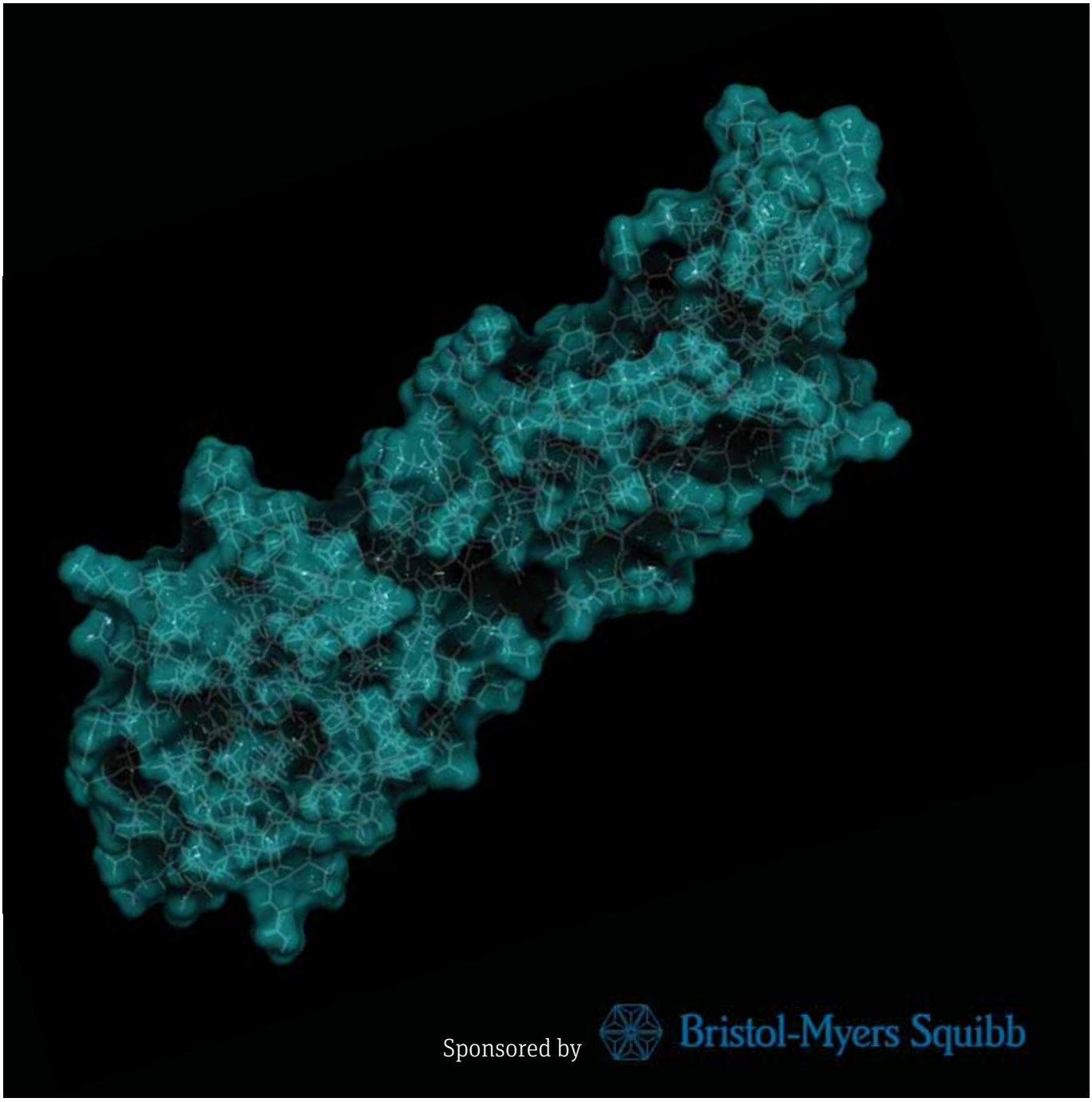
NewStatesman

Immuno-oncology

A game-changer for cancer treatment?

Cally Palmer / Nicola Blackwood MP / Gill Nuttall / John Baron MP

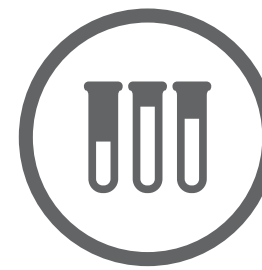


A new kind of treatment

Immuno-oncology (I-O) is a new arm of attack against cancer. It helps the body's own immune system fight the disease, and for some patients, the results are revolutionary.

Surgery
Surgery can offer good results, especially when deployed early, but it can leave cancer cells behind.

Radiotherapy
Radiation can be locally targeted in a similar way to surgery, but it can also damage healthy tissues and have other side-effects.



Chemotherapy
Chemotherapy offers a more widespread attack on cancer cells, but may also cause systemic and debilitating side-effects.

Immuno-oncology (I-O)
Rather than trying to directly destroy cancer cells, I-O removes the ability of cancer cells to defend themselves against the body's immune system. The body itself is then able to destroy the cancer as it would an infection, such as a cold.

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"Innovation, by any definition"

The *New Statesman* invited leading oncologists, patient groups and experts in public health to Westminster to discuss immuno-oncology's potential, and how this transformative technology can become 'business as usual' within the NHS

Professor Mark Middleton, Professor of Experimental Cancer Medicine at the University of Oxford, began with a succinct explanation of immuno-oncology as the "fifth arm of attack" in fighting cancer. Middleton said what excites oncologists about immunotherapy is "that we're starting to see the potential of perhaps a cure for the metastasis side of solid tumours, solid tumours which have spread, which we haven't really had a weapon against up until now."

Dr Nadia Yousaf, Consultant Medical Oncologist at the Royal Marsden, agreed that "it's a very exciting time for us as oncologists. This is an opportunity to give people the sort of treatment that may result in a cure. The frustration, however, is picking those patients that will benefit most from this treatment. And that represents the biggest challenge for us on this front."

Gillian Nuttall, CEO of Melanoma UK, described what she'd seen from the perspective of patients: "It's been great news for patients. They're not glad that they've been diagnosed, but they're in a better position, because they know that there's the potential for there to be something that's good for them. We've moved on from a three to six-month life expectancy 10 years ago. We're now seeing patients that have been on treatments for two, three, four years plus. Obviously, not all of them benefit from it, but patients have much more hope than they had when I first came into this arena."

Richard Robinson, Associate Director of Policy, Advocacy and Government Affairs at Bristol-Myers Squibb (BMS), pointed out that "BMS developed and launched one of the first of these new oncology treatments – a checkpoint inhibitor – five years ago. It was a very different world then. There are now thousands of clinical trials going on worldwide with immuno-oncology treatments. And it doesn't take much imagination to consider that if just some of those come through from the laboratory bench through clinical studies to the patient's bedside, although exciting, the implications for the NHS, for patients, and for our whole system generally, are quite considerable."

Gillian Nuttall remembered "a young man with a couple of children" who had been suffering from advanced melanoma. "And I think he'd been told, effectively 'this is it'. He and his wife had decided which songs they were going to have at the funeral. He was on a clinical trial, a very early one, but his wife got up one morning and said 'that one's gone, and that one's gone', and that was 2007. He's still here. So for him to be able to tell that story, and go back to work and watch his kids continue to grow up, is just amazing."

Mark Middleton agreed that "if this was just about melanoma, it would be hugely exciting for people like Gill and people like me and so forth. But this about all of cancer. This is non-small-cell lung cancer, this is bladder cancer, this is head and neck cancer. This has activity in certain types of breast cancer, in colon cancer. It is even starting to reach cancers that chemotherapy hasn't been able to touch."

"It's a long way from being a panacea. But as a clinical director for cancer in an NHS hospital, the excitement and the challenge for me is that it's not just one per cent of incident cancer. It's probably going to be across the board – 20, 30 or 40 per cent of patients."

To get to that point will take time. While some patients respond well to I-O, there is no surefire system for saying which patients will benefit from it, and which won't. Nadia Yousaf explained that "In lung cancer, our adoption of immunotherapy has been a bio-marker based adoption. We're looking at PDL1" – a protein found in cell

Morfydd Williams, Programme Director of National Cancer Services at NHS England

membranes that may help cancer cells evade the patient's immune system – "as a bio-marker for whether immunotherapy will work or not."

But while this approach does offer some insight, Yousaf said that "it's imperfect as a bio-marker. I've seen patients with 100 per cent PDL1 staining with their tumours that didn't have responses; and I've seen patients that have had excellent responses with very little PDL1 staining. So I think PDL1 is only one part of the story. I think we need to look a bit harder to see what it is that can help us predict response. I think we need something more robust. I think it's for academic medicine to take up that challenge."

Mark Middleton added: "There's a responsibility on industry, as well, to identify those bio-markers. We just don't understand why it works in some patients and not others, so going all the way back to fundamental processes and investing in research all the way along the line is absolutely vital."

"It reaches cancers that chemotherapy can't touch"

Richard Henry, President of the United Kingdom Oncology Nursing Society, highlighted that knowing which patients I-O can help is of paramount importance in a society in which patients are better informed than ever about new research. "More and more patients are finding out about this. Some are actually self-funding these drugs, when there's no guarantee that they are going to work, and may in fact have adverse effects. I think there's a big responsibility on all of us to manage expectations."

Henry continued that the increased longevity I-O brings to some patients also raises questions about "how we deliver that drug, and how we support people thereafter, for what could potentially be a very long time. Many of these patients may be getting maintenance doses for months, even years. They may need a lot of support in terms of symptom management. One of the big things is early identification of side effects, and we need an experienced and knowledgeable workforce that is able to do that. A lot of the current care may be managed, ultimately, by primary care."

For Middleton, however, this raises a fundamental question, and an opportunity, for revisiting how care is structured to accommodate a changing situation. "The closest analogy is probably renal dialysis 40 years ago. If you go back 40 or 50 years, renal dialysis was a little bit like oncology treatment is today. It was a specialised hospital activity - patients came to the big ivory tower, received their treatment and went away. Then it became clear that you could apply dialysis to everybody - the 90-year-old, the 15-year-old, it didn't have to be the 35-year-old athlete. They developed satellite dialysis units with one or two 'super nurses' for routine treatment, and only the patients who needed the ivory tower, got to the ivory tower. So that's one of the questions - whether all of this needs to be done by a hugely specialised workforce. Whether actually some of it, is routine and can be done by a semi-skilled or less skilled workforce."

For Richard Henry, though, "the nearest comparison is acute oncology," in which "specialist oversight is essential. If I were a patient, I would want to think that my care was being managed by somebody who knows what's going on here, knows something about the drugs I'm ▶

getting and about the potential side effects, and can advise."

Middleton responded that "treatment management is not the same as treatment delivery. I think that's what's got to be decoupled."

"Your comments around workforce," observed **Morfydd Williams**, Programme Director of National Cancer Services at NHS England, "feed into a lot of discussions that we're having in terms of what the future cancer workforce needs to look like. Do we always need cancer nurse specialists, who are quite rare? What is that support that we need to put in place? How do we allow patients access back into the service quickly? There's a real complexity in terms of making sure that we put in structures which enable patients to be supported and gain access into going back into a service, but which operate at the right level. If we look at individual GP practises, we're going to struggle at that level. Primary care services should perhaps be organised in terms of looking at a broader population, across multiple CCGs, and we should talk about cancer alliances. We need to make sure that we've got experts who have a sufficient population to be experts across."

For Mark Middleton, "adopting an incremental approach is missing a massive opportunity. This is hugely different from what's gone before, and it doesn't necessarily map onto existing structures."

Emlyn Samuel, Senior Policy Manager at Cancer Research UK, followed up by asking "how can industry support [the NHS] in considering those questions and delivering those solutions? Rheumatology is a good example of where industry has played a role in shaping, designing and delivering homecare solutions, which have had huge benefits for patients and the patients' convenience." Samuel said this has also had benefits for the NHS, "because the NHS happens to get a 20 per cent VAT saving through the delivery of homecare medicine."

"We've got to understand the pathways," said **Martin Grange**, Trustee at the Roy Castle Lung Cancer Foundation, "not just the patient pathways but the diagnostic pathways. Because when we do that, we could find huge meanders, sometimes, with new technology. If a patient is initiated in a major centre and goes back to be managed more locally, they need to know that they can go straight back to the hospital, with someone who knows how to manage their situation. One of the issues with a top-down approach is that it doesn't gather all that information and all that learning, because this is something we've never been able to do before. It's going to take us a while. We've got to actively organise the structure, gather data and inform and close the loop, so got a spiral of improving expertise."

Samuel noted that "there's lots of work going on locally that we can learn from. We're doing some work with some vanguard sites in the north-east, designing pathways with new oncology patients, regardless of the type of cancer they have, to try and identify ways to improve delivery and outcomes."

At this stage, many patients simply – and understandably - want to be treated at what they perceive as the highest centre of excellence. "That's only natural," said Gillian Nuttall. "Because of social media, you will have a group of patients who are very vocal and they will talk about the ivory towers, as we've described them, and that's where they want to be."

"The challenge," agreed Mark Middleton, "has to be to explain to people where particular expertise is necessary and will make a difference, and where actually it's not appropriate, and they will get excellent care, with the same outcomes, locally."

But the attraction of certain hospitals remains, Nadia Yousaf explained, because "In my experience, the reason that people want to be treated at places like the Marsden is because of access to clinical trials. The key there is to make information more readily available as to what trials are going on where, so that patients can easily move to the centre if there's an appropriate trial and easily move back to their local hospitals when the same standard of care can be delivered there just as easily."

For patients to get immunotherapy outside of a clinical trial – in any setting – the NHS will need to ensure they have widespread access to these new treatments. The Accelerated Access Review, published in October 2016, aimed to streamline the process of bringing new technologies such as immunotherapy to patients, and to bring forward patient access by as much a four years in some cases.

Richard Robinson said that the next step for the AAR is "an implementation plan. And really critical to that is NHS involvement in the plan and the delivery. There is a risk that the AAR is seen as a government-created review that's dropped from on high, something the NHS isn't ready to implement. And that would be a terrible waste." Robinson highlighted the AAR's "important recommendations around reforming and modernising NICE processes, which if done rightly, could mean that patients in England and Wales have access to some of these new, innovative treatments where they may otherwise not."

Robinson said the AAR is particularly relevant to I-O: "the idea of choosing a relatively small number of innovative products and accelerating those into the system is potentially very exciting. Depending on the criteria you use for what is innovative, immuno-oncology could fall into that. It's notable that of the 10 medicines that have been selected for the UK's Early Access to Medicines Scheme since it launched, at least half a dozen have been immuno-oncology agents for various indications."

"Patients see this as their future"

Mark Middleton saw in the AAR another point at which system-wide change could be effected: "My challenge would be that if you want to break the mould, is it about I-O being the innovation, rather than the individual products within it?" Middleton spoke of "challenging industry to engage differently", and even went so far as to suggest that pharmaceuticals could follow an on-demand business model: "how long before we actually subscribe to, rather than buy, a drug?"

While pharmaceutical companies are perhaps unlikely to adopt the Netflix model, Richard Robinson nonetheless agreed that the access question requires inventive thinking: "It takes 17 years, on average, for a medical innovation to become widely used across the NHS. There is a lot of work to be done to overcome these delays and there are lots of interesting things we can do, working with the NHS, to improve patients' access to medicines."

Rather than circumventing the painstaking process of NICE approval, Martin Grange recommended "helping companies do some of the preparative work for NICE, in conjunction with their late stage development."

On the NHS side, Morfydd Williams acknowledged that "we've focused very much on getting the building blocks in place for how we're going to deliver change across the NHS. It felt to us that that was the place to focus on in this past year, because any change we're delivering is going to be through that infrastructure." Williams spoke of the need for "solid evidence and data to understand how exactly the recovery package is delivered. Where it is delivered and where the gaps are."

"If we want to make I-O normal, business as usual, then what are all the routes that we need to look at? What steps do we need to take now in order to launch that service model? We're looking at relationships between community-based settings and expert centres." Williams continued that "it's also about I-O as a whole, and not just looking at individual projects. We need to think about what an I-O service looks like."

Asked to sum up what they'd most like to communicate about I-O, the table was unanimously enthusiastic about the potential of the treatment. From the patients groups, Martin Grange said that "the person's immune system is the most powerful thermonuclear warhead we've ever had" in the fight against cancer, while Gillian Nuttall reported that among many of the people she speaks to, "patients see this as their future." Oncologists Nadia Yousaf and Mark Middleton described I-O as "a great innovation… potentially a game-changer" and "innovation by any definition". Emlyn Samuel summed up that I-O comes with both great potential, and a need for new approaches: "A multitude of factors need to be considered as we make this business as usual in the NHS – the funding environment, NICE methodology, and the delivery side. How do we make sure that we have a service that can deliver high quality in any setting? It's a challenge for NHS England, and for the government as well."

Bristol-Myers Squibb sponsored this event. Contributors were not paid and their views have not been edited by BMS.

BY THE NUMBERS

Cancer treatment in Britain, Europe and the wider world

Is Britain delivering on cancer treatment?

John Baron, MP for Basildon and Billericay and Chair of the All-Party Parliamentary Group on Cancer discusses the evolution of cancer treatment so far and the strategies the NHS must adopt to continue its progress

What are the main changes you have seen during your time as Chair of the All-Party Parliamentary Group on Cancer (APPGC)?
The last parliament saw a shake-up of the NHS through the Health and Social Care Act. There were two overarching themes – reorganisation and a focus on outcomes. The APPGC were never in favour of the former, and made this clear to Andrew Lansley at the time, but we remain very supportive of the latter.

As a result, and for almost the first time in its history, the NHS is now moving towards assessing the success of its treatments, rather than the volume. This is excellent news for patients and their families, as emphasis is placed on the quality of healthcare, rather than merely meeting targets for the number of procedures.

NHS England published its latest Cancer Strategy in July 2015. What progress has been made towards delivering its aims?
The APPGC's most recent report looked at progress one year on from the publication of the England Cancer Strategy, and considered three main areas: funding, transparency and accountability, and involvement.

The APPGC believes it is imperative that the government continues to show its commitment to cancer by setting out funding pledges for the England Cancer Strategy per year, for each of the next four years, in every area of the cancer pathway.

On transparency and accountability, although progress is being made in key areas, the APPGC believes there needs to be further clarity on how the England Cancer Strategy is being delivered, how recommendations are being rolled out (particularly at a local level) and how this will be monitored.

Moreover, the importance of transparency was emphasised throughout the inquiry, with the Cancer Dashboard and Clinical Commissioning Group Improvement and Assessment Framework being highlighted as two ways to improve cancer outcomes.

Finally, there needs to be a greater effort to involve organisations with expertise and interest in cancer, along with their networks of patients and clinicians, to help shape the roll out and implementation of the Cancer Strategy.

The UK spent 5 per cent of total health care expenditure on cancer in 2014; this is lower than the EU average. Is the government prioritising cancer care appropriately?
Whilst investment is important (the APPGC welcomed the extra funding for cancer services in the Cancer Strategy), structures and prioritisation also have a large role to play. A good example are the cancer networks, which provided valuable support and expertise, particularly to the local NHS. Caught in the gulf between commissioners and providers in the post-Lansley NHS, cancer networks were either disbanded or withered on the vine, allowing a significant pool of knowledge and expertise to ebb away.

Some CCGs, however, have begun to club together to share information and expertise, so in a sense the networks are re-emerging. It will be interesting to see what role Cancer Alliances, the creation of which was one of the Strategy's 96 recommendations, will play in this regard.

One area of spending I have tried to delve into is how our spending on cancer drugs compares with other countries, as I suspect the NHS is not as far ahead in this as we would like to think.

Bristol-Myers Squibb developed the questions for this interview, but had no input into the responses.

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Closing the Cancer Survival Gap

New treatment approaches such as immuno-oncology have the potential to transform cancer survival outcomes, but change is needed if NHS patients are to benefit fully,writes Ben Hickey

Being told that you have cancer is a life-changing moment and it is now estimated that half of all British people born after 1960 will receive such a diagnosis during their lifetime[1]. These patients will face their disease with the support of their families and the care of dedicated healthcare professionals working across the NHS. But while much has been done to improve outcomes, it is an uncomfortable truth that cancer survival rates are lagging behind the rest of Western Europe and, in England, five-year survival remains 10 per cent lower than the European average[2].

The causes of this gap are the subject of ongoing debate but both NHS England and the National Audit Office identify that comparatively poor access to oncology treatment may be one of the main reasons for the disparity[2]. Previous research has shown that the use of cancer medicines in the UK is 33 per cent lower than the European average[3].

If the NHS Cancer Strategy is to be successful in its aim to "improve radically the outcomes the NHS delivers for people affected by cancer"[4], healthcare professionals, the pharmaceutical industry, government and patient organisations will need to work together to improve patients' access to cancer treatments. There has never been a better time to fix the system; these are incredibly exciting times in cancer research. New immuno-oncology treatments – which work by harnessing the power of the patient's immune system to fight the cancer[5] – are demonstrating the potential to improve patient survival across a wide range of cancers[6]. Such advances are arguably the most transformative in decades, leading the American Society of Clinical Oncology to name immuno-oncology (ASCO's) Advance of the Year[7].

The scale of research in this field of science is staggering; there are now more than 2500 immuno-oncology clinical trials underway around the world, representing about a third of all clinical oncology research[8]. With this level of investment from across the pharmaceutical industry, it is estimated that immunotherapies will be used in as many as 60 per cent of cases of advanced cancer within the next ten years[9]. We have an opportunity now to ensure that the NHS is prepared for this wave of medical innovation. If we get it right, the impact for patients could be significant. In his speech at the 2016 Conservative Party Conference, the Secretary of State for Health, Jeremy Hunt, alongside other aspects of the Cancer Strategy, explained how access to new immuno-therapy treatments could help save an estimated 30,000 lives in the UK each year[10].

Access to cancer treatments in the UK

Over the past decade the National Institute for Health and Care Excellence (NICE) has been more likely to reject new treatments for cancer than those for other conditions, with just 58 per cent of cancer medicines recommended for NHS use between 2006 and 2014, compared with 85 per cent for non-cancer treatments in the same period[11]. Some progress has been made in recent years and the introduction of the Cancer Drugs Fund (CDF), which was established in recognition of the limitations of the NICE assessment model when appraising cancer medicines[12], led to tens of thousands of patients accessing treatments not routinely available on the NHS[13]. However, the CDF has now been overhauled and no longer provides the same function[13,14], leaving a missing piece in the jigsaw of access to cancer medicines. Meanwhile, the limitations of the NICE assessment model remains a problem which still needs urgent attention.

With the introduction of increasingly innovative treatments which offer significant potential improvements for smaller patient populations, there is a danger that it will be increasingly difficult to get new cancer treatments through the NICE appraisal system. This is a view shared by cancer charities including Breast Cancer Now, Leukaemia Care and Bowel Cancer UK who have expressed their "deep concern" about the "lack of reform proposed to the wider NICE processes of appraising cancer medicines"[15].

What needs to happen?

As the recently published Accelerated Access Review (AAR) recognises in its recommendations to Ministers , we now need to evolve the process for assessing emerging treatments[16]. This could particularly benefit a number of new and emerging treatments like immuno - oncology therapies, to enable faster access and unlock their true potential. There are a number of changes that could help deliver this goal and help improve cancer survival rates . Firstly, NICE technology appraisals should evolve to incorporate a broader system of value assessment that is explicitly pro-innovation and sufficiently flexible to appraise treatments in all therapy areas, including cancer. Bristol-Myers Squibb firmly believes that changes are required to the appraisal process to distinguish between the effects of standard chemotherapy and innovative cancer therapies. The voice of the clinician and patient should remain central to the process. Secondly, we need greater flexibility in the pricing system so the NHS can tailor payment to a drug's use for a particular disease, and even the outcomes it provides, rather than the current one-size-fits-all approach. Finally, it will be important for regulators, the NHS and pharmaceutical industry to work together on improving the collection of so-called "real world data" to demonstrate the outcome of new treatments in NHS use.

NHS England restrictions

The AAR is a welcome first step in the right direction and Bristol-Myers Squibb looks forward to working with the Government and NHS to accelerate the uptake of new treatments. However, there is a risk that any progress will be undermined by new restrictive approaches proposed by NICE and NHS England. A consultation document published in October 2016 included proposals that could limit or delay patients' access to some NICE - approved treatments[17]. Restrictions would be triggered where treating patients in line with a NICE recommendation would have an impact on the NHS budget above a certain threshold[17]. When combined with some of the laudable aims of the AAR, the approach would be like stepping on the accelerator and the brake at the same time. It would also run counter to a patient's legal right – described in the NHS Constitution – to treatments that have been recommended by NICE for use in the NHS, if their doctor says they are clinically appropriate[18]. Worryingly, even before the conclusion of the consultation, there is evidence that NHS England is placing restrictions on access to new cancer treatments which have been considered cost-effective by NICE[19].

The NHS faces a challenging financial settlement, but this approach is misguided. The government has agreed a five-year voluntary arrangement with the pharmaceutical industry to protect the NHS from increases in spending on medicines. Through the Pharmaceutical Price Regulation Scheme (PPRS) the industry has made a commitment to underwrite growth in the cost of the branded medicines bill, providing a rebate to cover NHS spending above the agreed threshold[20]. Since the start of the scheme in 2014, the industry has paid almost £1.5bn to the government[21].

A vision for the future

Achieving the goals of the NHS Cancer Strategy will also require cooperation and commitment, leveraging the unique qualities of the NHS and the world-leading strengths of the UK life sciences industry. Scientific advances like immuno-oncology provide great promise; the medicines available today are just the start of a continuing revolution in cancer treatment. To harness its impact, the arrangements for appraising medicines will need to change to reflect their true value, making it easier for patients to access new and innovative treatments. Patients deserve a system which is explicitly pro-innovation and sufficiently flexible to deal with these rapid advances in cancer research. If successful, we can close the cancer survival gap and help reach the Cancer Strategy's goal of radically improving cancer outcomes for everyone.

Ben Hickey is the General Manager of Bristol-Myers Squibb UK and Ireland.

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Immuno-oncology: the patient perspective

Jon Herron spent part of his 29th birthday laid on a surgery bed, having several lumps removed from his neck and head. Diagnosed with melanoma in 2002 and again in 2006, it was only a matter of time before the disease would take hold.

By 2007, clinical trials remained a last option for Jon and he received tests to see if he would be eligible. However by this point his condition had spread to his brain and he was deemed too unwell to take part in the trial. Sadly Jon passed away in May 2008, just a month after his 30th birthday.

Jon's story is a reminder that the treatments now available on the NHS were once a distant dream. Historically, advanced melanoma has been associated with a very poor prognosis and clinicians faced an extremely difficult task with limited treatment options.

Indeed, chemotherapy was the only available treatment option and this approach produced neither significant survival benefits nor was it easy to tolerate. On average, patients lived for an average of 8-10 months, with only about 10per cent or fewer surviving longer than 5 years.

Despite this outlook, there was considerable excitement about the emergence of immunotherapy treatments. These drugs worked by supercharging the immune system to fight back against the melanoma and it was generally felt that this approach had the potential to be the most exciting development in cancer for many years.

Gill Nuttall founded the patient group Melanoma UK after a close family friend died from the disease. Here, she outlines how pioneering treatments such as I-O could change such outcomes

Eight years on from Jon's death, a number of these treatments are available on the NHS for melanoma patients, and we now have real evidence of their ability to halt certain cancers. Indeed, a diagnosis which was previously seen as a death sentence now has the potential to be viewed as a manageable disease. This is, understandably, a cause of considerable excitement.

Of course, these treatments are not without side-effects and the NHS needs to work with patients to support them throughout this process. However, one of the big questions currently surrounding immunotherapy is how long it can extend survival. These treatments have not yet been around for long enough for us to know the full extent of the benefits they can provide. The big hope amongst the melanoma community is that immunotherapy might be able to teach the body to recognise or eliminate cancer cells before they form a tumour.

This is something that every melanoma patient and family member sees as a truly remarkable concept.

Melanoma UK gives patients and their families support during the very difficult times faced upon diagnosis. The charity works with patients, clinicians, with NICE and as part of the parliamentary melanoma task force to help develop cancer policy.

Achieving world-class cancer outcomes

NHS England's National Cancer Director, Cally Palmer, outlines how the NHS plans to reduce preventable disease and improve outcomes over the next three years

In early 2015, the independent Cancer Taskforce set an ambitious task for the NHS – this included making significant progress in reducing preventable cancers, increasing cancer survival, improving patient experience and quality of life by 2020.

More people than ever are now surviving cancer – with 2,400 more cancer survivors over the past year thanks to improved NHS cancer care. However, we know we have more to do.

We have access to some of the greatest research and best technology in the world and we need to use this expertise to ensure that all patients, no matter where they live, receive the best possible cancer care.

Rapid progress is being made on putting the infrastructure in place that will help improve survival and patient experience.

We have established sixteen Cancer Alliances bringing together GPs, hospital clinicians and other local leaders to lead implementation of the strategy locally and test more effective and efficient ways to plan, pay for, direct and deliver services for patients.

We know early diagnosis is crucial to improving survival and for most cancers the earlier a cancer is caught the more likely treatment is to be successful. With this in mind, we have put significant focus on early diagnosis from getting people into the system as soon as possible, through screening and symptom awareness programmes, to ensuring a quick response to make a diagnosis. This includes a National Diagnostics Capacity Fund to support new ways to increase capacity and productivity of diagnostic services and testing the new Faster Diagnosis Standard. The ambition is for patients referred for testing by a GP to be definitively diagnosed with cancer, or have cancer ruled out, within four weeks.

In October, NHS England launched its biggest upgrade to NHS cancer treatment in 15 years, announcing a £130 million fund to modernise radiotherapy care.

Around four in 10 of all NHS cancer patients are treated with radiotherapy. Radiotherapy is one of the three main cancer treatments, alongside cancer surgery and chemotherapy. This investment will enable better outcomes, with improved quality of life for patients and reduced NHS costs in the long term, through patients experiencing fewer side effects.

Finally, our workforce is key in helping ensure the best treatment and care is provided. It is therefore crucial that we invest and support them in delivering the highest quality treatment. The taskforce recommended the need to address shortages across the workforce and progress is being made in this area. This year, 40 nurse endoscopists will begin training, in line with the target to train 180 more nurse endoscopists by 2018.

The Taskforce set an ambitious and challenging programme of improvements for the health system, including 96 recommendations. Alongside some of the key early priority areas mentioned above we have taken forward, we remain determined to implement the full vision of the Taskforce and our progress is set out in our Annual Report "One Year On", published in October 2016.

The NHS is in a good position to achieve the Taskforce recommendations by 2020 and to ensure that we can improve prevention, survival and quality of life, and provide the best cancer services to patients everywhere.

Accelerating access to innovation

Nicola Blackwood MP explains how the Accelerated Access Review has helped to speed up the process of delivering drugs to the market and how this will revolutionise the UK's cancer care

What can be done to get medical advances to patients more quickly?
We want to be at the cutting edge so that patients get the best, targeted care as soon as possible. That's why the Department commissioned the Accelerated Access Review (AAR), which looked at gaining quicker access to innovative new diagnostic tools, drugs, digital healthcare and medical technologies. We know that the current process for getting a new product onto the NHS market can be lengthy and complex – so I'm really pleased that the AAR has suggested streamlined processes that could bring forward access to drugs by up to four years.

We are also seeing some really exciting work coming out of the NHS Testbeds. Each of these is tackling a major health challenge – diabetes, heart conditions, asthma and more – in a new way. For example, the Surrey and north east Hampshire dementia testbed is providing individuals and their carers with sensors, wearables, monitors and other devices, which will combine into an 'Internet of Things' to monitor their health at home.

The information from these devices will help people take more control over their own health and wellbeing, and the insights and alerts will enable health and social care staff to deliver more responsive, joined up and effective services. This hopefully should translate to more personalised care, helping people maintain their independence and quality of life.

Testbed projects like this, coupled with the fast-tracked funding announced by NHS England in the summer which will reduce the hassle experienced by clinicians and innovators in getting innovation to the frontline, and programmes like the NHS Innovation Accelerator (NIA) and the work of Academic Health Science Networks across the country, shows how seriously we take this agenda.

Of course, we can – and must – go further. We still need to work hard to support the NHS to embrace new ways of working, and the new technology that goes with it. Without streamlining the process for innovation our patients will be at a disadvantage. I want everyone to

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Help people take more control over their health

get the best care possible. These projects are a key step towards getting great new breakthrough treatments and supporting the NHS of the future.

How will the AAR help prioritise the use of innovative new treatments?
A key recommendation in the Accelerated Access Review report is the creation of the Accelerated Access Partnership. This will see NHS England, NHS Improvement, NICE AND MHRA coming together to prioritise innovations, based on patient need and accelerating patient access to key products. Through the new Partnership, innovators would be able to access joined-up help with clinical development, regulation, and assessment of cost effectiveness. This will help patients in the UK to benefit from the revolution in health technology as quickly as possible.

People are now living longer with cancer. How do cancer services need to adapt to reflect this?
We want to be a world-leader for cancer care, and this is something Jeremy Hunt has spoken about passionately and also personally, having lost a loved one to cancer himself.

We are transforming our approach to supporting people living with - and beyond - cancer. As part of this we announced in September 2015 that by 2020, the 280,000 people diagnosed with cancer every year will benefit from a tailored recovery package. These packages, developed in partnership with Macmillan Cancer Support, will be individually designed to help each person live well beyond cancer, including elements such as physical activity programmes, psychological support and practical advice about returning to work.

Thanks to improvements in survival and detection, and our growing older population, an estimated 2 million people in England have had a cancer diagnosis - and that number is projected to rise to 3.4 million people in 2030. We are determined that people should have personalised care that helps prepare them for the consequences of their cancer and its treatment.

What are the aims of the NHS England Cancer Strategy, and what progress has been made to implement it so far?
The Cancer Strategy was a fantastic piece of work that has the potential to help us make huge strides in improving our response to the disease. The government accepted all 96 recommendations in the Strategy and work is underway to deliver them.

The priorities in the strategy cover everything from prevention and early diagnosis to overhauling commissioning, accountability and provision. It looks at early diagnosis, patient experience, investment and living well beyond cancer – so it's really comprehensive and NHS National Cancer Director Cally Palmer and her Transformation Board are making good progress in implementing it already.

Immuno-oncology has been described as 'transformative' – what does this mean for patients?
The new class of immuno-oncology drugs coming onto the market certainly have the potential to make a real difference to patients in terms of better survival rates and improved patient outcomes. This is a fascinating field and we are keen to harness the power of these new drugs while delivering excellent value for money for the taxpayer.

The National Institute for Health and Care Excellence has already recommended immuno-oncology drugs such as ipilimumab (Yervoy®), pembrolizumab (Keytruda®) and nivolumab (Opdivo®) for use in the treatment of skin cancer, which means that they are now routinely commissioned by the NHS.

NICE recently recommended nivolumab for use in kidney cancer (renal cell carcinoma) and it is currently developing guidance on immuno-oncology drugs for other types of cancers as well, including head and neck and lung cancers.

Bristol-Myers Squibb a leader in Immuno-Oncology

What if we take a different approach to fight cancer by harnessing the potential of the immune system?

Immuno-Oncology is a rapidly evolving field of research that focuses on working directly on the immune system in the fight against cancer.[1] As our understanding of how cancer evades the immune system continues to evolve, the potential of Immuno-Oncology continues to drive our research efforts. At Bristol-Myers Squibb, we are committed to researching and developing innovative new treatments that can help patients in their fight against cancer.

Bristol-Myers Squibb

Immuno-Oncology

Reference: 1. DeVita VT Jr, Rosenberg SA. N Engl J Med. 2012;366:2207-2214.

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