Large-print book

Injecting Hope:

The Race for a COVID-19 Vaccine

Contents

Introduction to accessible features

Features for blind and partially sighted visitors

There are twelve film and animation points in the exhibition. Most feature a voice-over or interviews playing on a loop, with audio played via speakers and projected into the gallery or via headphones. Two films are silent. In the first section of the exhibition there is a tactile model of the virus that causes COVID-19.

Features for D/deaf and hard of hearing visitors

All films featuring a voice-over or interviews have subtitles. All films featuring interviews also have British Sign Language.

Gallery layout

The gallery is on one level. Each section leads on from the previous along a U-shaped route with no dividing doors.

The exhibition space is approximately 20 metres wide and 37.5 metres in length.

The exhibition has an introductory area consisting of a short film. This is followed by a collection of 9 screens and 27 light boxes which form a passageway. As you move through the passageway you will encounter screens and light boxes to your left and right, as well as light boxes overhead. This display shows film and still images and is accompanied by ambient sounds.

At the beginning of each section is a large text panel. Within each section are objects in display cases and other objects on open display. Each object is accompanied by a label.

In section 1 there is one animation and one film accompanied by a voice-over.

At the start of section 2 is a film containing an interview and an animation. Also in this section is an interactive screen which hosts five animations. There is also a silent film and an interactive game. Seating is available in this space.

At the start of section 3 there is a short animation accompanied by a voice-over. Later in the section is a film featuring multiple interviews.

In section 4 there is a projection with ambient sound. Seating is available in this section.

In section 5 there is large magnet boards.

In section 6 there is a digital interactive on a touch screen with no sound and a large projected film. Seating is available in this section.

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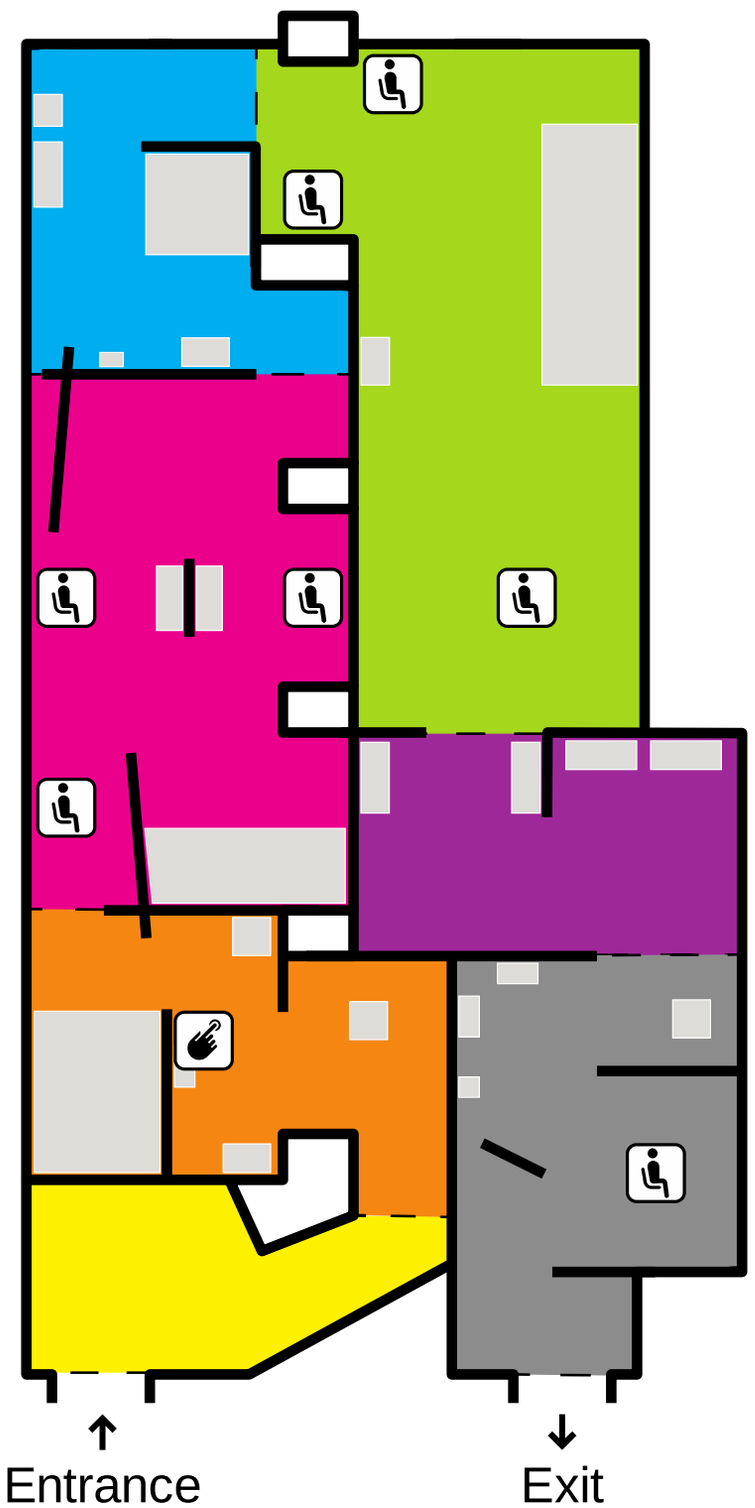
Gallery map



- Introduction
- A new virus
- Designing vaccines for COVID-19
- Trialling vaccines at record speed
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- Showcase/plinth
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Introduction

COVID-19 is a dangerous new disease that rapidly became a pandemic. It spread across the world and uprooted many aspects of our lives.

But the scientific response was also rapid. Less than a year after the first cases of COVID-19, people were receiving their first dose of a vaccine.

Discover the stories and people behind the global effort to contain one of the worst pandemics in recent history.

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A new virus

COVID-19 has touched all our lives – changing the way we work and communicate, and how we socialise and travel. It has proved fatal for some while passing unnoticed in others.

Caused by a newly emerged virus known as SARS-CoV-2, it can spread rapidly from person to person.

But what are viruses and how is this one different?

Object

‘2020: The Sphere That Changed the World’ by Angela Palmer

2020

Over 8 million times the size of a coronavirus particle, Angela Palmer’s sculpture reveals the complex beauty and power contained within the virus’s microscopic structure.

As you move around the work, the virus disappears entirely from view, reflecting the elusive nature of this new threat to global health.

Science Museum Group
Object no. 2021-647

Quote

‘I wanted to offer a moment of reflection on the virus which changed the world for ever, and to show this paradoxically beautiful virus particle tangible and trapped, just as it trapped the whole of humankind.’

Angela Palmer
Artist

Objects

June Almeida’s glass slides and journal article

1964–1967

The coronavirus that causes COVID-19 is new. However, human coronaviruses were first discovered in 1964 by Scottish scientist June Almeida, a pioneer in microscope imaging.

In her incredibly detailed images, you can see how the spike proteins look like a crown or halo around the virus. This gave coronaviruses their name – from ‘corona’, the Latin word for crown.

Initially, June’s discovery was dismissed as a blurred picture of an influenza virus, but she persevered, and her research was published in 1967.

Science Museum Group
Object nos. 1993-75/2/2, 1993-75/2/5, 1993-75/3/6, 1993-75/4/1/1
Facsimile journal pages E2022.0353.2
Facsimile glass slides E2022.0353.1

Animation
2022

Find out about viruses and how SARS-CoV-2, the virus that causes COVID-19, infects our cells.

Duration: 2 minutes

Images
Animals and viruses

The virus that causes COVID-19 is thought to have originated in an animal.

Although many viruses are harmless to us, some of the most dangerous are those that can transfer from animals to humans. Such a disease is known as a zoonosis.

Viruses can spread to humans through direct contact, through the food and water we consume, or through the air we breathe.

Bats, dogs and birds are just a few examples of animals known to have spread diseases to humans.

Images: Nils Bouillard/Unsplash; Patrice Schoefolt/Pexels; Quang Nguyen Vinh/Pexels

Tactile model

SARS-CoV-2, the virus that causes COVID-19

Like many other viruses, SARS-CoV-2 has a simple structure consisting of genetic material surrounded by a protein coat.

The spike proteins seen here are particularly important as they allow the virus to attach to a human cell and infect it. Once the virus has attached, the genetic material hijacks our cell, reprogramming it to replicate the virus.

Watch the animation to the left to find out more about viruses and how they infect our cells.

This model is over 3 million times the size of the actual virus.

Object
Andy Burnham's jacket
2020

In autumn 2020 Greater Manchester faced tough restrictions as COVID-19 cases increased. While wearing this jacket, Mayor Andy Burnham addressed the media and called for more financial aid for Manchester communities.

Andy's blue worker's jacket became a symbol of the hardships experienced during the pandemic and the unity of the Northwest.

Lent by People's History Museum
Loan no. L2024-2

Image
Manchester Evening News
2020

Image: Reach plc

Image
Manchester Evening News
2020

Following the declaration of the pandemic by the World Health Organization, on 23 March 2020 Prime Minister Boris Johnson announced the UK's first national lockdown to stop the spread of COVID-19.

At that time, lockdowns were the only available option to slow the growing number of cases, but they have had a long-lasting economic and social impact.

Image: Reach plc

Quote

‘This is the defining global health crisis of our time. The days, weeks and months ahead will be a test of our resolve, a test of our trust in science, and a test of solidarity.’

Tedros Ghebreyesus
Director-General
World Health Organization
March 2020

Object

NHS Nightingale Hospital North West bed bay 11

2020

Large numbers of critically ill patients were expected, so creating more hospital beds became a priority. Engineers designed hospital bed bays using a flat-pack technique so they could be quickly fitted to different buildings.

Built in only two weeks in the Manchester Central convention complex, the Nightingale Hospital North West provided 750 extra beds to the NHS.

Science Museum Group Object nos. 2022-22, 2022-23, 2022-24, 2022-26, 2022-27, 2022-28, 2022-29

Film

NHS Nightingale Hospital North West

2023

The NHS Nightingale hospitals – which brought together military staff, engineers and construction workers – were an example of design and engineering ingenuity during the pandemic.

Duration: 3 minutes

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Designing vaccines for COVID-19

Our lives turned upside down in early 2020 as governments introduced lockdowns and other public health measures to slow the pandemic. But as COVID-19 spread further, scientists across the world were already urgently developing vaccines.

Calling upon innovative techniques and well-established science, global collaboration was crucial to this rapid response.

Film
2022

Hear from Jonathan Van-Tam, infectious disease expert, about how vaccines help control the spread of disease.

Duration: 2 minutes 30 seconds

Object

Genetic code for the virus that causes COVID-19

The code seen here reveals the genetic recipe for the virus that changed our lives.

On 11 January 2020, Chinese scientist Zhang Yongzhen released this code, known as a genome. Nearly 30,000 letters long, it spells out the instructions – in the form of genes – that make up the virus. This valuable information allowed scientists to begin developing vaccines.

The code is a snapshot in time. As the virus spread over the coming months, it was to evolve and mutate – with dangerous new variants emerging.

Object

Identifying the spike protein

Once the genetic code was released, scientists paid close attention to the sequence responsible for producing the spike protein – indicated here by the pink letters.

SARS-CoV-2, the virus that causes COVID-19, is covered in spike proteins. These spikes allow the virus to attach to human cells – the first step in infection. Scientists identified this as the prime target for vaccine development.

Image
Hand of a patient with smallpox
1831

Before vaccination there was variolation. This technique to prevent smallpox was originally practised across parts of India, China, Africa and west Asia. Once common and often fatal, smallpox caused fluid-filled pustules to cover the body.

Through variolation, individuals were deliberately given smallpox, usually via pus or powdered scabs from a mild case of the disease. This prepared their immune systems to fend off a more dangerous infection.

Image: Wellcome Collection

Image
Portrait of Lady Mary Wortley Montagu
1700s

Variolation came to Britain and America via those who had seen the benefits elsewhere. Its first widespread use in America, in 1721, was inspired by Onesimus, an enslaved African who recalled the experience of variolation back in his homeland.

Around the same time, it was promoted in Britain by writer Lady Mary Wortley Montagu. She had her children variolated after witnessing the practice in Turkey.

Image: Fine Art Images/Bridgeman Images

Objects

Edward Jenner’s vaccination lancets

1790–1810

The idea of vaccination began with the knowledge that people didn’t catch smallpox if they had previously had cowpox – a far milder disease from the same family of viruses.

In 1796, after experimentation by several others, English physician Edward Jenner perfected his technique. Using sharp lancets like these, he scratched fluid from a cowpox blister into the skin. He called this method ‘vaccination’ after ‘vacca’, the Latin word for cow.

Lent by Wellcome Collection to
the Science Museum Group
Object nos. A600035, A600036, A647699

Image

Notice of compulsory vaccination

1856

During the 1800s smallpox vaccination was widely practised, becoming compulsory for all newborn babies in Britain in 1853. Such laws, here and in other countries, met with some opposition, and anti-vaccination groups emerged in response.

After global vaccination campaigns, the world was declared smallpox-free in 1980, by which time vaccines for many other diseases had long been widely available. They have saved millions of lives.

Image: The National Archives, ref. MH12/12599

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Quote

‘When I started designing the vaccine it felt like a normal day. I don’t think it had dawned on me how significant this work would become.

‘The team worked incredibly hard, really long hours; days blurred together, but we all kept going. We hoped what we were doing could make a difference. When the efficacy results came out we were exhausted, proud, relieved and hopeful – hopeful that the vaccine would help to keep people safe and get us out of the pandemic.’

Tess Lambe
Vaccine scientist
Oxford Vaccine Group

Objects

Working from home essentials

2020

Once the genetic code had been released, scientists utilised decades of research to immediately begin work on a new vaccine.

The objects seen here belonged to vaccine scientist Tess Lambe, co-designer of the Oxford-AstraZeneca vaccine. Over the course of a weekend, sitting at home in her ‘Bad Elf’ T-shirt and drinking numerous cups of tea, Tess worked with her team to quickly produce their vaccine candidates.

Tess Lambe’s laptop, T-shirt and mug
Science Museum Group
Object nos. 2022-1018, 2022-1019, 2022-1020

Objects

Newspaper headlines

2003–2015

COVID-19 shouldn’t have surprised us. Recent outbreaks of other harmful diseases gave warnings of a potential pandemic.

Most, such as SARS, Ebola and Zika, had spread from animals to humans. Scientists were also concerned about a pandemic caused by a currently unknown virus or bacteria. They referred to this as ‘Disease X’.

Such events illustrated the need for governments to be better prepared. But these outbreaks also prompted further research into vaccines, helping to lay valuable groundwork for when COVID-19 appeared.

News publications

Science Museum Group

Object nos. E2022.0131.1, E2022.0132.1, E2022.0133.1

Film

Behind-the-scenes footage from the laboratory where the Oxford-AstraZeneca vaccine was developed. Filmed in 2020.

Duration: 1 minute 30 seconds
This film has no audio

Object
Biosafety cabinet
2020

Once scientists have designed vaccine candidates on the computer, the next step is to make them in the lab. This sealable biosafety cabinet was used by the Oxford Vaccine Group during early stages of COVID-19 vaccine development to keep both scientists and their experiments safe from contamination.

Lent by the History of Science Museum, University of Oxford, to the Science Museum Group
Loan no. L2022-42

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Objects

COVID-19 vaccines

2020–2021

Scientists have been studying and working with vaccines for years. So when COVID-19 struck, they were ready to adapt well-established scientific practices and existing research.

This meant the COVID-19 vaccines could be developed across the world at record speed.

1. **Commemorative block containing early Moderna mRNA vaccine vial.**
   Though scientists have worked with mRNA for decades, this is the first vaccine of its kind.

2. **Box for trials-stage Oxford-AstraZeneca viral-vector vaccines.**

3. **Vial for Covaxin whole-virus vaccine, developed in India.**
   Vaccines for polio, flu and measles were developed in the same way.

4. **Vial for trials-stage Novavax protein sub-unit vaccine and 'adjuvant'.**
   Adjuvants are used to strengthen the immune response.

Science Museum Group

Object nos. 2022-1082, 2021-1275, E2022.0247.1, E2022.0247.2, E2022.0249.1

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Trialling vaccines at record speed

Within weeks of the world's first cases of COVID-19, several vaccine candidates were ready for trials.

Through close cooperation, efficient planning, extensive funding and earlier research, trials that usually took years were completed in months – without cutting corners.

Animation
2022

COVID-19 vaccines went through the same carefully planned tests and checks that all vaccines must go through.

Watch the animation to find out about the COVID-19 vaccine clinical trials.

Duration: 3 minutes

Objects

Chair, trolley and equipment from vaccine trials

2020

Volunteers are crucial to medical research. Without them there could be no vaccines for COVID-19. Fortunately, huge numbers of volunteers around the world came forward to receive a trial vaccine before being monitored over time to test its safety and effectiveness.

In this chair, on 23 April 2020, the very first volunteers in the UK both received vaccines and had blood samples taken as part of the Oxford Vaccine Group's phase 1 trial.

Science Museum Group
Object nos. 2022-1085, 2022-1086

Object
Kit for monitoring symptoms
2020

After their first injection, participants trialling the Novavax vaccine were given these kits to monitor their health at home. They were asked to track and report any vaccine reactions and COVID-19 symptoms, collecting vital data for researchers.

This trial involved more than 15,000 volunteers and was the UK's largest ever vaccine study of its kind.

Science Museum Group
Object no. E2021.0240.1

Film
2022

Would you take part in a vaccine trial? Since the arrival of COVID-19, well over 500,000 people in the UK have volunteered to take part in vaccine studies. Here a few of them explain why.

Duration: 3 minutes

Quote

‘I had always been interested in how clinical trials worked. I never felt like I was taking a risk.

‘During the trial, I received lots of messages, most very positive, but also some negative – falsely claiming the trial was a hoax. But my friends and family were happy everything was going well, both for me and for the thousands of others who participated in trials all over the country, and the world.’

Elisa Granato
Vaccine trial volunteer

Objects

The first COVID-19 vaccine trial

On 23 April 2020 microbiologist Elisa Granato became the first person to be injected with a COVID-19 vaccine, as part of the Oxford Vaccine Group clinical trials.

Elisa chose to wear these leggings, featuring a virus-inspired design, to mark this globally significant moment.

After receiving the first vaccinations, participants were closely monitored before the trial was expanded. Volunteers were also given this card, which could be used to inform others of their participation in the trial, in the event of an emergency.

Elisa Granato's leggings and emergency contact card
Science Museum Group
Object nos. 2022-680, 2022-681

Visitor expression point

Would you volunteer to take part in a vaccine trial?

All new vaccines go through clinical trials – carefully planned research studies to confirm that they are effective and the risks of side effects are low. Depending on the stage of the trial, people of all ages can often take part, including children.

This can involve travelling to and from a research centre and being monitored throughout the study. Participants in some of the COVID-19 vaccine trials received a small payment for their involvement.

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Objects

COVID-19 human challenge trials

2021

Millions of volunteers were vaccinated during many trials worldwide. But in one special case – in what is known as a human challenge trial – healthy unvaccinated volunteers were deliberately infected with the virus before being studied during two weeks of isolation.

The trial gave unique insights into our body's response to the infection and provided groundwork for future studies on new vaccines and treatments for COVID-19.

This was the first COVID-19 trial of its type, run by Imperial College London, Royal Free Hospital and the company hVIVO.

Sample holder
iPad provided for patients
Pipette for nasal administration of virus

Science Museum Group

Object nos. 2022-1061, 2022-1066, 2022-1070

Objects

Common Cold Unit human challenge trials

1946–1989

Human challenge trials have a long and controversial history, and over time have become regulated by strong guidelines. That meant the thousands of volunteers passing through the Common Cold Unit between 1946 and 1989 knew exactly what they were in for – a stinking cold!

At this enclosed facility, volunteers stayed for several days during which many were willingly infected with cold viruses. Despite initial hopes, with so many different strains of virus behind the common cold, a vaccine proved too difficult to develop.

‘Artificial sneeze’ device to replicate droplets
Rack of test tubes
Chess game provided for patients
Science Museum Group
Object nos. 1990-84/10, 1990-84/22, 1990-84/74/4

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Objects

Pipettes and test plates for assessing immunity

2020–2022

Trials allow us to test if a vaccine is safe. They are also vital in demonstrating effectiveness against disease.

ELISpot tests reveal the chemical ‘footprint’ of immune cells known as T-cells, in the form of spots. T-cells coordinate the immune system’s response to infection and kill cells that have been infected by SARS-CoV-2, the virus that causes COVID-19.

Using the pipettes seen here, vaccine scientists place blood samples from trial participants onto ELISpot test plates. The immune response is assessed by counting the number of spots.

Science Museum Group
Object nos. 2022-1100, E2022.0270.1

Images

ELISpot test results

One spot represents one T-cell.

1. **No immune response**

   If someone has never been exposed to a disease before, either through infection or vaccination, the number of spots that appear in the test is minimal.

2. **Low/medium immune response**

   If someone has been vaccinated recently, it takes the immune system several days to build up its defences against the virus. During this time the person only has a limited immune response.

3. High immune response

The density of spots seen here reflects a person’s immune response at its highest level, one to two weeks after receiving their booster vaccination. The number of spots produced will slowly drop over the following weeks before reaching a resting state.

Images: University of Oxford

Objects

MHRA vaccine approval documents

2020–2021

COVID-19 vaccines went through the same careful approval process that all vaccines must go through.

In the UK, the Medicines & Healthcare products Regulatory Agency (MHRA) took the key role. Its experts reviewed data from trials, manufacturing and product testing to ensure safety and effectiveness. To avoid delays, assessments happened alongside the vaccine development process.

On 2 December 2020, the first COVID-19 vaccine was approved for public use in the UK by the MHRA. Others followed, and thorough safety monitoring continues to this day.

Science Museum Group
Object no. E2022.0271.1

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Manufacturing at scale

The COVID-19 pandemic meant vaccines had to be produced on a vast scale. But how do you make enough for billions of people?

International collaboration and huge resources were needed to scale up manufacturing. And alongside massive increases in quantity, the quality of each dose had to be maintained.

Object
Small-batch wave bioreactor
2020

Vaccine production relies upon growing and multiplying cells within a carefully controlled environment. Within these living cells the basis of the vaccine can begin to develop. This requires both time and specialist equipment.

This ‘wave’ bioreactor is named after the gentle rocking motion the device makes when in use. The movement helps the liquid inside to mix properly, distributing the oxygen and nutrients that help cells to grow.

Science Museum Group
Object no. 2022-1076

Image

A 2,000-litre bioreactor used to make COVID-19 vaccines in Australia, 2021. Bioreactors up to this size were used to mass-produce vaccines for the first national vaccine roll-outs.

Image: Chris Hopkins/Sydney Morning Herald

Object
Filtration unit for purifying vaccine
2020

Used at Pfizer’s manufacturing facility in Belgium, this unit played a key role in producing millions of the earliest doses of COVID-19 vaccine.

Preparation for large-scale manufacturing of the Pfizer-BioNTech mRNA-type vaccine began as early as March 2020 – long before its approval. With little time to design and build specialised equipment, off-the-shelf items like this purification unit were bought and modified instead.

Science Museum Group
Object no. E2022.0273.1

Film
2022

The Serum Institute of India makes billions of COVID-19 vaccines for global distribution. Go behind the scenes and watch as countless glass vials are filled in the institute’s factory.

Duration: 1 minute
Special thanks to Serum Institute of India

Objects

Horseshoe crabs

About 1880

Did you know that crabs help us make sure vaccines are safe? Famed for its bright blue colour, the blood of the horseshoe crab contains cells that are sensitive to deadly bacteria, allowing scientists to test vaccine batches for contamination.

Pharmaceutical companies have become reliant on this substance, with few synthetic alternatives available. Although most of these creatures are returned to the sea unharmed, some die after their blood is collected.

Lent by UCL Grant Museum of Zoology to the Science Museum Group
Loan nos. L2022-40, L2022-41

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Quote

‘When there is a need and desperation from the public for a vaccine, it brings a lot of responsibility.

‘At the Serum Institute of India, our teams worked around the clock to help deliver the highest volume of vaccine in the shortest possible time. We already supplied millions of doses for childhood vaccinations around the globe, but in the case of COVID-19, we knew we had to deliver for not thousands or millions, but several billion people.

‘Personally, I feel incredibly blessed in being able to touch so many lives.’

Umesh Shaligram,
Scientist
Serum Institute of India

Image
Supplying the world
2022

For decades, India has played a leading role in the production of vaccines.

The Serum Institute, pictured here, is the world's largest vaccine manufacturer. During the pandemic, the factory quickly adapted to produce COVID-19 vaccines. At peak times, up to 13 million doses are produced in a single day and warehouses are piled high with pallets full of vaccines ready to be distributed.

Image: Serum Institute of India

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Vaccinating a nation

Vaccination is a numbers game – the more individuals that get one, the better the population is protected. In the UK, vaccinating millions against COVID-19 at speed required setting up huge networks of people and places.

Many of us travelled to hospitals, football stadiums and even museums to receive our doses as part of the largest vaccination programme in history.

Objects

Vial and syringe from the first vaccination

2020

Less than a year after the first reports of COVID-19, the UK's vaccine roll-out began.

From this syringe and vial, Margaret Keenan received her vaccination from nurse matron May Parsons on 8 December 2020. In doing so she became the first person in the world given an approved vaccine for COVID-19 outside a clinical trial.

Margaret's moment in the spotlight also marked the beginning of the largest and fastest global vaccination campaign in history.

Vaccine vial, syringe and cardboard tray
Science Museum Group
Object nos. 2021-433, 2021-434, 2021-435

Quote

‘I was shocked and delighted to be asked if I’d like to be the first person in the world to receive the COVID-19 vaccine. It’s hard to explain how wonderful it was.

‘Friends and family were delighted, especially my son, who realised how vulnerable I might be to getting COVID-19.

‘The vaccine saved my life, and many, many others.’

Margaret Keenan
First person vaccinated in the UK roll-out

Object

Margaret’s Christmas T-shirt

2020

When Margaret Keenan was vaccinated, people from around the world tuned in to watch. The moment marked the start of the UK’s vaccine roll-out, which prioritised those most vulnerable and at risk of COVID-19. The hospital charity T-shirts quickly sold out – with orders coming from as far away as Brazil.

Science Museum Group
Object no. E2021.0130.21

Quote

‘The hope that day brought was phenomenal. People felt it was the beginning of the end of the pandemic.

‘I was honoured to administer the first COVID-19 vaccine. It was only made possible with the hard work of researchers and scientists working together.

‘I’ve never had so many people watch me do an injection that I’ve done thousands of times before, but Maggie was my priority and focus.’

May Parsons
NHS matron
Administered the first COVID-19 vaccine

Object

Key worker’s uniform

2020

The pandemic put huge pressure on the NHS – not only to treat those who were critically ill, but also to vaccinate the country.

May Parsons, NHS matron, vaccinated Margaret Keenan wearing this navy-blue tunic. In this uniform, May went on to vaccinate hundreds of people over the coming months.

Tunic and badge
Science Museum Group
Object nos. E2022.0233.1, E2022.0233.2

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Object
Greetings card
2021

When did you first get offered a vaccine? Your answer probably depends on how old you are.

It became clear during 2020 that the risk of death or serious illness from COVID-19 increases rapidly with age. As the UK's vaccine roll-out was being planned, mathematical modelling confirmed that a priority order mainly based on age groups would be the most effective way to reduce this toll.

Science Museum Group
Object no. E2022.0272.1

Image

Mask-wearing during the Spanish flu pandemic, California

1918

It’s not always the oldest that fare worst. The ‘Spanish flu’ pandemic killed up to 50 million people worldwide between 1918 and 1920, hitting children and younger adults especially hard. People aged 25–40 accounted for nearly half of all deaths.

No vaccines were available then, but if there had been, young people might have been prioritised first.

Image: Raymond Coyne/Lucretia Little History Room, Mill Valley Public Library

Objects

Vaccine Taskforce meeting notes

2020

Look closely at this handwritten page and you will see the beginnings of a national vaccination strategy. These are notes taken during the very first meeting of the UK's Vaccine Taskforce, in early April 2020.

The task force was involved in all areas of the UK's vaccine response. Securing millions of doses in advance, it provided funding and infrastructure for research, trials and manufacturing. Alongside the NHS, it was central to putting in place the complex vaccine roll-out.

Notebooks belonging to Kate Bingham, chair of the UK's Vaccine Taskforce

Science Museum Group

Object nos. 2022-1120, 2022-1121, 2022-1122

Objects

NHS England maps

2020–2021

How far did you travel to get your vaccine?

Although the vaccine roll-out was mostly planned digitally, physical maps like these were also used to assess the distribution of vaccination centres.

The NHS and the UK’s armed forces worked carefully to ensure access to vaccination was as easy as possible. By July 2021 additional sites meant that almost the entire UK population lived within 10 miles of a vaccine centre.

Science Museum Group
Object nos. E2021.0355, E2021.0168

Objects

Regional maps

2020–2021

By overlapping these regional maps, staff at NHS England reviewed how accessible vaccine centre locations would be.

Each map overlay visualises data such as population density, ethnicity, vulnerability and levels of deprivation. This helped ensure that the maximum number of people had the opportunity to be vaccinated.

Science Museum Group
Object no. 2022-1150

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Objects

Rates Hall vaccination centre

2021

Buildings including mosques, stadiums, civic centres and even the Science Museum in London were turned into vaccination centres to help as many people as possible access the vaccine.

Rates Hall, part of the Manchester town hall extension, opened as a vaccination centre in August 2021. Its location encouraged students, workers and those returning to the city centre to get vaccinated.

By January 2022, 1 million people had been vaccinated in the city of Manchester.

1 **Vaccination pod panel with vaccine quantity annotations**

2 **Notice to remove coats, list of pre-vaccine screening questions**

3 **Sharps bin, cotton wool balls, surgical tape, protective gloves, pre-injection swabs**

4 **Vaccination trays with syringes**

5 **COVID-19 vaccination stickers, blank vaccine cards, vaccination information leaflet**

6 **Rates Hall before and After**

Science Museum Group

Object nos. E2023.0249.1, E2023.0352.1, E2023.0353.1, E2023.0238.1, E2023.0239.1, E2023.0240.1, E2023.0241.1, E2023.0350.1, E2023.0351.1

Image: Manchester City Council

Image

The mass vaccination centre at the SSE Arena in Belfast, Northern Ireland. Over 350,000 vaccines were administered here in five months during 2021.

Image: Jude Palmer/Cabinet Office and Department of Health and Social Care

Objects

Volunteering at Rates Hall, Manchester town hall extension

2021

Thousands of volunteers supported the NHS to deliver its ambitious vaccination programme at hundreds of sites around the UK.

Equipped with high-visibility vests, cleaning wipes and a smile, volunteer marshals at Rates Hall helped to keep Manchester city safe.

1 **Cleaning wipes, face shield, high-visibility jacket, alcohol gel**

2 **Volunteer mugs**

3 **Volunteer sign-in sheet**

4 **Manchester worker bee badge**

5 **Thank you card**

Science Museum Group

Object nos. E2023.0243.1, E2023.0244.1, E2023.0355.1, 2024-288, E2023.0354.1

Images

Mobile vaccination clinic

2021

Equipped with a mobile clinic, the Urban Village Medical Practice took vaccines to vulnerable people with no fixed address. For several months the clinic visited temporary accommodation sites, day centres and the streets of Manchester, offering to vaccinate those most at risk.

Science Museum Group

Object nos. 2024-316, 2024-318, 2024-324, 2024-331, 2024-327, 2024-336

Quotes

‘As a GP practice for homeless people, we know that we need to work differently so that they are able to access high-quality health care.’

Liz Thomas
Homeless healthcare specialist nurse
Urban Village Medical Practice

‘We had experience running flu campaigns with the homeless. We’d done a hepatitis A campaign a few years ago. So we felt the COVID vaccine was going to be something we really wanted to get right for our population.’

Helen Gee
Homeless healthcare specialist nurse
Urban Village Medical Practice

‘My role was about awareness – making people aware that they could get the vaccine. A lot of the people in the community that we work with didn’t think they would be eligible for it.’

Anthony Verrall
Substance misuse practitioner
Change Grow Live

‘When Urban Village came we would ring the residents on the intercoms, they would come down and have the vaccination, and that’s how it worked.’

Martin Schofield
Team leader
Woodward Court
Manchester City Council

and Tracey Rhodes
Homeless lead officer
Woodward Court
Manchester City Council

‘My role was mainly having conversations with the guys about the importance of getting vaccinated – providing the facts and hopefully encouraging the guests to take the offer of the free vaccine.’

Amy Godden
Engagement team leader
Barnabus Manchester

‘Urban Village got in touch and asked about the residents getting vaccinated here. We arranged a date. We encouraged the residents to get vaccinated.’

Eddie Fraser
Rough Sleepers Initiative Programme
Victoria House
Sanctuary Supported Living

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A future with COVID-19

Disease pandemics are part of our history, and while COVID-19 is the latest, it won’t be the last.

But will our experience with COVID-19 leave us better prepared for future threats?

The physical and emotional impacts of this global pandemic will be long-lasting, but the rapid development of vaccines shows what can be achieved through global collaboration.

Object
‘Hope in Balance’ by Junko Mori
2020

Junko Mori’s ‘Hope in Balance’ is inspired by the intricacies of the human immune system. Based on a virus being surrounded by antibodies, it references not only the body’s response but also the response of humanity to COVID-19.

It reflects the sadness, sympathy and strength within us all during the pandemic.

Commissioned and lent by the Goldsmiths’ Company
to the Science Museum Group
Loan no. L2022-39

Quote

‘I wanted to focus on the antibody as a symbol of defence, to shift the viewer’s attention away from the fearful image of the “tiny viral enemy”, towards our strong immune system.’

Junko Mori
Artist

Object
MinION genetic sequencing device
2020

As viruses spread they mutate, and new variants emerge. The more a virus mutates the more likely it is for a vaccine to become less effective.

This pocket-sized device lets scientists analyse the genetic material of a virus and see if it has changed. Portable and flexible technology like this is key to the continuing global effort to monitor COVID-19.

Science Museum Group
Object no. 2021-657

Object
Samba II portable testing system
2021

As COVID-19 is added to the list of dangerous diseases that scientists continue to monitor, access to rapid and easy testing remains vital.

Originally developed to detect the HIV virus, this machine performs accurate group testing outside a laboratory setting, with results sent directly to a phone or tablet.

For future outbreaks, such technology will help to measure cases in remote locations.

Science Museum Group
Object no. 2021-1627

Image

Global monitoring of SARS-CoV-2, the virus that causes COVID-19

Viruses can also have family trees. This chart maps the genetic changes in the SARS-CoV-2 virus over time.

These small changes – mutations – in the virus can be observed by sequencing thousands of samples. Mutations can affect severity of illness or speed of transmission, and may lead to the emergence of distinct new variants such as Delta and Omicron.

Going forward, surveillance remains essential.

Image: Nextstrain

Quote

‘COVID-19 shook the world, and it impacted my life for ever.

‘Throughout the chaos and devastation of this pandemic, science stood as a beacon of hope. It brought the world together to produce COVID-19 vaccines in record time and saved millions of lives.

‘Now those same scientific advances could help make vaccines against future threats in just 100 days! Just imagine, if the world can pull off the 100 Days Mission, we could end pandemics once and for all. Science gives us reason to hope.’

Mario Christodoulou
Science communicator
Coalition for Epidemic Preparedness Innovations

Object

The 100 Days Mission

COVID-19 won’t be the last pandemic to affect the world. Animal diseases that transmit to humans are seen as the biggest future danger.

The Global Pandemic Preparedness Summit was an international gathering of key scientists, policymakers, industrialists and philanthropists promoting the need for resources to be in place for the next time. They are united in the ambition to have safe, effective and globally accessible vaccines against the next pandemic threat ready in just 100 days.

Science Museum Group
Object no. 2022-1133

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Objects

Virustatic reusable face mask

2021

During the pandemic, use of face masks became widespread. They were needed to protect ourselves and others from the spread of the virus, but also created huge amounts of waste.

Paul Hope and the University of Manchester developed the Virustatic Shield, a washable and reusable face mask. The mask is coated with a layer of a protein called Viruferrin, which filters and deactivates the viruses that cause diseases such as influenza and COVID-19.

1 Vial containing Viruferrin

2 Sample of fabric coated with Viruferrin antiviral protein

3 Virustatic Shield in packaging

4 Ergo Shield

Science Museum Group
Object nos. 2021-1650, 2021-1652, 2021-1651
Image: Virustatic Limited

Object

‘Welcome Back’ campaign banners

2021

Do you recognise these banners? After two lockdowns and a series of restrictions, bringing people back into Manchester’s city centre became a priority. The city council and CityCo, representing Manchester’s businesses, developed the ‘Welcome Back’ campaign.

The bright design, with positive safety messages, welcomed people back into the city.

Science Museum Group
Object no. 2024-289

Film

Bittersweet: The year the world stood still

2024

Film co-produced by the young people of HideOut Youth Zone. Poem written by Reece William in collaboration with the young people.

The COVID-19 pandemic changed how we lived and challenged us to adapt to a new reality. In this film, Manchester-based group, HideOut Youth Zone, reflects on the difficulties they faced, but also the new ways of connecting and supporting each other.

Duration: 4 minutes

Object
Sarah Gilbert's mug
2020

This mug sat on the desk of vaccine pioneer and co-creator of the Oxford-AstraZeneca vaccine Sarah Gilbert.

Since 2020 much has been learnt about how vaccines can help contain a global health crisis. Research continues, and with new vaccines adapted for new variants, the Oxford-AstraZeneca vaccine was withdrawn in 2024, after saving many millions of lives.

The scientific responses to COVID-19, built on decades of earlier research, can help us prepare for new viruses that may emerge in the future.

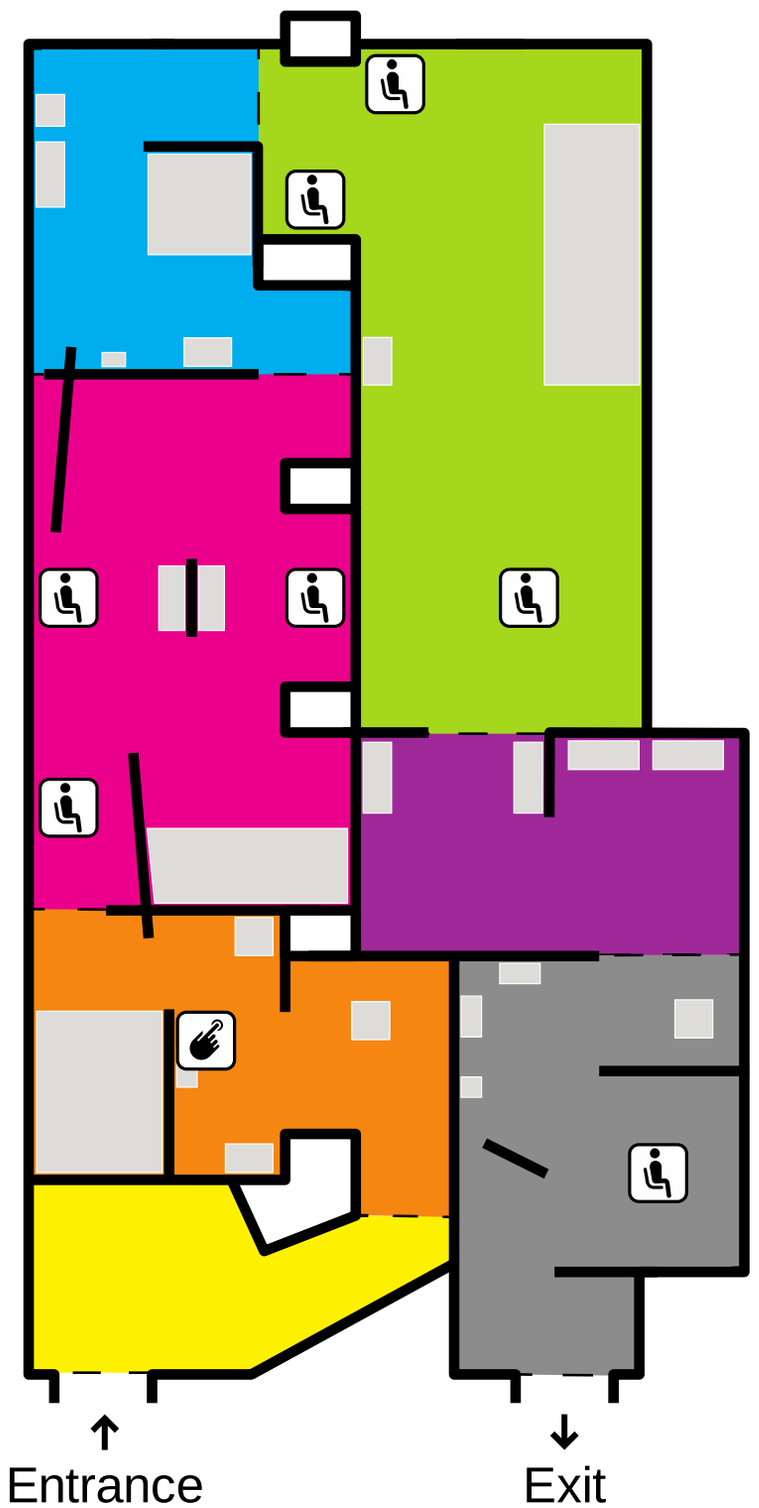
Science Museum Group
Object no. 2022-1116

Quote

‘The advances we have made and the knowledge we have gained must not be lost.’

Sarah Gilbert
Vaccine scientist

Gallery map



- Introduction
- A new virus
- Designing vaccines for COVID-19
- Trialling vaccines at record speed
- Manufacturing at scale
- Vaccinating a nation
- A future with COVID-19
- Wall
- Showcase/plinth
- Tactile object
- Seating