

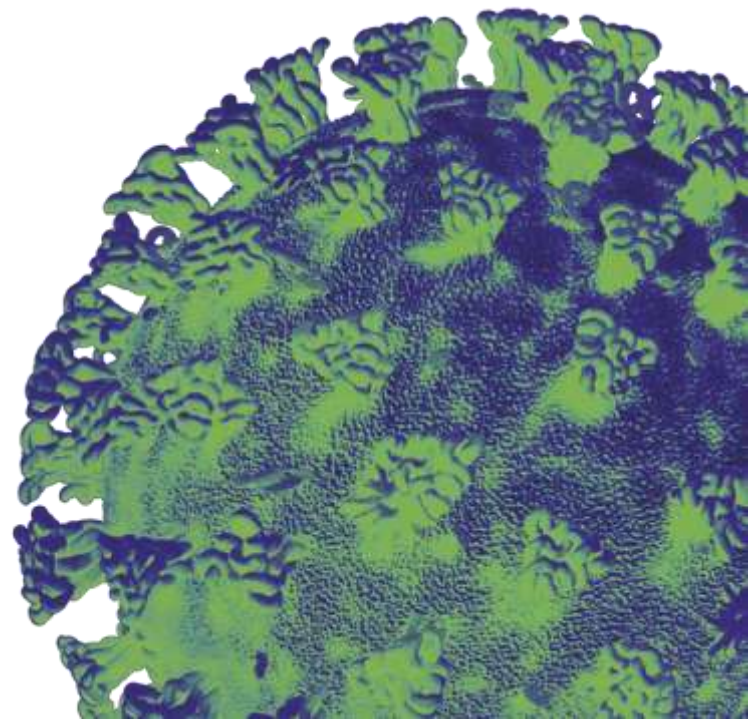
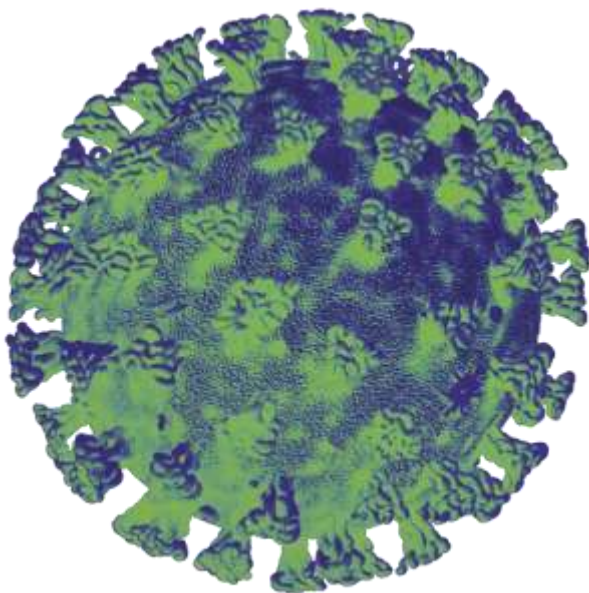
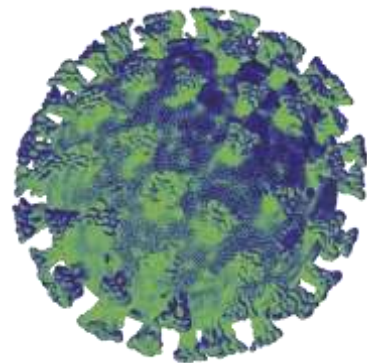


Llywodraeth Cymru
Welsh Government

Technical Advisory Cell

Coronavirus (COVID-19) and Health Inequalities

19 October 2020



COVID-19 Technical Advisory Cell

Coronavirus (COVID-19) and Health Inequalities

EXECUTIVE SUMMARY

1. The novel coronavirus (COVID-19) outbreak has compounded existing health inequalities in Wales, which have shown little improvement in the last ten years, based on the gap in life expectancy between the most and least deprived fifth of the population. The main recommendation of this report is to try to protect our most deprived population from the direct effects of COVID-19 in a potential second wave, and from the indirect effects of COVID-19 on the economy which will increase health inequalities in the longer term. We will know we have succeeded in this if the gradient in COVID-19 mortality is less steep in future than in the first peak and if we see a reduction in the gradient in all-cause mortality in 2022, given that it is unlikely that inequalities will reduce in the next two years. In the longer term we need to look at policies to increase health and financial resilience across the population.

POLICY CONTEXT

2. Reducing inequalities in health and wellbeing is a key theme of both 'Prosperity for All' and 'A Healthier Wales'. The Wellbeing of Future Generations Act also sets out Health and Equality as two main goals.

INTRODUCTION

3. The objective of this paper is to understand current and future health inequalities around COVID-19 and suggest some potential mitigations for these inequalities.
4. This report focuses on health inequalities by socioeconomic position. The parallel work by the FM advisory group on worse COVID-19 outcomes in BAME (Black, Asian and Minority Ethnic) communities was published on 22 June and identifies the full range of structural inequalities seen in deprived communities, with the additional influence of the effects of racism. This report is intended to complement that report. There has also been work by PHW on the impact of COVID-19 on longstanding illness, and a Health Impact Assessment of lockdown measures (see summary in Appendix 2).
5. This report focuses on direct harms from COVID-19; but also touches on the harms from the COVID-19 response and lockdown. Although all individuals are thought to be susceptible to COVID-19 it has not been a 'great leveller'. Deaths have been almost double in the most deprived quintile when compared with the least deprived quintile of the population in Wales, and there has been a disproportionate rate of hospitalisation and death in BAME communities.

6. A lot of health inequalities are related to everyday causes like housing, education, employment and environment which result in differences in behaviours like smoking, diet and physical activity and produce differences in rates of risk factors like hypertension, type 2 diabetes and COPD. Health inequalities are caused by a range of factors that interact in a dynamic way across the lifecourse and persist through generations. People on low incomes are more likely to work in dangerous or physically demanding jobs on uncertain contracts and have precarious housing tenancies.
7. For England & Wales, initial analysis by ONS of COVID-19 mortality by occupation suggests elevated mortality rates in male and female 'caring, leisure and other service occupations' which includes nursing assistants, care workers and ambulance drivers as well as male 'elementary workers' which includes construction workers and cleaners, and male bus and taxi drivers.¹
8. There is clear evidence of intersectionality, risk factors compounding each other to further disadvantage individuals with protected characteristics (based on the Equality Act 2010).
9. In this context, COVID-19 has been described as a 'syndemic' –a co-occurring, synergistic pandemic that interacts with and exacerbates existing inequalities in social conditions and diseases like cancer, CVD, and respiratory disease.² The term syndemic has previously used to describe other groups of diseases that act synergistically such as tuberculosis and HIV.
10. In the short term, focus should be on what can be done to reduce inequalities in COVID-19 outcomes, direct (from COVID-19) and indirect (from reduced access to other healthcare because of COVID-19) harms.
11. In the longer term, attention needs to focus on the potential economic fallout of the COVID-19 pandemic and its response, as well as reducing risk factors across the population with a focus on deprived areas.
12. This report mainly looks at data by Welsh Index of Multiple Deprivation (WIMD) quintile.³ This is an area-level measure of deprivation; it may be that looking at different measures would make the inequalities appear even more acute.
13. Landmark reports around health inequalities in the UK include the Black Report,⁴ the Health Divide,⁵ and the Marmot report,⁶ which recommended investment in proportion with need, 'proportionate universalism', which has

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<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/coronavirus/covid19relateddeathsbyoccupationenglandandwales/deathsregistereduptoandincluding20april2020#men-and-coronavirus-related-deaths-by-occupation>

² Bambra C, Riordan R, Ford J, et al. The COVID-19 pandemic and health inequalities. J Epidemiol Community Health Published Online First: 13 June 2020. doi: 10.1136/jech-2020-214401

³ <https://gov.wales/sites/default/files/statistics-and-research/2019-11/welsh-index-multiple-deprivation-2019-results-report-024.pdf>

⁴ Townsend P, Davidson N, editors. Inequalities in health: the Black report. Harmondsworth: Penguin; 1982.

⁵ Whitehead M. The Health Divide: Inequalities in Health in the 1980's: a Review Commissioned by the Health Education Council, London. Health Education Council; 1987.

⁶ Marmot M, Allen J, Goldblatt P, Boyce T, McNeish D, Grady M, Geddes I. The Marmot review: Fair society, healthy lives. London: UCL. 2010 Feb.

been developed into the idea of 'progressive universalism'⁷ which is a determination to provide support for all, giving everyone and everything a voice and vested interest, but recognises more support will be required by those people or areas with greater needs.

14. Interventions can be compared on a health equity impact plane,⁸ where one axis shows the relative effectiveness (which might be measured in net health benefit) and one axis shows the relative equity impact (which might be a reduction in the slope index of inequality).⁹ See example in Appendix 6.
15. Having a low income means individuals cannot afford a healthy diet and are further disadvantaged by insecurity of local supply of fruit and veg within walking distance. People on low incomes also have less financial and transport flexibility to buy in bulk from cheaper supermarkets rather than local shops which typically sell a greater proportion of less healthy foods that have a longer shelf life. People on low incomes often end up servicing a cycle of debt which causes anxiety. Around 30% of UK low-income households pre-crisis reported that they could not manage a month without their main source of household income as these households spend a high fraction of their budgets on necessities that are hard to scale back.¹⁰
16. The effect of wider determinants is mediated through cultural and behavioural issues and experiences of discrimination or domestic violence. Living in poverty causes exponential time discounting where individuals focus on managing day to day rather than thinking across a long time horizon. This means that people who live in poverty may put more emphasis on the short term pleasure from activities like calorie-rich foods, alcohol, tobacco and other drugs rather than thinking of their health in the long term.
17. Psychosocial factors such as status (comparing one's perceived rank against others), experiences of exclusion and discrimination, and autonomy can also cause differences in levels of anxiety, other mental health problems and a range of physical problems such as obesity, cardiovascular and metabolic indicators like blood pressure, HbA1c, and cholesterol that are linked with disease risk. Health inequalities have been exacerbated by the decline of social networks¹¹ and sometimes by a persistence in deprived areas of overly violent and corrosive family dynamics¹² and adverse childhood experiences.¹³ Lack of social networks may be exacerbated during lockdown in people who are digitally excluded.

⁷ <https://senedd.wales/NAfW%20Documents/ki-024.pdf%20-%2003112011/ki-024-English.pdf>

⁸ Collins B et al. (2019) How Do We Include Health Inequality Impacts in Economic Analysis of Policy Options? <https://www.york.ac.uk/media/che/documents/policybriefing/Health%20Equity%20Impact%20Plane%20V4.pdf>

⁹ Griffin, S., Love-Koh, J., Pennington, B., & Owen, L. (2019). Evaluation of Intervention Impact on Health Inequality for Resource Allocation. *Medical Decision Making*, 39(3), 171–182. <https://doi.org/10.1177/0272989X19829726>

¹⁰ Blundell R. Costa Dias M. Joyce R. Xu X.; 2020. Covid-19 and inequalities. Institute for Fiscal Studies. <https://www.ifs.org.uk/inequality/covid-19-and-inequalities/>

¹¹ Muntaner C, Lynch J. Social capital, class gender and race conflict, and population health: an essay review of Bowling Alone's implications for social epidemiology: *International journal of epidemiology*. 2002 Feb 1;31(1):261-7 <https://academic.oup.com/ije/article/31/1/261/655971>.

¹² Craig C. *The Tears that made the Clyde*. Argyll Publishing; 2010. [This book focuses on Glasgow but some of the findings are relevant to other post-industrial cities].

¹³ Public Health Scotland. Overview of ACEs <http://www.healthscotland.scot/population-groups/children/adverse-childhood-experiences-aces/overview-of-aces>

18. Being able to explain health inequalities and untangle their causes is important but explaining inequalities does not make them less unfair, or less of a systemic disadvantage to community prosperity and cohesion. Talking about inequalities in terms of lifestyle choices is not always useful because people don't have the same choices and sometimes behaviours like smoking, lack of physical activity and excess alcohol consumption might be a natural response to the environment that people find themselves in.¹⁴ Also, factors like intergenerational poverty, domestic violence or social exclusion due to disability, ethnicity or poverty itself, are not life choices, but the effects of a lack of access to material, social and psychological resources. There is evidence that living in countries with more inequality is bad for everyone, not just those at the bottom.¹⁵
19. Inequalities can be causally attributed in the wrong direction, for instance if we say that BAME status is a risk factor for a poorer outcome or greater comorbidity; it may be that BAME status is not the risk factor, but the effect of racism is the key causative factor.
20. Inequality and equity are often used interchangeably as terms, but equity is when a value judgment has been made that an inequality is unfair. For instance people who are 90 years old have worse health measures and life expectancy on average than people who are 40 years old, we do not judge that as being unfair; but people on low incomes who are 40 years old have worse health than people on higher incomes who are 40 years old; we judge that as being unfair and inequitable.
21. For the purposes of looking at COVID-19, it is useful to think about the actions that can be taken quickly to reduce inequalities in poor outcomes around COVID-19. Understanding the multiple and intersectional longer term causes of inequalities is important in reducing health inequalities in the longer term so that Welsh citizens are 'fighting fit' for the future. This relates to the idea of 'building back better' – helping communities to be more physically and financially resilient and future-proofing society from experiencing similar shocks.

WHAT WE KNOW ABOUT DIRECT COVID-19 HEALTH INEQUALITIES

22. The Public Health England report 'Disparities in the risk and outcomes of COVID-19'¹⁶ confirms that the impact of Covid-19 has replicated existing health inequalities and, in some cases, has increased them.
23. Some of the main disparities highlighted within the report are:
- Age and sex - the largest disparity - with those diagnosed people of 80 years of age or older being seventy times more likely to die than those

¹⁴ Pepper GV, Nettle D. Perceived extrinsic mortality risk and reported effort in looking after health. *Human Nature*. 2014 Sep 1;25(3):378-92.

¹⁵ Wilkinson R, Pickett K. *The spirit level. Why equality is better for everyone*. 2010.

¹⁶ Public Health England. Disparities in the risk and outcomes from COVID-19. 2020

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/892085/disparities_review.pdf

diagnosed under 40. Risk of dying amongst those diagnosed also higher in males than females.

- Deprivation - people living in deprived areas have higher diagnosis and death rates than those living in less deprived areas.
- Ethnicity - People from Black ethnic groups were most likely to be diagnosed with death rates being highest among people of Black and Asian ethnic groups.

24. These inequalities largely replicate existing inequalities in mortality rates in previous years, except for Black, Asian and Minority Ethnic (BAME) groups, where this report suggested that mortality was previously higher in White ethnic groups.
25. In Wales, socioeconomic health inequalities in COVID-19 become more pronounced the further along the treatment pathway you look. Based on data from the first few months of the pandemic we can see that inequalities are not particularly pronounced for confirmed cases (unlike England) but the gradient becomes bigger for admissions, ICU and deaths. This may be related to the idea of staircase effects whereby health inequalities accumulate across the system¹⁷ and the 'inverse care law'¹⁸ whereby people from deprived areas may not seek help until later when their condition has deteriorated which may be related to health literacy and competing demands on their time.
26. Based on data from the first few months, we can see that people in the most deprived fifth of the population in Wales are twice as likely to be admitted to hospital, to end up in ICU, and to die from COVID-19 as those from the least deprived fifth. Data from England and some limited data for Wales suggest there has been proportionally more hospital admissions and deaths in BAME groups.
27. Health inequalities in COVID-19 deaths are wider than for other causes of death on average.
28. It is likely that the prevalence of people living with long term complications of COVID-19 may be higher in deprived populations. The evidence is still emerging around long term disabilities in some COVID-19 survivors; with reports of lung damage and chronic fatigue in some cases. There is evidence around acute respiratory distress syndrome causing irreversible changes such as fibrosis, tracheal stenosis from prolonged tracheostomy tube placement, pulmonary function decline, cognitive impairment and memory loss, posttraumatic stress disorder, depression, anxiety, deconditioning, muscle weakness, ambulatory dysfunction, and an overall poor quality of life.¹⁹

¹⁷ Tugwell P, de Savigny D, Hawker G, Robinson V. Applying clinical epidemiological methods to health equity: the equity effectiveness loop. *Bmj*. 2006 Feb 9;332(7537):358-61.

¹⁸ Hart JT. The inverse care law. *The Lancet*. 1971 Feb 27;297(7696):405-12.

¹⁹ DiSilvio B, Young M, Gordon A, Malik K, Singh A, Cheema T. Complications and outcomes of acute respiratory distress syndrome. *Critical care nursing quarterly*. 2019 Oct 1;42(4):349-61.

INDIRECT HARMS OF COVID-19 AND THE RESPONSE

29. Deprived groups may be more vulnerable to indirect COVID-19 harms due to additional pressures on the health and social care system for instance cancer screening or planned surgery being delayed, or not presenting (e.g. with myocardial infarctions²⁰ or cancer symptoms²¹) and children not having their early years programme of checks and vaccinations (despite these being intended to continue, but may be less accessible).
30. A PHW Public Engagement Survey on Health and Wellbeing²² during Coronavirus found that people living in the most deprived areas of Wales are more likely to be self-isolating, be feeling anxious and isolated during coronavirus restrictions, and report greater worries about their mental health. They are also more likely to be concerned about becoming ill or losing someone they love to the virus, their finances or employment, and the wellbeing and education of their children. Whilst people in deprivation are more likely to have increased how much they are watching TV / Netflix or gaming (compared to more affluent counterparts), those in the most affluent areas are more likely to have increased spending time outdoors and doing exercise. This may be related to having exercise equipment or having access to safe, well-kept green space.
31. Deprived groups may be more vulnerable to harms from lockdown changing people's way of life and affecting their mental health, as well as their physical health, and for some, increasing the risk of domestic violence or children being exposed to adverse childhood experiences and trauma, FGM, food insecurity or inability to observe social distance due to overcrowding at home. Deprived groups are more likely to be digitally excluded so that their children are missing out on online educational resources and falling further behind their peers.²³ BAME groups also have higher rates of child disability, leading to greater need to shield, and further economic insecurity.
32. People who were already marginalised, or in low paid, uncertain employment and precarious housing,²⁴ may be more likely to lose their jobs or be susceptible to the effects of zero hours contracts or insecure work, resulting in poorer long term physical and mental for all family members. Not counting key workers, it is estimated that less than 20% of workers in the lowest income decile can work from home, compared with 70% in the highest income decile.²⁵ Survey data from ONS at UK level suggests that people on low incomes have been negatively impacted by COVID-19 more than people on

²⁰ <https://www.bhf.org.uk/what-we-do/news-from-the-bhf/news-archive/2020/april/drop-in-heart-attack-patients-amidst-coronavirus-outbreak>.

²¹ <https://www.england.nhs.uk/2020/04/nhs-warning-seek-help-cancer-symptoms/>

²² Public Health Wales, World Health Organization Collaborating Centre on Investment for Health and Wellbeing, 2020. Wellbeing during Coronavirus How deprivation, age and gender make a difference to the impacts of Coronavirus <https://phw.nhs.wales/topics/latest-information-on-novel-coronavirus-covid-19/how-are-you-doing/weekly-hayd-reports/how-are-we-doing-by-demographics-report/>

²³ <https://www.cam.ac.uk/stories/digitaldivide>

²⁴ Standing G. Understanding the precariat through labour and work. Development and change. 2014 Sep;45(5):963-80.

²⁵ <https://www.ifs.org.uk/inequality/wp-content/uploads/2020/06/Covid-and-inequality.pdf>

high incomes.²⁶ There may be a particular risk affecting young people from disadvantaged and BAME groups entering the labour market which may lead them to have less educational achievement and earn less across their lifecycle. The experience of recession may lead to an increase in 'deaths of despair'²⁷ (e.g. suicide, alcohol-related liver diseases, and drug overdoses) which may be more concentrated in deprived areas.

POTENTIAL BENEFICIAL EFFECTS OF COVID-19

33. The COVID-19 pandemic and its response may have had some beneficial effects such as reduced environmental pollution, an increase in hand washing and cycling, and beneficial effects of a different work-life balance, community cohesion and spending more time with loved ones. The COVID-19 pandemic may have made communities stronger, led to an increase in volunteering, and made people value key workers more.²⁸ Being able to access public services like primary care through video calls may benefit some sections of the population, for instance people who are working long or unsocial hours or have caring responsibilities. But there is also a risk of increasing health inequalities if people from deprived backgrounds may not be able to communicate their symptoms well over video calls, or are digitally excluded.

POSSIBLE POLICY RESPONSES

34. Groups can be convened to look in more detail at health inequalities around COVID-19 in terms of direct and indirect harms in Wales.
35. The risk of adverse outcomes around COVID-19 is not universal across the population so policies should not be equally applied, instead we should adopt the principles of 'progressive universalism'. It may be that the level of risk we tolerate is different in different populations and individual risk stratification should consider socioeconomic circumstances.
36. Attention should be given to guidance looking at high risk, and often low paid occupations and settings and how we reduce the risk for these individuals. Examples of potentially higher risk occupations may include: bus and taxi drivers; social care and healthcare workers; and people working in some retail, catering, security, and manufacturing settings.
37. There is a list of potential responses for primary care to reduce COVID-19 health inequalities on the RCGP website; this includes recommendations around particular groups including people with mental health problems, homeless people, Gypsies and travellers, refugees and asylum seekers.²⁹ This

²⁶ ONS Personal and Economic Wellbeing in the UK
<https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/bulletins/personalandeconomicwellbeingintheuk/june2020>

²⁷ Case A, Deaton A. Deaths of Despair and the Future of Capitalism. Princeton University Press; 2020 Mar 17.

²⁸ T Bell, N Cominetti & H Slaughter, A new settlement for the low paid: Beyond the minimum wage to dignity and respect, Resolution Foundation, June 2020

²⁹ <https://elearning.rcgp.org.uk/mod/page/view.php?id=10692>

advice includes offering routine appointments for people with mental health problems (as many GPs are only offering on the day appointments during the COVID-19 outbreak); being aware that the illicit drug supply chain may be disrupted meaning that drug purity may become variable, increasing the risk of overdose; and considering producing watchlists of vulnerable children who may become less visible during the outbreak.

38. Considering the idea of a staircase over which inequalities accumulate, we need to identify which parts of the healthcare system may contribute to health inequalities; is it existing risk factors before someone engages with healthcare, is it at the point of diagnosis, or treatment? We need to consider the 'inverse care law', and the effects of intersectional disadvantage. In order to do this, it may be useful to collect some individual case studies of disadvantaged people's experiences of having COVID-19, and their journey through the health and social care system.
39. Wales has a range of actions to tackle health inequalities which need to be maintained. There is evidence that a previous health inequalities strategy implemented in England from 1997 to 2010 succeeded in reducing health inequalities.³⁰
40. As we move out of the emergency phase of the COVID-19 response we need to ensure we consider the equity impact of policy decisions – a lot of people have lost their jobs or been precipitated into considerable debt, which will ultimately affect their health so need to think about how the benefits system and other parts of Government will help to mitigate this.
41. Covid-19 has highlighted how risk factors such as obesity can increase the risk of diabetes, hypertension as comorbidities associate with poor outcomes, and reinforced the need for a focus on early years and 'primordial prevention' – preventing risk factors before they occur, and breaking intergenerational cycles of disadvantage, low aspirations and sense of agency, and poor health outcomes.
42. Welsh Government continues to engage with the Welsh Health Equity Status Report initiative (WHESRi) and solutions platform led by Public Health Wales and in collaboration with the World Health Organisation which will produce insights into health inequalities and possible policy responses.
43. Use existing tools like Equality Impact Assessments to provide challenge to optimise policy formulations to be equity enhancing as well as cost effective. Comparing policies on the equity impact plane⁸ is useful way to do this. There is evidence for an equity-effectiveness hierarchy where structural policy interventions are more likely to reduce health inequalities while individual-level agentic interventions may increase health inequalities.³¹
44. Welsh Government and partners should continue to monitor health inequalities through standard datasets across all protected characteristics, to explore the effects of intersectional cumulative disadvantage, like those

³⁰ Barr B, Higgerson J, Whitehead M. Investigating the impact of the English health inequalities strategy: time trend analysis. *BMJ* 2017; 358 doi: <https://doi.org/10.1136/bmj.j3310>

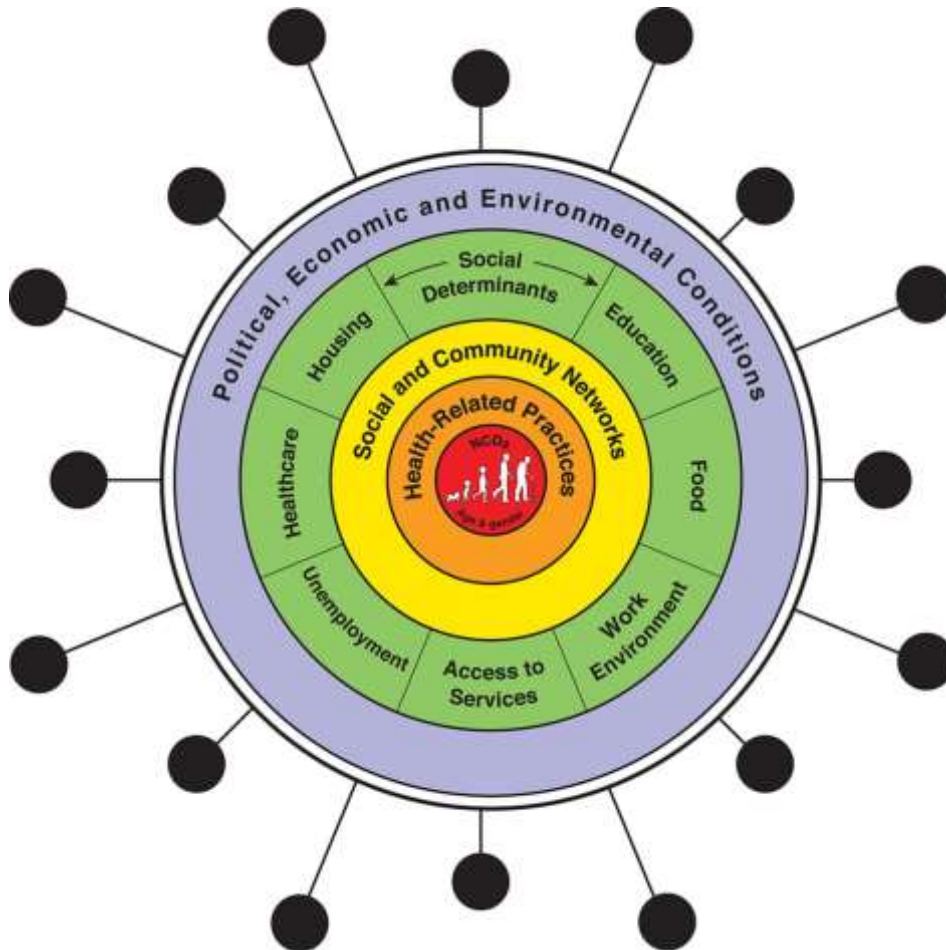
³¹ Adams J, Mytton O, White M, Monsivais P. Why are some population interventions for diet and obesity more equitable and effective than others? The role of individual agency. *PLoS medicine*. 2016 Apr;13(4).

produced by PHW Observatory as well as identifying more timely and spatially granular data feeds to understand health inequalities better, especially factors amenable to effective strategic interventions. Since a high proportion of deaths have occurred in care homes, it may be useful to look at the quality of care home provision and economic disadvantage.

45. Welsh Government should continue to monitor the gap in healthy life expectancy /Years of life lost as overall headline indicators, as set out in the Wellbeing of Future Generations Act – if these start to improve in 2022 then we will know that our actions may have had an effect.

APPENDICES

Appendix 1. Figure from paper by Bambra et al.² The syndemic of COVID-19, non-communicable diseases (NCDs) and the social determinants of health (adapted from Singer and Dahlgren and Whitehead).



Appendix 2. Key Points from PHW Health Impact Assessment (HIA) of the 'Staying at Home and Social Distancing Policy' in Wales in response to the COVID-19 pandemic

Aims

- The report aims to improve knowledge and understanding of the wide-ranging impacts in Wales of the *Staying at Home and Social Distancing Policy*.

Impacts on the key determinants of health and well-being

- The impacts of the policy span a breadth of policy areas including health and social care, business, economy and innovation, equality, justice and law, communities and regeneration, older people, education and skills, children

and families, public sector, housing, environment and climate change, and transport. These are key determinants of health and well-being.

- The report explores these wide-ranging positive and negative impacts across the breadth of policy areas. It includes data covering the type and likelihood of impact as well as the intensity and duration of impact.

Positive impacts

- These include increased community cohesion and resilience, maximising the use and benefits of digital technology across society, reduced pollution levels and a renewed focus on support for the vulnerable.

Negative impacts

- These include an increase in feelings of isolation and loneliness across all population groups as well as associated impacts on mental health and wellbeing. Also the negative impacts on employment and income, particularly for low-income households. Children from low-income households could also be at greater risk of adverse childhood experiences (ACEs).

Report findings

- The findings of the report will be useful in a number of ways including identifying actions to mitigate negative impacts and enhance positive impacts of the policy.

Framework for recovery

- The report suggests there is an opportunity to use The Well-being of Future Generations Act as a policy framework to address COVID-19, along with a range of other urgent issues for Wales such as deprivation, Brexit implications and climate change.

Appendix 3. Assessing and supporting response to mitigate the wider social, economic and equity impacts of COVID-19: *The Welsh Health Equity Status Report Initiative (WHESRI)*

WHESRI provides tools and ways forward to:

- Assess equity impacts of COVID-19 through disaggregated data and analysis
- Assess policy impacts through COVID-19 related policy analysis, such as the HIAs

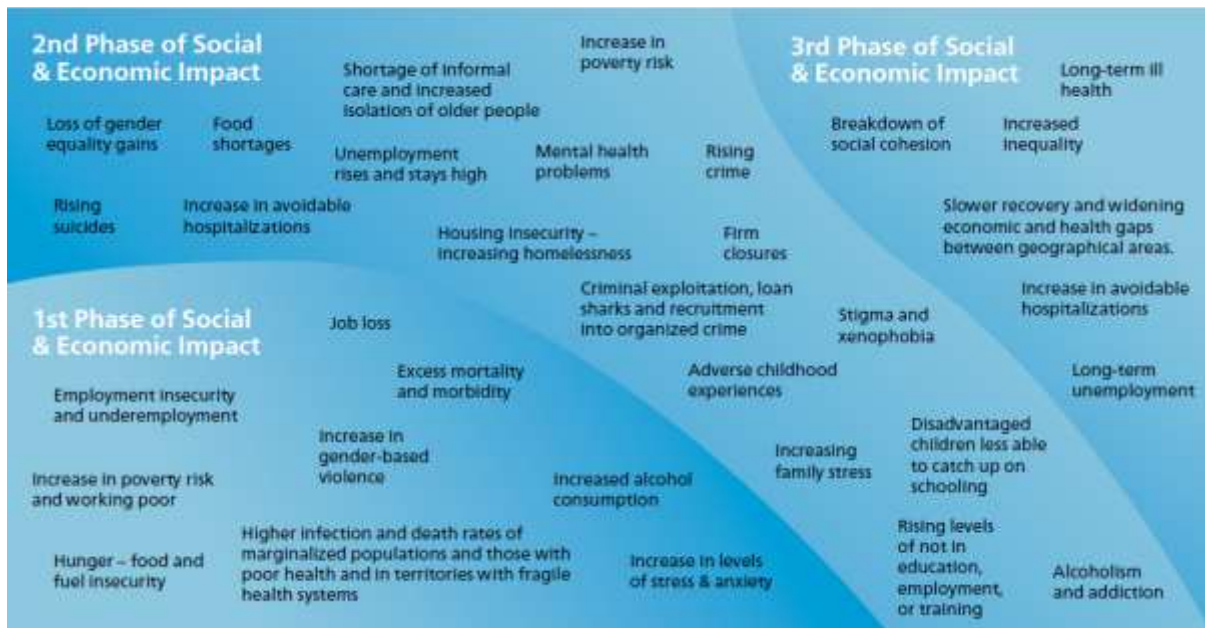
- Assess short-/medium-/long-term economic impacts of COVID-19 through health economics analysis and modelling

Through the digital interactive WHESRi Solutions Platform:

- Monitor trends and changes over time
- Share national and international learning and intelligence across the European Region
- Link data (indicators) with policy action and investment strategies towards sustainable solutions

Appendix 4. Phases of social and economic impact of COVID-19

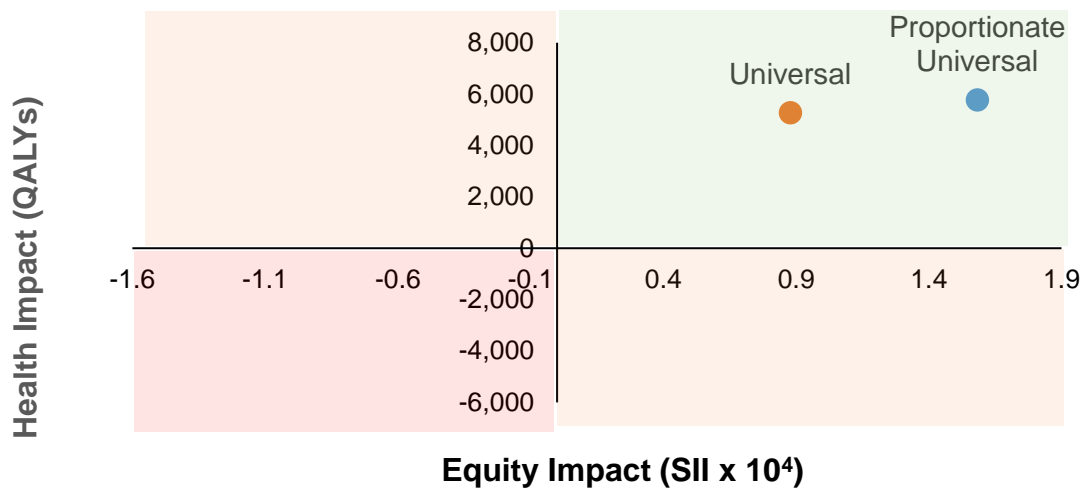
From WHO Europe, April 2020. Strengthening and adjusting public health measures throughout the COVID-19 transition phases.



Appendix 6. Example of health equity impact plane

The health equity plane shows interventions using a measure of net benefit (which may be QALYs) on the y axis, and a measure of change in health inequalities on the x axis. The 4 quadrants of the chart indicate whether an intervention improves health, and increases health inequalities. In this example, both interventions are in the 'win-win' North East quadrant, where they are reducing health inequalities and improving health, but the proportionate universal example is the optimal intervention as it produces more health and has a bigger equity impact.

Figure 1. Example of the health equity impact plane, comparing two hypothetical smoking cessation scenarios, universal, and 'proportionate universal'.

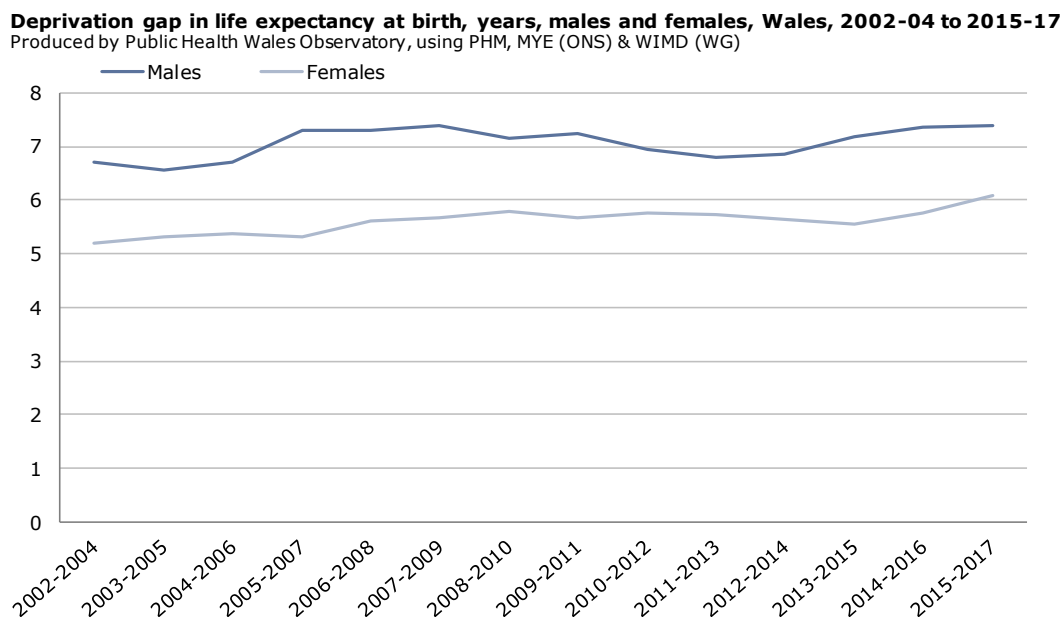


Appendix 7. Data Supplement

Note: This report uses rates but rates are typically expressed over a time period (e.g. one year) whereas the rates in this report are for truncated time periods since COVID data collection began in March. These data were collected as of June 2020 when this report was first written.

1. Health Inequalities before COVID-19

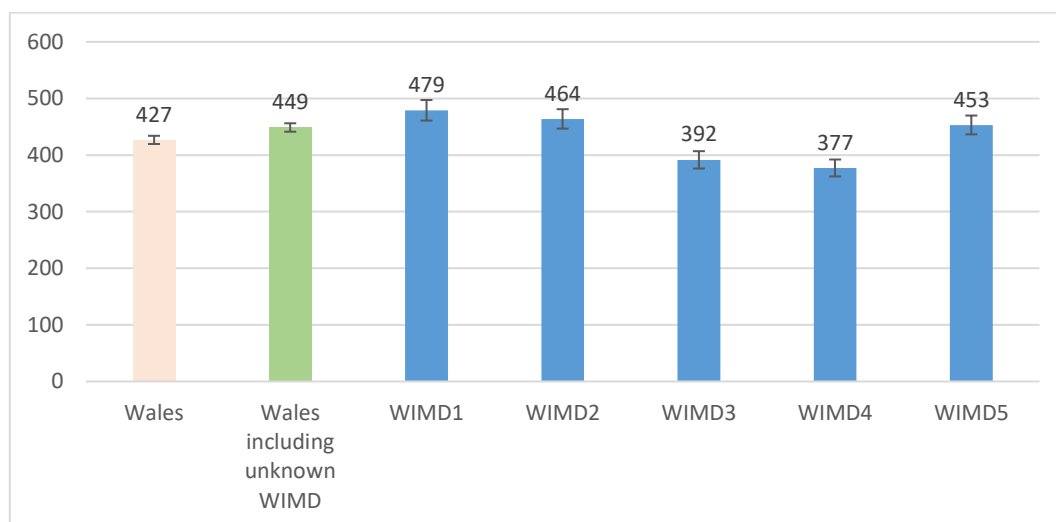
Figure 2. Life expectancy gap between most and least deprived WIMD quintile over time. Source: PHW Observatory. <http://www.publichealthwalesobservatory.wales.nhs.uk/inequalities-and-inequities>



2. Confirmed Cases

Confirmed COVID-19 cases are highest in the most deprived WIMD quintile (WIMD1 on this chart), but do not show a strong relationship with deprivation.

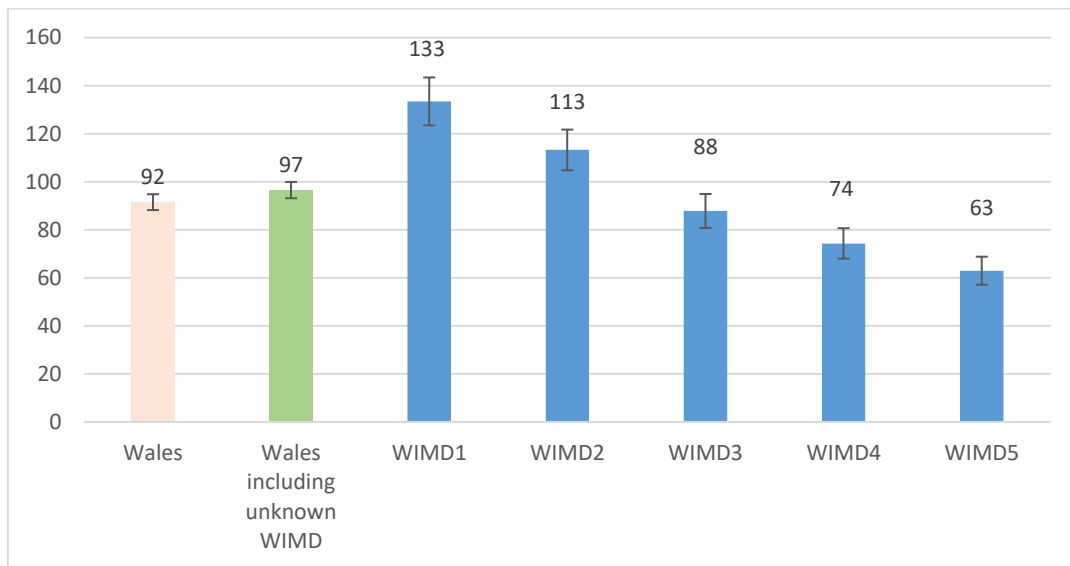
Figure 3. Confirmed covid cases, - Age Standardised Rate per 100,000 for Wales and WIMD quintiles - preliminary analysis based on uncleaned data from PHW Tarian system



3. Hospitalisations

We have incomplete data on hospitalisations by WIMD quintile (data to end of April 2020) but there is already a clear relationship between rates of hospitalisation and deprivation. The age standardised rate for the most deprived quintile is around twice that of the least deprived quintile.

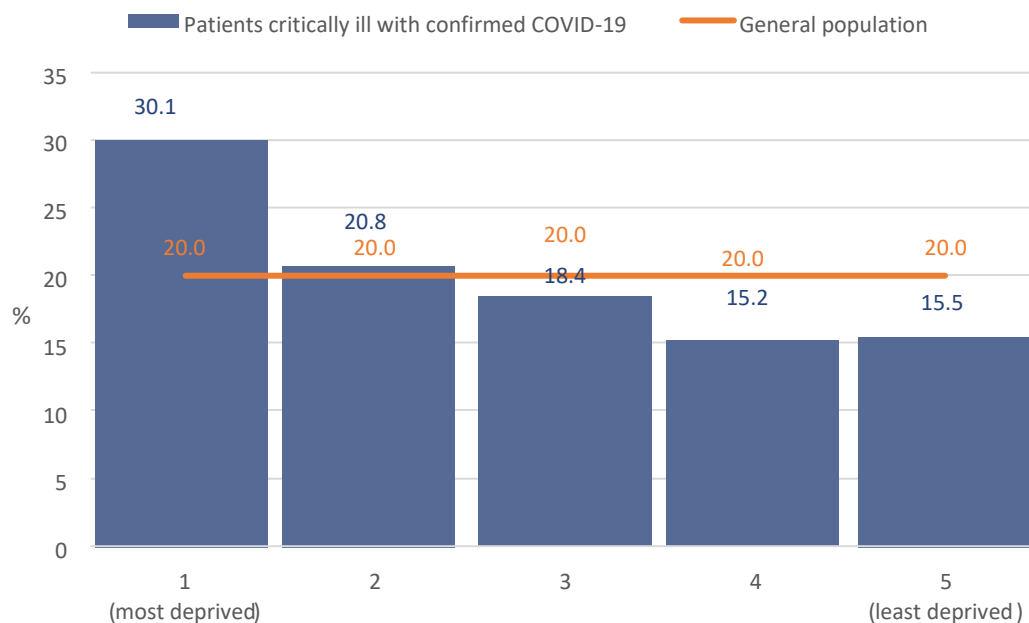
Figure 4. Admissions for Covid - Age Standardised Rate per 100,000 for Wales and WIMD quintiles. Data from NWIS up to end of April 2020.



4. ICU Admissions

Based on ICNARC data for Wales, there is a much greater proportion of patients in critical care with COVID-19 from the most deprived quintile than other quintiles. There were 349 ICU admissions in the ICNARC data up to 4pm on 11th June.

Figure 5. ICNARC Data: Welsh Index of Multiple Deprivation (IMD) distribution (%) of patients critically ill with confirmed COVID-19 up to 11th June 2020.



5. Deaths

The figures below show trends in deaths by Health Boards in Wales. Standardised death rates are much higher in the most deprived WIMD quintile than other quintiles.

Figure 6. Trend in COVID-19 deaths by health board in Wales. Source: NWIS

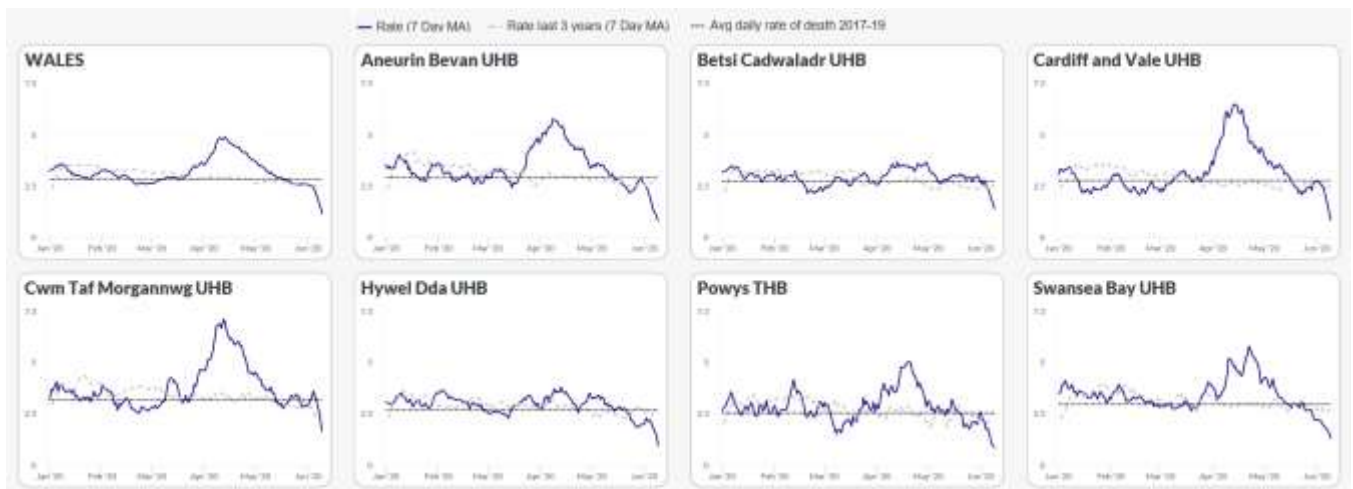
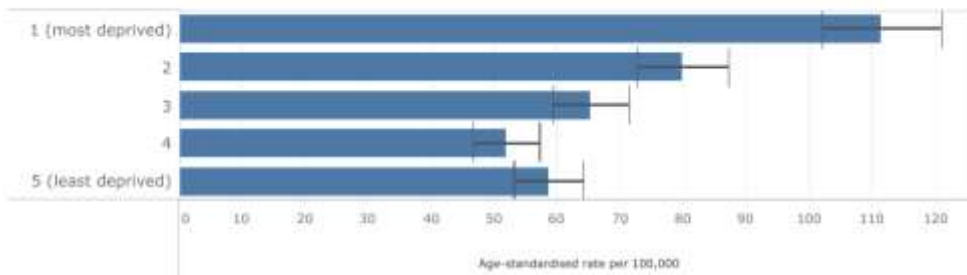


Figure 7. Mortality by WIMD Quintile. Source: ONS data analysed by PHW.

Age-standardised mortality rates, COVID-19 deaths (any mention) by deprivation fifth, Wales, 2020 data to week ending 5 June 2020 (Week 23)



Provisional figures to week 23 for Welsh residents have been produced using deaths data provided by ONS to Public Health Wales. Deprivation fifths are based on WIMD 2019 (WG). European standard population (ESP 2013) has been used to produce European age-standardised rates per 100,000 population. This analysis is based on date the death was registered, not when it occurred. There is usually a delay of at least five days between occurrence and registration. The analysis requires the joining of weekly and daily data using NHS numbers. Figures may differ slightly between those published by ONS due to the use of different extracts of the data at different time periods. Data is therefore subject to change as more information is received. Death registrations are impacted by bank holidays so trends seen in week 19 and 20 should be interpreted with caution. COVID-19 was identified using ICD-10 codes U07.1 and U07.2. COVID-19 (any mention) refers to deaths that had COVID-19 mentioned anywhere on the death certificate, whether as underlying cause or not.

6. Projected unemployment rates in Wales, following COVID-19, and related impact on Longstanding Illness (LSI) and chronic conditions

Without reparative interventions, the unemployment rate is expected to increase sharply from 3.8% in 2019 to about 7% in 2020 and then gradually increase over the projected period. With increased unemployment, **LSI would be expected to increase** gradually, with a higher increment in the percentage of adults with limiting LSI, suggesting implications for wider health and social care services. With current

unemployment predictions, the **percentage of adults with chronic health conditions is projected to increase.**

Figure 8. Actual and projected trends in unemployment in Wales. Data from PHW.

