

18/89 Digital Technologies to Improve Health and Care

SUMMARY

A call for empirical research studies to evaluate the use of digital technologies to improve health outcomes, self-management of health or delivery of health and social care. Some examples of relevant technologies are highlighted below, however, evaluation of any type of intervention with a clear digital component are included under the call. The purpose of this call is to evaluate existing digital technologies and their potential to bring benefit to health and social care – the development of digital interventions is outside of the remit of this call.

Applicants should justify the importance of their proposed research and identify how the work supports aspirations to improve health outcomes, enable individuals to better manage their own health, extend or support the roles of health and social care staff, improve the delivery of health and social care services or reduce health inequalities. Consideration must also be given to timely delivery and future relevance of findings and the effect of digital technologies on health inequalities.

Given the scope of this call, we expect to receive applications from co-ordinated multidisciplinary teams of investigators spanning both health and non-health specialties/disciplines, bringing together all the necessary skills and expertise required to deliver the research proposed.

Acknowledging the potential these technologies may have to transform health and social care and the delivery of services we would welcome applications that span the remit of more than one of the participating research programmes (EME, HTA, HS&DR and PHR), whilst also accepting applications in remit for just one programme.

Deadline for proposals:

There will be two deadlines for stage 1 applications. The first call will close on 6th November 2018 at 1pm. The second call will open on 7th November 2018 and close on 19th March 2019 at 1pm.

Please note that if you have started to complete your application form, and do not submit to the 6th November deadline, you will need to start a new application if you wish to submit to the 19th March.

A brief [video](#) providing further information about the call is available on the call page of the website. For support developing applications, applicants are also encouraged to contact their local NIHR Research Design Service (RDS) or equivalent in the first instance.

Applicants who wish to have further information about whether their research would be in remit of the call may also complete the [pre-submission form](#) available on the webpage. Use of this form is not mandatory and there is no expectation that applicants will complete it or that any guidance offered will lead to a successful application. All applications are judged on their own merits.

SUPPORTING INFORMATION

The main focus of this call is the evaluation of digital health interventions, rather than digital research methods. By 'digital interventions', we mean a digital technology (hardware and/or software) that is used to support the delivery of health or social care. The range of digital interventions is very broad and includes (but is not limited to) digital apps, technologies for analysing or connecting digital data and consumer-facing devices such as wearables and social media. 'Interventions' includes introducing or repurposing the technology for use by health and social care staff, patients and the public.

For the potential of digital interventions to be realised, their impact on health, care and society must be robustly evaluated, including barriers and facilitators to implementation. There also remain important questions around how best to use and evaluate many of these technologies in clinical research.

The participating NIHR programmes fund rigorous, problem-focused research to assess the impact of existing health technologies. Applicants must demonstrate that the proposed methodology is appropriate and robust, with consideration given to methodological limitations. Applicants may wish to consider framing proposals using established models for Health Technology Assessment where relevant.

Themes

For the purpose of this call, three broad categories suggesting the ways in which these technologies may be applied in research have been described. Some examples are given below, but these are not exhaustive (and some interventions may fit within more than one category), or considered to be of any higher priority than the other areas.

Included under this call is the evaluation of technologies with a clear digital component, where these are in remit for one of more of the participating programmes. Applicants will want to note the level of 'proof of concept' (supporting evidence to suggest the intervention could work in humans) required by the participating programmes.

Given the rate of change in some technologies, for example apps, it is likely to be important that the research will evaluate a theoretical approach or logic model for improving health and/or social care, rather than validating a particular technology. The findings should typically be relevant beyond the scope of a singular technology.

Another important consideration is the scalability of the technology and other barriers to implementation, including any dependence on third-party support.

Applications may include the use of digital research methods where appropriate, however, the primary outcome(s) must be around the proposed benefits to health and care. Costs associated with the evaluation of any digital research methods should be modest in relation to overall project costs.

Applicants may also wish to consider the research priorities identified through the [JLA Priority Setting Partnership on digital technology for mental health](#) which are due to be published in Summer 2018.

1. Digital technologies for individual patients

For example, but not exclusively:

- Apps or other digital interventions used as treatments or tools to influence health-promoting behaviour and self-management
- Web-based or wearable interventions that supplement routine care, such as supporting medication adherence
- The integrated digital component of treatment pathways:
 - digital methods of enhancing monitoring of symptoms
 - the effectiveness of digitizing existing face to face programmes
 - evaluating new technologies to support the management of chronic disease and multimorbidities
 - digital patient triage (e.g. NHS 111)

2. Digital technologies to support clinicians, practitioners and teams delivering health and social care

For example, but not exclusively:

- Supporting real-time or asynchronous communication between patients and/or healthcare professionals
- Digital technologies to support clinical decision making, for example risk algorithms
- Digital solutions that substitute for a traditional form of health care
- Digital technologies that supports carers
- Digital technologies to enhance diagnostic and screening accuracy, including machine learning
- Improving access to health information, including linking data to support patient care throughout health and social care pathways, where the study has a patient-centered outcome
- Learning health systems, where a benefit to patients and/or services may be evidenced within the study

3. Digital technologies with potential to impact the health and wellbeing of wider society

For example, but not exclusively:

- Digital technologies to influence factors relating to public health and inequality, such as individual or population based interventions targeting determinants of health, or

studies harnessing digital data in these areas (e.g. diet, exercise, road safety, air quality).

- Use of digital data to track disease incidence (e.g. in a flu pandemic)
- Digital methods to enhance health literacy and aid healthy lifestyles

Out of Remit:

The following areas are outside of the remit of this particular call:

- **Development** of digital technologies or apps, although evaluative studies of theory based interventions which may be delivered using an app may be within remit.

NOTE: For projects involving a digital app, applicants should refer to the FAQ document for this call. Applicants may also wish to refer to the app assessment criteria used by the [NHS Apps Library](#).

- Studies where the primary focus is to **develop methodologies** around the use of digital technologies in research, including methodology research to evaluate the use of e-technologies in the design and delivery of clinical trials.

NOTE: Applications with modest methodological work embedded within a proposed study will be considered where this maximises future benefit from the research and where the embedded use of digital technologies will improve study efficiency are also welcomed.

- Development and/or maintenance of infrastructure, including cyber-security.
- Interventions and technologies that do not have a clear digital component.
- Studies where the main focus of the work is the development of the technology. However, the [NIHR Invention for Innovation \(i4i\) programme](#) (not part of this call) may be relevant. It may be possible to undertake some very limited final steps to get the intervention ready for evaluation.
- It is outside of the remit of this call to evaluate the efficacy of interventions to (solely) improve data security or linkage. The participating programmes are also unable to fund infrastructure around data linkage or security. However, it is acknowledged that data protection and confidentiality are important considerations for all research. This may be more complex where the intervention or device may collect, store or transmit personal data. Where relevant, awareness of these sensitivities should be demonstrated within the application.

How to apply & supporting information:

The Programmes involved in this call are:

- [Efficacy and Mechanism Evaluation \(EME\)](#)
- [Health Services and Delivery Research \(HS&DR\)](#)

- [Health Technology Assessment \(HTA\)](#)
- [Public Health Research programme \(PHR\)](#)

Applicants should note that:

- Proposals must be within the remit of at least one participating NIHR Programme. However, we expect to receive applications which span the remit of one or more programme. To enable applications to be written without concern for individual programme remits or boundaries, applications will be submitted to one cross programme team, rather than to individual programmes.
- Ambitious applications consisting of more than one clearly linked work package as well as applications for individual studies will be welcomed. We would also encourage the building of research capacity through the research process.
- The participating programmes welcome applications from industry, either as lead investigators or as co-applicants, however, for this call independent evaluation of technologies is preferred. All applications must be collaborative between any two (or more) of industry, academic institutions and NHS trusts. Applicants are encouraged to ensure the study team have the necessary skills, expertise and support to develop a competitive funding application and deliver the research study in the proposed setting. For more guidance around industry working with the NIHR, please contact the [NIHR Office for Clinical Research Infrastructure \(NOCRI\)](#).
- Applications from independent evaluators of technologies are preferred.
- Patient and public involvement should be included within the application and study design.
- Where relevant, applicants should consider user acceptability and uptake of the intervention. Consideration should also be given to how interventions fit within the context other approaches and the future relevance of the digital technology, given the pace of change in new technologies.
- Applicants should clearly state how their proposed research addresses an explicit evidence gap and how the research adds value to the existing [NIHR research portfolio](#)
- This call represents an ongoing area of interest for the NIHR and following this opportunity, the NIHR research programmes would still be interested in receiving applications in this area to their researcher-led workstreams.

Contact Information

Applicants who require further guidance may wish to submit the [pre-submission form](#).
General questions about the call should be addressed to your local RDS in the first instance or to: crossprogramme@nihr.ac.uk