Irish Medical Journal
Established 1867

Issue: Ir Med J; Vol 114; No. 2; P256

The Covid-19 Pandemic: The Outlook for Year Two

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It is almost one year since the first cases of Covid-19 were reported in Ireland and the UK. It has been a tumultuous period for us all. Richard Horton[1] in this week's Lancet states that the measures needed to control the pandemic have led to 'the greatest imposition of restricted civil liberties ever seen in peacetime. Indeed, during world war II, cinemas, theatres, cafes, restaurants, and pubs all remained open'. As commentators sift through the events of the past 12 months, thoughts turn to the best strategies on the path to normal living. This first anniversary of Covid-19 is an opportune time to recalibrate. We are now clearer about what is promising and what does not appear to work. An apt description[2] is the distinction between 'green apples and useless therapies'. The ultimate destination is a safe return to normal living. The timing around when this will be achieved, will vary from country to country depending on a number of critical factors.

Covid-19 vaccination is the key to our emergence from the pandemic. It has surpassed expectations with a 90-95% efficacy. This represents a 20-fold risk reduction in contracting the disease[3]. Israel reports only a 0.04% rate of infection after two doses of the Pfizer vaccine. Currently, they have vaccinated a significant proportion of their population, and plan to complete their vaccination programme by the end of March 2021. The UK have administered the Covid-19 vaccine to 14 million people. The vaccination status of various countries as of February 12th,2021 is as follows; Israel 71.2 per 100 people, United Arab Emirates 48.5 per 100, UK 21 per 100, US 21 per 100, Ireland 4.6 per 100, Germany 4.4 per 100.

The current pressing concerns in Ireland are vaccine availability and the administration logistics. The involvement of GPs is a very welcome development. They are the medical group with a long and successful record in the delivery of vaccines. Dr Ray Walley, GP and former IMO president, points out that each year, 'Irish GPs administer the flu vaccine to 750,000 patients in a 7-week timeframe'.

As the vaccination roll-out gathers pace, the issues around vaccine hesitancy will emerge. A US survey carried out from November 30th to December 8th, 2020 found that 34% would take it, 39% would wait, 9% would take it if required by the employer, and 15% would definitely not take it. A corresponding Irish survey conducted on January 25th, 2021 was much more positive. It found that 75% will take the vaccine, 18% are unsure, and 7% will not. Among the over 65s, the acceptance rate is 86%.

Discussions have begun in some countries around the issue of vaccine mandates[4]. Up to now mandates have been rare in adults, while being more common for schoolchildren in some countries. The World Health Organisation (WHO) is opposed to mandates based on previous experiences. It is generally felt that compulsion can backfire and that it may galvanise the anti-vaccine campaign. The main reservation is that a mandate over-rides personal autonomy. On a practical note, there is no clear mechanism on how to enforce a mandate. The objective must be to convince and persuade. It remains very important that there is a high uptake among healthcare workers and those in the service industries.

Another issue is the future behaviour of vaccinated people. The advice is that they should behave as before in relation to mask wearing. This sends the message that we are protecting each other. In addition, there is insufficient data about asymptomatic carriage after vaccination. Another concern is that the efficacy of the vaccine could decline over time.

Masking has emerged as an important tool in the prevention of Covid-19 spread. The Centre for Disease Control and Prevention (CDC) have performed a series of laboratory experiments in relation double masking[5]. Double masking is where a cloth mask is worn over the surgical mask. The findings were as follows; a surgical mask blocked 56% of particles from a simulated cough, a cloth mask blocked 51% of particles, a cloth mask worn over a surgical mask blocked 85% of particles.

When both the source and the receiver are wearing double masks, the receiver's exposure is reduced by 96%. In a separate experiment it was found that by simply knotting the ear loops together where they are attached to the mask, a tighter fit to the face can be achieved. This knotted modification to the surgical mask increased the particle block from 51% to 77%.

The social distancing recommendation is two metres. There are good scientific reasons for this. While Covid-19 is mostly spread by respiratory droplets, there may also be aerosol transmission. Respiratory droplets (> 5 microns) fall to the ground within three feet of the source. The smaller aerosol particles dry quickly, remain suspended in the air, and travel further.

The gold standard RT-PCR test is undertaken at the National Virus Reference Laboratory (NVRL) and at least 42 hospital locations. The mean turn round time in the community is 29 hours and 16 hours for hospital patients[6].

There is an important distinction between diagnosis and random testing. RT-PCR testing is needed for the former but rapid tests may have a role for the latter. Different levels of sensitivities are required in different situations. Rapid, easily accessible tests would help in opening up institutions including universities. The development of this type of testing is an engineering challenge rather than a biological problem. The WHO states that rapid antigen detection tests (RADTs) performance should be sensitivity >90% and specificity >99%. A systematic review of RADT diagnostic accuracy reported a mean sensitivity 56% and specificity 99%. Antigen tests are now being undertaken on Irish truck drivers travelling to France, following a French government directive.

The challenges posed by the Covid-19 pandemic are constantly changing. The hope is that the vaccination programme will provide effective societal immunity leading to a return to normal activities.

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