“Public health: the science and art of promoting health, preventing disease, and prolonging life through the organized efforts of society.”

WORLD HEALTH ORGANIZATION
In 2020, when SARS-CoV-2 (the virus behind COVID-19, the disease) appeared on the global stage, decades of pandemic planning were disregarded and replaced with a new policy of ‘lockdown’. Following in China’s footsteps, many democratic governments restricted movement and shut down their societies. Wide-scale contact tracing, testing, and mask mandates were adopted, and the World Health Organization (WHO) endorsed these measures, acting against its own pandemic guidelines.³

It is now clear that society and public health are being damaged by the global response to COVID-19. Vulnerable and disadvantaged populations are most impacted, particularly in low-income countries – as is often the case in a crisis, those with the least resources are suffering the greatest harm. Governments and the media have fuelled a climate of fear and mistrust, and scientific discourse has been eroded by politics.

Given what is known about the epidemiology of SARS-CoV-2, (that is, the risk of serious illness and death with increasing age and comorbidities), PANDA asserts that there was no need to abandon existing WHO guidelines. These guidelines were produced through a meticulous, evidenced-based process, and the recommendations still apply today.

**PANDA’s Protocol for Reopening Society**⁴ is a way out of the damaging cycle of lockdowns. This involves returning to longstanding public health principles⁵ and adopting an approach of ‘focused protection’⁶ to safeguard the most vulnerable, as articulated by the Great Barrington Declaration.⁷

PANDA argues for an equitable approach to public health that protects the lives, opportunities, and wellbeing of all citizens – enabling populations to prioritise according to their own burdens.

This paper summarises the rationale for PANDA’s strategy for reopening society. Damage has been done on a vast scale; it is time to stop the disastrous policy of lockdowns and start undoing their harm.

Two critical aspects of PANDA’s argument for focused protection are that public health measures must be both context-specific and voluntary for citizens. PANDA’s stance on public health also places primacy upon human dignity and upholding fundamental rights of freedom, education, income, and health.
SECTION 1: LOCKDOWNS – ABANDONING PUBLIC HEALTH

“No state party shall, even in time of emergency threatening the life of the nation, derogate from the Covenant’s guarantees of the right to life; freedom from torture, cruel, inhuman or degrading treatment or punishment, and from medical or scientific experimentation without free consent...

...the right to recognition as a person before the law; and freedom of thought, conscience and religion. These rights are not derogable under any conditions even for the asserted purpose of preserving the life of the nation.”

THE SIRACUSA PRINCIPLES

For decades, it has been acknowledged by the world’s premier health authorities that amid a pandemic, the functioning of society should be maintained, and human rights upheld. In recent years, nations have developed pandemic preparedness plans to maximise their ability to respond effectively to an emerging pandemic. Similarly, the World Health Organization pandemic guidelines provide an extensive evidence base to guide a global response to pandemic influenza. Like influenza, SARS-CoV-2 is a highly transmissible respiratory virus and therefore these plans are relevant when reviewing the response to COVID-19.

Despite extensive knowledge about pandemic management, when faced with SARS-CoV-2 most countries abandoned existing pandemic plans and enforced widespread lockdowns or ‘stay-at-home’ orders. Civil liberties on a grand scale were suspended in the process. Examined in detail here, this type of policy response runs counter to the principles of public health and raises serious legal and ethical questions about the role of governments during a pandemic.

A public health approach to a pandemic

“Public health should achieve community health in a way that respects the rights of individuals in the community.”

PUBLIC HEALTH LEADERSHIP SOCIETY

WHO Pandemic Influenza Risk Management Guidance suggests that ‘advance planning and preparedness are critical to help mitigate the impact of a global pandemic.’ This document is one of several compiled by the WHO to assist member states to develop country-specific pandemic preparedness and response plans.
Although preventing all pandemic-related deaths is impossible, public health policies should aim to minimise the overall harm from the pandemic, while also considering potential collateral damage from the response. This also includes considering non-pandemic related health needs and the risk of death from other causes. Governments must undertake cost-benefit analyses of interventions to ensure benefits outweigh potential risks. Ongoing evaluation of public health measures is essential to ensure that interventions are lawful, necessary, effective, proportionate, and ethically justifiable.

Another pandemic response objective should be to assess the nature of an infectious disease and the populations most at risk of harm. To ensure the response is appropriate and effective, the unique needs of a community, its resources, and demographics must also be considered. Therefore, WHO pandemic guidelines are clear that community participation is critically important, and public trust must be built and maintained. Governments and leaders must educate citizens about the real risks from a disease. This should include specific vulnerabilities and the evidence underlying these, and advice about how citizens can take sensible steps to protect themselves, their families, and communities.

Even though public health policies focus on the wellbeing of communities, fundamental human rights should not be overlooked during a pandemic. The ethical principles of respect for persons (the inherent rights, dignity and autonomy of the individual), non-maleficence (doing no harm) and justice (fairness) are important. Decision makers should ensure that public health measures do not disproportionately impact certain groups or individuals – particularly those who are already physically, socially, or economically vulnerable.

Historically, the most successful public health strategies have been those that rely on voluntary public cooperation, not coercion. A landmark 2006 paper on disease mitigation suggests a useful overriding principle for responding to a pandemic: “Experience has shown that communities faced with epidemics or other adverse events respond best and with the least anxiety when the normal social functioning of the community is least disrupted. Strong political and public health leadership to provide reassurance and to ensure that needed medical care services are provided are critical elements. If either is seen to be less than optimal, a manageable epidemic could move toward catastrophe.”

Public health measures are more likely to succeed through a process of active engagement and collaboration between governments and citizens. An informed and empowered public will voluntarily take protective action during a pandemic. Rather ironically, this was also recognised by Ferguson et al in their March 2020 paper – ‘Report 9’ –
that was instrumental in triggering the first lockdown in the United Kingdom. They stated: ‘it is highly likely that there would be significant spontaneous changes in population behaviour even in the absence of government-mandated interventions.’

There is a world of difference between voluntary and mandatory interventions.

Maximising the freedom of civil society to function normally is ultimately key to supporting health systems amid a crisis.

However, in 2020, many governments took the opposite approach, and societies across the world were shut down.

The new policy of ‘lockdown’

“However, we emphasise that is (sic) not at all certain that suppression will succeed long term; no public health intervention with such disruptive effects on society has been previously attempted for such a long duration of time. How populations and societies will respond remains unclear.”

FERGUSON ET AL, 2020

Existing pandemic guidelines recommend various non-pharmaceutical interventions (NPIs) designed to slow the rate of transmission of a virus and reduce the risk of healthcare systems being overwhelmed.

However, the term ‘lockdown’, was new to pandemic management in 2020. This strategy, which aims to suppress transmission of SARS-CoV-2, is based on the response of the Chinese government to SARS-CoV-2 in Wuhan and was promoted by the WHO, through it was contrary to WHO guidelines.

The widespread shutting down of whole societies to suppress a respiratory virus has little scientific foundation and does not form part of pandemic plans in democratic countries. Lockdowns are an experimental exercise never attempted before - as recognised by Ferguson et al, quoted above.

In fact, previous research explicitly cautioned against such drastic measures because the negative consequences outweigh any theoretical benefit.

Collateral damage

“... these measures can impose significant burdens on individual rights (e.g. autonomy, privacy, and liberty) and economic and social welfare (e.g. trade, tourism, and business).”

WORLD HEALTH ORGANIZATION

A major challenge in understanding the impact of lockdowns is the complex interplay between individuals, society, the broader environment, and SARS-CoV-2. Throughout the response to this virus, there has been a heavy reliance on computer modelling. This can be
informative but it must also be supported by, and adapted to, robust empirical data. Any modelling must be understood in the context of human behaviour, immunology, and epidemiological influences.

A growing body of empirical evidence is highlighting the damage that lockdowns are causing. The most vulnerable and disadvantaged members of society are suffering the greatest harm. Economies are being devastated and citizens plunged into unemployment, causing dramatic increases in poverty, particularly in low-income countries. Children and young people, who are at little risk from COVID-19, are being unfairly impacted by these measures.

A generation is being damaged by long-term school and university closures. Research also suggests that mental health and wellbeing is sharply declining, vital health care for conditions such as cardiovascular disease and cancer is not being provided, family violence is increasing, and outcomes are worsening for chronic diseases. Evidence is also emerging of a wave of non-COVID excess deaths, including in working-age individuals, due to the impact of lockdown policies.

In addition to widespread concerns about lockdown harms, research suggests that mandatory lockdowns provide little benefit in reducing the spread of SARS-CoV-2 compared with less restrictive measures. No empirical evidence has emerged to show that lockdowns have reduced overall mortality from COVID-19. Data show no overall correlation between lockdown stringency and reduction in mortality. Papers claiming to demonstrate lockdown efficacy – such as the June 2020 paper by Flaxman et al. – have been widely critiqued, and the conclusions drawn about the benefits of lockdowns are significantly overstated.

It is noteworthy that Sweden, which did not enforce a mandatory lockdown and adhered more closely to its existing pandemic guidelines, has not experienced the catastrophic numbers of deaths predicted by computer modelling. To date, it has had fewer deaths per million than the United Kingdom, which has seen repeated cycles of lockdown for more than a year. Death rates in other locations that did not enforce mandatory lockdowns or abandoned them – such as Belarus and Florida – are in keeping with global trends. Florida, which lifted most restrictions in September 2020 and has a high population of elderly residents, has a lower death rate than many of the large American states that imposed strict lockdowns. Texas followed in Florida’s footsteps and lifted lockdown restrictions in early March 2021. At the time of writing, cases and deaths in Texas have continued a downward trend.

In essence, if lockdowns worked to prevent deaths, this would be reflected in the data. It is not. But rather than a case of simply doing nothing, the opposite of locking down a society is to follow public health principles and protect the vulnerable.
In fact, lockdowns may cause more harm than good – research suggests that they may increase exposure and according to leading epidemiologist John Ioannidis, they are probably ‘pro-contagion’. Lockdowns could result in a longer and more lethal pandemic by increasing the risk to vulnerable populations through policies that reduce transmission in the young and healthy. This can delay the build-up of herd immunity and shift the burden of disease onto populations with a much higher risk of mortality. This risk of a larger epidemic due to a delay in herd immunity was also noted by Ferguson et al.

There are also many unanswered questions about the impact of such large-scale meddling with nature on viral mutations and natural herd immunity. What impact do inactivity, reduced sun exposure (inducing vitamin D deficiency), and increased stress, have upon the immune system? Could this result in an increased vulnerability to disease and more severe pandemics in the years ahead? Many critical questions should be analysed.

**Ethics and human rights in the time of lockdown**

“...the impact of the COVID-19 pandemic has disproportionately affected those in vulnerable situations and those already suffering from poor health and has exacerbated their vulnerability and exposure to socioeconomic drivers, leading to increases in morbidity and mortality, as well as economic damage at the individual and community levels.”

WORLD HEALTH ORGANIZATION RESOLUTION

In addition to the distinct lack of a widely accepted scientific basis, the ethical considerations of mandatory lockdown policies are significant. Unfortunately, despite the extensive literature available, these impacts have received little attention from governments or the WHO.

One example is a 2008 WHO ethics paper that highlights the socioeconomic and psychological risks of prolonged social separation caused by social distancing policies such as lockdowns. It also draws attention to the significant impact on individual rights, claiming that restrictions on personal liberties most affect those with the fewest resources. As discussed here in this paper, this is precisely what has occurred during the response to COVID-19: lockdowns have disproportionately affected people on low or unstable incomes.

From a public health perspective, this is vitally important. It is widely known that non-medical factors influence the long-term health of individuals and communities – commonly known as the social determinants of health (SDOH). Billions are spent every year, globally, on programs to address the SDOH and reduce health inequality. The SDOH are an obvious warning about the potential long-term harms of lockdown policies – yet they have been
largely ignored by policy makers. This is a clear contravention of public health ethics.158

It cannot be claimed that governments were unaware of the potential impact of lockdowns. Even Ferguson et al acknowledged that their recommended lockdown strategy carried significant socioeconomic risks:

“Suppression, while successful to date in China and South Korea, carries with it enormous social and economic costs which may themselves have significant impact on health and well-being in the short and longer-term.”139

Despite this, after the release of the Ferguson paper, a UK nationwide lockdown was enforced. It seems pertinent to ask why governments ventured into lockdowns when the potential negative repercussions were so obvious?

Although public health is always a balance between collective and individual rights, international human rights law clearly states that any restrictions placed on the rights of citizens during an emergency must be necessary, proportionate, lawful and non-discriminatory.

In addition, the least restrictive means possible should be used.140

Vital cost-benefit analyses were not done by governments when implementing lockdowns, and global citizens are now paying the price for this negligence. PANDA believes it is highly unlikely that any cost-benefit analysis will weigh in favour of lockdowns. Lockdowns are an ill-considered policy that negligently disregarded established protocols. Moreover, lockdown policies have deemed participation in many aspects of civil society a non-essential activity - including family, religious and community life.

People across the world have been denied the ability to work and earn a living, denied access to vital health care, denied opportunity to see and care for loved ones, denied freedom of movement and trade, denied cultural and social participation, and millions of children have been denied education.

If lockdowns do not prevent deaths, they are a futile public health exercise. Given the widespread suspension of civil liberties, and the obvious harms that are occurring, what do lockdowns mean for fundamental human rights?

Are governments and the WHO meeting their ethical and legal obligations under international law?
SECTION 2: NON-PHARMACEUTICAL INTERVENTIONS (NPIS) – SCIENCE OR POLITICS?

“The evidence base on the effectiveness of NPIS in community settings is limited, and the overall quality of evidence was very low for most interventions.”

WORLD HEALTH ORGANIZATION

In addition to lockdowns, various NPIS such as handwashing, respiratory etiquette, facemasks, contact tracing, testing, quarantine (including of healthy individuals) and border closures, have also been widely deployed in response to COVID-19. Although the evidence base regarding the efficacy of NPIS in community settings is weak, used in combination, theoretically these measures may slow community transmission during a pandemic. In theory, this allows time to increase healthcare capacity and reduces the risk of health services being overwhelmed.

Many NPIS have, however, been enforced through legal mandates and their use is inconsistent with WHO’s ‘Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza guidance.’ Some NPIS in use now were not recommended at all. Once again, this flies in the face of long-established public health principles and raises serious ethical questions about the appropriateness of these measures.

Over the past year, the world has also seen science politicised, suppressed, and corrupted by competing interests, leading to erroneous policy decisions in the response to COVID-19.

In July 2020, BBC Newsnight presented evidence that the WHO changed its advice on facemasks due to ‘political lobbying’. Two papers published in major academic journals regarding potential treatment for COVID-19 were subsequently found to have been based on fraudulent data and retracted. The WHO, as well as several governments, changed policy based on the results of these studies. It has also been suggested that the global influence of the Chinese Communist Party helped to walk the world into lockdowns, against all prior evidence-based recommendations.

Proper investigation is needed into why established science has not been followed and who is benefitting from the response to the pandemic.
'Maskerades'

There is no clearer example of the politicisation of science than the changing narrative around face masks, where there has not been a change in the empirical evidence.

Early in the pandemic, governments and the WHO recommended against the widespread use of face masks by healthy individuals to prevent community transmission of SARS-CoV-2.

In April 2020, WHO interim guidance for facemasks stated:

“There is currently no evidence that wearing a mask (whether medical or other types) by healthy persons in the wider community setting, including universal community masking, can protect them from infection with respiratory viruses, including COVID-19.”

Pre-existing WHO guidelines also state that there is no evidence that face masks are effective in reducing transmission. Nevertheless, voluntary use of disposable surgical masks was recommended for symptomatic individuals because they may hypothetically reduce onward transmission. There was also a conditional recommendation for wider voluntary mask use during severe pandemics for public protection. Cloth masks were not recommended under any circumstance.

Despite earlier advice, universal mask mandates rolled out across the globe during 2020. In June 2020, the WHO also changed its advice to include mask wearing by healthy people in the community, as well as cloth masks.

Did the science on face masks suddenly change? No.

Much of the claimed ‘evidence’ that has prompted this policy change comes from computer simulations, laboratory studies, or observational studies, which as the WHO itself recognises, lack the rigour of randomised controlled trials (RCT).

Moreover, laboratory studies bear little relation to everyday life, where masks are frequently handled, reused multiple times, regularly taken on and off, and lowered for talking. What is more relevant are comparisons between similar populations with, and without masks.

A recent RCT, the ‘Danmask-19 trial’ by Bundgaard et al, found no statistically significant difference in rates of infection with SARS-CoV-2, between those who wore masks and those who did not in the community. The results of this study are consistent with other RCTs, which found little evidence that face masks provide protection from infection with respiratory viruses in a community setting.

Despite changing its advice on the use of face masks, WHO guidance continues to acknowledge that there is limited evidence to support the use of face masks by healthy people in the community.

Across the globe, mask wearing rules are chaotic and inconsistent, and there is little evidence to suggest mask mandates are having a
significant impact on the spread of disease.\textsuperscript{176} Governments are enforcing absurd mandates such as mask wearing for people alone driving their cars, when walking outside, when exercising, and most worryingly, in schools.

COVID-19 poses little risk to children\textsuperscript{177 178} and evidence suggests that children are not major drivers of disease.\textsuperscript{179 180 181} There has been insufficient investigation into the impact of widespread mask wearing on children.\textsuperscript{182} Questions need to be asked about the risk masks present for children's physical health, as well as their psychosocial development.\textsuperscript{183} Given what is known about child development and infant attachment,\textsuperscript{184} what does it mean for babies and children who are growing up in an environment surrounded by masked faces?

Another obvious risk, noted by the WHO and others,\textsuperscript{185 186} is that masks may provide a false sense of security to those most at risk from COVID-19. People may believe themselves to be protected when they are not. This is another example of poor policy that potentially increases the risk to the most vulnerable.

In addition, concerns have been raised about the potential risks of prolonged mask use.\textsuperscript{187} These include increased risk of infection, particularly associated with cloth masks,\textsuperscript{188} headaches, skin infections,\textsuperscript{189} breathing difficulties and hypoxia – which may affect people with chronic respiratory disorders.\textsuperscript{190 191 192} Masks can also impede communication for people with hearing loss and have psychological effects, particularly for people with mental health issues.\textsuperscript{193 194}

Policy makers should provide evidence that an intervention is effective and will not cause greater harm.\textsuperscript{195} The decision to endorse mask mandates for healthy people in the community is clearly not driven by sound scientific evidence, and the risks are unknown. Therefore, these policies should not be recommended.

Much of the response to COVID-19, including mask mandates, has been driven by concerns about asymptomatic transmission.\textsuperscript{196} However, evidence suggests that asymptomatic transmission is not a major driver of disease burden.\textsuperscript{197 198} This was noted by both the National Institute for Allergy and Infectious Diseases and the WHO.\textsuperscript{199 200}

Nevertheless, health officials and politicians have widely promoted the idea that asymptomatic transmission is a major driver of the pandemic,\textsuperscript{201 202} resulting in the mass-testing of asymptomatic people.

**Contact tracing, testing and quarantining the healthy – a fool’s errand?**

Once a disease is widespread in many countries, it is impossible to permanently eliminate a highly transmissible respiratory virus such as SARS-CoV-2 through contact tracing and testing. It is recognised that these measures are a waste of valuable resources, as they will not
detect a significant proportion of cases. Consequently, contact tracing was not recommended in WHO guidelines. Nevertheless, there has been widespread adoption of these policies in response to COVID-19, diverting huge health resources and creating economic gain for several biotechnology companies.

The contact tracing employed for SARS-CoV-2 raises serious ethical concerns. These are noted in the literature; apart from privacy issues associated with the tracking of an individual’s movement by mobile phones or other technology, contact tracing is frequently combined with mandatory quarantine. Quarantining of exposed individuals is also not recommended in WHO guidelines, and previous research found that largescale quarantine measures should be ‘eliminated from serious consideration’ because the negative consequences are so extreme. WHO guidelines highlight the risks of quarantining ever-increasing numbers of individuals. This includes an increased risk of transmission within the home, and the widescale disruption of society. People who are socially and economically vulnerable are also more likely to be disproportionately affected.

Many countries are also forcing healthy individuals into mandatory hotel quarantine on arrival, even though SARS-CoV-2 is already widespread within their borders. This is clearly nonsensical from a public health standpoint, has a negative effect on economies and is not recommended in WHO guidelines.

**The PCR test – a tool of tyranny?**

Contact tracing is reliant on the Polymerase Chain Reaction (PCR) test to identify individuals infected with SARS-CoV-2. Concerning evidence of flaws with current PCR testing for SARS-CoV-2 has, however, been reported, raising doubts about the reliability of case data, including COVID-19-related mortality. Pre-COVID medical standards recognise that a PCR test alone cannot diagnose a ‘case’ of COVID-19, in the absence of signs and symptoms of the disease, and without proper clinical assessment.

Although PCR testing can be useful for tracking disease outbreaks during the early stages of a pandemic, it was never intended to be used for mass screening of asymptomatic people. In January 2021, the WHO issued technical guidance for PCR testing that outlined the limitations of PCR testing and the risk of false positives. It concluded:

“Most PCR assays are indicated as an aid for diagnosis, therefore, health care providers must consider any result in combination with timing of sampling, specimen type, assay specifics, clinical observations, patient history, confirmed status of any contacts, and epidemiological information.”
The PCR test amplifies fragments of genetic material present in SARS-CoV-2 but it does not differentiate between live and dead viruses. Therefore, a PCR test alone does not accurately predict the infectiousness of an individual. Although a PCR test may be positive in asymptomatic people, or in people who have recovered from COVID-19, this does not automatically mean they are infectious and can transmit the virus.232

Consistent with other respiratory viruses, people infected with SARS-CoV-2 can be infectious for a short period before symptoms appear233 and for up to eight days after symptom onset.234 235 However, due to the sensitivity of PCR tests, non-infectious viral debris may be detected in nasal swabs for over two months after infection resolves.236 237 A person may also test positive for SARS-CoV-2 when they have never been infected, due to errors within the PCR testing protocol. A false positive may occur because the test has detected genetic material from other sources, or as a result of cross-contamination.238

Concerns have been raised about the reliability of the ‘primers’ (short genetic sequences) used in some PCR tests and their accuracy in detecting SARS-CoV-2, particularly if multiple primers are not used.239 In November 2020, a group of scientists submitted a retraction request to the editorial board of Eurosurveillance for a paper by Corman et al, published on 23 January 2020.240 The PCR protocol in this paper set the standard for global PCR testing for SARS-CoV-2 and was promoted by the WHO.241 The authors of the review concluded that ‘the Corman-Drosten paper is severely flawed with respect to its biomolecular and methodological design’. There are also major concerns about the peer-review process and conflicts of interests of the authors.242 Although the retraction request was subsequently rejected,243 the concerns raised have yet to be properly addressed by the authors.244

Care is needed when conducting and interpreting the results of a PCR test. There is always potential for contamination during collection and analysis.245 246 247 Consideration of the viral load and cycle threshold (the number of times genetic material is amplified) is vital,248 as acknowledged by the WHO.249 False positive results are more likely when a high cycle threshold (Ct) is used because the likelihood of detecting non-infectious viral debris increases. A Ct over 30 is more likely to result in a person being labelled as a positive ‘case’ and quarantined, when they pose no risk of transmitting SARS-CoV-2.250 251

Currently, there is little transparency to PCR testing protocols, which is bad practice and prevents proper scientific scrutiny.

PCR testing is now being challenged through the courts in several jurisdictions. In a landmark court case in Portugal, a judge ruled that a single positive PCR test cannot be used as an effective diagnosis of infection.252 253
COVID-19 ‘cases’ – seek and ye shall find

As a result of the mass testing of asymptomatic individuals, COVID-19 ‘cases’ are often diagnosed based on a positive PCR test alone. In some locations, another test – the lateral flow test – is now also being used in addition to the PCR test for screening asymptomatic people.254

Millions of people globally are being forced to quarantine whether they are infectious or not, having a catastrophic impact on individuals and communities.255 256 It has induced shortages of healthcare workers who must quarantine because of a positive test, and reduced the capacity of health services to respond – in some places compounding the harms caused by the suspension of health services due to lockdowns.257 258

In addition, countries have closed their borders and are implementing border screening – insisting on a ‘negative’ PCR test before travel,259 260 though WHO guidelines do not recommend these measures.

Even more concerning is the widespread testing of children.261 262 Children are being subjected to an unnecessary and sometimes painful intervention that provides them, or society, no benefit.263

Contact tracing and testing for SARS-CoV-2 also has serious ethical implications for privacy and the fundamental right to refuse medical intervention. Forcibly testing citizens is a violation of bodily integrity.264 How does this practice meet the ethical requirements for a ‘necessary or proportionate’ response to a respiratory virus?

Despite not recommending contact tracing and testing in its own NPI guidelines, these measures are being persistently promoted by the WHO.265 Many unanswered questions remain about undisclosed conflicts of interests, and the obvious financial incentives involved in testing and tracing large numbers of people.
SECTION 3: PANDA’S PROTOCOL FOR REOPENING SOCIETY – A RETURN TO ESTABLISHED PRINCIPLES

“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”

WHO CONSTITUTION

Throughout the COVID-19 crisis, governments and mainstream media have spread fear throughout society. In the United Kingdom, it appears this was a deliberate strategy to ensure compliance, a strategy that goes against the principles of public health, and the role of the media in a democracy. Mutual trust between citizens and government is vital during a crisis.

Harsh rules have been applied across entire populations in many nations, irrespective of the variation in risk to different groups of people. This is the opposite of focused protection, which adopts long-standing principles of public health to protect those who are most at risk from COVID-19, while also enabling society to continue to function as normally as possible. Decades of evidence support this sensible strategy.

A great deal is known about SARS-CoV-2, including the people most at risk of severe illness and death from COVID-19. These facts guide PANDA’s Protocol for Reopening Society.

Exploring SARS-CoV-2

Coronaviruses like SARS-CoV-2 have shared the human environment for thousands of years. Several of these coronaviruses circulate seasonally in human populations causing the respiratory infection known as the ‘common cold.’ Like many other viruses, coronaviruses undergo mutation. SARS-CoV-2 is related to the original SARS-CoV-1 that spread globally in 2003. Therefore, although SARS-CoV-2 is frequently described as a ‘novel’ virus, it shares a genetic history with other coronaviruses. This shared history has important implications when analysing susceptibility in human populations and there is evidence that many people may have cross-immunity from other coronaviruses. Consequently, the percentage of people at risk of infection will be lower than assumed in early modelling and fewer people will need to be infected to reach the herd immunity threshold (HIT).

Epidemics end when the HIT is reached and a significant proportion of a population is immune to a disease – whether by natural infection, vaccination or a combination of both. Longstanding knowledge
shows that SARS-CoV-2 is likely to settle into an endemic state where it becomes part of the cocktail of respiratory viruses existing alongside human populations.\textsuperscript{278} This outcome has also been predicted by the WHO.\textsuperscript{279}

Although immunity to coronaviruses may wane over time, there is little evidence to support the notion that people who have been infected with SARS-CoV-2 are at significant risk of re-infection. Evidence from people infected with SARS-CoV-1 suggests that immunity can last many years.\textsuperscript{280} Research on SARS-CoV-2 suggests robust and durable immunity\textsuperscript{281} \textsuperscript{282} and low risk of re-infection.\textsuperscript{283} \textsuperscript{284} \textsuperscript{285}

**Deaths from COVID-19**

One of the most significant features of COVID-19 is the steep age gradient in mortality.\textsuperscript{287} \textsuperscript{288} \textsuperscript{289} Early data from March 2020 showed an increased risk of death and serious illness in elderly people with comorbidities,\textsuperscript{290} \textsuperscript{291} \textsuperscript{292} similar to the high-risk population for influenza.\textsuperscript{292} Most deaths have occurred in this group of people.\textsuperscript{293} Data also shows that *children are much less likely* to develop symptoms of COVID-19 and are at low risk of serious harm.\textsuperscript{294} There is over a 1000-fold difference in risk of death and severe illness between children and elderly people with comorbidities.\textsuperscript{295}

The infection fatality rate (IFR) – the percentage of people infected who will go on to die of the disease – is calculated from serological studies.\textsuperscript{296} The IFR is important when evaluating the *overall impact* of a disease or pandemic.\textsuperscript{297} This differs from the case fatality rate (CFR), which is the number of deaths as a percentage of diagnosed cases. The CFR can vary widely during a pandemic because the true level of transmission may be underestimated.\textsuperscript{298} People with mild infections may go undetected and testing criteria will also change as the need for it evolves through different phases of the crisis. Therefore, the IFR is likely to be lower than the CFR.\textsuperscript{299}

Analysis by Ioannidis, published by the WHO in October 2020, estimated a median IFR of 0.23\% for SARS-CoV-2 infection. For people under 70, the median IFR was estimated to be 0.05\%.\textsuperscript{300} For people without significant comorbidities, the IFR is likely to be even lower. A subsequent paper by Ioannidis published in March 2021, suggests an average global IFR of 0.15\%,\textsuperscript{301} reflecting a downward trend in IFR as more data becomes available.

The literature does show a *variability* in IFR across locations that can reflect demographic or other regional differences. For example, if an outbreak occurs in an area with a high proportion of institutionalised elderly people, the IFR will be higher due to the increased risk of mortality in this age group. In addition, in some locations the inappropriate management of people with COVID-19, may have resulted in increased mortality.\textsuperscript{302}

Another consideration is how deaths from COVID-19 are counted. Is COVID-19 the primary cause of *all deaths* counted as COVID-19?\textsuperscript{303} \textsuperscript{304}
Could the misuse of PCR testing be causing further inflation of the number of deaths? Unfortunately, the data will be hard to untangle, and the picture is likely to be unclear. Some countries, particularly in the West, include all deaths with a recent positive PCR result (up to a month prior) as 'a Covid-19 death', irrespective of the actual cause. Clearly, this can inflate the death count. This policy has never been followed for any other infectious disease.

**COVID-19 – a summary of evidential facts**

- COVID-19 mortality has a steep age gradient.
- Elderly people with underlying medical conditions such as diabetes, obesity, respiratory or cardiovascular disease, are at the highest risk of severe illness and death.
- COVID-19 poses little risk to children and is less dangerous to them than influenza. Children also do not appear to be major drivers of transmission.
- Closed, crowded environments and institutional settings carry a higher risk of infection, particularly healthcare settings, such as hospitals and aged care (nosocomial spread).
- The risk of transmission increases with sustained, close contact, therefore transient contacts are less likely to be a risk.
- People who are immunocompromised are always at greater risk from any infection.
- Some people may develop a post-viral syndrome (referred to as 'long Covid'), which is not unique to SARS-CoV-2 and occurs with many other viruses.

For most people, the risk of death from COVID-19 is very low.

Comparisons to the infection fatality rate for influenza are probably correct. The main exceptions are elderly people and people with significant underlying health issues. These are the people for whom focused protection should be offered. As with all public health measures, this decision must be voluntary and based on the informed consent of the individual.

People not at risk from COVID-19 can continue life as normal. This enables communities to acquire herd immunity, whilst minimising the exposure of those who are vulnerable.

**Protecting the vulnerable and the tragedy of aged care**

“Our response to COVID-19 must respect the rights and dignity of older people.”

**UNITED NATIONS SECRETARY-GENERAL**

The risk of death from COVID-19 for elderly people in institutional settings is significantly higher than for those in the community. This sad reality is highlighted by the high numbers of deaths in care homes across many locations (an average of 41% of deaths at the
In some cases, transmission has been aided by staff working at multiple sites. People with COVID-19 were also discharged from hospital to care facilities in the early stages of the pandemic, likely contributing to deadly outbreaks. This outcome is the antithesis of 'focused protection' which means reducing (not increasing) risks for a vulnerable cohort.

In many care homes, visitors have been banned and residents imprisoned, sometimes for months on end, increasing the risk of infection by quarantining the healthy with the sick, and adding untold anxiety, depression and loneliness to the lives of older people. Given the high numbers of deaths in care homes during lockdowns, these strategies clearly have not prevented deaths – they may have made things worse. In some locations, care home residents died in a state of neglect.

Policies that quarantine the elderly and cut them off from their loved ones for long periods of time are undoubtedly inhumane and ignore people’s psychosocial needs. The mandatory nature of these policies has taken away the rights of care home residents to choose what risks they wish to take and live a full and engaged life.

Sadly, the widespread measures taken to ‘protect the elderly’ have resulted in people dying alone, without the comforting presence of their loved ones, stripping them of human dignity and causing immeasurable anguish to their families.

Focused protection does not ignore the risks. Policies and procedures in aged care facilities can be developed to balance the risk of infection, with the need to uphold the rights of residents and their families. The rights of elderly people in the community should also be upheld. They must be supported to shield if they wish.

The rights of the child in the time of COVID-19

“In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration.”

“States Parties recognize the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development.”

“States Parties recognize the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts.”

“States Parties recognize the right of the child to education.”

THE UN CONVENTION ON THE RIGHTS OF THE CHILD}
Given the established low risk to children, there has been no need for school closures, or for children to be deprived of social connections and activities vital for their wellbeing.

Children and young people have been forced to carry the ongoing burden of the response to COVID-19. The price they have paid across the world includes missing school and university education, social and cultural participation, and contact with loved ones such as grandparents and extended family. They may suffer reduced future employment potential, poverty and an increased likelihood of death or serious disease. It also hardly needs saying that the world’s children and young people will bear the broader economic impact of ‘lockdowns’ in the years ahead.

Children from disadvantaged communities are suffering most of all. The predicted increase in child poverty in developing countries – 142 million children in 2020 alone – will have significant long-term consequences.\textsuperscript{340}

Lockdowns and the ongoing global response to COVID-19 contravenes the UN Convention on the Rights of the Child.

\textbf{Reopening society – a blueprint}

\textit{“Human dignity should be respected above all.”}

\textbf{PANDA’S PROTOCOL FOR REOPENING SOCIETY}\textsuperscript{341}

PANDA argues that mandatory lockdowns have no place in any society. They are \textit{failed experiments} that inflict significant suffering upon humanity. Misuse of other NPIs has already caused corresponding harm. Freedom, dignity and human flourishing have been crushed by these measures, worldwide.

PANDA is calling on governments and health authorities to return to existing principles that take a holistic view of health and respect human dignity. Conflicts of interest must be addressed and open scientific debate restored. This will begin the process of re-building societies across the globe.

As highlighted in this paper, in times of crisis, governments and health authorities must provide \textit{reassurance and leadership}, give accurate information, and ensure society, including health systems, can function as normally as possible. Governments should empower citizens with information and resources to take action to maintain their own wellbeing, as well as that of their families and communities. History shows this is the best way to ensure any public health response is \textit{lawful, effective, proportionate, and ethically justifiable}. Most importantly, this approach ensures that fundamental human rights are upheld, and \textit{human dignity is respected above all}.

\textbf{This is the heart of PANDA’s Protocol for Reopening Society.}
REFERENCES

11. Centres for Disease Control and Prevention (CDC), *Ethical guidelines in pandemic influenza [recommendations of the Ethics Subcommittee of the Advisory Committee to the Director]*. CDC, 15 February 2007
17. WHO, *Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza*. 2019
27. Inglesby et al, *Disease mitigation measures in the control of pandemic influenza*. 2006
28 WHO. Addressing ethical issues in pandemic influenza planning [discussion papers]. 2008, paper II:29-65
29 Nuffield Council on Bioethics. Ethical considerations in responding to the COVID-19 pandemic, 2020
30 WHO. Pandemic influenza risk management: A WHO guide to inform & harmonize national & international pandemic preparedness and response. 2017
31 WHO. Pandemic influenza risk management: A WHO guide to inform & harmonize national & international pandemic preparedness and response. 2017
32 CDC. Ethical guidelines in pandemic influenza. 2007
33 WHO. Pandemic influenza risk management: A WHO guide to inform & harmonize national & international pandemic preparedness and response. 2017
34 WHO. Addressing ethical issues in pandemic influenza planning. 2008, paper II:29-65
35 WHO. Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza. 2019
36 WHO. Pandemic influenza risk management: A WHO guide to inform & harmonize national & international pandemic preparedness and response. 2017
38 CDC. Ethical guidelines in pandemic influenza: recommendations of the Ethics Subcommittee of the Advisory Committee to the Director, 2007
39 WHO. Addressing ethical issues in pandemic influenza planning. 2008, paper II:29-65
40 WHO. Pandemic influenza risk management: A WHO guide to inform & harmonize national & international pandemic preparedness and response. 2017
41 Nuffield Council on Bioethics. Ethical considerations in responding to the COVID-19 pandemic [policy briefing], 2020
42 CDC. Ethical guidelines in pandemic influenza. 2007, p 6
43 WHO. Addressing ethical issues in pandemic influenza planning 2008, paper II:29-65
46 Inglesby et al. Disease mitigation measures in the control of pandemic influenza, 2006, p 373
47 WHO. Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019
49 Annas et al., Pandemic Preparedness: The need for a public health – not a law enforcement/national security – approach, 2008
51 WHO. Pandemic influenza risk management: A WHO guide to inform & harmonize national & international pandemic preparedness and response. 2017
53 CDC. Ethical guidelines in pandemic influenza. 2007
54 Ferguson at al., Report 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand. 2020, p 16
55 WHO. Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019
Evidence from nine developing countries regarding the outbreak of novel coronavirus (2019-nCoV) [transcript], WHO, Beijing, 24 February 2020


WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019

Ingsby et al., ‘Disease mitigation measures in the control of pandemic influenza’, 2006

WHO, Addressing ethical issues in pandemic influenza planning, WHO, 2008, p33

Ingsby et al., ‘Disease mitigation measures in the control of pandemic influenza’, 2006

Ioannidis JPA, A fiasco in the making? As the coronavirus pandemic takes hold, we are making decisions without reliable data. STAT, 17 March 2020


Oxfam International, Mega-rich recoup COVID-losses in record-time yet billions will live in poverty for at least a decade [press release], Oxfam, 25 January 2021


84 UNICEF, UNFPA, WHO and SickKids’ Center for Global Child Health, Direct and indirect effects of the COVID-19 pandemic and response in South Asia [report], UNICEF, March 2021
86 UNICEF, COVID-19 and School Closures [report], UNICEF, March 2021
88 American Psychological Association (APA), Stress in America™ 2020: A National Mental Health Crisis [report], APA, 2020


113 Bendavid et al., ‘Assessing mandatory stay-at-home and business closure effects on the spread of COVID-19’, 2021


119 Hudson N, Lockdowns don’t save lives and Sweden is all the proof you need, PANDA, 21 February 2021, accessed 15 April 2021


122 Statista, Coronavirus (COVID-19) deaths worldwide per one million population, Statista website, n.d., accessed 25 April 2021


126 Office of the Texas Governor, Governor Abbott Lifts Mask Mandate, Opens Texas 100 Percent [press release], Office of the Texas Governor, 2 March 2021, accessed 25 April 2021

127 Centres for Disease Control and Prevention, Compare Trends in COVID-19 Cases and Deaths in the US, CDC COVID data tracker, accessed 25 April 2021


129 Bendavid et al., ‘Assessing mandatory stay-at-home and business closure effects on the spread of COVID-19’, 2021

130 May O, We Cannot Afford to Censor Dissenting Voices During a Pandemic – Prof Martin Kulldorff, Lockdown Sceptics, 31 March 2021, accessed 25 April 2021

Published online May 22, 2020, doi: 10.1016/S0140-6736(20)31180-6


132 Ferguson et al., Report 9. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand, 2020


134 WHO, Addressing ethical issues in pandemic influenza planning, 2008, p49


138 WHO, Addressing ethical issues in pandemic influenza planning, 2008, paper II

139 Ferguson et al., Report 9. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand, 2020, p4

140 WHO, Addressing ethical issues in pandemic influenza planning, 2008, paper II

141 WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019, p2

142 WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019

143 Feltzer C and Bussemaker N, Which Countries Are Requiring Face Masks? [news brief], Council for Foreign Relations, 4 August 2020, accessed 25 April 2021

144 Lawrie E and Kovacevic T, Coronavirus: Why is the UK bringing in travel testing?, BBC News, 8 January 2021, accessed 25 April 2021

145 National Conference of State Legislatures, State Quarantine and Isolation Statutes, NCSL website, 8 July 2020, accessed 25 April 2021

146 WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019, p3


148 Wallace B, A Dangerous Crank, Left Lockdown Sceptics, 11 February 2021, accessed 25 April 2021

149 Kulidoff M and Bhattacharya J, One Of The Lockdowns’ Greatest Casualties Could Be Science, the Federalist, 18 March 2021, accessed 25 April 2021


152 McCullough P, Peter McCullough, MD testifies to Texas Senate HHS Committee [video testimony, 10 March 2021], Association of American Physicians and Surgeons YouTube, 12 March 2021, accessed 25 April 2021

153 BBC Newsnight, Coronavirus: Why have masks become such a battleground?, BBC Newsnight YouTube, 11 July 2020, accessed 25 April 2021

154 Hitchens P, ‘Face masks turn us into voiceless submissives - and it’s not science forcing us to wear them. It’s politics’, Mail on Sunday, 19 July 2020, accessed 25 April 2021


157 WHO, Addressing ethical issues in pandemic influenza planning, 2008, paper II

158 WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019


161 Peter McCullough, MD testifies to Texas Senate HHS Committee [video testimony, 10 March 2021], Association of American Physicians and Surgeons YouTube, 12 March 2021, accessed 25 April 2021

162 BBC Newsnight, Coronavirus: Why have masks become such a battleground?, BBC Newsnight YouTube, 11 July 2020, accessed 25 April 2021

163 ‘Face masks turn us into voiceless submissives - and it’s not science forcing us to wear them. It’s politics’, Mail on Sunday, 19 July 2020, accessed 25 April 2021


162 Fox news, U.S. Surgeon General explains why CDC recommends public does not wear masks [video interview], Fox News website, 31 March 2020, accessed 25 April 2021

163 Centres for Disease Control and Prevention, CDC does not currently recommend the use of facemasks to help prevent novel #coronavirus [tweet], CDC, 28 February 2020, accessed 25 April 2021

164 CTV, Tam: Current evidence doesn’t support public needing masks [video], CTV news YouTube, 31 March 2020, accessed 25 April 2021

165 WHO, Advice on the use of masks in the context of COVID-19: interim guidance, 6 April 2020, WHO, 6 April 2020

166 WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019


169 Heneghan C and Jefferson T, ‘Landmark Danish study finds no significant effect for facemask wearers’, The Spectator, 19 November 2020, Accessed April 2021

170 WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019; p11


WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019, p3


Bhattacharya and Packalen, ‘On the Futility of Contact Tracing’, 2020

Brown D and Toh A, Technology is Enabling Surveillance, Inequality During the Pandemic, Human Rights Watch, 4 March 2021, accessed 26 April 2021

WHO, Addressing ethical issues in pandemic influenza planning, 2008, paper II

WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019


WHO, Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza, 2019

Ingleby et al, ‘Disease mitigation measures in the control of pandemic influenza’, 2006

WHO, Addressing ethical issues in pandemic influenza planning, 2008, paper II


Bhattacharya and Packalen, ‘On the Futility of Contact Tracing’, 2020


Jefferson T, Heneghan C, Spencer E and Brassey J, Are you infectious if you have a positive PCR test result for COVID-19? The Centre for Evidence Based Medicine, 5 August 2020, accessed 25 April 2021


Santos S and Chiesa M, PCR positives: what do they mean?, The Centre for Evidenced Based Medicine, 23 September 2020, accessed 26 April 2021

Covid Assembly. COVID deaths Audit, Covid Assembly website, n.d., accessed 26 April 2021


Deeks JJ, Brookes AJ and Pollock AM, ‘Operation Moonshot proposals are scientifically unsound’, BMJ, 2020, 370:m3699, doi:10.1136/bmj.m3699


263. Meredith M, False positive COVID-19 tests may be the result of contamination in laboratories, University of Surrey website, 1 December 2020, accessed April 2021


265. Cohen et al., ‘Diagnosing SARS-CoV-2 infection: the danger of over-reliance on positive test results’, 2020

266. Jefferson et al., ‘Are you infectious if you have a positive PCR test result for COVID-19?’, 2020

267. WHO, WHO Information Notice for IVD Users 2020/05, 2021


270. Donn N, Judges in Portugal highlight “more than debatable” reliability of Covid tests, Portugal Resident, 20 November 2020, accessed 26 April 2021


Andres Luke, ‘NHS staff sickness rates caused by coronavirus are FOUR TIMES higher than in September as nearly 10% of frontline medics are now off work with half of absences linked to Covid’, Daily Mail, 8 January 2021, accessed 25 April 2021

Garcia-Navarro L, Quarantined health workers compound staffing shortages at California hospitals, NPR, 3 December 2020, accessed 25 April 2021

Stevens K, ‘Travel ban is extended until June with fears hotel quarantine could stay until 2022 - in a huge blow to 40,000 Australians still stranded overseas’, Daily Mail, Australia, 3 March 2021, Accessed 25 April 2021

Centres for Disease Control and Prevention and Department of Health and Human Services, Order: Requirement for proof of negative COVID-19 test result or recovery from COVID-19 for all airline passengers arriving into the United States, CDC, 26 January 2021, accessed 25 April 2021

Centres for Disease Control and Prevention, Operational Strategy for K-12 Schools through Phased Prevention, CDC, 23 April 2021, accessed 25 April 2021

Department of Education, Coronavirus (COVID-19) asymptomatic testing in schools and colleges, UK Government, 30 March 2021, accessed 25 April 2021

Turner C and Donnelly L, ‘Vast majority’ of positive Covid tests taken in schools likely to be false’, The Telegraph, 30 March 2021, accessed 26 April 2021


WHO, WHO Director-General’s opening remarks at the media briefing on COVID-19 - 1 March 2021 [transcript], WHO website, 1 March 2021, accessed 25 April 2021


Bhattacharya et al., The Great Barrington Declaration, 2020

Khoo H, Viruses in Humans and other Animals, Left Lockdown Sceptics website, 4 March 2021, accessed 26 April 2021


Mahajan S, Kode V, Bhojak K et al., ‘Immunodominant T-cell epitopes from the SARS-CoV-2 spike antigen reveal robust pre-existing T-cell immunity in unexposed individuals [preprint], bioRxiv 2020.11.03.367375, doi:10.1101/2020.11.03.367375


Torjesen I, ‘COVID-19 will become endemic but with decreased potency over time, scientists believe’, BMJ, 18 February 2021, 372:n494, doi:10.1136/bmj.n494


Le Bert et al., ‘SARS-CoV-2-specific T cell immunity in cases of COVID-19 and SARS, and uninfected controls’, 2020
289 Centres for Disease Control and Prevention, Risk for COVID-19 Infection, Hospitalization, and Death By Age Group, CDC, 18 February 2021, accessed 25 April 2021
291 Kulidoff M, COVID-19 Counter Measures should be Age Specific. Linked in, 10 April 2020, accessed 25 April 2021
293 Centres for Disease Control and Prevention, Demographic Trends of COVID-19 cases and deaths in the US reported to CDC, COVID Data Tracker, CDC, n.d., accessed 25 April 2021
294 Bhopal et al., ‘Children and young people remain at low risk of COVID-19 mortality’, 2021
295 Ioannidis, Precision shielding for COVID-19: metrics of assessment and feasibility of deployment, 2021
296 Centres for Disease Control and Prevention, Serology Testing for COVID-19 at CDC, CDC website, 3 November 2020, accessed 25 April 2021
299 Oke and Heneghan, Global Covid-19 Case Fatality Rates, 2020
300 Ioannidis, ‘Infection fatality rate of COVID-19 inferred from seroprevalence data’, 2021
302 Ioannidis, ‘Infection fatality rate of COVID-19 inferred from seroprevalence data’, 2021
303 Howdon D, Oke J and Heneghan C, Death certificate data: COVID-19 as the underlying cause of death. The Centre for Evidence Based Medicine, 16 September 2020, accessed 26 April 2021
304 Ioannidis, ‘Global perspective of COVID-19 epidemiology for a full-cycle pandemic’, 2020
321 CDC, Risk for COVID-19 Infection, Hospitalization, and Death By Age Group. CDC
325 Ioannidis, ‘Population-level COVID-19 mortality risk for non-elderly individuals overall and for non-elderly individuals without underlying diseases in pandemic epicenters’, 2020
326 Oke and Heneghan, ‘Global Covid-19 Case Fatality Rates’, 2020
329 Lewis et al., ‘Closing schools is not evidence based and harms children’, 2021
338 Ioannidis, ‘Population-level COVID-19 mortality risk for non-elderly individuals overall and for non-elderly individuals without underlying diseases in pandemic epicenters’, 2020
339 António Guterres, Our response to COVID-19 must respect the rights and dignity of older people, United Nations, 1 May 2020, accessed 28 April 2021
340 Ioannidis, Precision shielding for COVID-19: metrics of assessment and feasibility of deployment, 2021
344 Ioannidis et al., ‘Forecasting for COVID-19 has failed’, 2020

33
Bauer A and Dixon J, The challenges of providing end-of-life support in care homes during the COVID-19 pandemic, and opportunities for the future: An international perspective, LTccovid, International Long-Term Care Policy Network, CPEC-LSE, 9 June 2020


Human Rights Watch, US: Concerns of Neglect in Nursing Homes, 25 March 2021, accessed 26 April 2021


Low et al., Safe visiting at care homes during COVID-19: A review of international guidelines and emerging practices during the COVID-19 pandemic, 2021

PANDA, Protocol for Reopening Society, 2020


PANDA, Protocol for Reopening Society, 2020