

# Scottish Health and Inequality Impact Assessment Network (SHIAN)

## Report

HEALTH IMPACTS OF PHYSICAL DISTANCING  
MEASURES IN SCOTLAND

RAPID HEALTH IMPACT ASSESSMENT

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## SUMMARY

We completed a rapid health impact assessment to identify the potential for broader health impacts arising from physical distancing<sup>1</sup> measures to reduce the transmission of Covid-19. This included using a HIA checklist to identify potential impacts and a rapid, non systematic, review of relevant data and literature.

A summary of the impacts identified and suggested mitigation measures are presented in the table below. The causal pathway diagram is shown at:

<https://www.bmj.com/content/bmj/369/bmj.m1557/F1.large.jpg>

### Mechanisms of impact on health and mitigation measures

<b>Mechanism</b>	<b>Summary of impacts</b>	<b>Summary of mitigations</b>
Economic impacts	<ul style="list-style-type: none"><li>• Income losses for workers unable to work</li><li>• Longer term increase in unemployment if businesses fail</li><li>• Recession</li></ul>	<ul style="list-style-type: none"><li>• Protect incomes at the level of the minimum income for healthy living</li><li>• Provide food and other essential supplies</li><li>• Reduce longer term unemployment</li><li>• Prioritise inclusive and sustainable economic development during recovery</li></ul>
Social isolation	<ul style="list-style-type: none"><li>• Lack of social contact, particularly for people who live alone and have lower access to digital connectivity</li><li>• Difficulty accessing food and other supplies</li></ul>	<ul style="list-style-type: none"><li>• Encourage and support other forms of social contact</li><li>• Provide supplies</li><li>• Provide clear communications</li><li>• Restrict duration of isolation</li></ul>
Family relationships	<ul style="list-style-type: none"><li>• Home confinement may increase family violence and abuse.</li><li>• Potential exploitation of young people not in school</li></ul>	<ul style="list-style-type: none"><li>• Offer support to vulnerable families</li><li>• Ensure realistic expectations for home</li></ul>

<sup>1</sup> At the time of the assessment, the term 'social distancing' was used but in this report we have used 'physical distancing' which is now recommended.

		<p>working and home schooling</p> <ul style="list-style-type: none"> <li>• Provide safety advice and support services for women at risk of domestic abuse</li> </ul>
Health-related behaviours	<ul style="list-style-type: none"> <li>• Potential for increased substance use, increased online gambling and a rise in unintended pregnancies.</li> <li>• Reduction in physical activity levels as sports facilities closed and less utilitarian walking and cycling</li> </ul>	<ul style="list-style-type: none"> <li>• Advice and support on substance use, gambling, contraception</li> <li>• Encourage daily physical activity</li> </ul>
Disruption to essential services	<ul style="list-style-type: none"> <li>• Direct impacts on health and social care demand</li> <li>• Unwillingness to attend healthcare settings may impact care of other acute and long-term conditions</li> <li>• Loss of workforce may affect essential services</li> </ul>	<ul style="list-style-type: none"> <li>• Robust business continuity planning</li> <li>• Prioritise essential services including healthcare, social care, emergency services, utilities and the food chain</li> <li>• Guidance, online consultations and outreach, for non-Covid conditions</li> <li>• Attention to supply chains of non-Covid medicines</li> </ul>
Disruption to education	<ul style="list-style-type: none"> <li>• Loss of education and skills, particularly for young people at critical transitions</li> <li>• Likely increase in educational inequalities from reliance on home schooling</li> </ul>	<ul style="list-style-type: none"> <li>• Provide support for young people in critical transitions, and low income or at risk children/young people who lack IT and good home study environments</li> </ul>
Traffic, transport and greenspace	<ul style="list-style-type: none"> <li>• Reduced aviation and motorised traffic with reduced air pollution, noise, injuries, and carbon emissions in short term</li> <li>• Restricted public transport may reduce access for people without a car</li> </ul>	<ul style="list-style-type: none"> <li>• Discourage unnecessary car journeys</li> <li>• Support active travel modes</li> <li>• Support safe access to greenspaces</li> <li>• Post pandemic support public transport</li> </ul>

	<ul style="list-style-type: none"> <li>• Longer term reluctance to use public transport may increase use of private cars</li> <li>• Restricted access to greenspace, which has positive physical and mental health impacts</li> </ul>	
Social disorder	<ul style="list-style-type: none"> <li>• Potential for unrest if supplies run out or if there is widespread discontent about the response</li> <li>• Harassment of people believed to be at risk of transmitting the virus</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation of other impacts will reduce risk of social disorder</li> <li>• Avoid stigmatising ill people or linking the pandemic to specific populations</li> </ul>
Psychosocial impacts	<ul style="list-style-type: none"> <li>• High level of public fear and anxiety</li> <li>• Community cohesion could increase as people respond collectively</li> </ul>	<ul style="list-style-type: none"> <li>• Provide clear communications</li> <li>• Support community organisations responding to local needs.</li> </ul>

## INTRODUCTION

As the Covid-19 pandemic spreads, increasingly restrictive physical distancing measures have been implemented to reduce transmission, flatten the epidemic curve and reduce the risk of NHS services being overwhelmed. Although these measures should have a positive direct impact on health as transmission is reduced, there is also potential for indirect effects on health that could be positive or negative, mediated through several pathways. Given the scale of the pandemic response, the scale of these indirect impacts is also likely to be large, and some population groups may be disproportionately affected. It is important to understand the range of these impacts to inform responses to mitigate adverse impacts and enhance positive impacts on health and health inequalities. This is a report of a very rapid Health Impact Assessment that aimed to identify and describe the range of these effects in Scotland and make preliminary recommendations to address them.

## METHODS

Our initial scoping and assessment was completed between 13<sup>th</sup> and 20<sup>th</sup> March 2020, and amended following peer review in the week of 14<sup>th</sup> April. At the time of our initial scoping Scotland was in the early 'delay' stage of pandemic response.<sup>1</sup> We assumed that physical distancing measures would include all or some of the following:<sup>2</sup>

- 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
- Limiting contact for special populations (e.g. care homes, prisons)

We used a health impact checklist<sup>3</sup> to identify potential mechanisms through which positive and negative impacts might arise. We then used available data, systemic reviews, theory and background public health knowledge to estimate imprecisely their likely scale and direction of the impacts.

Making rapid assessments of the likely effects was prioritised over making a more considered (and accurate) assessment of the evidence given the need for rapid decision-making in this area.

We presented a summary of the impacts, affected populations, number affected and a qualitative estimate of impact severity in an impacts table below, p14). We agreed by consensus potential recommendations to mitigate each impact.

We did not assess the effectiveness of different physical distancing measures in reducing transmission of Covid-19 or other infections. Rather we aimed to highlight broader impacts on health and make some recommendations to mitigate adverse and enhance positive impacts of the physical distancing measures that are being implemented.

This rapid HIA provides an initial framework and some indication of the scale of some impacts. It will be developed further as part of the Public Health Scotland Covid-19 Response.

## **POPULATIONS AND IMPACTS**

### **Populations**

We identified several population groups likely to be particularly vulnerable to the impacts of the pandemic itself and the physical distancing measures. These are briefly summarised below.

**Older people** – are at highest direct risk of severe Covid-19 disease, are more likely to live alone, less likely to use online communications, and so may be at risk of social isolation.

**Children and young people** – Young people may bear the impact of disrupted education at critical time, longer term are most at risk of poor employment and associated health outcomes in and economic downturn. Children will lose the academic and social benefits of schooling and some may be vulnerable to abuse or exploitation.

**Women** – are more likely to be carers, more likely to lose income if they need to provide childcare during school closures, there is potential for increase in family violence for some confined to home with an abusive partner.

**People of East Asian ethnicity** – may be at risk of discrimination and harassment as the pandemic started in China.

**People with mental health issues** – may be at greater risk of the impacts of social isolation.

**People who use substances or are in recovery** – are at risk of relapse or withdrawal.

**People with a disability** – may bear the impact of disrupted support services; people with sensory deficits may find communication more difficult.

**Homeless people** – maybe unable to self-isolate, impact of disrupted support services

**People in the criminal justice system** –isolation may be difficult in a prison setting, and may face loss of face to face contact with family.

**Workers on precarious contracts or self-employed** – there are significant risk of adverse impacts from loss of work and loss of income for this group.

**People with 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) – isolation may be difficult and these institutions may act as amplifiers.

## Impacts

We identified several mechanisms through which impacts on health were likely to occur. These were: economic changes, social isolation, family relationships, health-related behaviours, disruption to essential services, disrupted education, transport and greenspace, social disorder and population psychosocial impacts. These are discussed below.

### Economic impacts

People may suffer loss of income from physical distancing in several ways. 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.<sup>4</sup> Others may be affected by workplace closures, caused by government mandate, an infected co-worker, or loss of business. Yet more may be unable to work as school closures require them to provide childcare. In the UK, 3.5 million additional people are expected to need Universal Credit (which includes unemployment payments) as a result of the pandemic.<sup>5</sup>

The growth of the informal, gig economy 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.<sup>6</sup> 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, causing rent or mortgage arrears or even homelessness. School closure will affect low income and single parent families



especially severely, as they need to meet an unexpected need for childcare and lose the benefit of free school meals. They may also face an increased cost of heating their homes during the day. Strict conditions on recipients of some benefits cannot be met by those in isolation.

The link between income and health is well established, and acts through several mechanisms.<sup>7</sup> Income allows people to buy necessities for life, access health-enhancing resources, avoid harmful exposures, and participate in normal activities of society. Low income also increases psychosocial stress. Loss of income is likely to disproportionately affect women, young people and those who are already poor will fare worst.

Longer term effects may be substantial. If businesses fail, many employees will become unemployed. Those losing their jobs in middle age may never return to the workforce. Especially vulnerable sectors include hospitality, entertainment, transport, leisure and sport. Unemployment has large negative impacts on both physical and mental health,<sup>8</sup> with a meta-analysis reporting a 76% increase in all cause mortality in the first ten years of follow up.<sup>9</sup>

The pandemic has already caused downgrading of economic forecasts, with many countries facing a recession. The health consequences of recession are complex. Economic downturns have been associated with improvements in some health outcomes, especially traffic injuries, but worsening mental health, including increases in homicide and suicide.<sup>10</sup> However, the harmful effects can be prevented by progressive social policies so it is the policy response to a recession, rather than the recession itself, that determines longer term population health.<sup>11</sup>

The responses of individuals and corporations, as well as governments, will shape longer term economic and social effects. Naomi Klein has described how 'disaster capitalists' take advantage of man-made and natural disasters.<sup>12</sup> There is clear potential for 'price gouging' (profiteering through increased prices during supply/demand shocks) on essential goods. Once the pandemic recedes, there could be profound changes to the economy that may disadvantage less powerful populations, such as through privatisation of public sector services. However, there may also be opportunities for the economy to be 'built back better' depending on public and political attitudes and power balance in the post-pandemic context.<sup>13</sup>

### **Social isolation**

Being advised, or compelled, to self-isolate at home, risks significant social and psychological impacts. Quarantine of people exposed to an infectious disease is associated with negative

psychological effects, including post-traumatic stress symptoms, which may be long lasting.<sup>14</sup> The effects are exacerbated by prolonged isolation, fear of the infection, frustration, boredom, inadequate supplies and information, financial loss, and stigma. These effects are less where quarantine is voluntary and can be mitigated by ensuring clear, rapid communication, keeping the duration short, providing food and other essential supplies, and protecting against financial loss.<sup>14</sup>

In Scotland, a third of the population lives alone, of whom 40% are of pensionable age.<sup>15</sup> Older people are also less likely to use online communications. This group is therefore at particular risk of social isolation during physical distancing. Social isolation is defined as pervasive lack of social contact or communication, participation in social activities, or having a confidante. Long term, social isolation is associated with an increase in mortality of almost a third.<sup>16</sup> Prolonged periods of physical distancing could have similar effects. People who are socio-economically disadvantaged or in poor physical or mental health are at higher risk.<sup>17</sup>

### **Family Relationships**

Physical distancing measures will place many people in close proximity with family members all or most of the time, which may cause or exacerbate tensions. There is widespread concern about potential increases in family violence during restrictions in the UK.<sup>18</sup> Risk factors for partner and child abuse include poverty, substance misuse in the home and previous history of abuse.<sup>19 20</sup> There are about 60,000 domestic abuse incidents in Scotland every year, with young women most affected<sup>21</sup> and over 2,500 children are on the child protection register.<sup>22</sup>

School closures may add to stress in families as parents try to home school children, often juggling this with home working. This burden may fall disproportionately on women. Some children who are not at school may be at risk of online or other forms of exploitation, for example by drug dealers, or of being recruited into gangs.

### **Health-related behaviours**

The stress and boredom of home isolation may also affect health related behaviours, with potential for increased substance use, increased online gambling, and a rise in unintended pregnancies. There may be reduced physical activity levels as sports facilities are closed and there is less utilitarian walking and cycling as people are not travelling to work.

Those with, or in recovery from, substance issues may be at risk of relapse or withdrawal. People may alter their eating habits, for better or worse.

### **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, physical 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. Reluctance to attend healthcare settings may impact care of other acute and long-term conditions. This could affect a large number of people – over 140,000 people attend Emergency Departments each month<sup>23</sup> and an estimated 2million people have one or more long-term conditions<sup>24</sup>.

Other essential services could be disrupted by loss of workforce. These include social care, utilities, emergency services and the food chain. An estimated 1 in 24 people receive some form of social care and 68,000 receive home care in Scotland.<sup>25</sup> The whole population needs continued access to utilities, including the internet access that is needed to allow people to work and study at home. There is potential for shortages if energy and internet supplies are overloaded by increased demand from home workers. Digital exclusion will increase educational and social inequalities as online access becomes essential to work, study and access services. Food supplies depend on complex ‘just in time’ supply chains. The panic buying seen in March<sup>26</sup> could recur if people lose confidence in these supply chains. People who are self-isolating will need support to access supplies.

### **Disruption to education**

Education is a key determinant of health.<sup>27</sup> 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 also support development of social and other skills. Long school closures, especially if they prevent children gaining formal qualifications, risk creating a cohort of pupils who carry disadvantage throughout their lives. There are almost 50,000 school leavers each year in Scotland<sup>28</sup>, whose final year qualifications may be affected.

Educational disruption will be greater for young people in families that lack study space or resources such as home computing and internet access.<sup>29</sup> Others at particular risk include children whose

home circumstances are chaotic and those at risk of abuse.<sup>30</sup> Over 260,000 children are registered for free school meals in Scotland.<sup>31</sup> They may go hungry without alternative provision.

Delays to training or accreditation of health professionals could exacerbate staff shortages within the health service in the short or longer term, if the current cohort of students miss out on training. Approximately 7,000 medical students<sup>32</sup>, and larger numbers of student nurses and other health professionals, graduate every year in the UK.

### **Transport and greenspace**

In Scotland 29% of households lack access to a car.<sup>33</sup> Restrictions on public transport may prevent access to essential services for these people.

Physical distancing will reduce commuting to work. Motorised traffic has negative impacts on health through many pathways including air pollution, noise, injuries, and its contribution to global heating.<sup>34</sup> Even short-term reductions in traffic may improve air quality sufficiently to see positive health effects. For example, fewer children needed hospital treatment for asthma during traffic restrictions for the 1996 Atlanta Olympic Games.<sup>35</sup> Lockdown has significantly improved air quality in other countries. Conversely, restrictions on public transport which led to more people driving would worsen these outcomes. Drivers may also be more likely to speed if roads are quieter.

As restrictions are eased, people may be unwilling to use public transport because of fear of transmission. Some services could become unviable. There is a significant risk that following the pandemic, private car use will increase resulting in adverse impacts from increased traffic.

Restricting the time people can spend outdoors will reduce exposure to greenspace, especially for people without a private garden. Exposure to high quality greenspace is associated with better physical and mental health. Impacts are most significant for children, older people, women and low income groups.<sup>36</sup>

### **Social disorder**

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

### **Population psychosocial impacts**

There is already a high level of public fear and anxiety about coronavirus. There have been reports of harassment of people of East Asian descent, who were believed erroneously to be at risk of transmitting the virus. Communications about the response could either exacerbate or alleviate these effects. A future risk is that older people and other groups that are being particularly protected by the response become stigmatised. On the other hand, community cohesion could increase as people respond collectively to the pandemic.

## **DISCUSSION AND RECOMMENDATIONS**

In addition to the direct disease burden from Covid-19, the pandemic is already causing negative indirect impacts including those described above. These are borne disproportionately by people who already have fewer resources and poorer health. As more restrictive physical distancing measures are implemented, they could increase health inequalities in the short and long term.

This assessment is based on our rapid scoping of potential impacts and a very rapid non-systematic review of diverse literatures, so there is a high degree of uncertainty about the extent of some impacts. Neither have we been able to consult stakeholders to understand their views and values relating to these impacts and ways to mitigate them. As the pandemic progresses, further work should investigate the views and priorities of the people most affected, as well as monitoring the impacts as they arise and effectiveness of mitigation measures.

The assessment has identified a broad range of health impacts that are likely to arise as a result of the pandemic, beyond those directly attributable to the virus itself. These should be recognised in developing and implementing responses. To reduce adverse impacts on health and health inequalities, actions must be targeted to support the most vulnerable people. Addressing the range of needs identified here will require a significant multi-agency response. Key recommendations are noted below with further detail in the impacts table.

## Recommendations

**Protect incomes and provide essential supplies for vulnerable groups of people:** There is an urgent need to ensure people have ready access to financial benefits so that no one drops below the minimum income needed for healthy living.<sup>37</sup> There should also be mechanisms to ensure food provision continues for children on free school meals, to prevent people having energy supplies cut off, waive conditions for existing benefits claimants and prevent deductions for previous overpayments. The measures already implemented will protect many workers, at least in the short term. But it is important to consider populations in precarious work who will not be covered by these, and to consider longer term support for individuals who suffer effects that continue beyond the current wave. One option to achieve income security would be the introduction of a universal basic income.

**Reduce longer term unemployment:** Economic measures to protect businesses should aim to protect the most vulnerable workers and reduce economic inequalities. There should be training and other support for people who become unemployed in the aftermath of the pandemic. Support should prioritise sectors and businesses that are environmentally and socially sustainable.

**Recognise and reduce psychosocial effects of home isolation:** This review highlights that although home isolation may prevent transmission, it can cause other harms to health. Mitigation measures include clear consistent communications, restricting the duration of isolation, encouraging and supporting other forms of social contact, providing advice and encouragement to maintain physical activity while preserving safe distances, and providing supplies. There is a need to provide online and telephone support for vulnerable groups, especially those living alone.

**Protect vulnerable groups of people:** It will be important to maintain social work and community support for vulnerable families, including safety advice for women at risk of abuse. Domestic abuse advocates have called for enhanced support including allocation of hotel rooms for women at risk.<sup>18</sup> Provision of food for those on free school meals, and outreach support for the most vulnerable children will be needed during school closures. Many children will need extra support on return to school.

**Protect essential services:** Services will already be implementing business continuity plans. Essential services whose needs should be prioritised should include healthcare, social care, emergency

service, utilities including broadband, and all services within the food chain. Many services will need to develop remote service provision, including remote healthcare consultations. Staff, patients and service users will need training and access to suitable devices and broadband to use these.

**Maintain educational support:** Expectations of home schooling should be realistic to avoid increasing pressure on families that are already under pressure, and potentially increasing longer term educational inequalities. Outreach or other provision should be provided to support continued learning in children in families with fewer resources and less access to online learning opportunities.

**Protect sustainable transport and greenspace:** The pandemic response should support active travel and provide advice and the infrastructure to support walking and cycling while maintaining safe distances. There should also be provision for people to access greenspace safely. There will be a need to protect and enhance public transport services when restrictions are eased.

**Avoid stigmatising specific populations:** It is important that communications avoid increasing anxiety, stigmatising people who have Covid-19 disease or linking it to specific populations.

**Support community responses:** Many community organisations have been responding to local needs. These should be encouraged, through supportive communications and funding.

**Long term responses:** In the longer term, policy decisions made now will shape the future economy, in ways that could either improve or damage sustainability, health and health inequalities. These include decisions about: which sectors to prioritise for support, whether to direct financial support to business or workers, and how to fund the costs. To protect population health it will be essential to avoid a further period of austerity and the associated reductions in social security and public service spending, and instead build a more sustainable and inclusive future economy.<sup>11</sup>

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

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
<b>Loss of income</b>					
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) <sup>38</sup> 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 <sup>39 40</sup>	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 <sup>8</sup> and some causes of mortality <sup>9</sup> ; however, the general recessionary effects on population health are more mixed <sup>41 11</sup> 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 <sup>39 40</sup>	High impact, disproportionately affecting younger, female adults and their dependents, and amongst the already low paid	Provide easily accessible incomes for all affected people
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 <sup>39 40</sup>	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.



<b>Mechanism of health impact</b>	<b>Affected populations</b>	<b>Number affected (Scotland/UK)</b>	<b>Impact severity</b>	<b>Impact summary</b>	<b>Recommendations</b>
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 <sup>42</sup> – 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 <sup>39 40</sup>	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; <sup>43</sup> there were around 5m households in social rented accommodation in 2018, <sup>44</sup> and there are a further 9.2m households with outstanding property debts (the majority of which will be mortgages). <sup>45</sup> 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.

Mechanism of health impact	Affected populations	Number affected (Scotland/UK)	Impact severity	Impact summary	Recommendations
<b>Macroeconomic consequences</b>					
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. <small>Error! Bookmark not defined. Error! Bookmark not defined.</small> 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. <sup>46</sup>	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. <sup>47</sup>	In the long-run this will affect everybody with a private pension (estimated at 53% of the population <sup>47</sup> ), 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. <sup>48</sup>	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%. <sup>49</sup>	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. <sup>50</sup>	Avoid economic policies which reduce funding for public services and for social security.
<b>Home isolation</b>					
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. <sup>16</sup>  Quarantine is associated with negative psychological effects including post-traumatic stress symptoms, though these are less in voluntary quarantine. <sup>14</sup>	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 family violence	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 <sup>21</sup> . Over 2,500 children are on the child protection register <sup>22</sup> .	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.

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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. Encourage daily activity.
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 <sup>51</sup> .	Increased fuel poverty	Encourage fuel companies to offer delayed fuel payments, provide prepaid payment cards for families in financial hardship
Changes to health-related behaviours	Whole population People with pre-existing substance or gambling issues People in crowded or difficult home contexts likely to be more vulnerable.	0.8% of Scottish adults are problem gamblers <sup>52</sup> 24% of Scottish adults drink at hazardous or harmful levels and 19% smoke <sup>53</sup>	Potentially significant impacts for people at high risk of addictive behaviours	Stress and boredom may cause behavioural responses leading to increased substance use, online gambling.	Provide advice and support on health-related behaviours including substance use and gambling. Maintain and enhance existing support services. Work with providers to limit online gambling.
Impacts on those at risk from addictive substances (such as heroin or alcohol), including withdrawal or resumption of use for those in recovery.	People with active problems with addictions or in recovery	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)	Rapid withdrawal from alcohol and some other substances can result in severe physical health problems, including death. People in recovery from substance issues may be at risk of relapse.	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.	Advice and support about moderating alcohol consumption.  Provide remote access to support services including Mutual Aid.  Work with community services to provide advice to avoid abrupt withdrawal.  Ensure availability of emergency facilities for managing addiction withdrawal.
Potential rise in unintended pregnancies	Women of reproductive age			Potential increase in unintended pregnancies	Ensure continued provision of contraceptive services
<b>Disruption to health and social care services</b>					
Access to emergency health care	Whole population	140,000 to 150,000 people seen by Emergency Departments every month <sup>23</sup> in Scotland.		Potentially substantial if emergency health care is disrupted.	Existing NHS prioritisation approaches.

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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 <sup>24</sup> .	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.	Reduce duration of delays where possible.
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 <sup>25</sup>	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
People may be reluctant to use health and social services for routine or emergency care	People who require health or social care	260,000 admissions to acute services and 357,000 new out patient attendances per quarter in Scotland <sup>54</sup>	Potential for delayed treatment and poor control of long term conditions.	Non attendance for other conditions may affect clinical outcomes.	Encourage appropriate use of healthcare for other conditions
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 <sup>55</sup> In 2011 census 62,000 people in Scotland could not speak English well and over 11,000 not at all <sup>56</sup>	Inability to communicate may lead to inappropriate care or inability to access other essential services.	People who require interpretation may 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
<b><i>Disruption to other services and supply chains</i></b>					
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

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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.
<b><i>Disruption to education</i></b>					
Lack of availability of school provision could lead to healthcare and other essential staff being unable to work	NHS and other essential staff	Public sector staff, including healthcare staff, are more likely to be women and have caring responsibilities.	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.	Potentially large impact on health, as a consequence of a lack of availability of healthcare or other essential services and transmission to vulnerable groups.	Consider alternative childcare provision arrangements

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'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). <sup>57</sup>  Over 260,000 children are registered for free school meals in Scotland <sup>31</sup>	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 7,000 medical students graduate every year in the UK <sup>32</sup> , 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. Prolonged disruption of training may affect the workforce in the longer term.	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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Education is a key determinant of health, potential 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 <sup>58</sup>  Almost 50,000 school leavers each year <sup>28</sup> – these may be most severely affected by disruption.	Educational attainment is one of the best predictors of life expectancy <sup>27</sup> . In the UK life expectancy is 4 years higher for people with the highest educational attainment compared to those with the lowest <sup>59</sup> . 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.
<b>Transport and Greenspace</b>					
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 <sup>33</sup>	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 to air quality impacts	6.5% of the Scottish pop had asthma in 2015/16 87 people per 100,000 admitted to hospital with asthma in 2018/19 <sup>60</sup>	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	Provide support for active transport modes during and after the restrictions – eg road reallocation, recognise bike shops as essential service



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Longer term reluctance to use public transport may increase private car traffic, increasing air pollution, crashes, noise and physical inactivity.	As above	As above	Air pollution, crashes and physical inactivity all have significant adverse impacts on health	Potential for long term shift towards private car travel would have significant negative impacts on health of whole population.	Long term support for public transport and encouragement of modes other than private cars
Greenspace	Whole population, especially people without access to private gardens Children, older people, women and people in low income groups most affected.	In the UK 13% of households have no garden. <sup>61</sup>	Exposure to high quality greenspace is associated with better physical and mental health. Impacts are most significant for children, older people, women and low income groups. <sup>36</sup>	Loss of beneficial health effects of greenspace exposure.	Continue to maintain local greenspaces and encourage safe use.
Carbon emissions	Global population	Global population	Globally a significant number of deaths are attributable to climate change	Reduction in aviation and motor 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.
<b><i>Social disruption</i></b>					
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. Likelihood depends on levels of public confidence in responses.	Other recommendations to mitigate impacts will reduce risk of disorder. Prioritise higher risk communities for support.
<b><i>Population psychosocial impacts</i></b>					
Widespread fear and anxiety	Whole population  People at higher risk may include: People with mental health problems People with communication barriers who do not understand communications	5.3M people in Scotland	Curtailment 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.	Likely to be small-moderate impacts for most people, with potential for more substantial impacts for specific social groups at risk of being stigmatised.	Clear communication which facilitates community cohesion.
Stigma/discrimination/harassment against groups thought to pose high risk of transmission	People in particular ethnic groups Older 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

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Community cohesion	Whole population	Whole population	Positive responses by individuals and community organisations may increase community cohesion	Potential to build on community responses and enhance community cohesion.	Encourage and provide advice to enable community actions to mitigate adverse effects.

## REFERENCES

- <sup>1</sup> Coronavirus: action plan. A guide to what you can expect across the UK. London, Department for Health and Social Care, Department of Health (Northern Ireland), Scottish Government, Welsh Government, March 2020.
- <sup>2</sup> Ferguson NM, Laydon D, Nedjati-Gilani G et al. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand. Imperial College, 2020. <https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-NPI-modelling-16-03-2020.pdf>
- <sup>3</sup> Douglas, M. Health Impact Assessment guidance for Practitioners. Edinburgh, Scottish Health and Inequalities Impact Assessment Network, 2019, <https://www.scotphn.net/wp-content/uploads/2019/07/Health-Impact-Assessment-Guidance-for-Practitioners-SHIAN-updated-2019.docx>.
- <sup>4</sup> 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
- <sup>5</sup> Benstead S. Coronavirus to force 3.5 million extra people on to Universal Credit. *Telegraph* 9th April 2020. <https://www.telegraph.co.uk/money/consumer-affairs/coronavirus-force-35-million-extra-people-universal-credit/>
- <sup>6</sup> Kuhn KM. "The rise of the "gig economy" and implications for understanding work and workers." *Industrial and Organizational Psychology* 9.1 (2016): 157-162. <https://doi.org/10.1017/iop.2015.129>
- <sup>7</sup> 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>
- <sup>8</sup> 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>
- <sup>9</sup> 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.
- <sup>10</sup> 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
- <sup>11</sup> 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
- <sup>12</sup> Klein N. *The shock doctrine*. Harmandsworth: penguin, 2007.
- <sup>13</sup> Harris P, Baum F, Friel S, et al A glossary of theories for understanding power and policy for health equity *J Epidemiol Community Health* Published Online First: 20 March 2020. doi: 10.1136/jech-2019-213692
- <sup>14</sup> 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)
- <sup>15</sup> Scottish Government A Connected Scotland: our strategy for tackling social isolation and loneliness and building stronger social connections. 2018. <https://www.gov.scot/publications/connected-scotland-strategy-tackling-social-isolation-loneliness-building-stronger-social-connections/pages/6/>
- <sup>16</sup> 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>
- <sup>17</sup> Teuton J. Social isolation and loneliness in Scotland: a review of prevalence and trends. Edinburgh: NHS Health Scotland; 2018. <http://www.healthscotland.scot/media/1712/social-isolation-and-loneliness-in-scotland-a-review-of-prevalence-and-trends.pdf>
- <sup>18</sup> Public Interest Law Centre Letter to Secretary of State for Housing, Communities and Local Government 31st March 2020. <https://www.pilc.org.uk/wp-content/uploads/2020/03/20200331-Letter-to-MHCLG-DV-and-Covid-19-final-1.pdf>
- <sup>19</sup> NICE Domestic violence and abuse: multi-agency working. Public health guideline [PH50], 2014 <https://www.nice.org.uk/guidance/ng76/chapter/Recommendations#assessing-risk-and-need-in-relation-to-child-abuse-and-neglect>
- <sup>20</sup> NICE Child abuse and neglect. NICE guideline [NG76], 2017 <https://www.nice.org.uk/guidance/ph50/chapter/3-Context>

- 
- <sup>21</sup> Scottish Government Domestic abuse statistics 2018-19. <https://www.gov.scot/publications/domestic-abuse-scotland-2018-2019-statistics/pages/2/>
- <sup>22</sup> Scottish Government Children's Social Work Statistics Scotland, 2018-2019 <https://www.gov.scot/publications/childrens-social-work-statistics-scotland-2018-2019/pages/4/>
- <sup>23</sup> 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/>
- <sup>24</sup> Healthcare Improvement Scotland. Long term conditions. [http://www.healthcareimprovementscotland.org/programmes/long\\_term\\_conditions.aspx](http://www.healthcareimprovementscotland.org/programmes/long_term_conditions.aspx)
- <sup>25</sup> ISD Scotland. 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?>
- <sup>26</sup> Anon. Coronavirus: Food bank shortage blamed on panic buying. London, BBC News, 13th March 2020, <https://www.bbc.co.uk/news/uk-england-london-51837892>.
- <sup>27</sup> 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>
- <sup>28</sup> 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/>
- <sup>29</sup> 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>
- <sup>30</sup> White J. Children's social circumstances and educational outcomes. NHS Health Scotland, 2018. <http://www.healthscotland.scot/media/2049/childrens-social-circumstances-and-educational-outcomes-briefing-paper.pdf>
- <sup>31</sup> Scottish Government. School healthy living survey statistics 2019. <https://www.gov.scot/publications/school-healthy-living-survey-statistics-2019/pages/2/>
- <sup>32</sup> Extracted from GMC Stats: Doctors attaining Primary Medical Qualification at UK medical schools. 2019 data. <https://data.gmc-uk.org/gmcdata/home/#/reports/Undergraduate%20training/Stats/report>
- <sup>33</sup> 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/>
- <sup>34</sup> 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. <https://www.scotphn.net/wp-content/uploads/2015/11/Transport-Guide-2018-Final-Formatted.pdf>
- <sup>35</sup> 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.
- <sup>36</sup> Egorov AI, Mudu P, Braubach M, Martuzzi M (eds) Urban green spaces and health - a review of evidence. Copenhagen: WHO Regional Office for Europe, 2016. [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0005/321971/Urban-green-spaces-and-health-review-evidence.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0005/321971/Urban-green-spaces-and-health-review-evidence.pdf?ua=1)
- <sup>37</sup> Joseph Rowntree Foundation (web resource) A Minimum Income Standard for the United Kingdom in 2019. <https://www.jrf.org.uk/report/minimum-income-standard-uk-2019>
- <sup>38</sup> Trade Union Congress. Sick pay for all. London, 2020, <https://www.tuc.org.uk/research-analysis/reports/sick-pay-all>.
- <sup>39</sup> 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.
- <sup>40</sup> 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.
- <sup>41</sup> 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>.
- <sup>42</sup> Stat-xplore. London, DWP, 2020, downloaded from <https://stat-xplore.dwp.gov.uk/webapi/jsf/tableView/tableView.xhtml> on 13th March 2020.
- <sup>43</sup> ONS. UK private rented sector: 2018. <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/ukprivaterentedsector/2018>.

- 
- <sup>44</sup> ONS. Comparing affordable housing in the UK: April 2008 to March 2018. <https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/comparingaffordablehousingintheuk/april2008tomarch2018>.
- <sup>45</sup> ONS. Household debt: wealth in Great Britain. 2019, <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/datasets/householddebtwealthingreatbritain>.
- <sup>46</sup> 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.
- <sup>47</sup> ONS. Pension wealth in Great Britain: April 2016 to March 2018. London, , 2019, <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/pensionwealthingreatbritain/april2016tomarch2018#trends-in-active-private-pension-wealth-membership>.
- <sup>48</sup> ScotPHO. Recent mortality trends. 2020, <https://www.scotpho.org.uk/population-dynamics/recent-mortality-trends/>.
- <sup>49</sup> 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>.
- <sup>50</sup> 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.
- <sup>51</sup> 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](https://www.scotphn.net/wp-content/uploads/2016/11/2016_11_10-Fuel-Poverty-JA-Lit-review.pdf)
- <sup>52</sup> Scottish Government. Scottish health survey 2017: key findings <https://www.gov.scot/publications/scottish-health-survey-2017-summary-key-findings/pages/10/>
- <sup>53</sup> Scottish Government. Scottish health survey 2018: key findings <https://www.gov.scot/publications/scottish-health-survey-2018-summary-key-findings/pages/5/>
- <sup>54</sup> Public Health Scotland Trend Data <https://beta.isdscotland.org/find-publications-and-data/health-services/hospital-care/acute-hospital-activity-and-nhs-beds-information-quarterly/25-february-2020/trend-data/>
- <sup>55</sup> British Deaf Association. Help and Resources. <https://bda.org.uk/help-resources/>
- <sup>56</sup> Scotland's census Table DC2105SC - Proficiency in English by sex by age. <https://www.scotlandscensus.gov.uk/ods-analyser/jsf/tableView/tableView.xhtml>
- <sup>57</sup> Department for Work and Pensions. 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. 2019.
- <sup>58</sup> Scottish Government Summary statistics for schools in Scotland 2019. <https://www.gov.scot/publications/summary-statistics-schools-scotland-no-10-2019-edition/pages/3/>
- <sup>59</sup> 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](https://www.oecd-ilibrary.org/docserver/health_glance-2017-en.pdf?expires=1584463452&id=id&accname=guest&checksum=A2C4F32BE61037796DD9F63E205257C8)
- <sup>60</sup> ScotPHO. Asthma: Key points. <https://www.scotpho.org.uk/health-wellbeing-and-disease/asthma/key-points/>
- <sup>6161</sup> Buck D. Gardens and health. Implications for policy and practice. The Kings Fund, 2016. [https://www.kingsfund.org.uk/sites/default/files/field/field\\_publication\\_file/Gardens\\_and\\_health.pdf](https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/Gardens_and_health.pdf)

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