

COVID-19: A Journey from Discovery to Vaccination



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Although it may seem longer, it is less than two years since the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV-2) virus was first identified in a cluster of patients presenting with atypical viral pneumonia in Wuhan, China.

In the meantime, this virus (and the disease it causes- Coronavirus Disease 2019-, more commonly known as COVID-19) has produced a truly global pandemic which has fundamentally changed the way in which we live our lives. It has also resulted in levels of mortality from an infectious disease not seen on a population level in, arguably, over a century.

The first case of COVID-19 in Ireland was notified on March 11th 2020 and in the following 15 months, Ireland has seen over 275,000 cases and over 5,000 deaths from COVID-19. In the spring of 2020, the Irish health service was stretched to breaking point trying to limit the impact of this disease on the public. However, during this time, the first steps in the development of possible vaccines against COVID-19 were also being taken.

Key in this process was the introduction of the ACCESS TO COVID-19 TOOLS (ACT) ACCELERATOR initiative—a global collaboration to accelerate the development, production and equitable access to new COVID-19 diagnostics, therapeutics and vaccines. This amongst other initiatives allowed for the rapid production of vaccines against the SARS CoV-2 virus.

On December 2nd 2020, the United Kingdom’s Medicine and Healthcare Products Regulatory Authority (MHRA) were the first

country in the world to grant regulatory approval to the Pfizer/BioNTech (also known as Comirnaty) vaccine for COVID-19.

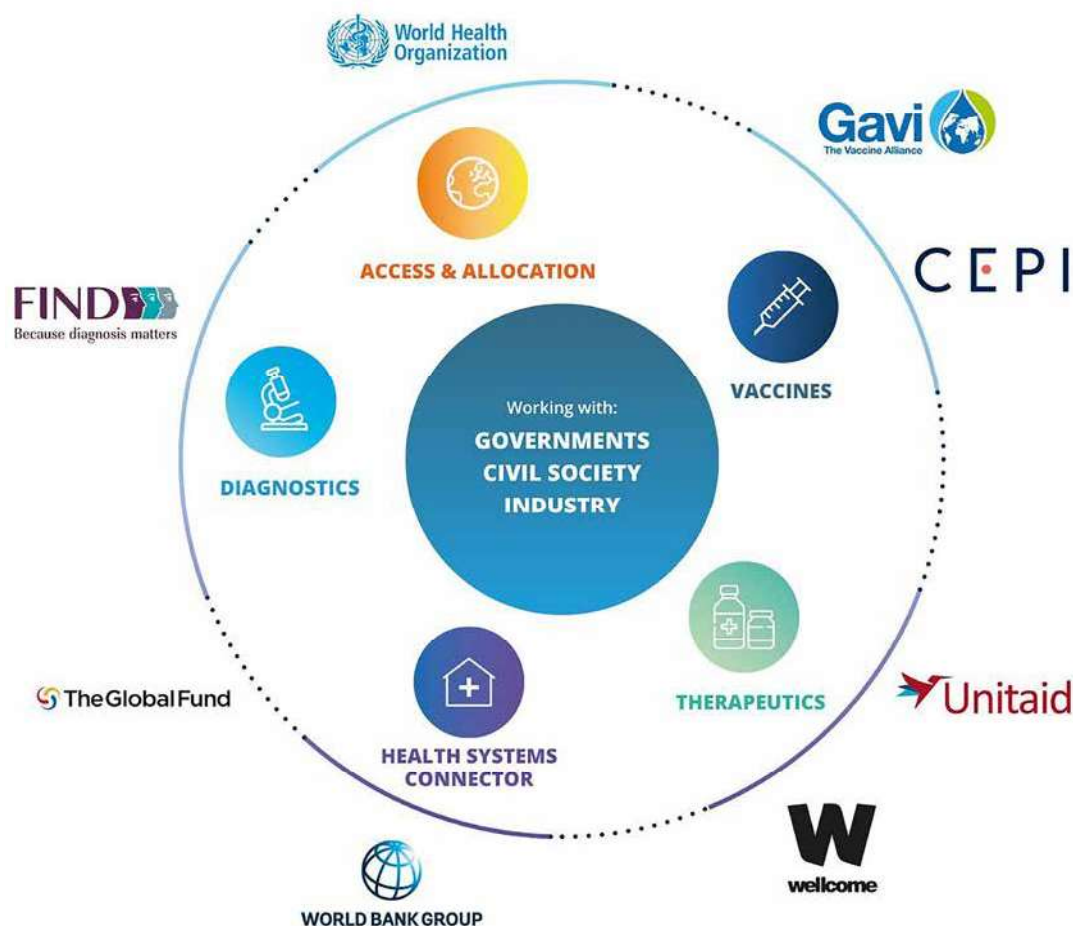
The European Medicines Agency granted conditional marketing authorisation to the Comirnaty vaccine on 21st December 2020. Ms Anne Lynch was the first person to receive a COVID-19

vaccine in Ireland when she received the Comirnaty vaccine on December 29th, 2020.

As of June 2021, three further COVID-19 vaccines have been approved for use in Ireland- the SpikeVax (Moderna) COVID-19 Vaccine, the Vaxzevria (AstraZeneca) COVID-19 Vaccine and the Janssen (Johnson &

Johnson) COVID-19 vaccine. Vaccination in Ireland is rapidly progressing, with over 90% of the population aged 50 years and over having had at least one vaccine.

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While this high uptake helped reduce the number of cases in the Irish population in the second quarter of 2021, we are now seeing case numbers rise again with the more transmissible Delta variant becoming more dominant. This is why it is so important that as much of our population as possible are fully vaccinated to limit severe outcomes and deaths from any future surges of COVID-19.

The National Immunisation Office is a small yet committed team of Public Health doctors, pharmacists, Senior Medical Officers, nurses, communication, IT and administration staff who are centrally involved in vaccination programmes in Ireland and the COVID-19 vaccine programme in this country was no different. NIO staff were primarily tasked with developing training and education resources, clinical guidance and supporting materials relating to COVID-19 vaccines for healthcare professionals (HCPs) and prospective vaccinators.

This involved developing specific training sessions for vaccinators,

producing documents such as a clinical guidance document for COVID-19 vaccines, a weekly bulletin updating healthcare professionals on changes to vaccine protocols and individual medicines protocols for each vaccine, webinars for at risk groups such as homeless and Traveller communities as well as responding to individual queries from HCPs relating to COVID-19 vaccines.

In addition, as some professions who were not involved as vaccinators in previous mass vaccination programmes—e.g., physiotherapists, optometrists, dentists etc— were invited to become vaccinators in the COVID-19 programme, specific guidance and training was produced by the NIO for these groups also.

Strong levels of social media engagement were key in advocating for COVID-19 vaccine uptake particularly amongst our younger age cohorts. As such, we made use of multiple social media platforms to disseminate accurate and up to date information on COVID-19 vaccines. One of the major challenges posed to this work was the fact that these were new vaccines. For some vaccines,

new adverse events came to light that were not observed during clinical trials, which required significant changes to training and guidance.

This meant that the resources and outputs produced by NIO required constant review and frequent updating. However, the production of accurate and up to date information relating to COVID-19 vaccines was crucial as it meant that the general public and HCPs could trust these vaccines to be safe and effective and misinformation leading to vaccine hesitancy could be countered.

As of July 2021, the future outlook for COVID-19 is promising but with certain concerning factors. A significant proportion of our population are fully vaccinated, and the weekly number of administered doses continues to rise. However, one of the main concerns regarding COVID-19 vaccines is their effectiveness against variants of concern, especially the delta variant.

So far, there is evidence that the 4 vaccines used in Ireland provide good protection against severe COVID-19 or hospitalisation from COVID-19 although a lower level of protection than what it provided against the original “wildtype”

SARS CoV2 virus. The National Immunisation Advisory Committee has previously stated that there is evidence of suboptimal protection against the delta variant after one dose of COVID-19 vaccines.

Therefore, there is a concerted campaign to ensure as many of our population are fully vaccinated in as short a time as possible. Other concerns around the inequitable distribution of COVID-19 vaccines around the world also exist. For example, while just over 30% of Europe's population have been fully vaccinated only 1.25% of Africa's population are.

While not only is this morally wrong, it also can provide reservoirs for SARS CoV2 to grow and mutate potentially leading to future variants of concern. As Dr Mike Ryan of the World Health Organization stated at the outset of the COVID-19 pandemic “None of us are safe until all of us are safe”.

The COVID-19 vaccine programme in Ireland is a multi-agency whole system response and the NIO worked closely with internal HSE and external organisations to ensure a successful programme. While it has had a transformative effect and contributed to the suppression of the COVID-19 pandemic in Ireland, we are not out of the woods yet. We all have a role to play to get to that point however, by taking our vaccine when offered and by talking to our families and friends about why we need as many people as possible to be fully vaccinated against COVID-19 right now.

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