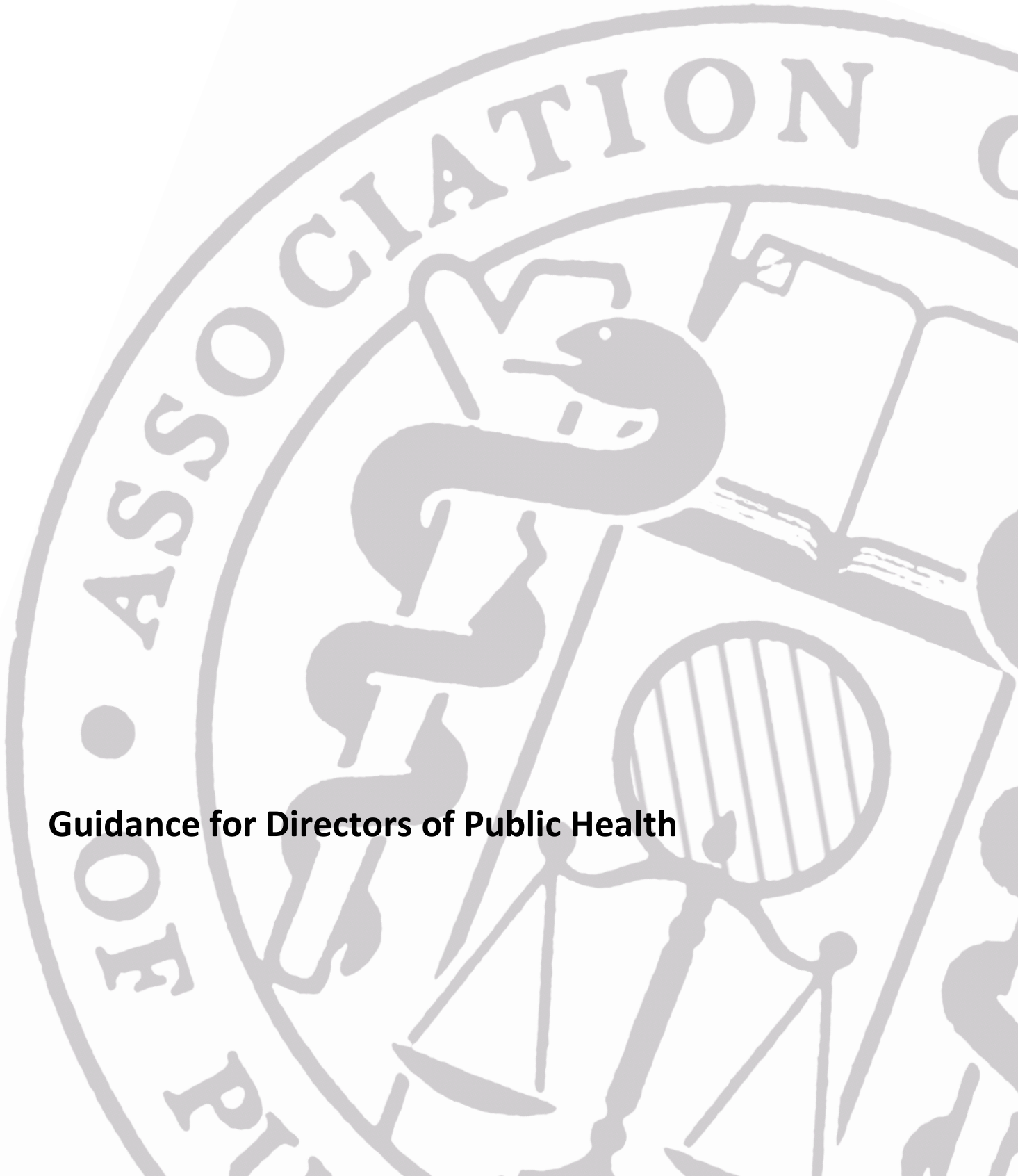
Living Safely with Covid

Moving toward a Strategy for Sustainable Exit from the Pandemic



Guidance for Directors of Public Health

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Foreword

Directors of Public Health (DsPH), their teams and partners have been working tirelessly for over a year now with absolute determination to protect the health, wellbeing, and livelihoods of the communities they serve. As we reflect on the pandemic and look to the future, we recognise the vast learning that has taken place with our local, regional and national partners and, most importantly, in our communities. Public health has been put front and centre in many aspects of the response, demonstrating its essential role in protecting communities.

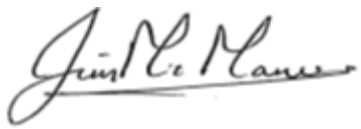
Whilst uncertainty persists, two things are very clear. Firstly, this is unlikely to be the last time we will see a novel or emergent viral threat to the health of the public. The frequency of global public health emergencies from novel pathogens has accelerated in the last twenty years. We must be prepared for what comes next. It is likely this pathogen, and its already multiple variants, will circulate for some time. Secondly, systems and programmes of disease and threat management which seek explicitly to prevent and manage these challenges are crucial to both public health and economic success. We cannot divorce economy, sustainability or health from one another: they are interlinked and interdependent.

As this virus has ripped through our communities, there has been much noise about the best way to tackle it. There has not always been a consensus on the impact of different harms and which aspects we need to focus our efforts on. Public health and scientific bodies and experts have drawn out learning at a pace never seen before. This has informed and strengthened the approach taken to reduce harm at all levels.

DsPH have played a central role in trying to understand and make sense of competing views (some based on opinion and others on emerging evidence) whilst remaining focused on their statutory role to protect and improve the health and wellbeing of their populations. Never have we had to undertake the role we all love under such a glare from the media spotlight. The pressure to have exact answers has been daunting and exactness rarely possible, so we have always tried to be honest about what we do and do not know. As we move into the next phase of 'living safely with Covid', it is essential to consider what has and has not worked at a local, regional, and national level.

The ADPH has the role of bringing together DsPH - and their rich experiences, skills and views - and presenting a collaborative view on the path ahead. This document builds on 'Protecting our communities: Pulling together to achieve sustainable suppression of SARS-CoV-2 and limit adverse impacts' published by the ADPH in October 2020, which set out a series of principles for DsPH and local systems in responding to, and managing, outbreaks.

In view of the significant change and learning taking place, we explicitly acknowledge the need for this to be a live document. We therefore encourage DsPH, and their teams, to share their feedback and insights.



Professor Jim McManus
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Introduction

The core purpose of the DPH is to be an independent advocate for the health of the population and provide system leadership for its improvement and protection.

In that context, DsPH continue to be asked to provide advice which balances the need for interventions to protect our communities from COVID-19, whilst minimising adverse impacts on economic and social life, and overall health and wellbeing. As the country moves from the relatively short-term emergency response to the virus, DsPH are being asked to consider the evidence for living safely with COVID-19 and building back in a way that addresses the inequality that COVID-19 has exposed and exacerbated.

The purpose of this document is to support DsPH, local authorities, and wider partners in considering the approaches that are most appropriate at this point in the pandemic. There is a specific focus on the inequalities we have observed during the pandemic and the actions we should consider to address them.

This paper has been developed by members of the ADPH Council to represent a consensus view. It uses direct evidence where it is available alongside other relevant information. It starts from a position of a clear rationale and transparent principles, building on those which we set out in the Protecting Our Communities guidance. We have also sought to learn from what we already know as well as exploring where there are differences of opinion.

Finally, the paper explores early thinking on recovery and how this might be maximised to address the wider health and economic impacts of COVID-19, so it benefits everyone in a way that is more equitable than we currently have.

Rationale and principles

We cannot afford to continue cycling in and out of lockdowns, even when very well introduced, clearly communicated and efficiently executed. The social, physical, mental and economic costs are simply too high. These burdens mean that lockdown, in any format, becomes culturally, socially and politically less acceptable as time goes on. We therefore should analyse and understand the dimensions of the current situation, review the lessons learned in the last year and identify a strategy to move forward.

This strategy must be informed carefully by sound scientific analysis, not just from virology and epidemiology but also from the plethora of social scientific contributions available. Although it is ultimately a political decision, it should be underpinned with strong scientific, economic, social and cultural dimensions.

This guidance therefore seeks to take an inter-disciplinary approach, informed by epidemiological understandings as much as by social scientific ones.

A fundamental assumption of this paper is that living safely with COVID-19 is an economic good, not just a health good, and that a thriving, sustainable economy is a health good, not just an economic good. Good health and economic success are mutually dependent and fundamentally are viewed as mutually desirable goals. Importantly, we write with the understanding that inequalities in both health and the economy will ultimately impact on the overall recovery of the community, region, and country. Inequalities must be at the heart of our recovery – we must build back fairer, not just better.

Building a national consensus: what are we seeking to achieve?

The foundational start for this work must be building a national consensus on what we are trying to achieve. Are we trying to minimise harm or are we trying to contain the spread of the disease and the virus as much as possible? We assume that the latter is the good for which we should aim for health and economic reasons. This requires us to be clear and proactive. The earlier we act, the better.

Below are the four key epidemiological principles that should guide us through the next phase of exiting the pandemic and living safely with COVID-19.

1. Transmission of the virus needs to be brought, and kept, as low as possible.
2. Surveillance of transmission and variant emergence must be optimal.
3. Test, Trace and Isolate needs to work effectively, with a clear testing strategy.
4. Vaccines must be effective and delivered equitably.

These principles are underpinned by what seems now to be an evident reality: the virus and its variants will continue to circulate for some time. Given this, our emphasis must be on creating the conditions and articulating the ways in which we can function and live as safely as possible with the virus continuing to circulate. This is a different epidemiological strategy from suppressing flu or pathogens where vaccination can stop spread. It should draw on lessons learned from other communicable diseases like HIV, measles and pathogens, where combination approaches have and continue to be needed. Consequently, "living safely" must state positively what we can do and how, so people, employers and sections of our civic society and economy can positively manage risk.

The nature of evidence in guiding the next two years: low or zero Covid?

Zero or low Covid is an unhelpful polarisation - it is not an either or, but an issue of aspirations to reduce over the medium and longer term.

Regardless of which choice is made, it will take some time to achieve low Covid, let alone zero Covid, and some of the first steps are the same. While other nations have achieved low circulation, in the UK, we need to firstly analyse our current situation and articulate a clear plan of how we can achieve low Covid by the end of 2021. This paper considers the situation and then suggests a timeline. At present, our focus is on achieving low levels of COVID-19.

It can be assumed that even with vaccines, variants of the virus will circulate endemically for some time to come. We will have to find a way of living and working while variants of the virus circulate for at least the next 24 months, if not longer.

Living safely, not shutting down and re-opening indefinitely

This strategy can be conceptualised as having several sequential phases:

1. Reducing viral transmission to the stage where we can exit lockdown.
2. A well-articulated, careful, and gradual "opening up" which is carefully chosen.
3. Ongoing monitoring, modelling, surveillance, and adjustment.
4. Continuing improvements in and adjustments to vaccine and treatment.

The emphasis on our future strategy needs to be how we live, work and study in an environment where the virus and its variants will be circulating for some time, but where we act to continue suppression as much as possible to enable and sustain re-opening of sectors of work and economic activity.

When considering non-pharmaceutical interventions (NPIs) in the context of living safely with virus, it is important that we distinguish between 'sensible precautions' (ie maintaining good hand hygiene, social distancing between strangers in public places, and regular testing of certain groups) which may mean life is different to how it was pre-COVID-19 but do not significantly compromise quality of life, and more 'unacceptable restrictions' (ie legal prohibitions on visiting friends and family, and whole sectors of the economy being unable to operate) which are measures we would want to avoid except in extremis and for short periods.

Unequal foundations

'Why treat people and send them back to the conditions that made them sick?'

(Marmot 2015)

Inequalities (or strictly, inequities) are systematic differences between groups with distinct and identifiable characteristics. Inequalities are socially produced, often overlapping and always multi-dimensional. For public health, probably most importantly, inequalities are avoidable and when they are properly acknowledged and addressed, they can be reduced. All communities have different needs, experiences, and outcomes so any approach that is essentially based on a universal offer (the same for everyone regardless of circumstances) has inequality built in.

As with every public health effort to reduce harm, communicable disease requires the organised efforts from society, organisations, communities, and individuals. Whilst transmission of COVID-19 does not discriminate in the abstract sense, the way that it is experienced, felt, and mitigated is very different.

COVID-19 has exposed, exacerbated, and created new inequalities. People across the UK, and indeed the world, have been harmed by the virus in very different ways.

COVID-19 harm describes a range of impacts that diverse groups have experienced in different amounts. In the narrowest sense, communities have been identified as 'clinically vulnerable to COVID -19' and therefore identified as more likely to experience either severe illness, defined by a need for hospital admission, or death. In the wider sense, harm from COVID-19 includes 'social vulnerability' which incorporates differential negative impacts associated with the necessary measures required to prevent clinical harm including, in particular, mental and financial wellbeing. Finally, it is necessary to examine the impact of the pandemic on children and young people. Childhood health and well-being is a key predictor of both health and economic well-being later in life. It is therefore critical that, as we seek to recover from COVID -19, we have a strong focus on ensuring we take action to reduce the issues faced by this generation.

Morbidity and mortality

Clinical vulnerability

The most significant factor for clinical vulnerability was age. Analysis by PHE in August 2020 found that people aged over 80 were seventy times more likely to die than people aged under 40.[1]

Risk of death was also higher for: men than women; those living in more deprived areas than those in more affluent, and for people from Black, Asian and minority ethnic groups when compared to White ethnic groups. The mortality rate in the most deprived areas was double the mortality rate that was seen in the least deprived. People of Bangladeshi heritage face a risk of death twice that of White British counterparts, while those of Chinese, Indian, Pakistani, Other Asian, Black Caribbean and Other Black ethnicity face risks ranging between 10 and 50% higher than White British. As part of the pandemic, the public health community have explicitly identified racism and discrimination as a significant public health issue.

Occupational inequalities were also identified, with higher death rate in those working in a range of caring occupations. ONS also identified increased risk for those who drive passengers, those in security guard related roles and those working in care homes.[2]

Clinical vulnerability was also associated with the existences of comorbidities which links to many of the communities highlighted above and reflects existing health inequalities observed before COVID-19. Diabetes was mentioned on 21% of the death certificates but it was also acknowledged that there was a higher percentage of hypertensive diseases, chronic kidney disease, chronic obstructive pulmonary disease (COPD) and dementia than all cause of death certificates.[3]

Social vulnerability

Plenty of evidence has identified a range of 'social vulnerabilities' which lead to an increased risk of transmission, poor outcomes once infected, and harmful experiences of the much-needed NPIs.[4]

Those living in the most disadvantaged communities before COVID-19, with poor or crowded living and working conditions, have borne the brunt of the harm. The conditions in which people live have shaped both their exposure risk and experience of the NPIs. There is clear regional variation in the percentage of the workforce on furlough and the percentage increase of new Universal Credit claims. Many local areas have seen an increase in families requiring additional support with food and energy costs as people were pushed into poverty.

Children and young people – the Covid generation

It is critical that we invest in children and young people if we are ever going to be able to reduce inequalities later in life. Thankfully, evidence has shown that children and young people have the lowest clinical risk from COVID-19. However, they have experienced a year of disruption at arguably the most critical time of life for development. Most children have missed months of education, however, the impact of this has been different and there have been marked inequalities in learning hours, digital access to resources, and completion of homework. Many teachers have reported the learning gap in schools in the most deprived areas has been 4+ months and this is added to the pre-pandemic gap in education which was already known.

In addition to concerns about the learning gap there are significant concerns about the mental health and well-being of children and young people resulting from increased family stress, reduced access to early intervention and support services, and a decrease in social interaction with others (ie peers and wider family). While all parts of the country have been working hard to protect the most vulnerable children, there have been other incidences that may have also added to the traumas experienced this year – for example, increased reports of domestic violence.

Evidence has shown that investing in children and young people reduces economic and health inequality later in life. It is therefore essential that we take robust action to tackle the differential impact of COVID-19 on children and young people if we are to prevent a lifetime of harm for some communities.

The multiple components of an exit strategy

There is enough scientific evidence and consensus to point clearly to a combination strategy – in which multiple interventions, some well-known and evidenced, others formative, can disrupt and prevent transmission of the virus. This is often called "combination prevention".

Combination prevention approaches by their nature rely on interventions at a range of levels from the biological (eg vaccination) to the social (eg social consensus, community support) to the environmental (eg physical distancing, "Covid-secure" workplaces) to the legislative (eg guidance and law). We must avoid the temptation to over-rely without proper justification on one component only of a combination prevention strategy.

For the foreseeable future, we will need to maintain infection prevention and control measures to reduce the risk of infection. This will require individuals to maintain rigorous handwashing, use face coverings, and adhere to social distancing – all activities that are not habitual in the UK.

Businesses and public places need to be supported to be Covid-safe – this includes ensuring spaces are well ventilated and social distancing is maintained were possible.

Vaccines as part of an exit strategy

A vaccine is the most effective way to protect vulnerable people from COVID-19. However, vaccines are not a silver bullet. We must be honest and manage expectations around the impact of the vaccination programme and the combination of interventions required to continue to reduce the spread and impact of the virus.

Vaccination programmes do not achieve 100% effectiveness for several reasons. Firstly, relating to the vaccine itself – it is not always effective or safe to use. Vaccination programmes also seldom identify and vaccinate all those eligible.

In addition, vaccination may not achieve immunity for people, such those who are frail or with underlying conditions, whose immune systems do not mount an adequate response.

A small number will be unable to be vaccinated due to contraindications – at present, vaccination is not advised in pregnancy and caution is advised in individuals with a strong history of allergy and anaphylaxis. Furthermore, at present, it is not clear whether children can, or should, be offered COVID-19 vaccination.

In the UK, the offer of vaccination is made by the NHS based on being registered with a GP. Structural barriers – including not being registered with a GP or out of date records may mean people do not receive an invitation. Others may not read invitation letters, respond to phone calls, or be able to coordinate time and transport to attend an appointment. Still others may be hesitant to be vaccinated due to cultural barriers, anxiety in response to misinformation, or they may be actively against accepting any form of vaccination.

Further uncertainty remains over whether the current vaccines being rolled out will offer long term immunity – there simply has not been enough time for follow-up studies. Worse still is the concern that we may see viral mutations that reduce vaccine effectiveness. A variant emerging from South Africa at present appears to be associated with reduced immunity; further mutations of the virus seem inevitable.

The role of testing

To control the spread of the virus, we need to identify cases early in the course of illness to prevent spread; identify people to whom the disease may have been spread and take appropriate action to prevent further transmission.

Early detection of some diseases is easy – they present with clear unambiguous symptoms. For COVID-19, this has been a major challenge as the virus is contagious before symptoms occur and indeed many may have no symptoms at all. This means that an extensive, frequent, and sustained testing surveillance regime is needed to detect cases as early as possible. In the UK this is possible through the use of new rapid test technologies which can be distributed widely and backed up by more sensitive testing in defined circumstances. There is a need for a full commitment in policy, and also from the public, to regular and frequent testing.

With regards to contact tracing, careful skilled and detailed interviews form the mainstay of health protection actions to identify where an individual may have been infected and to whom they may have transmitted the infection. The national NHS Test and Trace system currently delegates early steps in contact tracing to digital form filling of contacts. Moving contact tracing to a local and more personalised approach has been shown to be effective in improving completion levels. However, more is needed to improve the current systems, including:

- Ensuring every case is carefully and effectively interviewed – currently many cases are missed.
- Identifying common sources of exposure – at present contact tracing focusses only on forward transmission and therefore provides little information on sources and misses opportunities to detect cases.
- Notifying contacts more effectively thereby ensuring speed of response and effective support for self-isolation.

Ensuring equity in ‘living safely with Covid’

There are a range of actions that are needed if we are to robustly address the inequalities observed during COVID-19. There is an absolute need to do more and focus on the specifics of the pandemic response, but we must also use this opportunity to have a robust conversation about how we tackle these inequalities longer term. We cannot continue to accept these inequalities as inevitable.

Test, trace and support to isolate	The system for testing and contact tracing should continue to be localised, with a specific focus on connecting the support for isolation which local areas have established. National systems work best where they enable large volumes of people to be reached fast, for example the digital component of Test and Trace. For many people this is enough. However, they are challenged in reaching specific communities and particularly those experiencing other barriers, such as lower levels of health literacy, poverty or language. A more human approach that works with people and communities is essential to achieving engagement and compliance. The local public health teams are being effective in managing to locate and engage with many of these cases. Local teams can provide a more 'wrap-around' service, directing people to local self-isolation payment systems and other support, such as food bank provision and voluntary sector support. Local intelligence on potential routes and sources of transmission has also helped with the early identification and management of outbreaks. It is therefore critical that we continue to shift the resource from a national system to a local one, which can understand and respond to the specific issues, needs and concerns of diverse communities within an area. This is explored further in ADPH's Explainer on the Test and Trace Service.
Mitigate the impact of NPIs	Our entire strategy to prevent harm is built on the actions of citizens. We want people to get tested when they need to, engage with contact tracing (including disclosing contacts where necessary), and then isolate to prevent the onward spread. The logistics of scaling up a national testing and tracing system is essential, but it falls at the final hurdle if people do not have the right support. While much has been said about differential experiences of the restrictions, this has not necessarily been matched with action. Bringing our communities with us requires us to understand how NPIs, including social distancing, minimising household contact and self-isolation, are experienced by different groups. For example, the impact of NPIs on employment, finances, children's education and childcare arrangements, need to be considered and understood.
Vaccination	It is important to work proactively to reduce health inequalities by identifying and addressing barriers to access and uptake of vaccination in the operational design and implementation of the programme, as well as ensuring that effective data systems are in place to monitor uptake and support the development of locally sensitive approaches.

The following steps should be considered and are discussed in further detail in Explainer: COVID-19 Vaccination.

1. **Understand and segment the population** to identify which populations have the greatest burden of inequality. We need to look beyond categories such as 'British Asian' or South Asian', which artificially cluster a wide range of people, to better understand the local, cultural differences within these populations.

2. **Assess which issues are structural and which are cultural/social –** both need addressing. In some places, for example, free transport has been organised by community groups to get people to sites. However, while this would address a structural issue, the cultural issues remain. For many these are based on historic discrimination. One way to address cultural and structural issues may be to use familiar and trusted local community venues as vaccination sites.

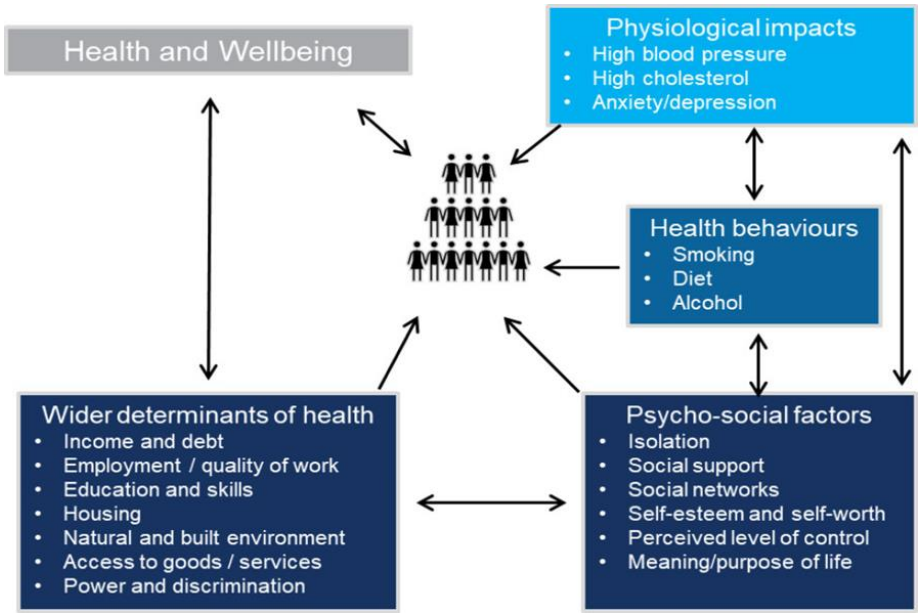
3. **Develop a plan to address these using a multifactorial approach:**
   - **Addressing structural issues** – this includes ensuring there is an appropriate mix of vaccination sites within the community that are easily accessible with good transport links.
   - **Ensuring adequate systems are in place** – this includes ensuring registers are correct and supporting people who are not registered to register; using Population Health Management techniques, like auditing registers, to ensure everyone is covered; monitoring who has taken up the vaccine or requires more targeted approaches.
   - **Using behavioural insights –** to understand your community and adopt effective call up methods to engage them, including ensuring the right language and the most appropriate method for call up reminders are used (ie text, phone calls)
   - **Using psychological dimensions beyond behavioural insights** – The use of behavioural insights, while necessary, are not enough. Psychological and cultural variables need to be addressed. This includes understanding the psychology of influence of trusted 'others' that individuals can identify with.
     - **The clinician** – confident vaccinators and healthcare professionals who are knowledgeable about the vaccine are effective in reducing hesitancy.
     - **''People like me''** – confident champions from the same culture, ethnicity and background that an individual can better identify with.
     - **Social psychology** - the more these two groups are visible and vaccine confident/positive, the more likely we are to create social norms and the psychological impetus to support vaccine uptake.

4. **Addressing specific issues & concerns** – We must address and take seriously the questions people have, especially cultural and ethical ones. All the "transmit" communications in the world will not work if people feel that questions that are real and genuine to them are not being addressed.

5. **Monitoring uptake regularly and iterate -** It is essential that data systems are able to pick up individuals who have been missed or have not come forward for vaccination, as well as flag particular settings and populations where uptake is low.

Build back fairer

COVID-19 has been devastating for everyone. Many people have suffered enormously both directly and indirectly. While no one can underestimate the challenge, this has presented an opportunity to consider the country we want to rebuild. Health outcomes are driven by a wide range of factors. If we are truly going to 'build back fairer' we need a comprehensive recovery strategy that incorporates preventative action at every level.



(Adapted from Prof. Chris Bentley)

Direct concerns, resulting from COVID-19, need to be considered in the short, medium and longer term. If we are going to address inequalities as part of recovery, action is needed to address the following:

- The educational learning and skills gap for children and young people.
- Inequalities experienced by young people in transitioning into adulthood.
- The economic levelling up agenda.
- Food poverty, which has been exacerbated by the pandemic.
- The impact of COVID-19 on mental health and well-being.

- Issues around housing, which are currently being masked by a pause on evictions and will only be exacerbated by continued financial pressures.
- The health behaviours that contributed to inequality in outcomes (eg obesity, smoking) as well as the aspects which have been made worse in response to the psychosocial impact of the pandemic (eg consumption of alcohol).
- The rising burden of ill-health due to non-communicable disease including:
    - Increase in frailty associated with self-isolation.
    - Increase in harm from alcohol (15% increase in alcohol related deaths in first 9 months of 2020).
    - Increase in mental illness.

Phases and Steps

Phase 1: Exit lockdown and "live with Covid"

There are a number of epidemiology conditions that should be met before exiting lockdown.

1. Transmission of the virus needs to be brought, and kept, as low as possible.
2. Surveillance of transmission and variant emergence must be optimal.
3. Test, Trace and Isolate must work optimally with a clear testing strategy.
4. Vaccines must be effective and uptake must be optimal.

However, these four conditions in and of themselves are not sufficient. Each condition is complex and needs to be understood as policy problems in order to work effectively. Condition three for example, needs to be broken down further into a system, to which there are dimensions much wider than purely epidemiological. It is arguable that these non-epidemiological considerations have been overlooked.

The Test, Trace and Isolate system is still not performing optimally to deliver what it needs to as a means to exit lockdown. There are crucial actions which must be taken:

- We need a clearly articulated strategy for the use of different types of tests for clinical and public health purposes. This needs to be clearly communicated to the public.
- Contact tracing must reach more people and effectively engage and motivate them psychologically to self-isolate where needed.
- The proportion of people who successfully self-isolate is reported in multiple places as poor. Without this working effectively, transmission will not stay sustainably low. Anecdotal evidence suggests deliberate refusal, while real, is much less prominent than inability to self-isolate.
    - Citizens need to understand clearly when to isolate, for how long and to what end.
    - Practical and emotional support needs to be in place to support people to self-isolate. Social norms need to be created which reaffirm this.

- This needs to be readily enforced. Insights from criminology would suggest that where people refuse to comply, enforcement must be both effective and penalties sufficiently robust if they are to have proper deterrent effect.

Vaccination could and should be similarly analysed. For the vaccine to have any chance of working, we must address the multiple inequities and barriers to access and uptake, as well as the multiple dimensions of vaccine hesitancy.

Hearts and minds: Engaging the population for safer behaviour

The confidence of the public, and all actors in the system, is crucial in any major health protection challenge. A strong psychological contract with citizens is needed to achieve a sustained exit from lockdown. The inconsistency in communications, as well as the confusion and complexity around measures has enabled dissenting voices to reduce trust and created a culture where people see restrictions as measures to "get round", rather than as ways of reducing viral transmission.

Fostering greater public trust and understanding, providing clear communications, and building social will and solidarity to persevere with these measures is fundamental. Without this, any attempt at re-opening is likely to fail. We need people to understand and support **why** and **how** to exit and sustain exit from lockdown.

Living safely with Covid must be an exercise in building a strong understanding of risk and safety and a strong motivation to play one's part if it is to have any prospect of success.

Phase 2: A well-articulated, careful and gradual "opening up"

The outcomes of the conditions to exit lockdown must be sustained. However, these, in and of themselves, are insufficient for the next stage. There are several steps which must be taken to begin to "open up" and this must be careful, well modelled, and well planned. We need to enable all sectors of society to be focused on reducing risk. The following steps should be taken:

1. Continue following the four key principles.
    a. When adjustments are needed locally or nationally, they must be clearly articulated and communicated.

2. Develop as robust an understanding as possible of which sectors of the economy make what level of contribution to transmission and within this seek to:
    a. Purposively choose those sectors which can be re-opened, articulating very clearly when and how.
    b. Make re-opening of sectors explicitly dependent on sustaining low transmission.
    c. Identify very clearly those which cannot yet be re-opened and to articulate very clearly when and how.
    d. Enforce this.

3. Enable sectors which can re-open to develop, implement, lead, and refine strategies for safe re-opening which they own, building on successful work earlier.
    a. Create models which work and can build a "plug and play" approach.
    b. Create models which use the full range of test, trace, isolate.
    c. Enable wide local enforcement powers for when they fail.

4. Require each sector to build a strong understanding of risk and safety and a strong culture focused on "living and operating safely in a Covid era" as a fundamental condition of re-opening.

5. Underpin this with communications, regulations and enforcement powers built on creating and sustaining an accurate understanding amongst the population of what is safe and what is risky behaviour.

What models exist for "plug and play"?

Reducing transmission is as much about influencing and changing population behaviour to be safe as it is about vaccinating. We need large scale population adoption of safer behaviours as both habits (ie sustained behavioural patterns people do not need to think about) as well as a mindset of "safety first", where people are actively seeking to reduce risk. If enough sectors of the economy use design, behavioural choice, behavioural insights, and social psychology consistently, we can create a culture where people perform safer behaviours as habit.

Sectors of our economy in which many people participate can and already do create social norms, cultures, and behaviours. Supermarkets for example, employ consumer psychologists to instil behavioural patterns in consumers, many of which are pre-cognitive.

Making supermarkets and every sector due to re-open work out how to influence behaviour and create a culture of safety will be vital to suppressing the virus. We failed to do that in 2020 and indeed allowed some sectors to evade this. It can and must be done as an essential part of re-opening. There is significant learning which can be taken from how sectors of the economy and society, including places of worship, supermarkets and gyms responded to COVID-19. This is summarised in the table below.

	Places of worship	**Supermarkets**	**Gyms**
Principles	The Government articulated principles for safer opening and operation. This included cleaning, capacity and hygiene.	While guidance was created, this soon eased off and was not updated. Capacity limits were also abandoned.	National guidance focused on regulations rather than safety. The best of the sector created their own cleaning and safety systems and regimes which were effective.
Ownership "plug and play"	These principles were supplemented with detailed guidance, tools and training by faith communities. There was strong ownership from the best of the sector. Those who could not adhere to the measures		There was strong ownership from the best of the sector. Good gyms created their own standards working as a chain or with local authorities.

	were encouraged not to open.		
Pre-entry	Visual cues (ie signs) and entry systems (ie barriers, human stewards, and sanitising stations) were used to constrain behaviour.	Queuing and mandatory hand cleansing were soon abandoned in Summer 2020 and were slow to re-start in Winter.	The best of the sector did pre-entry checks and provided advice on measures.
Upon entry	Visual and design measures (ie seating layout, one-way systems) were used to constrain behaviour.	Queuing, mandatory hand cleansing and trolley cleansing were soon abandoned in Summer 2020 and were slow to re-start in Winter.	Visual and design measures were used and the wearing of face coverings was enforced. Limits were placed on the number of people allowed in at any one time.
During time in the venue	Clear direction was given around how to behave and what is acceptable. Staff were encouraging and advising.	One-way systems were soon abandoned and have not been re-instituted in all supermarkets.	Machines were required to be cleaned before and after use. Staff were encouraging and advising. Bans and suspensions were put in place if individual did not comply.

There are more considerations to each of these sectors than can be summarised here, but it is clear the best examples used design, layout, physical measures, signage, behavioural cues and other measures to achieve operations which were as safe as possible.

If every sector were explicitly required to do this, with clear and strong standards, support to achieve those standards, as well as clear and robust enforcement measures, this would create the social norms and habits needed to shape population behaviour.

Key Sectors and what living with Covid might mean

Schools

Schools should be the last to close, and the first to open. As a sector, schools have done an exceptional job of implementing Covid-secure working arrangements. However, when you bring groups of people together from different households there will inevitably be transmission. This will continue to be the case in the medium term.

The messaging around schools has been inconsistent. If our aim is maintaining as many children in school as possible, then we need a clearly articulated rationale and strategy on schools. We must prioritise safe operations: supporting schools to manage and reduce transmission will be a major focus for the future.

Workplaces

There are a variety of workplaces, from large multinational companies to small local businesses, all of which need to be supported to be Covid-safe. Throughout the pandemic, sectors have had to fundamentally review the way they work, especially when it comes to office-based activities. Larger offices have closed, and remote digital methods have increasingly been adopted.

Support, especially for smaller businesses, has been made available locally through councils to promote safer working and prevent transmission. Businesses should continue to contact councils if they have a case so that swift support can be provided with contact tracing and outbreak management.

Large national chains have looked more to national government for advice and support. This support needs to be consistent, evidence based and clearly communicated to local teams. National government needs to take on leadership of managing outbreaks in essential infrastructure if powers continue to be withheld from local DsPH.

It also crucial that we address occupational inequalities. Health impacts have been unequal and have been more serious among workers in certain occupations. Early reports suggest that occupational exposure accounts for some infections, with healthcare workers being particularly at risk of infection, but also individuals working in other people-facing occupations such as retail, hospitality, transport, and security.[5] [6]

Other factors such as deprivation, access to healthcare, housing conditions (ie poor housing, overcrowding and unlicensed houses in multiple occupation) all have a bearing on the extent of occupational risks.[7] There needs to be more scrutiny of the protection that is currently in place for those who are at higher risk from COVID-19 due to their occupation as well as financial support for those who need to self-isolate – particularly those who are economically vulnerable.

Phase 3: Ongoing monitoring, modelling, surveillance and adjustment

This phase should be simultaneous with Phase 2 and seen as an iteration and refinement of it.

Phase 4: Continuing improvements in vaccine and treatment

This phase should also be seen as simultaneous with Phase 2. It should aim to continue working to improve vaccines to resist variants as well as improve treatments to reduce morbidity and mortality.

Governance, system and psychological conditions to exit lockdown and "live with Covid"

There are some fundamental principles of governance and culture which arise from these considerations. Epidemiological strategies in and of themselves are insufficient because they do not contend with the fact that the fundamental determinants of whether these work are not epidemiological – they are social, cultural, and political. Test, Trace and Isolate, for example, will not work without effectively addressing the social and cultural dimensions.

Epidemiological strategies are entirely insufficient without a clear covenant of understanding between citizen, scientist and officialdom.

Social and cultural conditions

There are some key social, cultural, and psychological conditions which must be met to ensure sustainable exit from lockdown. These are outlined below.

1. **Clear strategy** – A clearly articulated strategy owned by all actors in the system.
2. **Trust and togetherness** – A strong focus on building a covenant of trust and understanding between official actors and the public. Government communications are increasingly poorly trusted.
3. **Living and working safely** – A focus on enabling and supporting people to reduce risk and "live as safely as possible" whilst COVID-19 is continuing to circulate.
    a. People need to be supported to understand what they can do and what they have to do to stay safe. This requires clear articulation of risk.
    b. Regulation should be put in place to support this – both enabling safety but also empowering agencies to enforce it where necessary.
4. **Well understood** – win hearts and minds to suppress COVID-19 with clearly articulated and well communicated restrictions which have a clear scientific rationale behind them.
5. **Create and do** – encourage the development of models and strategies for doing things safely (ie promoting safer supermarkets, safer sport, safer schools).
    a. One of the better examples include the work of faith communities. They have managed to effectively reduce transmission using clear guidelines and building strong social consensus within their community around adherence to them.
6. **Plug and play** – share measures that others can pick up and use (ie plans for safer spectator sports).
7. **Subsidiarity in the system**
    a. Move from a culture of national command and control of local, to a "team of teams" ethos – we succeed together, or we fail to exit.
    b. The NHS must be a part of the team, not the only or most important consideration.
    c. Measures and actions are enabled at local level to reflect the fact that transmission will vary from location to location.
    d. The partner best qualified to act on an issue is empowered and enabled to do so.

The system role of Directors of Public Health

The ADPH, the Faculty of Public Health, the UK Chief Environmental Health Officers Group, Public Health England, the Local Government Association and Solace have previously outlined the legal framework for managing outbreaks of communicable disease within Guiding Principles for Effective Management of SARS-CoV-2 at a Local Level.

The ADPH and the wider public health community have also set out the important policy and legal context for Health Protection within What Good Looks Like for High Quality Local Protection Systems. Both documents are key documents to which local systems and national partners should have regard. They form the context and background within which this present guidance should be interpreted.

The intention of this guidance is to support Directors of Public Health in carrying out their duties and responsibilities in relation to SARS-CoV-2, including providing clear and consistent advice to local politicians and partners.

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[1] Public Health England, *Disparities in the risk and outcomes of COVID-19* (2020)
[2] Office for National Statistics (ONS). Coronavirus (COVID-19) related deaths by occupation, England and Wales: deaths registered between 9 March and 28 December [https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/coronaviruscovid19relatedeathsbyoccupationenglandandwales/deathsregisteredbetween9marchand28december2020] accessed 15 February 2021
[3] Public Health England, *Disparities in the risk and outcomes of COVID-19* (2020)
[4] Public Health England, *Disparities in the risk and outcomes of COVID-19* (2020)
[5] The Heath Foundation & Institute of Health Equity, Build Back Fairer: The COVID-19 Marmot Review: the pandemic, socioeconomic and health inequalities in England (2020)
[6] Public Health England, *Disparities in the risk and outcomes of COVID-19* (2020)
[7] D, Koh. Occupational risks for COVID-19 infection. Occupational medicine (Oxford, England). 2020 Mar;70(1):3