Mapping the UK Precision Medicine Landscape

What is precision medicine?

Precision medicine refines our understanding of disease prediction and risk, onset and progression in patients, informing better selection and development of evidence-based targeted therapies and associated diagnostics.

Disease treatment and other interventions are better targeted to take into account the patient's genomic and other biological characteristics, as well as health status, medications patients are already prescribed and environmental and lifestyle factors.

This definition has been prepared by the UK's Programme Coordination Group in precision medicine.

Coordinating UK precision medicine activities

The UK has a **Programme Coordination Group** active in precision medicine that brings together representatives from UK government, funding bodies, charities and a learned society.

The Group helps to ensure that, through coordinated action, the UK has the right environment to capture the patient and economic benefits offered by precision medicine.

Programme Coordination Group Partners:

- Innovate UK (lead)
- Arthritis Research UK
- Cancer Research UK
- Department of Health
- Department of Health, Social Services and Public Safety Northern Ireland
- Invest Northern Ireland
- Knowledge Transfer Network
- Medical Research Council
- National Institute for Health and Care Excellence (NICE)
- National Institute for Health Research
- NHS England
- Scottish Government Health Directorates
- UK Trade and Investment (UKTI)
- Welsh Government
- Academy of Medical Sciences (observer)
- Medicines and Healthcare products Regulatory Agency (MHRA, observer)

Why do we need a map of the precision medicine landscape?

The precision medicine landscape in the UK is complex and, in mapping it, the Programme Coordination Group aims to explain how each asset in the landscape fits within the UK's precision medicine community. The landscape is further complicated by the presence of many acronyms – for funders, individual assets and networks of assets – and this can be confusing to stakeholders.

The focus of this first version of the landscape is the many infrastructure assets funded by UK public sector and charitable bodies. In future versions, we plan to survey UK companies working in the field, linking in to UK Trade and Investment (UKTI) data already available online.

Precision medicine infrastructure assets have been categorised by:

- **Type of infrastructure**, for example innovation centres, experimental medicine centres and research training centres;
- **Disease**, for example cancer, musculoskeletal disease and diabetes, using the Health Research Classification System developed by the UK Clinical Research Collaboration;
- Relevancy to different parts of the **innovation pathway**, namely discovery and invention of precision medicine interventions, evaluation of their clinical validity and adoption into the healthcare system;
- **Location** within the UK.

This first version of the precision medicine landscape has been developed in conjunction with the main funders of UK precision medicine research and innovation and sponsor departments within the UK Government and devolved administrations. These contributors are acknowledged on the inside back cover of this booklet.

Feedback is welcome on this version, including any omissions, ways of expanding the dataset or further filtering and curating the content in the future – please email: **pmlandscape@innovateuk.gov.uk**

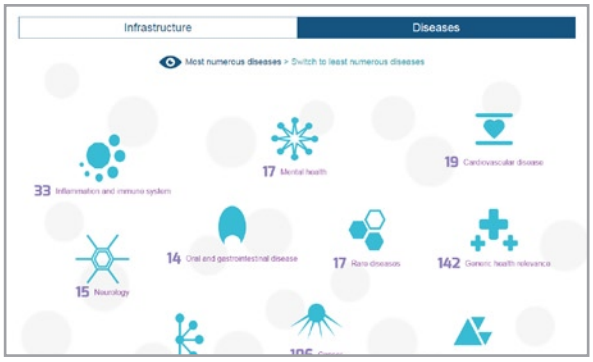
How to use the precision medicine landscape mapping tool

The precision medicine landscape in the UK is complex and the first version of the landscape features **over 400 infrastructure assets** funded by UK public sector and charitable bodies. In order to help with searching this data, we have categorised assets in a number of ways. On opening the precision medicine landscape tool, you will see an overview of top-level infrastructure categories, with the numbers showing how many assets are held in each category.

Clicking on one of the **colour-coded circles** (like the one shown above) will scroll the page to a list of all entries within that top-level category.

By default, all sub-categories are shown when a top-level category is selected. On this part of the page, you now have the option to **filter the results** by clicking on one of the sub-categories. You can also filter the results by the **types of disease** each asset specialises in, the **location** by city or by the **name** of the asset (begin typing in the search box to start narrowing down the results).

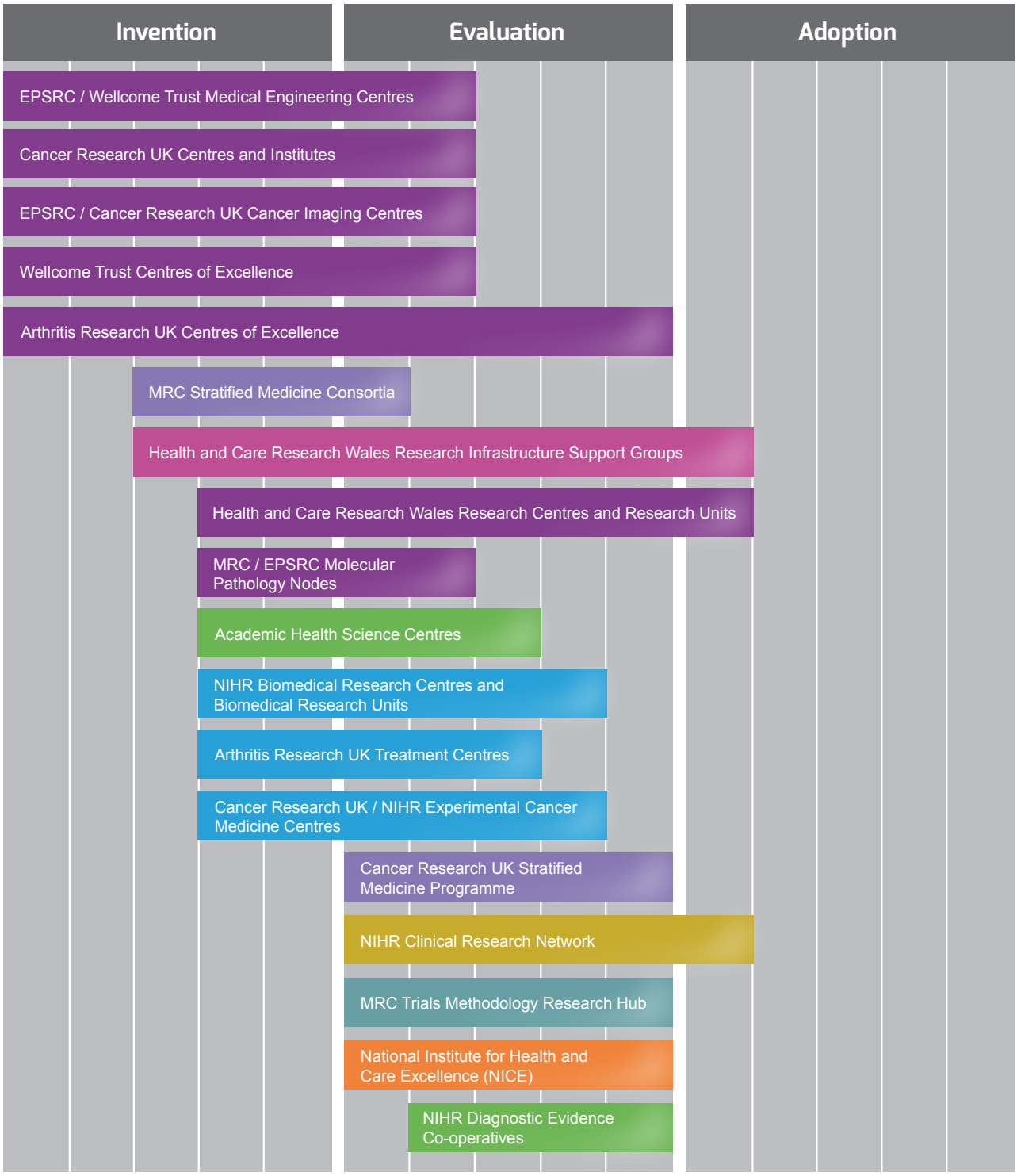
In addition to the list view, you can click on an individual entry to **view further information** and links to its website and Twitter feed. In almost all cases, websites contain contact details so that you can **ask questions or begin collaborative discussions**.

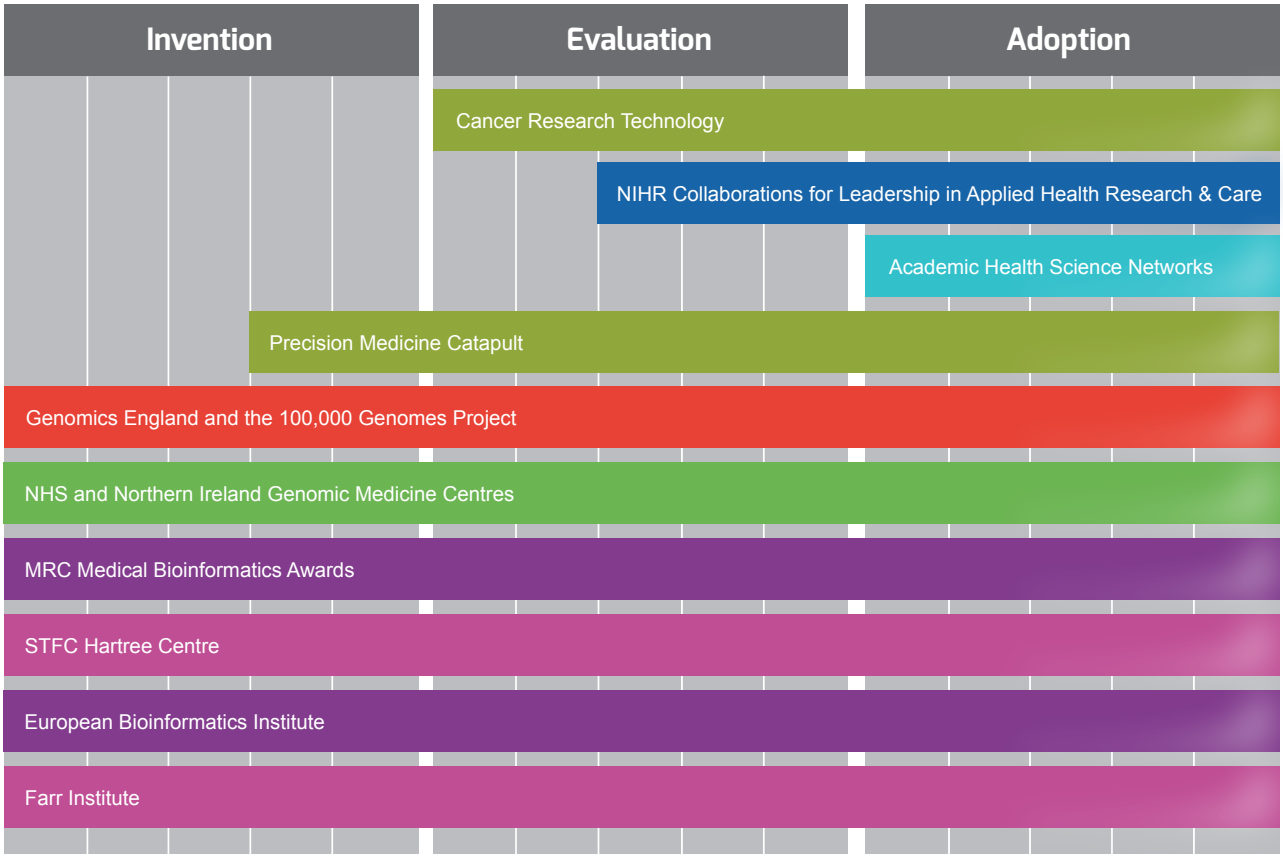


We have also created a **chart view** of the data, accessed by a toggle at the top of the screen. The chart view, which matches that shown on page 9 of this booklet, shows how different precision medicine assets work across different parts of the **innovation pathway** – from discovery and **invention** of precision medicine interventions to **evaluation** of their clinical validity and **adoption** into the healthcare system. The same infrastructure categories and colour coding are used on this chart. You can look at the data in more depth by clicking on an entry in the chart and applying filters as described above.

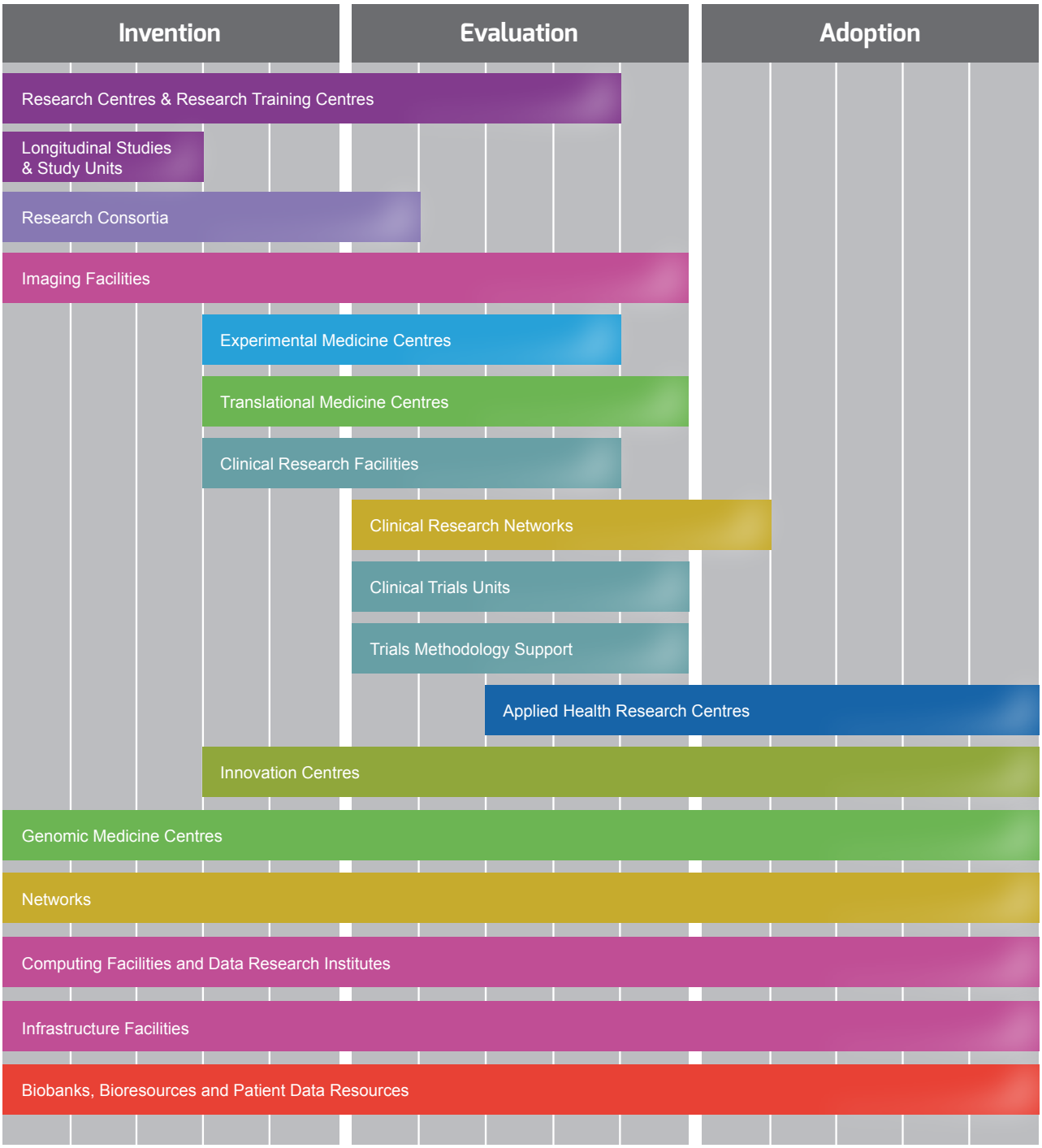
A third view, again accessed via a toggle at the top of the screen, categorises the data by **diseases**, using the Health Research Classification System developed by the UK Clinical Research Collaboration. The **top 10 diseases** covered most frequently by the 400+ precision medicine assets are shown in the main view, including the classification '**generic health relevance**' which highlights precision medicine research and innovation relevant to all diseases and conditions or to general health and wellbeing. A second view lists the **less frequently covered diseases**. In each case, clicking on a disease will allow you to filter in the same way as described above.

Specific examples of infrastructure investments




Invention
Evaluation
Adoption
Cancer Research Technology
NIHR Collaborations for Leadership in Applied Health Research & Care
Academic Health Science Networks
Precision Medicine Catapult
Genomics England and the 100,000 Genomes Project
NHS and Northern Ireland Genomic Medicine Centres
MRC Medical Bioinformatics Awards
STFC Hartree Centre
European Bioinformatics Institute
Farr Institute

Categories of infrastructure investments



The preparation of this precision medicine landscape has been a collaboration between the following organisations, coordinated by **Innovate UK**:

Mapping the UK Precision Medicine Landscape

pmlandscape.ktn-uk.org