

EPSRC Funding Opportunity: [Transforming prediction and early diagnosis in the community](#)

Webinar held on 27<sup>th</sup> March 2024

Recordings are available under “additional information” section of the funding opportunity.

This is the edited transcript of the webinar. There has been some editing for clarity.

Kate Porter Goff - EPSRC UKRI:

Welcome.

We're delighted to welcome 3 guest speakers today who will be sharing their perspectives on health inequalities and patient and public involvement and engagement.

After that we'll move onto the QA. Session, and we'll try to answer as many questions as possible in the webinar itself. If there are any questions related to a specific proposal, then we may suggest following up outside the webinar.

Also, we are recording this session today. So please be aware of that. The recording will be made available on the funding opportunity page, on our website.

I'm a senior portfolio manager in the healthcare technologies team at EPSRC, and I'm the lead contact for this funding opportunity. We also have with us Philippa Hemmings who is head of healthcare technologies at EPSRC.

Our three guest speakers include:

Professor Katikireddi from the University of Glasgow. He'll be giving a talk today on key aspects of health inequalities and what to think about.

Professor Marian Shamanesh from University College, London, will be giving a talk on her perspectives, on health inequalities through the lens of work that she's done through the EPSRC-funded iSense project.

Lynn Laidlaw is a patient and public contributor and patient researcher and will talk about patient and public involvement or engagement - PPIE

We also have Kate Reading, a portfolio manager and the healthcare technologies team and John Baddely from the healthcare technologies team as well.

So hopefully, many of you aware that we published our refreshed healthcare technology strategy in March of last year. Following an extensive consultation and engagement process with our community. And we very much see the strategy as being co-created with our community.

The overall vision of the strategy is to stimulate advances in transformative engineering and physical sciences research to have a significant impact in health and ultimately enable people to live healthier lives.

We're now looking at putting our strategy into practice. And this funding opportunity is a step towards that.

3 key challenge areas sit at the heart strategy: improving population, health and prevention; transforming prediction and early diagnosis - which is the focus of this funding opportunity;

Discovering and accelerating the development of new interventions.

The strategy also identifies a number of important enablers that we feel research within health technologies should consider and address. These aspects and cross cutting issues are important to deliver our strategy. But I'd like to kind of highlight 2 that are particularly important for this funding opportunity.

We want applicants to think about how their research might reduce health inequalities and be strengthened through patient and public involvement and engagement.

Now I'll take us through a summary of the funding opportunity.

So hopefully, everyone's had a chance to look at our funding opportunity on our website. I'm going to cover:

The scope, remit and priority areas.

We'll then spend a bit of time covering the health inequalities and PPI aspects and then we'll discuss the application process and assessment criteria.

So the scope of this opportunity.

We're really looking for high quality multidisciplinary proposals for engineering and physical sciences research that focus on developing novel tools and technologies for accurate patient-specific prediction and early diagnosis of both mental and physical health conditions for use in the community.

By community, we are looking for tools and technologies that can be used in accessible community settings. So, for example, this could be GP surgeries, pharmacies, community diagnostic hubs, mobile units and home environments.

Of course there may also be other accessible community settings.

So proposals must address one or more of the following priority areas:

- new approaches for prediction and early diagnosis of disease for use in primary care and community settings.
- self assessment tools to enable individuals to track their own health and inform diagnostic decisions. For example, this could be monitoring technologies that will make it easier for patients to interact with healthcare professionals and provide updates on their medical conditions
- and finally, tools for earlier and more reliable diagnosis of mental health conditions.

So for the application to this funding opportunity, you'll need to specify which priority area you'll be addressing. If your proposal addresses more than one of these areas, we ask that you please kind of identify a primary priority area that you are looking to address.

I'll now give an overview of what we're looking for projects to deliver and kind of the key objectives of this funding opportunity.

We're looking for projects to deliver high quality engineering and physical sciences research:

- up to proof of concept
- addressing one or more of the priority areas

Projects should

- deliver tools and technologies that address a clear unmet health need
- show how the research will provide added value and impact in the healthcare system.
- deliver tools and technologies for use in the community
- be multi-disciplinary, utilizing expertise across disciplines. That could cover multiple research areas, for example, including novel sensors, medical imaging, artificial intelligence amongst amongst others.
- engage with relevant partners and diverse users of research. People with lived experience, patience, and health professionals to ensure the research is really co-created and co-delivered from the outset.
- consider health, equity in their research, and look to embed equitable, diverse, and inclusive, patient public involvement and engagements and projects. And I'll talk a bit about this on the next slide.

Moving on now to health inequalities and PPI aspects of the opportunity.

As I mentioned, reducing health inequalities and PPI are key enablers in our health technology, strategy and our kind of central aspects to this funding opportunity.

We use the term health inequalities to include varying definitions and interpretations of inequality and in equity. Including kind of the unfair and avoidable differences in health across different population groups.

All projects should consider health equity in their research, and embed diverse and inclusive patient public involvement and engagement. We're really looking for clear evidence of genuine cocreation and co-delivery and embedded engagement with patients, people with lived experience, health professionals from the outset and throughout the research and innovation process

As part of that, we're looking for engagement with people from different and diverse backgrounds. So, including those from deprived, underserved or underrepresented populations. We're looking for diverse and creative routes to be taken to engage relevant partners.

Within your application, we ask that you must submit a health inequalities and PPI plan. So this is a 2 page document. That must describe how you've considered health equity in your research, how you will engage with users of the research help professionals, patients or those with lived experience in the project.

It should include how co-creation and code delivery and embedded engagement with partners will be undertaken - what activities will you be doing and how equitable diverse and inclusive ppie will be embedded in the project.

We will provide feedback on your health inequalities and PPI plan at the outline stage. So this will give you time, if successful at outline stage and invite it through to the full proposal stage to develop your health inequalities and PPI plan, based on the feedback that you get from panel in order to submit a revised version at the full proposal stage. Where it will be assessed.

We encourage you to appropriately cost all your PPI activities. Think about compensation and payment for your PPI participants along the way and making sure that costs is fully justified and appropriate for what you're asking for. And this should be fully costed at the full proposal stage.

Moving on to the process.

Each project can apply for up to 2 million from EPSRC. There's currently a total fund of 10 million pounds. Each project can apply for up to 3 years of funding.

The opportunity has an expression of interest stage that is currently open. This stage will help EPSRC to identify appropriate review and plan for demand. This stage isn't assessed and the information that you provide in your express and expression of interest can change prior to the outline submission.

But we ask that potential applicants to please submit that expression of interest by 4pm on the second of May.

The outline stage is currently open. This closes on the 29th of May at 4 pm. The outlines will be shortlisted by a panel at the end of July.

Successful outlines will be invited into the full proposal stage. You'll be given 10 weeks from notification to submit your full proposal. At which point it will go through postal, peer, review and then a prioritization panel.

Here's an overview of the timeline and stages for this funding opportunity.

We ask applicants intending to apply to submit an expression of interest by the second of May.

The deadline for submitting outline applications is then 4pm. On the 29th of May.

The outline panel meeting is expected to take place in the last week of July.

The full proposal stage, for successful outlines only, iss expected to open on the thirteenth of August and remain open for 10 weeks. With an expected closing date of the twenty-second of October.

The full proposals will be sent out for postal Peer Review, and project leads will be invited to respond to reviewer comments. The prioritization panel due to meet in February of next year with a funding decision in March 2025.

Standard EPSRC eligibility rules apply to this opportunity. So research grants are open to UK Higher education institutions, NHS organisations with research capacity and some other research organisations.

The assessment criteria for the outline stage:

The main assessment criteria is fit to scope which will be looking at whether applicants have demonstrated how that project will address:

- a clear, unmet health need
- one or more of the priority areas outlined earlier
- how the anticipated technology or tool is beneficial and suitable for use in an accessible community setting
- multidisciplinary and appropriate expertise and skills to deliver the project
- how the project will engage with relevant partners to ensure the research is co-created and co-delivered with users.
- and finally, have applicants demonstrated how the project has considered health equity, such as how diverse and inclusive PPI will be embedded in the project.

We're looking to support a balance across the priority areas. So we don't have a quota for supporting like a certain number of proposals in certain priority areas. And we'll really be looking at the kind of applications that we receive.

Finally, I just wanted to highlight that alongside this funding opportunity standard proposals can still come in through standard EPSRC routes at any time. So this specific opportunity is really targeted.

It's a really kind of targeted more strategic opportunity that reflects our themes in our strategy with a particular focus on diagnosis in the community. Tackling health inequalities, and embedding PPI.

So we expect proposals to this call to consider and address these aspects over and above what might be in a standard responsive proposals.

We'll now move on to hear from our invited speakers. So first up, we are pleased to welcome Professor Vittal Katikireddi.

Vittal Katikireddi

Great, it is a pleasure to be able to speak to you today about this.

I'm going to give you a very brief introduction, so don't expect it to be totally comprehensive. But hopefully we'll give you a few pointers and links to further information.

So what are health inequalities? They're typically defined as systematic, avoidable, and unfair differences in health outcomes that can be observed between populations, between social groups within the same population, or as a gradient across populations.

I'll unpack this a bit more in the next few slides, but they are seen across most health outcomes. So whether we think about things like mortality or more specific diseases.

So, for example, heart attack strokes depression, etc. Most health outcomes show evidence of health inequalities.

Sometimes the distinction is made between health inequity to indicate unfairness versus health inequality, which can just be considered, that that it may or may not be unfair.

Having said that within the UK and in Europe the the terms are often used interchangeably.

We can think about health inequalities across countries, from a global perspective. But today, I'm going to focus more on health inequalities within the UK

Health inequalities people often think about in relation to socioeconomic position, or sometimes referred to associate status so based on measures such as small area based measures of deprivation. So the index and multiple deprivation or other aspects of soci chronic position.

This includes things like how educated someone is, what their social classes, what their income is. So we see health differences across groups with different levels of these variables.

However, there are multiple other axis of health inequality. So we can also, see inequalities by gender or or by gender identity. Inequalities by ethnicity, which were kind of particularly noted during the the pandemic inequalities across geography.

So, for example, thinking of things like leveling up, and also inequalities by age or by disability.

Those are just a few axes of health inequality. There are others and you can see a more comprehensive list. [reference to slide] The other thing that is worth noting is sometimes it's worth thinking about different axes of inequality in combination.

So, for example, the experiences and the health outcomes of low income women might be quite different from low income men. So you can think of these axes of inequality intersecting.

We could also think of health inequalities as defined in relation to a gap between groups or potentially a gradient where the greater disadvantage someone experiences the poorer the outcomes and the way you measure those things might be quite different as well. Now for the latter, for the idea of a gradients where everyone below the most advantaged experiences adverse health as a consequence of health inequalities.

That does not necessarily apply to all axes of inequality.

For example with ethnicity, it's not really a variable that's amenable to thinking of it in terms of the gradients, whereas things like socio position often are. Neither are better or worse than the other. That just different ways of measuring the issue.

And actually, the issue of measurement can be quite tricky, and often within epidemiology and public health. More generally we try and compare outcomes across groups. And you can think of measuring inequalities in terms of absolute inequalities or relative inequalities. So absolute inequalities, typically measured by the difference in the outcome.

So, for example, if we think about death rates since 1841 you can see that there's a difference of 2. So the risk difference there, the rate differences provide another way of assessing inequalities as relative inequality.

So, looking at the ratio between the 2 and actually, what happens for those 2 measures could differ. So it's possible that you might reduce health inequalities in terms of absolute inequalities, but increase them in terms of relative and vice versa.

It is possible to reduce them on both scales, or increase them on both scales as well. But the importance of scale can be quite, quite crucial.

And it's typically recommended to assess both

So why do they occur? Well, there was a seminal report in the UK in 1980, called the Black Report which came up with a number of explanations which remain a good starting point for thinking about health inequalities.

So the first explanation, which was largely discounted is the potential for that to be some kind of artifact due to data issues and the way that things are measured, especially over time.

A second explanation was a social selection. So this is the idea that rather than social disadvantage leading to poor health, it could be the other way around and that seems to play a minor role in health inequality.

So it's not that it plays no role, but it is certainly a minority of the explanation.

And then the last, the next one, which is probably the most important material explanation. This is the idea that economic and structural factors themselves lead to poor health.

For example, we know that things like living in poor housing itself increases the risk of experiencing asthma or living in an area with high levels of air pollution which often tend to be more disadvantaged, areas that in turn has direct health consequences.

Another explanation which also has an important role, but probably less so than the material explanations, is behavioral.

This is the idea that, for example, certain patterns of behavior might be more common amongst certain social groups. So, for example, smoking or drinking alcohol to excess.

It's important to note that some of those behavioral explanations are driven, at least in part, by the material circumstances as well. So these aren't necessarily mutually exclusive.

I'm not going to go through every one of these theories in in detail, but just to say that there has been work to expand on that initial list. A few additional areas that might be worth

highlighting the idea of the inverse care law, which is, that's often medical care isn't delivered in is more difficult to access in areas of greater need.

So, for example, if you look at where GP practices are located, there are probably an under representation of those within the most deprived areas compared to what's needed.

Another important idea is the idea of differential progress as well. So often, when a new intervention is introduced, it tends to be taken up more by the most advantaged, and that can lead to an increase in health inequalities.

So it's important to think about, how do we minimize that risk?

This slide illustrates what would be seen as a common summary of what might cause health inequalities. The health outcomes at the at the right here in terms of the effects but they are probably driven by much more societal level factors.

So things like the the social, political environments inequalities and income and power, and so forth, and experiences poverty and discrimination. So those fundamental causes, then lead to the patterning of wider environmental influences.

For example, inequalities and access to services or inequalities in the nature of the built environment that people live in.

I mentioned that the the issue of air pollution and it's social passing earlier and then there are things that individuals experience within those wider environments. They might experience inequalities and the type of work they're doing, for example, that then, might have their own adverse health impacts.

And so all of those then results in health inequalities. You can see that services are potentially important. Including, for example, things like healthcare. But they're also shaped by these broader social, environmental, fundamental determinants

So there are different approaches to try to address health inequalities. This is a kind of a very simple typology of approaches. One approach is that you just target the most disadvantaged people.

a second approach is that you have a universal policy, but you have greater focus on the the most disadvantaged.

a third is that you have what might be thought of as a redistribute policy. So you're actually trying to mainly intervene in the the more disadvantaged groups, and trying to can level them up, as it were, without necessarily improving the the most advantage. And then the last one is the idea of proportionate universalism. So you're trying to improve everyone's health.

But you try and achieve benefits in the most disadvantage to a greater extent.

There are some principles for what's that been written by Michael Marvins, about what approaches are most likely to reduce health inequalities.

There's a particular focus on the early years so actually intervening in early childhood, especially between 0 and 5, and and prenatally as well can be particularly effective.

There's the importance of trying to enable people to have control over their lives.

Employment and work being a an important area to intervene on, as well as ensuring a healthy standard of living for all.



That includes issues related to addressing income and poverty and so forth.

I focus on creating healthy and sustainable places and communities and there is a role for strengthening the impact of ill health prevention.

Lastly, issues around tackling discrimination, racism and ensuring environmental sustainability.

In relation to prediction, early diagnosis, just a few points to note from the broad literature. So we know that interventions that require actions by individual patients and individual people

often tend to increase health inequalities, whereas actions that target more structural determinants and things like how services are provided and so forth.

To change those that require less individual action, tend to be more effective in reducing health inequalities in terms of creating new prediction tools, and so forth. We know that better prediction by itself is not necessarily beneficial and can be harmful.

So there does need to be some consideration of how do you ensure that prediction or diagnosis is followed by effective treatments and mechanisms of referral and so forth, that reach all population groups.

In order to reduce health inequalities, often when we're doing risk prediction, we will look at data sets. Its important to note that there can be important biases that in inheritance and data and naive analyses can just reproduce those biases which could potentially exacerbate health inequalities.

So ensuring interventions do not exacerbate health inequalities in the area of prediction and early diagnosis is quite a challenge, but is is definitely one worth pursuing

Hopefully that gives a flavor of things to consider regarding health inequalities.

Great, thanks very much. Vittal.

I'm now going to hand over to our second invited Speaker for this morning. Welcome to Professor Maryam Shahmanesh, who will share her perspective on health inequalities through the lens of work done through the EPSRC iSense project

Maryam Shahmanesh

Hi, everyone. So thank you, Vital for great introduction. I will illustrate ways which, in our case, innovations and point of care, diagnostics and information communication technology when co-created with end users, really has the potential to decentralize care

and in that way, as we saw nicely described, structurally support the reduction of health, inequalities, enhance equitable access to prevention and care.

My focus is on rural poor communities in South Africa. In terms of understanding what the problem is, by implementing combination HIV prevention to scale Unas had aimed to reduce HIV diagnosis to half a million per year.

In actual fact, this has fallen far short with 1.5 million new HIV diagnoses in 2022. There are over 8 million people on lifelong therapy in the South African public health systems.

And so you can imagine that digitally enabled diagnostics, if linked to a pathway of care has a potential to leapfrog the HIV care and prevention cascade into a new paradigm.

This is much like mobile phones have done, and in many settings.

The study site is health and demographic site located in Quasar, Natal, South Africa. Its about 200 kilometers north from Durban. It's a rural and poor area, with very high unemployment and dirt roads and non-existent public transport.

And this, I think, just practically illustrates how challenging it is for people to attend the 11 primary care clinics. And of course this is particularly challenging for young people who both don't have the finances, but also may not be feeling unwell.

A representative sample of 15 to 30 year olds were recruited in a cross-sectional study.

Prior to our recent intervention, we found that, despite freely available testing and treatment in these public health clinics, one in 5 young women were living with HIV, half of whom weren't on effective antiretroviral therapy and only 5 had ever taken prevention.

And this is in a context where the older men and women have almost universal access to treatment. So here there's a significant health inequality by virtue of being a young person and living in this setting

The first intervention I'm going to use as an example is really in the diagnostics. We sought to truly co-create a new generation of mobile phone connected HIV diagnostics to support decentralized HIV care.

What I really want to illustrate here is how critical the co-creation was from the beginning - engaging both healthcare users and healthcare providers to ensure that these innovations and diagnostics and digital pathways would be usable, acceptable, and feasible.

So the first step in terms of understanding inequalities, is understanding. If you're gonna develop an intervention, who would be able to access it. And, as you can see, just prior to our study, we wanted to understand what mobile phone use was, and 15 to 35 year olds are more likely to be making use of their phones beyond calling and texting.

The older people would not be able to access digital technology. They weren't using their phones beyond calling and texting. Smartphone ownership and access to data and digital literacy meant that even in this case less than half of the young people would have had access to services.

This is obviously improved over the past 5 years. But knowing this background when developing a digital intervention was critical, obviously to not enhance or increase inequality

But we also conducted quite extensive formative work, with conducting in depth and key informant interviews both with nurses, the policy makers, and also young people themselves, and what emerged out of this was several features.

I described the challenge of getting to clinics, that there was a significant cost for testing for HIV through primary healthcare clinics.

There was a time and cost of visiting clinic stigma associated with HIV risk itself, even if they turned out to be negative, and therefore fear of judgment and discrimination by the community seeing them going into clinic and healthcare providers sitting in the clinics.

Participants, particularly men and young people felt the mobile phone supported HIV Testing would therefore allow them to explore their own candidacy for care in the privacy, convenience of home, or community, and therefore it's time saving, but also gave them autonomy as to when and how they would use it. But what they also suggested, because we know HIV self testing existed at that time that, having a mobile phone enabled, could overcome some of the psychosocial concerns they had about a young person testing alone because they could access live support for testing but there were some concerns around. HIV. Testing would never be able to overcome the internalized stigma and the fear of HIV identity.

So doing, this formative work really meant made sure that we thought about this technology in the context of where it would be used

The other thing, of course, is developing the technology itself. And Val Turb managed to develop machine learning algorithms for an application that would read a lateral flow test, which is such an easy thing to deliver in a community setting and a pilot field study of the algorithms deployed showed that the mobile application had a high level of sensitivity specificity, and particularly

when compared to human reading. Experienced nurses are very good but newly trained community healthcare workers which are bit more likely a user or a self self tester didn't perform as well as the algorithm.

So obviously, algorithm itself worked and could be used in the field. But we didn't want to just look at how the HIV test was used. We wanted to understand how it would also link the person to a care pathway or a prevention pathway, and in the absence of an approved digitally enabled HIV test.

We piloted a simulated pathway. This tape meant, we took a consenting participant doing an HIV self test in a room alone with the support of an app.

But this photograph was read by a nurse in another room simulating a application that's reading the test

So overall we did this with 70 young people and nearly half of them were men. All of them completed the test. One was positive and successfully linked to healthcare. Through that phone application and 7 used the helped up button, allowing the nurse to talk them through the testing

We did in-depth interviews after the tests, seeing how multi-disciplinary social science component with the technology was important.

These in-depth interviews found that young people really liked the privacy of the testing and the security, but also having the security, being able to connect with someone if they needed help. But the simplicity of the application was crucial in the setting where smartphones weren't readily available. So people didn't have that much experience of using smartphones for things other than reading right? Calling friends

So in summary, our formative work showed the co-creative mobile phone enabled HIV testing as private and convenient and acceptable to users and providers and supports this decentralization and community delivery of a cascade of care.

The second example I want to illustrate is the use of information communication technology, and really how co-creation has led to using a digital support that decentralizes HIV care in the community further and therefore can really lead to prime prevention screening and earlier diagnosis of HIV. But other conditions, such as common mental disorders by bringing services closer to the population that need it in a cost, effective way.

Let's talk aims to improve adolescent and youth resilience to HIV. Is a digitally supported peer led intervention where peers socially mobilize young people into mobile, adolescent youth, friendly services.

And we are testing this in a step wedge trial to look at the outcome of HIV resilience

So a little bit more about what these Peer navigators are. They're aged 18 to 30. They're selected by municipal and traditional leadership in their areas, and they spend some time mapping the health and social resources in their areas. They identify adult youth champions who can help them link youth to the resources they've mapped.

They support solidarity and bonding amongst youth in their areas through youth groups and safe spaces.

They do these individual needs assessments where they tailor the packages support to the person's needs. And this is where the app really helps. A peer meets a young person, and during a health promotion, conversation will identify the young person's health

or social need, and also the urgency of the need. Is it high? Does it need immediate action medium, they can be referred to the clinic or a social worker low, there's no need.

And when they can touch base? This is entered into this mobile phone based electronic clinical management tool and an action plan is generated that, then, is reviewed by the peer supervisors who experience peer navigators and, if needed, escalated to the nurse and social Worker review committee

So this is a scheme describing how this bespoke electronic clinical management system which is programmed onto mobile phones and used by the peers, the peer supervisors, the clinical and social work team works. And what in essence, this allows is that the electronic clinical management system allows a real-time action plans to be shared with supervisors

escalated the review committee and the mobile clinic staffs. It means we can do real time integration of care and support between basically lay caregivers, the peers and expert clinical and social services.

It also provides program level data for evaluation

So here you see the range of needs that the peers identify. And I'll use a story to illustrate why we think this peer led case-based management really works in our setting to overcome some of the health inequalities, and support young people.

So if you think of Nondami, a 19 year old girl whose father has died, whose mother was working in Johannesburg. After finishing high school, she leaves her rural household, where she was abused by her uncle, and travels to a small roadside town.

There she has no social network and doesn't find work. She meets a 26 year old taxi driver who is kind and gives her gifts some money. She feels obliged to have condom-less sex with him because he's kind to her, but she doesn't identify as a sex worker, so she doesn't access services specifically for sex workers.

Zonke is a trained peer navigator living in the area. She meets her during a health promotion. Conversation recognizes her low self-esteem that she's lonely, that she's engaged in sex primarily for company and material support.

And so she's able to create a health and social action plan that she can share with her supervisors. One, she asks a social worker to help Nondomiso get a voter. If so, she can claim the social grants she's eligible for.

Second, she invites her to a safe space to meet other young people, so she develops some solidarity and support in the community.

She provides her with sexual health and prep information and then sends an action plan electronically to the Mobile clinic when Nondami will be seen and have an HIV test receive sexual productive health support and some HIV prevention pre-exposure prophylaxis

In the first year this model has reached nearly 12,000 young people, which is 76% of all young people in our setting with unmet health and social needs. The peer led, structured assessment really does mobilize the highest need.

Young people, almost half of those people that attend the services need HIV pre exposure, prophylaxis, or stand up, start under it for our therapy and about half need sexual reproductive health services. Whether it's STI testing or contraception.

There was a greater uptake of prep through this decentralized service than the facility based primary health care clinics, even though both are free. It attracts young men as well as young women.

But not all high and medium needs reached even the mobile clinic. So even that is a step further

So what I pitched to you is, can we combine these 2 findings and decentralize even further? Can we support self care through having really good diagnostics that can be used in the community for HIV for a sexually transmitted infection?

Can we use this sort of ICT that I've just described - this digitally enabled testing with an electronic clinical management system to support a quick virtual consultation with a nurse or pharmacy prescriber, and so dispense STI treatment, therapy or prevention?

Campaign navigators support this. Can they support the digitally enabled model of care, and therefore allow this electronic clinical management system to really provide virtual consultations and get treatment to people that won't even come to a mobile clinic

So I hope I've shown you that digitally enabled HIV diagnostics and linkage to care is acceptable, feasible and overcome. Some of the limitations of HIV self-testing alone.

The electronic clinical management systems allow a real-time integration of decentralized near-person care provided by lay health care workers like a peer navigator, but allow them to be supervised and supported by clinical and social work experts.

My hope is that I've excited you to think how your innovations co-develop with end users will leapfrog this decentralization health and social care so much as a mobile phone did with telecommunication.

This could increase equitable access and reduce health inequalities and screening primary prevention and care for HIV, but also other chronic diseases in lower middle income countries

I hope I've convinced you that innovations in near-person diagnostics and digital care particularly have co-created with end users, has a potential to improve equitable access to prevention and care in chronic disease, reduce health, inequalities, and support health and social justice.

and it just leaves me to thank everyone at Ari: the Peers, young People, and wider collaborators within iSense, including Rachel Mckendry and her colleagues.

That's great. Thank you very much. Mariam.

Now for our final speaker, I'd like to introduce and welcome Lynn Laidlaw, who'll be sharing her perspective on patient public involvement and engagement.

Lynn Laidlaw

I just want to say, thank you for the invitation to be here. I want to share some personal perspectives on patient public involvement and and co-production and and health research.

And that's some of my contact information. If anyone's got any questions afterwards.

So I've been asked to speak about how patient public involvement can add value to research. What does good PPI look like? How can researchers ensure that the patient of public involvement and co-production that they do is equitable, diverse, and inclusive?

and what should researchers consider and think about when developing their health inequalities and patient public involvement plan, which is going to be a big part of the application for this opportunity

Here's some definitions: the standard NIHR definition of patient public involvement that most people know is that public involvement in research is research carried out with or by members of the public rather than to, about or for them.

I do a lot of work with the co-production collective who are based at University College, London and we follow the coproduction collective definition and the values and principles that underlie the way that they work have been co-created by the community.

For us, co-production is an approach to working together an equal partnership for equal benefit.

I think that positionality in perspective is really important. This is my personal perspective and it's important that you understand some of where I'm coming from.

So I live with a rare disease and multiple long term conditions. This funding opportunity is really interesting to me, because I had a 4 year diagnostic Odyssey to be diagnosed with my rare disease.

And what really struck me was that data is often collected about people. We don't input it and might not even know about it or see it.

So I often wondered if I wrote about my diagnostic Odyssey and the things that were important to me, or the things that affected me, how would that compare to the data that is collected about me or what healthcare professionals wrote about me.

I think just understanding people's experiences of diagnosis and prediction is really important.

I'm involved across the UK with multiple researchers, academic institutions and organizations. And I have worked as a patient researcher. I came up with a research idea and did some co-produce qualitative research where I worked as a researcher.

Although I don't have any research training I am PPI lead for a couple of projects, including one funded by the EPSRC. So I see the issues firmly through the lens of my patient participant and involvement experience.

And I think it's really important to be open about that. And I've embraced reflexivity. And I would say, it's not just for qualitative research.

So reflexivity, examining and attempting to understand how your own beliefs, judgments, and practices affect and influence the research process. I would argue that that's crucial for patient public involvement.

I'd maybe ask you to reflect on what your beliefs, judgments, and practice and practices are, and how they're affect going to affect what you're going to do and how you're going to work with communities.

I mean, I can't think about patient public involvement in co-production without without thinking about about power and about power imbalances, and early on in my PPI Odyssey, it came to me that you know what if patient public involvement in coproduction was a game.

So do the people that you're involving have input into the rules of the game. Are we expected to play with outside of the rules? Or are we given the rules in the deferred language that we don't understand?

Are we invited to play halfway through the game or or towards the end of the game? Are we only allowed to play certain parts of the game? Are we involved right from the start?

Are public contributors, the only people not getting paid for playing. And are we held? And you know I hear a lot about this. Are we held to standard or representatives.

The other player is, think about you and your profession. Would you be held to be representative of everyone in that? Can we be deemed too expert or too challenging to play the game to fight.

We all have these perceptions, and actually, who has the absolute right to play the game. You know, people can't get involved unless unless unless they're invited.

So maybe these are just some things you might want to to think about.

So how can patient public involvement in coproduction add value to research? So this was the value of coproduction research project and which the co-production Collective did, which was funded by some money from NHS England.

It was a mixed method study and what we found was that the value of proportion lies in delivering outcomes that actually matter to people's efficiency in the long run because you're reducing research waste working towards social justice.

And I I think that the the previous 2 speakers we've got a better understanding. Why, that's why that's important empowering people and building capacity.

And then that's got to be a risk in it, because this is people saying that they feel empowered, not the paternalistic notion of, or look at me.

I'm empowering people and connecting us as humans working together towards shared towards shared goals. But we can't do that if if we're not mindful of of the power imbalances, and if we don't understand the values and principles that underlie working in in this way.

So what does good PPI look like? I would say that it's based on values and principles, not toolkits, frameworks and methods.

There was a really interesting and study by the Patient Experience library recently that found that there's over 500, toolkits and frameworks have been produced because we are arguably, and we concentrate on an outcome



rather. But you know, actually do these change the culture in the hierarchy and research in which coproduction and PPI has to exist?

Am good PPI and co-production pushes back against academic hierarchies and cultures again and culture eats strategy for breakfast.

I've already talked about the importance of being reflexive, but also honest, you know. Be honest about what people can change in your proposals and and what they can do. And then people can then decide if they want to get involved. Based on that

good PPI is built on relationships, conversations, and collaboration.

It's a relational way of working. And what you need to understand is that PPI and coproduction is very context specific.

The context in which it operates and the groups that that you want to that you want to work with will look very different, but the values and principles underlying it will be will be the same.

So what does good PPI look like? I love this paper, from Sarah roles and and collaborators, called more than a method.

So this is the common thing we see. I hear this all the time we put patients at the same level, so we put patients at the heart. And actually, what does that mean? And you know who has agency? If we're putting people somewhere next slide, please.

The group that that did this research worked with an illustrator. The current view of participation can often be this. Oh, look! We've ticked the box for PPI.

But how the group saw was that patients and public contributors and people have lived experience where they access. And we need to ask who starts the cycle? Who gets to ask the questions? Who decides what is important about the proposals that you want to put to put forward? And are they actually coming from the needs that people have expressed, or what you want to do?

And I think you know this is the bananarama rule of patient public involvement in coproduction, because actually, it ain't just what you do. It's the way that you do it in the values and principles that that you come at it with.

So what does equitable, diverse, and inclusive, patient public involvement and co-production look looks like. So what we find is that sometimes researchers helicopter in, extract the experience and knowledge, and then just go away again and don't you know, don't feed back to people what their input changed, I think, understand that there's an epistemic injustice here, and that there are different types of knowledge, and all have equal value.

There is an emotional labour in working with communities especially underrepresented and marginalized communities and an emotional labour for you as researchers as well.

And I think it's really important to understand that good PPIE doesn't treat public contributors less than people. As Kate talked about, there's also the importance of costing your plans properly.

It gives people control over the terms of their involvement, and which means all the decisions aren't made in advance. And also it's mindful of intersectionality.

You know the we're not just one thing are we? we have layers of privilege and experience, but not just the people that you're seeking to involve but broader range of the people that are affected by your research.

But also, how does your positionality and perspective? How does your intersectionality affect the way that you do research?

So now I'm gonna go on to the doing. What should you consider when developing your patient public involvement plans? There's a really nice paper by Christina Staley, and collaborators called "Who should I involve in my research, and why?"

That that's a really important aspect of this. It's important to think really carefully about that. Who is your research going to impact? Who should you be working with.

I do a lot of grant Review, and often I see patient public involvement sections are quite descriptive. It's like, oh, we talked to this person or this group, and they really loved our proposal, and we had a cup of tea and ate some cake.

So where's the evidence base? Have you provided evidence of what patient public involvement change in your application? Who's going to write the patient and public involvement and section.

How did you embrace the productive tensions? What changed as the result of what you would do?

Budget is really important. I often see applications that include something about going to have X, Y, and Z. And the PPI. I look at the budget specifically and can see if there's no money for it.

So you need to cost your plans. You need to think about accessibility. What are the access needs of the people that you're going to be working with and include plans for that.

Training too what training are you going to offer people to enable them to work with you in this way? Who's going to take responsibility for managing and working together with people and communities?

What experience do they have? Do you need to bring someone into your application to do that for you. Also, increasingly, funders are asking to think about the impact of what you're doing and evaluate it.

But just be aware that academic impact is much more centered around the outcome, whereas when you're working together with people, the journey is going to be as important as the destination, and how you feel about taking that journey together.

Just some final reflections from me.

The journey is as important as the destination, and you need to make space for reflections to embrace these. The productive tensions and build trusting relationships with the people that that that you're working with.

And what I would say is that that working in this way impacts in everyone's identity, and that that being reflexive can be uncomfortable. Co-producing, co-creating can be uncomfortable, and you might need to embrace that.

You know, you've worked really hard as researchers to get to where you are, and it can be uncomfortable to invite people in. Your research is your baby, and sometimes we tell you your baby's ugly.

I would say, embrace productive tensions, embrace reflexivity, and be honest with yourself. Actually, can you work in this values and principles led way?

If you can't, then understand that because this is not a zero-sum game. The emotional labor of being involved can be immense, and you can do great harm to people if you're not going to work with them in the values and principles led way.

The last thing that I would say is, you need to understand that research is hope. And when I was on my 4 year diagnostic odyssey, I knew that my diagnosis was out there, and that diagnosis was the the key to getting evidence-based treatment, and I never lost hope.

No one will care more about research than the people that it affects - the people living with the conditions that it affects.

And if we didn't think that our unique experiences and perspectives could help, we wouldn't waste your time, because it's just too important.

Thank you.

Kate Porter Goff - EPSRC UKRI: Thank you very much, Lynn.

Now for the Q&A section of the webinar. I know that Kate's been answering some of them in the chat already – please see separate webinar questions and answers document.

Please do use the Q&A box and we'll go through some of those now.

Q: Whether collaboration with physicians or clinicians is required.

A: We're not specifically requiring collaboration with specific people like clinicians. However PPI is a key aspect of this opportunity, so we'd encourage you to consider collaboration with healthcare professionals, such as physicians or clinicians, or patients or people with lived experience.

But we're not specifically mandating certain people within those areas. So it's for you to consider who are the most appropriate people that you should be engaging and partnering with in your application and making the case to kind of peer review, and the the panel members.

It may be that the time when you submit your application, you don't have those formal partnerships. But please do say where you see the need for links, and your thoughts about how you might make those links, if your research were to be supported.

We realize that sometimes partners can be a dynamic concept.

Q: Whether there are any guidelines on how to balance engineering or ICT novelty with the applied aspect?

A: We don't have any specific guidance. This opportunity asks for engineering and physical sciences research up to proof of concept, but it's for you to address the key objectives of this opportunity. And so we don't mandate a specific balance between the applied aspects and engineering/ICT novelty.

There is information on our website about costs that you can apply for. So if you were to search, for example, for proof of concept, it shows that we fund research up to that point roughly. So it means that just bear in mind what we, as research councils can fund through our grants.

Q: Primary care is often not about disease prediction, but about predicting high risk. Is that within scope?

A: If you have specific questions about what's within scope for your specific proposal, then we'd encourage you to get in touch with us via email. For this opportunity we're really looking at patient-specific prediction and early diagnosis.

We'd encourage you to look at our healthcare technology strategy which has more detail and some example areas.

With all EPSRC funding opportunities, and this call is no different, there is the focus for a particular project idea, but the really great proposals give some sense about the downstream potential impact.

So I think, thinking about the if you identify risks, what does that mean for the person? What does that mean for the onward sort of potential issues, the care pathway, the interface with other parts of the system?

We're not expecting these proposals to deal everything, but contextualizing is, I think, really important.

Q: Could applications be directed to non-communicable diseases? So could it be about risk behaviors as opposed to the disease itself?

So the question is about whether there could be a focus on prevention rather than patient-specific prediction and diagnosis?

A: EPSRC Health Strategy has put quite a lot of emphasis on prevention, in the broad sense. And there's been a recent announcement of new funding for population health improvement clusters.

So prevention is part of our strategy. There's obviously a spectrum, but in this particular case we decided we were particularly keen to look at it through the lens of prediction and early diagnosis so that may or may not help clarify so.

But I'm always interested of ideas that that challenge the remit. But we're not looking to stretch the remit, because I say there is quite a lot of funding and plans, including we've got some ideas, but we're the early stages of how we might pursue the strategy on prevention and population health.

Maryam Shahmanesh: One thing from my perspective. The prevention says screening prevention into treatment cuts into treatment from non-communicable.

I mean, for chronic diseases and non communicable diseases, if you're screening more, if you're picking people up earlier through better screening, you will get more people onto primary or secondary prevention in some ways.

So in that context, it won't be like stopping people smoking, but you might be identifying people that would require a sort of more intensive intervention by screening them earlier and having kind of better ways of reaching people.

So screening can be the test being better, but can also be reaching people sooner, because of the way you're doing the screen. Will the screen being easier to do so? I wonder if that would fall in your call?

Lynn Laidlaw: I hate the word behaviours in this context because I often feel as it's fairly stigmatizing. If only you change your behaviour when actually, choice is a matter of privilege.

And that's Michael Marmots' work. People don't. People make the choices that are available to them and it's got to be seen in the wider context of the politics of austerity.

And what's been happening in in in this country. I would run a mile if a researcher came to me to talk about a proposal around behaviours - it can be very stigmatizing.

Q: Is the emphasis of this call on predicting outcomes at the individual patient level rather than at the broader population.

A: Yes. So we're looking at predicted outcomes at an individual patient level as opposed to at a population level. We're looking for patient specific prediction and early diagnosis tools and technologies.

With obviously some understanding about what that means for broader, patient groups and the population at large. But if you like, it's the other end of the spectrum, rather looking at the population and then drilling down.

You can deploy at scale. We are looking at very much from the other end of the lens, but understanding the onward, you know, impact it would have from benefiting as many people in society as possible downstream.

Q: I have a question about whether an investigator could be involved in more than one proposal to this call.

A: Yes, we're not specifically limiting investigators to only apply to one proposal. You should however consider how you might split your time if both were funded, and how and you can ensure that you are able to contribute effectively and ensure the delivery of the projects.

In short, we're not limiting people to only applying for one application.

Q: We have a question about lab on chip or organ on chip are considered ways to study pathological conditions. Is such research in the focus of the call?

A: We've not excluded it. So we'd ask where's the novelty? Where's the added value? And where's the relevance to community settings? As well as it within the context of looking at health inequalities and PPI.

As a generalism, we absolutely haven't mentioned particular technologies or excluded any.

Q: Would 10% of permanent academics time seem low for involvement in a project? I mean, so what sort of proportion of academic time might we expect on one of these?

A: We're not specifically mandating like a certain amount of academic time. You will want to demonstrate that you're gonna be able to give enough time to the project to be able to kind of deliver it.

Think about how you might make the case to peer review and panels that you will be able to kind of be involved enough to deliver the project.

Q: Early diagnosis can mean different things. Is it fair to say that this call is really about screening?

A: No, but we're not excluding screening. We absolutely realize there is a continuum.

Is screening part of it potentially? Yes. But the excitement of this call is drawing on the ideas, the knowledge, and the expertise of our community.

And we're really looking for people to respond to this framework and give their ideas of interpretations where they think engineering, physical sciences research can really make a difference.

Q: Must clinical staff from the target community settings be involved?

A: We're not mandating, but we're looking, as we said before, for patient public involvement and engagement. Inequality is a key aspect of this opportunity.

So we want you to be thinking about who are the most appropriate partners and people to be engaging with, whether that's clinical staff, whether that's patients, whether that's people with lived experience.

And it's really who are the most appropriate people for your project, and making a case and explaining your rationale through your PPI and health inequalities plan.

Do please have a look at the criteria, how the proposals will be assessed and how you're going to make your case against those criteria within your proposal.

You need to be demonstrating to the peer reviewers how you meet those criteria.

Q: Would a digital tool or AI method be in scope? This would be for patient-specific risk predictions.

A: If there's enough novel engineering, physical sciences in it. The reason I say that is because there are a lot of AI and digital tools out there already.

So I think you would need to ask yourselves how you might show the added value? Where is the potential impact? What's different about this one and trying to put it in the context of a lot of related activity.

Also bear in mind that the other key aspects of this opportunity is about health inequalities and PPI and community focus.

Kate Porter Goff - EPSRC UKRI:

If there's no more questions, then that just leaves us to thank very much invited speakers for the webinar today. So particularly for Vital, Maryam, and Lynn, and also Kate and Philippa, for joining us.

Also thank you to attendees as well for joining us today and asking some good questions.

If anyone has any more questions then please, please send us an email. You can either email myself or Kate directly. Or send an email to our healthcare technologies theme mailbox ([healthcare@epsrc.ukri.org](mailto:healthcare@epsrc.ukri.org))

This is also shown on the funding opportunity web page.

Thank you very much. Its time to close the webinar.

Question (from Q&A session)

Hi, can we get access to the recording of this webinar?  
Thanks

Will the recording be shared with us?

is EOI mandatory?

Hi, Does EOI or Outline stage require just plan or some evidence of patient and public involvement?  
Is there opportunities for third party SMEs to participate in the bid? If yes, in what capacity

Is there a specific peer review panel set up for this ?

In additio to University, which is the lead on the application, can an SME join the team? Will their activity be considered as a partner in the project, or via subcontracting model? Thank you

Can researchers outside UK participate in the project?

Does the project have to address inequalities in the UK or also abroad. For example if our project brings lower cost diagnostic tools to poorer less developed countries. Tools that are probably accessible to everyone in the UK, but not to everyone in the world.

How is proof of concept being defined for this call?

Will it be possible to share a list of people looking to partner for this opporuntity? We are a healthcare provider with strong data capabilities and health innequality work, interested in a collaboration with a research organisation.

Answer (as typed)

Hi,  
We will ask our webteam to upload a copy to the "additional information" section of the funding opportunity.

Hi,  
We will ask our webteam to upload a copy to the "additional information" section of thr funding opportunity.

No, nor is there any kind of disadvantage to putting in an Eoi and then deciding not to apply to this particular opportunity. Please do let us know if you plan to apply as we want to ensure the most appropriate panel membership for outlines.

Eoi asks just a few questions to give us an idea of volume and help us plan the review processes.

Standard eligibility applies. This opportunity is for fundamental research (up to proof of concept). Collaboration from companies is welcome and might be expected, if it would be appropriate for the project being proposed.

There will be a panel convened particularly for the outlignes submitted to this opportunity.

There are roles on research grants such as project leads and co-leads. Only people employed at organisations eligible to hold EPSRC research grants can take on those roles. If you have something more specific in mind, would you like to email me at [kate.reading@epsrc.ukri.org](mailto:kate.reading@epsrc.ukri.org)?

There are a few ways that international collaboration can be included in a research proposal.

As with any proposal to EPSRC, there must be a substantial element of research in engineering, physical sciences, ICT or maths. Proposals can be up to about proof of concept. If that fits with what you have in mind, then yes, it could be targetting benefit outside the UK.

There's more information on the website here:

<https://www.ukri.org/councils/epsrc/guidance-for-applicants/costs-you-can-apply-for/proof-of-concept-studies-in-healthcare/>

We have not offered that kind of brokering, but if you are looking for organisations that have had funding for particular kinds of research, we could suggest information on what (and who) we have funded previously. For example, have you seen "Gateway to Research"? <https://gtr.ukri.org/>



Is it expected to present evidence of patient and public involvement alongside the plan during the Outline stage?

The criteria for the outline stage include how the applicants have:

- demonstrated how the project will engage with relevant partners to ensure the research is co-created and co-delivered with users
  - demonstrated how the project has considered health equity in the research and how equitable, diverse, and inclusive PPIE will be embedded in the project.
- It will be for you to decide how best to show how your proposal meets the criteria.

I am curious about the "mental and physical health conditions" in the scope and remit of the call. Would this include neurological and/or neurodevelopmental conditions?

I'm not sure I fully understand the question. Research might address mental health conditions such as anxiety or depression. Also neurological and neurodevelopmental conditions.

I am not sure such conditions are necessarily "physical" and mental health often is understood as related to psychiatric conditions, not neurological ones.

how about application, can we pick the area like alzheimers disease or epilepsy, and how many institutes?

EPS research to improve person-specific prediction or diagnosis of Alzheimers could definitely be included. I don't know what you mean by institutes?

Does the principle of >50% of the objectives of the project within the EPSRC remit apply to this call?

In short, yes. There must be substantial research content in engineering, physical sciences, ICT or maths (or combination).

I am asking given the emphasis on health inequalities, co-production and PPIE.

Is the use of existing technologies in a novel context eligible for this particular EPSRC funding call?

There must be research content in the engineering, physical sciences, ICT or maths. If the application of a technology to a new circumstance means there must be development of that technology, then it might. We have remit queries or you could outline it and send an email to me if you wish?

Does the usual 50% or above EPSRC remit requirement apply to this call?

In short, yes. There must be substantial research content in engineering, physical sciences, ICT or maths (or combination).

can "mental and physical health conditions" mental OR physical health conditions?

Yes.

can "mental and physical health conditions" mean mental OR physical health conditions?

Yes, mental health conditions can be the focus.

is there any minimum number of institutions?

No. It should be appropriate to the project that is being proposed.

can it be single institute with multidisciplinary?

Yes. Collaboration with clinicians, companies and other research organisations should be appropriate to the project being proposed.

Question (from Q&A session)

Is the collaboration with physicians or clinicians required?

Answer (live answered)

We're not specifically requiring collaboration with specific people like clinicians. However PPI is a key aspect of this opportunity, so we'd encourage you to consider collaboration with healthcare professionals, such as physicians or clinicians, or patients or people with lived experience.

But we're not specifically mandating certain people within those areas. So it's for you to consider who are the most appropriate people that you should be engaging and partnering with in your application and making the case to kind of peer review, and the the panel members.

It may be that the time when you submit your application, you don't have those formal partnerships. But please do say where you see the need for links, and your thoughts about how you might make those links, if your research were to be supported.

Any guidelines on how to balance engineering / ICT novelty with the applied aspects?

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Do please have a look at the criteria, how the proposals will be assessed and how you're going to make your case against those criteria within your proposal.

You need to be demonstrating to the peer reviewers how you meet those criteria.

Is there health need rank order of priorities, for example HIV was presented in this, could applications be directed at NCD risk factors and risk behaviours as opposed to disease itself. So a focus on prevention of disease?

So the question is about whether there could be a focus on prevention rather than patient-specific prediction and diagnosis?

A: EPSRC Health Strategy has put quite a lot of emphasis on prevention, in the broad sense. And there's been a recent announcement of new funding for population health improvement clusters.

So prevention is part of our strategy. There's obviously a spectrum, but in this particular case we decided we were particularly keen to look at it through the lens of prediction and early diagnosis so that may or may not help clarify so.

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You can deploy at scale. We are looking at very much from the other end of the lens, but understanding the onward, you know, impact it would have from benefiting as many people in society as possible downstream.

Question (from Q&A session)

The term “early diagnosis” can mean different things. Is it fair to say that this call is really about screening?

Lab on chip or organ on chip are considered ways to study pathological conditions. Is such research in the focus of the call?

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Answer (live answered)

No, but we're not excluding screening. We absolutely realize there is a continuum.

Is screening part of it potentially? Yes. But the excitement of this call is drawing on the ideas, the knowledge, and the expertise of our community.

And we're really looking for people to respond to this framework and give their ideas of interpretations where they think engineering, physical sciences research can really make a difference.

We've not excluded it. So we'd ask where's the novelty? Where's the added value? And where's the relevance to community settings? As well as it within the context of looking at health inequalities and PPI.

As a generalism, we absolutely haven't mentioned particular technologies or excluded any.

If there's enough novel engineering, physical sciences in it. The reason I say that is because there are a lot of AI and digital tools out there already.

So I think you would need to ask yourselves how you might show the added value? Where is the potential impact? What's different about this one and trying to put it in the context of a lot of related activity.

Also bear in mind that the other key aspects of this opportunity is about health inequalities and PPI and community focus.