



How can we protect against the wider health impacts of the COVID-19 pandemic response?

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Title: How can we protect against the wider health impacts of the COVID-19 pandemic response?

Standfirst: Social distancing may cause significant adverse effects on health inequalities

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1717 words

Introduction

Countries across the world are escalating responses to the coronavirus (COVID-19) pandemic.¹ Responses aim to reduce the risk of transmission by reducing close contact through social distancing (Box 1). These measures have profound consequences. Several sectors are seeing steep reductions in business and there is panic buying in shops.² As more restrictive policies are adopted, new social, economic, and health consequences are inevitable. The health benefits of these measures are obvious, with a slower spread of the infection flattening the epidemic curve, reducing the risk of health services being overwhelmed. However, they may also prolong the pandemic, and the restrictions adopted to mitigate it.³ Policymakers need to balance these considerations while understanding the risks of social distancing.

Who is most at risk?

Several groups may be particularly vulnerable to the impacts of both the pandemic itself and the social distancing measures (Box 2). Box 3 presents mechanisms by which social distancing might affect population health. We consider each below. The online appendix provides a more detailed analysis.

Loss of income

There are several ways that people may suffer loss of income from social distancing. While some can work at home, many cannot, especially those in public facing roles in service industries, a group that already faces precarious employment and low income.⁴ Others may be affected by workplace closures, caused by government action, an infected co-worker, or a reduction in business. Yet more may be unable to work as school closures require them to care for children. The growth of the informal, gig economy in some countries has created a large group of people who are especially vulnerable in such circumstances as they lack sick pay, are on zero hours contracts or are self-employed. They can easily lose all their income and, even if this is only temporary, they often lack the safety net of savings. This might particularly affect housing security, leading to anxiety about rent or mortgage payments or even homelessness itself. School closure will affect low income and single parent families especially severely, as they need to meet an unexpected need for childcare. In some countries, welfare systems impose strict conditions on recipients, which cannot be met by those who are isolated.

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3 The link between income and health is well established, and acts through several
4 mechanisms.⁵ Income allows people to buy necessities for life, access health-enhancing
5 resources, and avoid harmful exposures. Low income also increases psychosocial stress.
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7 Crucially, not everyone is equally affected by loss of income. Those who are already poor
8 fare worst so if social distancing is not accompanied by measures to safeguard the incomes
9 of the poor then health inequalities will inevitably widen.
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13 Longer term effects may be substantial. If businesses fail, many employees will become
14 unemployed. Those losing their jobs in middle age may never return to the workforce.
15 Especially vulnerable sectors include hospitality, entertainment, transport, leisure and sport.
16 Unemployment has large negative impacts on both physical and mental health,⁶ with a
17 meta-analysis reporting a 63% increase in mortality.⁷
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21 The pandemic has already caused economic forecasts to be downgraded, with many
22 countries facing a recession. The health consequences of economic crises are complex.
23 Economic downturns have been associated with improvements in some health outcomes,
24 especially traffic accidents, but worsening mental health, including increases in homicide
25 and suicide.⁸ However, the harmful effects can be prevented by progressive social policies.⁹
26
27 Throughout history, some people have viewed any crisis as an opportunity. Naomi Klein has
28 described how “disaster capitalists” take advantage of man-made and natural disasters.¹⁰
29 Once the pandemic recedes, there could be profound changes to the economy that may
30 disadvantage less powerful populations.
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33 **Home isolation**

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35 Being advised, or compelled, to self-isolate at home, risks significant social and psychological
36 impacts. Quarantine of people exposed to an infectious disease is associated with negative
37 psychological effects, including post-traumatic stress symptoms, which may be long lasting.¹¹
38 The effects are exacerbated by prolonged isolation, fear of the infection, frustration,
39 boredom, inadequate supplies and information, financial loss, and stigma. These effects are
40 less where quarantine is voluntary and can be mitigated by ensuring clear, rapid
41 communication, keeping the duration short, providing supplies, and protecting against
42 financial loss. While healthcare workers are particularly prone to coronavirus, their home
43 isolation may threaten the sustainability of the healthcare system.
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3 Those who already live alone are at particular risk during a period of social distancing. Social
4 isolation is defined as pervasive lack of social contact or communication, participation in
5 social activities, or having a confidante. When it continues over a long time, it is associated
6 with an increase in mortality of almost a third.¹² Prolonged periods of home isolation could
7 have similar effects. Conversely, those sharing homes with families may also face problems.
8 Close proximity where there are existing tensions, risks family violence. Families living in
9 poverty, with restricted personal space, are especially vulnerable.¹³ Home isolation is likely
10 to reduce physical activity levels, which is known to be important for physical and mental
11 health. Other potential impacts include increased substance use, increased online gambling
12 and a rise in unintended pregnancies.

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People with mental health problems may be at high risk of adverse psychosocial
consequences if isolated. Those with, or in recovery from, substance issues may be at risk of
relapse or withdrawal. Those on low incomes may be unable to afford to heat their homes
all day. Children who are reliant on free school meals may go hungry. People who are
homeless, either rough sleeping or sofa surfing, will find home isolation difficult or
impossible.

Disruption to essential services

Clearly the pandemic itself will have a significant impact on health services, through
increased demand for care, while care will also be compromised if a large proportion of the
workforce becomes ill. A delay strategy seeks to reduce this disruption by lowering the peak
of cases. However, social distancing measures can themselves take essential workers from
the workforce, for example when schools close, requiring parents to provide childcare.
Transport restrictions can also prevent people getting to work.

The consequences go beyond healthcare. Essential workers include those providing social
care, utilities, including the internet access on which people are increasingly dependent,
emergency services, and those needed to maintain food supplies.

Disruption to education

Education is a key determinant of health.¹⁴ Those with higher levels of education have better
health, mediated through multiple pathways including future earning potential. However,
schools provide more than academic learning. They support development of social and other
skills. Long school closures, especially if they prevent children gaining formal qualifications,

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3 risk creating a cohort of pupils who carry disadvantage throughout their lives. The problem
4 will be greater for young people in families that lack access to resources such as home
5 computing and internet access.¹⁵ Others at particular risk include children whose home
6 circumstances are chaotic and those at risk of abuse. Some children who are not at school
7 may be at risk of exploitation, for example by drug dealers, or of being recruited into gangs.
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10 11 12 **Traffic and Transport**

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14 Social distancing will reduce commuting to work. Motorised traffic has negative impacts on
15 health through many pathways including air pollution, noise, injuries, and its contribution to
16 global heating.¹⁶ Even short-term reductions in traffic may improve air quality sufficiently to
17 see positive health effects. For example, fewer children needed hospital treatment for
18 asthma during traffic restrictions for the 1996 Atlanta Olympic Games.¹⁷ In Beijing, lockdown
19 significantly improved air quality. Conversely, restrictions on public transport which led to
20 more people driving would worsen these outcomes. Restrictions on public transport will also
21 prevent access to essential services for people without a private car.
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28 **Social disorder**

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30 There is potential for looting if shops close, and for public unrest and rioting if supplies run
31 out or if there is widespread discontent about the pandemic response. A lack of public
32 entertainment following closure of leisure outlets could exacerbate this, as could reduced
33 policing capacity due to illness or caring responsibilities.
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38 **Population psychosocial impacts**

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40 There is already a high level of public fear and anxiety about coronavirus. In some countries,
41 such as the UK, there have been reports of harassment of people of East Asian descent, who
42 were believed erroneously to be at risk of transmitting the virus. Communications about the
43 response could either exacerbate or alleviate these effects. A future risk is that older people
44 and other groups that are being particularly protected by the response become stigmatised.
45 On the other hand, community cohesion could increase as people respond collectively to the
46 pandemic.
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52 **Mitigating adverse impacts**

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54 In addition to the disease burden arising from infection, the pandemic is already causing
55 negative indirect impacts including loss of income for workers in precarious employment,
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3 population psychosocial effects, and impacts from widespread self-isolation. These impacts
4 are borne disproportionately by people who already have fewer resources and poorer
5 health. The more restrictive social distancing measures now being implemented are likely to
6 exacerbate these and so could increase health inequalities in the short and long term. This
7 rapid assessment found several ways in which the pandemic response is likely to affect
8 health: through loss of income, longer term economic impacts, impacts of home isolation,
9 disruption to essential services, traffic, crime and population psychosocial impacts.

10
11 This assessment is based on a rapid scoping to identify potential impacts and a very rapid
12 non-systematic review of diverse literatures, so there is a high degree of uncertainty about
13 the extent of some impacts. However the range of health issues identified, beyond those
14 directly attributable to the virus itself, should be recognised in developing and implementing
15 the response.

16
17 In the longer term, policy decisions made now will shape the future economy, in ways that
18 could either improve or damage sustainability, health and health inequalities. These include
19 decisions about: which sectors to prioritise for support, whether to direct financial support
20 to business or workers, and how to fund the costs.

21
22 To reduce adverse impacts on health and health inequalities, actions must be targeted to
23 support the most vulnerable people. The extraordinary measures in the UK being put in
24 place to allow businesses to continue paying staff will help to mitigate these effects for
25 many workers. But it is important to consider populations in precarious work who will not be
26 covered by these, and to consider longer term support for individuals who suffer effects that
27 continue beyond the current wave.

28
29 Key recommendations arising from this assessment are summarised in Box 4.

30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 **Key messages**

- 46 • Social distancing measures to control the spread of COVID-19 are likely to have
47 large impacts on health and health inequalities
 - 48 • These include short and long term impact on incomes, mental and physical health
49 impacts of social isolation and disruption to essential services and education.
 - 50 • People on low incomes are most vulnerable to the adverse effects
 - 51 • Substantial mitigation measures are needed to reduce adverse health impacts
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Contributors and sources

MD chairs the Scottish Health and Inequalities Impact Assessment Network. SVK is Clinical Senior Research Fellow with interests in social determinants of health and healthy public policy. MT is Public Health Information Manager with expertise in quantitative social research and social policy. MMcK is Professor of European Public Health, Director of the European Centre on Health of Societies in Transition and Research Director of the European Observatory on Health Systems and Policies. GMcC is Head of the Scottish Public Health Observatory. MD used a Health Impact Assessment (HIA) checklist to identify potential mechanisms. GMcC, MD, SVK and MT prepared the analysis of impacts shown in the table in the appendix. All authors debated and agreed the findings and contributed to the text of the paper.

Box 1: Social distancing measures

- Advising the whole population to self-isolate at home if they or their family are symptomatic
- Bans on social gatherings
- Stopping flights and public transport
- Closure of 'non-essential' workplaces (i.e. beyond the health and social care sector, utilities and the food chain) with continued working from home for those that can
- Closure of schools, colleges and universities
- Prohibition of all 'non-essential' population movement

Box 2: Groups at particular risk from responses to COVID-19

- Older people – highest direct risk of severe COVID-19 disease, more likely to live alone, less likely to use online communications, at risk of social isolation
- Young people – impact of disrupted education at critical time, longer term most at risk of poor employment and associated health outcomes in economic downturn
- Women – more likely to be carers, likely to lose income if need to provide childcare during school closures, potential for increase in family violence for some
- People of East Asian ethnicity – may be at risk of discrimination and harassment
- People with mental health issues – may be at greater risk of impacts of social isolation
- People who use substances or in recovery – risk of relapse or withdrawal
- People with a disability – impact of disrupted support services
- Homeless people – maybe unable to self-isolate, impact of disrupted support services
- People in criminal justice system – difficulty of isolation in prison setting, loss of contact with family
- Workers on precarious contracts or self-employed – significant risk of adverse impacts from loss of work and no income

- Low income – impacts will be particularly severe for people on low incomes, who already have poorer health and are more likely to be in insecure work without financial reserves
- People in institutions (care homes, special needs facilities, prisons, migrant detention centres, cruise liners) – as these institutions may act as amplifiers

Box 3: Ways that social distancing can affect population health

- Loss of income
- Home isolation
- Disruption to essential services
- Disruption to education
- Traffic and transport
- Social disorder
- Psychosocial impacts

Box 4: Recommendations to mitigate adverse impacts of response measures

- Protect incomes and provide essential supplies for vulnerable groups of people
- Reduce longer term unemployment
- Recognise and reduce psychosocial effects of home isolation
- Protect essential services
- Maintain educational support
- Protect sustainable transport
- Avoid stigmatising specific populations

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References

1. WHO Director-General's opening remarks at the media briefing on COVID-19. Geneva, World Health Organisation, 11 March 2020, <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>.
2. Coronavirus: Food bank shortage blamed on panic buying. London, BBC News, 13th March 2020, <https://www.bbc.co.uk/news/uk-england-london-51837892>.
3. Ferguson NM, Laydon D, Nedjati-Gilani G, et al. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand. London, Imperial College COVID-19 response team, 16th March 2020, <https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-NPI-modelling-16-03-2020.pdf>.
4. McKee M, Reeves A, Clair A, Stuckler D. Living on the edge: precariousness and why it matters for health. *Archives Publ Health* 2017; 75:13
5. Benzeval M, Bond L, Campbell C, Egan M, Lorec T, Pettigrew M, Popham F. How does money influence health? Joseph Rowntree Foundation, 2014. <https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/income-health-poverty-full.pdf>
6. Paul KI, Moser K. Unemployment impairs mental health: Meta-analyses. *Journal of Vocational Behavior* 2009; 74(3): 264-282, <https://doi.org/10.1016/j.jvb.2009.01.001>
7. Roelfs DJ, Shor E, Davidson KW, Schwartz JE. Losing life and livelihood: a systematic review and meta-analysis of unemployment and all-cause mortality. *Social Science and Medicine* 2011; 72(6): 840-54, doi: 10.1016/j.socscimed.2011.01.005.
8. Stuckler D, Basu S, Suhrcke M, Coutts A, McKee M (2009) The public health effect of economic crises and alternative policy responses in Europe: an empirical analysis. *Lancet* doi:10.1016/S0140-6736(09)61124-7
9. McCartney G, Hearty W, Arnot J, Popham F, Cumbers A, McMaster R. Impact of Political Economy on Population Health: A Systematic Review of Reviews. *Am J Public Health* 2019; 109(6): e1-e12. DOI: 10.2105/AJPH.2019.305001
10. Klein N. *The shock doctrine*. Harmandsworth: penguin, 2007.
11. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S Greenberg N, Rubin GJ (2020) The psychological impact of quarantine and how to reduce it: rapid review of the evidence *The Lancet* Volume 395, Issue 10227, 14–20 March 2020, Pages 912-920 [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
12. Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and Social Isolation as Risk Factors for Mortality: A Meta-Analytic Review. *Perspectives on Psychological Science*, 10(2), 227–237. <https://doi.org/10.1177/1745691614568352>
13. Acquah D, Sellers R, Stock L, Harold G. Inter-parental conflict and outcomes for children in the contexts of poverty and economic pressure. Early Intervention Foundation, 2017. <https://www.eif.org.uk/report/interparental-conflict-and-outcomes-for-children-in-the-contexts-of-poverty-and-economic-pressure>
14. Kaplan RM, Spittel ML, Zeon TL. Educational attainment and life expectancy. Policy insights from the behavioural and brain sciences. 2014. <https://journals.sagepub.com/doi/full/10.1177/2372732214549754>
15. White J. Childrens social circumstances and educational outcomes. NHS Health Scotland, 2018. <http://www.healthscotland.scot/media/2049/childrens-social-circumstances-and-educational-outcomes-briefing-paper.pdf>

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16. Douglas MJ, Higgins M, Austin H, Armour G, Jepson R, Thomson H, Hurley F. Health and Transport: A Guide. Scottish Health and Inequalities Impact Assessment Network. 2018.
17. Friedman M, Powell K, Hutwagner L, Graham LM and Teague W. Impact of changes in transportation and commuting behaviours during the 1996 Summer Olympic Games in Atlanta on air quality and childhood asthma. *Journal of the American Medical Association* 2001, 285:7, 897–905.

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Potential mechanisms of unintended population health impacts from strict social distancing and recommendations for mitigation

This table uses Scotland as a case study to assess the nature and scale of the potential impacts and suggest recommendations. Figures given are for Scotland, with a total population of 5 million, or UK which has a total population of 66 million people.

Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
Loss of income					
Workers who are ill or who are asked to self-isolate, but are not entitled to sick pay	People in precarious employment, on zero hours contracts or self employed	Estimated 1.87million people without access to Statutory Sick Pay (SSP) ¹ in the UK although this may underestimate the problem if SSP is not available during self-isolation	Loss of all income: for 7 days for those with mild illness or isolation only; for 14-21 days for those with more severe illness. This is likely to have markedly negative physical and mental health impacts ^{2,3}	High impact disproportionately affecting younger, women and their dependents, and amongst the already low paid	Immediate sickness benefits (at a minimum at SSP levels) for ill people or who are asked to self-isolate, including people who are self-employed or do not meet the criteria for SSP currently
Workers for whom the demand for their labour reduces as a direct or indirect consequence of restrictive social distancing	Workers in industries most affected by the response to the pandemic (tourism, hospitality, entertainment, sport, transport, self-employed, small/medium enterprises, etc.)	Uncertain number affected as this will depend on the degree of recessionary effect and the particular sectors involved. Could include all but the most 'essential' of sectors (e.g. health/social care, utilities, food chain) but difficult to define the limits to this	Unemployment is known to have large negative impacts on mental health ⁴ and some causes of mortality ⁵ ; however, the general recessionary effects on population health are more mixed ^{6,7} and are discussed below	High impact, disproportionately affecting those of working age and their dependents	Provide easily accessible incomes for all affected people. Abolish five week wait for UC. Implement minimum income guarantee or basic income at a level equivalent to minimum income for healthy living. Provide advice that allows people to continue working safely when physical distance can be maintained.
Workers whose workplace is closed temporarily to achieve social distancing	Workers in affected industries which do not continue to provide pay during that period (i.e. people in precarious employment, on zero hours contracts or self employed)	Uncertain number affected as this will depend on the degree of closure and the particular sectors involved. Could include all but the most 'essential' of sectors (e.g. health/social care, food chain) for some period of time, but difficult to define the limits to this (e.g. the need for transport to continue, IT support, etc.)	Loss of income for affected workers is likely to have markedly negative physical and mental health impacts ^{2,3}	High impact, disproportionately affecting younger, female adults and their dependents, and amongst the already low paid	Provide easily accessible incomes for all affected people

Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
Workers who have to reduce their work because of caring responsibilities	Working age adults with children and elderly relatives, particularly women	Uncertain number depending on the course of the pandemic (i.e. the number of people who are ill and require care at any one time)	Loss of income for affected workers is likely to have markedly negative physical and mental health impacts ^{2,3}	High impact, disproportionately affecting younger, female adults and their dependents, and amongst the already low paid	Provide an immediately accessible carers benefit for those without paid carers leave and bring this in line with the minimum income for healthy living.
Social security claimants who are not able to demonstrate meeting associated conditions	Some claimants of Universal Credit and legacy benefits	2.8m people in the UK were on the conditional form of Universal Credit in January 2020 ⁸ – the number who may be at risk of breaking conditions due to the pandemic or the response will be substantially lower	Loss of income for affected people is likely to have markedly negative physical and mental health impacts ^{2,3}	High impact, disproportionately affecting those who are on low incomes and have pre-existing health conditions	Suspend conditionality on all currently received benefits. Suspend further migration (natural or planned) to Universal Credit for existing claimants too to avoid adding to income disruption. Suspend recovery of historic public sector debt repayments (e.g. tax credits).
Income insecurity may result in risks to maintaining housing	Those living in rented housing or with an outstanding mortgage, who might be affected by any of the above forms of income shocks	4.5m households were in private rental accommodation in 2017; ⁹ there were around 5m households in social rented accommodation in 2018, ¹⁰ and there are a further 9.2m households with outstanding property debts (the majority of which will be mortgages). ¹¹ It is difficult to accurately quantify the number who are likely to be affected by the above income shocks. However, it is likely to be substantial.	Actual loss of housing has substantial impacts on health, but even the threat of housing insecurity is likely to have adverse impacts on mental health and probably also on physical health and its determinants.	High impact, disproportionately affecting those on low incomes and younger households.	Introduce measures to suspend rental and mortgage payments, evictions, and take the actions detailed above to address income insecurity (including mortgage and rent payment suspension for both private and social landlords). Extend Scottish Options of maintaining housing benefit direct to landlord to England and Wales. Monitor the impact of replacing Support for Mortgage Interest (SMI) with a loan.

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Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
Macroeconomic consequences					
Economic recession	The groups most frequently adversely affected are those in low paid and precarious work	This is dependent on the severity and length of any recessionary impact.	The impacts of recession on health are mixed and not necessarily negative overall. ^{Error!} <small>Bookmark not defined.</small> ⁷ Improvements occur through lower mortality from road-traffic accidents and alcohol-related causes but suicide and mental health problems increase.	Mixed impacts with mental health problems being the greatest risk	The recommendations in this area relate to supporting people's incomes (as per the rows above) and mental health (as per the rows below)
Longer term failure of businesses with loss of employment and income	Workers in industries most affected by the response to the pandemic (tourism, hospitality, entertainment, sport, transport, self-employed, small/medium enterprises, etc.)	Very uncertain and dependent on the depth and length of any recession and the effectiveness of economic mitigation measures	The direct impacts of reduced employment and income over the long-term will disproportionately affect the working age population through poorer mental health and increased mortality. The long-term impacts of the 1980s recession and the associated restructuring of the economy caused substantial excess mortality and morbidity. ¹²	This is uncertain but could be substantial.	In addition the recommendations elsewhere, consider opportunities to retrain the workforce into more sustainable and growth areas of the economy (e.g. care sector, refitting of heating systems).
Falling value of pensions assets	Pensioners - people of pensionable age dependent on private pensions, those who are soon to move into pensionable age and those currently of working age whose pension value will be reduced in the future. This will impact most on higher income groups who are much more likely to have private pension wealth. ¹³	In the long-run this will affect everybody with a private pension (estimated at 53% of the population ¹³), but this will have particular short-run impacts on those close to retirement age or currently dependent on private pensions.	There will lower incomes from pensions in the medium to long run, but state pension payments will continue and avoid people moving to zero income. The impacts are therefore likely to be modest although some people currently on higher incomes may notice large decreases in the medium to long-run.	The impact is likely to be greater in the medium to long-run and for those already in receipt of higher incomes	Ensure that state pensions are not eroded in the coming period to provide a minimum income for this group

Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
Reduced government revenue	This depends on how governments react to lower revenues. If an austerity approach is taken to balance the public finances this will impact on public services, public sector employment and social security. If government borrowing is increased to maintain spending this may have impacts through inflation and greater government debt in the long-run.	Uncertain but could be substantial if an austere approach is taken. Mortality rates for the poorest 40% of the Scottish population have been increasing since 2012, and this is likely to be attributable to austerity policies. ¹⁴	Uncertain but could be substantial if austerity approach is taken. The best available evidence is that austerity regimes are associated with an increase of mortality rates by 0.7%. ¹⁵	This is entirely dependent on the government's response to lower revenues. An austere approach could have large negative consequences, particularly for low income groups, unless this was implemented through the mechanism of higher taxes on those with greater incomes and wealth. ¹⁶	Avoid economic policies which reduce funding for public services and for social security.
Disruption to health and social care services					
Access to emergency health care	Whole population	140,000 to 150,00 people seen by Emergency Departments every month ¹⁷ in Scotland.		Potentially substantial if emergency health care is disrupted.	Existing NHS prioritisation approaches.
Delays to non-urgent health care provision (e.g. cancellation of clinics and planned operations)	People with long-term health conditions most affected	Estimated 2million people live with one or more long-term conditions in Scotland ¹⁸ .	Delays to treatment could result in ongoing unresolved morbidity and delays to prevention activities (such as cancer screening) could result in longer term adverse health impacts.	Health impacts are likely to increase, the longer disruption to health care provision lasts.	
Disruption in care provision	People with social care needs	An estimated 1 in 24 people receive some form of social care Almost 68,000 receive home care ¹⁹	People already in receipt of social care assistance and particularly the elderly might be particularly at risk of increased mortality if there are reductions to services, as has been observed following some austerity policies.	Large health impacts on many vulnerable people if services not maintained.	Care providers contingency planning – it is important to provide reasonable assumptions to support them, and fund any increase in cost of care

Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
Cancellation of face to face interpreting services	People who require interpreters including BSL	Estimated 87,000 Deaf people in the UK who use BSL as their preferred language ²⁰ In 2011 census 62,000 people in Scotland could not speak English well and over 11,000 not at all ²¹	Inability to communicate may lead to inappropriate care or inability to access other essential services.	Potential for people who require interpretation to face barriers to healthcare and other services if alternatives to face to face interpreters are not available.	Ensure easy access to online or phone interpreting services
Disruption to other services and supply chains					
Loss of face to face support to help vulnerable groups access social security systems (getting ID, negotiating IT systems).	Those making use of CAB Universal Support, GP welfare Rights service in surgeries etc.	Unknown, but likely to include groups including those with limited access to IT or low IT literacy, people who are homeless and those with learning difficulties.	Increased risk of destitution for groups affected.	Existing inequalities in access to social security likely to be maintained or even increased.	Provide telephone support for particularly vulnerable groups without IT access
Food access –potential disruption caused if workers in any/all parts of the supply chain were unable to work due to self-isolation or needing to care for children as schools close. Potential shortages due to panic buying.	Whole population would be affected if food supplies were disrupted People without local support or social networks may be unable to access supplies if self-isolating.	The whole population is reliant on complex 'just in time' food supply chains.	Food is a prerequisite for health, so food shortages would have a severe impact on health.	High impact on health if food production, distribution and supply chains are not maintained throughout the period of social distancing. High impact on individuals self isolating who do not have friends or neighbours nearby able to deliver food to them.	Prioritisation of food supply chain. Measures to deliver food to people self isolating. Potential to use spare capacity in restaurants that have lost business.
Essential utilities (such as water, electricity, internet etc.) Potential disruption if workers are unable to work due to self isolation or needing to care for children if schools close. Potential shortages if energy and internet overloaded by increase demand from home workers.	Whole population	The whole population relies on provision of basic utilities. The number of people relying on home internet services will increase as more people work from home.	Disruption to water and sanitation could have substantial health impacts. Disrupted energy supplies could cause cold-related morbidity and mortality, Loss of internet access would affect online ordering and other services, ability of many workers to continue working, and increase social isolation.	High impacts on health if essential utilities are not functioning.	Prioritisation of essential utilities across all the supply chains.

Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
Home isolation					
Social isolation	Particular vulnerable groups might include: older people living alone and people with mental health conditions.	More than a third of households contain a single adult living alone – 22% households are single adults of working age, 14% households are single older adults 19% of adults over 16 have a GHQ score that indicates potential mental health problems	Social isolation (defined as pervasive lack of social contact or communication, participation in social activities, or having a confidante) is associated with 29% increase in mortality. ²² Quarantine is associated with negative psychological effects including post-traumatic stress symptoms, though these are less in voluntary quarantine. ²³	Moderate impact on mental health, disproportionately affecting those with pre-existing mental health conditions.	Coordinated outreach efforts will be required to reach vulnerable groups, especially those living alone. These will most likely make use of both online and telephone modalities.
Home isolation may lead to family stress and increase in domestic abuse	Families Families at greater risk include those on a low-income, at risk of substance use and with previous domestic abuse.	In 2014–17, one in six households in Scotland (17%) with three or more children was overcrowded, compared to 9% of households with two children and 3% of households with one child. Among households with four or more children, the percentage reporting being overcrowded increased to 28%. (Scottish Household Survey) There are about 60,000 domestic abuse incidents in Scotland every year, with young women most affected ²⁴ .	Impact of increase in family violence and abuse would be severe for those affected.	Moderate impact on family stress for many, with severe effects for most vulnerable.	Encourage and support communities and voluntary organisations to offer support to vulnerable families. Provide safety advice and support services for women at risk of domestic abuse.
Home isolation will increase physical inactivity	Everyone who is home isolating People in overcrowded homes and families on lower incomes without access to private gardens are most at risk.	Everyone in home isolation. Overcrowded/ low income households as above.	Physical inactivity is a significant risk factor for physical and mental morbidity.	Physical inactivity for a prolonged period of time could impact on both physical and mental health.	Information and advice for people isolating at home – include advice on safe physical activity and mental wellbeing
Fuel poverty for families having to heat homes all day	Low income families	A third of households in Scotland are fuel poor.	Living in a cold home is associated with cardio-respiratory conditions, poor mental health and slowed growth in children ²⁵ .	Increased fuel poverty	Encourage fuel companies to offer delayed fuel payments, provide prepaid payment cards for families in financial hardship

Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
<p>Potential increase in alcohol consumption.</p> <p>Impacts on those at risk from addictive substances (such as heroin or alcohol), including withdrawal or resumption of use for those in recovery.</p>	<p>People at risk of hazardous drinking</p> <p>People with active problems with addictions or in recovery</p>	<p>A small number of people are affected by addiction to alcohol and other substances at any one time, but they typically have poor pre-existing health. For example, in SHS 1% of adults had possible alcohol dependence (based on AUDIT score)</p>	<p>Rapid withdrawal from alcohol and some other substances can result in severe physical health problems, including death.</p> <p>People in recovery from substance issues may be at risk of relapse.</p>	<p>A small number of people with addictions may experience withdrawal-related harms or are at risk of relapse. While the number of people affected are low, they are a highly vulnerable group and typically have poor pre-existing health.</p>	<p>Advise and support about moderating alcohol consumption.</p> <p>Provide remote access to support services including Mutual Aid.</p> <p>Work with community services to provide advice to avoid abrupt withdrawal.</p> <p>Ensure availability of emergency facilities for managing addiction withdrawal.</p>
<p>Widespread fear and anxiety</p>	<p>Whole population</p> <p>People at higher risk may include:</p> <p>People with mental health problems</p> <p>People with communication barriers who do not understand communications</p>	<p>5.3M people in Scotland</p>	<p>Curtailement of liberties are likely to cause fear and anxiety amongst the general population, in addition to some at-risk groups having particularly adverse mental health impacts. There is a risk of some social groups being stigmatised (e.g. early on incidents of some ethnic groups, but potentially older people).</p>	<p>Likely to be small-moderate impacts for most people, with potential for more substantial impacts for specific social groups at risk of being stigmatised.</p>	<p>Clear communication which facilitates community cohesion.</p>
Disruption to education					
<p>Lack of availability of school provision could lead to healthcare and other essential staff being unable to work</p>	<p>NHS and other essential staff</p>	<p>Public sector staff, including healthcare staff, are more likely to be women and have caring responsibilities.</p>	<p>Staff being unable to continue providing essential services due to the need to provide childcare may substantially threaten the capacity for continued service provision. There is a risk that grandparents or others potentially more vulnerable to coronavirus may provide childcare.</p>	<p>Potentially large impact on health, as a consequence of a lack of availability of healthcare or other essential services and transmission to vulnerable groups.</p>	<p>Consider alternative childcare provision arrangements</p>

Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
'Holiday hunger' effect for children usually reliant on free school meals during term times, plus disruption of novel programmes which aim to tackle holiday hunger	Children in low income families	4.1M children were living in poverty in 2017-18 (30% of all children). ²⁶ Over 260,000 children are registered for free school meals in Scotland ²⁷	Food is a prerequisite for health. A lack of food or inadequate nutritional content can impede child development and lead to both short-term and long-term physical and mental health problems.	Impact may be substantial and will particularly affect children living in low-income households (which may already be affected by other income threats above).	Food provision for low income families: options might include SG and local authorities make use of existing mechanisms (Best Start cards and/or the cashless cards children use to access FSM) or for the SG to bring forward the Scottish child payment and the UK Govt to adopt something similar
Reduced physical activity amongst children	All children	23% of females and 34% of males aged 11-12 years met the guidance for physical activity in 2017, according to the SHeS.	Physical activity patterns in childhood appear to be important for establishing long-term patterns of behaviour for the rest of life. Reduced physical activity among children may therefore increase the risk of many common health conditions, such as heart disease and stroke.	Potentially moderate longer term impact of reduced physical activity which might affect deprived groups (who are less likely to have access to a garden) more.	Longer term consideration is needed for more interventions to increase physical activity, particularly targeted at disadvantaged children.
Delays to training or accreditation of health professionals may result in being unable to practice in a timely manner, exacerbating staff shortages within the health service	Trainee health professionals (e.g. medical students) and existing health professionals intending to do expanded roles	Approximately 6,000 medical students graduate every year in the UK, with larger numbers of student nurses and other staff completing their degree.	Newly available staff and expanding the competency of existing staff could help in support the direct pandemic response, as well as help with ensuring the continuity of routine services.	Delays to making newly trained health professional staff available to the NHS could have a moderate impact on the capacity to continue delivery of essential health services.	Ensure universities have processes to allow students to graduate on-time. Consider the potential for more junior health students to provide assistance. Ensure access to essential training in a timely manner which can be upscaled quickly to allow expanding competencies of staff e.g. online training for use of ventilators.

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Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
Education is a key determinant of health, and that the impact on children’s education if schools, further and higher education closed for a significant time (or a critical time)	School aged children Adults who are receiving further and higher education	Almost 700,000 pupils in publicly funded schools in Scotland ²⁸ Almost 50,000 school leavers each year ²⁹ – these may be most severely affected by disruption.	Educational attainment is one of the best predictors of life expectancy ³⁰ . In the UK life expectancy is 4 years higher for people with the highest educational attainment compared to those with the lowest ³¹ . Cancellation of exams (e.g. the SQA exams which are due shortly) is likely to have the longest lasting consequences. The greatest impact will be on children in families with fewer resources, eg without a computer to access learning resources online. It may be less possible to continue distance delivery of further education and more vocational courses than some higher education courses.	Longer term high impact, including on socioeconomic inequalities in health.	A diversity of outreach approaches to meet the educational needs of low-income children will be required. Greater investment may be required to support further education students when facilities resume normal delivery.
Transport					
Suspension of public transport will reduce access to essential employment and services	Low income groups who do not have access to private transport Single pensioners are least likely to own a car	29% of households lack access to a car ³²	People without access to a car will be excluded from access to shops and essential services	High impact for people who are unable to access essential services	Provide advice to allow pedestrian and cycling access while maintaining safe distances. Explore whether dial a bus could continue to be used while complying with the 2m rule.
Air quality and other impacts from traffic – may be improved if fewer vehicle movements, but imposing restrictions on public transport but not private cars may increase pollution and other traffic impacts	Whole population People with respiratory conditions particularly vulnerable	6.5% of the Scottish pop had asthma in 2015/16 87 people per 100,000 admitted to hospital with asthma in 2018/19 ³³	Potentially measurable effects on cardio-respiratory health, road traffic injuries and other	Reduction in traffic could lead to improvements in cardio-respiratory health, reduced road injuries. Potential benefit greatest for people with respiratory conditions	

Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
Carbon emissions	Global population	Global population	Globally a significant number of deaths are attributable to climate change	Reduction in traffic will have positive impact on carbon emissions	Consider how more remote working longer term can be achieved. Prioritise more sustainable sectors of economy for support.
Social disruption					
Crime – reduced policing capacity, potential for looting if shops closed, potentially rioting if supplies run out	Likely to be higher risk in communities more affected by impacts above	Unknown	Potentially severe impact if widespread social unrest	Potential increases in crime and social disorder, including looting.	Above recommendations to mitigate impacts will reduce risk of disorder. Prioritise higher risk communities for support.
Stigma/discrimination/harassment against groups thought to pose high risk of transmission	People in particular ethnic groups Elderly people and those with disabilities	Over 33,000 people of Chinese ethnicity in Scotland at time of 2011 census Over 1million people are aged 65+ in Scotland 8% of adults are unable to work due to a disability.	Likely to cause distress and may cause/exacerbate mental health impacts.	Stigma, discrimination and harassment against populations of people blamed in some way for the pandemic could worsen social isolation, and cause distress and mental health impacts in some.	Clear messaging that avoids stigmatising people who have Co-V or linking it to specific populations

Sources

- 1 Sick pay for all. London, Trade Union Congress, 2020, <https://www.tuc.org.uk/research-analysis/reports/sick-pay-all>.
- 2 Gunasekara FI, Carter K, Blakely T. Change in income and change in self-rated health: Systematic review of studies using repeated measures to control for confounding bias. *Social Science & Medicine* 72 (2011) 193e201.
- 3 Kawachi I, Adler NE, Dow WH. Money, schooling, and health: Mechanisms and causal evidence. *Ann. N.Y. Acad. Sci.* 1186 (2010) 56–68, doi: 10.1111/j.1749-6632.2009.05340.x.
- 4 Paul KI, Moser K. Unemployment impairs mental health: Meta-analyses. *Journal of Vocational Behavior* 2009; 74(3): 264-282, <https://doi.org/10.1016/j.jvb.2009.01.001>.
- 5 Roelfs DJ, Shor E, Davidson KW, Schwartz JE. Losing life and livelihood: a systematic review and meta-analysis of unemployment and all-cause mortality. *Social Science and Medicine* 2011; 72(6): 840-54, doi: 10.1016/j.socscimed.2011.01.005.
- 6 Tapia Granados JA, Ionides EL. Population health and the economy: Mortality and the Great Recession in Europe. *Health Economics* 2017; 26(12): e219–e235, <https://doi.org/10.1002/hec.3495>.
- 7 McCartney G, Hearty W, Arnot J, Popham F, Cumbers A, McMaster R. Impact of Political Economy on Population Health: A Systematic Review of Reviews. *American Journal of Public Health* 2019; 109(6): e1-12, <https://ajph.aphapublications.org/doi/10.2105/AJPH.2019.305001>.
- 8 Stat-xplore. London, DWP, 2020, downloaded from <https://stat-xplore.dwp.gov.uk/webapi/jsf/tableView/tableView.xhtml> on 13th March 2020.
- 9 UK private rented sector: 2018. London, ONS, 2019, <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/ukprivaterentedsector/2018>.
- 10 Comparing affordable housing in the UK: April 2008 to March 2018. London, ONS, 2019, <https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/comparingaffordablehousingintheuk/april2008tomarch2018>.
- 11 Household debt: wealth in Great Britain. London, ONS, 2019, <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/datasets/householddebtwealthingreatbritain>.
- 12 Walsh D, McCartney G, Collins C, Taulbut M, Batty GD. History, politics and vulnerability: explaining excess mortality in Scotland and Glasgow. *Public Health* 2017; 151: 1-12, doi: 10.1016/j.puhe.2017.05.016.
- 13 Pension wealth in Great Britain: April 2016 to March 2018. London, ONS, 2019, <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/pensionwealthingreatbritain/april2016tomarch2018#trends-in-active-private-pension-wealth-membership>.
- 14 Recent mortality trends. Glasgow, ScotPHO, 2020, <https://www.scotpho.org.uk/population-dynamics/recent-mortality-trends/>.
- 15 Toffoluttia V, Suhrcke M. Does austerity really kill? *Economics & Human Biology* 2019; 33: 211-23, <https://doi.org/10.1016/j.ehb.2019.03.002>.
- 16 McCartney G, Fenton L, Minton J, et al. Is austerity responsible for the recent change in mortality trends across high-income nations? A protocol for an observational study *BMJ Open* 2020;10:e034832. doi: 10.1136/bmjopen-2019-034832.
- 17 ISD Scotland. A&E activity and waiting times. 2020. <https://beta.isdscotland.org/find-publications-and-data/health-services/hospital-care/ae-activity-and-waiting-times/>
- 18 Healthcare Improvement Scotland. Long term conditions. http://www.healthcareimprovementscotland.org/programmes/long_term_conditions.aspx
- 19 Information Services Division. Insights into social care in Scotland, 2019. <https://www.isdscotland.org/Health-Topics/Health-and-Social-Community-Care/Publications/2019-06-11/2019-06-11-Social-Care-Report.pdf?>
- 20 British Deaf Association Help and Resources. <https://bda.org.uk/help-resources/>
- 21 Scotland's census Table DC2105SC - Proficiency in English by sex by age. <https://www.scotlandscensus.gov.uk/ods-analyser/jsf/tableView/tableView.xhtml>

- 1
2
3
-
- 4²² Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and Social Isolation as Risk Factors for Mortality: A Meta-Analytic Review. *Perspectives on Psychological Science*, 10(2), 227–237. <https://doi.org/10.1177/1745691614568352>
- 5
6²³ Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S Greenberg N, Rubin GJ (2020) The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet* Volume 395, Issue 10227, 14–20 March 2020, Pages 912-920 [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- 7
8²⁴ Scottish Government Domestic abuse statistics 2018-19. <https://www.gov.scot/publications/domestic-abuse-scotland-2018-2019-statistics/pages/2/>
- 9
10²⁵ Arnot J. Fuel Poverty overview. ScotPHN, 2016. https://www.scotphn.net/wp-content/uploads/2016/11/2016_11_10-Fuel-Poverty-JA-Lit-review.pdf
- 11
12²⁶ Households Below Average Income, Statistics on the number and percentage of people living in low income households for financial years 1994/95 to 2017/18, Tables 4a and 4b. Department for Work and Pensions, 2019.
- 13
14²⁷ Scottish Government. School healthy living survey statistics 2019. <https://www.gov.scot/publications/school-healthy-living-survey-statistics-2019/pages/2/>
- 15
16²⁸ Scottish Government Summary statistics for schools in Scotland 2019. <https://www.gov.scot/publications/summary-statistics-schools-scotland-no-10-2019-edition/pages/3/>
- 17
18²⁹ Scottish Government. School leaver attainment and initial destinations. 2019. <https://www.gov.scot/publications/summary-statistics-attainment-initial-leaver-destinations-1-2019-edition/pages/4/>
- 19
20³⁰ Kaplan RM, Spittel ML, Zeon TL. Educational attainment and life expectancy. Policy insights from the behavioural and brain sciences. 2014. <https://journals.sagepub.com/doi/full/10.1177/2372732214549754>
- 21
22³¹ OECD Health at a glance 2017. https://www.oecd-ilibrary.org/docserver/health_glance-2017-en.pdf?expires=1584463452&id=id&accname=guest&checksum=A2C4F32BE61037796DD9F63E205257C8
- 23
24³² Transport Scotland. Scottish Transport Statistics No. 38 2019. <https://www.transport.gov.scot/publication/scottish-transport-statistics-no-38-2019-edition/chapter-1-road-transport-vehicles/>
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