Public involvement (PI) opportunity: University of Birmingham - OPTIMAL study

UNIVERSITY OF BIRMINGHAM

Further information to help people interested in joining our PI panel

OPTIMising therapies, disease trajectories, and AI assisted clinical management for patients Living with complex multimorbidity (OPTIMAL)

Short title - AI and cMM

We define complex multimorbidity as having four or more chronic (long-term) physical / mental health conditions.

Plain English summary

What's the problem?
We treat each disease separately. This means we prescribe a different drug for each condition, which may not help people with four or more long-term health problems. (We say these people have complex multimorbidity or cMM.) A drug for one disease can make another disease worse or better. But there's no information on the effect of one drug on a second disease. This means we are not sure which drug to prescribe in these people.

We can group such people based on their mixes of disease. Then we can study the effects of a drug on each disease mix. This should help doctors prescribe better and reduce the number of drugs patients need. That would benefit almost all people with cMM.

Our aims:

- Find the mix of diseases and drug treatments that interact over time to worsen or improve a patient's health.
- Predict the next disease that people might develop.
- Find drugs that help more than one disease.
- With input from lay people and health professionals, produce AI software to help doctors improve the choice of drugs in patients with cMM.

How will we do this?
1. Link large, detailed health records of patients who attend GP services and hospitals that have been collected since 1999. These include all diagnoses, disease severity, drugs, blood tests, readings such as blood pressure, scans, and specialist tests. Using artificial intelligence (AI) methods, model how the different mixes of diseases arise over time. The models will tell us what drugs cause or prevent a new disease. This will show if a drug helps improve symptoms of a disease or make them worse. The model will also help predict who may get another disease.

2. Ask lay people and doctors about their knowledge and views of AI guided clinical choice making. This will help us make these models better to use in practice.
3. Use AI computer techniques to combine data, and together with the input from lay people and doctors, develop a computer program. This will predict which drug we should give and when we should give it to someone with cMM to reduce the risk of harm and bring about maximum benefit. It will also tell us what disease people may get next.
4. Examine the best way to present information in the computer program to lay people and doctors by asking them about what is important to them and what options they prefer.

Our team includes patients, public members, and world leading experts from three universities with expertise in biology, AI, medicine, health service research, public health, and general practice. All will improve the care of people with cMM. We will make all outputs including software and data models openly available.

Type of project

NIHR programme: Artificial intelligence for multiple long-term conditions
The three "work packages" are as follows. Currently we have a PI lead for each of these and hope to invite two more lay people to join each.

1 analyse the trajectories of diseases of people with cMM and response to their therapies;
2 prototype AI software development;
3 seeking the relevant insights of people living with cMM and clinicians.

Aim of project

To overcome the problems (next sentence) of complex multi-morbidity (cMM) by developing an AI tool. The cMM problems addressed are that treatment doesn't sufficiently address

- polypharmacy,
- competing disease trajectories and severities,
- patients' attitudes and
- poor early identification of populations at high risk of developing further diseases.

Involvement opportunity

We are building up a PI Panel of around ten lay people (PI reps, or public contributors).

This is a three-year study, officially scheduled to start 1 June 2021.

The PI reps would have up to about eight meetings a year with associated work, and maybe a couple of other days' work a year.

The study will offer the PI reps reimbursement of expenses incurred and payments for time etc on NIHR rates.

Application process
Please send your expression of interest (EoI) as yellow highlighted below.

The expression of interest (EoI) can be as short as you wish, though *some* evidence would help. It'd be good to know:

1. You see no problem in working with us up to summer 2024.
2. You have some experience in public involvement (PI), and enthusiasm for it, as a means of making health / care research more effective.
3. You're fine working in groups / teams, virtually and face-to-face, and by email.
4. You're happy working with, editing, and commenting on, documents even if long and complex.
5. You're able to report concisely and effectively on documents, events and meetings.
6. You're not afraid to be honest, of course while being considerate of others.

You do *not* need any experience of cMM.

What happens after you send your EoI?

- Francesca will send you a brief details form, for return by 1700 Tuesday 1 Jun. It carries a code like Optimal PI*nnn*.
- Your EoI, covering email, and any attachments will be coded and anonymised.
- The current PI people will separately short list the coded documents.
- We *may* invite you, if short listed, to meet us briefly by Zoom 10 or 11 Jun.
- We hope to inform you of the outcome by 16 Jun.

Further information
The doc you're reading came with a copy of the PI plan for the study. Please contact the PI lead, Eric Deeson (e-address below), if you have other questions.

Please send your expression of interest to Francesca Crowe (highlight below). The closing date is 1700 (5pm) Monday 24 May 2021.

Contact details

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Study's PI lead	Eric Deeson	ericdeeson@aol.com