The Power of Judgement regarding Covid-19 policies or practices. A reflection from New Zealand

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Abstract

Judgements are made when problems are complex and there is insufficient information or too many competing factors for a protocol or guideline to be helpful. Judgements inevitably reflect values and beliefs of what is good. They are based on an ethical foundation. A particular ethical issue relevant to Covid-19 is inequality of health outcomes. Making a judgement is of little moment if the person making the judgement is not trusted by anyone else. An understanding of trust is important. Many judgements that impacted on the outcome of Covid-19 were made in the years before the pandemic. Judgements on the science underlying decisions should be made by the specialists in that area o science. It is important to be clear for whose benefit a judgement is made. Is it for the individual, for a particular community, a particular country or for the whole world? In the case of Covid-19 a decision made that did not at least consider the impact on the rest of the world was likely to be flawed, given that the pandemic is a global problem needing a global approach. Judgements during a novel pandemic are by definition made on insufficient information. To mitigate this, they need to be made transparently, clearly enunciating the reasons for the judgement, based on as much consultation as possible and trying to avoid unconscious bias. This has been an existential crisis for us all. We need to make judgements differently in the future or we risk this disaster being repeated.

Keywords:
Complexity, Trust, Inequalities, Covid-19, Judgement.

Introduction

I will discuss the power of judgement regarding Covid-19 policies comparing our experience in New Zealand with other countries. I will start by looking at some of the principles worth considering. I will then look at judgements made prior to the pandemic, judgments in relation to the science, and the level at which judgments are made.

Complexity Theory

Complexity theory helps us to understand how decisions are made, both within general management (Snowden & Boone, 2007) and within healthcare (Gray, 2017). Problems can be divided into four categories; Simple, Complicated, Complex and Chaotic.

Decisions for simple problems are easy. The level of evidence for good management is very high and widely known, there is such a thing as best practice. The process is one of following the recipe or protocol and a good outcome is almost certain. A example would be the use of personal protective equipment to prevent nursing staff from catching Covid-19 from infected patients. There is very high-level evidence that used according to protocol, it can prevent transmission. There is no judgement to be made, just follow the protocol.

Complicated problems require more information, there may be more than one way to reach a good outcome, and the knowledge required may be less readily available. In the hands of a specialist in the area a good outcome is probable. An example of this would be decisions on how to design and run managed isolation and quarantine (MIQ) facilities. To be successful this requires not only an understanding of infectious diseases, but also of building ventilation, behavioural psychology and people management, involving a team of experts. Since New Zealand set up MIQ facilities there has been close monitoring of any breech of the system and iterative improvement. This has involved:

1. Early on deciding that private security firms were unable to maintain the discipline and follow protocol successfully, so the task was given to the Defence Force to manage.
2. When spread within the facilities was noted a problem that was identified was the quality of the ventilation system, particularly the ventilation of the shared hallways, and these were upgraded. Where upgrade was not possible, the facility was no longer used for MIQ
3. Early on a family broke out of MIQ to attend a family funeral. Providing mental health support for those vulnerable people in MIQ to help them manage their stay helped to mitigate this risk.

For simple and complicated categories of problems decisions are largely based on a good grasp of the available evidence, there is limited need for judgements.

Complex problems are characterised by incomplete information and uncertainty. There is no protocol guiding how to manage them, and judgements are required, based on best guesses and using trial and error.

In March 2020 NZ mandated a hard lock down requiring everyone except people providing essential services to remain at home with exceptions for basic necessities (to buy food, go to the doctor, exercise). Whilst the advice from the infectious diseases and public health experts was very strongly in favour of lock down to control Covid-19, consideration had to be given to the wider consequences of going into lock down particularly the effect on the economy. Advice on the economic issues were provided by specialists in that area. However, it was the politicians who had to make a judgement. At the time Sweden was pursuing the course of keeping the economy running, having no lockdown and relying on social distancing and a presumption that eventually the community would become immune. In retrospect that was not a good strategy. Sweden has fared worse than the other Nordic countries in terms of infection rate and deaths ("Worldometer Coronavirus," 2021). Again in retrospect it has been shown that countries that pursued an elimination strategy also had a better economic outcome (Philippe C, April 2021.). An important part of the judgement that the government made was to introduce substantial subsidies to support wages and businesses during the lockdown, to mitigate the economic effects. The result to date has been that despite initial estimates that unemployment would rise, New Zealand currently has an unemployment rate of 4%. The rate has not been that low since June 2008 (Statistics New Zealand, 2021). Whilst these were two of the main features there were many others; effect on education, effect on essential migrant workers, effects on mental health for example, all of which required assessing and mitigating.

Chaotic problems are where action is needed to try to gain enough control of the problem to be able to do future planning. The best example of this were the issues that Italy faced at the beginning of the outbreak. There was a rapid rise in cases and the health system was overwhelmed.

> *Our world was completely subverted by the emergency. No plans or protocols had the time to be tested and verified, at least on a large scale. The rapidity of the evolving scenario made it necessary to adopt easy and pragmatic solutions even for critical and delicate matters. (Cesari & Proietti, 2020)*

The pragmatic solution that they adopted to manage the overwhelming number of patients presenting to ICU was to exclude older people and Cesari (Cesari & Proietti, 2020) at the time bemoaned this response as being ageist and reprehensible. In retrospect that decision has been shown to be a defensible one. A large study, data matching patients with Covid-19 and their primary care records looked at what risk factors people had and what predictive value these had for mortality (Williamson et al., 2020). The clear finding was that advancing age was far and away the most important factor with 80+ yrs. olds having a 12 times greater likelihood of dying.

The final element of this complexity model is the zone of disorder. When a problem appears, it is in this zone and a judgement needs to made as to what sort of problem it is, and who is best to manage the problem. The skills of addressing the different problems vary considerably. Nurses are very good at following protocols, important for managing simple problems. It is a central part of their training. Specialist Physicians tend to see every presentation as a solvable problem and order lots of investigations. They are good at complicated problems. General Practitioners often do not have access to much information on the first presentation of a problem and will often engage in trial and error with safety netting "I think this problem may be X and if it is it will get better with Y. If it does not get better come back and we will review. "An approach to complex problems. Much of medicine is seen as simple or complicated and there are protocols and guidelines for most conditions. This helps to simplify practice and avoid all doctors having to know all the literature, but a significant problem is that hidden in these guidelines and protocols are value judgements; ethical choices. The most common one is when assessing the value of a treatment what is more important; length of life or quality of life, but there are many more.

Problems can consist of elements that are "Simple" alongside complicated or complex elements. An important skill is to separate these

problems out so that we follow protocols for the simple problems (wear PPE properly), use experts for the complicated problems (design of MIQ facilities), and use politicians to make judgements on the remaining complex elements.

Ethics

Complex problems that involve judgements are inevitably based on particular values and beliefs, either of the individual making the judgement, or more importantly when governments make judgements based on what they understand to be the values and beliefs of the population they are responsible for.

An important problem when considering ethical decisions is that of unconscious bias. A middle-class house owning, Information Technology employed person might see a lockdown as a simple thing to do, some even reported enjoying it. For people living in crowded rental accommodation, or who are homeless, who cannot afford to stockpile food, it is much harder. The risk is that decisions about lockdown are made without considering the circumstances of all people, on the assumption that everyone is like "me".

Unconscious bias has been shown to have a significant impact on outcomes for bowel cancer at all levels of the journey from diagnosis to final treatment (Hill et al., 2010). The indigenous Māori population have poorer access to primary care, are less trusting of the health system, are likely to present when their cancer is further advanced and will take longer to reach the specialist. The health system is designed to give good outcomes for the majority population, it does not achieve good outcomes for Māori.

Concern about equity of health outcomes was an important factor in New Zealand's decision making in relation to Covid-19. At the time of the lockdown it was already apparent that if the infection became endemic that it would disproportionately affect poorer and minority ethnic populations particularly Māori.

In a non-pandemic environment this has been a political issue but the urgency with which it has been addressed has been woeful. In a pandemic setting such inequalities can completely undermine the national response. An earlier outbreak in Auckland was worse because initially there was little contact tracing capacity with tracers fluent in Samoan (Perrott, 2020). Vaccination rates for Māori are currently (October 4th 2021) significantly less than European or Other (Maori 28.8% European Other 45.8% fully vaccinated) (Singh, 2021). This highlights an important biomedical ethics difference that has appeared because of the pandemic. In the past inequality of care had minimal impact on those who got good care. In a pandemic we thrive or fall as a whole. If Māori do not have equal access to primary care and do not trust the health system, then as a country we cannot adequately do contact tracing and we cannot achieve high enough vaccination levels to be able to open up as much as we would like.

By comparison Singapore's most affected population group has been its migrant workers. Whilst Singapore has been able to return closer to normal and is 18th and has previously been much higher on Bloomberg's ranking of Covid resilience (Bloomberg, 2021) (New Zealand number 38), it has been at the expense of its migrant workers. They have been living in lockdown for many months and under much greater restrictions than other people living in Singapore. The vast majority of all the cases in Singapore are migrant workers (Tan, 2021). Concern for these workers has not been as big a political issue in Singapore.

A consequence of the elimination approach has been very limited ability for New Zealanders overseas returning home to New Zealand because of the limited availability of MIQ spaces. There are estimated to be around 1 million New Zealanders outside of the country. Many New Zealanders have family and friends living overseas and these people have had a very difficult time (Grounded Kiwis, 2021). The best way to protect Māori is to have a conservative policy on border control, but this is at the expense of these Kiwis overseas.

New Zealand was fortunate in that it had done planning on Pandemic Ethics after the SARS outbreak in 2007 and produced a document "Getting through Together" (National Ethics Advisory Committee, 2007). This was the result of significant consultation and was explicitly trying to describe what NZ'ers thought was right. I have argued elsewhere that the principles in this document were closely followed by the government and that this was a significant reason for population compliance with Government mandates (Gray, 2020).

The pandemic threw up some specific ethical challenges. One which received considerable coverage in the ethics literature was the allocation of ICU beds. This highlighted the way in which ethics is culture bound; enacted and espoused ethical decisions reflect the culture of the country. In the USA with the emphasis on the individual, making triaging decisions in ICU could be problematic.

> *In theory, clinicians who withhold or withdraw ventilators without patients' consent become exposed to risks of criminal and civil liability. The odds that such liability will materialize in any given instance are likely low, especially if clinicians follow recommended guidelines and strategies when allocating ventilators. But the risk of liability is not zero, especially in the case of withdrawal of a ventilator, a scenario that may occur during theCOVID-19 pandemic under existing triage protocols (Cohen, Crespo, & White, 2020).*

By contrast in New Zealand there is no ability to sue doctors and triaging is an accepted practice. The National Ethics Advisory Committee argued that achieving equity was the foremost principle in allocating beds (National Ethics Advisory Committee, 2021). This comparison is an interesting confirmation of Fischer's (Fischer, 2012) hypothesis in his book "Fairness and Freedom" where he writes a combined history of the USA and New Zealand based around the idea that "Fairness" is the central New Zealand valued and "Freedom" is the central USA value.

This debate highlighted the difficulty of debating an issue with considerable uncertainty. Much of the debate was predicated on being able to predict the outcome for any particular patient. Admitting a patient to ICU who would inevitably die would gain little support, as would admitting a patient who would survive without ICU care. The Sequential Organ Failure Assessment (SOFA) (Iba et al., 2019; Karakike et al., 2019; Tee et al., 2018) score was developed for triaging patients in ICU and shown to be discriminatory for a number of conditions, so it was used for triaging Covid-19 patients (Truog, Mitchell, & Daley, 2020). Unfortunately on later analysis it was shown that it discriminated very poorly and that age alone was a better predictor of outcome (Raschke, Agarwal, Rangan, Heise, & Curry, 2021).

Vaccine availability is an important ethical issue. The head of the World Health Organisation described the manner of distribution of vaccines as a "Catastrophic Moral Failure" (Ghebreyesus, 2021) Even now 10 months after vaccination started whilst many First World countries have achieved levels 60% and above, all of Africa has only reached 6.6% partially vaccinated (Our World In Data, 2021). Not only is it immoral that the poorest countries continue to suffer high infection and death rates, but as a result of not trying to vaccinate the whole world, it is inevitable that new strains will develop in those places where the disease is endemic, possibly undermining

the efficacy of current vaccines (del Rio, Malani, & Omer, 2021).

Trust

Onora O'Neill in her Reith lectures (Onora O'Neill, 2002) argued that without trust we cannot stand.

> *Nearly all of us drink water provided by water companies and eat food sold in supermarkets and produced by ordinary farming practices. Nearly all of us use the roads (and, even more rationally, the trains!). Nearly all of us listen to the news and buy newspapers. Even if we have some misgivings, we go on placing trust in medicines produced by the pharmaceutical industry, in operations performed in NHS hospitals, in the delivery of letters by the post office, and in roads that we share with many notably imperfect drivers. We constantly place active trust in many others.*

The pandemic has highlighted the importance of trust, most clearly its absence in those in our community who don't believe that vaccines work, that masking is necessary or worse still that the whole pandemic is a conspiracy. If a government declared that there would be a hard lockdown based on the advice of specialists, then there are three broad possibilities. The first is the Chinese option. They have a considerable capacity to enforce government edicts against a population who may disagree. This is seen as problematic in the West but there is no doubting that few other countries could have successfully shut down a city of 11 million people for 76 days (Burki, 2021). The second is the New Zealand option. New Zealand has high levels of trust in scientists, government and each other (Algan, Cohen, Davoine, Foucault, & Stantcheva, 2021) and achieved a very hard lockdown to initially eliminate Covid-19 with very little in the way of enforcement needed (Gray, 2020). The third option is the USA option where control of the pandemic was not achieved as a result of the numbers in the population not willing to abide by control measures. By comparison with New Zealand trust levels are low (Algan et al., 2021) The failure of trust is particularly problematic in the USA where despite having commenced vaccination early, it has only been able to reach 65% (Cook & Newton, 2021) partially vaccinated. All the other countries in the G7 are higher with Spain and Portugal above 80%. New Zealand did not start vaccinating widely until late July 2021 (Cook & Newton, 2021) and whilst the rate of vaccinating went very high like other countries it is now declining, we have as of September 28th 2021 reached 64% partially vaccinated (Cook & Newton, 2021).

Judgements

I will now discuss particular areas of judgement in relation to Covid-19; Judgements made before the pandemic arrived, Judgements made on the science of Covid-19 and the level at which Judgments are made, local, national and international.

Judgements pre-pandemic.

The fact that a pandemic happened was no surprise. There have been twelve different panels or reports to the World Health Organization since 2011 discussing the risks of pandemics (The Independent Panel for Pandemic Preparedness and Response, 2021, p.13). We knew how to contain outbreaks of new infections and stop this developing into a pandemic but failed to act. The USA in particular was judged in 2019 to be the best prepared to respond to a pandemic (Nuzzo, Bell, & Cameron, 2020), but has failed abysmally.

Taiwan's experience is instructive (Summers et al., 2020). They were the closest country to the original outbreak in Wuhan China. The first reported case was in January 2020. As a result of experience with the SARS outbreak, Taiwan put in place a comprehensive response plan that was activated by screening all passengers from Wuhan and later from all destinations. They restricted entry to non-Taiwanese residents by March and required close contacts to quarantine at home for 14 days. The legislative framework to achieve this was all in place and the response was carried out by "the experts" Taiwan Centre for Disease Control and the Central Epidemic Command Centre, with an established mandate to act. This was clearly assisted by the fact that the vice president was a Johns Hopkins trained epidemiologist (Hernandez & Horton, 2020). By contrast New Zealand was ill prepared, did not have an adequate legislative framework in place, had a completely inadequate contact tracing system and unlike Taiwan no dedicated public sector body to oversee the response (Summers et al., 2020, p3). Taiwan were able to eliminate the virus without having to resort to lock downs. New Zealand used hard lockdowns and had to scramble to build the legislative framework and public health infrastructure to be able to maintain an effective response.

Judgements and the Science of Covid-19

A particularly egregious episode during the pandemic was the controversy over the use of Hydroxychloroquine in the treatment of acute Covid-19. A study published in July 2020 initially on You tube and 4 days later as a preprint found that:

> *hydroxychloroquine treatment is significantly associated with viral load reduction/disappearance in COVID-19 patients and its effect is reinforced by azithromycin (Gautret et al., 2020).*

The first point is that it is surprising that a study of such low standard was even published. This was an open label, non-randomised trial of 42 patients (26 received the treatment and 16 were controls) and 6 of the treated patients were lost to follow up. However it was made worse by the politicisation achieved when President Trump;

> *"speaking on gut instinct," promoted the drug as a potential treatment and authorized the US government to purchase and stockpile 29 million pills of hydroxychloroquine for use by patients with COVID-19 (Saag, 2020).*

> *Of note, no health official in the US government endorsed use of hydroxychloroquine owing to the absence of robust data and concern about adverse effects. Nonetheless, use of hydroxychloroquine increased substantially, and the US Food and Drug Administration had issued an Early Use Authorization for the use of hydroxychloroquine as treatment for COVID-19 on March 28, 2020, which was later revoked on June 15, 2020, following further examination of preliminary data (Saag, 2020).*

Multiple subsequent studies established that it was not an effective treatment (Self et al., 2020).

As discussed earlier the issue of trust is important, and in particular trust in scientists. We know that levels of trust in scientists and in government in the US are low (Algan et al., 2021). This episode is a good example of why. The decision as to whether a drug should be approved for treatment of a condition is almost exclusively a specialist decision, it is a complicated problem. Until there is clear evidence of benefit, and evidence that any benefit is not outweighed by harm, drugs should not be approved. This treatment was promoted based on a gut feeling of the President and the Federal Drug Administration provided approval despite the lack of robust evidence.

Unfortunately, the USA has a long history of the Pharmaceutical Industry manipulating decision making by influencing government regulators. The worst example is the prescription opioid epidemic. This has resulted in at least 400,000 deaths as a result of fraudulent marketing of Oxycontin by Purdue Pharmaceuticals, that was enabled by their ability to influence multiple arms of government and drug supply (Marks, 2020). At the height of the epidemic in 2012 the rate of prescribing opioids in the USA was 81 prescriptions per hundred people (9 states more than 107.1) (Centers for Disease Control and Prevention, 2021) compared to 1.5 per hundred in New Zealand (Health Quality and Safety Commission of New Zealand, 2021).

Judgements; Individual, local national and international.

Individual

Judgements are made with the intention of leading to benefit. An important question is benefit to who? Restriction of travel is a good example to illustrate this. In New Zealand at the time of the lockdown travel outside of the local area was prohibited. At the time the number of cases in the community per capita was low and the risk to any particular individual was small, so from an individual perspective a decision to travel to see an elderly relative needing support was very unlikely to lead to harm to that individual and could be seen as a good judgement.

Local

At the local level in New Zealand there was dispute over how vigorously these regulations would be enforced. Māori in three different parts of the country set up road checkpoints to try to prevent the movement of anyone into their area (Coster, 2020). These were all rural parts of the country with a high proportion of Māori, that were accessed by a limited number of roads. The point that they made was that whilst the Government did not feel that strict enforcement was needed for the whole country, Māori were of the view that in the event Covid-19 spread it would affect their community more severely. In particular because of the lower life expectancy of Māori compared to the general population their elders who are highly valued, are more vulnerable. Strictly speaking without police present at their checkpoints they did not have the authority to prevent people travelling on the state highway. An important part of the debate around Covid-19 in New Zealand has been criticism of the Government's "one size fits all" approach by Māori. Māori have argued that because they face a greater risk of harm (as happened in the 1918 influenza epidemic (New Zealand History, 2020)) then policies for managing Covid-19 should be calibrated to preference Māori.

National

At the National level tight travel restrictions combined with contract tracing and isolation, were the only way to achieve elimination. This was a classical example of conflict between the principles of autonomy and the wellbeing of the collective, which the Prime Minister dubbed the "Team of 5 million" However the rigour of the restrictions was insufficient for many Māori as noted above, and this plan significantly downplayed the effect on the other one million New Zealanders overseas…the team of "6 Million".

More widely most countries have approached vaccine provision on a nationalistic basis. It is clearly unfair that some countries are considering offering booster vaccines to some of their population, with probably only marginal benefit, at a time when many poor countries have not been able to vaccinate at all. Politically this is probably inevitable in that it is the people of the country who vote, so appearing to provide less care for the voters in order to prioritise other countries would in many countries be a political liability.

There has been criticism of China delaying announcing the emergence of the new infection. The details of the debate are not important here, but the point I would make is that for any country to make such an announcement would immediately have a dramatic effect on their economy. It could be predicted that any country might well delay making such an announcement, if they were able to, until they were sure that the infection was of a degree of concern that justified the consequences to their country. We might like to think we would be more global minded/altruistic that that, but would we? In the case of Covid-19 this was exacerbated by the level of political tension at the time of its emergence, epitomised by President Trump referring to the virus as the Chinese Virus. Good judgements at the national level are dependent on having good national governance. The Covid-19 pandemic has highlighted this particularly in the response in Brazil and the USA where a coherent response was unable to mounted resulting in a much worse outcome than might have been if there had been better governance.

International

Short of complete isolation from the rest of the world, pandemics are unable to be controlled by national actions. In this connected world they are a world problem. There is no World government so there is no body that has authority to make judgements for addressing complex problems. However, we have developed a significant consultative structure that has proved to be very effective at addressing complicated problems. There are well functioning systems for international air traffic control, postage, law of the sea, and alignment of weights and measures and time among many others. The World Health Organisation has the structure to respond to the complicated elements pandemic infections but in this instance failed to intervene effectively

An independent panel chaired by former NZ Prime Minister Helen Clark and past President of Liberia Ellen Johnson Sirleaf reported on the WHO response to the pandemic. They concluded that whilst some progress had been made in pandemic preparedness this was found to be completely inadequate. They outlined the many ways in which things need to change if we are not to have a repeat event.

- *The pandemic response has deepened inequalities.*
- *The global pandemic alert system is not fit for purpose.*
- *There has been a failure to take seriously the already known existential risks posed by pandemic threat.*
- *The World Health Organization has been underpowered to do the job expected of it.*
- *The Panel believes that the COVID-19 pandemic must be a catalyst for fundamental and systemic change in preparedness for future such events, from the local community right through to the highest international levels* (The Independent Panel for Pandemic Preparedness and Response, 2021).

As the panel note this is was an existential risk and has become an existential crisis. Unless we make significant changes, it is very likely to happen again. International collaboration is the only option, so it was particularly disturbing that President Trump threatened to remove funding from the WHO (Chappell, 2020).

Particularly difficult problems that need addressing are those of inequality and armed conflict. As noted above world inequalities were deepened during the pandemic. Poor countries do not have the resources to even

have a public health workforce. The Ebola epidemic in Liberia highlighted this:

> *Investment is needed in surveillance, laboratory strengthening, emergency operations center support, epidemiology expertise, outbreak response capacity (including risk communication and health promotion), and the ability to base decisions on data (35,36).* ***In retrospect, it was lack of such public health systems that enabled the Ebola epidemic to grow in West Africa with such devastating consequences*** *(Nyenswah et al., 2016).*

We were fortunate that the Covid-19 pandemic developed and initially spread in a country that had the infrastructure to detect, isolate and genome sequence the offending organism very rapidly. Had this pandemic started and spread widely in a country like Liberia it could have spread much more widely before being effectively described. If it had started in Afghanistan, Yemen, Syria, Ethiopia or Sudan (to name a few war zones) control of local spread would have been impossible.

Conclusion

Judgements can only be as good as the information that they are based on. By definition, with a novel infection that information is limited. New Zealand to date has made judgements that on balance appear to have been good.

On the plus side, we have had very limited time in lockdown. We have had many months of being able to live relatively freely. We have had very few cases or deaths and our economy has kept going not too badly. On the negative side, like others we have suffered all the consequences of lockdowns on mental health, ability to grieve loss, and the other effects of relative isolation. Care for all the other health conditions has been impacted such that surgical waiting lists are longer, timely cancer care has been impacted and an already stressed health system has been further stretched. The impact on international travel has been very large affecting the New Zealand diaspora. New Zealand has in recent times relied on importing workers for many sectors; hospitality, fruit and vegetable harvesting, health professionals, shearers, and many others. The closed borders have led to skill shortages. Our response has exacerbated existing problems of inequality in health outcomes. It has combined with a housing shortage to create increasing inequality of wealth.

CGP Gray has done a very helpful Youtube video (Grey, 2020) on Lockdown that summarises a number of these issues

> *There are no solutions only trade-offs and the fog of the future hides vital information. This point might sound obvious but it is often forgotten when looking back at decisions you have already made, giving a distorted perspective that decisions were clearer than they really were.*
>
> *With a potential new Global Pandemic out in the fog there are a lot of normal seeming things that might turn out to be quite deadly. Unfortunately, the information you need about them is also out in the fog of the future. Then when infection vectors and transmission rates and lethality and long-term complications are known, the decision will have been easy, and you won't have under – or over-reacted. But it is now, and you don't know.*

Currently New Zealand's largest city has been in lockdown since August 19th because of an outbreak of the Delta variant. The infection has spread into the most alienated and disadvantaged part of the population. It is much harder doing contact tracing and achieving isolation for an infected homeless person, or a member of a gang. Only when the fog of the future clears will we be able to decide whether we made the best call (in retrospect). It is possible that the New Zealand response will go really badly; tolerance of lockdown will be overwhelmed, it will spread widely in the community, the health system will be overwhelmed, and we will regret that we did not get our vaccination rates higher earlier. It is also possible that we could manage to control this outbreak and be able to do a planned transition to opening up the borders with manageable numbers of infections.

Judgement has power for good or bad. Good judgements need to be clear as to who the judgements are for, and ideally the judgement should include everyone who might be affected by the judgement. Care needs to be exercised in recognising unconscious bias in decision makers, and consulting as widely as is practicable. Judgements need to be transparent and explained as to the reasons they were made, and continually evaluated as the fog of the future clears. As new information comes to light judgements may need to change. If judgements are made by consensus then the decision is much more likely to be implemented. If it is made by dictat implementation may only be achieved by the use of force.

As the Independent Panel for Pandemic Preparedness and Response noted this is an existential crisis. If we are to avoid a repeat episode, we will have to make some significant changes. These will determine whether the power of judgement is for good or bad.

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