

**British Society for Immunology (BSI) Response to the House of Commons Select Committee on Health and Social Care Inquiry on Cancer Services**

The British Society for Immunology (BSI) is the largest immunology society in Europe. We represent the interests of over 4,200 immunologists working in academia, clinical medicine, and industry. Our main objective is to promote and support excellence in research, scholarship, and clinical practice in immunology for the benefit of human and animal health. We are a leading organisation in the life sciences sector with bold ambitions to not only maintain the UK's position as the world leader in immunological research but also to drive transformational change to ensure that research plays its part in developing new diagnoses, treatments, cures, and preventative measures for as many diseases as possible.

- **Why do cancer outcomes in England – in particular survival – still lag behind comparable countries internationally?**

Following advances in treatment and technology used in cancer patients, we must ensure that the knowledge surrounding these practices by those who use them advances as quickly. It is welcome that CAR-T therapy has been introduced in the NHS, but there is a worry that not enough science is attached to the patients that receive it. This is a very expensive and labour-intensive therapy, so we need to make sure that we learn everything we can from these patients to ensure we are using it effectively, which will then be able to inform future use. We also need to make certain that the clinicians and healthcare scientists who are involved in delivering these therapies have appropriate training.

Further research is also needed, particularly in the area of cancer immunotherapies to improve patient survival. The Government's Life Sciences Vision identifies expanding cancer immunotherapy research as one of the missions that must be tackled over the next decade and this will then begin to have an effect at the point of patient care. It will also be crucial to address the translational gap in our knowledge between lab and clinic, to develop human immunology assays to complement pre-clinical modelling, as well as to coordinate research into novel areas in immunology, such as the microbiome, and establish ways to prioritise among the vast number of therapeutic targets present in the immune and tumour microenvironment.

In the UK, comorbidities or multimorbidity is a big challenge with 70% of cancer patients having a comorbidity. We also have an ageing population with immunosenescence being an important consideration. The spectrum from disease to autoimmunity to cancer is a continuum and we should be capitalising on the science from those areas by bringing immunologists and cancer researchers together to ensure we deliver the right treatment for the right patient without raising unrealistic expectations, exposing patients to unnecessary toxicity, and/or wasting limited NHS resources.

There is currently great momentum in immunotherapy research and commercialisation, which is an opportunity for academia to interact with small companies and big pharma to capitalise on this wave of enthusiasm. If we add to this, the UK Government's focus in their Life Sciences Vision on immuno-oncology and its commercialisation, and their target to increase UK spending on R&D to 2.4% GDP by 2027, there is great potential for the UK to build on their expertise in immunology research to drive innovative approaches to immunotherapy while maximising the research potential of the NHS.

- **Will implementing the Long Term Plan for cancer improve cancer outcomes to the level of the best countries internationally?**

Investment in early diagnosis and cancer care will go a long way to improving cancer outcomes, including to the level of the best countries internationally, and cancer immunotherapy has a significant role to play in that journey. Paragraph 3.62 in the Long Term Plan states that more advanced techniques such as immunotherapy will be utilised to ‘continue to support improvements in survival rates’. This will only be possible however, should investment be made in the right areas and this means ensuring that the Government’s missions in the Life Sciences Vision be joined up to the appropriate areas in the NHS Long Term Plan when the former sees its delivery programme published later this year. The UK is a world-leading research hub for immunology. With the right infrastructure and investment, we can bring this research excellence to bear on the development of new cancer immunotherapies, facilitating the smooth progress of these potentially life-saving treatments from bench to bedside to significantly improve patient care and ultimately patient survival.

The BSI has been working in partnership with the National Cancer Research Institute (NCRI) to identify the best ways to proceed with developing cancer immunotherapies, and we have plans for joint initiatives to share knowledge and best practice. As a result of this partnership and the priority areas identified by the BSI-NCRI Cancer Immunology Group, the BSI would recommend that accompanying the NHS Long Term Plan, that the Government develops a national strategy to unify researchers, clinicians, patient representatives, funders, industry and government on:

- Creating accessible research-ready datasets that enable the long-term follow-up of patients on immunotherapies and meaningful research into mechanisms of action, immune related adverse events and co-morbidities.
- Improved access to clinical samples for robust pre-clinical models of human cancer immunity.
- Driving research into biomarkers for response prediction and patient stratification.
- Supporting prospective cohort studies and linking them in with the wider research community.
- Capacity building in the workforce (e.g. clinical immunologists), developing appropriate training to enhance skills development and improve patient care.
- Innovative collaborative funding models to ensure effective collaboration between cancer specialists and immunologists so that research expertise can be shared to best effect in developing the UK’s capacity and capability for cancer immunotherapies.
- Adequately preparing patients for immunotherapy and matching expectations with clinical reality.
- Providing more support and integration for the introduction and long-term use of new immunotherapies across the spectrum of NHS activities to ensure that service areas have the capacity and facilities needed to fully optimise the benefit for patients.