

## **Covid-19 Vaccination: The Bridge to 2021**

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Over the last 9 months the Covid-19 pandemic has progressively ground society to a halt. The global data shows that there have been 64 million cases and 1.5 million deaths. The corresponding figures for Ireland are 72, 798 cases and 2069 deaths. The infectivity and virulence of the virus has necessitated a cycle of lockdowns-lifting of restrictions-followed by further lockdowns. Most countries have now experienced both a spring and autumn wave. Ireland has done somewhat better with fewer than 300 deaths since September 1<sup>st</sup>, 2020, which is just 15% of its first wave total. The ever-changing circumstances that we live in has caused great confusion. A sense of 'going nowhere' began to creep in. Some commentators talked about the pandemic in terms of years rather than months. The future, at the very best, looked uncertain.

However, things rapidly changed with the announcements about the successful Covid-19 vaccine trials. This has generated a new sense of optimism. Using the CNN anchor-man parlance, the needle has moved. We are now in a much better place as we leave 2020 behind and head into 2021. There is new hope that the stranglehold of SARS-CoV-2 will be loosened over the coming months. The dialogue on the media has shifted. Discussions about R numbers, social distancing and lockdowns, have been replaced by the challenges we face in executing the vaccination roll-out.

The UK's medicines and healthcare products regulatory agency (MHRA) gave emergency authorisation to the Pfizer-Bio-N-Tech coronavirus vaccine on Wednesday December 2<sup>nd</sup>, 2020. The speed of its decision caught some commentators by surprise<sup>1</sup>. The MHRA's chief executive June Raine credited the UK's rolling review process for the rapid turnaround. The analysis of preliminary data as it came in positioned the Agency for a speedy decision. The committee analysed 1,000 pages of documentation before granting approval. The UK regulatory standards are highly regarded internationally. Its approval decision will act as a bellwether for the other regulators.

A total of 800,000 doses of the vaccine were packaged at the Pfizer Belgian manufacturing plant and shipped to the UK. The vaccine vials will be transported in dry ice. The vaccine is stored at -70C until a few days before use. The vaccine can survive 5 days in a normal refrigerator. The vials will be initially distributed across 50 hospitals. Vaccinations will commence on Tuesday December 8<sup>th</sup>, 2020. The initial plan is to vaccinate those over 80 years and healthcare staff. The recipients will include 150,000 doctors and 330,000 nurses and midwives. Each individual will require 2 doses administered 1 month apart.

EU countries are waiting for the European Medicines Agency to consider the Pfizer vaccine. It will announce its decision on December 29<sup>th</sup>, 2020. If the outcome is favourable, the Agency will seek the views of all 27 EU countries, which will take a further few days. Vaccine administration will commence in January. The FDA may take a little longer to reach a decision. The Americans employ a more cautious approach. They examine raw data again whereas the UK and Europeans rely a little more on the company's own analysis<sup>2</sup>. The FDA head Stephen Hahn said he was hopeful that the agency would approve a vaccine this month. He added that he realised the urgency of the situation.

The Taoiseach has said that the vaccine will be rolled out as soon as the European Medicines Agency gives the go ahead. The vaccine will be free of charge to everybody. The Government is engaged in scenario planning for the administration of the vaccine. Denis McCauley, Chairman of the GP Committee of the IMO stated that the first distribution of the vaccine will be straight forward. It will be given to those over 80 years and healthcare workers (this will be subject to further review). The next groups to receive the vaccine will require further consideration.

Ireland has a good track record when it comes to vaccines. The Dept. of Health speedily introduced the Haemophilus Influenzae B (Hib) vaccine<sup>3</sup> on October 1<sup>st</sup>, 1992. This was the very same month that it was launched in the UK, where it was developed. It was an important landmark for Irish Paediatrics. The vaccine provides protection against the commonest cause of bacterial meningitis in children, the exclusive cause of epiglottitis, and a frequent cause of cellulitis and bone infection. After the introduction of the vaccine the number of cases fell from 100 per year to under 10 per year by 2000. It is even less common in the current era. The subsequent vaccines that have been added are meningococcus C (2000), pneumococcus (2000), hepatitis B (2008), HPV (2010), meningococcus B (2016), rotavirus (2016), meningococcus ACWY (2019). A major influenza vaccination campaign is also launched annually.

No vaccine can be widely administered to children until it has been tested in them. Pfizer began testing its vaccine in children aged 12 and over in October. Moderna has announced on Wednesday December 2<sup>nd</sup>, 2020 that it will shortly begin vaccine trials on children aged 12-17 years. The study will include 3,000 children. Similar to adults, they will receive either the vaccine or saline in 2 doses one month apart. It is possible that children will have stronger reactions, including fever, muscle ache and fatigue. AstraZeneca has also tested its vaccine on children in the UK.

It is difficult to predict how quickly a successful vaccine will restore public confidence and a sense of normality. The New York Times surveyed the thoughts and attitudes of 700 epidemiologists this week.<sup>4</sup> Half said that they would not change their personal behaviour until at least 70% of the population is vaccinated. Thirty per cent said that they would make some changes to their lifestyle when they themselves had received the vaccine. The additional concerns expressed by this academic group were (1) how long the vaccine immunity would last (2) will the virus mutate (3) the challenges of vaccine distribution (4) the reluctance of some people to take the vaccine and (5) that scientists don't know whether vaccinated individuals could still spread the virus. It is likely that the views of the non-epidemiologist general public will be somewhat different. However, what everybody seeks is a return to pre-Covid-19 normality.

Vaccine hesitancy is a term that we will have to become familiar with in the coming months<sup>5</sup>. It is described as an expression of concern or doubt about the value or safety of a vaccine. These individuals are neither pro nor anti vaccine. Melinda Gates, the Gates Foundation, feels that social media is a major obstacle. It is easy to replicate conspiracies. Disinformation is easy to spread and this time round it has the potential to cost many lives. The combination of social media, people's high levels of anxiety, and the polarisation of society is a toxic mixture. The willingness to take the Covid-19 vaccine will be affected by what is said and who says it in the months ahead. The public health campaign needs to be clear and consistent. Corcoran<sup>4</sup> points out the importance of staying on the message. Listen to any concerns but don't bring up new concerns. Stating that a vaccine is 99% safe is better than stating that there is a 1% risk of side-effects. The most effective previous investment in public information on vaccines was the march of the Dimes polio vaccination efforts in the 1950s. The decision of the Government to indemnify the companies producing the Covid-19 vaccines is important. It sends out the message that it has confidence in the effectiveness and safety of the product.

In the coming month the vaccination programme will commence in many countries. It is calculated that globally 5.6 billion people will need to be immune in order to eradicate the pandemic<sup>6</sup>. It will require a concerted effort both nationally and internationally.

#### **References:**

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