10-Year Cancer Plan: Call for Evidence

PHG FOUNDATION

making science work for health

Submitted to

Department of Health and Social Care

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Delivering priorities for the cancer plan

Do you have any suggestions for how to get more people diagnosed quicker?

Technologies for less invasive screening and diagnosis such as liquid and breath biopsy offer exciting new opportunities for earlier diagnosis, and ongoing efforts to assess the potential of new technologies for diagnosis are welcome. This may include tools to enable access to diagnostic testing outside of secondary or tertiary centres, such as in primary care or via new community diagnostic centres. As one of the current problems with cancer diagnosis (especially in the wake of the pandemic) is people with potential cancer symptoms warranting clinical investigation presenting later, tools of this kind could have a substantial impact.

As the founding centre for the discipline of public health genomics in the UK, the PHG Foundation has long supported using data and technology to offer more personalised prevention of disease. This includes stratified prevention, whereby genomic or other biomarkers combined with traditional risk prediction criteria can more accurately identify population sub-groups at increased risk, and target preventative interventions accordingly towards areas of greatest need. Overall, targeted screening informed by scientific knowledge and technologies to detect and interpret risk (such as through genomic and other biomarkers) is likely to yield significant improvements in cancer diagnosis and outcomes, and the expanded remit of the National Screening Committee to oversee development of such programmes is welcome.

Alternative technologies that could enable detection of disease at earlier stages than previously possible through the detection of biomarkers offer considerable promise in this regard, but research into their potential needs to include robust, real-world assessment of their performance and implications in everyday practice. For example, the performance of a liquid biopsy test in symptomatic and asymptomatic populations, or in low and high risk populations, will differ and require independent evaluation for each use case. In the same way, the use of an assay in different circumstances may pose additional complexities beyond performance for policy, the health system and patients. For

example, the risks of over-diagnosis in asymptomatic or lower risk populations should be considered both in terms of health system resource and potential negative impact on patients through diagnosis of an early malignancy which would not have progressed to more serious disease.

Health system considerations include the provision of additional capacity for further diagnostic testing and potential treatment and support for high volumes of patients in whom early stage disease is detected through this sort of technology. Such barriers should not impede ambitions to achieve earlier diagnosis or improved outcomes for cancer, but appropriate policy and resource planning will be needed to ensure they do not hinder progress.

Do you have any suggestions for how to improve access to and experiences of cancer treatment?

A move towards more personalised and targeted approaches to cancer treatment enabled by advances in science and technologies should offer more effective and better tolerated treatments for increasing numbers of cancer patients. Expansion of cancer genomics within the National Genomic Medicine Service will play an important role in enabling access to the best treatments. The utility of genomic testing not only for initial diagnostic purposes, but also to monitor treatment response and detect potential evolution or recurrence of disease is also a critical element in enabling the best use of precision medicine. As the scientific and technical opportunities for precision characterisation of tumours to inform treatment decisions become more complex, there is a need to expand the resources for multi-disciplinary team meetings and advice, and to continue to provide clear guidance for which cancers can follow standard pathways of care and which may require more expert oversight. This will be important to ensure that patients seen outside centres of excellence or by less specialised health professionals will enjoy equal access to best practice care.

However, as such new approaches are typically very expensive, it remains vital that they are used in the most cost-effective manner. Research will be needed to identify not only which patients can benefit from targeted or precision therapies, but also at which stage they should most appropriately be used. In some instances, it may be more effective to use targeted therapies as a first-line treatment – both for cancer types with fewer therapeutic options, and for rare sub-groups of more common or more generally treatable cancer types.

As personalised cancer medicine becomes more widespread, there is a need to support patient and public education and understanding of a wider divergence of treatment options, and to ensure that personal preferences as well as complex scientific information direct decision-making. Incorporating patient views into all stages of clinical implementation and delivery is likely to deliver more effective and robust outcomes.

Improving data and translating research into practice

Do you have any suggestions for how can we maximise the impact of research and data regarding cancer and cancer services in England, including how we can translate research and data into practice sooner?

As a policy think tank dedicated to making science work for health, the PHG Foundation has always advocated bridging the gap from research into consistent implementation of best clinical practice so that all patients can benefit. An appropriate balance must be struck between innovative research and rigorous evaluation of real-world clinical utility, efficacy and cost-effectiveness. Too often, funding is channelled into high profile pilots and projects without sufficient additional resources to evaluate mid- to long-term outcomes, or ensure that clinical potential can be realised in practice across the UK, and not merely in centres of excellence.

As cancer genomics via the NHS Genomic Medicine Service expands, we note that inclusion of both clinically actionable variants and those with potential research value (for example, as indicators of potential patient eligibility for clinical trials) should be considered for cancer panel testing, including mechanisms for clear and appropriate feedback of results. Supporting both health professionals and patients in participation in ongoing research is important.

Similarly, governance structures to balance the research and health system improvement imperatives to share data against proper protection of patient privacy and consent (and hence, of public trust and confidence) must be maintained. The positive impact of Control of Patient Information (COPI) notices in the pandemic response for biomedical and genomic research demonstrates the value of this approach. While there are different justifications and considerations for the use of data to combat cancer compared with COVID-19, there are lessons to be learnt from the pandemic experience to improve research access to patient data. These include the power of developing a culture of data sharing based on a clear and proportionate legal framework for purposes with high levels of public support.

It is crucial that data sharing for cancer research is underpinned by transparency and meaningful public engagement so that most patients have good reasons to trust the systems and safeguards in place. Technology has an important role to play in this area and the development of secure Trusted Research Environments for transparent and privacy preserving research is hugely important in addressing some of the publics greatest concerns about the use of their data. See: www.phgfoundation.org/report/control-of-patient-information

We have long pointed to the undoubted scope to improve personalised prediction and prevention of cancer. The use of polygenic

scores to refine and better stratify cancer screening is a promising area, although our analysis of evidence to date suggests that such scores are unlikely to benefit risk assessment for all cancer types. Moreover, the applicability of currently available scores to non-Caucasian populations is limited. Efforts are underway to boost the population diversity of research databases, but it will take time for this information to be used in polygenic score development and for these to be tested and evaluated in the appropriate populations. Therefore, caution is needed around the use of currently available polygenic scores for the time being. Similarly, the performance of other biomarkers, new AI tools or other technologies in different population groups and sub-groups must be carefully assessed to ensure utility.