

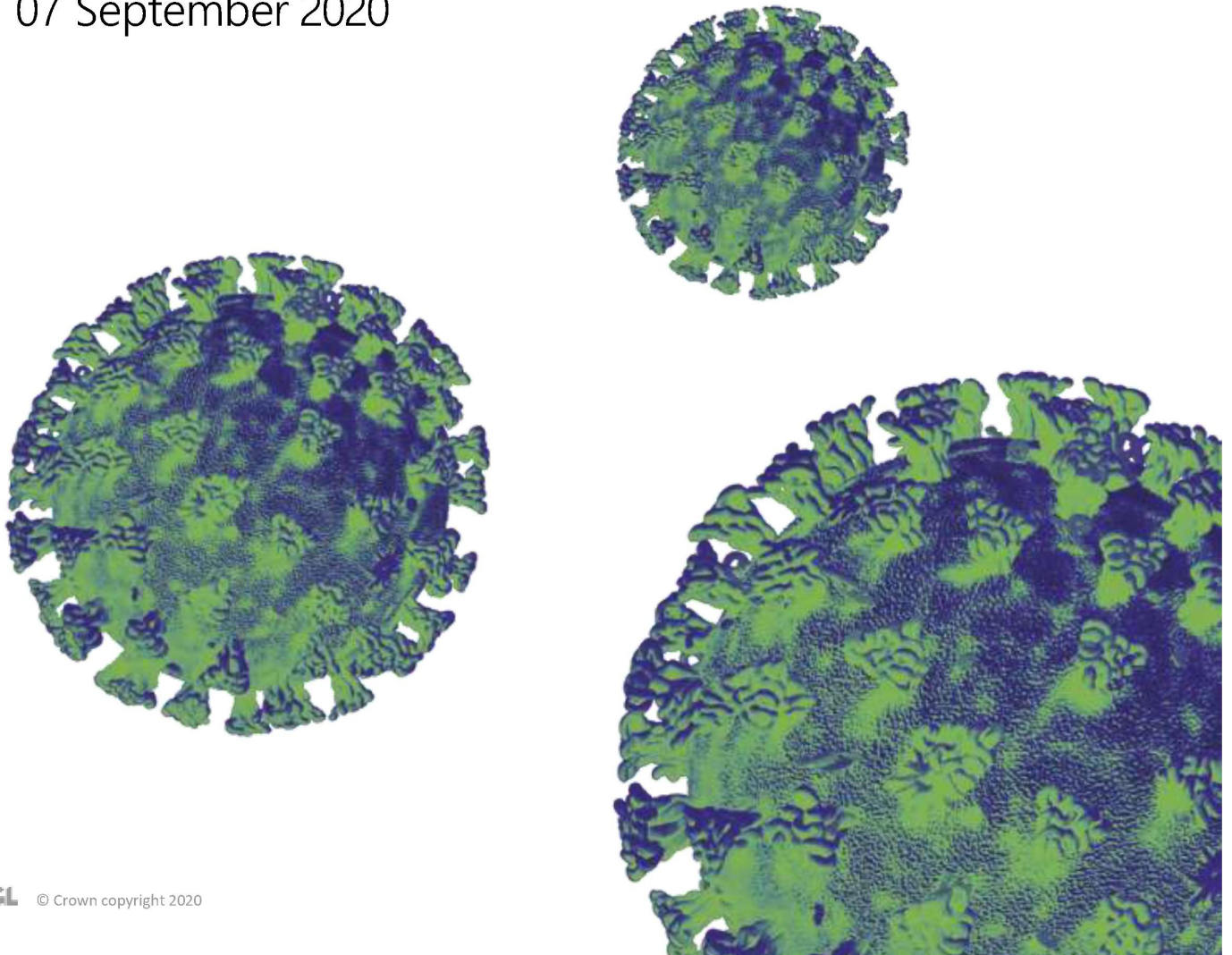


Llywodraeth Cymru  
Welsh Government

# Technical Advisory Group

## Preparing for a Challenging Winter in Wales 2020/21

07 September 2020



## **TAG Report: Preparing for a challenging winter in Wales 2020/21**

<b>TAG Report: Preparing for a challenging winter in Wales 2020/21</b> .....	1
1. <b>Executive Summary and Key Recommendations</b> .....	3
2. <b>Introduction</b> .....	5
3. <b>Technical Advisory Cell</b> .....	8
4. <b>Technical Advisory Group</b> .....	8
5. <b>UK Scientific Advice for COVID-19 in Wales</b> .....	10
6. <b>COVID-19 Modelling and Statistical Analysis</b> .....	11
7. <b>Risk Communication and Behavioural Insights</b> .....	12
8. <b>Testing and diagnostics</b> .....	14
9. <b>Socioeconomic Harms</b> .....	15
10. <b>Children and education</b> .....	18
11. <b>Research and development</b> .....	19
12. <b>International</b> .....	25
13. <b>Environmental Science</b> .....	27
<b>Annex I: Main AMS Recommendations</b> .....	29

## 1. Executive Summary and Key Recommendations

- The purpose of this paper is to set out the likely requirements for scientific and technical advice related to COVID-19 in Wales in order to help prepare for what might be a challenging winter.
- The Technical Advisory Cell (TAC), the internal scientific advice coordination structure and Technical Advisory Group (TAG), the wider group of professional advisors and external expert advisors was established in February 2020 to provide scientific and technical advice to policy leads and Ministers. The formation and development of TAC and TAG reflects the need for the rapid evaluation and synthesis of evolving technical and scientific information to support policy development.
- Like SAGE, the scientific advice giving structure for Welsh Government has been very busy and come under significant scrutiny. As of 27 August 2020 there have been 70 full TAG meetings with at least 375 papers covered, not including subgroup discussions. Over 34 technical statements and updates have been published on the Welsh Government website, with over 38K hits. TAC and TAG has endeavoured to keep a pace with demand for synthesis and sightedness of evidence that is used to inform policy development and decision making in real-time.
- This paper builds upon, but does not replicate the Academy for Medical Sciences report on preparing for challenging winter.
- The main recommendations of this paper are:
  - **Recommendation 1.** Strengthen TAC so that it is more resilient for winter and is staffed appropriately to deal with different activities.
  - **Recommendation 2.** Formation of new subgroups to cover socioeconomic harms, risk communication/behavioural science and environmental science.
  - **Recommendation 3.** Ensure contributions from academic experts are recognised either through REF or non-public official time.
  - **Recommendation 4.** TAC to ensure that there is a coherent and resilient approach to UK level scientific and technical advice for Welsh Government, advising Ministers and policy leads as required.
  - **Recommendation 5.** Technical Advisory Cell to work with stakeholders to develop and agree a reasonable worst case scenario for winter in Wales.

- **Recommendation 6.** Welsh Government to use policy model outputs to both prepare and test winter plans.
  - **Recommendation 7.** TAC to work with stakeholders to develop and agree sensitive indicators and circuit breakers to help inform decision-making.
  - **Recommendation 8.** To work with policy makers and stakeholders to ensure behavioural considerations are incorporated into the decision making process at the earliest opportunity.
  - **Recommendation 9:** To encourage risk communication activity that emphasises the implications for individuals and wider civic society, is appropriately targeted and co-produced where feasible.
  - **Recommendation 10.** Continue to develop technical advice for testing; ensuring advice reflects current scientific knowledge, emerging trends and SAGE outputs such that it supports rapid policy development in Wales.
  - **Recommendation 11.** Develop socioeconomic harms subgroup in order to advise on the costs and benefits and distributional effects of interventions in order to minimise harm while maximising C-19 control.
  - **Recommendation 12.** Provide support to the Schools and Education subgroup to ensure resilience.
  - **Recommendation 13.** Recommend establishing and funding a Welsh COVID19 evidence centre to rapidly progress delivery of research for evidence based policy formulation and decision making.
  - **Recommendation 14** Take forward an international subgroup to ensure a consistent and responsive approach to monitoring and reporting observations and different international approaches to COVID-19 via TAG
  - **Recommendation 15:** Allocate resources to establish and Environmental Science subgroup of TAG working closely with academics and experts from Welsh Universities, Public Health Wales and Welsh Government in order to provide independent advice to policy leads and decision makers.
- As well as the recommendations above significant activity is generated from SAGE and its supporting subgroups, most of which are commissions from UKG Departments. A key objective of TAC and TAG is to Interpret SAGE, COBR and other relevant working group outputs into a Welsh context. Similarly, TAC is commissioned directly by policy leads and Ministers to undertake work. As such, there will be further work undertaken by TAC, TAG and its subgroups in the coming months that is not included in this paper.

- A separate Welsh Government Health and Social Care paper on preparing for winter has been commissioned, and will cover a broader review of health and social care functions and activities within Wales.

**Table 1. SAGE (TAG) Priorities**

<ul style="list-style-type: none"> <li>• Detection and monitoring of the outbreak as effectively as possible</li> <li>• Understand effective actions to help contain a cluster</li> <li>• Understand measure and alter the shape of a UK epidemic</li> <li>• Guard against indirect harm caused as a result of proposed interventions</li> <li>• Model UK epidemic and identify key numbers for NHS Planning</li> <li>• Understand risk factors around demographics, geographies and vulnerable groups(e.g. age)</li> <li>• Generate behavioural science insights for policy makers</li> <li>• Ensure NHS trials key interventions</li> <li>• Consider emerging therapeutic, diagnostic and other opportunities</li> </ul>
--

## 2. Introduction

- In July, the [Academy of Medical Sciences \(AMS\)](#) published a report on Preparing for a Challenging Winter 20/21; the Technical Advisory Group discussed the work and hosted a webinar for Welsh Government Policy Leads with Professor Stephen Holgate, the Chair of the Expert Advisory Group for the AMS Report.
- The AMS report is helpful in its recommendations in planning for winter through a public health, health and social care lens. We recommend that the report is carefully considered by Welsh Government and NHS Wales to help support winter planning.
- Whilst thorough, it does not consider all of the priorities of Welsh Government in preparing and responding to COVID-19 in the coming months. As acknowledged by the report authors, it does not delve into detail on social care and medicines. The report does not consider the wider cross-sectoral implications of planning for a difficult winter, or Brexit.
- Separate NHS planning and wider recovery work is being carried out in Welsh Government for the coming winter period. The purpose of this paper is to

consider aspects of Welsh Government response related to scientific and technical understanding rather than operational delivery, which is the remit of other policy leads in other groups.

- The AMS report suggests that four main challenges will exacerbate the usual challenges faced by health and social care systems in winter 20/21 and proposes a series of recommendations (Annex I):
  - A large resurgence of COVID-19 nationally, with local or regional epidemics.
  - Disruption of the health and social care systems due to reconfigurations to respond to and reduce transmission of COVID-19 with a knock-on effect on the ability of the NHS to deal with non-COVID-19 care.
  - A backlog of non-COVID-19 care following the suspension of routine clinical care that is likely to result in an increased number of poorly-managed chronic conditions or undiagnosed diseases.
  - A possible influenza epidemic that will be additive to the challenges above.
  
- The challenges within the report are not intended to be considered in isolation of each other or other challenges.
  - September coincides with the beginning of the usual seasonal variations associated with progression from autumn to winter, as well as the return of children to schools and students to further and higher educational institutions.
  - Socioeconomic harm is a significant driver of behaviours and Government response. The lockdown implemented on 23<sup>rd</sup> March has caused harms but equally consumer fear has harmed the economy and this uncertainty will still be here until there is a vaccine or good treatment for COVID-19.
  - Wider behaviours and make-up of families, communities, society and public in Wales play a significant role in controlling COVID-19 spread.
  - Other challenges like climate events, such a period of cold weather, could significantly contribute to the identified challenges.

- The AMS report proposes that:
  - The coming months must be a period of intense preparation for our reasonable worst-case scenario for health in the winter that we set out in this report, including a resurgence of COVID-19, which might be greater than that seen in the spring.
  - The assumptions made in the report should be tested as new evidence emerges (including analysis of the evidence from the first wave) to enable prevention and mitigation strategies to be adapted and refined.
  - That mitigation strategies should not pose further disadvantage to the most vulnerable in society or the highest risk patients or communities.
  - To maximise their effectiveness (and to ensure they do not exacerbate inequalities), preparations for winter must be informed by evidence drawn from engagement with patients, carers, public and healthcare professionals ([AMS Public engagement report](#)<sup>1</sup>); and, whenever possible, be developed through co-production.
  - Implementation of prevention and mitigation strategies requires enhanced coordination, collaboration and data sharing between central and local initiatives.
- Several recommendations covered in the AMS report have already been subject to significant consideration and progress within Welsh Government (e.g. publication of the revised testing strategy, revision of surveillance plan, publication of circuit breakers indicators paper, joining the ONS community prevalence project, NHS Planning).
- This paper covers the main areas of activity of the Technical Advisory Group and sets out key objectives with the principle aim of reducing both direct and indirect harm from Covid-19. These areas include:
  - Modelling of disease spread
  - Statistical and mathematical analysis
  - Testing and diagnostics
  - International analysis and assessment
  - Children and education
  - Socioeconomic harms
  - Risk communication and behavioural science
  - Research and innovation
  - Behaviour of virus in the environment

---

<sup>1</sup> <https://acmedsci.ac.uk/file-download/39133546>

### 3. Technical Advisory Cell

- The Technical Advisory Cell (TAC) and wider Technical Advisory Group (TAG) was established in February 2020 in order to provide scientific and technical advice to support Welsh Government decision makers during emergencies<sup>2</sup>.
- It provides weekly updates to senior Welsh Government officials, including CMO and Ministers, about emerging scientific themes and trends, modelling forecasts for NHS Wales, Local Resilience Forums and Strategic Coordination Groups, regular technical briefings to external stakeholders to inform discussion, advice about SAGE outputs for policy officials and responds to request from policy officials on specific technical areas (e.g. testing, schools and children). A significant amount of activity is devoted to Government business in responding to questions from Senedd Members, media enquiries and the public.
- In preparing for the coming winter, TAC has undertaken a warm wash-up from phase I. The internal review has made several recommendations to strengthen the group and consolidate staffing security and levels. There is also recognition that there will be an extensive review of TAC in the future and there is an immediate need to strengthen governance within the group.
- TAC will also establish closer links at a four nations level for Science and have proposed the formation of an official group to coordinate activities (e.g. preparing for a public enquiry) and share knowledge.

**Recommendation 1.** Strengthen TAC so that it is more resilient for winter and is staffed appropriately to deal with different activities.

### 4. Technical Advisory Group

- TAG is comprised of 41 academic and public health experts alongside professional advisers from a range of disciplines and organisations, as well as Welsh Government policy leads as observers<sup>3</sup>.
- There is a need to strengthen and expand the remit of the Technical Advisory Group in order to meet some of the challenges identified within the AMS report and elsewhere.

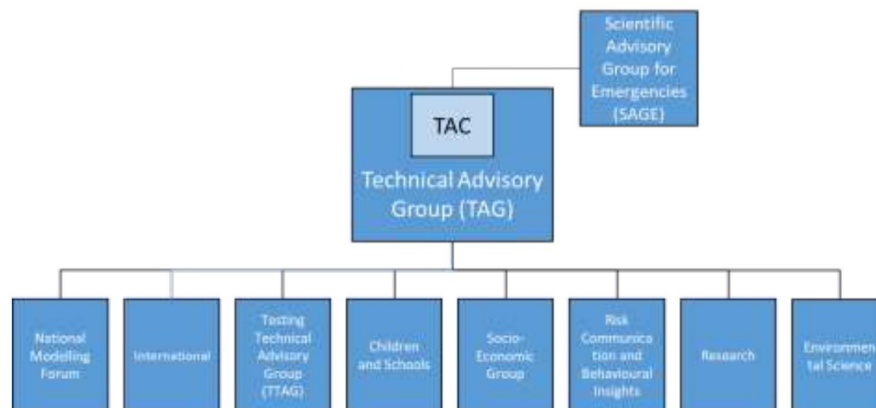
---

<sup>2</sup> <https://gov.wales/technical-advisory-cell>

<sup>3</sup> Not including experts associated with subgroups.



- It has been recognised by SAGE and AMS that risk communication and behavioural science is a key part of the work needed as we approach winter.
- We have formed an expert subgroup (chaired by Professor Ann John, Swansea University) to consider the social and behavioural elements of our response in Wales (e.g. social cohesion, equity and equality) (see annex II). This work includes consideration of the work of SPI-B, the behavioural science sub-group of SAGE.
- A Socio-Economic Harms group has also been formed in order to take forward work related to the economic impact of the epidemic in Wales. The group (chaired by the Chief Economist, Jonathan Price) will look to advise on longer term scarring on the Welsh Economy arising from COVID-19, consider the socioeconomics of control measures in the short term and also be responsive to ad hoc requests for policy analysis (see annex III).
- A third group related SARS-CoV2 in the environment is required to provide expert insight, evidence synthesis and opinion on the transmission and control of the disease. It is recognised that Wales benefits from strength in this area in a number of universities, and bringing together these experts will likely support Welsh Government policy leads on a number of areas.
- Academic experts and groups from a range of Welsh Universities provide significant contributions to the Welsh Government COVID-19 response. As with SAGE it is important that these contributions are reflected in Research Excellence Framework (REF) analyses and that non-public official time is recognised appropriately.



**Recommendation 2.** Formation of new subgroups to cover socioeconomic harms, risk communication/behavioural science and environmental science.

**Recommendation 3.** Ensure contributions from academic experts are recognised either through REF or non-public official time.

## 5. UK Scientific Advice for COVID-19 in Wales

- The Scientific Advisory Group for Emergencies (SAGE) recently marked the fiftieth meeting, with over 300 papers bought the group and 600 scientific papers within its repository.
- The SAGE group and that of its supporting experts and subgroups have been a powerhouse of the response to COVID-19 and Wales has been a net beneficiary of this UK working.
- UK scientific advice sharing continues to be a strength and work is ongoing to ensure the technical advice giving response is both strengthened and resilient. For Welsh Government it is important that there continues to be a high level of engagement with the relevant SAGE subgroups. As the response to COVID-19 has entered into a new more chronic phase so the lines of accountability and secretariat support has changed for some subgroups.
- Discussions on the coordination of scientific advice at a UK level continue and TAC continue to be an active participant in these discussions, working closely with Scotland and Northern Ireland to ensure equity of access and engagement at a strategic level.
- The emergence of Joint Biosecurity Centre (within the newly created National Institute for Health Protection) to help develop and systematise UK intelligence and operational technical advice for COVID-19 is welcomed and much needs to be done to ensure consistency and equity of access to information and outputs.
- It will be important that TAC continues to monitor changes in SAGE and UK scientific advice giving coordination approaches such that both the policy and operational needs of the COVID-19 response in Wales are represented.

**Recommendation 4.** TAC to ensure that there is a coherent and resilient approach to UK level scientific and technical advice for Welsh Government, advising Ministers and policy leads as required.

## 6. COVID-19 Modelling and Statistical Analysis

### 6.1 A Reasonable Worst Case Scenario for Wales

- A key activity for the TAG is to develop a new reasonable worst-case scenario for the winter period. A reasonable worst case (RWC) scenario for the UK, which was commissioned by the UK Cabinet Office, has already been agreed by SAGE. Work is in train to build and evaluate a number of epidemic models to ensure that an appropriate model is used in Wales.
- Using what we know about the disease, control measures, compliance, capacity and our demographic context, TAC are working with two modelling groups (Swansea University and Armafuni) and SAGE to generate and agree a new scenario for Wales. The group intends to work closely with NHS planners and SCGs to ensure that there has been good engagement in this process from a local and regional level.
- Once agreed a RWC model for winter can be used to support preparedness activities (e.g. estimating antigen test requirements). A Welsh policy model could be used to test resilience plans through development of new RWC scenarios (e.g. increase in infection fatality rate or sustained cold spell). Outputs from the models can then be used for exercises to test plans and planning assumptions.

**Recommendation 5.** Technical Advisory Cell to work with stakeholders to develop and agree a reasonable worst case scenario for winter in Wales.

**Recommendation 6.** Welsh Government to use policy model outputs to both prepare and test winter plans.

### 6.2 Developing and strengthening intelligence

- As restrictions have relaxed, TAG has developed a list of indicators for COVID-19. These are designed to provide early warning of rising infection rates, which in turn may mean that restriction measures may need to be re-activated.
- Continuous improvements to the Track, Trace and Protect system in Wales to increase effectiveness, alongside appropriate public communication is of high priority. TAG will continue to advise on the metrics and behavioural drivers that are important for effective contact tracing

- A Bangor University-led consortium has been funded to undertake a programme of work for community-level wastewater monitoring to provide early-warning signals of increasing prevalence of covid-19 as part of health protection surveillance systems. Sampling has begun at a number of sites in Wales, and arrangements are being finalised for how the data signals can be incorporated into health protection surveillance plans.
- TAC will support the COVID-19 Intelligence Cell in ensuring the most up-to-date information on the spread of the disease in Wales is available to decision makers and at local, regional and national level and to the public in a timely manner.
- TAC will also work closely with the newly formed Joint Biosecurity Centre to share knowledge and good practise.

**Recommendation 7.** TAC to work with stakeholders to develop and agree sensitive indicators and circuit breakers to help inform decision-making.

## **7. Risk Communication and Behavioural Insights**

- The Risk Communication and Behavioural Insights subgroup has been created to give detailed and strategic consideration to the behavioural and technical evidence on COVID-19 as it relates to Risk Communication and Behaviour. The sub-group will provide behavioural and risk communication insights to inform the work of the TAG and the translation, implementation and impact of the ongoing response to tackling Coronavirus. This work will include:
  - Making recommendations on how to translate policy and evidence into communications to raise awareness and change target behaviours.
  - Communicating risk and informing people and their behaviours
  - Supporting decision making of stakeholders and policy makers
  - Engaging wider society in promoting interconnectedness, social cohesion and civic duty
- This will require consideration of how best to minimise harm to public health across Wales, and is likely to include a rapid assessment of existing studies, for interpretation into a welsh context; making recommendations to TAG and Welsh Government more widely as needed by end of December 2020,
- Specifically, there will be an ongoing focus on assessing the existing and potential risks, impacts and harms associated with the behaviours of people across Wales, related to Coronavirus (and COVID-19), and making recommendations to minimise these risks. This will include:

- Facilitating the use of risk communication and behavioural science to support decision making (nationally and locally) of stakeholders and policy makers and maximise the impact of policy, to include Welsh Government, Public Health Wales and partners.
- Recommending behaviourally informed proportionate strategies for the translation of policy and evidence to ensure more people, more often undertake suggested or mandated protective behaviours (e.g. hand hygiene, social distancing, face coverings, seeking a test if symptomatic and self-isolation).
- Consider context (social and environmental determinants) and motivational factors which may hinder or enable choices and advise on tailored strategies to support the adoption of target behaviours (including presentation for COVID testing, responses to results, self-isolation)
- Promoting behaviours that build resilience in Wales in case of a second wave including:
  - Increasing physical and mental health promotion activities (stopping smoking, diet, physical activity, weight loss).
  - Prevention of delayed help-seeking and treatment where possible including through a public campaign encouraging people to take positive action before winter as recommended in the AMS report.
- Pre-empting vaccine hesitancy, and other behaviourally based determinants of vaccine uptake with clear communications and other interventions - not duplicating other efforts.
- Consider behaviourally based issues related to uptake and implications of testing, including antibody tests, including the impact on protective behaviours and modelling behaviours in key workers
- Engaging wider society in promoting interconnectedness, collectivism, social cohesion, trust and civic duty and responsibilities, in circumstances where this drives protective behaviours and mitigates the potential for social disorder.
- Emphasis on communicating risk and informing people, both individually and collectively, of the impact of their behaviours.
- Continuing to communicate risk clearly and consistently going into the winter season, and maintaining public support, will be particularly important.

- Advocate for the early use of behaviour change frameworks (such as MINDSPACE and COM-B) to develop communications and interventions.
- Advocating for early co-production and testing of interventions (e.g. messaging, communication campaigns, restrictions and environmental changes) with communities including marginalised and hard-to-reach communities (e.g. young people, ethnic minorities and the socio-economically deprived) and across settings (e.g. large venues including sports stadiums). Early co-production and testing of communications in anticipation of winter pressures recognises the rapid responses that may be required in the future.

**Recommendation 8.** To work with policy makers and stakeholders to ensure behavioural considerations are incorporated into the decision making process at the earliest opportunity.

**Recommendation 9:** To encourage risk communication activity that emphasises the implications for individuals and wider civic society, is appropriately targeted and co-produced where feasible.

## **8. Testing and diagnostics**

- The Testing Technical Advisory Group (TTAG) was established to support policy leads by providing technical and scientific advice with respect to COVID-19 testing.
- Testing is a fundamental and complex component of many elements of the COVID-19 response. Recognising this, TTAG seeks to establish principles that guide the appropriate use of existing and future tests and that can be applied across multiple cohorts and settings, while retaining the flexibility to allow for situation-specific considerations.
- Recently the subgroup have authored a number of important papers, including those on:
  - Use of RT-PCR tests;
  - Use of tests for antibody to SARS-CoV-2,
  - Repeat antibody testing of school staff,
  - Post-mortem screening using RT-PCR,
  - Testing of Health and Social Care workers returning to work after mild COVID;

- Testing associated with the discharge from hospital back to settings with vulnerable people.
- As reports are published, they are made available at <https://gov.wales/advice-coronavirus-technical-advisory-cell#content>.
- The winter period is likely to be associated with a number of significant challenges in the context of diagnostics and wider testing. These include:
  - Rapid and reliable differentiation between infection with SARS-Cov-2 virus and infection other seasonal viruses.
  - The impact of changes in prevalence and local variation (both within cohorts and settings) in that prevalence on the performance of tests.
  - Optimising the integrated use of an increasing number of different tests.
  - Maintaining patient access to, and flow within, healthcare settings, especially hospitals.
  - Integrating new tests, or variations of existing tests, into the test portfolio.
  - Understanding and utilising new and emerging evidence and knowledge – notably in the field of immunology – as we continue to learn more about the SARS-CoV-3 virus.
- TTAG will have an important role to play in all of these.

**Recommendation 10.** Continue to develop technical advice for testing; ensuring advice reflects current scientific knowledge, emerging trends and SAGE outputs such that it supports rapid policy development in Wales.

## 9. Socioeconomic Harms

- Unintended direct and indirect socioeconomic harms continue to be recognised and will continue to be important as winter approaches<sup>4</sup>. It is important to work to reduce existing inequalities.
- It is known that people from Black and Minority Ethnic (BAME) groups and low socio-economic backgrounds are disproportionately affected by coronavirus and may therefore require additional consideration in the event of a second wave.

---

<sup>4</sup> <https://phw.nhs.wales/news/staying-at-home-policy-has-reduced-spread-of-coronavirus-but-has-also-had-other-positive-and-negative-impacts-on-the-well-being-of-welsh-society/a-health-impact-assessment-of-the-staying-at-home-and-social-distancing-policy-in-wales-in-response-to-th/>

- Additional support may also be required for groups (e.g. people who are shielding) who have unequal access to a range of resources, including health and social support.
- A report presented to SAGE from Department of Health and Social Care, Office for National Statistics, Government Actuary's Department and Home Office (15 July 2020) presented an estimate of deaths and QALYs lost from direct and indirect impacts of COVID-19<sup>5</sup>. This report conceptualises harm to health using the following four categories:
  - Health impacts from contracting COVID-19 (A)
  - Health outcomes for COVID-19 worsened because of lack of NHS critical care capacity (B)
  - Health impacts from changes to health and social care made in order to respond to COVID-19, such as changes to emergency care (C1), changes to adult social care (C2), changes to elective care (C3) and changes to primary and community care (C4).
  - Health impacts from factors affecting the wider population, both from social distancing measures (D1) and the economic impacts increasing deprivation (D2).
- These comparisons show several interesting points. The direct COVID-19 deaths account for the majority of all excess deaths. However, when morbidity is taken into account, the estimates for the health impacts from a lockdown and lockdown induced recession are greater in terms of Quality Adjusted Life Years (QALYs) than the direct COVID-19 deaths.
- Much of the health impact, particularly in terms of morbidity, will be felt long after the pandemic is assumed to last.
- A socioeconomic harms group has been established as a joint initiative led by Welsh Government in collaboration with Public Health Wales, health and social and economic research partners across Wales and potentially further afield.
- The group will build on the intelligence gathered to date by synthesising research findings from elsewhere and applying to Wales, overseeing projects that utilise a range of methods to gather and analyse complex datasets to better understand the impact of COVID-19 more generally and particularly on already disadvantaged sectors and groups in Wales. Emerging evidence will be synthesised to identify potential policy options that may mitigate these social, economic and equity harms from COVID-19, and inform the policy response to address the subsequent potential recession.

---

<sup>5</sup> <https://www.gov.uk/government/publications/dhsconsgadho-direct-and-indirect-impacts-of-covid-19-on-excess-deaths-and-morbidity-15-july-2020>



- The group will also oversee work that is able to evaluate emerging national and international research and evidence on COVID-19 in the context of the economy and the potential harm that may be caused to specific sectors and groups in Wales. This may include recommending new pieces of work be commissioned from external partners that will further our understanding.
- The socio-economic harms group will have the following objectives:
  1. To help identify measures to mitigate the harmful long term effects of scarring caused by covid-19 and our control measures.
  2. To undertake economic analysis on control measures with a particular focus on deprived communities.
  3. To provide analysis and evidence-based advice to Welsh Government in order to inform action aimed at reducing inequalities of outcome resulting from the socio-economic disadvantage related to Covid-19 response measures.
  4. Respond to specific questions/queries on the socio economic impact of control measures from policy leads in WG or arising from UK SAGE discussions.
- The group will adapt, refine or re-use models of health harms produced by other groups rather than re-producing this evidence within the group – the focus will be on broader socio economic harms which might in turn lead to longer term health harms.
- Initially the group will deliver a report which:
  - Assesses the future outcomes from the socio-economic impacts of COVID 19 response measures in the short, mid and long term. The assessment should include a RWC scenario of another wave of the virus in the winter, based on experiences and lessons learnt to date.
  - Takes account as far as feasible the intersection of inequalities across ethnicity, age and sex, and other groups vulnerable to these socio-economic impact.
- Draws on a wide range of evidence including
  - The socio-economic circumstances which exacerbated outbreaks and incidents across Wales;
  - The diverse impacts of the coronavirus response across different generations;

- The disproportionate impact of COVID-19 on the BAME community and other disadvantaged groups.
- Advises how the Welsh Government and partners could minimise inequalities of outcome from socio-economic disadvantage related to the Covid-19 response measures for the population of Wales.
- The group will provide the direction and oversight to projects in gathering data and using research and analytics to provide evidence on the impact of decisions made in respect of policy and practice in the social, economic, health and education prospects in society prior to and throughout the course of the pandemic.

**Recommendation 11.** Develop socioeconomic harms subgroup in order to advise on the costs and benefits and distributional effects of interventions in order to minimise harm while maximising Covid-19 control.

## 10. Children and education

- The Children & Schools subgroup exists to give detailed and strategic consideration to the scientific and technical evidence on COVID-19 as it relates to children and schools settings. The subgroup works closely with the SAGE subgroup on children and education and DfE working group on Further and Higher Education. Several important guidance documents have already been published by the group<sup>678</sup>.
- The beginning of winter will also coincide with the return of children to schools and students to other educational settings.
- For schools, it will be important to learn from the smaller-scale returns that we have experience of in Wales, as well as any emerging international evidence and experience.
- For universities and higher education settings, it may be important to learn from other settings where people are living and working in close proximity to people (e.g. factories). TAC are working closely with SAGE to agree further advice on Higher and Further Education reopening.

---

<sup>6</sup> <https://gov.wales/our-latest-understanding-covid-19-respect-children-and-education>

<sup>7</sup> <https://gov.wales/technical-advisory-group-advice-return-school>

<sup>8</sup> <https://gov.wales/technical-advisory-group-face-coverings-children-and-young-people-education-settings>

**Recommendation 12.** Provide support to the Schools and Education subgroup to ensure resilience.

## 11. Research and development

- The current pandemic has both created new and urgent needs for research and stimulated a huge response from the research community internationally and in the UK. Over the last six months, much of that research effort has been focused, rightly, on three central concerns: how we diagnose/test for COVID19; how we treat patients with COVID19 and enable them to recover; and how we can prevent people contracting COVID19. With extraordinary speed, major international research collaborations have been established and in all three of these areas we expect to see some research results in a matter of months.
- Much of this work has been led by the National Institute for Health Research in England and the Medical Research Council (which, as part of UK Research and Innovation - UKRI, operates across the United Kingdom). Health and Care Research Wales and Welsh Government have been closely involved in these developments, though the pace and scale have created real challenges at times for us and the other devolved administrations in securing meaningful engagement.
- Alongside the NIHR/MRC led programme, UKRI has also established an open rolling call for proposals in the remits of all other research councils. Other funders, particularly Wellcome, have also played a major role in the UK and internationally. The UK government has also funded a number of major research initiatives – for example the Office for National Statistics (ONS) led study of the community prevalence and incidence of COVID19, the COG-UK study of the genomics of the virus causing COVID19 and the Genomics England led study of host genomics (people who have contracted the disease) and genetic markers or polygenic risk scores for susceptibility/severity. Again, there has been consistent Welsh engagement in these initiatives.
- Welsh Government and Health and Care Research Wales have been proactive in engaging with these initiatives. We have both Welsh Government members and leading researchers from Welsh universities and agencies like Public Health Wales on the taskforces, funding panels, and governance groups and are working to share information and intelligence across Wales. To assist with this, the Research and Development subgroup of TAC was established. Overall, our approach to date has been to maximise Welsh involvement in the UK-wide COVID19 research agenda.
- As we move from the initial, acute phase of the pandemic into what is likely to be a longer term phase lasting many months or even years, it is a good point at which to consider what lessons we have learned to date about how best to

organise and use research and evidence in the pandemic and to think through the likely future needs for research and evidence and how they will be met.

- We have identified six key lessons from experience to date:
  - **The pandemic has illustrated vividly the centrality of research and evidence to health and care in Wales**, and their importance to decision making at every level in the health and care system. Bluntly, ending the pandemic relies fundamentally on research delivering solutions to diagnosis, treatment and prevention. Many wider key decisions – such as how and when to deploy social distancing measures, or what advice to give to people on returning to work – need to be informed by robust evidence, though that is not always currently available.
  - **We have seen that having research capacity and capability available and ready to respond has been incredibly valuable.** At a UK level the investments in pandemic research capacity modelling and therapeutics research have been crucial to getting research started quickly. In Wales, our funded infrastructure of centres and units for health and care research has been equally important – for example the SAIL databank using linked anonymised data to provide COVID monitoring in near real time, and the Wales Gene Park’s involvement in researching the genetics of COVID19. In both cases, these centres have drawn on or repurposed UKRI funding – and often got started on research before formal funding has been in place.
  - **To be useful, research has to be timely, and has to move at least at the same pace as the pandemic.** Normal timescales for commissioning, setting up, doing, reporting and then using research have been transformed – with rapid review processes for funding research at a UK level, studies being set up in a matter of days, and research proceeding at a pace which will produce results in a matter of weeks or months.
  - **The challenges of keeping up to date with the growing body of evidence on COVID19 are formidable, and there is a need for support for knowledge mobilisation/evidence use.** There has been a global explosion of research in response to the pandemic – with over 4,600 clinical trials registered, and over 6,000 papers published including preprints released in advance of peer review and journal publication. There is almost certainly substantial duplication in this huge research despite the efforts of research funders and research teams to coordinate and collaborate, and keeping up to date and critically assessing the quality of research is very difficult.
  - **For many important questions in this pandemic, evidence is needed very quickly, in a matter of days and so capacity for rapid evidence synthesis is needed.** We need an effective way to gather and

synthesise existing research, and to find and use appropriately evidence syntheses already created by other agencies in the UK and internationally using resources like the international COVID-END synthesis collaborative. Existing evidence synthesis capacity in agencies like Health Technology Wales and Public Health Wales has been very useful, but the need for evidence synthesis greatly exceeds current capacity and capability.

- **The range and nature of research needs and priorities in relation to COVID19 is evolving, and important questions which are specific to the Welsh context are emerging.** While the initial research focus was on research on diagnosing, treating and preventing COVID19, it has become increasingly clear that there are many other vitally important research needs and priorities, and some of those needs only become apparent over time as the pandemic progresses and policy develops. For example, the high morbidity and mortality in BAME groups from COVID19 has led to calls for research to understand the causes of these differences and ways to address them. The emerging evidence of falling demand for/uptake of many urgent or emergency NHS services has raised fundamental concerns about the reasons behind the fall in demand, the consequences for people's health and the best ways to deal with them. We know that the research needs and priorities will continue to evolve and we should seek to ensure we are well placed to meet them.
- Using research effectively has been one of the key challenges for all those involved – and particularly for TAC and the research and development subgroup. The demands for evidence have often moved at such a pace – a matter of days rather than weeks – that they have often outstripped our capacity to respond effectively and support policymakers and decision makers fully. We have made use of some great existing teams (SAIL (figure 1), Health Technology Wales, Public Health Wales, Health and Care Research Wales, analysts within Welsh Government and others) but we do not think this provides a sufficient or effective resource for the future over the coming 12-24 months. We turn next to considering what the future evidence needs are likely to be and how we can meet them.

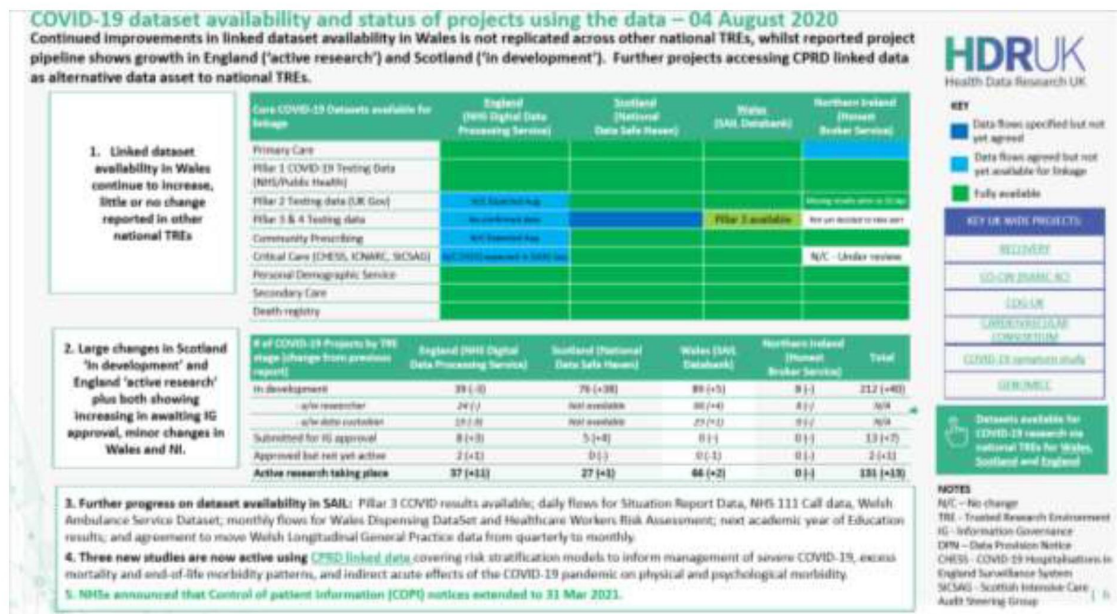


Figure 1. COVID-19 dataset and projects of HDRUK Infrastructure.

- The future evidence needs – and the requirements for research – are likely to develop and evolve rapidly, so it is probably neither helpful nor feasible to seek to spell out in detail a fixed set of research priorities of the kind that often informs research commissioning. Rather, it seems more appropriate to map out the main broad areas of research based on our experience to date and some foresight/horizon scanning, and to put in place a responsive and ongoing system for scanning for evidence and research needs, assessing their priority level, and then mobilising resources accordingly to meet them.
- We have identified three broad areas or domains of evidence and research need, which are:
  - **Using research and evidence in managing the pandemic.** This is where much of the work of TAC and (at a UK level) SAGE has been focused to date, and it includes areas such as the epidemiology of the disease, the validity/reliability of systems for monitoring its spread/incidence/prevalence/service demands, the effectiveness of non-pharmaceutical measures for prevention, and a host of wider questions about the health/pandemic effects of wider societal and economic issues. Research evidence can help us both to understand these issues in the current pandemic and to learn from the current situation and inform future directions in policy and practice.
  - **The impact of the pandemic on the health of communities and people in Wales.** There is a growing concern about the way the pandemic and the measures which have had to be taken to deal with it impact on the health of people and communities – issues such as the

longer term effects post-COVID infection/hospitalisation, mental health consequences of social distancing and isolation, the consequences of delays in seeking health and care or access to services, and the health effects of the economic disruption and reduced GDP caused by the pandemic. Research evidence is needed to help us understand these impacts and what measures might be used to mitigate adverse impacts.

- **The impact of the pandemic on the health and care delivery systems in Wales.** It is clear that the pandemic has had a massive short term effect on health and care delivery systems and organisations, which has constrained service delivery and created a likely backlog of health and care need. But it is also likely that models of service delivery and provision will need to change to take account of the ongoing constraints in areas like infection control and social distancing. More positively, the pandemic has led to the rapid and widespread adoption of a wide range of innovations in service delivery (such as new triage models, telephone and video consultations, etc.). In all of these areas, we need evidence from research to help us understand these changes in service delivery and to design and implement future service models during and after the pandemic.
- In each of these three main domains, there will be research questions specific to particular service areas – for example intensive and critical care, or nursing and care homes, or cancer services for example. Longstanding and important areas for research – such as the healthcare workforce, or new technologies in service delivery, or health and care integration – may be given new impetus or focus as a result of the pandemic.
- We think what is needed is a responsive and flexible evidence and research capability which can work closely with Welsh Government officials and leaders in the NHS in Wales to bring evidence to bear on decision making effectively. To do that it has to be clearly explained, relevant, timely and actionable. We see two main functions– which at the moment are not being met effectively:
  - **To provide capacity for COVID19 evidence synthesis and knowledge mobilisation** focused both on horizon scanning for key research which should be highlighted to evidence users in Wales and on responding rapidly and flexibly to evidence needs by conducting a range of evidence syntheses (from short reports prepared in a matter of a few days to two working weeks, to more detailed briefings produced and updated where needed to a timescale of weeks or a few months). We should take full advantage of the growing national and international collaboration to share evidence syntheses.
  - **To draw upon research capacity and capability across Welsh institutions in the NHS and the university sector to provide rapid**

**capacity for primary research** in response to needs – undertaking primary research studies with a setup time of a few weeks, and a period for study completion which would typically be measured in months, and with processes for sharing findings early and often with evidence users and not relying on mechanisms like publication for dissemination and knowledge mobilisation.

- We need a way to decide what issues are high priority research needs – and work that Health and Care Research Wales has done in recent months to develop a robust needs and priorities assessment process will be useful as a foundation. Fundamentally there needs to be a rapid process to consult stakeholders and get their views, linked to some agreed prioritisation criteria – such as how important and significant the research need is, what is the timescale in which evidence is needed, an assessment of whether it is likely to produce actionable findings useful to policy and practice leaders, and whether the research issues are particular or specific to the Welsh context/setting.
- It seems unarguable that our first response to any research and evidence need should be to establish what is already known – by using rapid evidence searches and a range of approaches to evidence synthesis. Our next step should be to scan the research portfolio in the UK and internationally, to establish whether there is ongoing primary research relevant to our research and evidence need, which we could access or should at least consider before we move to setting up new primary research study or studies to meet our need for evidence. If new research is to be undertaken then the way it is organised needs to match the timescales of the evidence need, which means much more rapid study setup and delivery and a more co-produced approach in partnership with evidence users.
- To meet these needs we propose funding and establishing a Welsh COVID19 evidence centre with a small core team and the budget/resources/capability to draw upon expertise and staff from across the Welsh academic/research community in health and care to create a programme of work in the two areas outlined earlier – evidence synthesis/knowledge mobilisation and rapid primary research. The centre would operate, like TAG, on a networked or federated basis – drawing on the existing strengths of organisations rather than reinventing what is already there.
- The leadership and governance of the proposed centre is crucial to its success. We would propose appointing a senior leader based in a host institution (which could be an NHS organisation/agency or a university) with both the academic and the policy/service networks and credibility with stakeholders to set up and direct the centre. They would need to be able to dedicate a substantial proportion of their time to this endeavour. We anticipate that the centre would have a small management group chaired externally and with senior



representation from Welsh Government, the NHS in Wales, the social care system, and patient and public involvement. This group would oversee the processes for identifying and meeting research and evidence needs and holding the director to account for the use of resources.

- This model for the centre would draw on the experience we already have in Health and Care Research Wales in commissioning our infrastructure funded centres and units, but would also draw on the approach that UKRI (MRC and ESRC for example) use to fund Centres, and the way NIHR has commissioned ARCs/BRCs/etc.
- We would propose funding the centre initially for a two year period – long enough for the host institution to appoint staff in-house particularly to provide coordination and support and the capacity for evidence synthesis.
- We have not proposed a budget for the centre in this paper, but it may be helpful to note that the Scottish Government has invested almost £5 million in its rapid coronavirus research programme. We think it would be necessary to allocate around £3-400k to fund a small core team including the director/lead; and then a budget to support the rapid deployment of secondments, additional staffing and other resources to deliver on evidence and research requirements.
- The timescale for this work is urgent. If the proposal for a new Welsh COVID19 evidence centre and resourcing are approved, we should aim to get key staff identified (probably through secondment) within two months and an agreed programme of work and governance structure in place by autumn 2020, with an early programme of shorter term deliverables starting immediately to feed into decision making through TAG/TAC.

**Recommendation 13.** Recommend establishing and funding a Welsh COVID19 evidence centre to rapidly progress delivery of research for evidence based policy formulation and decision making.

## 12. International

- The coronavirus SARS CoV2 pandemic has had a profound effect on people across the world. The disease caused by the virus is likely to present differently in different countries and at different times depending on many local factors such as intensity and longevity of the lockdown, the method and speed of easing, the degree of government trust and control and levels of adherence to advice, directives and controls imposed on their populations. Also, many other factors such as the degree of social, economic and education deprivation, cultural and religious norms and seasonal effects have had impacts.

- There are likely to be many parallels between many of these countries and Wales (indeed the UK) albeit on smaller or less stark level. For example, the absolute levels of poverty and inequality in Wales (not relative poverty) are less severe principally because of strong, well-organised and funded welfare and healthcare support systems. Nevertheless, there are lessons to be learned from across many countries which are applicable to Wales.
- It has been postulated that the COVID-19 pandemic will have a degree of seasonality in its development and progression in common with many other respiratory viruses and influenza virus diseases, with a marked increase in the cold, dark, wet winter months. Whether this virus exhibits such seasonality remains to be seen but this is something to consider very closely as autumn progresses into winter.
- Initially, the international work has been conducted by the Welsh Government Office for Science with support from several sources. This work has been undertaken on an informal basis but a subgroup is being formed to continue this work on a more formal footing. So far, two reports have been published:

*Impact of European measures to ease lockdown restrictions on R value*

<https://gov.wales/sites/default/files/publications/2020-06/impact-of-european-measures-to-ease-lockdown-restrictions-on-r-value-summary-of-advice.pdf>

*Seasonal effects on Covid 19 in S. America*

<https://gov.wales/sites/default/files/publications/2020-07/technical-advisory-cell-briefing-seasonal-effects-on-covid-19-in-s-america.pdf>

- It is intended that additional commissions will be prepared and reports produced that address specific issues as well as on more general developments and trends.

### **Purpose of International Sub-group**

- The will be a joint initiative led by Welsh Government in collaboration with Public Health Wales, alongside health and social and economic research partners across Wales and potentially further afield.
- The group will build on the intelligence gathered to date from many sources, utilising the Welsh Government's international offices, the UK Foreign and Commonwealth Office's sources and other open-access intelligence sources. The group will assess this intelligence and draw out findings, conclusions and, where appropriate, make recommendations to TAG.

- The group will evaluate emerging national and international research and evidence on COVID-19 in the context of: infection rates, death rates, testing, track and trace methods, imposition and easing of control measures, use and success of vaccines, travel restrictions into and out of countries, quarantine measures and other factors from which lessons may be learned that are applicable to Wales. This may include recommending new pieces of work be commissioned that will further our understanding.
- This group will focus on three areas of work:
  1. To inform TAG and Welsh Ministers on international developments related to COVID-19 and to offer examples of actions taken by countries that may be applicable to Wales.
  2. To advise on the policies that should be prioritised to mitigate the effects of the pandemic on many aspects of Welsh society and health and wellbeing.
  3. To provide advice on the outcomes and effectiveness of specific policy measures and actions taken by different countries, as commissioned by Ministers.
- The group will use information and data gathered by other groups within and beyond Wales rather than producing this evidence within the group – the focus will be on assessing the evidence and derive appropriate lessons.
- The group will provide the direction and oversight to projects in gathering data and using research and analytics to provide evidence on the impact of decisions made in respect of policy and practice in the social, economic, health and education prospects in society prior to and throughout the course of the pandemic.

**Recommendation 14** Take forward an international subgroup to ensure a consistent and responsive approach to monitoring and reporting observations and different international approaches to COVID-19 via TAG.

### 13. Environmental Science

- Environmental Science plays an important role in our response to COVID-19. Understanding the main routes of transmission and behaviour of the virus in the environment influences many of the non-pharmaceutical interventions for the epidemic. Within SAGE the Environmental Modelling Group (EMG), which is

hosted by DEFRA, has played a key role in describing the many of the key aspects of SARS-CoV2 which has influenced our policies in Wales.

- Whilst we know much more about SARS-CoV2 that did in the early stages of the pandemic, there is still much to learn that will invariably impact upon how we respond at a local, regional and national level. Significant questions related to: infectious dose, impact of new strain variants, transmissibility in the environment, host range, environmental stability, decontamination and effective PPE still exist.
- Important work in Environmental Science is ongoing in Wales, such as the Bangor Waste Water Study, requires consideration and support. Wales has significant academic strength in Environmental Science and there would be benefit in bringing experts together to help support the Welsh Government COVID-19 response as we head into winter.

**Recommendation 15:** Allocate resources to establish an Environmental Science subgroup of TAG working closely with academics and experts from Welsh Universities, Public Health Wales and Welsh Government in order to provide independent advice to policy leads and decision makers.

## **Annex I: Main AMS Recommendations**

### **1. Minimising community SARS-CoV-2 transmission and impact**

- Developing effective policies to maximise population engagement in essential control measures. These include: physical distancing; wearing face coverings in settings where physical distancing is not possible; regular hand and respiratory hygiene; high levels of hygiene in the home; heating and ventilation of homes; self-isolation and participation in the test, trace and isolate (TTI) programme when symptomatic, or following contact with a COVID-19 case. Identifying and addressing structural and socio-economic barriers to adherence will require engagement with target communities, and national and local consideration of a wide range of incentivising levers (including financial).
- Launching an extensive public information campaign in the autumn, co-produced and optimised by members of target communities working together with professional organisations to minimise transmission and improve levels of population resilience/health. A local and multi-ethnic focus will be key.
- Tailoring guidance for commercial, public and domestic properties on optimising indoor environments (temperature, humidity and ventilation) to reduce virus transmission indoors. Specific consideration of those most vulnerable to COVID19 who are also likely to have the poorest quality housing, highest levels of overcrowding and be least able to heat their homes adequately in winter.
- Significantly expanding the capacity of the TTI programme to cope with increasing demands over the winter and ensure that it can respond quickly and accurately. Testing should harness partnerships between the NHS, academia and industry. Multiplex influenza and SARS-CoV-2 testing would distinguish the cause of influenza-like illnesses – essential to informing recommendations on quarantine (and clinical management). Working with communities and groups, and developing options (including financial), to overcome barriers to engagement, particularly by vulnerable groups

### **2. Organising health and social care settings to maximise infection control and ensure that COVID-19 and routine care can take place in parallel. In particular:**

- Prioritising system-wide infection prevention and control measures across the health and care systems to minimise nosocomial infection. Ensuring timely reporting, investigation and root-cause analysis of hospital acquired infection in both patients and staff.

- Adequate provision, training in, and use of personal protective equipment (PPE) and other infection prevention and control measures across health and social care.
- Minimising agency/multi-site staffing and staff movements between sites/hospitals.
- Using point-of-care multiplex testing to inform cohort selection and clinical management.
- Maximising the use of remote consultations for hospital and community care.
- Cohorting staff to limit physical overlap and movement between zones.
- Stratifying entire healthcare settings (or zones within settings) into 'hot' and 'cold' areas. Considering the optimum use of Nightingale hospitals (subject to workforce capacity) and private healthcare settings, including for 'step-down' COVID-19 care or isolation.
- Testing and quarantining of patients being discharged into the community or into institutional care.
- Prioritising the backlog of clinical care strictly by clinical need, not waiting times. Primary care should target acute care, prevention and screening of those whose physical and mental health is most at risk.
- Establishing services to support rehabilitation of a growing number of patients with post-COVID-19 conditions. A better understanding of these conditions is urgently required.

### **3. Improving public health surveillance for COVID-19, influenza and other winter diseases**

- Maintaining a comprehensive, population-wide, near-real-time, granular health surveillance system to ensure rapid identification, investigation and management of local COVID-19 outbreaks across community, work, and health and social care settings. This should integrate the data available through Public Health England (PHE), the NHS, the Office for National Statistics (ONS) (and their equivalents in the devolved administrations), and other sources, including from research, and enable public health bodies to work closely with local Directors of public health departments and health protection teams.
- Conducting large-scale population surveys to inform estimates of infection prevalence and incidence, as well as effective control measures. Targeted surveys of populations where COVID-19 incidence is high or unknown should be prioritised to monitor for early evidence of a resurgence in cases.

- Ensuring that comparable data are collected for surveillance in hospitals and the community, TTI and outbreak investigations using standardised tools and definitions, to maximise their applications and usefulness. Information must be shared quickly and intelligence exchange between local and national systems should be optimised, and made available to the research community.
- Maintaining an adequately resourced central overarching body (such as the recently announced Joint Biosecurity Centre) to oversee and coordinate data collection, processing and distribution, as well as to engage effectively with local public health bodies that should also be appropriately resourced.

#### **4. Minimise influenza transmission and impact**

- Maximise the uptake of influenza vaccination by health and social care workers and other priority groups identified by guidelines. This will require creative approaches to delivering the programme while minimising the risk of transmission and ensuring an adequate supply of vaccines.
- Effective implementation of guidelines for the use of antivirals to mitigate the impact of influenza, particularly in high risk groups. This might be informed by point-of-care-testing (POCT).