



C19 National Foresight Group: Intelligence Briefing Paper 17

Data Trends and C19 in Winter

04/09/20

Paper prepared by Dr Lucy Justice, Rich Pickford, Dr Stacey Stewart, Adam Potter, Kelly Smith, edited and synthesised by Dr Rowena Hill
Nottingham Trent University

This briefing synthesizes data with systematic findings from across academic subjects. This evidence of empirical data and academic insight contributes to our existing knowledge on who is most likely to be experiencing adversity in our communities. This intelligence briefing focuses on adherence to regulations within public facing businesses and the impact of Covid-19 on the custody system in the UK.

Contents

Context.....	2
Who is this for?	2
Academic Synthesis.....	2
YouGov Mood 01 September, 2020	3
C19 in the Winter Months.....	6
Summary	6
Any second wave will be experienced differently to the first wave	6
Economic Factors	7
Economic Downturn:	7
Additional Winter Costs:.....	7
Fuel Poverty:.....	7
Mental Health	8
Seasonal Mental Health Effects:.....	8
Mental Health Aftereffects of C19 First Wave.....	8
Economic Effects on Mental Health:	9
Frontline Workers:.....	9
Physical Health	9
Seasonal Influenza:.....	9
Physical Aftereffects of C19:.....	9
Backlog of Delayed and Cancelled Treatments.....	10
Impact of Lockdown on Health:.....	10
Healthcare Capacity	11
Intensive Care Beds:.....	11
End of the Transition Period:	11
Staff Absence:.....	11
Increase in falls	12
Exacerbation of existing conditions.....	12



Increase in Meeting Indoors:..... 12

Severe Weather Events: 13

Recommendations 13

Context

A data review is undertaken by academics at Nottingham Trent University every week to inform the C19 National Foresight Group. Evidence related to Covid-19 psychological, social and economic trends are reviewed to inform, frame and prioritise discussions at national and local strategic decision-making level (LAs and LRFs). The C19 National Foresight Group synthesise data trends and academic findings across disciplines, with evidence of existing vulnerabilities and inequalities to start to build existing and emerging risk or adversity profiles of impacts from Covid-19.

Who is this for?

This is most useful for **national thought leaders, local strategic decision-makers, intel cells and those involved in populating the MAIC.**

Focussed theme this week: This week we are focussing on the development of the Covid-19 approach to understanding the forthcoming impacts for winter in the context of Covid-19. This is a useful tool for local strategic and operational decision makers to understand and prioritise need within their local communities.

Academic Insights:

We are providing a summary of work completed over the last few months and we have integrated them in the context of the winter months to try and predict demand and support. This is alongside a data synthesis on YouGov’s Mood data.

Academic Synthesis

(gathered from systematic literature reviews, rapid reviews, webpages, academic articles, pre-prints, academic expertise)

N.B. This is not a literature review, but a review of the broad area (balanced with Covid-19 specific literature) to see what topics lie within the area to inform future work. Predominantly based on systematic literature reviews and rapid reviews, this is to indicate the size of the literature review should we wish to commission one. Carried out by Adam Potter, Dr Stacey Stewart, and Rich Pickford, with revisions and edits by Dr Rowena Hill, NTU. Please contact us if you require a list of sources consulted to develop your own literature review. Our purpose is to provide an overview of the academic and research foresight on the developing areas of latent and emergent needs in the community.



YouGov Mood 01 September 2020

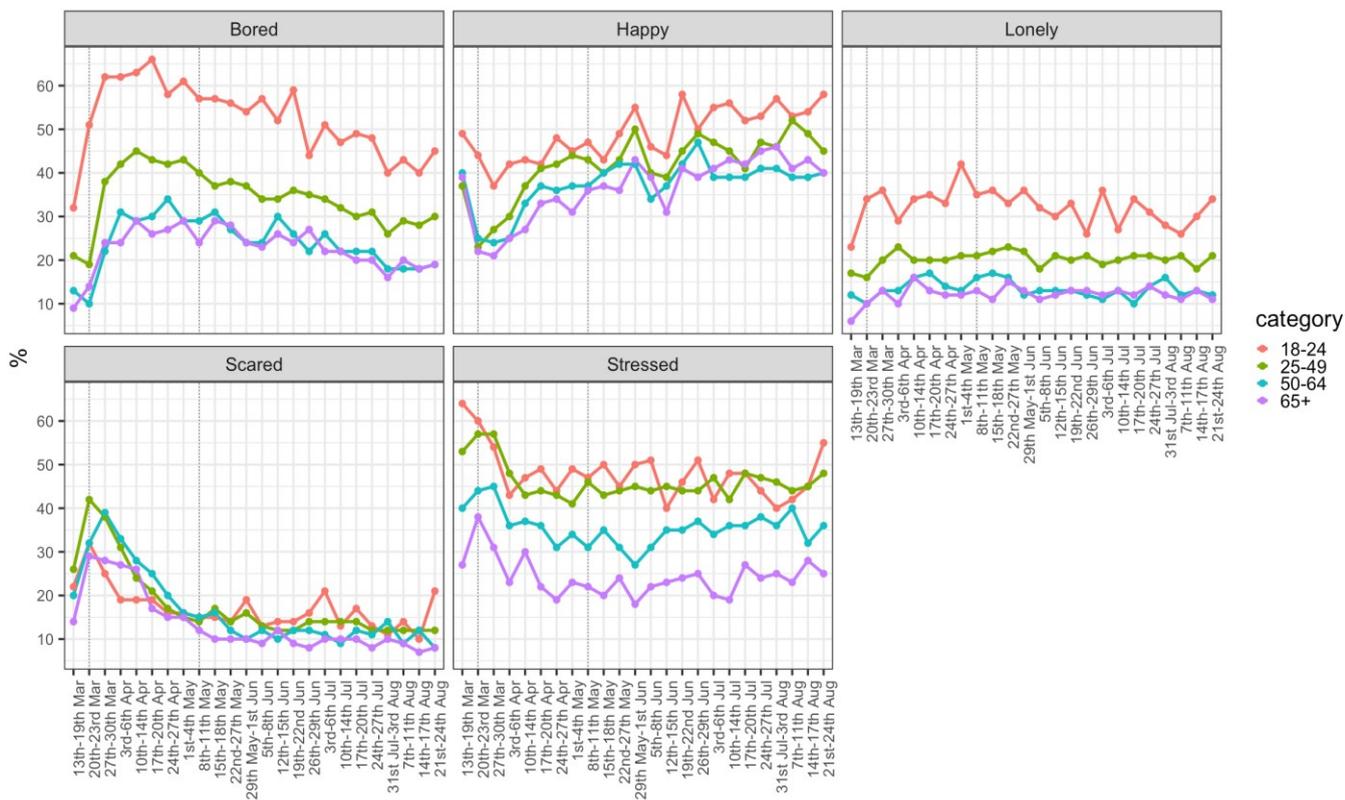
Happiness appears to be plateauing for most groups, although there is a slight rise in the 18-24 year old group, with nearly 60% of this group reporting feeling happy. Non-working individuals continue to report the lowest levels of happiness at around 35%.

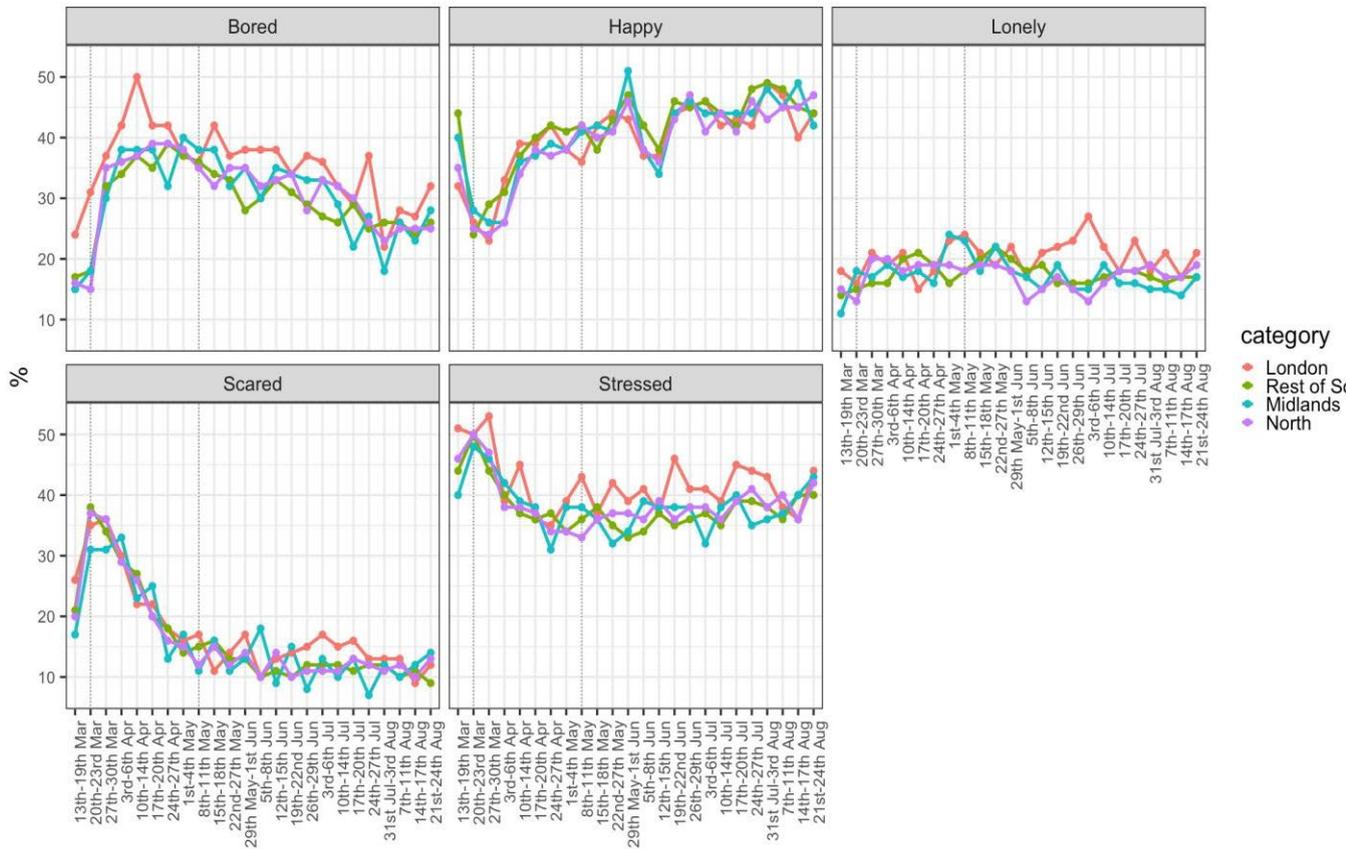
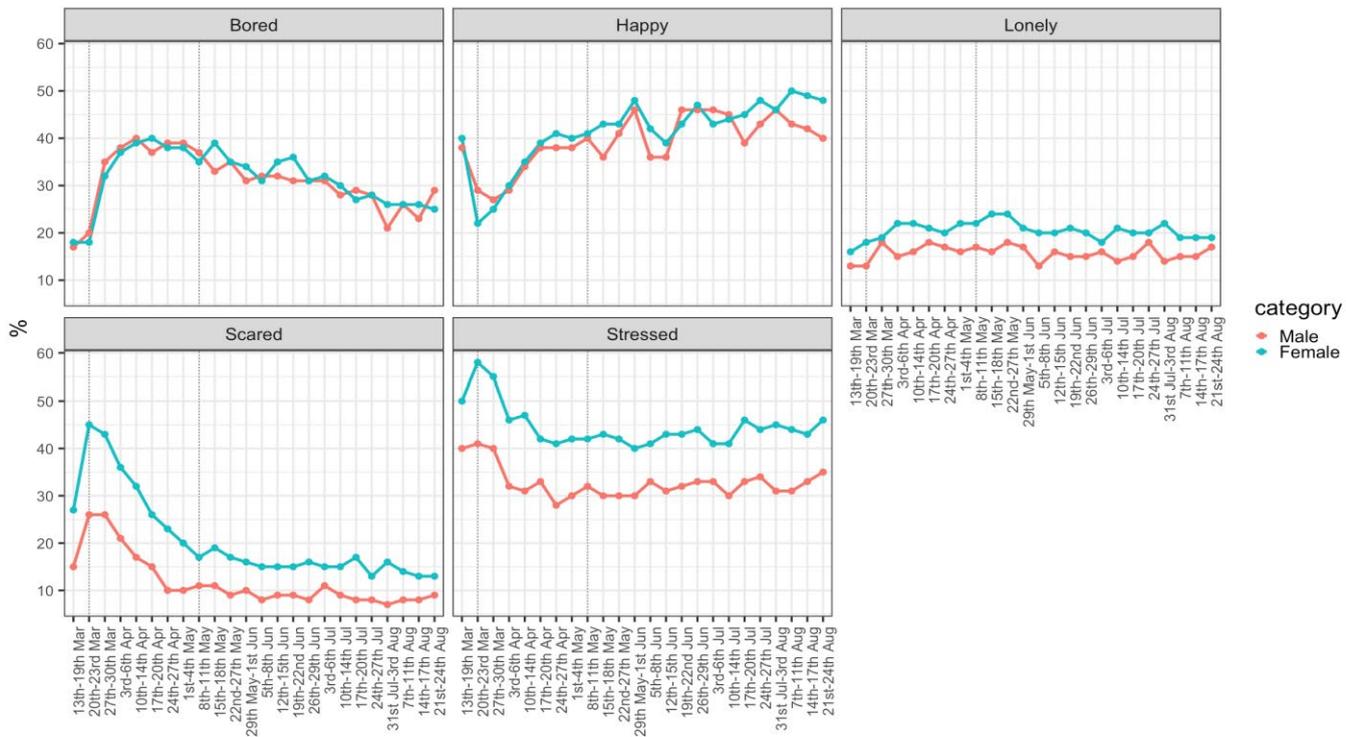
The percentage of individuals feeling bored is plateauing, sitting between 20-30% of individuals for most groups with the exception of 18-24 year olds where 45% of individuals report feeling bored.

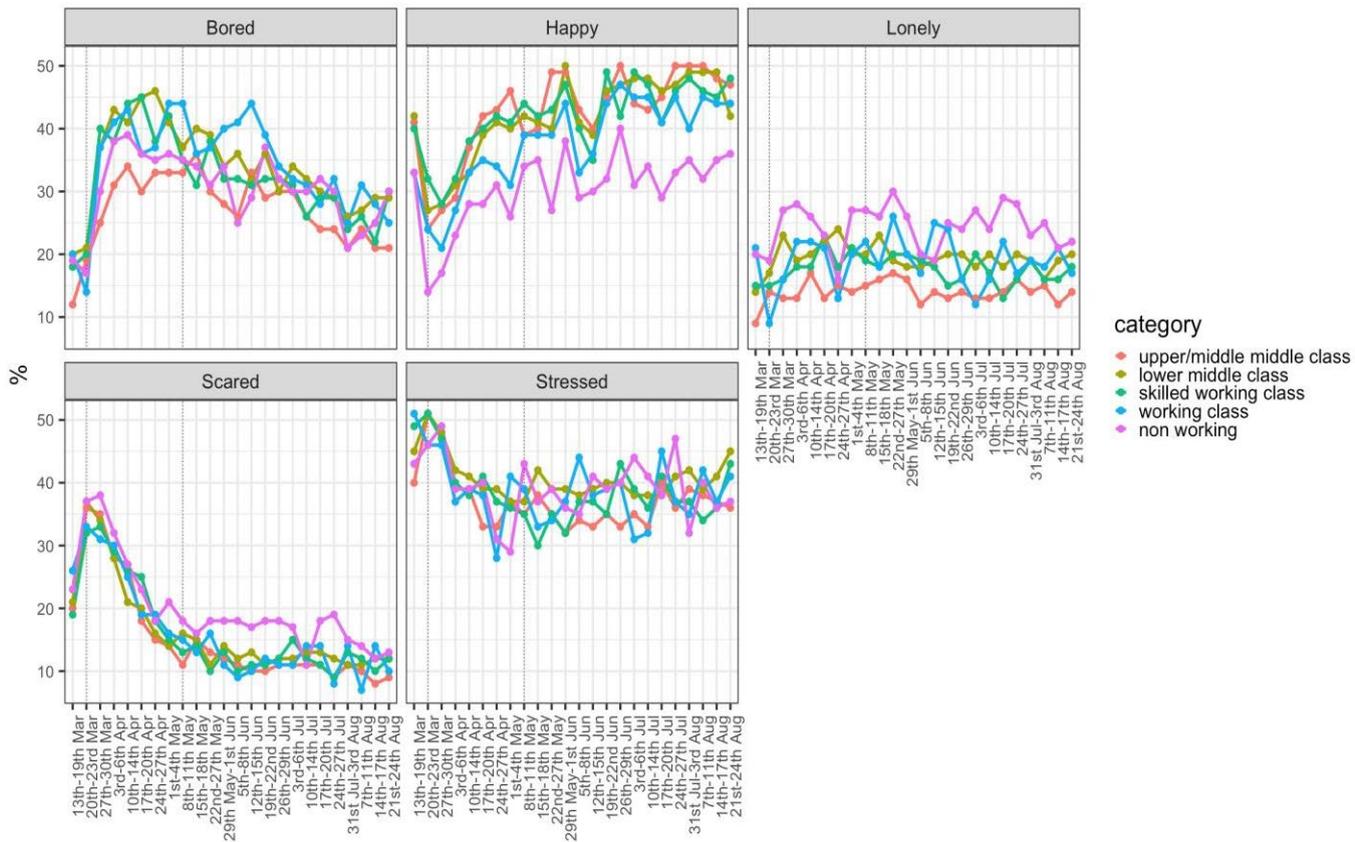
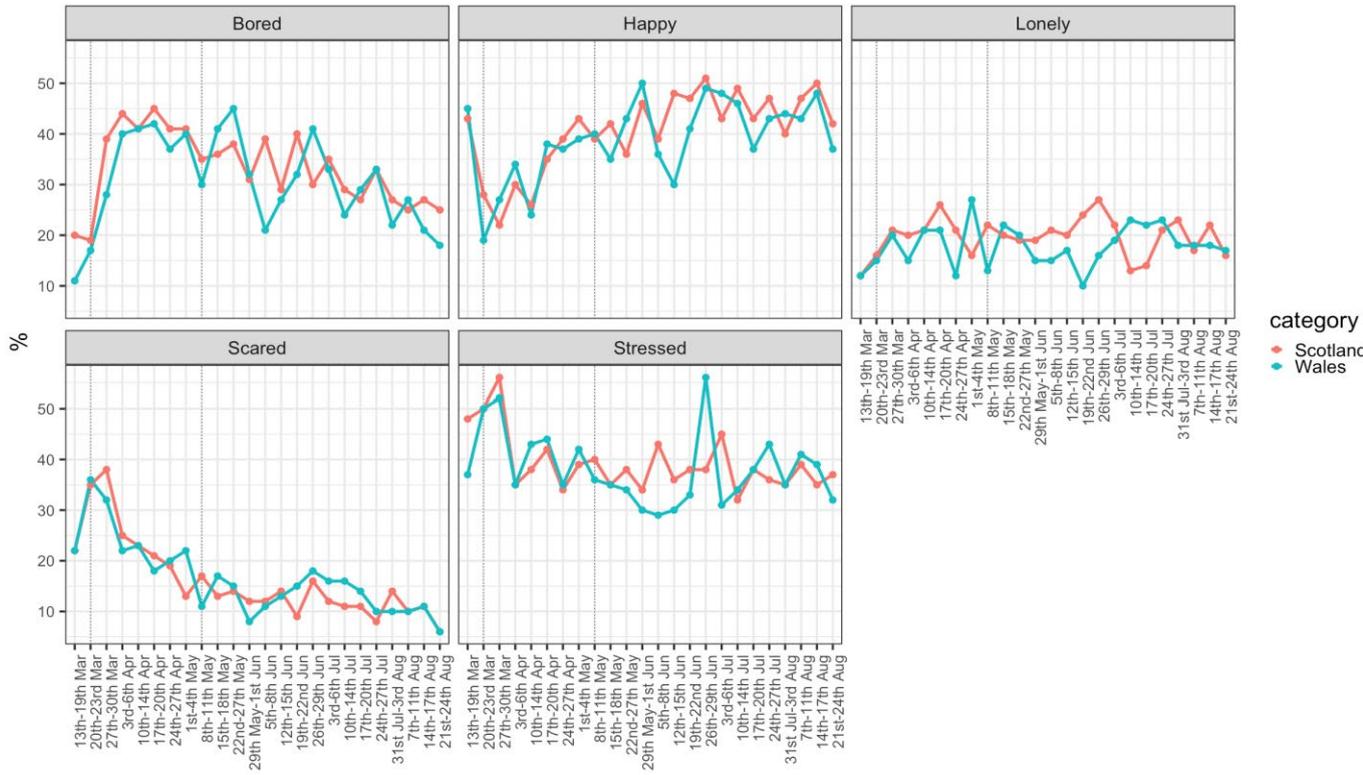
Loneliness continues to plateau for most groups although 18-24 year olds show a rise for the second consecutive week.

Feeling scared has also plateaued for most groups apart from 18-24 year olds who show an increase from 10% of individuals reporting boredom to around 22%.

The percentage of individuals reporting feeling stressed has risen slightly for most groups with the biggest change in the 18-24 year old groups which sees around 10% more individuals reporting feeling stressed as compared to the previous week, rising from 45% to 55%.









C19 in the Winter Months

Summary

The coming winter months will pose unique challenges related to economic factors, mental and physical health, healthcare capacity and the impact of winter weather. The Academy of Medical Sciences (2020) identify four main challenges to prepare for in the coming winter: a large resurgence of Covid-19 nationally, with local or regional epidemics; disruption of the health and social care systems; a backlog of non-Covid-19 care and; a possible influenza epidemic that will be additive to the previous challenges. Large sections of this briefing draw from this report (Preparing for a challenging winter 2020/21), which includes further detail and recommendations on medical considerations and healthcare system preparedness.

Any second wave will be experienced differently to the first wave

We think that a second wave will be experienced differently to the first wave, for a number of assumptions:

- 1) **A Changed Global Context:** A second wave will happen in a more complicated global context regarding the understanding of Covid-19, the political context of Covid-19, the global and geopolitical political context, resources, PPE supply. The first wave was relatively early in the global experience of Covid-19, a second wave in the context of an increasing global response to the pandemic has clear benefits and dis-benefits. We need to think ahead of those to maximise our benefits and resolve our dis-benefits.
- 2) **Understandable Changes in Human Behaviour:** Experiencing a second wave will have a different level of experience and expectation for both those responding and for the public. Asking people to do things they have not done before is very different to asking people to do things a second time, especially when they may have done things previously which may have brought negative outcomes for themselves or people close to them. Those things could be directly related to wellbeing, or a consequence of changed NHS priorities, an impact from the economic consequences of the national lockdown, grief, there are lots of possible experiences. Although the evidence suggests solidarity and compliance will increase with the streamlining, clarity and unity of instructions to everyone, the asks will potentially be different and more nuanced. Clarity of communication and actions/response required by the public is essential.
- 3) **Legacies of the First Wave:** The second wave will be responding within the context of the legacies of the first wave. In other words the impacts of the first wave are still active, within the health service the recovery of the paused services and ongoing health support for survivors of Covid-19, within the community the impacts from lockdown and local health protected areas are still being responded to and resourced, the impacts of the economic response are still being felt. All areas of society have this different context that we are now operating within. The starting point is not the same for a second wave compared to the first wave. Society is in a different place, and so this will have consequences on the experience of the second wave.

The different aspects of risk and threat of winter 2020 will now be considered in turn.



Economic Factors

Economic Downturn:

A major economic downturn due to the C19 appears to be likely, with significant effects over the coming months. In the City, an average of all analyst predictions shows unemployment rising by Christmas to 8.3% of the workforce, or 2.7 million workers. Economists at the London School of Economists expect the situation to be much worse, believing that official figures underplay the dire situation faced by companies and charities alike. This may be compounded by the ending of the furlough scheme and uncertainty around the upcoming end of the transition period with the EU.

Additional Winter Costs:

In addition to this, colder temperature and poor weather conditions may incur additional costs, further straining household finances. Potential costs include: preparing the home for the winter, for example repairing gutters, replacing insulation, and inspecting the furnace or boiler; increased utility bills with increased use of heating and lights in the cold and dark weather; Christmas spending on gifts; car repairs and maintenance due to the weather; winter clothing costs; property damage caused by winter weather and; seasonal income fluctuations, with some people having lower incomes during the winter because of unpaid holidays or lower sales volumes before and after the holidays (<https://www.advantageccs.org/blog/10-reasons-why-winter-can-be-a-budget-breaker-2/>).

These additional costs may impact those already disadvantaged the hardest. Socio- economically disadvantaged communities are more likely to experience poor housing, transport and healthcare access. This includes some BAME communities which are also more likely to live in houses with multiple occupancy and generations. Evidence shows that C19 mortality rates are twice as high in the most deprived areas, and that socio-economically disadvantaged communities live in geographic regions of outbreak (Academy of Medical Sciences, 2020).

Fuel Poverty:

There are currently 2.4 million households in fuel poverty representing 10.3% of all households (Committee on Fuel Poverty, 2020). An economic downturn may increase rates of fuel poverty over the winter months, which is likely to increase the burden on healthcare systems and contribute to excess winter deaths.

Cold weather experienced in the winter months can affect or exacerbate a range of health problems, including respiratory and circulatory conditions, cardiovascular disease, mental health and accidental injury. In some circumstances, health problems may be exacerbated to a degree that they may cause death. Estimates suggest that some 10% of excess winter deaths are directly attributable to fuel poverty and 21.5% of excess winter deaths are attributable to the coldest 25% of homes.

The Committee on Fuel Poverty lay out short term priorities in their annual report (June 2020). In the short term, priorities are to help assist the fuel poor and low-income families to manage the immediate impact of C19 pandemic on their finances and upgrade as many as is reasonably practicable of the remaining fuel poor Bands F and Band G homes. They recommend that Government:

- Amend the Warm Home Discount scheme to be more focused on providing automatic energy bill discounts to fuel poor households; and



- Announce funds in the Comprehensive Spending Review or earlier for the £2.5 billion Home Upgrade Grant which is part of the £9.3 billion new public funding trailed in the Queen's Speech for energy efficiency.

Implementing the Home Upgrade Grant would also assist existing energy efficiency businesses to create jobs and enable them to scale up quickly and start to rebalance the regional economies and help work towards addressing this underinvestment.

Mental Health

A number of factors are likely to combine to lead to increased rates of mental ill health and distress, whilst at the same time, mental health and rehabilitation services have been disrupted, limiting capacity to address these needs (Academy of Medical Sciences, 2020).

Seasonal Mental Health Effects:

Seasonal and winter weather influences have a significant effect on mental health for many individuals. Research conducted by The Weather Channel and YouGov has found that 29% of the population suffers from a degree of Seasonal Affective Disorder (SAD) in the winter. Of these, 8% consider that they suffer from diagnosed SAD- twice as high as previous reports suggest- and a further 21% consider that they suffer from a mild form of SAD. Furthermore, 57% of adults say their overall mood is worse in the winter season compared to the summer, with 66% of adults claiming their mood in the winter makes them feel less active. From all the symptoms of SAD, most participants (40%) said they suffered from fatigue more in the winter ([http://weathergroup.com/SAD%20research%20UK#:~:text=LONDON%20\(24%20October%202014\)%20%2D,\(SAD\)%20in%20the%20winter.](http://weathergroup.com/SAD%20research%20UK#:~:text=LONDON%20(24%20October%202014)%20%2D,(SAD)%20in%20the%20winter.)).

Severe winter weather events such as flooding also have major impacts on mental health, and are linked to depression, anxiety and suicides. Future restrictions on social contact may be felt particularly in winter, when reduced daylight and bad weather make it more difficult to use outdoor space (Academy of Medical Sciences, 2020). This may be particularly influential if individuals are unable to celebrate the holiday season how they usually would (e.g. with family and friends). Continuation or reintroduction of social distancing measures may contribute to social isolation and loneliness, which are closely linked to poor mental health outcomes.

Mental Health Aftereffects of C19 First Wave

The emergent mental health effects of the first wave of the C19 pandemic may begin to become apparent over the coming months. For people infected with C19, there is growing evidence that neurological and psychiatric manifestations are common, and the accumulation of longer term mental disorders and debility including depression, anxiety and PTSD are to be expected given the known impact of severe acute illness on mental health (Academy of Medical Sciences, 2020). Many recovering Covid-19 patients have physical symptoms including pain for a long time. Neurological disorders such as ischemic stroke, headache and seizures are associated with suicidal behaviour. Physical symptoms- especially pain- also increase suicide risk.

There is a high probability that the C19 survivors- especially survivors who had severe C19- are at elevated suicide risk. Stressful experiences such as learning about the diagnosis of C19, fear of infecting others, symptoms of the illness, hospitalization, especially admission to an intensive care unit, and loss of income may lead to the development of anxiety, depressive and post-traumatic stress disorder. A recent study in China indicated that 96.2% of recovering C19 patients had significant posttraumatic stress symptoms (Bo et al, 2020). Around 50% of recovered patients remained anxious after the 2003 SARS epidemic in Hong Kong.



Economic Effects on Mental Health:

As discussed above it seems likely that there will be an economic downturn over the winter months, in addition to the usual increased winter burden on finances. There is strong evidence that economic downturn, difficulty and uncertainty leads to significant increases in distress and higher rates of suicide (see briefing document on Suicide and C19). Academic work has found that increases in the unemployment rate have previously been associated with higher prevalence of depression, alcohol and other substance use disorders and suicide deaths. Work has also found that both perceived job insecurity and unemployment constitute significant risks of increased depressive symptoms in prospective observational studies.

Economic decline during and after the C19 pandemic is likely to have a powerful and harmful effect on mental health and result in an increase in the prevalence of psychiatric disorders and suicidal behaviour. It is important to note that financial problems may also reduce access to psychological support and treatment.

Frontline Workers:

As the pandemic continues, it is likely that levels of burnout and distress in frontline healthcare workers is increasing. This may be compounded when faced with a winter second wave including depression, anxiety, insomnia and distress. Frontline health care professionals who were taking care of patients with Covid-19 have so far been found to have a higher risk of having symptoms of depression, anxiety, insomnia and distress in comparison to other medical professionals.

The Academy of Medical Sciences (2020) state that mental health disorders are the leading cause of long-term staff absence. Previous pandemics and early signals from C19 indicate significant increases in burnout and distress among front line staff, but it is unclear whether this distress becomes a more chronic disorder. They suggest that positive actions to improve staff morale and boost resilience will be important as we enter the winter period.

Physical Health

Seasonal Influenza:

As the UK enters the winter and measures to contain C19 transmission are relaxed, there is likely to be an increase in influenza and other seasonal infectious diseases that will impact on urgent activities in the health and social care systems. This will be dependent on the extent of the easing of restrictions by the start of the respiratory diseases season (typically November/December for influenza but starting earlier for other diseases such as respiratory syncytial virus) (Academy for Medical Sciences, 2020).

A generalised increase in respiratory infections over the winter could rapidly overwhelm test and trace capacity due to the overlapping symptoms with C19. It also could prompt worry and fear in people who do not know which disease they may have contracted. Fear of being infected with C19 has been linked to increased risk of suicide: Bryan, Bryan and Baker (2020) found that concerns about life-threatening illness or injury during the C19 pandemic were uniquely associated with an increased risk of attempting suicide, and fear of contagion drove suicide during both the Spanish Flu and the SARS epidemics (Sher, 2020). Fear of contracting C19, not just actually having the disease, is sufficient to drive some individuals to suicide: Higher rates of respiratory symptoms may increase the number of individuals that fear they have the disease.

Physical Aftereffects of C19:

The long-term consequences of C19 in those that recover from acute infection are uncertain. Researchers working in this area suggest that possible effects include pulmonary fibrosis,



pulmonary and systemic vascular disease, bronchiectasis, chronic fatigue, sarcopaenia and deconditioning.

There is good evidence to suggest persistent physical and psychological sequelae and increased use of healthcare services following intensive care unit (ICU) admission for severe lung injury. Paediatric inflammatory multisystem syndrome temporally associated with severe acute respiratory syndrome coronavirus is a rare post-infectious immune mediated response to C19 infection described in children and some younger adults. The wider impact of similar immune-mediated diseases triggered by asymptomatic C19 infection is unknown. Given the recent studies suggesting confirmed cases of re-infection of different strains of Covid-19, this suggests the need to consider a cohort of Covid-19 survivors from the first wave who would then be more compromised as chronic or complex health conditions, which would make them more susceptible to re-infection from a second strain of Covid-19.

The magnitude of the burden of post-C19 disorders to the NHS will become more apparent after six months follow-up but are likely to be significant. While the majority of burden of long-term follow-up of patients with C19 is expected to fall to respiratory and infectious diseases clinicians, the extent of systemic manifestations from C19 suggests that inpatient and outpatient services across the UK will have to be prepared for an increase in patients with multimorbidity presenting with post-C19 complications. Some post-C19-symptoms may have multiple possible aetiologies – particularly mental health, cognitive impairment, chronic pain and chronic fatigue – which will benefit from a multidisciplinary approach for diagnosis, treatment and long-term management to avoid long-term disability (Academy of Medical Sciences, 2020).

Backlog of Delayed and Cancelled Treatments

The C19 pandemic led to the suspension of elective hospital work across the NHS on 17 March 2020 in order to increase acute and intensive care capacity. For patients with chronic diseases, the suspension of elective services and routine outpatient appointments during the pandemic has increased the backlog of patients waiting to be seen. This has also led to a substantial increase to the NHS waiting list, which will continue to grow as services operate at reduced capacity. Recent estimates suggest that the overall waiting list could increase from 4.2 million (pre-C19) to approximately 10 million by the end of the year in England.

Of note, there is already evidence of a delay in seeking medical attention in primary and secondary care for acute medical conditions due to patients' concerns regarding C19 infection or a desire not to overburden the health service. If this continues, it will lead to later patient presentation, more severe disease burden and an increased risk of complications. The suspension of screening programmes and other routine surveillance programmes may also lead to an increase in diseases presenting clinically this winter. According to NHS England, the number of urgent cancer referrals made by GPs in April 2020 dropped by 60% compared to 2019. Similar significant drops were seen in Scotland, Wales and Northern Ireland. This is likely to lead to an increase in referrals that will need to be treated quickly or urgent emergency presentations, which will place additional pressure on the NHS through winter and beyond (Academy of Medical Sciences, 2020).

Impact of Lockdown on Health:

Consideration also needs to be given to the potential wider physical and mental health implications of the lockdown, which has likely negatively impacted on activity levels, calorie and alcohol intake, and mental wellbeing, with potentially greater impacts on lower socio-economic and some BAME groups. Such factors may lead to a 'deconditioned' and more vulnerable



society, less likely to cope with the usual winter pressures and additional challenges (Academy of Medical Sciences, 2020).

Healthcare Capacity

Intensive Care Beds:

The NHS rapidly scaled up critical care capacity in the first wave of infection in spring 2020, with many organisations using theatre recovery or other critical parts of their estate. These will need to be available this winter to provide greater resilience for urgent activity and time critical surgery, in addition to the seasonal increase in critical care capacity requirements. The Government also provided funding to access capacity in the independent sector, but The Academy of Medical Sciences (2020) state that funding has not yet been allocated for access this winter.

In addition to the rapid reorganisation of hospitals to accommodate the increase in numbers of patients that were admitted with C19, staff were reassigned from elective care wards to C19 care, and extra healthcare workers were recruited from research and recent retirement. Remobilisation of resources at such scale is unlikely to be possible this winter, when wards will need to resume normal function to address seasonal healthcare demands and other delayed clinical care that has become urgent as a consequence. Discharge of patients to domiciliary and care homes will also be slowed by a requirement to test individuals for C19 and other viruses prior to transfer. These factors will impact both on bed capacity and on healthcare staff resources. It will be difficult to expand the healthcare workforce further than that already achieved, especially given the likely impact on staff sickness absence this winter (Academy of Medical Sciences, 2020).

End of the Transition Period:

Winter 2020/21 will also coincide with the end of the transition period for the UK's departure from the EU. This may pose additional challenges for recruitment to fill NHS and social care staff vacancies, which currently stand at 9% of posts (100,000 staff). Indeed, both the health and social care sectors have become increasingly reliant on EU migrants (Academy of Medical Sciences, 2020).

Staff Absence:

The implications of C19 for workforce planning and management are challenging. It is largely unknown to what extent sickness absence and post-C19 syndromes have affected, and will affect, the capacity of the health and social care workforce. Though national sickness absence data from March 2020 onwards has yet to be published, the Academy of Medical Sciences (2020) report significantly higher levels of absence in the first wave of C19 infection due to staff experiencing C19 symptoms, shielding or self-isolating, in addition to the usual sickness absence, with high levels of regional variation. Staff sickness linked to the use of agency staff is also a risk factor for transmission of C19 between hospitals and other care settings. Data on agency staff use and C19 infection in this group are also needed. It is also not known to what extent school and nursery closures have impacted the workforce. As we go towards winter, further reactive school and nursery closures could have an additional major impact on the health and care workforce. The need for healthcare staff to self-isolate when symptomatic may also lead to high levels of absence during the winter months, exacerbating winter pressures.

The disproportionate effect of C19 on some BAME groups is a particular concern. In England, 20.7% of the NHS workforce and 21% of the adult social care workforce (67% in London) are of BAME background (Academy of Medical Sciences, 2020). Alongside the staff absence implications, the human and social cost of this impact is yet to be known.



Weather

In the winter months, lower temperatures and humidity may facilitate C19 transmission, as is the case for other endemic respiratory viruses. Increased spread may occur as a result of the direct weather effect on virus survival (e.g. temperature and humidity; the effect of climatic conditions on host resistance to infection, human immune system function, seasonal variations in vitamin D); and the influence of weather on behavioural changes (Academy of Medical Sciences, 2020). Increases in falls and the exacerbation of existing conditions caused by winter weather may also contribute to burden on the healthcare system.

Increase in falls

Falls and associated fractures in the elderly are more common in the winter months, though the number of emergency admissions to hospitals due to falls on snow or ice varies considerably from year to year. Colder temperatures are associated with increased admissions and this is greater for temperatures below 1°C. Previous harsh winters have doubled the number of trauma procedures performed at NHS hospitals. While analysis of previous years' data will allow planning for the increased capacity to deal with winter falls and fractures, a particularly harsh winter, such as occurred in 2009/10, could dramatically increase requirements (Academy of Medical Sciences, 2020).

Exacerbation of existing conditions

The increase in backlog combined with a reduced ability to review patients face-to-face, reduced access to routine investigations, and avoidance of or difficulty in accessing care during the pandemic is likely to result in an increased number of poorly-managed chronic conditions or undiagnosed conditions this winter. There is good evidence that the onset of winter can exacerbate symptoms of chronic diseases such as ischaemic heart disease, asthma and arthritis. This suggests an increased risk of flare or crisis of chronic diseases over winter that will necessitate acute medical input.

Further, it has been suggested that comorbid chronic disease may create greater risk of severe C19 disease or death due to higher inflammatory burden, pathophysiological differences in susceptibility or response to infection, and risk of organ damage. Some BAME groups have high prevalence of diabetes, which has been associated with C19 death; cardiovascular disease, which may increase risk of complications and cardiac injury; renal disease, which may increase risk of acute kidney injury; hypertension, which has been linked to C19; and obesity, which has a potential link to severity at a younger age. These groups are also at potential greater risk of admission for acute respiratory tract infections (Academy of Medical Sciences, 2020).

Increase in Meeting Indoors:

Due to less daylight and adverse weather, more people stay indoors for longer periods during winter. In addition, people are more likely to drive or use public transport than walk or cycle, and people are more likely to favour social activities that are inside, increasing the chance of close interactions with more people. Transmission risk of respiratory infections increases exponentially the closer two people are and increases with the duration of exposure. Coughing, sneezing and activities such as singing increase the rate of droplet and aerosol generation. Concurrent winter viral infections (influenza, common cold, norovirus, etc.) can increase the risk of sneezing and coughing to provide more vectors for C19 (Academy of Medical Sciences, 2020).

The Academy of Medical Sciences (2020) list three further ways that transmission of C19 may increase during the winter months:



Aerosol transmission:

Poor ventilation and overcrowding increases the density of virus particles accumulating in a room, both in the air and on surfaces leading to greater risk of transmission. Concentration of viral particles in the air is inversely proportional to the ventilation rate in a room. A large proportion of UK buildings are naturally ventilated and rely on occupants opening windows and vents for ventilation. This includes domestic environments, schools, workplaces and healthcare environments, including care homes and hospital wards (including respiratory departments). In cold, wet or windy weather people are reluctant to open windows as they create cold draughts and hence, they often have lower ventilation rates in winter. This can be a particular challenge in modern airtight buildings which have very low infiltration rates for energy efficiency, and for people on low incomes who are trying to keep heating costs down. Low humidity winter conditions also allow for greater evaporation of respiratory droplets, resulting in the potential for smaller aerosols to remain suspended for longer.

Surface contact transmission:

Evidence suggests viruses can persist on surfaces at a level that may pose a risk for up to 48 hours, while in most environments it is unlikely to persist in air at a level that poses a risk for more than 30 minutes after an infected person leaves. Lower humidity, cooler temperatures and darker conditions during winter months are likely to favour this persistence and increase the risk of transmission via contaminated surfaces and objects.

Changes in susceptibility:

Poorer quality housing tends to have lower temperatures due to poor insulation, inadequate heating or inappropriate use of heating. Low temperatures can reduce the body's immunity to all viruses as well as favour virus survival. There is also a greater risk of developing community acquired pneumonia and having cardiovascular events with low indoor temperatures below a minimum of 18°C. These households can also have a higher density of occupants. In more modern well-insulated homes central heating may reduce levels of relative humidity below 40%, which can dry out the nasal mucosa and reduce muco-ciliary clearance that increases susceptibility of C19 and influenza infection. There is evidence that some airtight homes have high concentrations of indoor air pollutants, which may also influence susceptibility to respiratory conditions. Long-term home working, isolation of vulnerable people or a further period of lockdown in winter months may raise related issues across all housing.

Severe Weather Events:

C19 related logistics (e.g. delivery of tests and test results) may be impacted by seasonal weather, and especially by any severe weather events such as snow fall and flooding (Academy of Medical Sciences, 2020).

Recommendations

We are aware LRFs would like to allocate resource and energy to plan, exercise and train for concurrent events. We advocate this as a top priority within each LRF.

Integrated-risk Training Scenarios

We advise the planning, training and exercising to develop scenarios which draw across these areas and link between them, rather than exercising each area discretely and plan/exercise into the Spring. The winter of 2020 and Spring of 2021 are likely to be high demand for our local public services and exhaustion and wellbeing of staff remains a risk



throughout this period. As we exit the pressures of the early winter months (D20) and continue into the late winter/early Spring months of 2021, this is when we see the peak in winter pressures on the NHS when a year on year pattern is plotted. The winter pressures peak as late as January/February, the same months the Environment Agency also prepare for Spring flooding events.

Health Protected Context

Training and exercising a response to the areas above and concurrent weather events should be a high priority for LRFs, and these should be completed in the likely context of a local health protection area, or a second national lockdown following the movement and connection of bubbles in the late Autumn through school and university re-start.

MAIC Informed Local Scenarios

We advocate each LRF consults with their MAIC leads and uses them to inform the details of the training and exercising. The areas mentioned throughout this report can be detailed and articulated through establishing local estimated patterns from the MAIC expertise and data sets.

Regional Knowledge Exchange

We advocate that each LRF shares its likely scenarios and exercises with their geographical partners to ensure a robust response through regional asset management and the agreement of mutual aid in likely areas of risk in the topics mentioned above, considering the risk of moving personnel between geographical areas in the context of a local health protection area.

MHCLG National Risk Management

The MHCLG dashboard, GLO network and enhanced RED capacity should plan ahead through intelligence gathering across regions, but also through the analysis of their dashboard data to identify areas of support that have been highlighted previously and are likely to be further risks in the context of a second wave.



What we do in this analysis, how and why (caution when interpreting)

A data review is undertaken by academics at Nottingham Trent University every week to inform the C19 National Foresight Group. Data related to Covid-19 UK social and economic trends is reviewed to inform, guide and help prioritise discussions at national and local decision-making level (LRFs). The C19 National Foresight Group are keen to ensure that the data included has been ethically governed and structured to adhere to open access, data protection and GDPR regulations and principles. For example, the data is to be manipulated in an ethical manner, and the content and context is to be fit for purpose in terms of the audience and decision timeframe in question.

Activity Completed

The following findings are based on a review of multiple data sources exploring Social, Economic, Psychological, Community aspects of Covid-19 in the UK. These could include:

- ONS: covers wellbeing, perceived financial precarity, objective indicators of UK economy, household financial pressures, perceived impact on work life
- Ofcom: Public perceptions of information to help manage Covid-19, perceptions of preparedness and action
- ONS: Deaths from Covid-19
- Gov UK: Relevant contextual information
- Census and geographical data: Geographical/location specifics
- IMD: Socio economic trends associated with spread or primary/secondary impacts
- LG Inform: Population, social, demographic, lifestyle and health data
- You Gov: Public mood
- NTU's own analysis of open source data (lead by Lucy Justice and Sally Andrews)
- Other academic survey work published within the last week

Limitations for Consideration: The National Foresight Group have been keen to quality assure the data assumptions, including the equity and representation of participants.

Internet use data indicates representational issues in older adults

Almost all of the data sets draw from online surveys. With this in mind the statistics behind online access were explored. The following is to be considered in the assumptions taken from the data sets.

The table below shows the estimated number of people who have never used the internet. The data are drawn from ONS 2019 Internet users:

Table 1: estimated number of people who have never used the internet

Age	Estimated number of people who have never used internet	Age	Estimated number of people who have never used internet
16-24	20,000	55-64	389,000
25-34	28,000	65-74	869,000
35-44	46,000	75+	2,482,000
45-54	158,000	Equality Act Disabled Not	2,336,000
		Equality Act Disabled	1,657,000

Table 1 shows that caution should be applied when considering the inferences made in the rest of the document as older adults could be underrepresented in the samples. The estimated numbers of those that have never used the internet begins to increase around age group category 35-44, the subsequent age categories increase by approximately twice as many non-users as the age category that precedes it. The numbers of 'over 75s' (2,482,000) for example not using the internet equates to almost a million more than the total of the other age group categories (1,510,000).

The interpretation of data should also consider the proportion of people known to be disabled by government agencies who do and do not meet the Act's criteria. These numbers make up 3,993,000 of the population, so this should be considered in the representativeness of the data.

END.

Contact us: If you have any questions about this output please email: C19foresight@ntu.ac.uk
Corresponding editing author Dr Rowena Hill is seconded full time to provide academic representation on the C19 National Foresight Group, and works at Nottingham Trent University.