why we are doing it: With an ageing population, the concurrent use of multiple medicines, or polypharmacy, is increasing. Polypharmacy is associated with multiple conditions and can result from side-effects of existing medicine(s), or poor communication between healthcare professionals. Patients and clinicians report that this problem is widespread. Multiple medicines and conditions can have a considerable burden on an individual, and one-half of all medication prescribed for long-term conditions are not taken as recommended. Supporting community-dwelling older people to manage their multiple medicines is therefore imperative.

What the benefits will be: This review will provide a typology of the existing tools or resources for older people to self-manage multiple medicines, summarise the evidence for different tools, and identify any potential gaps in knowledge for further research. Evidence about such tools is warranted so older people can optimise the use of their medicines, and consequently reduce the societal costs of the inappropriate use of medicines.

Who are we working with: The research is being conducted by Dr Krystal Warmoth, Dr Julia Frost, and Professor Nicky Britten. The team also includes Sophie Robinson, an Information Specialist with Peninsula Technology Assessment Group (PenTAG), performed the literature searches.

We also plan to involve members of the PenCLAHRC Public Involvement Group (PenPIG) who take multiple medicines to ensure that our findings are relevant and fit for purpose.

Study lead: Dr Krystal Warmoth, Research Fellow, University of Exeter Medical School

Dr Julia Frost, Senior Lecturer in Health Services Research, University of Exeter Medical School

Professor Nicky Britten, Professor of Applied Health Care Research, University of Exeter Medical School

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32 Person-Centred Coordinated Care (P3C)

What we are doing: This programme combines the following activities in order to ensure learning contributes both to local service improvement and international knowledge:

- reviews of literature
- support for bottom up service redesign and implementation
- evaluation of innovation and whole systems
- bringing together research, implementation and evaluation

Why we are doing it: There is now widespread recognition that the care provided by the NHS, social care and other associated community services should strive to be more person centred i.e. both centred around and responsive to the needs of the individual. For this to be achieved effectively, services need to be better co-ordinated and, in some circumstances, integrated fully. Person Centred Coordinated Care (P3C) is perceived as a way of achieving better outcomes for patients and improved efficiency for health and care economies. We have defined person centred and coordinated care as: ‘Care that is guided by and organised effectively around the needs and preferences of the individual’.

Our approach saw us anchoring our work in the perspective of the individual which has enabled us to move towards a testable theoretical model and a shared understanding of the key constituent components to test for the delivery of P3C. This work led to the development of:

- a consistent evaluation and measurement framework which includes multi-level and multi-perspective measures of experience of both patients and practitioners
- the Person Centred Coordinated Care Organisational Change Tool (P3C-OCT)
- the further development of a measure to tap patient experiences of person centred coordinated care (P3CEQ)

What the benefits will be: Anticipated outputs

Service development:

- Helping to implement new models and refine them (using data collected at baseline, 6 months and 12 months).

Research:

- Theory building, using data from evaluations, in relation to multi-professional working, locality based teams, enhanced primary care, personalisation care etc.
- Leading and supporting bids for external funding.

Development of evaluation framework including:

- Organisational Change Tool for P3C (P3C-OCT).
- Psychometric testing of the Person Centred Coordinated Care Experiences Questionnaire (P3CEQ).

Who are we working with:

- PenCLAHRC Public Involvement Group - PenPIG
- South West Academic Health Science Network (SW AHSN)
- South Devon and Torbay CCG and NHS Trusts
- Mendip Collaboration
- Yeovil District Hospital: South Somerset: Federation of GPs
- Taunton LIG
- Integrated Care Exeter
- Somerset CCG
- Gothenburg Centre for Person Centred Care
- This project is supported by the NIHR Collaboration for Applied Health Research and Care South West Peninsula (PenCLAHRC).

Study lead:

Research lead: Dr Helen Lloyd
Research lead: Professor Richard Byng

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33 Public and Patient Involvement (PPI) in Multimorbidities Research Activities - Models of Good Practise in PPI

What we are doing: PPI is an essential activity for CLAHRC EM to ensure our studies and programmes are relevant to the needs of patients, health service providers/users and commissioners.

We will support our studies by providing access to a network of diverse PPI representatives who are experienced, skilled, knowledgeable and supported to ensure active involvement.

Our PPI programme supports our researchers and programme staff with an understanding of the key principles, concepts and methods of effective PPI. Methods to ensure meaningful and active involvement from design through to dissemination will be developed, with a focus on increasing diverse representation.

These models of good practise will be shared.

Why we are doing it: Managing and preventing chronic conditions are central theme areas for CLAHRC EM and this theme prevailed in our Phase 4 evaluations, database and systematic review studies, commissioned in 2017. Our research into conditions and diseases also address the multimorbidities agenda. Therefore supporting, developing and embedding positive PPI is a key indicator for our research and implementation activities. Furthermore recognising and addressing the under representation of young people and members of racial minority communities in PPI is essential. Developing and sharing this model of good practise enables our research partners to embed effective PPI in their studies.

What the benefits will be: The benefits of delivering a positive PPI strategy will ensure:

- Individuals with “lived experience” of a condition have an influence and an active role in our research/implementation activities
- We understand and recognise that patients, service users and providers are directly affected by our activities and findings, therefore, have a right to be involved.
- Multimorbidities impacts highly on members of racial minority communities in comparison to White communities, their representation is critical to support recruitment, retention and involvement in studies that affect them.
- We share and disseminate our models of good practise.

Who are we working with: In the development and implementation of our PPI activities we are working with members of the public, patients, carers, family members, voluntary and community sector (VCS) organisations, health and social care service providers, medical professionals, local authorities and commissioners. These individuals and groups have a role to play in our PPI and governance activities, therefore we recognise their engagement as essential. Above all our collaborative work with our partner organisations contributes to our success in embedding PPI in our activities.

Study lead: Vinod Chudasama – PPI Lead CLAHRC EM and Centre for BME Health

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34 Multimorbidity and patient safety

What we are doing:

- To identify the key threats to safety in patients with multimorbidity
- To identify patient multimorbidity groups that are at most risk from safety failures
- To explore the contribution of patients and carers to monitoring safety and reducing the impact of safety
failures in the care of multimorbidity at an individual and organisational level
• To develop interventions to modify care delivery to ensure that key threats to safety in patients with multimorbidity are reduced

Why we are doing it: Patients with multimorbidity in primary care are potentially at greatest risk in terms of patient safety issues. Systems for managing patients with multimorbidity need to empower patients and carers to ensure that they are able to collaborate effectively with professionals and services to reduce risk, both at the level of the individual patient, and at the organisational level.

What the benefits will be: Improving patients safety among patients with multimorbidity

Who are we working with: CCGs in the North West
Study lead and contact: Peter Bower, Professor of Health Services Research, Centre for Primary Care, University of Manchester
Contact: kevin.sandersonshortt@rht.nhs.uk

35 Heywood, Middleton & Rochdale (HMR) Long Term Conditions Test Bed: Using technology to help people with long term conditions stay out of hospital

What we are doing: We are evaluating an innovative combination of technologies designed to help GPs identify patients at risk of hospitalisation due to diabetes, heart disease and COPD. Patients are then offered telehealth support to monitor their own health and become more proactive in their healthcare. We are interviewing key figures in commissioning and delivery of this intervention and analysing primary and secondary care data for HMR. Primary and secondary care data for Bury are also being analysed as a non-intervention comparator site.

Why we are doing it: This intervention tries to meet the needs of and prevent avoidable hospitalisation among patients with long term conditions by combining technology in new ways. In-depth interviews will help us understand the practicalities of implementation and the analysis of primary/secondary care data will provide insight regarding its impact. Together these sources of data can be used to inform further decisions around service provision for patients with long term conditions, such as rolling this intervention out across a wider area.

What the benefits will be: If this intervention works, patients with these long-term conditions will be less likely to be hospitalised, also helping patients to avoid the disruption and stress of hospitalisation.

Who are we working with:
• Heywood Middleton & Rochdale CCG
• Bury CCG
• MSD
• Verity Life Sciences

Study lead: Peter Bower, Professor of Health Services Research, Centre for Primary Care, University of Manchester
Contact: kevin.sandersonshortt@rht.nhs.uk

36 PhD – Understanding the impact of dementia on access to stroke rehabilitation

What we are doing:
• Clinician interview study: Identifying the factors influencing decision-making about stroke rehabilitation for people with pre-existing dementia/cognitive impairment and how these factors influence clinical practice.
• Cohort study: Examining whether pre-existing dementia/cognitive impairment affect stroke-specific rehabilitation care processes and outcomes.

Why we are doing it: Pre-existing dementia is associated with poorer functional outcome after stroke but there is inadequate guidance about decision-making and the ideal process of care for these patients. We aim to examine whether pre-existing cognitive impairment affects access to stroke-specific rehabilitation, and to understand the experiences of those service users and clinicians who work with them.

What the benefits will be: Recommendations for practice will be developed from the results in collaboration with stakeholders (clinicians, patients) in order to improve outcomes for people with pre-existing dementia after stroke.

Who are we working with:
• Stroke Association
• Greater Manchester CRN
• Clinicians
• Patients
• Trusts (Salford Royal NHS FT, Pennine Acute Hospitals NHS Trust, Manchester University NHS, Stockport NHS FT, Tameside and Glossop Integrated Care NHS FT)

Study lead: PhD student: Verity Longley (lead supervisor Professor Audrey Bowen)
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Audrey.bowen@manchester.ac.uk

37 Frailty: identification and management

What we are doing: We are developing the electronic frailty index to better identify patients with frailty. We are involved in developing a model of care planning for patients with frailty to improve their outcomes

Why we are doing it: Frailty is common, but the concepts need to be developed to better understand how it can be used to identify patients and deliver better care

What the benefits will be: The triple aim (better outcomes, lower costs, improved patient experience)

Who are we working with: CCGs in the Yorkshire and the North West

Study lead and contact: Peter Bower, Professor of Health Services Research, Centre for Primary Care, University of Manchester

38 Designing an intervention to reduce sedentary behaviours in people with physical-mental multimorbidity

What we are doing: This study is developing a psychological intervention to reduce time sedentary spent in adults with long-term conditions and depression. A systematic review investigated the effectiveness and components of interventions to increase physical activity. A qualitative study explored the functional roles of physical activity and sedentary behaviours and the impact of social support. A patient advisory group informed the design of the intervention. Lastly, a feasibility trial will explore the acceptability of the intervention content.

Why we are doing it: There is paucity of research exploring physical activity and sedentary behaviours in this population group and yet depression is associated with increased time spent sedentary (de Wit et al. 2011). Increasing physical activity has been found to improve symptoms depression (Conney et al. 2013) and physical wellbeing (Garcia-Aymerich et al. 2006). Reducing sedentary behaviours is also associated with improved physical wellbeing, an association that is independent of physical activity levels (Tremblay et al. 2010).

What the benefits will be: The intervention aims to substitute sedentary behaviours with mild physical activities. In reducing sedentary behaviours, we hope to improve physical health outcomes, symptoms of depression, and quality of life.

Who are we working with: We are working with Research for the Future, primary care services, charities and community groups across Manchester. Support groups within the community include Breathe Easy British Lung Foundation and British Heart Foundation

A patient advisory group was set up for this study. Regular meetings with members helped to inform the conceptual and methodological development of the research study and the design of the intervention.

Study lead: Isabel Adeyemi (PhD student)
Supervisors: Prof Chris Armitage, Dr Sarah Knowles, Dr Peter Coventry
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39 Multimorbidity and mental health

What we are doing: Understand barriers and facilitators to increase good depression care in patients with multimorbidity

To develop depression interventions to improve outcomes in patients with multimorbidity, including depression outcomes and markers of the quality of physical care

Why we are doing it: Depression is common in patients with multimorbidity in primary care, and associated with poor outcomes. Although there is an extensive evidence base for the management of depression, much of the evidence does not involve patients with multimorbidity. There is a need to develop integrated models of care to better meet the needs of patients
What the benefits will be: Improving depression outcomes among patients with multimorbidity, as well as other markers of quality of care

Who are we working with: CCGs in the North West

Study lead and contact: Peter Bower, Professor of Health Services Research, Centre for Primary Care, University of Manchester

40 New models of care for multimorbidity

What we are doing: Testing new models of integrated care in primary care, and in integrated care services.

Why we are doing it: Multimorbidity is common, but the evidence base is very limited. There is a need to develop and test new models of care to test whether integrated models can deliver better outcomes

What the benefits will be: The triple aim (better outcomes, lower costs, improved patient experience)

Who are we working with: CCGs in England and Scotland

Study lead and contact: Peter Bower, Professor of Health Services Research, Centre for Primary Care, University of Manchester

41 SCN Urgent Care Review - Modelling provision for stroke and cardiac services in the South West region (PenCHORD)

What we are doing: As part of our NIHR CLAHRC YH older people’s theme we have established the Community Ageing Research 75+ (CARE 75+) cohort study to investigate multimorbidity, frailty, disability and quality of life in older age. Participants are highly phenotyped, with measures including morbidity, frailty, disability and quality of life. Assessments are at baseline, 6, 12, 24 and 48 months. The current sample size of CARE 75+ is 600 participants, with a target of 1,000.

Why we are doing it: The overarching aim of CARE 75+ is to establish an experimental research cohort to accelerate the translational research pathway through applied epidemiological research informing rapid, efficient development and randomised trial evaluation of interventions. CARE 75+ is the first international experimental ageing research cohort to use a trial within cohort (TWIC) design to align applied epidemiological research with future trials of interventions.

What the benefits will be: CARE 75+ is a platform for applied epidemiology, qualitative research and future intervention evaluation. It represents a rich contemporary resource for research into multimorbidity, frailty, disability and quality of life in older age.

CARE 75+ has successfully nested qualitative studies into resourcefulness in older age and improving communication between older people with frailty and healthcare professionals. Current epidemiological projects using CARE 75+ data include investigating frailty, pain and disability; frailty, resilience and mental health; and construct validity of the eFI.

Who are we working with: Cross-CLAHRC linkage has been established with CLAHRC WM and PenCLAHRC as recruiting sites for CARE 75+. CARE 75+ data is freely available to NIHR CLAHRC researchers, and we welcome applications for data extracts from CLAHRC partners. The CARE 75+ assessment suite includes a wide range of measures, including:

- comorbidities
- frailty
- health-related quality of life (SF36 and EQ5D)
- cognition (MoCA)
- mood (GDS)
- activities of daily living (Barthel/NEADL)
- resilience (brief resilience scale)
- loneliness (de Jong-Gierveld loneliness scale)
- pain (geriatric pain measure)

Study lead: Dr Andrew Clegg, Deputy Theme Lead, NIHR CLAHRC YH Older People’s Theme

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42 Development, validation and national implementation of an electronic frailty index using routine primary care electronic health record data

What we are doing: We have developed and validated an electronic frailty index (eFI) using routinely available primary care electronic health record (EHR) data from around 900,000 patients in two large research datasets (ResearchOne and THIN). The eFI has been implemented into the SystmOne, EMISWeb, Vision and Microtest primary care EHR systems, ensuring national availability. The eFI is supported in the 2016 NICE multimorbidity guideline and 2017/18 General Medical Services contract, and won the prestigious 2017 RCP Excellence in Clinical Care Award for Innovation.

Why we are doing it: The 2016 NICE multimorbidity guideline identifies older people with frailty as a key subgroup of people who require a tailored approach to care. However, the main historical difficulty with identifying frailty routinely is that previously available clinical tools require additional resource, and might be inaccurate. The eFI represents a major advance in the care of older people because, for the first time, it enables identification of frailty using existing primary care data without the need for a resource-intensive clinical assessment.

What the benefits will be: National availability of the eFI enables development of new, evidence-based care pathways for older people with frailty. This has been supported through the establishment of a Healthy Ageing Collaborative (HAC), which has engaged with 75 of the 209 CCGs in England to develop new models of care at a practice and population level. The eFI is supporting national policy developments, including through close working with NHS England as part of the updated 2017/18 General Medical Services contract implementation.

Who are we working with: The eFI project has been led as part of the NIHR CLAHRC YH older people’s theme in partnership with NIHR CLAHRC WM. The project is an outstanding example of cross-disciplinary partnership working including CLAHRC, NHS, academic and industry partners. Our eFI team includes representation from CLAHRC YH, CLAHRC WM, the University of Leeds, Bradford Teaching Hospitals NHS Foundation Trust, Bradford Institute for Health Research, Birmingham University, Bradford University, TPP/SystmOne and the Yorkshire & Humber AHSN Improvement Academy.

Study lead: Dr Andrew Clegg, Deputy Theme Lead, NIHR CLAHRC YH Older People’s Theme

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43 DIAMONDS: Diabetes and Mental Illness: Improving Outcomes and Services

What we are doing: We are conducting a broad programme of research which comprises of reviewing the existing knowledge base on SMI and diabetes alongside conducting new empirical studies. In order to construct a comprehensive picture of the experience of co-morbid SMI and diabetes, we are exploring the issue from a range of different angles: health inequalities, risk factors, mental and physical health outcomes, medication adherence, healthcare costs, psychosocial impact, quality of life, lived experience, self-management and the experience of healthcare interventions.

Why we are doing it: People with SMI live around 15-20 years less than the general population, often dying of preventable or treatable physical illnesses. A major contributory factor to this inequality is diabetes, which is two to three times more prevalent in people with SMI and is associated with poorer health outcomes. Improving care, then, is a high priority, yet not enough is known about why diabetes is more prevalent in this population, whether current healthcare provision is appropriate and how this co-morbidity impacts upon patients’ lives.

What the benefits will be: This programme of work will provide more comprehensive understandings of the complex issue of co-morbid SMI and diabetes. Findings from literature reviews and empirical studies will be used to offer new insights into how the organisation and delivery of diabetes healthcare can be changed to improve mental and physical health outcomes, how self-management programmes can be tailored for this patient group to reduce diabetes-related complications and how cost savings could be delivered for the NHS.

Who are we working with: The DIAMONDS programme has a wide stakeholder network involving collaboration with primary, secondary and mental health clinicians, academics, service users, carers and NHS commissioners. Our regular meetings provide a forum not only to update on existing work and to disseminate findings but also for stakeholders to develop ideas and generate new studies. In addition we work closely with our PPI panel who advise on all aspects of the research process from developing questions to ensuring appropriate dissemination of findings.

Study lead: Dr Najma Siddiqi

Contact: najma.siddiqi@york.ac.uk or sue.bellass@york.ac.uk
EMERALD: Improving diabetes outcomes for people with severe mental illness (SMI): a longitudinal observational and qualitative study of patients in England

Why we are doing it: EMERALD is a mixed methods study comprising of quantitative analysis of patient records and qualitative interviews with people with SMI and diabetes, relatives/ friends who support them, and healthcare professionals. Through interrogating patient records we will examine diabetes risks, interventions, outcomes and costs for diabetes care provision and identify which interventions are associated with better outcomes for people with SMI. For the qualitative research we will explore experiences of living with SMI and diabetes, looking specifically at perceptions of diabetes healthcare.

What the benefits will be: This study will bring clarity to this complex topic, addressing important gaps in the evidence base about which people with SMI are more at risk of poor diabetes outcomes and why, and about how healthcare services can be improved to meet the needs of this vulnerable population. Better prevention and management of diabetes has the potential to reduce the risks of diabetes complications and the health inequalities currently experienced by this patient group.

Who are we working with: This study is NIHR-funded and is led by York University and Bradford District Care NHS Foundation Trust. We are working with a PPI panel which advises on project documentation and dissemination activities. We also have a stakeholder network that includes local mental health trusts, national and local CLAHRCs, CCGs, NIHR Clinical Research Networks, academic institutions and third sector organisations. We have established a multi-disciplinary Steering Committee that oversees the study, providing independent scrutiny on the progression of the project.

Study lead: Dr Najma Siddiqi
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46 AvaChat: Avatar-based conversation intervention for people with mental health and associated long term physical health conditions

What we are doing: AvaChat is working with service users and service providers to co-design an online talking therapy avatar to help people with chronic obstructive airways disease (COPD) self-manage anxiety and low-mood that is often associated with their condition. The workshops have explored the voice, look, format and content of the web-based avatar support system to inform the prototype development. Proof-of-concept of the co-designed prototype will be tested with the Sheffield British Lung Foundation Breathe Easy group members in early 2018.

Why we are doing it: People with long term conditions suffer more complications if they also develop mental health problems. This can increase the cost of healthcare by an average of 45%. Currently access to mental health services in the UK is limited with only a ¼ of those in need in receipt of treatment. Use of technology to deliver mental health treatment has been shown to be beneficial and acceptable.

What the benefits will be: AvaChat aims to give people with co-morbid physical and mental health conditions improved access to mental health and self-management support where and when they need it. It will lead to improved quality of life through reduced waiting times for assessment and treatment, and more frequent on-demand access to support. It may therefore ultimately help reduce the burden and costs to the NHS.

Who are we working with: This is a substantial cross-theme programme of research in a new topic for CLAHRC-YH: Connected Mental Health, with two new (to CLAHRC-YH) research leaders (Weich in Mental Health and Comorbidities, de Witte in TaCT) whilst developing future research leaders (Easton in TaCT, Christensen (CATCH), Taylor; Wolstenholme (TK2A).

Study lead: Kat Easton
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47 The psychosocial impact of diabetes and diabetes care provision for people with severe mental illness (SMI): a patient, carer and healthcare staff survey

What we are doing: We are conducting a questionnaire survey of patients with SMI and diabetes, their carers and healthcare staff to explore the psychological and social impact of having both SMI and diabetes. In particular, we are examining diabetes distress, quality of life and factors affecting diabetes self-management. The results will be compared with findings from a global survey of diabetes in the general population called DAWN2, which will enable us to identify the particular challenges faced by people who also have SMI.

Why we are doing it: Diabetes has a major psychosocial impact, causing distress, poor quality of life and reduced capacity for self-management, and is particularly prevalent in people with SMI. Furthermore, this patient group face additional difficulties as a result of their mental illness that are likely to compound the experience of diabetes; however, little is known about how diabetes impacts this vulnerable population. The aim of this survey is to increase understanding of the impact of diabetes on this patient group.

What the benefits will be: This study will provide greater understandings of the psychosocial impact of diabetes on people with SMI. Findings will be used to indicate how diabetes healthcare can be improved and how effective self-management practices might be facilitated in this patient group to reduce distress, increase confidence in self-care and improve quality of life. In addition, the study will test current measures of diabetes burden to assess their suitability for people with SMI to inform future research.

Who are we working with: This study involves collaboration with a wide range of academics, NHS commissioners, service users and primary, secondary and mental health clinicians. Findings will be disseminated widely through our established research, clinical and service user networks to increase knowledge and to facilitate improvements to current NHS care pathways. We anticipate we will be able to demonstrate improved diabetes healthcare for people with SMI within 24 months of study end through increased uptake of care, including self-management education.

Study lead: Dr Najma Siddiqi
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**49  Weight gain following stroke: a consultation**

**What we are doing:** A recent CLAHRC-YH funded research project identified that weight gain after a stroke is a problem for some people. This consultation with stroke survivors, carers, and stakeholders from across the stroke pathway, public and third sector looked at the implications of the research on service provision in Sheffield. Discussions with stake holders lead to a co-production event. Two workshops took place looking at ways to improve current services and patient experience in relation to weight gain after stroke.

**Why we are doing it:** The consultation occurred in order to find out stroke stakeholders’ thoughts on the initial research findings. The co-production event looked at identifying specific interventions, actions or products which were co-designed collaboratively by stroke survivors, carers and staff to benefit patients’ weight management after stroke.

**What the benefits will be:** A greater understanding of service provision and ideas for developing weight management services were obtained. The development of accessible weight management resources for stroke survivors was highlighted as a priority. More staff training was seen as key to building confidence and knowledge in this area. Service development strategies were identified to make services more joined up when considering post-stroke weight management, and to look at longer term services with staff trained in both lifestyle management and stroke.

**Who are we working with:** Stroke survivors who had experienced issues with weight gain after stroke were involved throughout the consultation process. Clinical staff contributing to this project included nurses, dieticians, physiotherapists, therapy assistants, occupational therapists, speech and language therapists, clinical psychologists, and pathway co-ordinators. Health trainers, active programmes staff, weight management service providers, and Stroke Association staff also participated in the consultation.

**Study lead:** Julia Clifford
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**51  Meeting the physical health care needs of people with serious mental illness in primary care**

**What we are doing:** We are using mixed methods to examine the unmet physical health care need of people with serious mental illness. This consists of semi-structured interviews with people who have schizophrenia or bipolar disorder and general practice health professionals (GPs and practice nurses) located within the Yorkshire and Humber CRN region, alongside an interrogation of electronic health records using the Clinical Practice Research Datalink (CPRD), to measure the effect of the QOF on activity and health outcomes for people with SMI.

**Why we are doing it:** People with serious mental illness (SMI) die 15-20 years earlier than the general population, largely from the same preventable physical conditions such as heart and lung disease. Their increased likelihood of premature death is a major injustice and represents one of the biggest health inequalities in England. Despite recent policy initiatives such as Parity of Esteem and the Five Year Forward View indicate indicating that it’s become a growing concern, the underlying reasons why this mortality gap exists remain hidden.

**What the benefits will be:** New evidence about what is happening in practice from people at the frontline about how best to meet the physical health needs of people with SMI will be unveiled. Insider views will provide valuable clues on how to make progress and reduce inequalities. Given the sparsity of qualitative evidence from people with SMI, this research will offer a unique patient perspective, and, when integrated with the big data analysis, will provide a richer understanding of what’s underpinning the SMI morbidity-mortality.

**Who are we working with:** Katharine Bosanquet, NIHR Doctoral Research Fellow, Mental Health and Addiction Research Group, University of York, alongside a number of national and international collaborations with experts in the field: PRIMROSE team, UCL (cardiovascular risk of people with SMI) and the Keeping Body in Mind programme, UNSW Australia (early intervention in psychosis). Locally, study sits under Y&H CLAHRC mental health and comorbidities theme and within a group of related research studies at the University of York (Simitar and the DIAMONDS Programme).

**Study lead:** Katharine Bosanquet
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**48  Smoking cessation intervention for severe mental ill health trial: a definitive randomised evaluation of a bespoke cessation service (+)**

**What we are doing:** We are conducting a randomised controlled trial of a bespoke smoking cessation intervention for people with severe mental ill health. In the trial we are comparing the smoking cessation intervention with usual NHS treatments for people who wish to stop smoking. Our primary outcome will be whether or not people have stopped smoking 12 months after enrolling in the study. Smoking status will be verified by a carbon monoxide breath measure.

**Why we are doing it:** People with severe mental ill health (SMI) such as schizophrenia and bipolar disorder currently die on average 15 – 20 years earlier than those in the general population. One of the main causes of these early deaths is smoking related diseases. People with SMI are more likely to smoke than the general population but they are just as likely to want to do something about their smoking. Our intervention therefore aims to help people stop smoking and reduce the mortality gap.

**What the benefits will be:** If the SCIMITAR+ intervention is found to be effective it can be used to help people with SMI stop smoking and reduce the number of early deaths and morbidity due to smoking in this patient group. This may also lead to significant cost savings for the NHS. Regardless of the effectiveness of the intervention the trial will provide important information about how people with SMI may be helped to stop smoking.

**Who are we working with:** We are working with the NIHR CLAHRC YH comorbidity theme along with NHS, academic and third sector partners. Along with CLAHRC Y&H we have collaborated with 21 mental health trusts, five CCGs and five universities to deliver this project which has recruited ahead of time and ahead of target. SCIMITAR+ is an excellent example of how collaborative working can lead to successful project delivery.

**Study lead:** Professor Simon Gilbody
**Contact:** simon.gilbody@york.ac.uk
recognised and undertreated. We aim to redress this gap with a programme of research to establish the causes and consequence of mental-physical multimorbidity. We will also establish what model of care should be offered for people with mental-physical multimorbidity in primary care. The candidate model of care is Collaborative Care, which has a substantial evidential basis in non-UK healthcare systems and which is beginning to be trialled in the UK.

What the benefits will be: Our programme of research will establish which older people are at the greatest risk of mental and physical multimorbidity and whether this can be detected or predicted in UK primary care. We will also establish the clinical and cost-effectiveness of innovative models of care using trials and systematic reviews. We will also establish how this research intelligence might be used to influence change and organisational reconfiguration for older people with mental-physical multimorbidity.

Who are we working with:

- Universities of York, Bradford and Sheffield
- Age UK
- Cochrane Common Mental Disorders Group
- Improvement Academy
- Centre for Reviews and Dissemination, University of York.

Study lead: Prof Simon Gilbody
Contact: Simon.gilbody@york.ac.uk

The effect of brief interventions for alcohol among people with comorbid mental health conditions: a systematic review of randomised trials and narrative synthesis.

What we are doing: We have conducted a systematic review on the effects of alcohol brief interventions (ABI) (also known as brief advice) in mental health settings. Our narrative synthesis of studies found the evidence to be mixed. For common mental health problems, a single session of ABI was mostly used (n=9). For severe mental illness, there was more variety in the intensity of ABI used (n=5). We recommend that future well designed trials are conducted to improve the outcomes for this population.

Why we are doing it: There is a substantial evidence base to support the use of ABI in primary care, however, there have been no systematic reviews that focus exclusively on ABIs in mental health settings. Despite this lack of evidence, NICE guidance advocates the use of ABIs in mental health settings and the delivery of ABI is now incentivised in mental health settings by the CQUIN. This review has identified gaps in the evidence base and provides a direction for future research.

What the benefits will be: The findings from this systematic review will inform existing guidelines on the use of alcohol brief interventions in mental health settings, such as the NICE guidance on preventing harmful drinking, and the NICE guidance on coexisting severe mental illness (psychosis) and substance misuse.

Who are we working with: This systematic review was conducted by an MSc student in the Addictions Department at the Institute of Psychiatry, Psychology and Neuroscience, King’s College London, where Professor Colin Drummond leads the alcohol theme of the South London CLAHRC. This MSc project was supervised by Dr Sade Bionlase (Addictions Dept) and Dr Zamie Khadjesari, who is a King’s Improvement Science fellow, and member of the Centre for Implementation Science, which is part of the South London CLAHRC.

Study lead: Dr Zamie Khadjesari
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Socioeconomic inequalities in life expectancy with and without multimorbidity: a multi-state survival model using a large linked primary care database, England 2001-2010

What we are doing: We estimated health expectancies of 1.1 million patients aged 45 and over with linked records in the Clinical Practice Research Datalink (CPRD) by sex, Index of Multiple Deprivation (IMD) 2007 quintile and smoker status, using a multi-state survival model. We translate the 10-15-year gap in multimorbidity prevalence at middle age into health expectancy gaps at age 65: for the most deprived quintile, multimorbidity onset is two to three years earlier, and subsequent survival is shorter by an additional two years for men. These are not fully attributable to socioeconomic differences in smoker prevalence.

Why we are doing it: Socioeconomic inequalities in life expectancy, age of multimorbidity onset and multimorbidity prevalence are well documented. However, the contribution of multimorbidity to the inequality gap in survival is underexplored, particularly in relation to life expectancies.

What the benefits will be: In light of ageing populations and widening relative mortality gaps in several developed countries, the onset of multimorbidity is pivotal in informing the assessment of health expectancy inequalities for health policy. This study also captures socioeconomic, demographic and health behaviour differences in rates of multimorbidity onset, rates of subsequent mortality, and health expectancies by disease count. This provides health professionals with stratified predictions to identify vulnerable patients with complex care needs.

Who are we working with: The multidisciplinary project team and its advisory group consist of clinical epidemiologists, statisticians, academic GPs and data scientists. We have received advice on study design from international experts in the field of multimorbidity in primary care. We benefited from the support of the Collaboration for Leadership in Applied Health Research and Care (CLAHRC) North Thames for the duration of the project, including advice at Methodological Innovation Theme meetings.

Study lead: Dr Madhavi Bajekal
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The use of Aspirin for primary prevention in people with diabetes; a single patient meta-analysis of randomised controlled and observational studies
What we are doing: The aim of this review will be to assess the cardiovascular disease benefit, or lack it, with the use of aspirin in people with type 2 diabetes without prior cardiovascular events, using individual patient meta-analysis.

Why we are doing it: There is a high clinical interest in this topic and with the publication of newer trials since the last relevant meta-analysis on the topic, we aimed to address the persisting uncertainties about the benefits and harms of aspirin for the primary prevention of CVD and all-cause mortality events in people with diabetes by conducting an updated systematic meta-analysis with individual patient data.

What the benefits will be: We shall provide further insight on aspirin therapy in primary cardiovascular prevention therapy in diabetes, and this may have implications for clinical practice. Aspirin may have a beneficial effect on the prevention of MACE in people with diabetes and may have specific effects by baseline CVD risk, compliance and gender.

Who are we working with:

- Prof. Alberto Zanchetti, Direttore Scientifico, Istituto Auxologico Italiano
- Howard D. Sesso, ScD, MPH, Associate Professor of Medicine, Division of Preventive Medicine, Brigham and Women’s Hospital
- Professor Jill JF Belch FRCP, MD (Hons), FMedSci, FRSE, OBE, Ninewells Hospital and Medical School Dundee

Study lead: Dr Samuel Seidu
Contact: Diabetes Research Centre, University of Leicester.

58 Inertia toolkit for the management glycaemic and cardiovascular risk factors in diabetes

What we are doing: A tool kit designed to interrogate primary care database at practice level is being developed to focus on patients in whom HbA1c continues to remain above the recommended target of 7% or blood pressure above 140/80 mmHg or QRSx2 above 10% without any attempt to initiate or intensify medications.

Why we are doing it: A retrospective cohort study to evaluate the effect of the delay in treatment CVE showed that compared to patients with HbA1c <7% (<53 mmol/mol), in patients with HbA1c ≥7% (≥53 mmol/mol), a one year delay in receiving IT was associated with significantly increased risk of MI, stroke, HF and composite CVE by 67% (HR CI: 1.39, 2.01), 51% (HR CI: 1.25, 1.83), 64% (HR CI: 1.40, 1.91) and 62% (HR CI: 1.46, 1.80) respectively.

What the benefits will be: A successful implementation of this pilot will help reduce the scale of therapeutic inertia, and prevent the associated CVE in the proportions listed above. If this pilot is deemed a success, its aim is to disseminate to the rest of the country via NHSE.

Who are we working with:

- AHSN – East Midlands
- BME – East Midlands
- NHS Leicester and Derbyshire CCGs
- RCGP

Study lead: Dr Debasish Kar
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60 Relationship of smoking and its cessation on urinary albumin creatinine ratio (ACR) in people with type 2 diabetes mellitus (T2DM): a systematic review and meta-analysis

What we are doing: Urinary ACR is a sensitive indicator of microvascular involvement in people with T2DM. Smoking seems to aggravate the vascular damage associated with diabetes. In this study, we aim to explore how smoking habit including its cessation influence the urinary ACR.

Why we are doing it: Smoking is a leading cause of mortality and morbidity in people with T2DM. While smoking cessation is advocated in all the guidelines in the world to improve the vascular outcome of T2DM, it is unknown whether smoking cessation improves the urinary ACR. Urinary ACR <2.5 mmol/l in male and >3.5 mmol/l in female is associated with increased cardiovascular event and this study will help us to understand the impact of smoking habit on urinary ACR.

What the benefits will be: This study will help us understand why people should be encouraged to stop smoking as soon as possible to minimise the risk of albuminuria and increased cardiovascular event.

Who are we working with:

- AHSN – East Midlands
- BME – East Midlands
- NHS Leicester and Derbyshire CCGs
- RCGP

Study lead: Dr Debasish Kar
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Patterns of multimorbidity in middle aged and older adults: An analysis of the UK Biobank data

What we are doing: We assessed the prevalence, disease clusters and patterns of multimorbidity in middle aged and older adults from the UK. Data on 36 chronic conditions from 502,643 participants aged 40-69 from the UK Biobank were extracted. We combined cluster analysis and association rules mining (ARM) to assess patterns multimorbidity. A maximum of three clusters and 30 disease patterns were mined. Comparisons were made using lift as the main measure of association. 95,710 (19%) participants had ≥2 chronic conditions. The first cluster included only myocardial infarction and angina with very strong association (lift: 13.3), indicating that the likelihood of co-occurrence of these conditions is 13 times higher than in isolation. The second cluster consisted of 26 conditions including cardiovascular, musculoskeletal, respiratory and neurodegenerative diseases. The strongest association was found between heart failure and atrial fibrillation (lift: 23.6). Diabetes was at the centre of this cluster with strong associations with heart failure, chronic kidney disease, liver failure and stroke (lift >2). The third cluster contained eight highly prevalent conditions including cancer, hypertension, asthma and depression and the strongest association was observed between anxiety and depression (lift=5.0).

Why we are doing it: NICE multimorbidity guidelines recommend an approach that focuses on the interactions between a person’s health conditions. Moreover, a systematic review on multimorbidity interventions concluded that interventions targeted either at specific groups of conditions or at specific problems for patients with multiple conditions, may be more effective than a blanket approach. Therefore, it is important to understand the patterns of multimorbidity but also to recognise associations between conditions within these patterns.

What the benefits will be: We also found conditions like diabetes, asthma, depression and cancer to be at the epicentre of disease clusters. A more integrative multidisciplinary approach focusing on better management and prevention conditions like diabetes and hypertension which are the epicentre of disease clusters and potentially part of the trajectories of several other chronic conditions is required in clinical care. In addition to the introduction of specific multimorbidity guidelines, guidelines on the management of individual index conditions should also be examined and potentially revised to include or co-management of a myriad of conditions which cluster around it.

Who are we working with:

- CLAHRC East Midlands
- University of Birmingham

Study lead: Nafeesa N Dhalwani, Diabetes Research Centre University of Leicester

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