

# How we got here: lessons from the UK vaccine rollout

Over the last 18 months, faced with the greatest threat to public health in a lifetime, and with a pandemic of a scale not seen before in living memory, we've all battled as a society to get and keep COVID-19 under control. And that battle remains today.

We've faced the greatest challenges in peacetime, and the trade-offs between the most intrusive invasions of people's personal and economic lives, set against the need to protect life itself.

And with this extraordinary challenge faced by the whole of humanity, science held out one great hope.

And that hope is vaccination.

It's fitting that we're here at the Jenner Institute, here in Oxford, today at the start of this G7 health meeting.

Because it was Edward Jenner who first conceived of vaccination as the science of training the body's immune system and training the body's innate ability to fight disease, so immunity can come without the suffering of that disease.

Vaccination has saved more lives, and prevented more misery, than any other scientific endeavour.

Just stop for a minute.

Imagine a world without vaccines.

Imagine smallpox and measles running rife.

Imagine where we'd be now today without a vaccine against COVID-19.

Today, I want to reflect on this life-saving endeavour and give my perspective on how we've got this far.

The UK vaccination effort has without doubt been the best programme I've ever been involved with – it's been an honour. And I want to set out my thoughts on why, and why in this country we've managed to make the progress that we have.

Of course, this isn't over until it's over everywhere.

And while today I'll concentrate on the UK and the rollout here, for which I'm responsible, we must also play our part in the global vaccination rollout and I'll come onto the role we're playing in that too.

I'm very proud of how we were able to deploy the first ever clinically approved COVID vaccine and delivered 60 million doses of 3 different vaccines into 39 million arms.

As of midnight last night, I can confirm we've now given a first dose to three quarters of the adult population of the United Kingdom.

Lots of people stop me and ask me how we did all this.

So I thought I'd set it out as I see it.

I believe that the UK's vaccine success story is not an accident.

It was a result of the approach we took, decisions we made and decisions that we made before.

And I want to look both at what worked and also what didn't work.

Because one thing I've noticed in government is that when a something goes well, people often think everything went well. And it didn't...

I want to take a step back and reflect on this extraordinary project, the extraordinary team – the vaccine heroes as I call them – and the extraordinary response of the public.

Because ultimately this is a project that everybody's a part of.

Lots of people who have been involved in the programme have set out the thing they thought and they think is important to make the progress we have.

But the truth is it wasn't one thing. We had to get lots of things right.

For me, there are 4 lessons that I think we can take forward and I'd like to take a bit of time to go through them today.

## **Start early**

The first lesson is to start early.

As soon as we started responding to this crisis, we knew that a vaccine would be the best long-term way out.

Even before the first COVID case arrived in the UK we'd started the work on how to develop and buy the vaccines that would ultimately make us safe.

I vividly remember the first meeting that we had about a potential vaccine in January 2020.

It was before COVID was even called COVID.

And it was just after we'd cracked the genomic sequence of the virus.

I was told in that meeting that a vaccine had never been developed against any human coronavirus.

That it would take at least 5 years to develop in normal times and that a vaccine may never work.

But this was too important to fail.

The attitude I had at that point was that the benefit of a vaccine would be so big that all the resources of the land should be at the disposal of the vaccines team. I hope that's how it felt to you.

I specifically remember, a then meek and somewhat timid professor turning to me when I asked how fast this could possibly be done.

And he said that if everything went right, then the very best we could hope for would be 12 to 18 months.

Who would have thought that just 11 months later, we'd be the first country in the world with a clinically authorised vaccine.

And that Professor, Professor Jonathan Van-Tam, would be turning down Strictly.

JVT also is one of the heroes of the vaccine programme, and we'll be meeting a few more later.

The team that made this happen dared to believe, and we set to work to turn that belief into reality.

So, we started early.

We put out a call for research in February.

By March, we were supporting 6 different projects including the Oxford vaccine of course, alongside the vital work on treatments, including the RECOVERY trial which led to the discovery of dexamethasone, the first proven treatment to reduce coronavirus mortality.

And these 2 projects alone, both out of Oxford in a large part, have already saved over a million lives globally.

We asked the early questions.

We had to be creative because nobody had done this before.

I remember asking, 'What will we regret not doing if we don't do it now?'

And the answers came back, legions of answers: we'll need freezers, syringes, glass vials; we'll need the best infrastructure for clinical trials; we'll need a supply chain, manufacturing and a massive deployment operation.

We knew that every day we took off the critical path to delivery meant thousands of lives, and billions of pounds, saved.

I was often told it was unlikely we'd get a vaccine until well into 2021.

But I knew that if everything went right we needed to be ready for deployment too and ready for early deployment.

People called me an optimist or worse.

And yes I'm an unapologetic optimist, but I'm a rational optimist.

In this project, we had to be interested in the Reasonable Worst Case Scenario, but we had to be interested in the Reasonable Best Case Scenario too because that threw up its own challenges.

Because if a vaccine came through within 12 months, we needed to be ready to deploy it into people's arms.

And I always believed that we could, especially with the power of the NHS.

There's another, often under-acknowledged, piece of work we started early too.

Which is about building trust.

All the procurement and logistics and science would have been for nothing if we couldn't build trust in the vaccine, and get people to come forward and roll up their sleeves.

But Britain's incredibly high levels of confidence around the vaccine aren't an accident, and weren't something we could take for granted.

We had to win trust.

Trust is a crucial component of any major project, and the way to win trust is through openness and honesty.

Being open about what we know and also about what we don't know.

So for instance we were up-front from the start that there would be side effects and that we'd have to manage them.

We levelled with people that vaccine supply is often lumpy, and so volumes would differ week on week.

And we were honest about the uncertainties, for instance that it'd take time to discover what impact new variants might have on any vaccine.

It's not easy to stand at a podium and say that there are questions we cannot yet answer.

Communicating uncertainty is hard, and no-one had ever faced anything like this.

Because this was a novel disease, about which we knew little and were – are – learning all the time.

The public get this.

So in my view the greatest respect you can give people is to give them the full picture, warts and all, right from the first moment.

I think this has paid off.

Vaccine confidence and, crucially, uptake rates in the UK are among the highest in the world, and I'm very proud of that fact.

We started early too on how we could make access to the vaccine fair.

Now I know there were a few eyebrows raised when I said that the film 'Contagion' shaped my thinking about our vaccine programme.

I should reassure Sir John Bell that it wasn't my primary source of advice, but when I watched the film a penny did drop for me.

Not just that a vaccine would be our way out the pandemic, but that the power of the vaccine would be so great, we would have to think very hard about who to protect and in what order.

I knew that some of the most difficult moments of the pandemic would not be before the vaccine was approved, but afterwards, when the scramble for vaccines had begun.

Now we Brits love queueing. And there's nothing more upsetting than someone jumping the queue.

So, again, we started planning early to make sure this was fair. And spent time preparing for how to organise the rollout in as fair a way as possible.

The clinically advised prioritisation for getting vaccines in arms has been critical to, I believe, securing trust in the programme overall.

Because it has helped demonstrate that the system is fair.

So we acted early to reassure people that in the finest tradition of the values of the NHS, vaccines would be given according to need, not ability to pay.

Whether you're the Prime Minister or a Premier League footballer, or the future King of England, you'd have to wait your turn, just like everyone else.

Some people thought that it was strange that I didn't get the vaccine right at the start of the programme – and in fact, I was criticised for this on the grounds that would help to boost confidence, and, yes, we did have to boost confidence, but we also had to build confidence the vaccine programme was fair.

So I waited my turn with everyone else.

Together with the JCVI, who under the leadership of Professor Wei Shen Lim, did so much to promote confidence in our vaccination programme, we announced

back in August how we'd prioritise our rollout, months before we even knew if a vaccine would work.

And making clear that we'd prioritise the most vulnerable, like frontline health and care colleagues and residents in our care homes, and proceeding on an age basis because that is how the disease strikes.

We made sure everyone understood where in the queue they'd be, and crucially why we were put in that order, so we could protect the people most in need of protection.

And therefore save as many lives as possible. So the first lesson for me is to start early.

## **Draw on your strengths**

The second lesson is that at a time of crisis you must draw on your strengths.

In some areas of our pandemic response, we didn't have great strengths to start with.

And in vaccines, we had some significant gaps too, like the capacity to manufacture on-shore or enough people to deploy the vaccine at such scale.

But we had, and have, some serious strengths too, and we've relied on them as much as we possibly could and we've put weight on these great strengths that we have as a country.

First, we have a universal healthcare system with a trusted brand in the NHS.

The NHS, under the steadfast leadership of Sir Simon Stevens who has done a remarkable role in this pandemic, has performed with distinction, and it has deserved every plaudit that has come its way.

Without this common, trusted health system across the UK, and its universal nature embedded in every community in the land, and its experience of running the flu vaccine programme every year, which delivers typically 15 million doses, we couldn't have delivered such a rapid and efficient rollout.

And of course in Oxford we couldn't have delivered such a rapid and a powerful response without our scientific strength.

And this scientific strength we must remember has been built up over centuries, and the reason why the UK has this great scientific capability is not because of recent decisions but consistent decisions over years and years and years.

This strength is built over generations, and we must always invest in it.

In 2015, for instance, we set up the UK Vaccines Network, chaired by Professor Chris Whitty, in response to the ebola pandemic in West Africa, to invest in developing vaccines against unknown future threats.

Thanks to this work, we invested in a candidate for MERS, which was adapted to become the underlying technology for the Oxford vaccine.

The lesson from this is you need a broad range of research, because you never know which bit of science is going to save you next time.

We had the infrastructure on which to build some of the most successful clinical trials for COVID-19.

Not only because we're home to some of the best universities, and the best researchers, but because we did everything in our power to support clinical trials in the funding of the NIHR, another team of vaccine heroes, and of course the NHS, and we chose not to pre-judge their outcomes no matter how tempting that was at the time.

Backing clinical trials isn't empty rhetoric, I know this for myself. The pressures to end trials early before they properly readout is intense in the heat of a crisis.

But we didn't – we backed the science.

We built on what we'd learnt from the RECOVERY trial; in July, we created the Vaccine Research Registry, a register of people who were ready and willing to take part in the large scale clinical trials for COVID-19 vaccines.

Over 500,000 people have signed up on the NHS website, which I think frankly is amazing.

This is half a million people remember who are willing to take an unknown vaccine in order to save other people's lives.

Many vaccine manufacturers have told us that they found this registry invaluable in allowing rapid recruitment for clinical trials, and so overall we tried to promote a supportive environment that means that the majority of vaccine candidates including Oxford, Valneva and Novavax have been trialled here in the UK.

This shows the prize when you get the research right and you double-down on those strengths.

And I'd like to pay tribute here to another vaccine hero, Professor Chris Whitty, because he has been involved in this drive since before the start and he has driven the research programme that has saved lives right across the world.

Another team who are vaccine heroes are our first-rate regulators. Throughout this crisis, the MHRA, under the brilliant stewardship of Dr June Raine, has excelled, and been a global model for how to regulate. And in fact Andrew Pollard was taking me around the Oxford science labs earlier today and explaining, each time he mentioned the regulator, our regulator is dynamic and flexible and helps science to proceed.

They're everything a Health Secretary could want.

They're rigorously independent, they don't waver when it comes to upholding strong standards, and they're out there in public, as a trusted voice to respond to concerns.

They're also agile and responsive, and from the get-go they committed to me that they'd do everything in their power to remove barriers on the critical path.

I remember June Raine saying to me at the start of this pandemic that 'we'll go as fast as we safely can, Matt'.

And that's exactly what they've done, with an emphasis on fast and safe.

In short, the MHRA regulates for safety, not bureaucracy.

For example, they invented a process so they could look at clinical trial data through a rolling review as the trials went on, rather than waiting for a final submission of a package of data at the end which takes months off the critical path for regulatory approval without compromising on scrutiny.

The lesson I take away from this is that the quality of our regulators gives the UK a real competitive advantage, and saves lives.

The MHRA has shown how innovation and regulation are not mutually exclusive.

And I know that regulators all around the world are looking to learn from the MHRA, and the pivotal part they played in our response.

One other of our greatest strengths I want to touch on is the strength of our Union.

Just as we're adopting a UK-wide approach to expanding testing capacity and procuring PPE for every corner of the UK, this vaccination programme is for the whole UK.

We negotiated and bought vaccines for the whole country.

We allocated them according to need.

We worked with the NHS, with devolved administrations, with local councils everywhere.

And we called upon the logistical heft of the British Armed Forces to get them in arms.

Again, this did not happen by accident.

The devolved administrations are, of course, run by different political parties.

And although health is devolved, the virus doesn't respect administrative boundaries.

So I was determined to overcome political differences so we could deliver for



citizens, wherever they lived, across the country.

Like everyone, I've come to love Zoom.

But it wasn't easy getting this UK-wide approach.

Right at the start of last March, before we entered lockdown, I decided I had to go and see each of the devolved health ministers face-to-face.

It was so important that we all got on the same page about the importance of this project.

So, although life was pretty hectic last March, I took 24 hours to fly to Edinburgh, to Belfast, to Cardiff to sit down with each health minister.

That 24 hours has proved to be invaluable in strengthening those relationships, and it's been one of the most useful 24 hours in the pandemic.

I have led a call every week since with the 4 of us.

And, frankly, it's sometimes been a bit like group therapy.

The importance of the Union has never been clearer than in the UK vaccination effort.

England, Scotland, Wales and Northern Ireland drew on our collective scale, and our collective strengths, to deliver one collective vaccination programme.

It's only because we worked collectively like this together as one United Kingdom that we were able to pull this off for everyone from Scilly to Shetland.

The Union has saved lives, and we're safer across the whole country as a result.

## **Take and manage risks**

And this takes me onto the third lesson, which is about risk. Risk taking doesn't always come naturally to the public sector. In my view, the biggest risk would have been the failure to find a vaccine at all.

So we explicitly embraced risk early on.

So while I believed this project would succeed, I knew no-one could do it on their own.

And we needed to build a culture that embraced and managed risk rather than shying away from it. A culture that sought forgiveness, not permission. And empowered people to take the call rather than back off making a decision.

I think this is a lesson for any organisation – public or private, large or small.

This doesn't mean being rash. It means being brave, using judgement, and the best possible data to drive decision making.

This wasn't like buying any other commodity product.

We couldn't just pick up the phone and place an order.

So we had to back lots of horses and invested at risk.

But as Vince Lombardi, one of the greatest ever American football coaches, said: 'You miss 100 per cent of the shots that you don't take.'

And so we took plenty of shots, with the unwavering backing of the Chancellor and the Prime Minister. We put hundreds of millions of pounds at risk.

And not all of them came off. Some are still in early trials and are far away from deployment.

But the important thing is that some of the risks did come off.

We didn't just take the risks. We then managed them.

And instead of sitting back and waiting to see which vaccines succeeded, we were tenacious in helping them to get over the line, drawing on the abundant industry experience in our team.

We offered funding for the early manufacture of the vaccines, before we knew whether they would work.

We backed manufacturing plants as well to try and put right the problem of not having enough on-shore manufacturing in the UK. Like funding the Valneva facility in Livingston and sending a team to help the Halix plant in the Netherlands to scale up.

And we helped to bring together Oxford University and AstraZeneca and bring them to the table, in a partnership which has been a lifeline, not just here, but also right across the developing world.

As we're here in Oxford today, I just wanted to say a few words about the global impact of the work taking place here.

The Oxford vaccine, developed by brilliant science here in Oxford, linked with AstraZeneca's industrial might, backed by the support of the UK Government, all coming together to invest in this vaccine and together make it available at cost, this is in my view the greatest gift that this nation could have given the world during this pandemic.

A vaccine that's available at cost, with no charge for intellectual property.

And that because it can be stored simply, offers hope for the developing world.

So, as well as the money that we've donated – like giving over half a billion pounds to COVAX, which has now shipped 80 million doses to 125 countries and

territories – we've also given the world the vaccine which makes up 96 per cent of the COVAX programme so far.

And as of today, I can confirm over half a billion doses of the Oxford/AstraZeneca vaccine have now been released for supply globally, the majority of them in lower and middle income countries.

So thank you to Oxford University, the team here, Louise, Sir John, Andrew Pollard, Sarah Gilbert, and everyone here at Oxford and everyone at AstraZeneca, Pascal and his whole team, should be incredibly proud of the sheer scale of that achievement, delivering half a billion doses across the world.

But it ain't over yet.

This project was never just about investing in a vaccine for the UK. It is about a vaccine for the whole world.

As the global debate, including here at the G7, increasingly turns to how to vaccinate the whole world, I passionately believe that the single biggest contribution we can make is this vaccine, safe and effective, and at cost. I'm delighted too that Pfizer said they will deliver at cost to low income countries and pay tribute to Albert Bourla for that decision.

Right here at the Jenner, the holy trinity of academia, industry and government came together to invest in the research, and to develop and deliver a vaccine.

And we should all be so proud that this vaccine has now been delivered in 168 different countries across the world.

This was a true partnership, and where we worked together as partners we succeed because we asked people what we they could do to support them in our shared mission.

But there's still more to do, our work isn't over yet.

We're still procuring all the time, and planning what we need to keep our country safe for the long-term, including new vaccines specifically targeted at variants of concern.

I can tell you all today that we've started commercial negotiations with AstraZeneca to secure a variant vaccine: future supplies of the Oxford/AstraZeneca vaccine that have been adapted to tackle the B.1.351 variant first identified in South Africa.

Once again, we're leading the way and backing projects with potential, so we can keep our vaccination programme one step ahead of the virus, and protect the progress we've all made.

## Back the team

The fourth lesson I want to touch on is that we worked together as a big, diverse, yet cohesive team.

Frankly it's the finest team that I've ever been involved in.

On the 2nd December, when the MHRA authorised the Pfizer vaccine, and all eyes turned to our rollout, I knew deep down that everything would be OK.

And I knew that because I knew I could rely on the team.

Thanks to the forensic preparations we'd made, we were ready to put vaccines in arms.

And just 6 days later start a rollout that had been months in the planning.

It was an incredibly emotional moment, seeing the first vaccine in the world being given.

And I know so many people feel the same about their job.

This isn't just an important project and a scientific project, it's an emotional project as well.

Whenever I visit vaccination centres I see what this vaccine means to people.

I've seen the cakes and cards that the staff give and the smiles on people's faces.

I've felt the pride of the volunteers, who do so much and a year ago could never have dreamed they'd be putting jabs in arms, and are now fully trained up as an essential part of our team.

And I've witnessed the joy, the joy and the gratitude of the people who've been shielding for months on end, and now know they now have the chance to live the life they used to live it, as they want to live it.

The success of this programme can't just be measured in terms of charts and spreadsheets.

Our vaccination programme has given people hope for the future, and confidence that we can eventually put this pandemic behind us.

And I'm so proud of everybody involved.

The local authorities, the GPs, NHS colleagues, the armed forces, all the volunteers including St John Ambulance, and many, many others who stepped up in the delivery, as well as the scientists and industrialists who have made it happen.

A major reason for our success was because we'd brought in the right people, but crucially with the right mindset, and we weren't ideological about where

they came from.

We were prepared to work with anyone, as long as they shared our mission.

And we opened our doors to everyone who could help.

I just want to draw out one particular insight I got from this. The old argument that's sometimes been made, that only the public sector can act in the public good, and so there's no place for the private sector in public health.

That argument has been shown to be completely false.

Even though we were embarking on a big and complex project, we knew we needed the soul of a start-up, albeit one with 66 million customers in the first instance.

We had to move fast, embrace change and learn quickly from our mistakes.

And take some of the risks that I've been talking about.

We had to bring the best people to the table, focussing not on where they come from, but on what they could offer.

And of course our Vaccines Taskforce symbolised this, and I want to say a word about Vaccines Taskforce.

Last April, with Sir Patrick Vallance, whose scientific and industry expertise was invaluable to our response, with Sir Patrick we worked to pull together a team with all the different disciplines that were needed, in one place, with one mission.

The idea was that the Vaccines Taskforce combined academic excellence and rigour with private sector entrepreneurial drive and civil service grip – meaning we could draw on all the skills, and contacts, we needed to make it happen.

It was a true centre of excellence, and we couldn't have done it without them, and the brilliant people that were there and many who are still there driving our effort today.

Like the supply chain and logistical know-how of Ruth Todd; the commercial acumen of Maddy McTernan; the project management of Nick Elliot, and his ability to make the complex things seem simple; the unrivalled problem solving ability of Ian Mcubbin; the scientific expertise of Clive Dix.

And of course the inspirational leadership of Kate Bingham.

I clearly remember calling Kate to ask her to take the job of Chair. And I said, 'Kate, there is nothing more important in the country right now than getting this right.'

And I was confident that she had what it took to drive this forward, and meld

the best possible team.

And it's this diverse team, diverse in background and perspectives, and it helped create one of the most diverse vaccine portfolios in the world.

Because we didn't put all our eggs in one basket.

We backed many different technologies according to how good we thought they'd be.

And we didn't just back British, but we bought vaccines from all around the world.

It is impossible to give a speech like this without saying a huge thank you to everybody at the Vaccines Taskforce.

The final point I want to make is this.

Another crucial factor in melding the team was it was mission driven.

A common mission galvanises teamwork, co-operation and action to deliver results.

Four years ago, a professor of management from Wharton Business School published an academic study looking at the success of Kennedy's space programme and why – and I quote – why 'many employees said during that period they were involved in more meaningful work than they had ever experienced before and would ever experience again'.

He found that in a 400,000-strong team, 'even people who were quite far removed from the famous goal of landing a man on the moon reported feeling an incredible connection to this ultimate goal'.

He noticed that because everyone had a concrete goal to work towards and, crucially, understood the part they played in helping, in this case NASA, achieve it.

They saw their work not as a task or short-term thing they had to do, but pursuit of a long-term goal.

This insight is especially important when fighting a pandemic.

When you're facing something no-one's ever faced before, when social distancing means physical separation, and when much of our response was being co-ordinated from kitchens and living rooms and bedrooms across the land, the risk of people feeling isolated or disconnected was greater than ever so you had to meld the team.

So, we cast aside lofty and imprecise objectives and mission statements and just gave ourselves a series of big hairy audacious goals.

Just as Kennedy narrowed NASA's open-ended goals to concentrate on one objective, 'landing a man on the moon and returning him safely to the Earth',

we set the goal to have a vaccine deployed by Christmas.

We would secure vaccines for the UK.

We would help secure vaccines for the whole world.

And we would make the UK better prepared for future pandemics.

We started with that outcome, that mission we needed to achieve, and worked from there.

And we were able to block out the noise, and focus on what needed to be done.

And everybody knew their role and crucially everybody mattered.

This was not a project where you could artfully pass the baton from one stage to the next.

As JVT put it in his own inimitable way, 'We had lots of witches stirring the pot at the same time.'

So we needed clear accountability for who was doing what – clearly defined roles and responsibilities – so everyone understood their roles, and so people didn't get in each other's way.

And it worked.

The NIHR trialled, the VTF procured, the NHS deployed, and of course ministers had overarching accountability for decision making.

And critically – and critically for government, this is a really important lesson – we gave people the space and the authority to deliver.

Authority was delegated to the lowest possible level, and we empowered people with the confidence to make decisions themselves.

Take for instance the brilliant operational leadership from Emily Lawson, and appointing Nadhim Zahawi as Minister for Deployment, bringing to bear his commercial experience, making sure a single person at ministerial level was there 24/7 to take decisions and unblock things.

And within our wider team, we were blessed to have people with experience of running massive vaccination plans every year.

Some of the best scientific brains and people with experience of working on major commercial contracts.

I saw my role as allowing people to make the best use of their expertise, protecting them from interference and creating the right conditions for them to do their job.

Encouraging them to make the best choices, not sending down rigid edicts from on high.

The team who worked on our vaccination programme was the single greatest asset that we had.

We had the right people in the right roles at the right time, giving us the expertise and the energy we needed to make this programme a success and all tied to one mission.

And I'm so grateful to every single one of them involved.

## **Taking this forward**

These are the lessons I draw from the success of the vaccine programme.

Start early.

Draw on your strengths.

Take and manage risks.

Back the team.

And if you ask me the one thing that draws this all together, it's positivity.

We were positive in our planning, setting big goals that we knew would stretch us.

We created a positive team, with can-do culture and an attitude that when things went wrong the question wasn't who to blame but how can we fix it.

And we promoted positivity about getting the vaccine to protect yourself, your loved ones and local community.

I'm sure there are many, many more lessons, and I hope everyone involved should tell their story too.

There was no one single reason why this programme has been so far such a success.

No single solution.

Success has been the result of so many people, from so many walks of life, stepping up at a time of adversity to thwart this virus, save lives, and get us on the road to recovery.

## **Conclusion**

Now, we must need to draw on what we've achieved together, and the way we've forged a path for others all around the world, and take forward the lessons we've learnt, to finish our fight against this virus, and face with confidence the challenges ahead.