THE NEW STATESMAN

The Report

The UK's mRNA opportunity
Growth, resilience, leadership

Symposium Policies to make mRNA the next strategic growth engine

Lord Vallance Placing life sciences at the heart of UK industrial strategy

Better together Behind the ten-year Moderna-government partnership

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mRNA evolution

Messenger ribonucleic acid (mRNA) tells cells how to make the proteins keeping us alive and healthy. Harnessing it, scientists can teach the body to make its own medicines. The subject of a 1965 Nobel Prize for François Jacob and Jacques Monod, advances in lipid sciences in the 1970s laid the foundations for the mRNA vaccine revolution to come.

2008

2008: BioNTech is founded in Mainz, Germany, to develop and produce mRNA treatments for cancer

2010

2010: Moderna, combining the words "modified" and "RNA", is founded in Cambridge, Massachusetts, USA

2012

2012: BioNTech starts first phase 1 cancer trial of investigational mRNA therapy

2015

2015: Moderna initiates first-in-human respiratory infection trials of an mRNA vaccine

2020

March 2020: BioNTech and Pfizer announce collaboration to develop a potential mRNA Covid-19 vaccine. Moderna announces first participant dosed in phase 1 study of potential mRNA Covid-19 vaccine

2020

March 2020: The WHO declares Covid-19 outbreak a global pandemic, which accelerates research into the use of mRNA for potential Covid-19 vaccines

2020

December 2020: The Medicines and Healthcare products Regulatory Agency (MHRA) grants temporary emergency use authorisation for the first mRNA Covid-19 vaccine

2020

December 2020: First person in the world (outside of clinical trials) is given a Covid-19 vaccine, at University Hospital in Coventry

2022

December 2022: Moderna signs a ten-year strategic partnership with the UK government to advance mRNA and build a state-of-the-art manufacturing and R&D facility

2025

May 2025: BioNTech announces significant UK investment to support mRNA R&D in London and Cambridge

2025

September 2025: Moderna is authorised by the MHRA to supply British-made Covid-19 vaccines to the UK population. The Moderna Innovation and Technology Centre is officially opened

Comment

Stéphane Bancel
CEO, Moderna

"The countries that lead in life sciences will be those that translate scientific excellence into population impact"

During the pandemic, the UK moved fast and got so much right. In the wake of Covid-19, as governments re-evaluated their preparedness, the UK continued to act decisively. Just two years after Covid-19 entered our world, the UK government forged a ten-year strategic partnership with Moderna to create a world-class hub for mRNA research, development and manufacturing.

For Moderna, choosing the UK was easy. With its highly respected regulatory system, leading scientific talent, and a unique ability to link health data, genomics and clinical research, the UK offers one of the most dynamic ecosystems in the world to advance mRNA science and deliver public health solutions and economic impact.

Located in Harwell, Oxfordshire, the Moderna Innovation and Technology Centre (MITC) is a purpose-built centre for cutting-edge mRNA research, development and manufacturing. Unlike traditional approaches that are built molecule by molecule, mRNA is versatile, programmable and fast, enabling the development of vaccines and treatments at pace.

mRNA was involved in the Covid-19 response and is now being explored across areas such as cancer, rare diseases and immune disorders. MITC provides the UK with the ability to manufacture and test vaccines at speed and scale in the event of a pandemic. It will also serve the country in endemic times: seasonal respiratory and viral illnesses are major contributors to NHS winter pressures and workforce absences.

Moderna's investment in Britain is as much about driving growth as it is about health. This collaboration is a model for how government and industry can drive a mission-led approach to health and economic policy. Through this partnership, Moderna will have created a projected 150 highly skilled jobs in the UK by the end of this year, while strengthening supply chains and scientific research.

We have launched 24 clinical trials across 124 sites in the UK since 2021. We were proud to welcome the Secretary of State for Health and Social Care to formally open MITC on 24 September 2025. In under two years, we moved from ground-breaking to operational - virtually unheard of for a facility of this scale and complexity.

This level of immense progress has only been possible thanks to extraordinary partnership working across government and the NHS. Many people have played a crucial role in making this vision a reality. Their shared ambition, pragmatism and problem-solving has made the UK not just a good partner, but a great place to innovate, invest and do business.

Sustained policy leadership has been critical to this progress. The UK government's industrial strategy positions life sciences as a key driver of economic growth, while the 10-Year Health Plan's commitment to embed innovation across the NHS shows serious intent to turn ambition into impact.

The UK placed a bold, strategic bet on mRNA, positioning itself as one of the leading global hubs for mRNA science and innovation. It is now seeing the results. In less than three years, we've gone from a partnership agreement to operational capability, building not just a facility, but a national asset for innovation, resilience and growth.

The countries that lead in life sciences will be those that can harness medical breakthroughs and translate scientific excellence into population-level impact to improve outcomes, ease pressure on health systems, and drive economic growth through increased productivity and smarter use of limited resources. With a unique ecosystem, strategic clarity and growing ambition, the UK is exceptionally well placed to be that leader. Now is the time to invest, replicate what works and deliver the future of health innovation to boost outcomes, ease system pressures and unlock economic growth.

MODERNA

How can mRNA become the UK's next strategic growth engine?

From cancer and respiratory illnesses to rare diseases, mRNA offers promise. Can Britain turn it into an economic superpower?

The rapid development of Covid-19 vaccines showcased the speed and flexibility of mRNA technologies. In the years since, researchers and policymakers have begun exploring broader applications – from oncology and rare diseases to emerging infectious threats.

With world-class universities, a single-payer health system, and established life sciences clusters, the UK is well placed to lead. Yet translating that potential into a strategic growth engine requires more than research excellence: it depends on regulatory innovation, data integration, dedicated infrastructure, and sustained political will.

The UK's Invest 2035 industrial strategy positions life sciences as one of eight priority growth sectors and aims to foster long-term investment certainty, boost productivity, and ensure global competitiveness. The question now is: how can the UK best embed mRNA at the heart of that ambition?

We asked experts from industry, academia, and policymaking for their thoughts.

Darcy Ward

Senior policy analyst, Tony Blair Institute

To realise the potential of mRNA, the UK must embed trial delivery within its robust, data-rich environment. In 2024, the TBI proposed the creation of a National Data Trust to consolidate fragmented health datasets from sources such as NHS Secure Data Environments, CPRD, Genomics England and UK Biobank. This vision began to materialise in April 2025 with the announcement of the Health Data Research Service, backed by £600m in joint funding from the UK government and the Wellcome Trust.

Attention now turns to delivery. The HDRS must evolve into a government-owned, commercially structured vehicle that can unlock anonymised, linked, and interoperable health data in a secure, ethical, and transparent manner. It should

Life sciences are integral to the government's economic ambitions. It is vital that policy empowers this vision

build on the existing data for research and development "R&D" programme, while expanding to serve as the backbone of a thriving national clinical trials service, especially for high-potential technologies such as mRNA.

Embedding trial recruitment and delivery within this connected data ecosystem brings several transformative advantages. It would significantly reduce time-to-treatment for conditions like cancer, allowing mRNA-based therapeutics to replace more invasive and time-consuming treatments, benefitting both patient outcomes and national productivity. Embedding clinical trials into a mature data infrastructure could generate £2bn in additional value for the UK economy by 2030.

By integrating a clinical trial service with sovereign, best-in-class data infrastructure, the UK can not only lead in mRNA research but own the full delivery pathway. This ecosystem would make the country the global home for mRNA trials and attract sustained investment in advanced biologics.

Delivering on the HDRS at speed would transform mRNA from a research strength into a scalable, strategic economic engine powering health innovation, industrial growth, and improved outcomes across the UK.

MODERNA

Hamilton Bennett

Executive director, resilience research and development "R&D" and partnerships, Moderna

A unique feature of mRNA lipid nanoparticle vaccines is that the delivery science and manufacturing process is largely unchanged from product to product. Often, only mRNA sequences are altered, to encode for a different protein and thereby creating a new vaccine. This "platform approach" has accelerated the development of dozens of vaccine candidates in recent years.

The UK can turn these platform efficiencies into a national advantage by creating a single, cross-government mRNA "Prevention & Preparedness Pathway", binding regulation, adoption, and procurement into one coherent framework. Treating mRNA as a reusable national capability, ready to be rapidly adapted to emerging threats to public health would empower the system to plan and act at speed, aligning the MHRA, NHS and His Majesty's Treasury behind one predictable route that accelerates its Life Sciences Sector Plan and enhances competitiveness.

A robust, platform-based regulatory approval route would sit at the centre of this framework. Modifying the existing regulatory framework to allow the MHRA to consider platform performance for quality, manufacturing, and clinical safety and efficacy in their assessment of new medicines would provide a robust dataset for review while reducing the time and cost of developing new medicines, ultimately bringing these medicines to the public more quickly.

Once a new medicine is approved for use in the UK population via this pathway, continued monitoring for risk/benefit will be important. MHRA, MRC, NIHR, major academic centers and UKHSA would lead this work by setting the tests, confirming reliable markers, and tracking safety and impact over time, ensuring accelerated pathways are underpinned by robust data, with transparent and reproducible methodologies.

Standing advance market commitments could complement this framework for treatments in priority disease areas. They would be triggered by epidemiological or immunological thresholds and ensure population- ▸

◂ wide deployment once criteria are met. UK-based trials and integrated surveillance – using the UK's first-in-class datasets – would provide the feedback loops necessary to adapt post-market recommendations and standards of care over time.

Such a pathway would shorten the time from antigen design to deployment, and signal that the UK offers a reliable, lower-risk route from lab to population. Patients could gain earlier access to innovative vaccines and therapeutics; the government would send a clear signal that the UK is the primary launch environment for scientifically rigorous, platform-based interventions that support delivery of its policy ambitions; and industry gains the confidence to commit a greater proportion of mRNA R&D and manufacturing to the UK.

Dr Lennard YW Lee

Associate professor, University of Oxford

We need to consider a national Cancer Vaccine Clinical Champion – an independent leader coordinating the disparate efforts across departments, aligning priorities between government and the NHS, trusted by industry to ensure that progress continues at pace.

This role could sit above organisations, reporting directly to ministers, focused on unblocking barriers, accelerating trials, and uniting research and delivery into one coherent mission.

In 2020, we saw what becomes possible when patient need, industry capabilities, and bold government leadership aligns. Our efforts helped deliver life-saving vaccines, tests and treatments to billions. British science and partnership rose brightly, in our moment of greatest need.

Today, that very spirit is rising again, changing lives in cancer centres across the country. That energy drives the Cancer Vaccine Advances.

From a standing start, we built something extraordinary. In a year, we became one of the world's top recruiters into cancer vaccine clinical trials – testing potential vaccines through teams and systems I have been honoured to lead. Teams collaborating, full of belief, skill and determination. Change in health doesn't have to take decades, when it could take years or months.

We can and should deliver more opportunities. National flagship projects go beyond giving hope to save lives – they shine the way for the kind of country we want to be. A UK that backs science. A country with purpose. Belief and confidence to change baked into systems, born out of collaboration, to empower us all to solve our big problems.

Together we have now twice proven what's possible. For infectious diseases and cancer care.

Collaboration and trust are all powerful. When you get the right people in the room, with the right mission, the herd moves. Progress accelerates. And we transform lives.

We need to ensure that everything is in place so that Britain can once again be the transformative science launchpad for health across the world.

Junaid Bajwa

Senior partner, Flagship Pioneering

Create a permanent national mRNA initiative: a standing NHS based infrastructure to design, host, and run adaptive platform trials for mRNA therapeutics and vaccines.

This initiative would institutionalise the crisis-born agility of the Vaccine Taskforce, the efficiency of the RECOVERY trial, and the integrated access model of the Cancer Vaccine Launchpad -where mRNA cancer vaccines are being embedded into NHS care.

Turning that agility into a sustained competitive advantage, the UK would lead in the development and deployment of next generation mRNA technologies.

Key steps might include establishing a national adaptive trial framework; funding dedicated NHS infrastructure and workforce for mRNA trial initiation; aligning the MHRA and NIHR to fasttrack regulatory and ethical approvals; co-investment vehicles to de-risk early stage manufacturing, and embedding systems for real world evidence generation. These measures would lower trial costs and accelerate development timelines.

The UK could become the most attractive environment for mRNA trials, providing patients earlier access to life saving innovations. Critically, this approach would leverage existing NHS digital infrastructure, NIHR, and regulatory alignment to help realise the NHS's strategic vision of being the best possible partner for innovation. This would position the UK as the first market where mRNA technologies are conceived, tested, and deployed, realising the promise of one of the most transformative technologies of our time.

Martin Turner

Director of policy and external affairs, BioIndustry Association

The UK is exceptionally well positioned to become a global mRNA powerhouse, underpinned by a strong academic and research ecosystem, and strengthened by government-backed manufacturing infrastructure that provides a solid foundation for scalable growth.

If a single policy could accelerate this trajectory, it should focus on enabling a forward-looking, flexible regulatory framework. Specifically, the adoption of a "platform approach" to mRNA development.

The MHRA has already shown global leadership in supporting mRNA innovation, and its continued commitment to adaptive, streamlined regulation is crucial.

Given the vast potential applications of mRNA, a platform-based regulatory model would not only reduce time and cost to market, but also enhance the UK's responsiveness to emerging health threats. Embedding this approach would minimise regulatory fragmentation, while building the quality systems, infrastructure, and workforce capability needed to lead in the manufacture of personalised and next-generation medicines. ●

Lord Vallance
Minister for Science, Innovation, Research and Nuclear

"We are on a mission to make sure the next great health breakthroughs happen, and are commercialised, in the UK"

You would be alarmed if a doctor tried to perform a procedure with an unsterilised instrument. Clean tools, hands and wards are a given in modern medicine. But all of this only became a life-saving reality because of Pasteur and Lister's breakthroughs in germ theory and infection.

Since laying the foundations of modern medicine, advances in science and technology have continued apace. Vaccines – which now prevent between 3.5 and 5 million deaths globally each year – are a brilliant example. But we can and will go further. Today, new technologies, including mRNA vaccines, are showing huge potential to dial up responses to many fast-changing pathogens, as well as promise in cancer treatment. Breakthroughs in life sciences make a profound difference to our health and wealth. The rapid pace of progress means this sector's value to the UK is growing further still. This is why life sciences is one of the eight sectors in the government's industrial strategy, with our Life Sciences Sector Plan being implemented alongside the 10 Year Health Plan. We are on a decade-long mission to make sure the next great health breakthroughs happen, and are commercialised, in the UK, leading to more jobs, more growth, and more lives saved.

Building deep and lasting partnerships with industry is a critical part of this. Our strategic partnership with Moderna stands alongside other relationships with leading firms, like BioNTech working on mRNA vaccines and treatments for cancer; and Lilly, developing new ways to support patients living with obesity. Working with industry creates positive change that lasts –such as through government and businesses collaborating to invest in our R&D base, or by maximising the links between industry and the NHS so that health innovations can benefit patients sooner.

As a research nation, we continue to punch above our weight – underpinned by world-leading expertise, world-class institutions, and long-term investment, including the government's record £22.8bn commitment to R&D. And, by streamlining and accelerating clinical trials through the UK Clinical Research Delivery Programme, ensuring that work happens here, delivering medical advances to patients.

Through its novel approach to community recruitment, Moderna became one of the UK's largest industry sponsors of clinical trials in 2024. The partnership also helps to boost our resilience to future pandemics, with Moderna's new facility able to produce up to 250 million vaccines a year if needed. We want such relationships to add up to more clinical trials happening in the UK, more investment in research, more training of PhD students, and more highly-skilled jobs created – supporting the development of innovative medicines, and improved patient outcomes.

A new RNA Biofoundry will help innovators get their ideas out of the lab and into use, simplifying and speeding up the process of making mRNA. An £85m innovation programme we're funding, together with Lilly, will test new ways to support patients living with obesity – something that costs the health service £11bn a year. And work continues in establishing our world-first Health Data Research Service, harnessing the NHS as an engine for data-driven innovation. This is a chance for all of us to contribute, to have our health data used to improve the outlook for everyone now and for the next generation – the sort of founding principle of common good on which the NHS was created.

Through such work – and partnerships supporting it – life sciences in the UK will continue to be a success story. While not every breakthrough will be as game-changing as those of Pasteur and Lister, each has the potential to enhance our economy and public health – causes everyone can get behind.

LAUREN HURLEY/10 DOWNING STREET

The value of vaccinations

Beyond being a public health intervention, vaccinations strengthen communities and help grow the economy

By Dr Fernanda Aguilar Perez

Vaccines save lives every day. The World Health Organisation estimates they prevent between 3.5 and 5 million a year – equivalent to saving one life every ten seconds. At the same time, thanks to the polio vaccine, there are an estimated 20 million people across the globe able to walk today who would otherwise be paralysed.

Vaccinations are some of the most significant medical developments in our history. However, rather than celebrating their immense worth, we are seeing increasing scepticism through questioning the value of vaccines and even removing investment. At a time when vaccine hesitancy is rising, and more working days are lost due to illness, the need to communicate the value of vaccines has never been greater.

There is a positive message, however. Extensive research by Royal Society for Public Health (RSPH) shows that people between the ages of 11 and 70 know vaccines are important to their health. Moreover, concerns about side effects or how vaccines work can be answered with clear and concise evidence.

The value of a vaccine goes far beyond protecting one individual. As a society, we all feel the benefits of mass vaccine uptake. They help protect the NHS, diminish the risk of antimicrobial resistance and ultimately, contribute to the country's economic growth.

Data from the UK Health Security Agency (UKHSA) shows that the flu vaccine alone prevented around 100,000 hospitalisations last winter. This means that, every day, around 820 fewer people needed a hospital bed in winter.

More UKHSA data showed that the vaccine against respiratory syncytial virus (RSV), a virus that can cause serious pneumonia in babies and adults aged over 75, also reduced hospitalisations. The RSV vaccine prevented close to one in three people in England from needing a hospital bed when they contracted the virus. This was even higher in Scotland, where nearly three in five eligible people were spared days on hospital wards. Hospitals will always be busier in winter. Fewer hospital beds in use for preventable infectious diseases frees NHS capacity to treat patients with other conditions year-round.

The benefits of vaccines extend beyond hospitals, easing pressure on GP surgeries too. The number of GP

The need to communicate the importance of vaccines is only becoming greater

SUMMIT ART CREATIONS/SHUTTERSTOCK

appointments needed for people struggling with respiratory conditions, such as the flu, RSV, and pneumonia, decreases when more eligible people get immunised. The reason is quite simple: people who are vaccinated tend not to get ill or if they do, their cases are not so severe. Understanding the significance of vaccines to the NHS is straightforward.

A value that goes overlooked is the link between antimicrobial resistance and vaccinations. The logic is simple: more people vaccinated means fewer cases of infectious diseases. Since people are not infected by these microbes in the first place, these microorganisms have fewer opportunities to mutate into resistant strains.

Fewer people getting sick could also reduce the need for antibiotic use. Put simply, the less often microbes are exposed to antibiotics, the less opportunity they have to become resistant. The impact of vaccines in creating this virtuous circle is significant: research led by the WHO has shown that better use of vaccines could reduce global antibiotic use by 22 per cent or hundreds of millions of doses.

The fact that vaccinations have a positive impact on the economy and contribute to the country's GDP growth may come as a surprise. We tend to think of vaccines as a public health intervention, not as a medicine with an extraordinary knock-on effect for our economy.

The most immediate connection between vaccines and the economy relates to people's productivity.

Society feels the benefits of mass-vaccine uptake

Research has shown that over half of the British workforce works while ill with flu, resulting with their productivity falling by up to 46 per cent. This is called presenteeism: people show up to work, but are unable to work at full capacity.

There are quick wins that can be deployed in the workplace, as we have found in RSPH research on health and wellbeing. Employers can provide simple solutions that enhance workplace health, such as offering an annual flu vaccine to their workers. Flu alone is one of the main reasons why employees miss a day of work. Research from the University of Cambridge shows that 4.8 million days of work are lost in the UK each year to flu, costing our economy £644m. To put this figure in context, this is similar to the extra money the government will allocate to local authorities with social care responsibilities in 2025-26.

We can't divorce this from the broader crisis of ill health in our workforce: one-in-five people of working age is reporting a work-limiting health condition. We are calling for UK workplaces to become key settings for delivering public health interventions. Vaccines are a simple and cost-effective intervention that can be a key part of solving the problem.

Investing in vaccine R&D is also highly beneficial. Vaccine research has contributed significantly to the advancement of many areas of medicine, biology, and chemistry, and has also helped build better laboratories and manufacturing facilities. All of this helps drive economic growth. The Department for Science, Innovation and Technology itself recognised that for every £1 invested in R&D, £7 is generated in net benefits to the UK economy.

High-quality research and the development of new vaccines don't happen overnight. It takes time, commitment, investment and a policy environment that supports the aims. We also need to share the benefits of vaccines more often, which is why publications such as this are so important and why we must, at every opportunity, promote the positive impact of vaccines on our health, the NHS, our economy, and our country. ●

Dr Fernanda Aguilar Perez is a senior policy and research adviser at the Royal Society for Public Health

Moderna's strategic partnership with the UK government

A landmark ten-year strategic partnership sees the UK government and Moderna helping shape the future of health resilience. These advancements are not only taking place at the newly opened Moderna Innovation and Technology Centre (MITC), but also within the NHS and UK universities across the country, through wide-ranging R&D investment, new partnerships, and academic funding.

250 million
The MITC has the capacity to produce 250 million vaccine doses per year in the event of a pandemic, greatly enhancing the UK's pandemic preparedness

120
Having opened in September, the MITC is expected to create 120 highly skilled jobs by the end of this year.

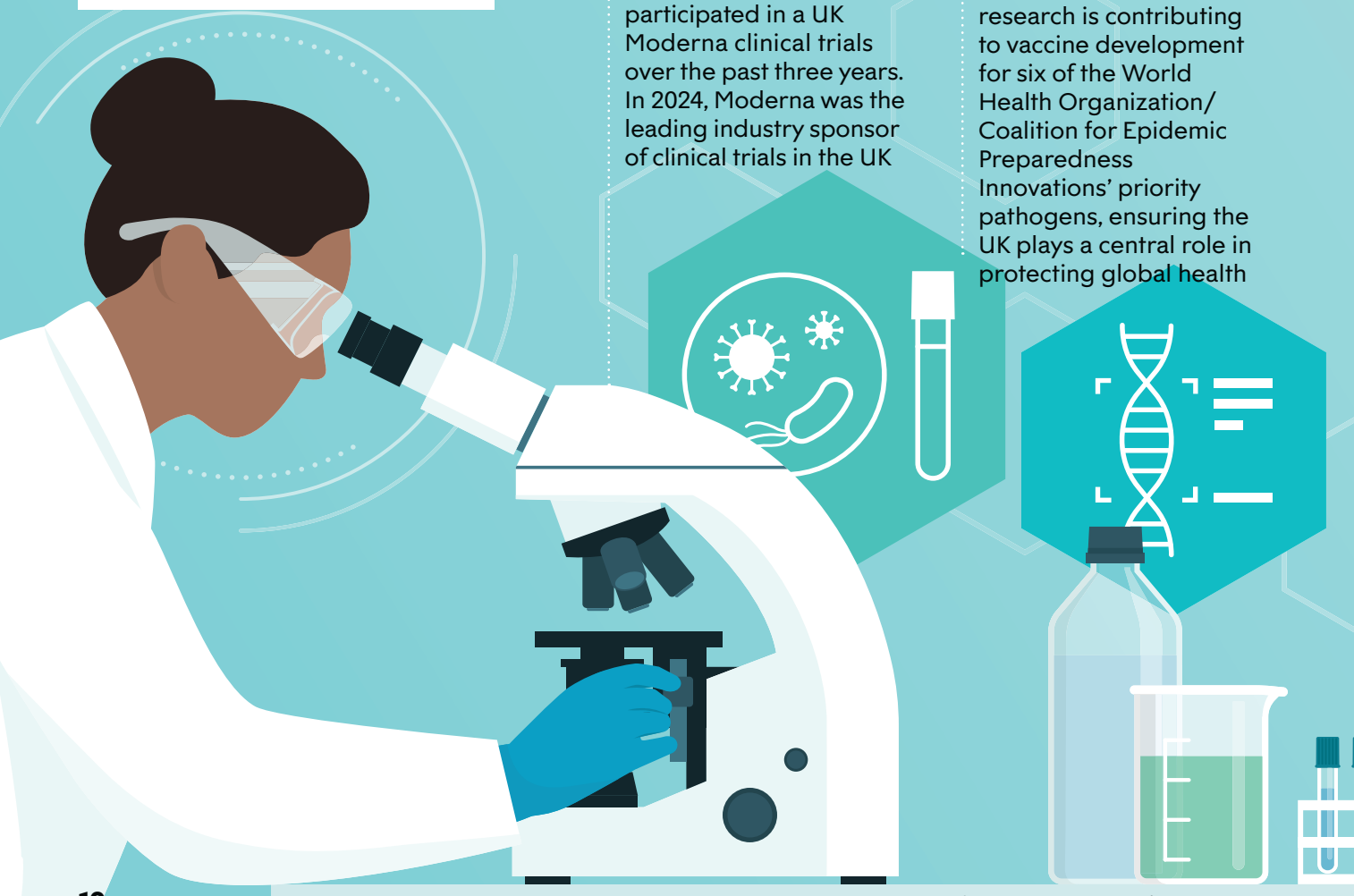
24
Since 2021, Moderna has launched 24 clinical trials across 124 sites in England, Scotland and Wales

12,500+
Over 12,500 people have participated in a UK Moderna clinical trials over the past three years. In 2024, Moderna was the leading industry sponsor of clinical trials in the UK

10+
Since the start of the partnership, more than ten individuals have been funded through internships, PhDs and fellowships, alongside a growing number of students, interns and early career scientists

5
Five mRNA Access Partnerships have been established with researchers at UK universities, to accelerate vaccine research for emerging and neglected infectious diseases

6
Moderna's UK-based research is contributing to vaccine development for six of the World Health Organization/ Coalition for Epidemic Preparedness Innovations' priority pathogens, ensuring the UK plays a central role in protecting global health



Lord Hutton of Furness
Chair of the Association of Infrastructure Investors in Public Private Partnerships (AIIP)

"This model of collaboration between government and business will anchor Britain as a global hub of innovation"

The UK stands at an inflection point. After years of sluggish growth, strained public finances, and mounting demands on our essential services, the government faces an unenviable task: delivering world-class infrastructure and public services in a climate of fiscal constraint.

The answer lies not in retreating from ambition, but in reimagining how that ambition is financed and delivered. That is where a new approach to public-private partnerships (PPPs) comes in.

The scale of the UK's infrastructure challenge, exacerbated by the Conservatives' moratorium on private finance initiatives (PFI) in 2018, cannot be met by the public sector alone. Whether it is upgrading our transport networks, ensuring resilient energy supply, modernising hospitals and schools, or expanding digital connectivity, the investment required runs into the hundreds of billions. Mobilising private capital and expertise is essential to facilitating 21st century public services and unlocking the growth we urgently need.

The National Audit Office's most recent review confirmed that PPP projects are "usually delivered on-time and on-budget". They spread risk fairly, provide predictability for investors, and deliver better value for taxpayers. They also ensure maintenance budgets are protected for the long-term, safe from the cuts of future Chancellors.

There is also an important strategic dimension. The government's industrial strategy will succeed or fail on our ability to create the infrastructure backbone those industries require. From green power generation to research campuses, from new laboratories to low-carbon transport, these projects demand both speed and scale.

We need only look at the life sciences sector to see what is possible. The UK's landmark partnership with Moderna to establish a vaccine manufacturing and R&D facility is not just an investment in health security—it is an investment in jobs, skills, and industrial capacity.

This model of collaboration between government and business is precisely what will anchor Britain as a global hub for innovation. Life science campuses in key towns and cities could provide healthcare hubs to transform hospitals and create new community health centres.

That is why the Association of Infrastructure Investors in Public Private Partnerships (AIIP), that I chair, has been making the case for a renewed framework for collaboration. The UK was once a pioneer of PPP. Now, ironically, we are lagging behind. Australia, Canada, and New Zealand continue to use evolved partnership models to build hospitals, schools, prisons, and other infrastructure.

Of course, the private sector must also be candid. Past PPP models were not perfect. Government set up PFI contracts that were overly complex, with hundreds of performance measures that created unnecessary bureaucracy for all parties.

At the AIIP, we want to see new models that deliver more transparently, with independent oversight of contracts, clearer allocation of risk, and clear benefits for taxpayers.

There is a broader democratic dividend too. Citizens want reliable public services, modern infrastructure, and the confidence that Britain is investing for the long term. In an era of scepticism about institutions, and the spectre of Reform, delivery of a renewed public realm is the best antidote.

If we fail to adapt, investors will look elsewhere. Already, some are warning they may deploy capital in other jurisdictions where there is more clarity and fewer disputes. Britain cannot afford to squander this opportunity. ●

HOUSE OF LORDS

An investment in the future

Moderna's ten-year partnership with the UK government hopes to position the country at the cutting edge of mRNA technology

When Moderna and the UK government signed a ten-year strategic partnership in 2022, it marked a rare kind of agreement in life sciences. The deal promises long-term access to cutting-edge mRNA technology, on-shored manufacturing capacity, and fresh investment in research and skills. It is designed to make the UK better prepared for future pandemics while strengthening its life sciences sector as an engine of economic growth.

For the UK, the partnership offers something unusually durable in industrial policy: a decade of guaranteed inward investment. With it comes the potential to run faster clinical trials, closer links between universities and biotech, and the ability to produce up to 250 million vaccine doses per year in the event of a pandemic.

The agreement is structured around three streams – pandemic preparedness, vaccine supply, and research and development – each with its own boards and working groups, overseen by a joint Moderna-government committee that brings the strands together under ministerial scrutiny. In an era when resilience and growth are political priorities, the partnership stands out as both a public health and an economic bet.

Darius Hughes, Moderna's general manager for the UK and Ireland, sees the length of the commitment as particularly impactful. "Because we now have a ten-year framework, we can think much more long-term," he says. "We don't have to work on one-year cycles. We can start projects that may take three or five years to bear fruit, knowing the benefits will be there for patients, for government, and for industry."

The roots of such a collaborative relationship can be traced directly back to Covid-19. The pandemic forced industry, government, regulators and the NHS to work together at speed and with unprecedented transparency. "I'm not sure this kind of agreement would have been signed pre-pandemic," Hughes reflects. "Covid showed that when everyone has the same mission, you can work together in a way that's win-win-win: for patients, for government, and for the life sciences sector."

"Mission" is a theme Hughes returns to time and again. Instead of adversarial

negotiations over price or procurement, partnerships could be framed around shared goals such as resilience, innovation and growth. "It doesn't need to be confrontational," he adds. "When you have a shared vision and focus on impact, you can achieve things so much faster."

The UK appealed to Moderna through its unique combination of science, regulation and political will. "When you looked at the UK's response to the pandemic, it was impressive," Hughes says. "The integrated healthcare system, the data, the ambition, the regulator, the scientists – you put that all together, it made a lot of sense to invest here long term."

The Moderna executive points to the Oxford–Cambridge corridor and thriving life sciences hubs in Scotland, Wales and Northern Ireland, which together create what he calls a "whole-UK ecosystem" for biotech.

At the heart of the deal is mRNA technology, still relatively new but already hugely impactful. During the pandemic, Moderna used it to encode the Covid-19 spike protein, training the immune system to recognise and neutralise the virus. Hughes emphasises this is just the beginning, revealing that Moderna has more than 30 programmes currently in development.

Research is exploring mRNA applications for infectious diseases caused by respiratory viruses. In oncology, mRNA-based approaches are being investigated to help the immune system recognise tumour targets, and in some rare conditions researchers are assessing whether mRNA could enable cells to produce proteins they lack. While the platform can be adapted to encode different sequences once a target is identified, any potential use requires robust clinical evaluation and regulatory authorisation.

The benefits, however, are not confined to science or public health. Moderna's presence in the UK is also an economic play. "Life sciences are a critical part of the UK's growth strategy," Hughes says. "Every investment in R&D, manufacturing, and skills is also an investment in jobs and in Britain's global position." That alignment with government priorities is no coincidence. "We deliberately align our planning with government priorities on growth and health," Hughes continues. "It means industry and government are travelling together with a shared vision."

MITC is a key physical manifestation of Moderna's UK government partnership

The Moderna Innovation and Technology Centre (MITC) in Harwell, Oxfordshire, is the clearest sign of that investment. In just three years it has gone from hypothetical concept to a licensed facility employing an expected 120 people by the end of this year, producing vaccines for the British public and housing new laboratories. Furthermore, Hughes stresses, it provides an important visual manifestation of the scale and scope of this partnership.

In research, Moderna has sponsored 24 trials since 2021, and last year accounted for one-in-four participants in commercial clinical trials in the UK. It has also created the mRNA Access Program, enabling researchers to benefit from Moderna's platform to accelerate the development of vaccines and therapies to tackle emerging and neglected diseases, as well as investing in PhDs and fellowships to build academic capacity.

That is the here and now, but how should the partnership be judged when it comes to the end of its current cycle? Hughes sets out three measures. First, resilience: the UK's ability to produce up to 250 million doses per year in the event of a pandemic. Second, ecosystem impact: turning Britain into a global hub for mRNA science, with leading clinical trials and research collaborations. Third, patient outcomes: new vaccines and treatments delivered through the NHS. "Ultimately, we'll be judged on what difference we've made to people's lives," he says. "It's not just about wins for government or Moderna – it's about wins for the public."

The politics will inevitably shift. Ministers and officials change regularly, and a general election will come before the first decade is up. But Hughes is sanguine. "You do have to reintroduce yourself as faces change and people move," he concedes. "That's part of the process. But the framework, the reporting, the metrics – those provide stability."

What matters, Hughes argues, is proving that this model works. "We don't intend to just be here for ten years and then walk away. We want to be the partner of choice for mRNA in the UK, by building an R&D ecosystem, being ᵒᵒᵒa pandemic partner, and bringing innovative medicines to the British public. If we can deliver value for government, for industry, and most of all for patients, then this will have been a true success."

A flagship for vaccine innovation

The MITC aspires to boost UK pandemic readiness, global trials, and the next generation of scientific talent

Construction of the Moderna Innovation and Technology Centre (MITC) was completed earlier this year. The drug products it manufactures will provide the UK public with direct access to Moderna's infectious disease vaccines and the latest advancements in vaccine technology.

mRNA technology has been highlighted as an enabler of the Coalition for Epidemic Preparedness Innovations (CEPI) 100 Days Mission, a global goal to compress vaccine development timelines. The MITC should support the UK government's pandemic preparedness by allowing vaccine doses to be produced locally, aiming for rapid response to potential new health threats requiring urgent vaccination.

Situating a high-tech manufacturing facility in the UK not only expands Moderna's manufacturing footprint, but also adds to the infrastructure required for the country to pursue that desired level of preparedness.

Thanks to qualified scientific staff, digital solutions and the use of AI, the MITC is becoming a world reference in LNP-mRNA research. The research facilities benefit from the latest equipment in liquid chromatography mass spectrometry, ligand binding, immunogenicity and molecular assay.

The company selected the Harwell Science and Innovation Campus in Oxfordshire as its base due to the site offering a unique combination of expertise in the development of vaccines and nucleic acid technologies, with Moderna entering a vibrant ecosystem of research institutes and organisations.

The MITC, along with Moderna's headquarters in Norwood, USA, and identical sites in Australia and Canada, will form a network of advanced manufacturing hubs that collectively strengthen global pandemic readiness. Each site is strategically placed to maximise geographic coverage and minimise response times, ensuring that vaccines and therapeutics can be distributed quickly and efficiently. This proactive approach is crucial in a world where new pathogens can emerge unexpectedly and spread rapidly.

The centre consists of two facilities: the drug substance manufacturing facility and the clinical research and development (R&D) facility. The former is the manufacturing hub of the MITC.

Health Secretary Wes Streeting cuts the ribbon at the MITC opening ceremony on 24 September 2025

It will produce mRNA vaccines for infectious diseases, support NHS vaccination programmes, and help protect people who are most at risk. It is also intended as a multi-product facility, with the potential to manufacture multiple products at the same time. If a new pathogen or variant of concern is identified, production could be switched to manufacture vaccines for that specific pathogen – subject to clinical testing and licensure.

Through its clinical R&D facility, Moderna is uniquely positioned in the UK to become a biopharmaceutical hub of excellence. It houses clinical biomarker, bioanalytical and molecular assay laboratories.

The clinical laboratories, as they are collectively known, analyse samples from Moderna's clinical trials from across the globe to rapidly evaluate clinical data on the effectiveness of potential therapeutics and vaccines.

Samples are collected from participants enrolled in Moderna's global clinical trials and transported under stringent, validated conditions to ensure integrity and traceability. These include biological materials, such as blood, faeces, urine and saliva, which are shipped to the clinical laboratories for analysis.

The clinical laboratories will also be a training hub, offering skills development through internships and graduate programmes in clinical research and clinical assay techniques. The MITC will host apprentices, undergraduate students, PhD and Moderna fellows to foster innovative research around vaccines, global health, mRNA science and other disease areas, such as cancer. Finally, the clinical R&D facility is a base for UK's Clinical Development team, building links with Moderna's global programme of developing new vaccines and therapeutics, and facilitating implementation within the UK of the clinical trials required to study these.

The laboratories contain cutting-edge technologies and capabilities including Moderna's Biobank, which houses the UK's first Hamilton BiOS, a fully automated, high-capacity system capable of storing up to 1.5 million clinical samples at -80°C with precise tracking and retrieval.

An automated cryogenic storage system from Azenta Life Sciences holds 250,000 samples in vapour-phase liquid nitrogen, ensuring long-term preservation of ultra-sensitive materials. Additional -80°C freezers provide flexible storage capacity for diverse clinical needs. These advanced systems ensure sample integrity, chain of custody, and throughput, enabling robust data generation – from early-stage biomarker discovery to large-scale registrational trials – while supporting precision medicine and global public health efforts.

By combining cutting-edge manufacturing with advanced clinical research and skills development, the MITC positions the UK at the forefront of mRNA science. Its dual focus on rapid-response production and global data analysis creates a foundation not just for today's health challenges, but for the unpredictable threats of tomorrow, all while cultivating the next generation of scientific talent.

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