

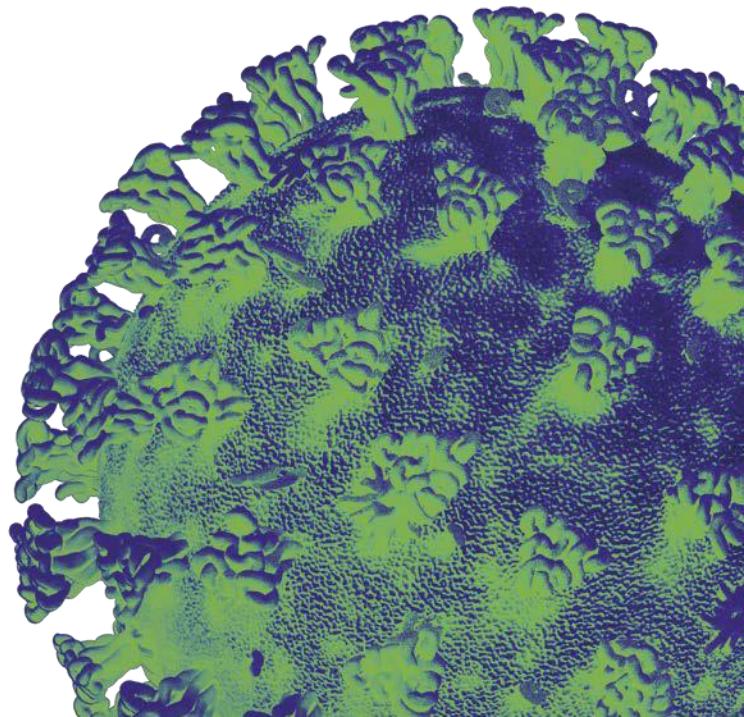
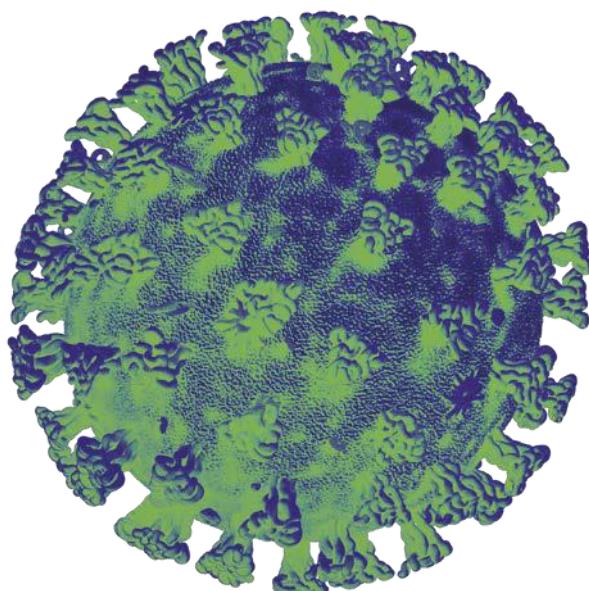
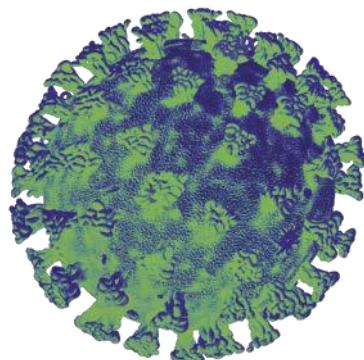


Llywodraeth Cymru
Welsh Government

Technical Advisory Group

High level summary of evidence on
costs and benefits and potential
mitigations for measures to address
Covid-19 in Wales

25 November 2020



Technical Advisory Group – Socio-Economic Harms Subgroup

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Context

The attached table sets out a high level summary of the major benefits and costs (including socio-economic harms) associated with measures and restrictions applied to date or under consideration for future implementation.

The summary of harms mainly reflects the consensus of TAG Socio-Economic Harms Subgroup members, based on their assessment of the evolving evidence base. This has been supplemented by some basic modelling of economic effects by Welsh Government Economists. Evidence on benefits is drawn mainly from material published by the UK Government¹, which also contains summary information on harms. More detailed analysis and references to the wider evidence base are not included here but are available if required.

It must be borne in mind that:

- The evidence base is evolving and conclusions may change.
- The strength of the evidence varies across benefits and costs / harms.
- Many harms are impossible to assess with numerical precision; ranges and heavily rounded numbers will often be more appropriate. In some cases quantification beyond a broad indication of scale appears impossible.
- In particular, risk and uncertainties (particularly those associated with an uncontrolled epidemic or a major recession) are often impossible to assess precisely.
- It is often almost impossible to distinguish with any precision the harms that arise directly from a restriction as it is not known how population behaviour might have changed in response to increased prevalence, if controls had not been put in place.
- Effects will vary across social groups and across time. The relative weight given to various harms as they affect different groups inevitably reflects value-judgements and is therefore a matter for political choice. If feasible the nature and scope of restrictions in relation to existing inequalities and the potential unequal effect on those already disadvantaged should be considered.

¹ Here:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/925856/S0770_NPIs_table_pivot_.pdf

- The level of harm and the need for mitigation will depend on the mix of restrictions put in place and is likely to vary greatly depending on the duration and spatial scale of restrictions.

The potential impact of mitigations in reducing harms has also been assessed by Sub-Group members. In general, mitigations are expected to have only limited effects - except potentially where a large element of additional funding is available as a result of UK Government decisions on fiscal policy.

Option appraisal

Option appraisal is dependent on the prior identification of a preferred strategy and a realistic assessment of the likely future course of the pandemic.

The benefits and costs of options will vary depending on the strategic context within which they are implemented. Apart from success in reducing transmission over the short-term (reducing “R”), benefits and costs will depend: on disease prevalence, incidence and severity; on prospects for vaccination; on the level of protection available to those most vulnerable to the disease; on the success of measures to manage pressures within the health system.

In particular where, for example, a firebreak is introduced in a way that very probably averts the need for a subsequent, but much more severe or prolonged, package of restrictions, benefits are highly likely to exceed costs and there will be no “trade-off” between health and the economy. On the other hand, if the only effect were to postpone harms for a short period, the case for would be much weaker. In a rational decision making process, an individual restriction should only be introduced if its benefits exceed its (mitigated) harms. The set of restrictions that is selected should be the one that maximises the excess of benefits over mitigated harms (or, equivalency, over “dis-benefits” or “costs”).

In addition to the importance of the strategic context, costs and benefits will depend on the ways in which measures are combined. For both these reasons, the information in the table on individual measures can only make a partial contribution to an options appraisal.

A further essential pre-requisite for an options appraisal is a projection of health outcomes (particularly expected mortality) expected to result from each option and a comparison with what would be expected under “business as usual” (i.e. the status quo ante). We can begin to do this by looking at models that estimate the number of covid deaths under different scenarios, and estimating the number of quality adjusted life years (QALYs) this would represent.

The evidence summarised in the table below can however contribute to the identification and appraisal of options. In particular, it may help in comparing, at least in broad terms, the socio-economic costs of alternative combinations of measures that deliver similar levels of benefit.

Option appraisal in a complex case of this kind should probably not aim to identify a single optimal option. Much of the critical evidence is qualitative and, as noted above, the various trade-offs that must be made are dependent on value judgments. Rather, the purpose of the appraisal is to set out the costs and benefits of alternative options in a way that is as transparent as possible in order to aid the decision making in taking informed decisions. In making decisions under uncertainty, it may make sense to spread the risk by adopting several diverse policies – similar to investors spreading their portfolio.

Mitigation measures

The pandemic is imposing enormous social and economic harms, and international evidence tends to suggest that there is a correlation with an increase in the level of Covid-19 infections and deaths. Restrictions on social and economic activity that control the pandemic can have socio-economic benefits in net terms - that is, the socio-economic benefits from reductions in the scale of pandemic can exceed those that arise from the restriction of activity.

However, this is only the case if restrictions are imposed in a way that is optimal. There are trade-offs between restrictions and it is possible that were they are either inadequate or excessive and then the overall balance of harms may not be maximised. Striking the right balance depends upon the disease's prevalence, the speed with which it is spreading, the severity of cases, the (improving) efficacy of treatment and, particularly, the nature and effectiveness of the restrictions that are imposed and of the other measures that are implemented. For example, mask wearing may impose fewer socio-economic harms than some other methods for achieving a similar reduction in spread. Evidence based appraisal of interventions, taking into account the net health benefits in the short and longer term and the full range of socio-economic harms, is therefore essential.

The severity of the pandemic in Wales has meant that a high level of restriction has been necessary. The level and nature of restrictions imposed and the length of time they have been necessary makes it very difficult to mitigate the level of harm being caused. However, Annex 1 does contain an estimate of the weekly economic impact of complete closure of selected sectors akin to a firebreak (£133m). The impact of the pandemic on the Welsh economy over the medium-term (5 years) is estimated of the order of £25b (these figures are based on the July 2020 OBR).

Other than where significant and ongoing UK government investment is made, most of the mitigations will only have a low to moderate impact on their intended cohorts. Even where central government investment initially has a high impact such as reducing the levels of bankruptcy and unemployment this is not sustainable in the longer term and it will suffer diminishing returns as the normal dynamism of the economy is stymied and the longer run growth of productivity and pay is undermined.

While there are differences of view about the sustainability of UK Government borrowing, with the IFS, for example, arguing that a high level of borrowing is sustainable over the short-term, it should not be assumed that this can continue

indefinitely. It is essential the likely cost and benefits of any mitigations are carefully appraised to utilize the resources available as effectively as possible.

The current modus operandi of restrictions - lockdown - easing - restrictions - lockdown - easing is doing significant long-term social and economic damage that cannot be mitigated and in some environments will become permanent.

Restriction	Benefits	Harms	Mitigations	Potential impact of mitigations
<p>1. Closing businesses, accommodation, venues or offices for varying periods, including "firebreaks".</p> <p>This might include 'non-essential retail', hospitality: pubs and restaurants, gyms and leisure centres, community centres, places of worship, arts or cultural centres such as theatres or any other place where transmission is occurring.</p>	<ul style="list-style-type: none"> • Non-essential retail: Low impact (low-moderate confidence). Very minimal impact on R values. Some limited evidence of transmission from China. Short duration and ability to distance in most settings + face coverings are likely to mitigate well. • Bars and pubs: Moderate impact (medium confidence). Potential reduction in Rt of 0.1-0.2, though precise estimation very difficult. Environmental risk in bars, pubs etc is likely to be higher than many other indoor settings due to close proximity of people, long duration of exposure, no wearing of face coverings by customers, loud talking that can generate more aerosols. Some venues are poorly ventilated, especially in winter. Consumption of alcohol impacts on behaviour. • Multiple anecdotal reports of outbreaks linked to bars in the UK, Europe, US. CDC report suggests those who test positive twice as likely to have eaten at a restaurant. PHE case control study also identifies visits to entertainment venues as a risk factor. • Curfews: Likely to have a marginal impact. (low confidence.) • Allowing customers to sit outside only likely to be much lower risk. • Wet pubs and bars have been associated with outbreaks in Wales. • Gyms, leisure centres and fitness: Low to moderate impact (moderate confidence). Potential reduction in Rt of up to 0.1, though precise estimation very difficult. Some evidence from outbreak data e.g. in Korea associated with fitness class. Environmental risks linked to high touch surfaces in gyms, higher aerosol generation and breathing rates due to aerobic activity. 	<ul style="list-style-type: none"> • Specific short-term economic harms will take the form of lower incomes and increased unemployment, proportional to length of closure. In turn, these impacts will have adverse effects on health and well-being. • These effects will of course vary depending on sectors affected and the severity of duration of restrictions. Modelling can provide an illustration of potential orders of magnitude, but will be subject to wider margins of error. • For example: <ul style="list-style-type: none"> ◦ Modelling indicates that a two week "firebreak" in Wales (which affects mainly hospitality, leisure and non-essential retail sectors) might have a GVA cost of £200m (even after allowing for additional UK Govt. funding); ◦ at Green Book rates, the use of this level of resources would "justify" the saving of around 350 ten-year lives.) ◦ quantifiable socio-economic harms associated with this income reduction over short, medium and long-terms could include over 30 lives lost (i.e. premature mortality); ◦ quality adjusted life-years lost could be around 1,000 QALYs which, valued at Green Book rates, would equate to £60 million (which is of course additional to the direct effect on GVA set out above); ◦ excluding non-essential retail from the firebreak could reduce these costs by around one-quarter. • A two week firebreak of the same kind might result in a rise of unemployment of over 600 purely as a result of the cessation of job creation. Research indicates that the unemployment has a serious negative effect on well-being with a value several times greater than the loss of income. For illustration, the effect could be valued at around £10 million to the individuals affected, before taking account of wider social costs. • Uncertainty (including about future restrictions and about the extent of more permanent changes accelerated by the pandemic) is itself economically damaging, and likely to prolong the recession. The economic damage caused by restrictions is likely to be reduced if there is certainty over the timing and duration of the period during which restrictions will be applied. 	<ul style="list-style-type: none"> • Optimise length of disruption and spatial scale of restrictions based on a balanced judgements ensuring like-for-like comparisons covering a range of outcomes, not just reasonable worst case scenarios for the epidemic (while acknowledging the particular risks associated with an uncontrolled epidemic). • In general, a more extensive set of closures with an uncontrolled epidemic). • In general, a more extensive set of closures or restrictions imposed for a fixed and relatively short period is likely to be less damaging than less extensive but open-ended restrictions. • There may be benefits from giving businesses more time to prepare for restrictions, so announcing them in advance, for instance to reduce fresh food being wasted and to adjust supply chains, • Potential benefits from targeted and strongly enforced restrictions on certain types of employment and/or practices (including opening hours) within sectors to avoid complete closedowns. • Adverse economic consequences will be partially mitigated by supporting existing business to preserve jobs and maintain specialist skills while stimulating new job creation, with a focus on young people, especially those from disadvantaged groups. (Note that adverse effects will "spill-over" from areas that are subject to restrictions.) However, such action is constrained by challenge of identifying "viable" jobs and affordability and given constraints imposed by WG fiscal capacity and UK government's fiscal rules. • Increased (re)training opportunities have a role to play. • In general, mitigations undertaken by the Welsh Government are likely to have only modest effects in counteracting the short and long-term effects of widespread and prolonged business closures and the associated deep recession. 	<ul style="list-style-type: none"> • Ongoing long-term restrictions will have the largest impact on the most people. Attempting to mitigate the scale and length of such periods is likely to have a notable affect in the short-term and its impact has been assessed as moderate to high. • Ongoing open-ended restrictions will have a high cost and even in the short-term will affect longer term viability of businesses. Any mitigation can have a potentially significant affect in the short-term are assessed as a moderate to high impact dependant on the level of mitigation. • Businesses are attempting to find alternative means of operating on a lower scale such as restaurant takeaways and outdoor cultural events which could be further facilitated although the overall mitigation effect of this is likely to be low. • It is widely acknowledged that shorter periods of restriction are less damaging and are assessed as a moderate to high impact dependant on the level of mitigation. • Targeting of restrictions will mitigate some damage for those outside of the targeted areas: moderate impact. • Significant government funding to address the adverse impacts on businesses and jobs have been shown to initially have a high impact. The twin challenges of viability and affordability in the longer term may make this level of support unviable. • Increased training opportunities are likely to have only a small impact in the short-term: low impact. • Better planning could have a low - moderate impact depending on timeframes • Actions taken by the Welsh Government alone are likely to have only a modest effect on a deep recession and have been assessed as low to moderate (without further significant fiscal interventions from UK Government).

Restriction	Benefits	Harms	Mitigations	Potential impact of mitigations
	<ul style="list-style-type: none"> Modelling of covid policy interventions by Swansea University (like the 17 day firebreak that was implemented on 23rd October 2020 which was modelled to bring Rt down from around 1.3 to around 0.8 for around 2 weeks) suggests these interventions may prevent or postpone around 800-1,300 direct deaths from covid, which might be around 5,800 – 9,400 quality adjusted life years (QALYs) which valued at UK Treasury valuation of £60,000 per QALY would be valued at £350m - £560m. This is assuming each covid death loses on average 9.97 years of life based on SAIL analysis which compared people dying from COVID-19 with their average life expectancy calculated using an age-sex specific period life table. We then assume that health-related quality of life was around 0.726 for these ten years of life, which gives 7.24 QALYs; this is based on average UK health-related quality of life in people aged 75 and over. However, this is only the direct valuation of those life years lost to covid; it does not include indirect QALYs lost through lack of healthcare, for instance due to elective surgery being cancelled, or productivity losses, both in terms of household production and earnings, or other costs of hospital activity, or morbidity-related QALYs including long covid, so this £350m to £560m would likely represent a low end of the true economic costs of these covid cases that could be prevented through policy interventions. Deaths are only ever delayed, but as the likelihood of a working vaccine increases, the likelihood increases of people who may have died from covid gaining many life years increases. 	<ul style="list-style-type: none"> Some provisional evidence suggests that very tight restrictions on occupancy of venues (perhaps < 20%) which are strictly applied could deliver a large part of the benefits of closing the hospitality sector while substantially reducing costs. Reduced social activity will reduce well-being and harm mental – and potentially physical – health. Adverse effects are cumulative and spatially diffuse as a result of the recession – many will not be directly attributable to specific closures/ restrictions. The nature of employment in the most affected sectors means that effects will tend to worsen inequalities – the most affected tend to be low paid, in insecure employment, and young people. More broadly, recessions tend to impact most severely on people who are already “disadvantaged”. There are also a large number of jobs potentially at risk and workers may choose to retrain to find work in other industries – therefore businesses may lose staff with sector-specific skills which could harm their long-term prospects. Long-term / lifetime “scarring” effects on socio-economic outcomes will result – lower incomes, increased risks of unemployment, of poor health and of premature mortality. Only some of these effects will be captured in quantitative estimates of the kind set out above. For illustration: a reasonable worst case for scarring effects might see up to 15-20 young people who enter the labour market each week eventually experiencing premature mortality due to the effects of a recession. Such long-term effects will again tend to increase inequality as the adverse impacts are most likely to affect people from poorer backgrounds. 	<ul style="list-style-type: none"> Businesses have reiterated the need to be able to plan better not just days ahead but weeks or months be it on funding or the imposition of restrictions 	

Restriction	Benefits	Harms	Mitigations	Potential impact of mitigations
2. School closures.	<ul style="list-style-type: none"> Reduces Rt by 0.2 – 0.5 (low confidence). There is a lot of debate around the impact of schools on transmission – a lot of the benefits may be around reduced activity in adults associated with school closures. The evidence has developed in recent weeks around schools as being related to virus transmission with ONS survey data suggesting that children are often the first case in a household and asymptomatic spread is a significant issue. Risk of transmission likely to increase with age of children. 	<ul style="list-style-type: none"> Strong evidence for a range of socio-economic harms to children over both short and long run (including lifetime effects on health and well-being), probably proportional to length of closure. Modelling can provide an indication of orders of magnitude of some effects but will be subject to wide margins of error. For example: <ul style="list-style-type: none"> one week closure of primary schools could result in lower economic returns to education (lifetime incomes) with a present value of around £70 million. one week closure of primary schools could result in lower economic returns to education (lifetime incomes) with a present value of around £50 million. Strong evidence that harms disproportionately affect deprived children, and therefore also children from many minority groups. Harms likely to include an increase in “adverse childhood experiences” (ACEs) which research indicates can result in trauma and attachment issues, and severe harms over the long-term. Indirect social and economic harms result from the disruption to parental employment, with differential effects across genders and income levels, and with potential adverse longer term consequences from this. Significant negative social impacts on young people with particular concerns expressed about increased isolation and mental wellbeing, and uncertainty over issues such as exams and qualifications and quality of education being affected. 	<ul style="list-style-type: none"> Measures to improve children’s mental health services – but issues around timeliness / deliverability / affordability and given constraints imposed by WG fiscal capacity and UK government’s fiscal rules. Measures to address underlying parental issues, for example combatting alcohol or drug abuse and addressing mental health conditions - but issues around timeliness / deliverability / affordability and given constraints imposed by WG fiscal capacity and UK government’s fiscal rules. Measures to promote “catching up”, through reduced school holidays and/or the use of tutoring, although unlikely to be effective in addressing delayed development of young children. Advice and guidance to parents may play a role but effectiveness unclear. Unless effectively targeted, many mitigations are unlikely to reduce, and may increase, inequalities. The level of harm and the limited scope for mitigation should make school closures (unless of very limited duration) a very last resort. 	<ul style="list-style-type: none"> Requires additional funding to address increased mental health issues: impact low to moderate Requires additional funding to address underlying parental issues: impact low to moderate Requires additional funding to reduce the effect of ACEs: impact low to moderate Overall impact likely to be small given the gap in education provision already suffered by young children: on this basis impact low. Advice and guidance is given to parents in a range of areas but take up is often variable overall: impact low. Effective targeting of mitigations is essential to achieve the greatest impact from the funds deployed - without this, impact will be low.
3. Guidance to recommend restricted access to the health and/or care system.	<ul style="list-style-type: none"> Reduces non-covid pressure on the health system and probability of nosocomial transmission. 	<ul style="list-style-type: none"> Principal harms are directly health-related (“harm 2”) and not covered here. Indirect socio-economic harms result from reduced ability to work and due to incidence of disease likely to increase inequalities. 	<ul style="list-style-type: none"> Potential to prioritise access for working age people in order to minimise indirect harms and workplace productivity losses, but this would raise issues of age inequality and therefore require a political decision. An area of focus may be on conditions that are most likely to result in people of working age leaving the workplace, like musculoskeletal problems and mental health problems. 	<ul style="list-style-type: none"> The backlog of healthcare will impact on the economic contribution from people of working age. Potentially the impact of addressing this as a priority could have a moderate to high impact on those affected by delays in the healthcare system.

Restriction	Benefits	Harms	Mitigations	Potential impact of mitigations
4. Closure of childcare settings.	<ul style="list-style-type: none"> Small impact on virus transmission although might be some impacts from transmission in adults connected to the children. Young children often asymptomatic and rarely get very ill from the virus. 	<ul style="list-style-type: none"> As (high quality) early childcare has been shown to have benefits for the development of both cognitive and non-cognitive skills in children from deprived backgrounds, the closure of childcare settings will have both short and long-term harms and will widen inequalities. While pre-school education forms only a small part of the affected sector, analysis indicates that the present value of the reduced lifetime incomes that may result from the loss of one week's pre-school education could be around £5 million. Indirect social and economic harms result from the disruption to parental employment including reduced productivity and the difficulties of combining homeworking and childcare, with differential effects across gender and – probably – income levels, and with adverse potential longer term consequences from this. 	<ul style="list-style-type: none"> Additional advice and guidance to parents may help to promote children's development although effectiveness in doubt where parents are trying to combine working with childcare. Unless targeted, mitigations and further support are unlikely to reduce, and may increase, inequalities. The level of harm and the limited scope for mitigation should make closure of childcare settings (unless of very limited duration) a last resort. 	<ul style="list-style-type: none"> Advice and guidance is given to parents in a range of areas but take up is often variable overall: impact low. Effective targeting of mitigations and increased parental support is essential to achieve the greatest impact from the funds deployed without this impact will be low. Childcare closures have a detrimental impact on children and parents. They can also substantially exacerbate existing inequalities with little if any scope for effective mitigation.
5. Provision of guidance or imposition of restrictions on movement of people. This could include requirements to 'stay at home' for certain groups, to stay within a local area, to prevent people staying away from home overnight, or restrictions on entering or leaving the area.	<ul style="list-style-type: none"> Evidence to date suggests such measures can reduce the spread of infections with relatively limited effects on local consumer spending. Reduced travel will have environmental benefits and reduce accidental injury and death. Local travel restrictions: (e.g. 5 mile rule) Low to moderate impact (low confidence). Reduces seeding to low risk areas. Impact depends on the level of seeding of the epidemic. If the epidemic is already widespread, then internal travel restrictions will have little benefit. 	<ul style="list-style-type: none"> Reduced social activity will increase loneliness and isolation and reduce well-being and harm mental – and potentially physical – including mental health, alcohol and drug misuse, violence and abusive behaviour and an increased level of physical inactivity. Research indicates that loneliness and isolation are crucial determinants of subjective well-being. Effects are likely to be strongly unequal and depend heavily on individual circumstances. It is likely that resulting unequal social activity is linked to other inequalities (such as income and type of accommodation). Restrictions around not leaving local authority area are more potentially more restrictive on people who live on the edge of LA boundaries than people who live in the middle of an LA. Young people, including students, and old people living alone appear to be at particular risk. "Working from home" is on average less feasible in lower income occupations, and some evidence suggests "work from home" policies may have adverse employment effects on lower income groups (partly through indirect effects on support services). Higher home heating costs will affect those working from home and on low incomes. 	<ul style="list-style-type: none"> Additional measures to combat isolation through the use of technology - but uncertainty about effectiveness and access especially in deprived and vulnerable groups. In principle, additional measures to improve digital literacy, but issues of timeliness and effectiveness. In principle, further measures to improve mental health services and other support mechanisms beyond the additions already put in place – but issues of timeliness / deliverability / affordability and given constraints imposed by WG fiscal capacity and UK government's fiscal rules. In principle, additional measures to improve housing quality – but issues of timeliness / deliverability / affordability and given constraints imposed by WG fiscal capacity and UK government's fiscal rules. Additional measures to address fuel poverty in low income households. More effective mitigations may include exemptions for certain groups believed to be at high risk (as introduced for people living alone). 	<ul style="list-style-type: none"> Measures that can be put in place likely be poor substitute for normal social links. Nevertheless targeting could provide limited support for some: low to moderate impact. In the short-term the feasible impact of measures to address digital literacy is low. Measures to improve mental health likely to have low impact within relevant timescale. Improving housing quality is a long standing long-term issue but the short-term impact is likely to be low. Targeted measures to address fuel poverty in the short-term are deliverable and with additional funding have been assessed as moderate to high. Government funding to address the adverse impacts on businesses and jobs have been shown to initially have a high impact. The twin challenges of viability and affordability in the longer term may make the necessary level of support unviable.

Restriction	Benefits	Harms	Mitigations	Potential impact of mitigations
		<ul style="list-style-type: none"> Environmental benefits of reduced travel will in part be offset by higher energy use in the home. Consequent reductions in overall economic activity will result in short and long run socio-economic harms proportional to the length of the restrictions. 	<ul style="list-style-type: none"> Adverse economic consequences could in principle partially mitigated by supporting existing business to preserve jobs and stimulating new job creation, with a focus on young people, especially those from disadvantaged groups (see also below). However, such action is constrained by challenge of identifying “viable” jobs and affordability and given constraints imposed by WG fiscal capacity and UK government’s fiscal rules. 	
6. Restrictions on indoor gatherings (including limiting the number of households able to meet)	<ul style="list-style-type: none"> Moderate impact (medium confidence). High risk of transmission within households from droplets, aerosols and transmission from shared surfaces. While options are limited to control transmission in households, an epidemic can only be sustained if there are transmission chains between households. Data show high secondary attack rates (up to 40%) between members of the same household. Modelling of relaxing lockdown concluded that allowing any one household to make contact with more than one other household would substantially increase R. Stopping all contacts between different households in the home might reduce Rt by ~0.1-0.2. Bubbling of single occupancy households has little effect. There have been covid outbreaks associated with house parties in Wales. 	<ul style="list-style-type: none"> Reduced social activity will reduce well-being and harm mental – and potentially physical – health. Effects are likely to be unequal and depend heavily on individual circumstances. It is likely that resulting unequal social activity is linked to other inequalities (such as income and type of accommodation). Some people may have a greater propensity to risky behaviours such as the excess consumption of alcohol or use of illegal drugs. Those who do not have access to gardens through location or financial disadvantage (cannot afford commercial indoor spaces, or have no local café/pub, difficulties with small children etc) are further restricted and isolated. The extension of home to cover garden options for many will not be the answer for everyone 	<ul style="list-style-type: none"> Effective mitigations may include exemptions for certain groups believed to be at high risk. In principle, additional investment in outdoor activity, but issues of timeliness, effectiveness and cost. Measures to tackle substance misuse 	<ul style="list-style-type: none"> Social activity is one of the greatest areas of challenge as it is one of the main focuses of restrictions to contain the spread of the virus. There are additional difficulties during the winter period when much outdoor activity is prevented. Potential impact of mitigations is likely to be low without major easing. Given the cost and timeliness of investment in outdoor activity the impact is likely to be low. The highest level of impact may be achieved by seeking to better balance the level of restrictions on indoor and outdoor activities.
7. Closure of HE and/or FE	<ul style="list-style-type: none"> Moderate impact (moderate confidence). Less data than from schools, though students are older and thus more likely to be infectious. Cryptic transmission from asymptomatic individuals likely. FE is highly networked linking households, FE setting and workplaces, but this tends to be local. There is evidence from the US of covid rates being high in college towns and transmission moving from 	<ul style="list-style-type: none"> Similar effects to school closures, though effects likely to be less adverse due to the greater scope for mitigation. Modelling can provide an indication of orders of magnitude of a subset of effects but will be subject to wide margins of error. For example: <ul style="list-style-type: none"> one week closure of FE and HE without mitigation could result in lower economic returns to education (lifetime incomes) with a present value of around £30 million. 	<ul style="list-style-type: none"> As schools, but greater use of distance learning may be more feasible in some settings. Increase in financial and student well-being support as students are confined to accommodation and not able to make friends. The level of harm and limited scope for mitigation should make closure of HE settings in particular (unless of very limited duration) a last resort. 	<ul style="list-style-type: none"> Distance learning is more viable for older students but not a complete substitute for classroom and social learning experiences. Impact is assessed as low to moderate. Financial support is somewhat easier to substitute than social experience and assessed as low to moderate.

Restriction	Benefits	Harms	Mitigations	Potential impact of mitigations
	students to more vulnerable populations, but a lot of UK student outbreaks seem to be well contained within the student population.	<ul style="list-style-type: none"> • FE closure likely on average to impact more directly on lower income groups than HE closure. • Evidence of increased impact on mental health of 12-24 year olds. Restrictions, are increasing isolation, through preventing contact to make new friends, reduced or no face to face teaching and being away from home already impacting mental health isolation and ability to study. • HE closure is likely to have greater impact on those students from lower income groups and with associated impacts on household income if they returned home. Unemployment and loss of student benefits may lead to accessing welfare system. • Financial impact could be high – in some circumstances could lead to permanent closure for HEIs/FEIs, but also some offsetting effects as young people are more likely to remain in education during a period of (prospective) labour market weakness. • Impact on mental health if students cannot return home. • Heightened risk of student withdrawal leading to NEET status and loss of income for the institutions with closure while the benefit assumes that when studying remotely people displaced by closure do not engage in risky behaviour (household gatherings and parties etc.) when studying remotely 		
8. Requirement to undertake shielding.	<ul style="list-style-type: none"> • Low impact on virus transmission at a population level. • Potential moderate impact on risk of hospitalisation and deaths in shielded individuals. 	<ul style="list-style-type: none"> • Reduced socio-economic harms likely compared to some alternative restrictions. • However, increase in social isolation, loneliness and associated mental health problems. • Potentially adverse implications for age, health and income inequalities. 	<ul style="list-style-type: none"> • (Obviously) minimising coverage and duration of requirements will mitigate adverse effects. • Mitigations for social isolation considered above. 	<ul style="list-style-type: none"> • Significant damage is arising from long periods of shielding particularly for those who are isolated. Minimising coverage and duration could have a moderate to high impact if feasible.

<p>9. Restrict transport systems by limiting when individuals may use transport or enter or leave an area, closing transport hubs entirely, or introducing restrictions on transport services.</p>	<ul style="list-style-type: none"> Low impact - while levels of crowding on public transport remain low and mask-wearing is mandated. In addition, there was inconclusive evidence of the risk of public transport for influenza-like-illness transmission. Further restricting use is unlikely to reduce overall transmission. Moderate confidence 	<ul style="list-style-type: none"> Reduced social activity will reduce well-being and harm mental – and potentially physical – health. Economic harms dependent on nature of restrictions. Adverse effects on equalities as lower income people and many minority groups more likely to use buses for both employment and social purposes. People who don't have cars or gardens will miss out the most. Potential adverse impacts if a consequence is modal shift towards private transport. There is pressure on the economic viability of some public transport providers due to reduced revenues, particularly TfW rail services who are funded heavily by Welsh Government. 	<ul style="list-style-type: none"> Exemptions for workers would reduce economic harms. Exemptions for (some) bus travel would reduce adverse effects on equalities. In principle, increased investment in active travel, but issues of timeliness, effectiveness, cost and inclusion. Consider the prioritisation of support for key elements of public transport provision. 	<ul style="list-style-type: none"> Exemptions could have high benefits for particular groups. Investment in active travel likely low benefits within relevant timeframe.
<p>10. Restrictions on outdoor gatherings, including prohibiting large events.</p>	<ul style="list-style-type: none"> Benefits of restrictions depend on frequency of large gatherings, number of attendees, likelihood of attendance by mildly unwell participants, indoors vs outdoors, singing and shouting, ability to trace contacts, and elderly or vulnerable people in attendance. Reduction in R likely to be between 0.05-0.3 depending on ventilation and other factors). SARS-CoV2 does not persist in well-ventilated outdoor areas for long. High confidence. Virus survival on surfaces is reduced under UV light, however this effect may be less in winter. Large events/gatherings can have a role in seeding infections in and between communities, and are associated with outbreaks. ~2% of cases due to gatherings of over 50 people but this might be skewed by current restrictions. Transport to/from events and use of pubs and other shared facilities nearby may be more important. 	<ul style="list-style-type: none"> Adverse economic consequences (as above), but relatively modest in context. 	<ul style="list-style-type: none"> Targeted financial support for affected businesses. 	<ul style="list-style-type: none"> Significant effects on those businesses in the sector could be partially mitigated by financial support in the short-term: potential high impact

11. Requirement for the use of face coverings for the whole population, or a significant group, in all public places or in specific setting.	<ul style="list-style-type: none"> Low economic and social costs when compared with many other measures. Good evidence in clinical and laboratory settings that masks prevent aerosol transmission of the virus. 	<ul style="list-style-type: none"> While mask-wearing may increase risky behaviours, growing evidence from across countries indicates that net effectiveness in reducing spread may be high. However we have not seen any clear effect on transmission in Wales after face coverings were made compulsory in shops from 11th Sept 2020. Potential harms from exclusion discouraging activity particularly amongst people for whom wearing a mask is uncomfortable or distressing (including those with hearing loss). Stigmatisation of exempt population. Cost of masks for people on low incomes. Litter. 	<ul style="list-style-type: none"> Distribution of free masks meeting an accepted standard, perhaps targeted on disadvantaged groups. Use of visible “signal” of exemption (which could also support enforcement of the requirement to wear a mask perhaps contributing to effectiveness of the restriction). Development and use of transparent masks. Raising awareness of masks as biochemical hazard and protecting environment 	<ul style="list-style-type: none"> Free masks is likely to have a high impact on those targeted. Transparent masks have been assessed as having a high impact for those requiring their use. Awareness raising may have a low to moderate impact on littering.
12. Requirement and support to self-isolate.	<ul style="list-style-type: none"> Could have a big impact on Rt if more people self-isolate before infecting other people but we don't have precise estimate of impact on Rt at present. Evidence from other countries suggests compliance with self-isolation is greater in countries with a strong social safety net e.g. workers paid to self-isolate. 	<ul style="list-style-type: none"> Basic cost-benefit analysis (and comparative analysis across countries) suggests that financial incentives to self-isolate are likely to offer net benefits. Increasing the generosity of Statutory Sick Pay, and the extension of support to the self-employed, if only temporarily, is therefore likely to be cost-effective, particularly as the UK has one of the least generous systems in the developed world. Expanding coverage of one-off support payments may also be cost effective as a second best option. Economic impacts could increase as case numbers continue to increase. Businesses could be affected by constrained labour supply in the short-term, but could actually benefit over the medium to long-term if infections are effectively curtailed by the extension. Occupations and sectors where working from home is less feasible may be more affected by the extension, e.g. accommodation and food; transport and storage; wholesale and retail trade etc. Occupations at most risk of infection could also be impacted, predominantly in the medical professions. Workers and individuals which might have a financial incentive to not comply with the advice include people that aren't entitled to sick pay, such as the self-employed and those on ZHCs. Lower paid workers and employees that cannot work from home may also have similar incentives. 	<ul style="list-style-type: none"> Financial assistance for companies and self-employed; SSP for employees 	<ul style="list-style-type: none"> Provision of financial assistance will have high impact if set at a sufficient level. New testing technology may offer an opportunity to shorten the period of self-isolation for contacts of positive cases and return travellers.

Annex 1

Estimate of the weekly economic impact of complete closure of selected sectors (£m)

Direct GVA is value of lost output in closed businesses.

Total GVA is value of lost output including supply chain effects.

These figures are based on the July 2020 OBR.

Wales	Direct GVA	Total GVA
Retail trade (1)	70	103
<i>of which "non-essential" retail (2)</i>	26	41
Land, water and air transport (3)	18	35
Accommodation and food service activities (4)	38	64
<i>of which food service activities (5)</i>	31	52
Real estate activities, excluding imputed rental (6)	37	52
Arts, entertainment and recreation (7)	14	22
Other personal service activities (8)	14	17
TOTAL 2+5+7+8	86	133

Notes

Assumes loss of output is wholly attributable to policy.

Approximate figures.

Estimates also available for local authorities.

At standard NICE values, and in very rounded terms, the weekly total GVA impact would be equivalent to at least 300 ten-year lives.