

## **Principles for Managing SARS-CoV-2 Transmission Associated with Higher Education**

### **Executive Summary**

- **There is a significant risk that Higher Education (HE) could amplify local and national transmission, and this requires national oversight.** It is highly likely that there will be significant outbreaks associated with HE, and asymptomatic transmission may make these harder to detect. Outbreak response requires both local plans and coordinated national oversight and decision-making.
- **It is essential to develop clear strategies for testing and tracing, with effective support to enable isolation.** Universities are good locations to pilot approaches such as population case detection (PCD). Enhanced testing in response to suspected outbreaks is likely to be beneficial in detecting and preventing ongoing transmission.
- **Safe provision of student education needs to be based on a hierarchy of risk.** This includes reducing in-person interaction, segmentation of students and environmental controls, including mitigating aerosol transmission risk through ventilation and use of face coverings.
- **Accommodation and social interactions are likely to be a high-risk environment for transmission to occur.** Strategies to mitigate transmission risk include segmentation of students to co-locate courses or year groups, and good communication on behaviour and hygiene in household and social environments.
- **There need to be specific strategies to consider the wider physical and mental health of students and staff, beyond COVID-19.** This will include maximising the influenza vaccination programme to minimise co-infection risks and providing support to mental health programmes.
- **Communication strategies are a critical part of minimising transmission risks associated with HE.** Guidance on how to behave is more likely to be adhered to if people understand the reasons they are asked to take certain actions, and if it is co-produced with the staff and students who will be affected by it.

## **Background**

From September 2020 onwards, new Higher Education (HE) terms will see the return of a large number of students and staff to these settings across the country. DfE and UUK have already provided guidance to HE<sup>1</sup> and Universities are well advanced in their plans to manage their campus and delivery of education, and many have safely resumed some research activities. Guidance provided in e.g. Scotland<sup>2</sup> may have some differences to that in England, Wales or Northern Ireland.

This paper is provided in the context of existing guidance and HE sector plans, and aims to supplement these by summarising the latest evidence relating to transmission associated with the resumption of HE activities from Autumn 2020, particularly the return of undergraduate and postgraduate taught students. It specifically considers how to manage transmission in the wider context of local and national interactions, and brings together up-to-date evidence and advice in a set of specific principles for SAGE to endorse, with the following question:

**What principles can minimise the impact of the return of HE on local and national outbreaks, taking into account the wider impacts and complex interactions associated with HE settings?**

## **Key Considerations**

### **1. There is a significant risk that HE could amplify local and national transmission, and this requires national oversight**

HE collectively creates a large number of connections within universities and communities and across the UK with considerable international links. A critical risk is a large number of infected students seeding outbreaks across the UK, influencing national transmission. With current virus prevalence and spatial heterogeneity there is a small risk of this at the beginning of term. However, if there is substantial amplification of infection in HE settings there is a more substantial risk at the end of term. Epidemic modelling within HE institutions suggests that large outbreaks are possible over a time period of weeks, so could peak towards the end of the term. Peak health impacts of these new infections and outbreaks they spark would coincide with the Christmas and New Year period posing a significant risk to both extended families and local communities (high confidence).

HE settings are also likely to experience transmission within the organisation and influence local transmission; this will depend on the background incidence and regional variation across the UK as well as the specific interactions that a university has with its local community. The potential for spill-over of HE outbreaks into the wider community, and community outbreaks into HE, depends on HE characteristics (size, campus vs city etc), behaviours throughout the term and integration with local populations. Local intervention measures could partially mitigate the risk of outbreaks in HE having wider impact both locally and nationally (medium confidence).

All HE institutions should expect to have cases of COVID-19 and it is highly likely that some HE providers and relevant local health agencies will have to manage the consequences of a

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<sup>1</sup> <https://www.gov.uk/government/publications/actions-for-he-providers-during-the-coronavirus-outbreak>

<sup>2</sup> <https://www.gov.scot/publications/coronavirus-covid-19-guidance-for-universities/>

significant outbreak either directly associated with their setting or within their local community or region (high confidence).

There is no strong evidence that those in HE demographics in general play a smaller role in transmission than adults in the general population (medium confidence). Evidence suggests there are a higher proportion of asymptomatic cases among younger age groups, meaning that cases and outbreaks are likely to be harder to detect among student populations (high confidence). Outbreaks may therefore be large and widespread before they are effectively detected (medium confidence).

***Outbreak response requires both local plans and national oversight and decision-making.*** It may be necessary for HE institutions to take significant actions in response to outbreaks, and it may be necessary for institutions across the HE sector to take coordinated action in November to prevent seeding and disseminated outbreaks in December. It is therefore important that a coordinated outbreak response strategy is urgently put in place to link between Government, the National Institute for Health Protection (NIHP), HE institutions and local public health teams and local authorities to monitor incidence and prevalence of infection associated with HE and take appropriate actions.

The co-ordinated response needs to define actions and responsibilities across the range of eventualities including a clear approach for how data on cases, clusters and outbreaks should be reported, and how this information is communicated between HE institutions and NIHP. It should include plans to manage migration at end of term, the potential risks of transmission associated with multiple sick students who may return home during term time, and the response to different levels of outbreaks associated with HE institutions (see point 2).

Consideration needs to be given to how a national strategy will interface with local plans already in development (e.g. considering aspects such how changes to course delivery modes will be implemented, and how any restrictions on social activities will be implemented). This includes plans for how universities, local health agencies and local authorities, NIHP and Government communicate with staff, students and the local community during outbreaks.

## **2. It is essential to develop clear strategies for testing, tracing and isolation**

A critical control against transmission is that people with symptoms isolate, are tested and engage with contact tracing. As such a national strategy defining key principles for additional testing in HE should be developed that can be adapted and implemented locally. This should be complementary to and part of NHS Test and Trace (NHSTT) and cover enabling students and staff to access testing easily, communication about when to get a test, support for people required to isolate if the result is positive, and guidance on recording and reporting information to facilitate contact tracing. Evidence suggests there are a higher proportion of asymptomatic cases among younger age groups, meaning that cases and outbreaks are likely to be harder to detect among some HE populations (high confidence).

Wider scale testing combined with appropriate action plans are likely to be beneficial in controlling outbreaks associated with HE. Universities are good locations to pilot both mass testing / population case detection (PCD) and new contact tracing approaches; studies that assess the effectiveness of these surveillance approaches should be carried out. Enhanced testing (beyond immediate contacts) in response to a suspected outbreak is likely to be

beneficial in detecting and preventing ongoing transmission, but may require frequent testing, as well as follow up confirmatory testing to reduce the number of false positives asked to isolate incorrectly. Evidence suggests one-off PCD could have some impact on containment where students are arriving from areas of higher prevalence but limited longer-term impact on outbreaks (medium confidence). The prevalence at which any PCD approach should be introduced / stopped should be carefully considered.

HE institutions should put in place strategies to support students and staff who are required to isolate in order to promote adherence (medium confidence), including by providing dedicated accommodation where it is feasible to do so to minimise ongoing transmission in halls of residence or shared housing.

### **3. Safe provision of student education needs to be based on a hierarchy of risk**

A layered, flexible approach should be taken to managing transmission risks that considers a hierarchy of risk (see **Annex B**), the different modes of transmission, the duration of exposure and the vulnerability of the people concerned.

The risk management strategy must consider the learning outcomes of courses and student and staff wellbeing, alongside the transmission risks associated with different activities and the risk of amplifying transmission in the community, to determine the appropriate balance of online and in-person interaction. This will vary between courses depending on the activity and the demographics of the staff and students, and will vary during the term as prevalence changes. There is strong evidence that reducing in-person interaction is an effective way to limit transmission and so delivery of activities online, especially for larger groups is a key mitigation (high confidence).

Modelling insights at the level of HE settings suggest that infection dynamics are dependent on the complex interactions between study years, courses, accommodation and social networks. Segmentation of student/staff populations (e.g. by course, year group, accommodation, site etc) should be designed to support easier detection of linked cases and, if necessary, enable more targeted closure / quarantine. Segmenting will be more effective if there are fewer contacts outside the group. It is important to consider that staff may inadvertently connect up segments (high confidence).

Principles for managing the environment and the evidence for mitigation measures have been set out previously and should address aerosol, droplet and surface transmission. Super spreading outbreaks are associated with crowded indoor spaces (high confidence) and there is growing evidence that aerosol transmission may be an important transmission route (medium confidence). Particular attention should be given to ventilation provision alongside plans for managing social distancing; together these are likely to constrain the occupancy of physical spaces for educational activities.

Face coverings are an important mitigation against droplet and aerosol transmission in shared indoor spaces especially where social distancing is difficult to maintain, or ventilation is poor (medium confidence). Some HE courses including vocational elements with close personal contact, healthcare related courses, and performing arts may pose additional risks (medium confidence) and increased consideration of PPE/face coverings, ventilation or cleaning is needed.

### **4. Accommodation and social interactions are likely to be a high-risk environment for transmission to occur**

There is clear evidence of outbreaks in HE settings in other countries, linked to accommodation and social activities and settings such as bars. Communal settings (social or accommodation) have been shown as risk factors for COVID-19 and other respiratory infections. Accommodation and social settings are likely to pose a higher risk for transmission than well-managed teaching in environments with good mitigations in place (medium confidence).

Students who are residents in university accommodation should be segmented as far as possible to co-locate courses or year groups, to minimise networks between different parts of an institution which could drive transmission (medium confidence). Clear communication to all students about COVID-19 transmission, mitigation measures including good home hygiene and ventilation, and actions to take in response to confirmed or suspected cases in their accommodation is essential. It is particularly important to promote responsible behaviours relating to social events. This may require multiple strategies for communication, engagement and enforcement developed in collaboration between the university, student groups, the local community and local authorities. Specific communications on managing risk should include commuter students and students with part time jobs, who are a point of contact between the university and social networks in other communities.

#### **5. There need to be specific strategies to consider the wider physical and mental health of students and staff, beyond COVID-19**

Whilst younger HE students are likely to have less severe COVID-19 (high confidence), this will not be true for all students and staff, and there is no strong evidence that those in HE demographics in general play a smaller role in transmission than adults in the general population (medium confidence). HE settings have a significant number of staff and students who may be more vulnerable to severe consequences of COVID-19, and this will vary between institutions.

There is likely to be co-infection with other viruses including influenza over autumn and winter<sup>3</sup> (high confidence). Maximising the influenza vaccination programme to protect at-risk groups in HE settings will be important, as will approaches to distinguish between respiratory viruses (e.g. multiplex testing).

There is evidence of physical and mental health impacts from missing or limited access to education and from the reduced social interaction and support that can arise from remote learning. Although direct evidence in HE is more limited than in schools, survey evidence related to COVID-19 indicates disruption to research and learning, lower wellbeing and increased mental distress (low confidence). Further restrictions and short-term actions such as isolation in response to test and trace may have additional impacts on wellbeing. It is important that provision is made to support mental and physical health of staff and students, beyond COVID-19. Additional support is likely to be needed in the HE sector to provide capacity beyond already stretched mental health services.

#### **6. Communication strategies are a critical part of minimising transmission risks associated with HE**

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<sup>3</sup> SAGE 47

Current guidance is complex, and many people are unclear as to what the current rules are (medium confidence). Guidance differs across the four nations of the UK, and overseas students are likely to have experienced very different sets of rules and social norms. As education providers, HE institutions are in a good position to help staff and students understand not just what ‘the rules’ are that apply to their own institution, but, more importantly, the principles that underlie these rules. This will provide better motivation for people to adhere to them, and enable them to adapt their behaviour to HE settings (medium confidence). Providing education as to how COVID-19 spreads, and how to reduce the risk, should underpin guidance and be an important induction activity.

Guidance on how to behave is more likely to be adhered to if it is co-produced with the staff and students who will be affected by it. This also reduces the risk of unexpected problems or tensions arising in implementation (medium / high confidence). Co-production is not costly or time-consuming and HE providers should seek to involve a diverse range of staff and students in developing and refining guidance and communications. Guidance should promote the salience of the group’s identity, promote safe behaviours as one of the norms of the group, and ensure that student organisations lead in promoting COVID safety. Policies and messages should take into account the diversity of social and cultural backgrounds of students and staff. Obtaining maximum support and adherence will require that messages are tested with people from different backgrounds to ensure that wording and concepts are understood, reinforced by people who are trusted, take into account the issues that people from different cultures may face (e.g. religious observances, typical living arrangements), and are sensitive to pre-existing attitudes towards health promotion and health communication (high confidence).

Disagreements, mistakes and transgressions will happen. Preventing anger, confrontation and stigmatisation will be important. Students and staff should be encouraged to adopt a supportive attitude, while engagement, explanation and encouragement should be considered for transgressions as well as enforcement.

Consistency in messaging and guidance should be sought across departments and faculties, and partner organisations, in order to reduce confusion and promote confidence. Where different rules are in place in different settings, this should ideally be explained. Apparent inconsistencies between institutions may also be problematic in reducing trust – there should be communication between neighbouring institutions or institutions that share courses or facilities.

**The section overleaf provides more detail on the evidence-based principles for HE outlined above.**

**Annex A provides detail on the characteristics of HE settings and demographics**

**Annex B outlines a hierarchy of risk controls**

## **Evidence Based Principles**

### **HE settings**

HE institutes are complex organisations with a mixture of workplace (e.g. research laboratories, administrative offices), education (e.g. lectures, library) and social contacts. HE staff and students are highly integrated into local communities: for example students and others moving into and living in on- or off-site accommodation; interactions with the local community (from social interactions and part time work); the potential for an increased number and duration of contacts outside of direct education settings (from social events to clubs and societies); differences between campus-based and other institutional settings, amongst others.

As set out in **Annex A**, HE settings are not homogenous and may have different demographics, patterns of activity and environments. HE demographics include a significant number of older staff and students, those in groups at potentially higher risk from COVID-19, and a large number of commuter students as well as those living in shared or communal accommodation.

HE provides an important role in society, directly providing substantial numbers of jobs and supporting economic and knowledge development through trained graduates and new research. Many elements of HE can successfully be delivered remotely, however there are risks to some sectors that require face-to-face elements, particularly research and healthcare where delaying qualification could have significant consequences.

SAGE has previously outlined design principles for environmental transmission<sup>4</sup> and behavioural and social interventions<sup>5</sup> which have supported plans already developed across the HE sector. The evidence below focuses on the connections between HE and communities as well as new evidence supporting environmental transmission.

### **Amplification of Transmission and Outbreak Response**

**Outbreaks in HE are very likely.** Emerging evidence from the USA suggests that universities are very likely to experience outbreaks. Many colleges have already seen outbreaks as students have returned to campus, with one survey identifying over 26,000 cases across over 750 colleges<sup>6</sup>. For example, UNC Chapel Hill saw 175 COVID-19 cases by Aug 5<sup>h7</sup>, and has since reversed plans for in-person classes<sup>8</sup>. The University of Alabama experienced >560 positive cases around a week after classes reopened<sup>9</sup>. Some have suggested the US experience supports joined-up potential measures such as curbing community transmission, quarantine of students on/before arrival, and mass testing<sup>10</sup>, although evaluation of these interventions is still required (see elsewhere in this paper for discussion on the evidence for these).

Although national prevalence is lower, for example in England the large number (135) of HE institutions implies that it is highly likely that there will at least one major incident before the

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<sup>4</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/892043/S0484\\_Transmission\\_of\\_SARS-CoV-2\\_and\\_Mitigating\\_Measures.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/892043/S0484_Transmission_of_SARS-CoV-2_and_Mitigating_Measures.pdf)

<sup>5</sup> E.g.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/892046/S0217\\_Principles\\_for\\_the\\_design\\_of\\_behavioural\\_and\\_social\\_interventions.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/892046/S0217_Principles_for_the_design_of_behavioural_and_social_interventions.pdf)

<sup>6</sup> <https://www.nytimes.com/interactive/2020/us/covid-college-cases-tracker.html>

<sup>7</sup> <https://www.medrxiv.org/content/10.1101/2020.08.09.20171223v1.full.pdf>

<sup>8</sup> <https://edition.cnn.com/2020/08/17/us/coronavirus-college-university/index.html>

<sup>9</sup> <https://uasystem.edu/covid-19-dashboard>; accessed 25 Aug

<sup>10</sup> <https://www.bmj.com/content/370/bmj.m3365>

end of 2021. If the risk of a major outbreak is reduced to 1% for each university in the first term, the probability of at least one major outbreak is 74%.

**Asymptomatic transmission is a key risk in university settings.** Current SAGE advice on asymptomatic infection indicates uncertainty remains: between 30-80%<sup>11</sup> of all infections could be asymptomatic. This may vary by circumstance. NERVTAG are due to review this shortly. The proportion of infections that are asymptomatic may also vary with age, with more asymptomatic infections in younger age groups<sup>12</sup>. For example, one large contact tracing study found 18.1% (95%CI, 13.9-22.9%) of infected people under 20 developed symptoms vs 64.6% (95%CI, 56.6-72%) of those over 80<sup>13</sup>.

SAGE has previously noted that individuals likely to facilitate super-spreading events may be asymptomatic or paucisymptomatic, however studies of cluster tracing internationally did not identify schools or universities as centres of these events. There is medium confidence in this as national and international closures have meant there has been little opportunity for transmission<sup>14</sup>, but the high numbers of US cases linked to universities suggest asymptomatic transmission is significant.

**Increased cases and outbreaks in HE have the potential to amplify national transmission:** The relative importance of HE in changing the geographical distribution of infection will depend on the background incidence and extent of regional variation across the UK and overseas (international students arriving from countries with no mandatory quarantine period). This may also partially be mitigated by local lockdown measures, if restrictions apply to students leaving/entering the area.

As well as migration to HE locations, a key time point will be the end of the first/Autumn term in winter, when a large number of infected students may be moving to areas of the country with low prevalence. The view of SPI-M is that migration at the end of term warrants more attention than that at the start of term, as universities may act as amplifiers<sup>15</sup>. If there is an outbreak at a university (even if not widespread transmission), then students returning home could pose a risk to their home households and local communities. If outbreaks are large and common, then the risk of widespread dissemination of transmission is high. For many students, term will end in mid-December, which means that the peak health impacts of newly seeded infections due to this mass movement will fall between Christmas and New Year. This is at a point identified nationally as potentially critical for COVID-19 resurgence and with challenges for the health and care system<sup>16</sup>. Epidemic modelling discussed at SPI-M based on detailed contact data from within one HE institution suggests that large outbreaks are possible, peaking during November or later. If students return home normally at the end of term during a large outbreak, or if a university decides to close in response to an outbreak and students return home, this poses a particular risk with large numbers of students travelling at the same time. This risk multiplies if outbreaks occur in multiple institutions.

The potential national seeding of cases from student migrations will be highly dependent on background incidence, regional variation and whether university outbreaks are underway. The response of sick students, and whether they return home during isolation, is likely to be

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<sup>11</sup> SAGE 41, 11<sup>th</sup> June 2020

<sup>12</sup> SAGE 36

<sup>13</sup> <https://arxiv.org/abs/2006.08471>

<sup>14</sup> SAGE 42 minutes, 18<sup>th</sup> June 2020

<sup>15</sup> TFC subgroup of SPI-M-O: comments on schools and universities, 8<sup>th</sup> July 2020; provided to SAGE

<sup>16</sup> <https://acmedsci.ac.uk/file-download/51353957>



more of an impact. Additional origin-destination data on students is needed to inform this analysis. However, there remains a gap in understanding of the 2020/21 cohort, and how this may differ from assumptions based on previous years. In some institutions significantly more than expected first-year students resulting from the issues with A-level grading may create additional risks relating to pressure on teaching space and accommodation.

**Increased cases and outbreaks in HE could increase local prevalence:** The potential for “spillover” into the local community during term-time will depend on the characteristics of the university (or universities) and level of integration with the wider population. Universities with higher numbers of commuter students, higher numbers of students with jobs or on work placements and greater integration of student accommodation with a local community (e.g. houses of multiple occupation) are all likely to enhance the number of contacts with an area; it is central to understanding of infectious disease that higher contact rates increase transmission risks. All measures to reduce the risk and size of outbreaks within universities and rapid detection and containment of outbreaks within universities would all help limit transmission to the wider community.

Transmission risk is affected by the duration and type of contact, not simply the number of contacts. The risk of a wider outbreak is also influenced by the degree of clustering. If contacts are highly clustered then this will limit the potential for extensive transmission chains (e.g. students from the same course living and socialising together vs. students living and socialising with those with completely different networks, such as via a student society or sports club). Effective segmentation reduces the potential size of outbreaks.

**HE institutions should plan for an increase in cases or an outbreak associated with their setting.** Evidence from the US suggests that outbreaks are very likely and universities may have to adapt elements of their provision at very short notice. At least the following possibilities for outbreaks should be assumed and planned for:

- An increased prevalence locally which may require enhanced interventions to be observed by the whole community including students and staff
- A large-scale outbreak which may result in substantial restrictions implemented at a local level that impact on HE activities
- A localised outbreak associated with student accommodation, either halls of residence or houses of multiple occupation
- A localised outbreak associated with a particular student/staff cohort or academic department
- Multiple outbreaks in different HE settings, or particularly large-scale outbreaks, that could have significant impact on national transmission.

**Strategies to mitigate amplified transmission risk should have national coordination.** HE and national plans should flexibly and proactively consider how to mitigate associated risks, including through testing, quarantine/isolation, staggering term end dates or other measures. Mitigation of risks will require flexible decision-making throughout the term to avoid a high prevalence in students in mid-December.

As well as linking between HE institutions and local public health teams, it is essential that outbreak response plans are linked into the national NIHP C-19 strategy to enable national level monitoring and decision making. NIHP should put this into place as soon as possible in consultation with DfE, local public health teams and HE institutions.

**Effective systems to record and respond to cases, particularly those within accommodation or academic departments, are required to be able to understand where transmission is occurring within HE settings.** Currently the definition of a ‘cluster’ and ‘outbreak’ relates to “two or more test-confirmed cases of COVID-19 among individuals associated with a specific non-residential setting”<sup>17</sup>; whilst this may apply, in HE settings responses should consider if clusters/outbreaks are related to e.g. specific sites or sections of the estate. Many US universities have developed reporting systems to manage and understand transmission. For example, University of Colorado, Boulder and the University of Florida have a data dashboard reporting cases within the university and the local area<sup>18,19</sup>, while the University of Arizona have developed a sophisticated contact tracing app that accounts for duration of exposure, direction and infectiousness of the case.

Reporting systems need to be developed in collaboration between NIHP and HE institutions to effectively record and share data as part of the outbreak response plans. Contact tracing apps are not generally available at present, however Universities are likely to be good locations to pilot such approaches if they are developed.

**Local response plans should reflect the different measures needed under different outbreak scenarios.** Plans should take account of potential negative impacts on mental health and wellbeing and impacts on social activities as well as the delivery of education. This should include when and how changes to course delivery modes will be implemented, and how any restrictions on social activities will be implemented. In the event of a wider shutdown response, HE institutions should put plans in place to maintain/restart activities such as research laboratories as quickly as can safely be achieved.

**There should be clear plans for communication and encouraging adherence if an outbreak occurs.** If cases, or rumours of cases, occur on campus or in residences, it may produce a divisive and anxious atmosphere for both staff and students, and the wider community. This would be intensified by having no clear signal of how many cases would represent a dangerous situation for the community. HE administrations should work closely with their local public health authority to determine appropriate messaging and measures. Messaging from HE institutions to the surrounding community or district about its COVID-secure practices is important to prevent social division.

Generic principles of crisis communication will apply during an outbreak. People will expect to receive information that they can trust. Updates will need to be given regularly and at predictable times, and through a range of mechanisms. Uncertainties should be acknowledged together with information on how they are being resolved. Feedback should be sought on what people do not understand, on what rumours are circulating, or on where communication is going wrong. Above all, concrete actions should be communicated – what do people need to do? Institutions should take time now to think through how they will communicate under a range of possible scenarios.

**Clear guidance and support needs to be given to staff and students who commute in the event of imposition of local or regional restrictions.** Students or staff may live in a different geographic region to their university, which may have different restrictions depending on prevalence (e.g. Leeds currently has different rules to parts of Bradford).

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<sup>17</sup> <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/epidemiological-definitions-of-outbreaks-and-clusters-in-particular-settings>

<sup>18</sup> E.g. <https://www.colorado.edu/covid-19-ready-dashboard>

<sup>19</sup> <https://coronavirus.ufhealth.org/screen-test-protect-2/about-initiative/testing-dashboard/>

Flexibility will be required to enable such staff and students to engage remotely if they are unable or unwilling to travel due to restrictions, and staff and students must not feel under actual or perceived pressure to continue to attend campus if this contravenes restrictions.

### **Testing, tracing and isolation (TTI)**

**It is important that testing plans in HE settings are complementary and linked-up with NHSTT. TTI plans in HE settings should explicitly consider interactions with other mitigations, student and staff welfare and behaviour, and vulnerable groups.** Accurate and effective testing and contact tracing across all relevant settings – not just the university – will be vital in HE settings. This includes the coverage of / engagement with the system, testing strategies, and adherence to measures such as quarantine.

SAGE has repeatedly outlined evidence for the importance of testing and tracing approaches, including that an effective test and trace system ideally covers 80% of contacts<sup>20</sup> and the importance of cluster tracing including backwards contact tracing<sup>21</sup>. Current evidence suggests it is premature to use antibody testing to support e.g. ‘immunity passports’<sup>22</sup>. SAGE have also emphasised the importance of engagement with the test and trace system, including effective communications and transparency<sup>23</sup>. Improving adherence should be a principal target<sup>24</sup>. The predictive value of any testing approach will substantially depend on prevalence, sensitivity and specificity, with a high specificity test necessary to minimise false positive rates<sup>25</sup>.

**A national plan for testing and isolation must be developed that can be adapted and implemented locally.** Current evidence from the general community suggests that uptake of testing among people who have cough, fever or anosmia is low. Estimates range from 12% (among people with symptoms responding to polls<sup>26</sup>) to 35% (derived by dividing the number of cases identified per day in pillar two by NHS Test and Trace by the daily incidence estimated by the Office for National Statistics<sup>27</sup>). Staff and students must be encouraged and supported to obtain a test. This will require them to:

- a) Understand the symptoms that should trigger a test;
- b) Understand that a test must be requested for even mild symptoms, and that a “wait and see” approach is not acceptable;<sup>28</sup>
- c) Have very easy access to a test facility, given that lack of transport will be a major barrier, and be assured that accessing a test and receiving the result is straightforward and hassle-free<sup>29</sup>;
- d) Be assured that any perceived negative consequences to requesting a test will be dealt with, without hassle. If staff or students feel that the result of a test may have a

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<sup>20</sup> SAGE 32

<sup>21</sup> SAGE 40

<sup>22</sup> SAGE 45

<sup>23</sup> SAGE 45

<sup>24</sup> SPI-M-O consensus statement, 19<sup>th</sup> Aug

<sup>25</sup> Multidisciplinary Task and Finish Group on Mass Testing, Consensus Statement for SAGE, 31 Aug 2020

<sup>26</sup> Smith LE, Potts HWW, Amlot R, Fear NT, Michie S, Rubin GJ. Adherence to the test, trace and isolate system: results from a time series of 21 nationally representative surveys in the UK (the COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR] study). Submitted

<sup>27</sup> <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveypilot/englandandwales21august2020>

<sup>28</sup> Carter P, Megnin-Viggars O, Rubin GJ. What factors influence symptom reporting during an emerging infectious disease outbreak? A rapid review of the evidence. <https://www.medrxiv.org/content/10.1101/2020.08.20.20176529v1>, July 23 2020

<sup>29</sup> <https://www.medrxiv.org/content/10.1101/2020.07.23.20159897v1.article-info>

negative impact on their studies, pay, workload, peers or colleagues, this will be a disincentive to request a test or to reveal their symptoms.<sup>30</sup>

e) Be able to effectively isolate, as discussed in the section below

**For a given capacity of testing, careful consideration should be given to the approach that will be most beneficial.** The SAGE Task and Finish Group on Mass Testing (TFMS) has advised that ‘population case detection’ (PCD) – testing of regular and/or large-scale testing of defined populations regardless of if they have symptoms, should be carefully considered alongside the benefit of investing equivalent resources into the speed and coverage of testing symptomatic cases and contacts through NHSTT and/or improving adherence to isolation<sup>31</sup>. Similarly, a high prevalence of general respiratory symptoms, such as related to influenza in winter, could significantly increase testing demand and may require approaches such as multiplex testing<sup>32</sup>. PCD in populations with low prevalence that does not use an extremely high specificity test could result in a higher number of false positive than true positive individuals required to isolate – something that could be mitigated with further rapid confirmatory testing.

**One-off PCD before a long-duration activity such as at the start of university terms may not provide much benefit in preventing outbreaks but could have some impact on containment where students are arriving from areas of higher prevalence.** For preventing outbreaks in general, the potential for repeated introductions means that even high sensitivity one-off testing will have limited impact. Testing incoming students for containment is equivalent to testing international travel arrivals, and pre- or post-arrival quarantine could be as effective, if adhered to. One-off testing immediately prior to the end of term may support decisions for individual students in terms of isolating when returning home. Testing mid-term is more likely to be useful to inform national-level decisions with information on the potential impact of end of term migration, although it would be an inefficient surveillance approach.

**Regular PCD is most likely to be beneficial and feasible in cluster outbreak scenarios and well-defined higher-risk settings, which could include universities. The background prevalence, aims, and actions triggered by positive results need to be carefully considered.** As noted above, HE settings and demographics are not homogenous and differ widely. Differences in background prevalence, environments, behaviour and the mitigations in place, among others, will all have an impact on the level of risk in specific HE populations. To have confidence in early detection of a large proportion of infectious individuals would require frequent testing and fast turn-around times; for example one modelling study estimated that for current estimates of PCR test sensitivity, weekly screening of healthcare workers and a 24h delay from testing to isolation could reduce their contribution to transmission by 23% on top of self-isolation following symptoms<sup>33</sup>. Lower test sensitivity and/or frequency of testing would reduce the effectiveness of these approaches. As noted above, the prevalence at which any PCD approach is introduced and ceased, as well as the impact of test specificity on false positives, needs to be carefully considered.

**Any potential enhanced or mass testing approaches should be informed by emerging research and pilots – including those in HE settings – and consider the best timing**

<sup>30</sup> Webster RK, Liu R, Karimullina K, Hall I, Amlôt R, Rubin GJ. A systematic review of infectious illness Presenteeism: Prevalence, reasons and risk factors. BMC Public Health. 2019;19(1) doi:10.1186/s12889-019-7138-x.

<sup>31</sup> Multidisciplinary Task and Finish Group on Mass Testing, Consensus Statement for SAGE, 31 Aug 2020

<sup>32</sup> <https://acmedsci.ac.uk/more/news/prepare-now-for-a-winter-covid-19-peak-warns-academy-of-medical-sciences>

<sup>33</sup> Grassly et al. Lancet Infect Dis, 2020. [https://doi.org/10.1016/S1473-3099\(20\)30630-7](https://doi.org/10.1016/S1473-3099(20)30630-7)

**and approach for specific outcomes.** For example, some but not all US colleges have ordered mandatory regular testing of students and staff, and of these some have university-level testing/tracing, monitoring and isolation systems and support. Many are requiring tests prior to returning to campus, with students either providing proof of a negative test or being tested on arrival. Some are using innovative testing, for example the University of Illinois is providing rapid saliva-based testing that can return results in 6 hours to everyone on campus twice per week<sup>34</sup>.

Both HE and FE settings are good locations to test the potential for enhanced testing strategies and technologies, and research pilots to explore effectiveness are taking place in a number of UK universities. Similarly, universities may be good testbeds to explore the effectiveness of other approaches such as contact tracing apps. Where universities carry out their own testing, it is important that results are shared with NHSTT.

**Testing for students training across Higher Education, Clinical and Social Care settings should align to NHS requirements.** Many HE institutions work in partnership with NHS Trusts and other Health and Social Care providers to provide supervised experiential training. This training is essential to develop "first-day competence" and is mandated by regulators for professional registration. To gain experience students will by necessity rotate through different departments and places of care in short intervals. It is important to return these students to training. Many have a role in direct care albeit supervised. Some Health and Social Care providers have requested that Higher Education Institutes (HEI) provide evidence that students are COVID-free before each rotation, however this is not always practical or consistent with guidance. These students are well placed to be trained in best Infection Prevention Control practice by their HEI prior to entering the direct care setting. This training should be a priority for HEIs. HEIs should not be asked by Health and Social care providers to certify that students are COVID-free. However, enhanced regular testing to minimise importation of infection from care settings to universities may also be appropriate for students and staff associated with such courses due to their regular contact with patients.

**Outbreak responses: contact tracing and PCD.** It is important to ensure effective mechanisms to facilitate contact tracing, and to pay particular attention to those spaces where mechanisms are not already in place to record this information such as shared study spaces, computer clusters and visitors. Enhanced testing in response to clusters may be an appropriate strategy when contact tracing is challenging or there is concern over wider transmission. This could for example include testing a whole accommodation block, course year group or department. Such a strategy needs to have clearly defined outcomes and consideration of frequency of repetition (see PCD principles above) and should not replace symptomatic testing and contact tracing.

**Testing must be supported by appropriate planning and support for students and staff quarantining.** In particular, the implications of testing for numbers in isolation or quarantine and how institutions plan to effectively accommodate this should be part of the decision-making. For example: if there is no segmentation of students in place, SPI-M indicate that relatively few infections could result in the majority of an institution needing to isolate/quarantine. The optimal testing strategy will depend on adherence to isolation; this in turn is influenced by the support in place.

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<sup>34</sup> <https://news.illinois.edu/view/6367/1795135071>

Among people reporting symptoms of COVID-19 in England, self-reported adherence to isolation is low<sup>35</sup>, and self-reported ability to self-isolate is three times lower in those with incomes less than £20,000 or savings less than £100<sup>36</sup>. This is likely to affect many staff contracted from private companies including cleaning, catering and security staff, and may be particularly relevant for students who rely on part-time employment to enable them to pay fees and support themselves. There is minimal evidence on the extent to which students comply with self-isolation for COVID-19, but analysis of a large US influenza outbreak<sup>37</sup> showed compliance with isolation was very poor with over 93% of students reporting leaving their accommodation before the recommended 7 days, and 50% leaving daily. A large proportion were concerned over missing classes, while others were going out for food/medicine, or just felt OK or wanted to go out. 44.7% reported attending social activities before 7 days had passed, and 35.9% had visitors while they were still sick. Nearly half left campus for >1 day while sick (44.9%) including going to parents or friends' homes. It likely that those who are not in self-contained accommodation will find it more challenging to comply. Among people with symptoms in the general community, 75% report having left the home in the past 24hrs.<sup>38</sup>

Where a positive result is identified and a student or member of staff is required to self-isolate, support from the institution will be essential. Being placed into isolation or quarantine is often an upsetting experience.<sup>39</sup> For students in university accommodation, this may be compounded by being in an unfamiliar setting, away from usual sources of social support, with limited space, and feeling that social and educational activities are moving on without you. For staff or students outside of university accommodation, there will be fears about the potential of infecting other members of the accommodation (including vulnerable family members for staff and for students who live at home). Evidence on improving adherence to isolation is available elsewhere.<sup>40</sup> HE institutions can promote adherence and reduce distress if they:

- a) Inform people in advance what will happen in these circumstances. This may help to reduce the stress involved by making the situation more predictable and may increase intention to isolate<sup>41</sup>. Ensuring people know the rules around self-isolation and quarantine is essential.

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<sup>35</sup> Smith LE, Potts HWW, Amlot R, Fear NT, Michie S, Rubin GJ. Adherence to the test, trace and isolate system: results from a time series of 21 nationally representative surveys in the UK (the COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR] study). Submitted.

<sup>36</sup> <https://www.medrxiv.org/content/10.1101/2020.04.01.20050039v1>

<sup>37</sup> Tarissa Mitchell, Deborah L. Dee, Christina R. Phares, Harvey B. Lipman, L. Hannah Gould, Preeti Kutty, Mitesh Desai, Alice Guh, A. Danielle Iuliano, Paul Silverman, Joseph Siebold, Gregory L. Armstrong, David L. Swerdlow, Mehran S. Massoudi, Daniel B. Fishbein (2011) Non-Pharmaceutical Interventions during an Outbreak of 2009 Pandemic Influenza A (H1N1) Virus Infection at a Large Public University, April–May 2009, *Clinical Infectious Diseases*, Volume 52, Issue suppl\_1, January 2011, Pages S138–S145, <https://doi.org/10.1093/cid/ciq056>

<sup>38</sup> Rubin GJ, Smith LE, Melendez-Torress GJ, Yardley L. Improving adherence to Test, Trace and Isolate. *Journal of the Royal Society of Medicine*.

<sup>39</sup> Brooks SK, Webster R, Smith LE, Woodland L, Wessely S, Greenberg N, Rubin GJ. The psychological impact of quarantine and how to reduce it: Rapid evidence review. *Lancet* 2020;395:912-920. See also SN Williams, Armitage CJ, Tampe T, et al. Public perceptions and experiences of social distancing and social isolation during the COVID-19 pandemic: a UK-based focus group study. *BMJ Open* 2020;10:e039334. doi: 10.1136/bmjopen-2020-039334.

<sup>40</sup> RK Webster, Brooks SK, Smith LE, Woodland L, Wessely S, Rubin GJ. How to improve adherence with quarantine: Rapid review of the evidence. *Public Health*. 2020 Mar 30.

<sup>41</sup> Martiny-Huenger, T., Bieleke, M., Oettingen, G., & Gollwitzer, P. M. (2016). From thought to automatic action: Strategic and spontaneous action control by if-then planning. In *Reflective and impulsive determinants of human behavior* (pp. 81-96). Routledge

- b) Ensure that policies are in place that prevent staff or students from worrying that they will be penalised or will miss out by adhering to isolation. This will need to include clear rules and reassurance around coursework extensions, visa regulations, ability to catch-up on missed lectures, and preventing any financial loss.
- c) There is evidence that adherence to isolation and quarantine is higher in people who appreciate its importance for public health<sup>42</sup>. This may be less immediately apparent for young adults, who suffer less severe illness. Focussing on the importance of reducing transmission to others who are more vulnerable may be useful.
- d) Highlighting isolation and quarantine as a social norm will promote adherence. It should be portrayed as something that is expected and respected by staff and students.

Practical support is essential for those in isolation or quarantine. People who receive help from outside the home are more likely to adhere<sup>43</sup>. Although help can be provided from multiple routes (local council, friends and family, voluntary sector), HE institutions will need to take a lead on this for people in student accommodation.

**If possible, Universities should consider providing dedicated accommodation facilities to enable students who test positive to effectively isolate if they require it.**

This will enable students to isolate away from others they share accommodation with to minimise the risk of an outbreak, as well as discouraging students returning home when sick which risks importing cases into a new geographical area. They may also wish to provide access to dedicated accommodation facilities for other members of their community in isolation, such as commuter students or staff who are concerned about exposing vulnerable family members.

Good practical support (including access to food and medical care) and information will help reduce distress among people in isolation. Preventing boredom, resolving fears around financial impact, and ensuring that there is no stigma attached to being in isolation should help mitigate any distress<sup>44</sup>. Access to more formal mental health provision (e.g. an institution's counselling service) may also be required, particularly for staff or students with pre-existing mental health needs.

**Safe Provision of Education**

**A layered, flexible approach should be taken to managing transmission risks that considers a hierarchy of risk (see Annex B), the different modes of transmission, the duration of exposure and the vulnerability of the people concerned.** Information from UUK indicates that most universities are already planning on the basis of blended learning, with most large-scale lectures provided online and in-person contact limited to smaller groups such as tutorials and practicals. There is not a clear optimum approach and the balance of online vs in-person activity will depend on the course and institution as well as prevalence of infection.

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<sup>42</sup> Webster RK, Brooks SK, Smith LE, Woodland L, Wessely S, Rubin GJ. How to improve adherence with quarantine: Rapid review of the evidence. *Public Health*. 2020 Mar 30.

<sup>43</sup> Smith LE, Amlöt R, Lambert H, Oliver I, Robin C, Yardley L, Rubin GJ. Factors associated with adherence to self-isolation and lockdown measures in the UK; A cross-sectional survey. *Public Health*. <https://www.medrxiv.org/content/10.1101/2020.06.01.20119040v1>

<sup>44</sup> Brooks SK, Webster R, Smith LE, Woodland L, Wessely S, Greenberg N, Rubin GJ. [The psychological impact of quarantine and how to reduce it: Rapid evidence review](#). *Lancet* 2020;395:912-920.

Evidence from other countries shows variable approaches, but not yet any indication of their effectiveness. In Germany, the start of the autumn semester has been delayed a month to November with the intention of reducing the immediate impact on community transmission<sup>45</sup>. In the US, approaches are mixed. In an initiative monitoring ~3000 colleges' plans for autumn, 177 plan to open fully online, 793 primarily online, 457 with a hybrid approach, 578 primarily in person, 73 fully in person, with others undecided<sup>46</sup>. In France, €1-5m grants have been made available to universities to produce more digital content for remote learning and to adapt campuses for effective social distancing<sup>47</sup>.

A clear principle from the hierarchy of risk control is that elimination (e.g. removing in-person activities) is the most effective approach to control transmission, followed by substitution (e.g. changing the activity to substantially reduce interaction). Alongside any adjustments to enable in-person provision, it is important that access to online learning is also considered, both in terms of accessibility of materials for different students and in their ability to engage effectively including whether they have appropriate equipment, working spaces and internet connections.

Infection dynamics within a university are likely to be highly dependent on the interplay of different layers of networks across years of study, courses/modules, accommodation and wider social networks. For example: simulation of transmission within the Bristol student population suggests that infection would be concentrated in first-year undergraduates<sup>48</sup>. This is due to the number of students in the same university halls and that this student accommodation is mixed across different courses. Second- and third-year undergraduates may be less affected given their smaller households and as their term-time residence contacts are highly assortative (i.e. they tend to live with others in the same year and department). Other HEI will likely be differently connected.

Networks and student behaviour will likely differ for campus vs. city universities, by size and type of accommodation (e.g. self-contained flats vs. dorms; whether catered), structure of course and study (e.g. if multiple courses share modules vs. smaller class-based groups) etc. Some institutions will have different scales of networks, such as collegiate institutions (e.g. York, Durham etc) or different sites (e.g. UCL). Sharing facilities and accommodation with other universities (e.g. residence blocks) will result in more extensive networks.

**Segmentation** means creating small, sub-networks such that one person infected has limited chance of infecting outside of their sub-network. Segmentation has significant advantages: reduces transmission risk (a smaller number of people to infection), easier to control (smaller number of known contacts) and less disruptive to control (small number of people to quarantine or test). The smaller a sub-network, the smaller the risk that it has any infection in it.

- Segmentation of groups may also support easier detection of linked cases - two or more cases in the same segment would provide a signal of where transmission is likely to be occurring. This requires that it is known which students are in which segment.

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<sup>45</sup> [https://www.daad-brussels.eu/en/2020/04/21/measures-for-german-universities-due-to-the-corona-crisis/#:~:text=On%20%20April%2C%20the%20Standing,2020%20\(for%20all%20L%C3%A4nder\).](https://www.daad-brussels.eu/en/2020/04/21/measures-for-german-universities-due-to-the-corona-crisis/#:~:text=On%20%20April%2C%20the%20Standing,2020%20(for%20all%20L%C3%A4nder).)

<sup>46</sup> <https://collegecrisis.shinyapps.io/dashboard/>

<sup>47</sup> <https://www.researchprofessionalnews.com/rr-news-europe-france-2020-6-minister-seeks-proposals-on-university-hybridisation/>

<sup>48</sup> Modelling SARS-CoV-2 transmission and control within University of Bristol; Ellen Brooks-Pollock et al; the University of Bristol COVID-19 modelling subgroup of the Scientific Advisory Group; provided to SPI-M



- Rather than quarantining an entire course or halls of residence, use of segments may also mean that certain classes or flats can be quarantined instead, minimising wider disruption. This is particularly important when considering numbers in quarantine – if there were no controls or segmentation in place, relatively few infections could result in the majority of a university needing to be isolated.
- Staff (academic and non-academic) should also be included in segments where possible rather than bridging groups. Particular attention will need to be given to settings such as libraries and professional service staff.

The heterogeneity across institutions means that there is unlikely to be an optimum segmentation that applies to all institutions. However, nesting of accommodation networks within teaching or study networks will generally be beneficial. Similarly, influencing social structures and networks within institutions, for example: segmentation of year groups or course/modules, and alignment of networks will enhance segmentation. Keeping staff and students at single sites, if possible, would be ideal.

Shared facilities such as accommodation rooms, social spaces, and buildings/services across sub-networks should be reduced to a minimum. Reduction of overlapping networks with other universities, particularly any shared halls of residence, will reduce risk of large outbreaks across multiple HEI.

The effectiveness of segmenting groups on transmission will be affected by the wider context and population measures in place – segmentation will have greater impact if there are fewer contacts outside the group (i.e. fewer relaxation of measures). If wider community transmission is nationally high, then the subtleties of dynamics within universities and their role in spread across the country also becomes less relevant.

**Particular attention should be paid to courses and settings that connect up staff and students across the institution or between organisations.** Courses that involve work placements should consider the potential to transfer infection between organisations and need specific risk assessments that consider both environments. Libraries, computer clusters and shared study spaces are used by multiple students and may connect up cohorts/segments. Measures could include restricting use to particular courses/year groups, rotas for use, enhanced cleaning, and strong messaging about hygiene. Timetabling should consider the risks associated with moving groups of students around multiple buildings on a campus.

**Staff who have contact with many students or other staff, or work across multiple locations, will need to take particular care and be offered greater protection by their employers and colleagues.** SAGE has previously produced guidance on the specific issues relating to people with a high number of contacts<sup>49</sup>. This emphasises the need for people to avoid close, prolonged indoor contact with anyone as far as possible (at work, when travelling and in social contexts) and for people with different social networks to avoid meeting or sharing the same spaces. The responsibility for this lies with everyone – the staff involved, their colleagues and their employers. HE employers should consult in particular with professional service staff, who may have the highest level of contacts with students, and with students. In addition, workers who carry out more potentially exposing activities such as cleaners should be consulted.

**Flexibility in plans for management of transmission is required as risks are dynamic.** Environmental and behaviour modifications will reduce risk of transmission, and therefore

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<sup>49</sup> E.g. <https://www.gov.uk/government/publications/managing-infection-risk-in-high-contact-occupations-11-june-2020>

risk of outbreaks, rather than negate them. The risk of transmission is largely determined by the prevalence of infection in staff and students, and if this becomes high, then increasing on-line delivery for some or all courses will be necessary to reduce prevalence and prevent large-scale outbreaks.

### **Managing Environmental Transmission**

Principles for managing transmission risk and evidence for multiple mitigation strategies have been set out in previous EMG papers<sup>50</sup> and indicate that there is evidence for three modes of transmission (aerosol, close range droplet, surfaces). Duration of exposure is important with transmission more likely in spaces where people spend a long period of time with others (e.g. classrooms, offices, labs, workshops, staff room) rather than spaces where there is a very short duration of interaction (e.g. passing in the corridor or on the staircase).

**Aerosol transmission may be a significant mode of transmission especially for super spreading events which lead to multiple secondary cases.**<sup>51</sup> The environment in many HE buildings is conducive to aerosol transmission with poorly ventilated classroom and staff office spaces (where tutorials are held) posing a particular risk. There is evidence to support enhanced risk associated with certain activities:

- Dentistry is recognised to be a particular challenge as many procedures involve aerosol generation within multi-bay dental environments, as well as during placements in dental surgeries. Guidance on dental surgeries have been provided<sup>52</sup>, but further research is needed on multi-bay settings. Course providers should consider using proxy approaches such as dummy heads etc for training but ensure these are well cleaned.
- There is emerging evidence that loud singing and speech can generate more aerosols and so could enhance risks, which may pose challenges for performing arts courses as well as loud speech during lecturing and presentations. Mitigation measures will include 2m distancing, face coverings for those not performing, ensuring spaces have enhanced ventilation, restricting sizes of groups and duration of activities and using microphones<sup>53</sup>.
- There is evidence of higher transmission with enhanced aerobic activity<sup>54</sup>. Sports based courses should ensure distancing and good ventilation.

**Ventilation should be given a similar weighting to other control measures.** There is evidence from several settings that low ventilation rates are associated with higher transmission rates<sup>55</sup>. Actions should include:

- Identifying spaces where there is no provision of ventilation. Ideally activities in these spaces should be relocated, but if this is unavoidable then restrict these spaces to single occupancy or for very short durations by more than one person. In the latter case, face coverings should be worn.

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<sup>50</sup>e.g.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/892043/S0484\\_Transmission\\_of\\_SARS-CoV-2\\_and\\_Mitigating\\_Measures.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/892043/S0484_Transmission_of_SARS-CoV-2_and_Mitigating_Measures.pdf)

<sup>51</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/907587/s0643-nervtag-emg-role-aerosol-transmission-covid-19-sage-48.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907587/s0643-nervtag-emg-role-aerosol-transmission-covid-19-sage-48.pdf)

<sup>52</sup> <https://www.scottishdental.org/wp-content/uploads/2020/08/Ventilation-Final-Copy-1.pdf>

<sup>53</sup> PHE singing/wind instruments (SWI) working group paper to SAGE; 13/08/2020

<sup>54</sup> [https://wwwnc.cdc.gov/eid/article/26/8/20-0633\\_article](https://wwwnc.cdc.gov/eid/article/26/8/20-0633_article)

<sup>55</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/907587/s0643-nervtag-emg-role-aerosol-transmission-covid-19-sage-48.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907587/s0643-nervtag-emg-role-aerosol-transmission-covid-19-sage-48.pdf)

- Identifying spaces which rely on opening windows for ventilation and considering how best to make provision for winter. This should include appropriate communications to people who use the space to make sure they don't inadvertently shut off ventilation.
- Ensuring all spaces with multiple occupants are well ventilated. This should aim to meet current guidance on ventilation rate for the setting. This is typically 10 l/s/person, based on full occupancy, with higher rates recommended in performance and sports settings as detailed in DCMS guidance.
- Considering a shorter duration of in person activities with intermittent "fallow time" between classes to ventilate a space may be a beneficial approach to reduce risk for spaces that are used by different groups or one group over an extended period<sup>56</sup>
- Considering the addition of appropriately sized air cleaning devices in spaces which can't be effectively ventilated and are essential to use<sup>57</sup>
- Providing suitable information to staff and students to assure them that the ventilation provision is appropriate, and if necessary has been checked.

Ongoing work through the Virtual Forum for Knowledge Exchange in the Mathematical Sciences (V-KEMS) and RAMP groups are looking at modelling risk in settings such as lecture rooms. An online risk calculator has been developed by researchers at CU Boulder which enables aerosol transmission risk (doesn't include close range droplet) to be related to occupancy of a space, duration of activity and ventilation rate<sup>58</sup>, shows that transmission is likely unless occupancy is decreased and/or ventilation enhanced. SAGE work on singing and music<sup>59</sup> shows enhanced aerosol generation in performing arts poses an even greater risk and requires larger rooms and significantly increased ventilation to mitigate.

**Face coverings are an important mitigation.** Face coverings act as a source control and provide some protection to the wearer. There is good evidence for their effectiveness in preventing droplets from being released by an infected person and some evidence that they can reduce the exposure of someone else to those droplets. They may also limit aerosol transmission by capturing droplets at the source and hence preventing them evaporating into smaller aerosols that can remain suspended in air.<sup>60</sup> Their use will therefore have the greatest benefits in scenarios where (i) people have to come into close proximity, even for a short period of time, and hence could be exposed to higher concentrations of aerosols and droplets close to an infected person, and (ii) people are in the same shared space for a period of time and breathing the same air, particularly if the space is poorly ventilated or there is activity that could produce enhanced aerosols.

The advice below reflects the relatively low community prevalence at the time of writing; if cases increase within a community or among a particular student body it would be appropriate to consider further extending the use of face coverings to a greater range of shared indoor spaces.

Face coverings are most likely to be beneficial as part of a risk mitigation strategy in the following cases:

- During educational activities that require close contact with another person as part of the training (e.g. elements of dentistry, medical and nursing courses). It is

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<sup>56</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7362827/>

<sup>57</sup> SAGE EMG, Application of UV disinfection, visible light, local air filtration and fumigation technologies to microbial control, 18<sup>th</sup> May 2020

<sup>58</sup> <https://cires.colorado.edu/news/covid-19-airborne-transmission-tool-available>

<sup>59</sup> PHE singing/wind instruments (SWI) working group paper to SAGE; 13/08/2020

<sup>60</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/907587/s0643-nervtag-emg-role-aerosol-transmission-covid-19-sage-48.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907587/s0643-nervtag-emg-role-aerosol-transmission-covid-19-sage-48.pdf)

appropriate for students and staff to follow the equivalent PPE requirements in the relevant professional setting.

- When in indoor communal, laboratory, office, classroom or workshop areas where social distancing is difficult, or good ventilation is difficult to provide. This is particularly important in situations where contact tracing may be difficult.
- In indoor settings which could involve enhanced aerosol production, for example through loud speech (presentations, drama production) or singing. Listeners should wear face coverings as well as maintain social distance from the speaker/singers.
- Wider use may also be beneficial in other settings where the wearing of the face covering doesn't interfere excessively with the activity (e.g. in a tutorial, seminar, laboratory practical etc.), particularly if there is an increase in cases of infection among the student body or higher prevalence in the local community.

Face coverings are not likely to be beneficial in shared accommodation as there are multiple interactions between people including substantial sharing of surfaces in kitchens/bathrooms etc. Face coverings are likely to be appropriate in many social settings including any events hosted by student clubs and societies; their use should be in line with other relevant government guidance for similar settings.

**Promoting hygiene measures, and communicating about them, will help reassure staff and students.** A return to campus will be an anxious time for many members of staff and students. Students expect hygiene measures to be in place but, as of June, only 1 in 5 reported having very clear communications from their universities on what procedures will be in place.<sup>61</sup> In order to reduce anxiety, it is important to ensure both that measures are in place and that these are well communicated to staff and students.<sup>62</sup>

**HE settings should ensure that staff and students are prompted about key behaviours at important moments, are able to perform them, and that environments are redesigned to promote safer behaviour.** For example, placing reminders about the need to clean hands and facilities (e.g. sanitizer) for doing so at campus entrances<sup>63</sup>; creating one-way systems to reduce face-to-face interactions. Courses with workshops/design studios could present a higher surface transmission risk, so cleaning protocols for shared workshop areas combined with good hygiene training/messaging is important.

### **Risks associated with accommodation, social interactions, workplaces and transport**

**There is good evidence that transmission occurs in accommodation and social settings.** Outbreaks in the US have often been traced to college bars popular with students<sup>64</sup> and shared student housing and social activities<sup>65</sup>. Anecdotal reports associated with the recent return of US universities suggests accommodation is a significant risk factor. Several studies have examined transmission of other respiratory infections in university settings which also point to accommodation and social settings as higher risk. Analysis of a large H1N1 influenza outbreak at a US university campus showed studying with, caring for

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<sup>61</sup> R. Hewitt. Students view of the impact of coronavirus on their higher education experience. HEPI Report Policy Note 24. <https://www.hepi.ac.uk/2020/06/30/students-views-on-the-impact-of-coronavirus-on-their-higher-education-experience/>

<sup>62</sup> Buxton C, Robinson S. What factors or interventions promote or inhibit return to work and public transport use following a major public health incident. Report to SPI-B.

<sup>63</sup> British Psychological Society. Behavioural science and disease prevention psychological guidance: Encouraging hand hygiene in the community. 27 July 2020. <https://pure.qub.ac.uk/en/publications/behavioural-science-and-disease-prevention-psychological-guidance>

<sup>64</sup> Evidence review for Scottish Government led by Gavin Yamey, Duke

<sup>65</sup> <https://stacks.cdc.gov/view/cdc/89733>

or living with an ill contact were all predictors of infection<sup>66</sup> while a study of influenza transmission at Shinshu University, Japan showed that self-reported transmission was mainly through clubs & societies (19.4%), socialising with friends (12.2%) or sharing classes or laboratories (11.4%)<sup>67</sup>.

As many students live in shared houses or halls of residence with shared communal areas, evidence on household transmission is relevant. The rate of secondary transmission in households is reported up to 30%<sup>68, 69</sup> with highest risks among partners/spouses which suggests shared sleeping space is a risk. Face mask use before the primary case has symptoms, daily use of disinfection and avoiding close contact are all shown to be protective<sup>70</sup>.

In addition to ensuring good environmental controls in campus buildings, **HE providers working with NIHP should provide clear messaging to students to enable them to maintain a good level of environmental hygiene in their accommodation**, including cleaning and ventilation. This is particularly important for shared/communal areas in university and private halls of residence and houses of multiple occupation (HMOs).

In many university towns HMOs are located within areas with a high density of low-quality housing, and a high proportion of BAME residents which have already been seen to be at greater risk of disease during the pandemic. It is important to promote responsible behaviours among students, particularly relating to social events and parties, to minimise the risk of amplifying transmission in these already high-risk areas. This may require multiple strategies for communication, engagement and enforcement developed in collaboration between the university, student groups and the local community.

Commuter students who live with parents, grandparents or children may be a point of contact for the university network and social networks in other communities. As well as increasing connectivity, this may also pose risks for vulnerable household members. Good adherence to COVID security on campus and organised events will minimise the potential for transmission from the university to these households, while flexibility in teaching delivery with online provision for some elements of courses can minimise risks of commuting importing infections.

**A broad perspective on reducing contacts between staff and students should be taken.** Contacts between staff or students that occur outside of formal settings are just as relevant in spreading infection as those that occur in lectures or tutorials. Attention needs to be paid to reducing contact in teaching settings, but also areas where staff or students may feel able to let their guard down (e.g. common rooms, TV lounges). Evidence in other contexts (e.g. hospitals) suggests that staff who adhere well to protective behaviours in a formal setting can then engage in risky behaviour in informal settings. Contacts off-campus are also relevant, and care needs to be taken not to inadvertently increase risk by driving staff and students into riskier environments. For example, closure of canteens or student

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<sup>66</sup> [https://academic.oup.com/cid/article/52/suppl\\_1/S131/500383](https://academic.oup.com/cid/article/52/suppl_1/S131/500383)

<sup>67</sup> Uchida, M., Tsukahara, T., Kaneko, M., Washizuka, S., & Kawa, S. (2012). How the H1N1 influenza epidemic spread among university students in Japan: experience from Shinshu University. *American journal of infection control*, 40(3), 218-220.

<sup>68</sup> Wang, Z., Ma, W., Zheng, X., Wu, G., & Zhang, R. (2020a). Household transmission of SARS-CoV-2. *Journal of Infection*.

<sup>69</sup> Lewis, N.M., et al. (2020) Household Transmission of SARS-CoV-2 in the United States. *Clinical Infectious Diseases*. <https://doi.org/10.1093/cid/ciaa1166>

<sup>70</sup> Wang Y, Tian H, Zhang L, et al Reduction of secondary transmission of SARS-CoV-2 in households by face mask use, disinfection and social distancing: a cohort study in Beijing, China (2020b) *BMJ Global Health* 2020;5:e002794.

bars (rather than improving their COVID-security) will be counterproductive if this simply makes students congregate in cafes or bars that are less COVID-secure<sup>71</sup>. Discussing these issues with staff and students, and monitoring for unintended consequences, will be important.

**Measures to mitigate transmission risks associated with transport could have a positive impact on limiting spread of the virus, including:**

- Adapting schedules/timetables where possible to minimise risks related to public transport – for example scheduling to avoid transport peaks or timetables that reduce the frequency of travel to/from campus sites over weeks/months. In the Netherlands, many universities are adopting staggered start times to avoid commuter rush hour<sup>72</sup>.
- Promotion and facilitation of wider transport options and active transport, e.g. supporting cycling and related facilities.
- Clear messaging around safe behaviour on public transport including wearing face coverings and good hand hygiene after travelling.
- Clear policies on use of transport for activities such as fieldwork and business travel that balances risk of transmission against the environmental impact of using private cars.

Social distancing and reduced transport schedules may affect the ability for students and staff to travel to campus and should be considered in timetabling of classes and social events. Students who do not live near to the campus may require priority access to study spaces during the university day.

**Physical and mental health of students and staff**

**Impacts of COVID may be significant for some staff and students.** Evidence indicates that teenagers and younger adults have less severe disease (high confidence). For example, in CO-CIN data those in hospital with COVID-10 aged 50-59 were >2x more likely to die than those under 50, increasing to >10x for those over 80<sup>73</sup>. Deaths in those aged under 25 years are extremely rare. Whilst a large proportion of HE students are in these age brackets (70% under 25 years), a significant proportion of both students and staff are not or have underlying conditions that make them vulnerable to COVID<sup>74</sup>. Even within the younger age groups, infection could result in significant long-term complications which may be harder to manage in the community<sup>75</sup>. Institutions should pay particular attention to ensuring that both teaching and support staff who are older or who have underlying health conditions are able to work safely.

There is no strong evidence that those in younger HE demographics are less susceptible to infection or have a reduced role in transmission than older adults; for example many seroprevalence studies find higher antibody prevalence in younger age groups<sup>76</sup> which likely reflect higher levels of transmission and infection in young adults compared to older age groups.

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<sup>71</sup> SPI-B. SPI-B consensus on reopening large events and venues. 20 August 2020.

<sup>72</sup> <https://www.government.nl/topics/coronavirus-covid-19/questions-about-coronavirus-and-the-education-sector/higher-education>

<sup>73</sup> <https://www.bmj.com/content/369/bmj.m1985>

<sup>74</sup> E.g. >300k with a known disability in 2018/19, HESA; <https://www.hesa.ac.uk/data-and-analysis/students/whos-in-he>

<sup>75</sup> <https://www.bmj.com/content/370/bmj.m3001>; recognised in SAGE 34; clear in SARS/MERS e.g. <https://www.medicaljournals.se/jrm/content/abstract/10.2340/16501977-2694>

<sup>76</sup> E.g. REACT-2 prevalence highest in 18-24 year olds, NHSBT highest in 17-29 year olds, ONS highest in 16-49 year olds – data summary from DHSC, 20 Aug 2020

**Circulation of other respiratory diseases may enhance risks and lead to significant staff and student absence.** Universities are widely associated with transmission of infection (“freshers flu”) and have seen large outbreaks of mumps and other respiratory viruses<sup>77</sup>. University based studies suggest vaccine uptake depends on motivation and perception of how beneficial it would be to them<sup>78</sup>; students were more likely to be willing to get vaccinated where they had been informed that it would protect other vulnerable people.

Although there is not yet any strong evidence for enhancement of SARS-CoV-2 by coinfection with other respiratory viruses, there is not enough to dismiss this; evidence from Australia suggests it seems likely that mitigations to limit COVID-19 have also reduced transmission of influenza and other respiratory viruses. It is likely that there will be co-infection with influenza over winter, which could create challenges in distinguishing between the two syndromes, with impacts on e.g. test capacity. Approaches such as multiplex testing would be able to detect both infections. In order to protect at-risk groups, maximising and optimising uptake of the flu vaccine this year is important<sup>79</sup>.

**The wider health impacts from remote learning and isolation must be considered.** As well as direct health impacts from COVID-19, there may be physical or mental health impacts from missing education, remote learning or limited access. Mental health among students and university staff was already a source of concern prior to the pandemic.<sup>80</sup> The pandemic has further increased rates of distress in the population, particularly in people aged 18 to 24.<sup>81</sup> A Covid-19 web survey as part of the UK Household Longitudinal Study found that 36.7% of 16-24 year olds had a “significant level of mental distress”<sup>82</sup>. People who were “economically inactive” (defined as not working and not looking for work, including students) had higher scores than people who were retired or in employment. The potential impacts of COVID-19 on mental health are well described<sup>83</sup>, including for schools<sup>84</sup>. There is less direct evidence of the impact of COVID-19 measures on HE students, however e.g. a survey of doctoral students and research staff indicates severe disruption to research and learning, low wellbeing and increased levels of mental distress<sup>85</sup>. A recent report from the National Association of Disability Practitioners also indicated that students with mental health concerns were reporting heightened anxiety levels which may be connected with COVID-19, reduced access to care, help, education and facilities, and the ability to find the space/time for study alongside other responsibilities<sup>86</sup>. Changes to the structure of higher education may

<sup>77</sup> <https://www.gov.uk/government/news/mumps-outbreaks-across-england>

<sup>78</sup> Bednarczyk, R. A., Chu, S. L., Sickler, H., Shaw, J., Nadeau, J. A., & McNutt, L. A. (2015). Low uptake of influenza vaccine among university students: evaluating predictors beyond cost and safety concerns. *Vaccine*, 33(14), 1659-1663. <https://doi.org/10.1016/j.vaccine.2015.02.033>

<sup>79</sup> SAGE 47

<sup>80</sup> Office for Students. Mental health: Are all students being properly supported? November 2019. <https://www.officeforstudents.org.uk/publications/mental-health-are-all-students-being-properly-supported/> See also L. Morrish. Pressure vessels: The epidemic of poor mental health among higher education staff. HEPI Occasional Paper 20. 2019. <https://www.hepi.ac.uk/2019/05/23/new-report-shows-big-increase-in-demand-for-mental-health-support-among-higher-education-staff/>

<sup>81</sup> M Pierce et al. Mental health before and during the COVID-19 pandemic: A longitudinal probability sample survey of the UK population. *Lancet Psychiatry* 2020: [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(20\)30308-4/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(20)30308-4/fulltext)

<sup>82</sup> [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(20\)30308-4/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(20)30308-4/fulltext)

<sup>83</sup> [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(20\)30168-1/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(20)30168-1/fulltext)

<sup>84</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/903374/S0621\\_Risks\\_associated\\_with\\_the\\_reopening\\_of\\_education\\_settings\\_in\\_Sept.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/903374/S0621_Risks_associated_with_the_reopening_of_education_settings_in_Sept.pdf)

<sup>85</sup> <https://www.smartent.org.uk/covid-19-study.html>

<sup>86</sup> NADP - [Covid-19 Disabled Students in Higher Education: Student Concerns and Institutional Challenges](#)

exacerbate these effects by decreasing the ability of people to make friends, engage in social activities together, gossip and chat, and interact with tutors or mentors,<sup>87</sup> as well as by increasing the difficulty of work and studying.

The mental and physical health effects of working or studying from home will add to this. This is likely to have a differential impact on students, widening existing inequalities. For example, students with less access to computer hardware and software at home will experience greater challenges, students with existing mental health needs or disabilities may have greater difficulties adjusting to new forms of learning, staff or students who commute to campus may face greater challenges with public transport, video conferencing may be less possible or useful for people who do not have a quiet home environment. Identifying practical solutions to the challenges staff and students will face in working from home will be necessary (e.g. prioritising the safe re-opening of communal computer rooms, considering how best to prioritise laptop loans to students). Higher education providers should be prepared to provide greater, evidence-based support for wellbeing and mental health.

**Take into account at all stages of planning provision for students and staff equality and diversity considerations.** All measures that Universities take should be considered in terms of their impact on equality and diversity and the various vulnerabilities of students and staff. This should include all aspects of their activities such as teaching practices, employment requirements (including attendance at work) and COVID codes and regulations.

### **Communication Strategy**

**A communication strategy should help to prepare staff and students for new behaviours that are required of them, as well as provide an accurate account of the level of risk involved and the processes that are in place to mitigate risk.** This should cover what the official guidelines are and how they are being applied in the HE context; explain the rationale for the guidance, and why adherence is important both for staff and students and for keeping the HE setting open. Guidance should be co-created with staff and students and should support the creation of new social norms. The communication itself should be done by a range of people – including students and student unions. It is essential that messages reach everyone, including those who may not read emails or attend particular meetings.

Key principles for communication include:

#### **Involve staff and students in co-producing guidance, messages and interventions.**

Guidance and messages which are co-produced with staff and students are more likely to be effective, more likely to be adhered to, and less likely to give rise to tension or unanticipated problems in implementation.<sup>88</sup> Co-producing guidance is neither costly nor time-consuming. It is important that HE institutions co-produce their guidance by involving staff, students and, where relevant, outside bodies that may be affected (e.g. suppliers, privately owned student accommodation).

**Do not assume that everyone understands the official guidelines.** Most people in the UK are willing to adhere to official advice on how to reduce the transmission of COVID-19 and have good intentions in this regard.<sup>89</sup> However, many are confused as to what the

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<sup>87</sup> <https://www.smartten.org.uk/covid-19-study.html>

<sup>88</sup> SPI-B. SPI-B Principles for the development of co-creation. 8 July 2020.

<sup>89</sup> CL Atchison, Bowman L, Vrinten C, Redd R, Pristera P, Eaton JW, Ward H. Perceptions and behavioural responses of the general public during the COVID-19 pandemic: A cross-sectional survey of UK Adults. medRxiv. 2020 Jan 1. <https://www.medrxiv.org/content/10.1101/2020.04.01.20050039v1>. See also LE Smith, Fear NT, Potts HWW, Michie S, Amlot



current official guidelines are. Knowledge of the guidelines is associated with greater likelihood of adhering to them<sup>90</sup>. Ensuring that staff and students understand the guidelines would be a useful start of year activity. This is likely to be particularly helpful for overseas students: there is a great diversity of global practices around COVID-safe behaviour and this needs to be managed by reassuring overseas students that sufficient care is being taken. There are also differences between guidance across the four UK nations, and students from one nation attending university in another may not be aware of differences. As education providers, HE institutions should be well placed to disseminate this information and to check understanding.

**Ensure the rationale for behaviours and protective measures is understood.** More than knowing what ‘the rules’ are, understanding the principles that underlie guidance and account for its effectiveness will provide a better motivation for people to adhere to it,<sup>91</sup> accept the legitimacy of guidelines that might be inconvenient for them, and adapt to situations that are not well covered by existing rules. This will be particularly important for students or staff members who encounter potentially risky scenarios away from the campus, for example in part time employment or while socialising. Students and staff should be made aware of the parameters for mitigation identified in the environment and modelling paper to SAGE: closeness of contact, duration of exposure and use of e.g. face coverings. Otherwise variations in rules in different campus contexts may appear arbitrary. Providing a guide on “the principles of transmission and control” may help staff and students understand the rationale for particular measures as well as countering false messaging on social media.

**Make COVID-secure behaviours the norm.** Emphasising that adhering to the guidelines is part of the organisation’s culture / identity and is the norm for students and staff within the organisation is likely to promote adherence<sup>92</sup>. This can be achieved by first making the group identity salient – making it a “we” issue<sup>93</sup>. Second, invoking higher order group values (‘we care for each other’) will help to reshape social practices to make them safer. Third, if this communication is led by students (student reps, Student Union, student ‘champions’ for COVID-security), it is more likely to have an impact. Senior and respected members of the organisation (e.g. course leaders, tutors) should also make a particular effort to show that they are adhering to guidance<sup>94</sup>. The use of codes or agreements that are discussed with (and ideally co-produced with) students may help to both reiterate the key behaviours that are expected and to reinforce the fact that these are the norms for the community. Finally, messaging that inadvertently gives the impression that some unsafe behaviours are happening regularly should be avoided.

**Encourage a supportive atmosphere.** In the general population, the easing of lockdown has been accompanied by reports of anger and confrontation, often triggered by perceived

R, Rubin GJ. Factors associated with requesting an antigen test and self-isolating after developing symptoms of coronavirus. Report to DHSC. 2020 July 17.

<sup>90</sup> Smith LE, Potts HW, Amlot R, Fear NT, Michie S & Rubin GJ. Adherence to the test, trace and isolate system: Results from a time series of 21 nationally representative surveys in the UK (the COVID-19 Rapid Survey of Adherence to Interventions and Responses [CORSAIR study]). In preparation.

<sup>91</sup> Reynolds JP, Stautz K, Pilling M, van der Linden S, Marteau TM: Communicating the effectiveness and ineffectiveness of government policies and their impact on public support: a systematic review with meta-analysis. *Royal Society Open Science* 2020, 7(1):190522.

<sup>92</sup> J. Bavel, Baicker, K., Boggio, P.S. et al. Using social and behavioural science to support COVID-19 pandemic response. *Nat Hum Behav* 4, 460–471 (2020). <https://doi.org/10.1038/s41562-020-0884-z>. See also Bonell C, Michie S, Reicher S, West R, Bear L, Yardley L, Curtis V, Amlôt R, Rubin GJ. [Harnessing behavioural science in public health campaigns to maintain ‘social distancing’ in response to the COVID-19 pandemic: key principles](#). *Journal of Epidemiology and Community Health* 2020; doi: 10.1136/jech-2020-214290

<sup>93</sup> D. O’Connor, Aggleton, J, Chakrabarti, B. Research priorities for the COVID-19 pandemic and beyond: A call to action for psychological science. *British Journal of Psychiatry*, <https://onlinelibrary.wiley.com/doi/full/10.1111/bjop.12468>

<sup>94</sup> LE Smith LE, Serfioti D, Weston D, Greenberg N, Rubin GJ. Adherence to protective measures among health care workers in the UK; a cross-sectional study. <https://www.medrxiv.org/content/10.1101/2020.07.24.20161422v1>

lapses by other people in their adherence to guidelines, perceptions that others are being over-zealous in their adherence, or disagreements on the right approach to easing lockdown. Anger and confrontation has been higher among younger adults and those experiencing financial difficulties due to the pandemic,<sup>95</sup> and is linked to poorer mental health<sup>96</sup>. Stigmatising narratives can arise between different ethnic and social groups especially in the situation of a campus where people are coming together for the first time and are negotiating social rules. Disagreements are also appearing that reflect political leanings<sup>97</sup>. Confrontation and lower adherence to Government guidelines are associated with exposure to conspiracy theories in social media.<sup>98</sup> Effort should be made to encourage students and staff to adopt a supportive, tolerant attitude – accepting that there will be differences of opinion, that not everyone can adhere to all guidance, that mistakes will happen, and that no blame or stigma should be attached where people do the right thing by reporting symptoms<sup>99</sup>. Where mistakes or transgressions occur, it is useful to engage, explain or encourage before moving to enforcement<sup>100</sup>. Engagement between HE institutions and the local community will also be needed, to promote a tolerant attitude and to ensure the community is also informed about steps that the institution is taking to remain COVID-secure.

**Consistent messaging and guidance is needed.** Inconsistent messages can degrade trust, lead to confusion and may reduce adherence<sup>101</sup>. Guidelines should be consistent between departments and faculties and between institutional and student-produced material. Where differences are unavoidable, a clear explanation should be given. Consistency between organisations would also be beneficial – differences between two neighbouring HE settings may lead to confusion. This is particularly true where students mix, either socially, in accommodation or on shared courses. Communication between local institutions should include a review of guidance to identify any apparent divergences in order to resolve, mitigate or explain them.

**Consider the range of cultural backgrounds when developing communications and plans.** HE institutions include staff and students from a wide range of communities within the UK, in addition to overseas students. It is essential, therefore, that policies and messages take this into account. Obtaining maximum support and adherence from the student community will require that messages are tested with students from different backgrounds to ensure that wording and concepts are understood, reinforced by people who are trusted, take into account the issues that people from different cultures may face (e.g. religious observances, typical living arrangements), and are sensitive to pre-existing attitudes towards health promotion and health communication. Universities should make an effort to engage a

<sup>95</sup> LE Smith, Duffy B, Moxham-Hall V, Strang L, Wessely S, Rubin GJ. Anger and confrontation during the COVID-19 pandemic; a national cross-sectional survey in the UK. *Journal of the Royal Society of Medicine*, under review.

<sup>96</sup> LE Smith, Amlôt R, Lambert H, Oliver I, Robin C, Yardley L, Rubin GJ. Factors associated with self-reported anxiety, depression, and general health during the UK lockdown; A cross-sectional survey. <https://www.medrxiv.org/content/10.1101/2020.06.23.20137901v1>

<sup>97</sup> B Duffy, Allington D, Beaver K, Meyer C, Moxham-Hall V, Murkin G, Rubin J, Skinner G, Smith L, Strang L, Wessely S. The trusting, the dissenting and the frustrated: how the UK is dividing as lockdown is eased. 2020. London: King's College London. <https://www.kcl.ac.uk/policy-institute/assets/how-the-uk-is-dividing-as-the-lockdown-is-eased.pdf>

<sup>98</sup> LE Smith LE, Duffy B, Moxham-Hall V, Strang L, Wessely S, Rubin GJ. Anger and confrontation during the COVID-19 pandemic; a national cross-sectional survey in the UK. *Journal of the Royal Society of Medicine*, under review. See also D Allington, Duffy B, Wessely S, et al. Health-protective behaviour, social media usage and conspiracy belief during the COVID-19 public health emergency. *Psychol Med* 2020: 1-7. DOI: 10.1017/S003329172000224X

<sup>99</sup> P. Carter, Megnin-Viggars O, Rubin GJ. What factors influence symptom reporting during an emerging infectious disease outbreak? A rapid review of the evidence. *medRxiv*. 2020 July 23 2020 <https://www.medrxiv.org/content/10.1101/2020.07.23.20159897v1.article-info>

<sup>100</sup> National Police Chiefs' Council and College of Policing. Engage, Explain, Encourage, Enforce – applying the four 'E's'. <https://www.college.police.uk/What-we-do/COVID-19/Documents/Engage-Explain-Encourage-Enforce-guidance.pdf>

<sup>101</sup> SPI-B. Principles for the design of behavioural and social interventions. Presented to SAGE on 21 April 2020.

diverse, representative groups of students to support the above activities, e.g. when developing student contracts/agreements, the rationale for protective measures draws on relevant norms (global – student identity; specific – interdependent collective norms), role models, mental health support seeking barriers<sup>102</sup>. Further, detailed guidance is available on this<sup>103</sup>.

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<sup>102</sup> H. L. Cheng, Kwan, K. L. K., & Sevig, T. (2013). Racial and ethnic minority college students' stigma associated with seeking psychological help: Examining psychocultural correlates. *Journal of counseling psychology*, 60(1), 98. See also L. Knifton, Gervais, M., Newbigging, K., Mirza, N., Quinn, N., Wilson, N., & Hunkins-Hutchison, E. (2010). Community conversation: addressing mental health stigma with ethnic minority communities. *Social psychiatry and psychiatric epidemiology*, 45(4), 497-504

<sup>103</sup> SPI-B, Public Health Messaging for Communities from Different Cultural Backgrounds. Presented to SAGE on 23 July 2020.

## **Annex A: Characteristics of Higher Education settings**

Some of the below data is provided by DfE and may not always cover the entire UK. Data on HE in Scotland has also been provided and is summarised alongside. Higher Education courses<sup>104</sup> include both academic and technical qualifications. These include Diplomas/Certificates of HE, Foundation Degrees, Higher National Diplomas, Bachelor's Degrees, Masters, Medicine, PGCEs, and PhDs.

### Student numbers and demographics

In 2018/19 there were:

- **1.94 million** undergraduate and postgraduate students studying at **135 English Higher Education Institutions (HEIs)**<sup>105</sup> (see Table 1)
- **114,000** undergraduate and postgraduate students studying on HE level courses at **English Further Education Colleges (FECs)**.
- **73,180** undergraduate and postgraduate students studying at **97 designated English HE Alternative Providers (APs)**. Research published in 2017 suggests that there are also over 600 non-designated HE APs in England, though no estimate of the number of students enrolled is available.
- **253,475** students enrolled at Scottish HEIs (see Table 2)

The number of undergraduate students could increase this year, related to A level results.

**In 2018/19, 72% of UK domiciled students were White and 28% were BAME.** This is compared to 15% of the working age population who are from BAME groups, based on the 2011 Census<sup>106</sup>. **70% of students were under 25 years, 11% were aged 25-29 and 19% were aged 30 years and over.** In Scotland, 68.2% of enrolled students were White, 3.4% were Asian, and 1.4% were Black.

### Student 'movers' and 'commuters'

**In 2014/15** (the latest year for which analysis is available, see Table 3), **74.4% of full-time, UK-domiciled students moved home to attend / while enrolled at UK higher education institutions ('Movers')**. The vast majority of the remainder commuted a 'short' distance from their family home to their provider ('Commuters')

There are significant variations by student characteristics and region of domicile:

- BAME students were more likely to be 'short' commuter students than White students. This is particularly noticeable for students from Bangladeshi (71.1%) and Pakistani (65.9%) backgrounds.
- Only 18.8% of White students were 'short' commuters. Students from the North East (33.2%), London (31.8%), West Midlands (30.9%) and North West (30.7%), were most likely to be 'short' commuters. Students from the South West (11.2%) and South East (11.4%) were least likely.

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<sup>104</sup> From academic year 2019/20 the regulatory framework for HE has changed, and the distinction between HEIs and APs has ended. As this paper relies on data from 2018/19 (the latest available), the older terminology is used

<sup>105</sup> including the Alternative provider, the University of Buckingham

<sup>106</sup> <https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/demographics/working-age-population/latest#ethnic-groups-by-working-age>.

In 2018/19, 1.2m students (62% total) at English HEIs were enrolled at a provider outside of their home region (see table 4). In Scotland: 64% of students were domiciled in Scotland in 2018/19, with 14% non-EU, 8% 'other EU', 2% Northern Ireland, <1% Wales, and all English regions between 1-2%.<sup>107</sup>

The proportion of all students and staff who commute by public transport to HEIs in England varies regionally, with Greater London having the highest proportion<sup>108</sup> (see Figure 1)

### Staff numbers and demographics

In 2018/19 there were 179,895 **academic staff** working in English HEIs<sup>109</sup>:

- 83% were White and 17% were from BAME groups. This is compared to 85% of the working age population in England who are White and 15% who are from BAME groups, based on the 2011 Census.
- 25% of staff were aged between 41 to 50, 22% were aged between 51 and 60, and 9% were over 60. The remaining 44% were aged 40 and under.
- 18% of staff from BAME groups were aged 51 years and over. Within this group, Black staff had the highest proportion aged 51 years and over (24%). White staff had the oldest age profile, with 34% being aged 51 and over.

In 2018/19 there were 182,580 **non-academic staff** working in English HEIs. In addition, there are also approximately twice as many staff working with jobs associated to the HE sector but who do not have contracts with HEIs themselves; for example catering and accommodation staff who are employed privately<sup>110</sup>. Of non-academic staff:

- 86% were White and 14% were from BAME groups.
- 25% were aged 41 to 50, 22% were 51 to 60 and 6% were aged over 60. The remaining 47% were aged 40 and under.
- 17% of staff from BAME groups were aged 51 years and over. Within this group, Black staff had the highest proportion aged 51 years and over (27%). White staff had the oldest age profile, with 29% being aged 51 and over.

### Course and subject types

Internal DfE analysis suggests that 22% of students' total full time equivalence (rounded to nearest 100 FTE) is in subjects that require elements of face to face provision, 39% is in subjects that have extensive contact hours or practical elements, while the remaining 39% is in subjects that are classroom based and may therefore be more adaptable to online only delivery.

The non-classroom courses with the largest student populations include: Nursing and allied health professions (110,700 FTE), Art and design (85,300 FTE), Clinical medicine (52,100 FTE), and Music, dance, drama and performing arts (45,600 FTE).

### Student work and accommodation

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<sup>107</sup> HESA data provided by Scottish Government

<sup>108</sup> Source: HESA 2018/19 Estates data for English Higher Education Institutions, published: <https://www.hesa.ac.uk/data-and-analysis/estates/table-4>. Based on complete data for 84 providers for students, and 89 providers for staff. Averages were calculated internally. Public transport includes Bus and Train.

<sup>109</sup> Excluding a small proportion on short/freelance contracts

<sup>110</sup> <https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2017/the-economic-impact-of-universities.pdf>

62% of students in the HE sector surveyed by NUS had a job alongside their study in the latest academic year<sup>111</sup>. 24% of HE students surveyed were in part-time employment, 13% had zero hours contracts, and 12% were in full-time employment.

Across the top 20 providers with the highest proportions of students living in provider maintained or private sector halls, or other rented accommodation, the percentage of students living in these settings ranged from 76-91%<sup>112</sup> in 2018/19.

### Tables and figures

*Table 1: Number of Enrolment at HEIs in England, DfE, 2018/19*

MODE AND LEVEL OF STUDY	TYPE OF STUDENTS	NUMBER OF STUDENTS	% OF TOTAL
<b>FULL-TIME UNDERGRADUATE</b>	New entrants	457,245	23.5%
	Continuing students	802,265	41.3%
<b>PART-TIME UNDERGRADUATE</b>	New entrants	88,520	4.6%
	Continuing students	112,500	5.8%
<b>POSTGRADUATE</b>	New entrants	308,595	15.9%
	Continuing students	173,410	8.9%
<b>TOTAL</b>	<b>All Students</b>	<b>1,942,535</b>	<b>100.0%</b>

*Table 2: Number of Enrolments at Scottish HEIs, by mode and first year marker, 2018/19*

MODE AND LEVEL OF STUDY	TYPE OF STUDENTS	NUMBER OF STUDENTS	% OF TOTAL
<b>FULL-TIME UNDERGRADUATE</b>	New entrants	48,450	19%
	Continuing students	105,065	41%
<b>PART-TIME UNDERGRADUATE</b>	New entrants	18,465	7%
	Continuing students	17,175	7%
<b>POSTGRADUATE</b>	New entrants	39,855	16%
	Continuing students	24,460	10%
<b>TOTAL</b>	<b>All Students</b>	<b>253,475</b>	<b>100%</b>

*Table 3: % of students by distance moved to university (from home) or distance commuted to university (from home), 2014/15, the Sutton Trust data*

Distance	Mover	Commuter
Short (0-91 km)	32.5%	23.3%
Medium (91-244 km)	31.5%	1.2%
Long (more than 244 km)	10.9%	0.3%

<sup>111</sup> <https://www.nusconnect.org.uk/resources/covid-19-and-students-survey-report>

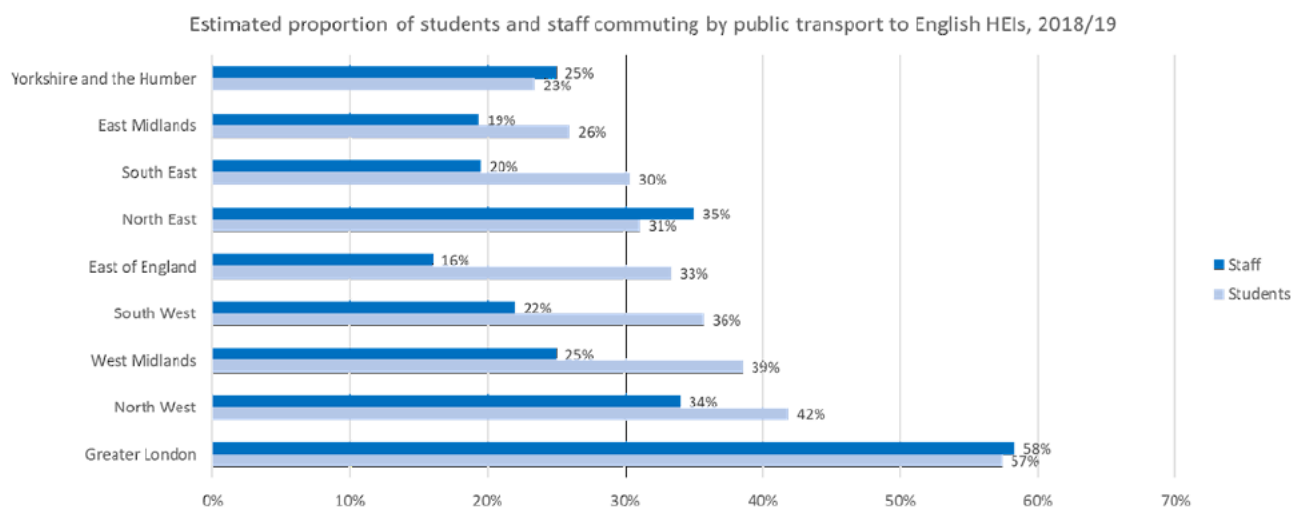
<sup>112</sup> Internal DfE analysis; only data from top 20 providers available

**Total** **74.4%** **24.8%**

Table 4: numbers of students enrolling at providers outside their region in England, 2018/19, DfE

REGION	TOTAL INFLOW TO REGION	OTHER ENGLISH REGIONS	REST OF THE UK	OUTSIDE THE UK
<b>SOUTH EAST</b>	235,455*	175,050* <sup>113</sup>	6,380	54,025
<b>LONDON</b>	217,055	92,100	5,635	119,315
<b>EAST MIDLANDS</b>	125,865	91,295	3,590	30,980
<b>YORKSHIRE AND THE HUMBER</b>	123,775	85,305	3,845	34,625
<b>WEST MIDLANDS</b>	122,190	75,665	5,625	40,900
<b>NORTH WEST</b>	119,050	64,075	15,145	39,830
<b>SOUTH WEST</b>	109,710	70,315	10,035	29,360
<b>EAST OF ENGLAND</b>	87,635	55,230	2,090	30,315
<b>NORTH EAST</b>	63,750	39,070	3,605	21,075
<b>TOTAL</b>	<b>1,204,480</b>	<b>748,100</b>	<b>55,945</b>	<b>400,435</b>

Figure 1: Estimated proportion of students and staff commuting by public transport to English HEIs in 2018/19, DfE



<sup>113</sup> Totals for the SE region include students at the Open University which inflate inflow to the South East by approx. 74k students

## Annex B: Hierarchy of Risk Control

