



Test Beds Programme

Information to support the launch of wave 2

A programme funded and delivered by NHS England and the Office for Life Sciences

2 March 2018

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An overview of the Test Beds programme

What is it?

The Test Bed programme originated in the Five Year Forward View and was set up to provide a novel approach to test innovations in health systems, by tackling well established barriers to the uptake of innovation. Test Beds were established to provide an opportunity to test 'combinatorial' innovations at scale in the real-world setting of the National Health Service (NHS) and deliver robust evaluations that could inform the spread of innovations. The primary aim of the programme is to improve patient outcomes and experience of care at the same cost as, or at a lower cost than, current practice, while helping the economy grow.

The Test Beds are forerunners for demonstrating the type of collaboration between the NHS and industry noted by Sir John Bell in his Life Sciences Industrial Strategy. The first wave of the Test Beds programme has been unprecedented in scale, seven NHS sites have been working with 40 innovators, 51 digital products, eight evaluation teams and five voluntary sector organisations.

Current programme:

The seven Test Beds are moving towards finalising their testing and completing their evaluations. So far, the Test Beds have recruited over 4,000 patients to test their combinatorial innovations.

The focus of current Test Beds is primarily in three areas of innovation; (1) Predictive algorithms to manage patients at risk of developing a condition, (2) Aggregation of data into one place to inform operational and clinical decision making and improve an individual's ability to manage their condition and (3) Technology to monitor risk of crisis in clinical pathways or an individual's home or care home.

Over the summer (2018) the national Test Beds team will be publishing a suite of documents, 'how-to' guides, on topics such as: (1) information governance, (2) evaluation and (3) principles for establishing collaborations with industry. In Autumn 2018, an overall evaluation report, synthesising learning from across the seven Test Beds will be published. Refer to annex 1 for a programme timeline for the current Test Beds (wave 1).

1 Lancashire and Cumbria Innovation Alliance

Improving support for those over 55 with Chronic Obstructive Pulmonary Disease, heart failure and dementia. Integrating technologies and linking them to new care models supporting self-care at home.



2 Long Term Conditions Early Intervention Programme

Promoting early intervention to reduce the burden of ill-health by developing a predictive algorithm, redesigning pathways, and training health professionals.



3 Diabetes Digital Coach

Providing people with type one and type two diabetes with a selection of integrated 'Internet of Things' digital tools to manage their condition.



4 Perfect Patient Pathway

Improving pathways for asthma, diabetes, falls and frailty by increasing access to technology and facilitating information sharing.



5 RAIDPlus

Developing a demand and capacity tool that shows patient flow in real-time and a predictive algorithm to identify when people are going to experience a mental health crisis.



6 Care City

Testing a combination of digital devices and software alongside new approaches to service delivery and patient participation.



7 Technology Integrated Health Management

Providing people with dementia and their carers with wearables, monitors and other devices which will combine into an 'Internet of Things' to monitor their health at home.



Key achievements of the programme so far

A conservative estimate is that the programme has leveraged £15 million from industry, alongside £9.5 million investment from NHS England, the Office for Life Sciences (OLS) and Department of Health and Social Care (DHSC). In addition to testing innovations, the programme has enabled the:

- **development of infrastructure and expertise in the NHS** – Examples include: (1) the creation of a 5G living lab at the University of Surrey and (2) the creation of a ‘command centre’ style capacity and demand management system and tele-triage services (CADDI) in Birmingham and (3) new expertise in the development of predictive algorithms, in Birmingham, Surrey and Manchester.
- **contribution of patients and clinicians** – people living with long term conditions and healthcare professionals giving businesses their insights about the products being tested; allowing businesses to refine them, making them more fit for the market. For example, from their participation in the Test Beds programme QTUG took their product from a diagnostic tool which detected risk of falls to now including a training component to prevent people from falling.
- **focus to be on clinical pathway redesign** – the focus on combinatorial approaches, covering products and processes, made the work in this programme more focussed on clinical pathway redesign; rather than just focussing on the digital product. The value of this approach was referenced in an article by the King’s Fund entitled: [‘Getting the most from technology requires pathway redesign’](#)
- **establishment of a new way for the NHS to work more closely with industry partners** – other Government Departments (e.g. the Department for Culture, Media and Sport) view the Test Beds programme as a successful model for testing innovations. The model has been replicated for other priorities (e.g. social care, Healthy Ageing).
- **problem solving of common barriers to uptake of innovation** - identifying and responding to implementation barriers, such as data sharing, intellectual property agreements and evaluation and sharing this learning with the wider NHS system

Why are we launching wave 2?

1. Through wave 2 we want to:
 - maximise the benefit from using of digital tools in the NHS
 - work with industry to address the NHS' key challenges (system and clinical); developing an understanding of suitable future payment models for these solutions
 - better align solutions to the outcomes needed in Sustainability and Transformation Partnerships and Integrated Care Systems
 - continue supporting health care professionals who are interested in this type of innovation to develop their skills
2. We are also keen on building more relationships with industry to make sure we are leveraging innovation in the NHS and bringing in people with different skills; supporting the governments' ideas outlined in the Life Sciences Industrial strategy.
3. Building on our learning from wave 1, we want to run a 'slicker' process for doing this type of work in the NHS. We will focus around health and care challenges identified by NHS organisations and to which industry partners can bring solutions. We aim to embed future Test Beds in digitally mature transformation areas, such as Sustainability and Transformation Areas or Integrated Care Systems with an integrated data architecture or are Global Digital Exemplars
4. Although we have learnt many lessons during wave 1 of the programme; there is more for us to understand about how to embed innovation in the NHS and test it in a way that brings valuable insight to commissioners / adopters of these solutions.

What the Test Beds programme is and isn't:

The programme is:

- **an opportunity for businesses to use the real-world setting of the NHS** – this has the potential to improve product's usability and quality; better align to users' needs (patients, people living with long term conditions and healthcare professionals); and embed innovation into clinical pathways
- **a chance to learn from other partners in a NHS-led consortium**, by bringing diverse skills and backgrounds to a healthcare challenge, as well as an opportunity to get support with overcoming common barriers to uptake; such as information governance concerns or organisational structures

The programme is not:

- **a procurement process** – there is no commitment from NHS England or the NHS in general, to buy any product involved in the programme.
- **a process to fund the early development and testing of digital products** – there are a variety of other funding opportunities such as the Small Business Research Initiative, or the Digital Health Catalyst for products in this space. Proposals submitted to the Test Bed programme must be 'combinatorial' (see definition).

Overview of the wave 2 competition

We are looking for any type of challenges that the healthcare system identifies but we also have dedicated funding to address a specific issue of interest for the National Diabetes Prevention Programme.

Test Beds wave 2		
Area of focus	<i>Stream 1 :</i> NHS organisations identify a challenge that can be addressed by digital technology (clinical or system)	<i>Stream 2:</i> Digital solutions that support the learning and self-management support for people with Type 2 diabetes
Funding available	Up to £4.5 million from OLS	Up to £1.5 million from NHS England

Programme duration: The new wave of Test Beds will begin their projects in October 2018 and are expected to run until March 2020 (this is 18 months of funding).

NHS sites

- To work collaboratively and openly with the Test Bed evaluation partners; ensuring consistent evaluation design, implementation and ongoing evaluation takes place throughout the project that can contribute to an overall evaluation of the programme
- To commit to working closely with the national programme team, for example:
 - Attending and actively contributing to national events related to the Test Beds programme
 - Being open and communicating effectively with other Test Beds; sharing insight and learning
 - To raise major issues and risks promptly with an NHS England relationship manager; allowing for timely support to be given
- To resource the local Test Bed team appropriately, including the following roles as a minimum:
 - Programme Director
 - Clinical Lead
 - Information governance lead

Partner businesses

- Have a market ready digital health product:
 - This means it has passed all regulatory and technical requirements (and is CE marked if a device)
 - If your final application is successful, any apps may be required to go through the NHS digital assessment process if not already done so (<https://developer.nhs.uk/apps/>)
 - You should be aware of the NHS Digital service standards and requirements, particularly in relation to interoperability and information governance (<http://content.digital.nhs.uk/standards>)
- Be willing to work collaboratively with all partners within a Test Bed area, including other businesses
- A commitment to invest resource, whether time or money, to ensure the success of the Test Bed collaboration
- An open book approach to data sharing with the NHS throughout the project
- Be open and honest and willing to work in a team of people from different organisations and backgrounds

Our offer to wave 2 Test Beds

Area of our offer	Details:
1. Funding	<ul style="list-style-type: none"> • Successful Test Bed partnerships will be able to bid for between £500,000 and £1.5m of overall costs in order to ensure the successful testing design, implementation and delivery of their project • Ability for Test Bed partnerships to apply for up to 70% of reimbursement of projects costs for SME partners (60% for medium size businesses)
2. Access to expertise	<ul style="list-style-type: none"> • Specialist support from the national programme team and appointed experts on information governance, procurement, and evaluation • Events and webinars on specific topics to problem solve and share learning • Access to wave 1 legacy documents; ‘how to’ guides on evaluating complex interventions and information governance requirements • Access to template documents used by wave 1 Test Beds to assist in setting up and maintaining the NHS – industry partnerships that are established
3. Benefits from being part of a national programme	<ul style="list-style-type: none"> • An opportunity to improve how you give patient care by testing new approaches and gathering real-world evidence about what works and does not work • Test and evaluate products at scale in real-world settings • Partner with organisations that bring different skills • National exposure from involvement in programme

What are the foundations of an NHS – industry partnership?

Following our experience of wave 1 of the programme, we think that the following qualities are important in order to forge a strong Test Bed partnership:

1. Clarity in the aims and objectives

- A clearly identified problem or challenge, with a clear hypothesis and agreed across all partners
- A clear logic model underpinning how the intervention will tackle the problem / challenge
- Establish a robust evaluation protocol covering: (1) set up and design (2) impact evaluation to understand what works (3) process evaluation to understand how and why, and (4) economic evaluation.

2. Leadership and Governance

- A strong commitment from senior stakeholders in the Test Bed partnerships
- A clinical lead to support the design of the intervention and project development and delivery / testing
- Buy-in from healthcare professionals across the system/ pathway you are focussing on
- Strong links with your Sustainability and Transformation Partnership (STP) or Integrated Care System (ICS)

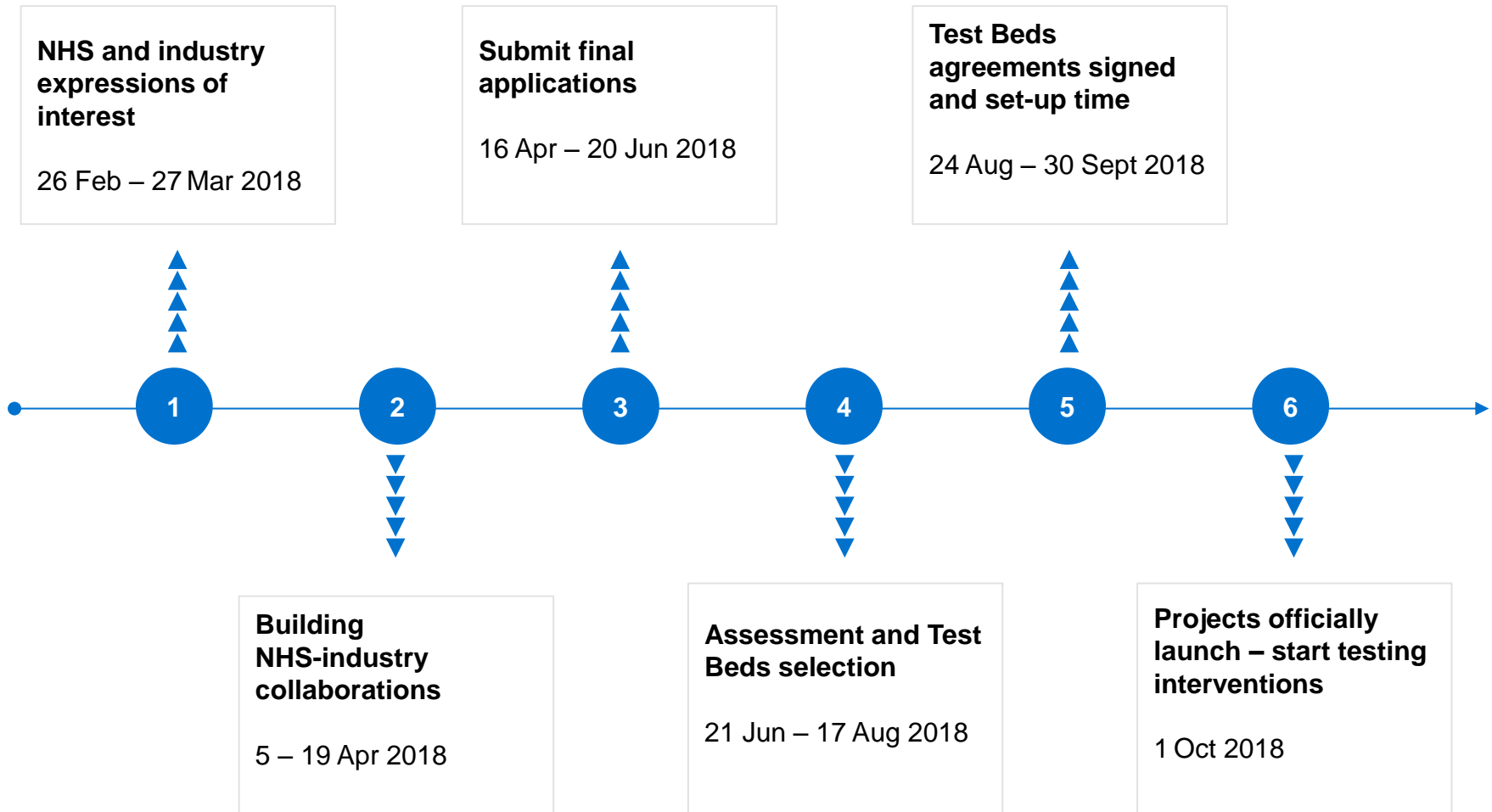
3. Investment by all parties

- A partnership in which everyone works together to achieve a goal; the sum greater than the individual parts
- A commitment to invest resource by all parties involved, even if the resource varies (time, people, money etc.)

4. A digitally mature health system and a history of data sharing

- Secondary care providers that score well on the Digital Maturity self-assessment
- A history of sharing information and records across providers in a health economy (backed by strong data sharing agreements)
- An early establishment of data availability across the Test Bed partners and health system

Overall competition timeline



Key dates to note:

Event	Date
Expression of Interest (EOI) phase opens	26.02.18
Briefing event	02.03.18
Event in London	20.03.18
EOI phase close	27.03.18
Invite to collaboration discussions	05.04.18
Collaboration workshops start	09.04.18
Full competition opens	16.04.18
Application submission date	20.06.18
Invite to interview	25.07.18

Event	Date
Feedback to interview applicants	27.07.18
Interview day 1	13.08.18
Interview day 2	14.08.18
Interview day 3	15.08.18
Interview day 4	16.08.18
Interview day 5	17.08.18
Notifications to successful applicants	24.08.18
Project set up complete	21.09.18
Projects commence	01.10.18

National Team

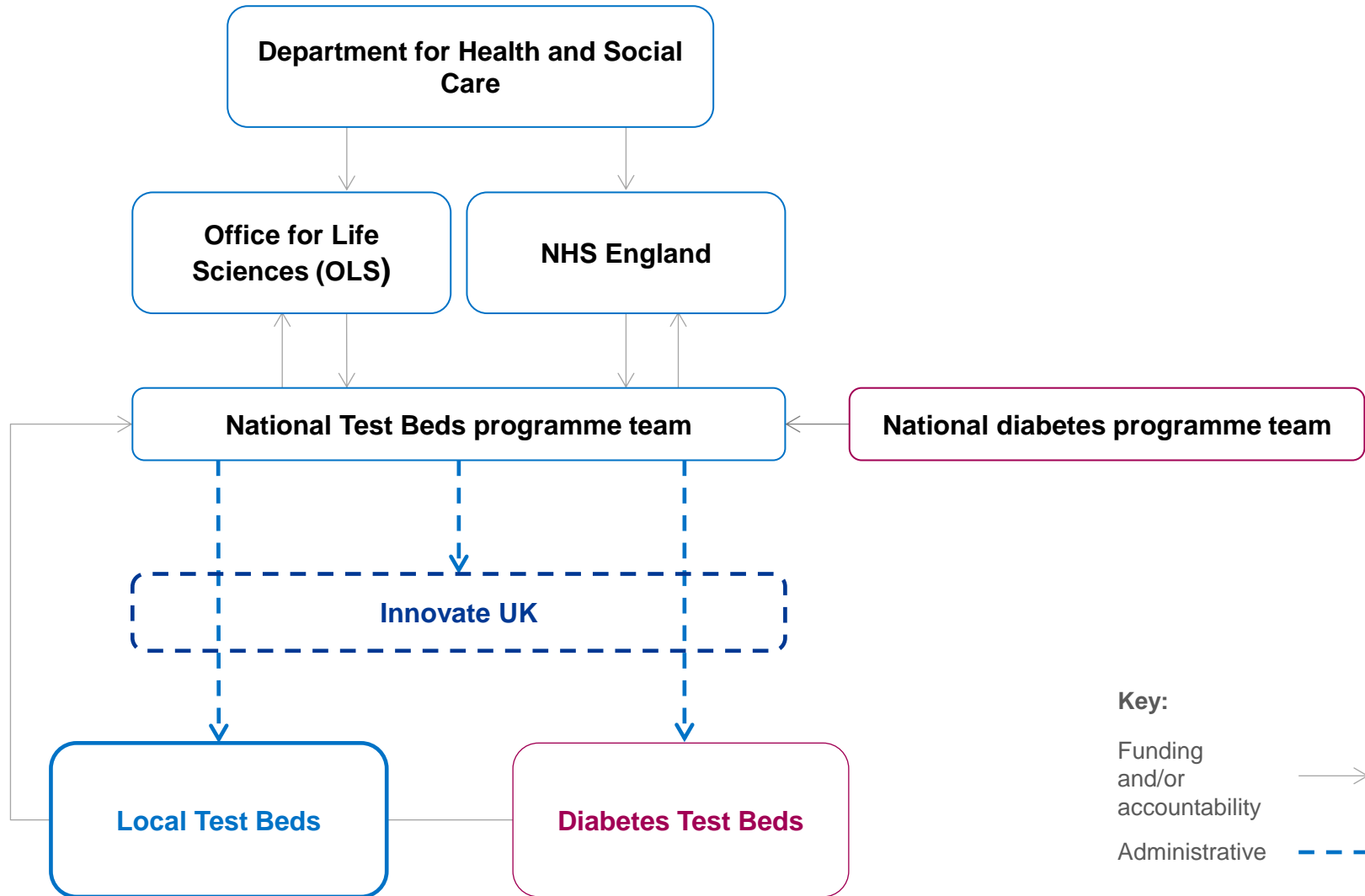
- A national programme team will be available throughout the programme (made up of representatives from NHS England and Office for Life Sciences)
- Successful Test Bed sites will have a dedicated relationship manager from the national team
- The national team is in the process of procuring specialist evaluation and information governance (IG) partners to support successful Test Beds
- When appointed, these partners will offer dedicated support to individual Test Beds covering:
 - design, implementation and continually refining evaluation processes throughout the project and ensure that local evaluations can contribute to an overall national evaluation of the programme
 - ensure programmes are compliant with the new General Data Protection Regulations (GDPR)
 - assist in developing and assuring relevant documents, such as data flow mapping, privacy impact assessments and data sharing agreements

Partner Teams

Successful Test Bed partnerships will have access to a range of external support in delivering their projects. As a minimum, there will be:

- Support nationally via:
 - The AHSN network hosting of the collaboration building workshops between the EoI stage and the full competition stage (April 2018)
 - AHSNs across the country; supporting prospective Test Bed partnerships to develop strong applications following the collaboration building workshops
- Innovate UK: each Test Bed will have a monitoring manager; this role is focussed on reviewing progress against plans and financial monitoring, on a quarterly basis
- National evaluation partners: who will work with the Test Beds to establish robust evaluation protocols from set-up onwards

Programme Governance:



Definitions:

Keyword	Definition
Intervention	A deliberate action or process change introduced into the system that will be evaluated.
Combinatorial	New combinations of products and processes. Test Bed applications should include new products working in combination with changes in pathway and processes.
Digital Product	Any product with a digital component needed to enable its use. This includes mobile apps, software programmes and devices or wearables that are digitally enabled.
Evaluation	A robust protocol covering: (1) set up and design (2) impact evaluation to understand what works (3) process evaluation to understand how and why, and (4) economic evaluation.
Small Medium Enterprise (SME)	Businesses that have less than 250 employees and a turnover under £50 million

Do you have a question?

If you need more information, contact the competition helpline on 0300 321 4357 or email us at support@innovateuk.gov.uk.

For general queries about the overall programme, contact england.testbeds@nhs.net

For more programme updates and information see our website: <https://www.england.nhs.uk/ourwork/innovation/test-beds/>

If you would like to know more about current Test Beds see:

- <http://www.carecity.london/work-programmes/innovation-test-bed>
- <https://www.diabetesdigitalcoach.org/>
- <https://www.hmr.nhs.uk/index.php/test-bed/home>
- <http://www.lciatestbed.org.uk/>
- <http://ppptestbed.nhs.uk/>
- <http://www.wmahsn.org/programmes/view/raidplus-integrated-mental-health-urgent-care-test-bed>
- <http://www.sabp.nhs.uk/tihm>

Annex 1 – Wave 1 Test Beds timeline

