# Consequences and mitigation strategies for COVID-19 control measures

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Prepared by the COVID-19 Public Health Response Strategy Team

## Document purpose

This document forms part of background work commissioned by the Ministry of Health (via the Director of Public Health) to help inform the ongoing response to COVID-19. This paper synthesises the evidence for and equity implications of a selection of control measures[1] needed to deliver a COVID-19 pandemic strategy in Aotearoa/New Zealand.

It considers the adverse consequences and possible mitigation strategies for control measures in the following settings:
- workplaces
- educational institutions
- health care services.

It considers the risks associated with control measures at their current settings (mainly closures related to the Level 4 COVID-19 Alert level) and options (including risks and benefits) for lifting each measure, as well as high-level recommendations for the overall package of control measures.

## Document authors

This is one of a number of papers to be prepared by the COVID-19 Public Health Response Strategy Team (PHeRST), a group of epidemiologists and public health medicine specialists seconded temporarily to the Ministry of Health.

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This draft document has not yet been peer reviewed and we welcome comments and suggestions.

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[1] In this document we refer to pandemic strategies and control measures. Strategies are the high level approaches to managing the pandemic (the range of strategies are outlined in an earlier output). Control measures are the specific interventions (eg, case finding, contact tracing, education institution closures) that are needed to deliver on all the strategies.

# Public health objectives of control measures

The overall objectives of control measures for COVID-19 are:
1. to identify and stop each transmission chain (detection and isolation of cases, rapid tracing, testing, and quarantine of contacts)
2. to prevent undetected transmission (population-level control measures to reduce transmissibility and contact rates through: reducing physical contact between individuals; hand hygiene, cough and sneeze etiquette; cleaning measures and health promotion)
3. to prevent seeding of new transmission chains into communities using border control measures
4. to ensure that both the benefits and adverse consequences (and inequities) from control measures (related to COVID-19 disease impact, non-COVID-19 health outcomes and the determinants of health) are anticipated, planned for, and mitigated and monitored for the total population and population groups (such as by ethnicity). Timely monitoring of outcomes by ethnicity requires high quality ethnicity data.

As we step down from Alert Level 4 we need controlled and staged implementation of measures that align with the above overarching aim, by operationalising suitable strategies that address these objectives in education, workplaces and health care settings. This is essential to mitigate the risk of increasing COVID-19 transmission and avoid the need to return to Alert Level 4.

This report focuses on population level control measures in the education, workplace and health care settings. These have been chosen because they are included in the current suite of strategies in the New Zealand response, are important to both control COVID-19 but also have significant adverse impacts, and because they are likely to vary significantly between different alert levels. In contrast, control measures to identify and stop transmission chains and prevent seeding of new chains are required to be consistently applied regardless of the alert level.

With these objectives in mind, the recommendations and tables below summarise the most important adverse consequences associated with each control measure, along with mitigation strategies to minimise the adverse health consequences.

# High level recommendations

The evidence for specific control measures for COVID-19 is emerging but scant, and we are faced with the following challenges:
- much of it evaluates a combination of measures, making assessment of individual measures difficult
- there is a heavy reliance on international modelling, which may differ from the real world context in Aotearoa/New Zealand
- to date the international literature does not report on the transmission or outcomes of COVID-19 in ethnic minority or indigenous populations
- equity impacts of control measures are inadequately assessed in the available literature.

In considering the best available evidence and local public health and equity expertise, we make the following high level recommendations for the implementation of control measures in Aotearoa/New Zealand.

1. All control measures have significant health and social consequences, and **all** are likely to significantly widen health inequities for Māori and Pacific populations unless deliberate mitigation strategies are put in place as soon as possible.

2. Based on previous Aotearoa/New Zealand and international experience, the effects from the combined impact of control measures are likely to have a higher impact on health and life expectancy for Māori and Pacific communities and those in socioeconomic disadvantage, than for other population groups. Therefore:
   a. the duration of any control measures must be minimised to the shortest safe period, to minimise detrimental impact on health and healthy inequities
   b. at the same time, more significant economic support is required to minimise increased health and life expectancy inequities for low income New Zealanders.

3. The cessation of routine health care and disability services has particularly severe consequences for Māori and Pacific populations - these services need to be prioritised during all levels of control to ensure that health inequities are not further exacerbated. The shift to Telehealth for many services is also likely to further worsen access for Māori and Pacific groups.

4. The inequity and the potential excess of death and disability due to COVID-19 control measures need to be quantified to ensure decisions minimise both COVID-19 and non-COVID-19 deaths and morbidity. This will require real time monitoring and action of indicators sensitive to economic adversity and inadequate access to health care. There are some major barriers in the current data architecture (such as those related to integration across DHBs and PHOs) and in the quality of data (such as ethnicity data) that will need to be rapidly overcome for this to occur.

5. Reopening schools should be a priority, given:
   a. closure (especially sustained closure) is likely to increase pre-existing educational inequities
   b. the significant cost burden on low income households for caring for children at home
   c. the parallel services, particularly health care and food, that schools provide for Aotearoa/New Zealand's most vulnerable children.

6. The reopening of non-essential workplaces is also a priority to reduce the disproportionate health and economic impact on low income workers who are less likely to be able to work from home (and who may be more likely to be Māori and Pacific). A staged approach to re-open workplaces could start with those workplaces with a low risk of transmission (eg, online retail). However, delaying reopening workplaces where interventions to reduce transmission (eg, hygiene and physical distancing) are more difficult will place further stress on those workers in low income households. Mitigation requires:
   a. understanding the ethnic and socio demographic distribution of essential workers and their key characteristics, including household structures
   b. support for high risk workplaces with low income workers to implement interventions to reduce transmission and open safely as soon as possible
   c. direct financial support for low income workers in high risk workplaces delayed in reopening
   d. direct support for workers at high risk of COVID-19 severity (eg, with underlying health conditions) who may not be able to return to work at the same time as their colleagues.

7. A staged step-down needs to take into account the implications across different settings eg, the re-opening of workplaces needs also to consider the excess childcare cost/burden on low income families, if early childhood education and schools are not reopened at the same time.

8. Tangihanga and traditional kai gathering are essential practices in Māori tikanga, and these need to be accommodated within control measures. Modifications to tangihanga protocols and kai gathering can be safely made to minimise risk of contact and transmission to similar levels as other essential activities.

9. Guidance about high-risk individuals should take into account the inequitable distribution of ill-health through the population, and inequities in the ability to adhere to such advice. Individual assessment of high risk for Māori and Pacific should be focused on the co-morbid conditions of concern for COVID-19 regardless of age. Simply lowering the age threshold of high risk for Māori and Pacific peoples is not recommended as this may have severe socio-economic impacts that are unjustifiable given the uncertainty on how age interacts with co-morbidity and multi-morbidity. Criteria used to identify high-risk individuals should not be used as criteria for restricting access to health care. For example, there are international examples of those in advanced age groups being denied access to ICU care.

10. Where control measures (including opening or closing services) require distinction between essential and non-essential (workers, services, children of) there needs to be clear consideration and mitigation of the health inequities that may result. For example, access to alcohol is available at Alert Level 4 within essential provisions, while there is no access to Family Planning and Cancer Screening services.

11. Where possible, interventions that largely rely on individuals exercising choice in to minimise risk (eg, not sending children to school, or not visiting workplaces for essential goods) should be avoided because of significant equity impacts. There is a high risk that vulnerable individuals will fall through the gaps if there is no systemic oversight.

# Adverse consequences & mitigation approaches for each control measure

## Workplace setting

Interventions in the workplace setting act to reduce contact between people (to reduce exposure to COVID-19) and transmission (to reduce the chance of getting COVID-19 if exposed to it). Although specific evidence of effect relating to COVID-19 is weak, evidence suggests that workplace closure may be effective in reducing disease transmission. It is difficult to separate the effect of workplace closure from other control measures.

The risk of COVID-19 transmission varies markedly across different workplaces. The risk of transmission in workplace settings is related to:
- number of people
  - total number of people in contact with a workplace
  - number of people present at one time
  - size of household/other bubbles of people present
- physical proximity of people (workers, clients/customers, public)
- indoor/outdoor setting

- ability to implement comprehensive hygiene measures
- age of workforce (and other risk factors)
- likelihood of people staying home when sick.

Workplace closure will likely have a differential impact on populations based on factors including employment rate, ability to work from home, distribution of types of employment, household composition and socio-economic position. There are significant equity implications of workplace closure due to negative economic impact and ability to access goods and services. Māori have a higher proportion of workers employed in lower-skilled occupations, and in industries particularly vulnerable to changes in economic cycles (eg, manufacturing, construction and wholesale and retail trade)[2]. As such it is critical to monitor the indicators suggested in the table below by ethnicity.

This section is a summary from a longer evidence review of COVID-19 in workplace settings that is available.

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[2] Ministry of Business, Innovation and Employment (MBIE). Māori in the Labour Market Report 2017

| Adverse consequence | Mitigation strategies | Examples of monitoring[3] required to detect "red flags" (all reported by ethnicity and region) |
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| **Workplace closure** | | |
| Essential workers and their households remain exposed to high numbers of contacts and receive less protection from the measure. | Measures to reduce social contacts within all essential service workplaces. Consider physical distancing, staged shifts and breaks, splitting shifts over weeks, pooling people to work together to reduce social contacts.<br><br>Where possible conversion of roles to be online or working from home.<br><br>Paid leave provisions for essential workers with pre-existing health conditions.<br><br>PPE for workers at high risk of contact/transmission.<br><br>Interventions to improve hygiene in workplace settings (eg, frequent cleaning of high touch surfaces). | PPE availability.<br><br>COVID-19 cases in health care workers, supermarket or transport workers.<br><br>Sick leave. |

[3] Monitoring for all key indicators needs to be real time and disaggregated by ethnicity, age, sex and socio-economic status at a minimum.

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| Reduced or no income for households, especially for those in casual or informal employment, disproportionately affecting Māori, Pacific and low-income families. At a time when the cost of obtaining food and essentials is increased. | Allow the granting of all Work and Income emergency food grants online or over the phone.<br><br>Wage subsidy scheme and removal of Job Seeker stand down period continued.<br><br>Increased financial support for those on low incomes, including further increases for beneficiaries to compensate for increases in living costs.<br><br>Increased distribution of practical support for households in crisis, food and essential good parcels.<br><br>Expand winter energy payment for 2020 to include all those receiving Working for Families. | Real-time monitoring of Ambulatory Sensitive Hospitalisations (ASH).<br><br>Food bank demand.<br><br>Income support receipt (including accessibility and eligibility criteria).<br><br>Tenancy loss and severe housing deprivation. |
| Prolonged workplace closures in the private sector are more likely to lead to business collapse and job losses, not just temporary reduction in income during workplace closure period – historically unemployment has hit Māori and Pacific peoples harder and faster.<br><br>Unemployment and stress cause deaths.<br><br>Insecure and unsafe housing arrangements. | Ensure the shortest possible safe duration of workplace closures. | Premature CVD morbidity and mortality.<br><br>Suicide.<br><br>Mental health.<br><br>Unemployment rates and benefit receipt (including accessibility and duration of application process).<br><br>Tenancy loss and severe housing deprivation. |

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| Difficulties obtaining essential goods, especially for essential workers and those with pre-existing health conditions. | Ensure essential business classification includes retailers which provide extended opening hours, delivery options and reasonably-priced goods.<br><br>Encourage schemes for prioritisation and free home delivery for low income essential workers and vulnerable people.<br><br>Ensure traditional kai gathering practices which are an important part of food provision in some households, are allowed to continue, with measures to maintain physical distance. | Price monitor for essential food basket.<br><br>Food bank demand.<br><br>Adherence to medications for chronic disease.<br><br>Emergency benefit receipt for utility debt (recoverable and non-recoverable).<br><br>Utility debt. |
| Mental health adversely affected by increased stress and uncertainty, and decreased income, especially those with less fallback economic resources (ie, Māori and Pacific peoples, and people on low incomes). | Prioritise appropriate mental health and wellbeing support services. | Suicide rates.<br><br>Unmet need for mental health care (health survey data).<br><br>Family violence reports and demand on support services. |
| Continued availability of alcohol during workplace closure may place extra burden on households experiencing violence.<br><br>Disproportionate impact on Māori whānau. | Reclassify alcohol as a non-essential item to prevent harm. | Intentional and non-intentional injury rates.<br><br>Family violence reports and demand on support services. |

**Workplace reopening but with mitigation measures to reduce contacts and chance of transmission**

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| Workers in workplaces less amenable to mitigation measures will experience higher risk of transmission.  International data shows there is a strong socio-economic gradient in the ability to work from home, with lowest paid workers least likely to have this option. People who work multiple jobs, often on low wages, are also at increased risk of exposure.<br><br>More pressure to work if in precarious employment and/or have no paid sick leave provision. Strong equity implications if lack of paid leaves means increased transmission risk. | Delaying opening of these workplaces will place further stress on those workers in low income households, but opening them will also expose these people to more risk than workers in settings with good physical distancing and work from home options.<br><br>Support high risk workplaces with low income workers to implement physical distancing and workplace hygiene measures to open safely.<br><br>Direct financial support for low income workers in high risk workplaces delayed in reopening.<br><br>Clear articulation of workplace requirements and enforcement to protect low income workers and those in precarious employment (who may have fewer resources to speak up against unsafe practices). | Cases of COVID-19 linked to workplaces.<br><br>Data on who is not turning up to work.<br><br>Compliance with health and safety measures. |
| If schools and early childhood education are not yet fully reopened, workers who are caregivers will be disproportionately impeded from returning to work.<br><br>Disproportionate economic and health impact on women.  Government currently provides free in-home childcare for children 5-14 years of essential workers only. | Extend free childcare provision to essential and non-essential workers, and to children <5 years who normally attend early childhood education. | Unfilled demand for in-home child care support (from WINZ approved providers).<br><br>Absenteeism/job loss rates for women aged 20-55. |

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| Increased contact between workers results in COVID-19 transmission. | Increased workplace health and safety including workplace hygiene and possibly PPE.<br><br>Good processes for early case detection and rapid case/contact isolation and contact tracing. Consider opportunistic testing in high risk workplaces. | Cases of COVID-19 linked to workplaces. |
| In all workplaces, workers with pre-existing health conditions who are particularly vulnerable to COVID-19 may be at higher risk of returning to work. Māori and Pacific communities have higher rates of people living with chronic health conditions. | Extend paid leave scheme for people with chronic health conditions.<br><br>Ensure all vulnerable workers are protected by physical distancing measures (and PPE where appropriate for the level of exposure risk). | Cases of COVID-19 linked to workplaces in people with chronic conditions. |

## Educational setting

There is a poor evidence base to support the effectiveness of full closure of education institutions in reducing COVID-19 morbidity and mortality. Best case scenario modelling, which may not apply to Aotearoa/New Zealand, suggests educational institution closures may reduce COVID-19 by 2-4 percent. Real world evidence from previous coronavirus outbreaks (SARS) and one evaluation of closing schools in Japan on COVID-19 do not suggest a large impact of closing schools on reducing coronavirus infections. This is in part because of the reduced role of children in transmission of coronavirus compared to influenza.

Education institution closures have profound and enduring impacts on health, educational, economic and social inequities. These need to be monitored and, where possible, mitigated.

There are a range of measures that could be applied in educational settings in Aotearoa/New Zealand to either replace full closure or as part of a stepped down response. These include measures to reduce the number of social contacts (eg, staggering class start and end times, closing common spaces, splitting classes of the teaching week) and reducing the likelihood of transmission (eg, hygiene measures in schools, cleaning commonly used surfaces). A staged, flexible risk-based approach would need to be taken, with accompanying evaluation, as the evidence for these interventions is also poor. Moreover, considering how any proposed 'step down' measures would impact on inequity is crucial.

This section is a summary from a longer evidence review of COVID-19 in education settings that is available.

| **Closure of educational facilities** | | |
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| **Adverse consequence** | **Mitigation strategies** | **Examples of monitoring[4] required to detect "red flags" (by ethnicity)** |
| Increase in existing inequity of children and youth regarding: support for early childhood development and preparation for school (ECE); school engagement; retention; and achievement.<br><br>Inequitable access to a quality home learning environment (eg, online learning, family stress, learning resources, educational support). | Universal understanding of needs and targeted support to improve accessibility and appropriate interventions to mitigate loss of educational engagement - focused on those who are already experiencing inequities (Māori, Pacific peoples, low SES).<br><br>Provision of resources to support learning to those that need it the most.<br><br>Support for economic resources for families: eg, wage subsidies and benefit increases by at least the amount required to ensure food security, housing security, internet, electricity and water. | Attendance, engagement, retention and achievement. |
| Tertiary education and training: inability to continue and complete courses with applied component.<br><br>Inequitable engagement, retention and achievement. | Support for ongoing online tertiary education, and early re-entry to applied courses.<br><br>Ability for applied courses to modify assessment and timelines. | Tertiary attendance, engagement, retention and achievement by course type and qualification. |

[4] Monitoring for all key indicators needs to be real time and disaggregated by ethnicity, age, sex and socioeconomic status at a minimum

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| Child, youth and student anxiety and stress regarding reduced learning/education opportunities and challenges of modifications to learning environment (eg, online learning). | Expand funding for culturally appropriate student support services and online support networks, mental health wellbeing promotion and support services. | Self harm and suicide rates.<br><br>Unmet need for mental health care (health survey data).<br><br>Mental health wellbeing promotion and support services utilisation and health outcomes data. |
| Child, youth and student social isolation from peers and networks (friends, sports teams and arts groups, etc). | Expand funding for culturally appropriate student support services and online support networks, mental health wellbeing promotion and support services. | Mental health wellbeing promotion and support services utilisation and health outcomes data. |
| Child, youth and student greater exposure to health risks (family violence, alcohol, drugs, family depression, stress and anxiety). | Expand funding for services such as women's refuge, iwi specific responses to family violence. | Support service use.<br><br>Injury and alcohol-related harm (hospital data). |
| Teaching and learning staff anxiety and stress resulting from challenges of modifications to learning environment (eg, online learning). | Ministry of Education and school-level support for professional development and resources required for effective learning environment modifications.<br><br>Psychological and mental health wellbeing support for teaching and learning staff. | Mental health wellbeing promotion and support services utilisation and health outcomes data. |
| Staff (eg, school support staff) income and job loss, and inequitable distribution of employment and economic security. | Economic support: for example, wage subsidies and benefit increases by at least the amount required to ensure food security, housing security, electricity.<br><br>Minimise barriers to (and expand) winter energy payment for 2020 to include all | Unemployment rates by occupation type.<br><br>Benefit receipt.<br><br>Increased child poverty. |

| | those with children, not on a benefit, with a changing economic situation, below a particular income cap. | |
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| Economic impact, and inequitable economic impact, for tertiary students who have additional financial consequences of closure such as loss of employment, accommodation costs, and student loans. | Student loan debt forgiveness policies. Fees free study for remainder of degree. Accommodation benefit supports. Reduce barriers to support eligibility and access. | Monitoring of loan debt.<br><br>StudyLink contacts and accessibility. |
| Loss of parallel support systems provided to children, youth and students at educational institutions – these include: food security (breakfast/lunch); provision of other resources (books, stationery, digital resources); health services (eg, immunisation, psychological, nursing support, primary and preventative care); adult/mentor support; physical activity; cultural supports. | Universal brief approach (eg, phone call) with standardised wellbeing assessment. Targeted approaches to ensure needs of Māori, Pacific peoples and those living in high socioeconomic deprivation are met. Phone triage +/- clinical triage, support, and potential for home visits and delivery of resources. Expanded funding for culturally appropriate student support services and online support networks. | Clinical support needs and health impacts. |
| Inequitable impact on workforce required to stay at home to care for children (absenteeism, income reduction, productivity). Greater impact on women and those with existing economic disadvantage. | Expansion of free childcare for essential workers to include children <5 years who normally attend ECE, and to low income non-essential workers, once workplaces reopened. | Unfilled demand for in-home child care support (from WINZ approved providers).<br><br>Absenteeism/job loss rates for women aged 20-55 years. |

| Opening of educational facilities with mitigation measures to reduce social contacts and chance of transmission | | |
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| **Adverse consequence** | **Mitigation strategies** | **Monitoring required to detect "red flags"** |
| Increased contact between children, youth and students (and with surfaces) results in COVID-19 transmission amongst students. | Limit ECE to in-home arrangements with restricted group sizes (supporting high quality ECE practice eg, use of facilities and trained staff)<br><br>Monitor children, youth and students for symptoms.<br><br>Strict sickness policies.<br><br>Strict hand hygiene, health promotion.<br><br>Reduced social contacts (space and time) in schools and educational institutions:<br><br>• use of alternative facilities for learning – eg, local private schools, community halls, churches<br>• restricted group sizes<br>• 2m physical distance (in school where possible, breaks, transport)<br>• Staggered entry times for classes and breaks<br>• Closing common areas and restrict any inter-school, intra-school activities; clubs; gatherings | ECE access by ethnicity, sex and SES.<br><br>Access to hand hygiene and health promotion supports by school decile.<br><br><br>Attendance, engagement, retention and achievement by ethnicity, sex, age and SES.<br><br><br>Time to closure in facilities when case identified in child, youth, student or household.<br><br>Detection of secondary case in educational facilities as indicator of failure. |

| | • Rapid closure of facilities if cases identified, with strict case investigation and contact tracing/isolation<br><br>If case identified in household (or 'bubble') of child, youth, student then closure of facilities while contact tracing/investigation and support occurs.<br><br>Strengthening of health service provision in educational institutions, particularly low decile schools.<br><br>Disinfecting and clean surfaces. | |
|---|---|---|
| Increased contact results in transmission to high-risk adults within the educational institution (>60, with chronic disease). Inequitable distribution of this COVID-19 transmission. | Support high risk adults to delay returning to work in educational institution<br><br>Ongoing payment for staff unable to work. | COVID-19 cases amongst staff in educational facilities. |

## Health care service delivery setting

The health system response to COVID-19 at the early stages of COVID-19 spread in Aotearoa/New Zealand is a mixture of measures to ensure readiness of the services and capacity for a surge in COVID-19 cases and public health measures to minimise physical contact and transmission within health care settings.

While cases remain at a low level in Aotearoa/New Zealand, it will be important that the non-COVID-19 related health consequences of reduced access to health care are monitored and minimised. A return to provision of non-acute services as soon as possible should be a priority.

Measures are being taken in health services to minimise in person contact, this includes suspending services deemed non-acute and moving to remote provision of care. Usual care pathways may have also been disrupted in order to minimise the risk of transmission, for example through online consultations (which in some cases may be inferior to face-to-face) or directing patients requiring primary respiratory care away from usual care providers and to community based assessment centres (which do universally provide comprehensive primary care).

There is already emerging evidence that this sudden unplanned disruption in usual care is leading to delays in presentation and diagnosis of life threatening conditions. For example, there has been a large drop off in cancer registrations compared to pre-lockdown rates and there are reports of patient related delays in seeking emergency care for acute myocardial infarction. On step down there will be a significant backlog of unmet need for primary and secondary services, and consideration should be given to how best meet this need given recently scaled-up (and under utilised) capacity to respond to COVID-19 related needs.

| Non-essential or non-acute health care service suspension | | |
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| **Adverse consequence** | **Mitigation strategies** | **Examples of monitoring[5] required to detect "red flags" (by ethnicity)** |
| Suspension of non-acute care (eg, elective surgery) leads to delays in treatment and increased morbidity.<br><br>This includes non-acceptance of referrals from primary care into secondary care which leads to delays in diagnosis and treatment and potential for patients to fall between the cracks. | Continue with non-acute care while health system capacity allows, prioritising care with the greatest impact on morbidity and mortality.<br><br>Prioritise non-acute care for those with caregiving and essential worker responsibilities.<br><br>Improved access to PPE, including consideration of extending the use of PPE for health care worker protection, workforce preservations, and maintenance of patient contact. | Morbidity and mortality rates by cause.<br><br>Acute admission severity rates.<br><br>Timeliness of cancer diagnosis and treatment.<br><br>HDC complaints.<br><br>DNA/First specialist appointments.<br><br>Waiting times for specialist appointments. |
| Suspension of preventative care such as cancer screening leads to delayed diagnosis. | Continue with preventative activities if possible, with practice changes to minimise risk of infection transmission. | Screening access rates.<br><br>Cancer stage at diagnosis.<br><br>Cancer mortality comparisons pre and post COVID-19. |

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[5] Monitoring for all key indicators needs to be real time and disaggregated by ethnicity, age, sex and socio-economic status at a minimum.

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| Suspension or disruption of health promotion and wellbeing activities such as Well Child Tamariki Ora/Whānau Ora and NGO community health work leading to missed opportunities to identify health concerns, such as serious child health and developmental problems | Prioritise health promotion and wellbeing activities, especially for Māori, Pacific peoples and low socio-economic groups. | Immunisation rates.<br><br>Breastfeeding rates.<br><br>Child wait-times for FSA and dental extraction.<br><br>Family violence.<br><br>Mental health, drug and alcohol use, and risk behaviour. |
| People encouraged not to attend primary care leads to delayed prevention (eg, immunisation), screening, diagnosis and treatment, missed opportunities for opportunistic care. | Clear messages about continuing to access primary care as normal, with pathways to care which do not restrict access (see remote service below). | Vaccination rates (including influenza.<br><br>ASH rates.<br><br>Waiting list volumes for specialist appointments. |
| Suspension of primary and preventative care in schools, leading to lack of treatment for preventable health conditions, delayed vaccinations, delayed identification of mental health, drug and alcohol risks, delayed dental care, delayed dental care, and reduced health and wellbeing support, particularly for children most at risk of poor health outcomes. | DHBs to prioritise alternative ways of providing primary health, preventative and psychological care to children and young people who normally rely on school services, while these services are not operating. | ASH rates in children.<br><br>Self harm rates.<br><br>Alcohol, drug use and mental health in young people. |

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| Shortages of pharmaceuticals and laboratory supplies making it difficult for people with chronic conditions to maintain their essential medicines, and making it impossible to test for certain health conditions (eg, Group A Strep infection, STIs) with serious health consequences. | DHBs to ensure pharmaceutical supply to high needs patients, especially vulnerable groups in high deprivation areas.<br><br>Changes to standing orders/guidelines and staffing capability to ensure empirical antibiotic treatment of suspected GAS sore throats (including at CBACs). | Hospitalisation rates for diabetes, ARF, CVD. |
| Closure of family planning services results in unmet need for contraceptive and sexual health services, with potential increase in unplanned pregnancies and delay in managing STIs with serious health consequences. Disproportionate impact on women, particularly from lower socio-economic groups. | Allow face-to-face family planning services as essential health services.<br><br>Improved access to PPE, including consideration of extending the use of PPE for health worker protection, workforce preservations, and maintenance of patient contact. | Teen pregnancy rates.<br><br>Hospitalisations and ED presentations with pelvic inflammatory disease. |

**Opening of health services with mitigation measures to reduce social contacts and chance of transmission**

| Adverse consequence | Mitigation strategies | Monitoring required to detect "red flags" |
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| Remote provision (telephone, Videocall) of primary, secondary and mental health services may lead to inequitable access to care relative to access to technology, and also inferior outcomes. | Ensure in-person services are available (with the appropriate risk assessment and mitigation) to those who do not have access to required technology, or who need access to in-person care to achieve equitable outcomes.<br><br>Allow all providers to make case-by-case risk benefit assessments about best ways to deliver appropriate and equitable care. | Primary care contact rates, by type.<br><br>Waiting list volumes for specialist appointments.<br><br>DNA rates for outpatients' appointments.<br><br>Unmet need for primary health and mental health care (survey data).<br><br>Asthma inhaler prescription rate. |
| Lack of guidelines for Telehealth/remote provision of care leading to uneven and potentially unsafe care provision. | Guidelines for Telehealth/remote provision of care. | Monitoring of guideline adherence. |
| Changes to care practices to allow for physical distance and barriers (PPE) may make care less effective (eg, hard to deliver effectively in mask because of difficulty establishing rapport). | Monitor carefully to ensure service delivery is still accessed and effective.<br><br>Clear guidance from NZ Medical Council and NZ Health and Disability Commissioner. | Primary care contact rates, by type.<br>DNA rates for outpatients' appointments.<br>Unmet need for primary health and mental health care (survey data).<br><br>HDC complaints. |