

The personalised medicine technology landscape

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A new report¹ by the PHG Foundation for NHS England provides an independent evidence synthesis of biomedical and digital technologies that offer more personalised care. It also sets out policy considerations for NHSE as it seeks to develop and deliver integrated personalised medicine approaches that build on previous strategic planning², and will contribute to the goals of the Five Year Forward View:

“This evidence synthesis by the respected policy analysts at the PHG Foundation provides important insights as to how to take this vision forward and the issues we will face in implementation” - Professor Dame Sue Hill, Chief Scientific Officer for NHS England

Healthcare technologies for personalised medicine

Seven areas of healthcare technology were found to have sufficient evidence of clinical utility to be used for NHS patient benefit within the next 2-3 years:

- **Circulating tumour DNA** – for non-invasive cancer testing ('liquid biopsy')
- **Pharmacogenomics** – to test for individual responses to drugs
- **Transcriptomics** – for early diagnosis and tailored cancer treatment
- **Pathogen genomics** – for infectious disease surveillance and control
- **Regenerative medicine** - stem cell / gene therapies for serious diseases
- **Advanced image analysis** – of blood or tissue for diagnostics
- **3D imaging / printing** – for tailored devices, implants and planning surgery

Cross-cutting issues for clinical delivery

In addition to technology-specific policy issues, the report noted the need for steps to provide **top-down support for the use of new technologies in the NHS** such as:

- Harmonisation of methods / standards for data generation and analysis
- NHS workforce engagement on the benefits of personalised medicine
- Mechanisms for sharing expertise
- Approaches for managing smaller groups of patients as personalisation results in newer, more refined categorisation of disease

Digital infrastructure needs

Improved informatics infrastructure is said to be an essential prerequisite to collect, store, manage, share, integrate and analyse patient data, because many of the technologies reviewed generate vast volumes of data, or fundamentally rely on robust digital infrastructure to operate, as well as the digitisation of health records.

Conclusions

Innovative technologies can offer more personalised healthcare and improved patient outcomes, given a synergistic coordinated approach to clinical implementation - which the NHS is uniquely well-placed to deliver.

¹ *The Personalised Medicine Technology Landscape* – PHG Foundation (2018)

² *Improving Outcomes Through Personalised Medicine* – NHS England (2016)