The COVID-19 Innovation Timeline

This timeline illustrates how the innovative pharmaceutical industry came together with the broader global health community to respond to the COVID-19 pandemic with unprecedented speed and scale, overcoming significant hurdles along the way.

By learning from these events, we can better prepare for the next public health crisis, preventing more suffering and saving more lives in the future.

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Pre-Pandemic

Building on decades of pre-pandemic research

Scientific insights from decades of solutions development for infectious diseases like MERS, SARS, Ebola, Zika and influenza - and experience working with health authorities and regulators - helped to swiftly bring safe and effective vaccines, therapeutics and diagnostics to patients.

December 2019

Novel coronavirus emerges in Wuhan, China

The World Health Organization (WHO) is informed about a cluster of pneumonia cases in Wuhan, China. Less than two weeks later, the virus's genetic sequence is shared with scientists around the world. This crucial first step enables development of tests, medicines and vaccines to begin. Within a few days, candidate vaccines are underway and industry researchers begin testing the antiviral capacity of existing molecules in their libraries.

March 2020

Global pandemic declared

The WHO declares COVID-19 a pandemic, the first in 11 years. Many countries go into a quarantine or lockdown, enacting stay-at-home orders to prevent virus transmission.

March 2020

Industry unites to address COVID-19 crisis

The global pharmaceutical industry adopts a “business not as usual” approach, teaming up with biotechs, academia and “traditional” competitors to develop and scale-up COVID-19 vaccines, treatments and diagnostics.

April 2020

Speeding up development through global collaboration

The WHO launches the ‘Access to COVID-19 Tools Accelerator’ to speed up the development and production of vaccines, diagnostics and therapeutics. The industry joins as a founding partner, determined to share its breadth of expertise with the scientific community.

July 2020

First trials show promising result

Early results from clinical trials are promising for both vaccines and treatments. Data from Gilead reveals its antiviral treatment would improve recovery time and reduce mortality in patients. Moderna finds its candidate triggers an immune response against the virus with no serious side effects.

December 2020

The largest vaccine rollout in history begins

The largest vaccine rollout in history begins. The UK becomes the first country to grant emergency use authorization of the Pfizer-BioNTech COVID-19 vaccine, developed in just 326 days. On 8 December, 90-year-old Margaret Keenan, from the UK, is the first person in the world to receive the vaccine.

January 2021

Not all vaccine candidates succeed

Given the remarkable speed at which effective COVID-19 vaccines have emerged, it's easy to forget that many other vaccine candidates fail. Of more than 300 vaccine projects, only nine vaccines eventually clear the hurdles to get an emergency use license from the WHO.

March 2021

COVID-19 vaccine production disrupts supply chain

1 billion COVID-19 vaccines have been produced to date. But manufacturing them at the volume the world needs - while maintaining the production of vaccines and medicines for other diseases - is a colossal challenge. The movement of specialized, skilled personnel is able to ensure the highest level of quality. But this scaling up of manufacturing in record time leads to shortages of raw materials and equipment such vials, needles and syringes, impacting the entire vaccine supply chain.

May 2021

Five steps to vaccine equity

The inovative pharmaceutical industry commit to urgently advance COVID-19 vaccine equity to ensure vaccine doses reach priority populations worldwide through Five Steps: dose sharing, the elimination of trade barriers, country readiness, optimized production and further innovation.

August 2021

COVID-19 vaccine production exceeds 1 billion doses per month

To achieve this unprecedented manufacturing scale up, over 300 partnerships were established globally with trusted partners, with 229 of those involving different types of voluntary cooperation that relied on technology transfer and sharing of know-how.

December 2021

Half the world vaccinated against COVID-19

Production of COVID-19 vaccines reaches 11 billion. Half of the world's population has been vaccinated within a year, making this the biggest immunization campaign in human history.

January 2022

Rapidly responding to the Omicron variant

Vaccine companies launch new clinical studies in response to the rapidly spreading Omicron variant. Pfizer and BioNTech investigate the safety, tolerability and immunogenicity of an Omicron-based vaccine candidate, while Moderna begins a Phase 2 study to test an Omicron-specific booster candidate in adults.

June 2022

20 million lives saved

A global study by The Lancet estimates that COVID-19 vaccines have saved 20 million lives in the first year of vaccination. But it also finds that rapid distribution to more countries and stronger vaccine uptake worldwide could have saved more lives, underlining priorities for future pandemic planning.

July 2022

Building equity into future pandemic preparedness

The industry launches the Berlin Declaration, presenting global leaders with a proposal that could help ensure that in future pandemics, vaccines, treatments and diagnostics are delivered as early as possible to vulnerable populations in low-income countries. This includes an offer from the industry to reserve an allocation of real-time production for distribution to priority populations in these countries.

Discover the full COVID-19 innovation timeline

In just two years, so much has happened. It's easy to forget the breakthroughs, the significant hurdles along the way, and the lessons we must learn to prepare for future pandemics.

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Applying lessons from COVID-19

The COVID-19 pandemic taught us important lessons that can inform how we create a healthier, safer, more equitable world.

Discover how the innovative pharmaceutical industry proposes to turn these lessons into strategic insights that will guide future efforts to build effective pandemic preparedness and response.

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Viruses don't stand still. And neither do we. We're continuing to adapt and respond as COVID-19 evolves.

Employees from across the innovative pharmaceutical industry are applying their expertise, passion, and creativity to find new and better solutions, so we can tackle emerging variants and be better prepared for future pandemics.

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The development of COVID-19 vaccines and treatments is a story of science, ingenuity and hard work. It is also a story of widespread collaboration and investment powering tenacious R&D.

In just two years, the innovative pharmaceutical industry has developed COVID-19 vaccines and treatments at record speed and in historic quantities:

47
vaccines authorized or approved by at least one country

36
approved therapeutics worldwide

381
manufacturing deals for COVID-19 vaccines

150
manufacturing deals for COVID-19 therapeutics

15 billion
COVID-19 vaccines produced

Autumn 2022

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