British Orthopaedic Association

Re-starting non-urgent trauma and orthopaedic care: Full guidance

v1.1, published 15 May 2020. A Summary document is also available, at: https://www.boa.ac.uk/resources/boa-guidance-for-restart---summary---final-pdf.html.

BOA update note (15/5/20): NHS England document published on "Operating framework for urgent and planned services within hospitals" (here). We had been awaiting this guidance and will be reviewing carefully. This guidance will be updated soon.

During the first phase of the Coronavirus pandemic in the UK, the focus for Trauma and Orthopaedics has been on maintaining the trauma service and managing emergency and urgent conditions. As we enter the second phase of the response, there has been a step down in the requirements for managing COVID-19 infections in hospital with the return of facilities and staff availability to enable the planning of non-urgent orthopaedic work.

This document discusses a range of issues raised by this shift towards 'the next phase'. At the time of writing we do not have any national guidance on infection prevention and control in England or across the devolved nations relating to the assessment and management of elective surgery whilst COVID-19 continues to circulate in the community. This document will be updated as and when such guidance emerges, but in the meantime we have set out what we see as appropriate standard of care that should be provided. It is intentionally cautious, given that we are at the early stage of the understanding of this new disease, its transmission and outcomes.

Contents of the full document

Overview

In Simon Stevens' NHS England letter of 29th April to Chief Executives it is said:
"This means we are now asking all NHS local systems and organisations working with regional colleagues fully to step up non-Covid-19 urgent services as soon as possible over the next six weeks……". It goes on to say *"In addition, you should now work across local systems and with your regional teams over the next 10 days to make judgements on whether you have further capacity for at least some routine non-urgent elective care."*

The priorities we see for T&O are discussed in detail later in this document, but in principle are as follows:

- Services should be reviewing and expanding the provision of care for all urgent services, this should take precedence over starting non-urgent surgery;
- Services should be considering how non-urgent elective care will in due course be delivered, which will usually require regional discussions and decision-making;
- Surgical teams should be reviewing waiting lists and prioritising patients ahead of non-urgent elective surgery resuming;
- Services should be planning to (if they are not already) keep waiting list patients updated about the local situation and ensuring they are aware of (a) supported self-management options relevant to them and (b) ways to contact the service if the patient has concerns about their condition deteriorating or red-flag symptoms occurring.

The next steps for patients will depend on the priority level of their particular surgery. The highest priority should be those patients whose surgery is most clinically urgent. For surgery that is less urgent, and particularly where it is complex, this should occur only once we better understand the level of risk and how to minimise it effectively. At the present time, the limited evidence available (discussed later in this document) suggests that a patient having COVID-19 in the post-operative period leads to substantially worse outcomes, and hence the need for caution until more evidence is available and pathways for COVID-free care are more established.

Reviewing and expanding the provision of care for all urgent services

NHS England has produced, in partnership with the Royal Colleges of Surgery and Specialty bodies including the BOA, a prioritisation list for surgery which is available online[1] as well as COVID Specialty Guides for T&O surgery[2] and for Spinal surgery.[3] The surgical prioritisation document lists the procedures that should occur within 24 hours (1a priority), 72 hours (1b priority), 1 month (priority 2) and 3 months (priority 3). (Please note that an updated version of this document is due

[1] https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/C0221-specialty-guide-surgical-prioritisation-v1.pdf
[2] https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/C0274-Specialty-guide-Orthopaedic-trauma-v2-14-April.pdf
[3] https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/specialty-guide-management-of-patients-requiring-spinal-surgery-v1-20-march-2020.pdf

to be published soon which has amendments relevant to T&O and we will update this link and notify members once this occurs.)

During the first phase of the pandemic patients in categories 1a, 1b and most in 2 will have received urgent surgical care though this may not have occurred in all cases. As access increases it is important to ensure that urgent surgical care for patients is at the highest level and this should take precedence over starting non-urgent surgery.

The following points need to be borne in mind:

- For the emergency procedures (within 24 and 72 hours), the pre-operative timeline for an urgent procedure is often short and most cannot be adequately screened and tested for COVID-19. As such these will continue to be provided under COVID precautionary conditions (including PPE, higher staffing levels, experienced staff and performed by experienced surgeon). The throughput under these circumstances are much reduced (often 50% of the previous level).
- We are aware that at times during the COVID surge, when demand on NHS capacity was at its greatest, procedures that should have occurred within the 24- and 72-hour windows occasionally did not. Going forward, it is important that these are fully prioritised in the current system.
- When resuming the 1-month and 3-month priority procedures, these should as far as possible be handled through a 'green pathway' that is COVID-free (discussed in the following section). For Aerosol-generating procedures, full PPE should still be used, although this requirement may be reduced in future as more evidence about the functioning of 'green zones' develops. For non-aerosol-generating procedures the appropriate PPE should be used, and higher throughput may be possible although not at pre-COVID levels due to additional cleaning and infection control measures in theatre.

Next steps:

- Careful attention needs to be given to separation of all aspects of the COVID-free and COVID-unknown pathway. Initially the COVID-free pathways are needed for the 'urgent-but-not-emergency' cases, but in future would be needed for non-urgent elective cases.
- Careful evaluation of the likely throughput and factors affecting successful surgery is needed in order to plan effective delivery of these services.
    - With some theatres working at a slower pace, each requiring more staff and the increased use of consumables this will restrict the resource available.
    - We should also presume a return towards pre-COVID levels of urgent and emergency procedures as the lockdown is eased.
    - There are important considerations about staffing levels, availability of PPE and anaesthetic drugs. Several of the UK anaesthetics bodies have collaborated on a document that discusses the requirements that should be met before operations are resumed on less-urgent cases (broken down into space, staffing, systems and 'stuff').[4]
    - There should be consideration of whether post-surgery facilities such as rehabilitation, physiotherapy and wheelchair services will be operational and able to support patients post-operatively. We have been advised that in community care there is likely to be a COVID peak of activity in mid-late May

[4] https://icmanaesthesiacovid-19.org/restarting-planned-surgery-in-the-context-of-the-covid-19-pandemic.

that reflects the point at which COVID patients have been discharged from hospital but require continuing support and rehabilitation.
    - It should also be kept in mind that support in theatre from implant companies is unlikely to be available in the short term.
- The list of patients waiting for 1-month or 3-month procedures should be reviewed to determine the order of priority for treatment. (See next section.)

Prioritisation of waiting list patients and planning of procedures

The following factors apply to prioritisation of patients at levels 2, 3 and 4:

- Priority for managing a condition which may be time critical has to be weighed up alongside patient factors which increase both the risk of acquiring COVID-19 and having an adverse outcome if infection develops.
- Many patients who are in categories 3 and 4 also have co-morbidities that put them at risk and may have been shielding because of those conditions.
- Many patients, and particularly those with poor mobility, could be significantly deconditioned due to the lockdown and/or shielding requirements which may have a negative impact on surgical outcomes.
- We are aware of some units prioritising lower risk patients and/or lower risk procedures, particularly at present when the levels of COVID-19 infection in the community are relatively high.
- When planning surgery, consider whether there are options that would not require general anaesthetic and could use regional anaesthesia, to reduce the potential for aerosol generating procedures.

Planning and establishing COVID-free (green) and COVID-managed (blue) pathways

In the absence of a vaccine, plans have to be put in place on the basis of COVID-19 being endemic. This would mean that, unless precautions are taken, there will be risks of patients being infected with COVID around the time of surgery. Until we better understand these risks, we advise that great care should be taken to minimise the chances of this occurring.

The limited evidence published so far suggests the outcomes for such patients could be very poor. The only study so far is a series of cases in Wuhan at an early stage of the pandemic. These cases were clearly in a different setting, at an earlier stage of the knowledge of the virus and at a time when that particular healthcare system was possibly at the point of becoming overwhelmed. Nevertheless, these the findings are concerning:

- 34 elective patients (across specialties) were studied, all of whom were believed to have been infected with COVID prior to admission and then experienced symptoms in the post-operative period.
- Mortality of 20.5% (7 patients). Those that died all had at least one other coexisting medical condition.
- Procedures were divided based on risk/severity. Risk of COVID-related ICU admission and mortality were greater for more major procedures. For ‘category 3’ procedures in this study, which includes total hip replacement and hip revision, there were 13 patients out of 20 admitted to ICU for COVID (65%) and 7 out of 20 died (35%).

In order to ensure patient safety, it will be vital to establish COVID free 'green' pathways. These arrangements will require changes in service delivery that will extend beyond individual hospitals or Trusts. As mentioned above, initially these green pathways are needed to treat Priority 2 and 3 patients, and in future they will be needed for wider Priority 4 elective care. Integrated Care Systems or STP footprints should take leadership in developing plans for medium and long-term delivery of orthopaedic services.

In this section we discuss the infrastructure, staffing, theatre practice and patient selection considerations for establishing this kind of setting.

Infrastructure for green pathways

- The options that need to be considered are –
  - COVID-free Hospitals
  - COVID-free areas in a large general hospital
  - Smaller and more isolated hospitals may find it difficult to provide such facilities so collaboration across sites to form networks will be necessary
- There may be different degrees of separation that are possible in different hospital settings. The categorisation of gold/silver/bronze in table 1 may be useful to analyse and classify this.
- Within Green hospitals or areas within hospitals it is still vital to ensure ring-fenced beds for orthopaedic surgery to ensure safety against other nosocomial infection.
- The provision of Green pathways will require the highest possible standard of infection prevention discipline.
- In the short term, independent hospitals may be able to provide a Green environment
- The Nightingale hospitals are unlikely to be suitable for use as Green sites because of their infrastructure.
- The interdependencies with other specialties and services must be maintained.
- It may be difficult to access dedicated Green diagnostics – particularly imaging – outside a dedicated Green hospital.

Table 1: Categorisation of facilities as Gold, Silver and Bronze*

	Gold	Silver	Bronze
Buildings	Single point of access with COVID checkpoint	Single point of access with COVID checkpoint	Single point of access with COVID checkpoint
	Separate site	Building that can be physically separated into distinct areas with completely separate entrance and no contact with blue staff/patients	Department that can be physically separated from other areas, but unable to achieve complete separation eg walk through common area en route to department
Diagnostics	Separate facilities	Separate entrances and rooms	Separate time slots/ strict cleaning
Staff (in work considerations, out of work also needed)	Robust screening/ testing Separate teams	Robust screening/ testing Separate teams for defined time periods	Robust screening/ testing COVID checkpoint and full change/shower
Co-dependancies (eg renal replacement)	Co-dependancies available on same green site	Co-dependancies available on same site but with green/blue split	Co-dependancies available on different site but with green/blue split

*The above table is reproduced from draft text prepared by NHS London and has not yet been published, and therefore may be subject to change.

Staffing for green pathways

- The structure of staffing across green and blue zones has to take into account the entire team, and there may be ongoing issues relating to the availability of staff due to sickness, shielding or self-isolation.
- Staffing has to take account of individuals who may themselves be at increased risk and would be more suited to working in Green areas. Please note that NHS Staff who are in the 'shielding' category because they are extremely vulnerable to COVID-19 should remain at home (working from home where possible) and should not be expected to work even at a green site.
- Staff working at Green sites will need daily screening (symptoms and temperature check)
- Those working in Green areas or Green hospitals may need regular testing for antigen status or testing for antibody status when a reliable test becomes available.
- For teams who work across Green and Blue sites, it may be appropriate to develop Green teams who work in Green areas for a week rather than moving from day to day. No staff should work on both green and blue sites on any one given day. This may mean significant adaptations to how job plans and rotas are currently designed, and staff should be consulted about how changes are implemented.
- As the distribution of facilities for orthopaedic surgery changes, staff may have to move to work in new hospitals requiring a "passport" to move to other Trusts

Theatre practice

- The location and organisation of theatres for non-urgent orthopaedic surgery must be planned carefully. Theatres should be allocated for COVID -ve work and be easily accessible from Green wards without needing to pass through Blue areas.
- Standard operating procedures (SOPs) already developed during the initial phase of the pandemic should be continued.
- The guidance contained in the most recent documents from PHE must be followed.[5]

Patient selection and social distancing prior to treatment at a green site

Significant precautions will be needed to ensure that patients receiving care in the green zone are free of COVID. This is both for their own health while receiving care, and in order not to bring the infection in to the healthcare environment. There is evidence to suggest that if someone is incubating the infection at the time of surgery and then becomes symptomatic in the period soon after the operation, there are significantly increased risks for that patient, and therefore it is important to avoid elective surgery on patients who could have the virus.[6] We suggest this applies to all patients at this stage, however minor the procedure, in order to ensure the risks are minimised. As evidence emerges about the risks for different patients or different procedures, it may be appropriate for this to change.

[5] https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control
[6]Shaoqing Lei *et al.* (2020) Clinical characteristics and outcomes of patients undergoing surgeries during the incubation period of COVID-19 infection. E Clin Med, 21 (100331). https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(20)30075-4/fulltext.

The precautions to be taken are discussed in detail below and consist of: (1) 14 days self-isolation (with their household) or shielding (within their household), (2) screening for symptoms (3) testing for COVID-19 prior to surgery and (4) social distancing prior to treatment.

1. For 14 days prior to the procedure, the patient should stay at home and reduce exposure to COVID that could be circulating in the community. 14 days has been selected as the duration, based on evidence that for COVID, 99% of patients will develop symptoms within 14 days.[7] We suggest there are two options for patients, that need to be carefully explained/considered and which are discussed in detail in Appendix 1:

    - (a) Self-isolating along with their entire household
      In some cases it will be preferable for the patient to self-isolate with their household group, meaning that the whole of the household does not leave their home for the 14 day period and can continue to interact with one another as normal. If any member of the household experiences COVID symptoms during this period, the surgery should not proceed.

    - (b) Shielding within their household
      Here the rest of the household are relatively unaffected, but the individual awaiting surgery 'shields' to distance themselves from others in the home and thereby reduce the risk of infection. If any member of the household experiences COVID symptoms during this period, this should be evaluated carefully as there could be a risk of the patient having become infected within the household even with distancing precautions in place.

    Please note that while the patient is self-isolating or shielding they should be encouraged to look after their physical and mental well-being. It can be a stressful experience leading up to a surgical procedure, and a 14 day self-isolating or shielding period could add to the anxiety around this time.

2. Screening
    - The patient should be advised to contact the T&O service if they experience any symptoms of COVID-19 during the 14 day self-isolation/shielding period.
    - They should be asked about any symptoms at 48 hours prior to surgery and at admission.
    - They should be asked whether anyone they live with has symptoms during the 14 day period.
    - The currently recognised list of symptoms from the World Health Organisation[8] could be used.

3. Testing
    - The patient should be tested (RT-PCR) for COVID-19 at 72-48 hours prior to surgery (depending on the turnaround time for the result which needs to be received by the time they are due to be admitted).
    - This testing should occur at a 'drive-thru' testing facility.

[7] Lauer SA et al (2020) The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application. Ann Intern Med. 2020 May 5;172(9):577-582. doi: 10.7326/M20-0504.

[8] https://www.who.int/health-topics/coronavirus#tab=tab_3

- The patient needs to be told when and how this will happen, and whether there are requirements such as ID or booking reference.
- (In some settings, a test at the time of admission may also be possible and in due course other testing options may become more available and/or reliable.)

4. Social distancing prior to treatment
    - The patient should not be taking public transport to arrive at the healthcare setting. If they don't have a means of private transport to arrive at hospital, then appropriate hospital transport may need to be arranged.
    - If the patient is driven in a car with another member of the household, they may wish to wear a face mask for the journey and/or when getting from the car to their destination in the hospital.
    - The arrival times of patients should be staggered as much as possible so that the reception and waiting areas are not crowded. Ideally they should be taken directly from a reception area and avoid using a waiting room.
    - For hospitals that have green and blue zones, patients should be given instructions about the correct route into the hospital and where to go, to avoid inadvertently entering parts of the hospital that are not green zones.
    - Hospitals should carefully consider their own buildings, layouts and facilities as to how to ensure social distancing for patients arriving at and being treated in the green zones. Toilets in particular need consideration, and ideally patients should all be treated in en-suite rooms but this may not always be possible.

Patient contact, consent and supporting self-management

Services should be planning to keep waiting list patients updated about the local situation and ensuring they are aware of (a) supported self-management options relevant to them and (b) ways to contact the service if the patient has concerns about their condition deteriorating or red-flag symptoms occurring.

Reviewing waiting list

In preparation for re-starting non-urgent orthopaedic care, patients already on the waiting list should be reviewed to assess their present condition.

- The outcomes may be -
    - Wishes to continue with the planned care.
    - No longer wishes to be considered for surgery
    - Wishes to undergo planned surgery but requests delay
- The last group requires support and should not be removed from the list without their agreement.

Patients on the waiting list need to be kept informed of what is happening and be encouraged to continue to keep as active as possible.

Supporting self management

Self-management tools that may be helpful to your patient:

- Chartered Society of Physiotherapists resource hub for patients on managing pain: https://www.csp.org.uk/conditions/managing-pain-home
- Escape Pain (which has web-based and App programme that has been released particularly to support people during the COVID pandemic): https://escape-pain.org/

- [More tools may be added to this list as they become available.]

Consent

For those patients who intend to proceed with surgery in the present situation, informed consent is more complex and time has to be set aside for detailed discussions on the risks and benefits of surgery as well as the likely outcomes of non-operative care.

Some key points to consider:

- If the care pathway offered or proposed differs to what it would have been pre-COVID-19, that should be explained to the patient. This may include consideration of non-operative treatment, or the fact that post-operative rehab may be more limited than previously.
- If the patient is due to have planned surgery or is considering having planned surgery, the risk associated with COVID infection in the post-operative period should be discussed as well as the risks of delaying the treatment until a time when COVID-19 risks are lower. The scale of both risks is not easy to quantify currently but consider:
    - At the present time, there is just one published article regarding outcomes of elective surgery patients who have COVID-19 in the post-operative period; that article is from Wuhan at an earlier stage in the understanding and treatment of COVID and therefore in a setting and system that would differ from the UK now.[9] In due course we expect there to be UK data on this situation and will update our guidance accordingly.
    - Patients with other health conditions may be at high risk from COVID, and at Appendix 2 we include the current CDC risk stratification criteria.

The BOA Medicolegal committee will be preparing more information about consent, and we will publicise this once available.

Interfaces with primary and community care.

Referrals

At the time of onset of the pandemic, T+O already had substantial waiting lists of patients who required surgical intervention. In addition, many patients who would have been referred during the first phase of the pandemic will be awaiting assessment. There is variation in pathways of care across the UK but there are overarching fundamental principles.

- Patients on the waiting list who suffer marked deterioration in symptoms must be able to access assessment and urgent care as necessary. There should be flexibility within the prioritisation lists to ensure this can occur.
- There must be a clear pathway of care for patients who have developed serious conditions who present to community or Primary Care facilities.
- Referrals of non-urgent conditions must be assessed appropriately and the correct option for management selected
    - Advice and guidance to the First Contact Practitioner or GP
    - Remote consultation with the patient
    - Face to face consultation in secondary care
    - Urgent specialist assessment

[9] Shaoqing Lei *et al.* (2020) Clinical characteristics and outcomes of patients undergoing surgeries during the incubation period of COVID-19 infection. E Clin Med, 21 (100331). https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(20)30075-4/fulltext.

- Triage into these categories needs to be done with oversight from a senior decision-maker.

Enhanced recovery, rehabilitation and follow-up

Patients will need to be discharged from hospital back into the community as soon as it is safely possible to do so.

- Pre-operative discharge planning is essential
- Consistent seven-day care and in-hospital rehabilitation must be established

- Daily, seven days a week ward rounds by a senior decision maker are required so that problems can be assessed quickly and acted upon.
- Clear communication with the patient and community care teams is necessary so that post-operative care and rehabilitation can be continued
- Information for self-guided and supported rehabilitation should be used to minimise the need for direct patient contact (for example the Joint School App which supports patients recovering from hip or knee replacement)
- It is advised that patients return to self-isolating or shielding for 14 days following surgery (following the same behaviours as discussed in Appendix 1).
- Patients and carers must know how to make contact with appropriate services if they are concerned about the development of complications, particularly as their surgery may have been performed at a distant location
- Follow-up should be by remote consultation if at all possible, and patients could be encouraged to take video or photos to show the wound or swelling (etc.) that they wish to discuss.

Outcomes

- There are going to be many unknowns as we start to increase non-urgent surgery and it will be vital to share information on good practice, problems and complications as quickly as possible without the need to await peer reviewed publication.
- Audits of process and outcomes should be established within each unit before starting non-urgent surgery and a management team should be established that will review cases with adverse outcomes.
- Submission of outcomes to relevant COVID audits is strongly encouraged either locally or nationally (such as COVIDsurg which has a cancer audit that covers bone sarcoma). We will update this document with future studies relevant to T&O.

Other wider considerations regarding staffing:

- As non-urgent surgery re-starts it may be useful to have double consultant operating, as it is possible for deskilling to occur where surgeons have not operated for some weeks or months.
- Psychological support should be available for all members of the team who have been working on the COVID response. It may be reasonable to expect that staff may need to take some time off to recover from time spent in high pressure environments dealing with COVID patients.

Other relevant resources

Parvizi et al. (2020) Current Concepts Review: Resuming Elective Orthopaedic Surgery During the COVID-19 Pandemic Guidelines Developed by the International Consensus Group (ICM), *JBJS* in press available online at: https://journals.lww.com/jbjsjournal/Documents/P-FINAL-Parvizi.pdf

Appendix 1: Self-isolating or shielding prior to admission and after discharge

For 14 days prior to the procedure, the patient should stay at home and reduce exposure to COVID that could be circulating in the community. They should also do so for 14 days after discharge. For paediatric patients where it may be particularly challenging to self-isolate or shield for this length of a time, a shorter duration may be appropriate and parents should follow local guidance.

The following are full details for the two options we believe are available to patients.

(a) Self-isolating along with their entire household

What does this mean and when should it be adopted?

- In some cases it will be preferable for the patient to self-isolate with their household group, meaning that the whole of the household does not leave their home for the agreed period and can continue to interact with one another as normal.
- This is particularly recommended for the case of a child requiring surgery, in which case the parent/carer who will attend hospital with them should certainly self-isolate too. It will often be most straightforward for the family unit as a whole to do so, but this too can be challenging if there are adults in the household that work away from home. Each family will need to consider the best way to handle this.
- Self-isolating in this way can also be preferable for household groups where it is not overly onerous for all individuals to remain at home.

What precautions should be taken?

- The whole household should ensure they do not leave the home (but can use the garden if they have one). (We note that for children without access to a garden/outside space, self-isolating inside for this duration may be particularly challenging, and it may be appropriate to take outdoor exercise but ensuring social distancing at all times.)
- When receiving any deliveries or needing to answer the front door, they should observe social distancing to reduce possible spread of the virus.
- (Please note that 'self-isolation' in the UK Government website is primarily used to refer to households that need to take precautions because one of them *has* the virus. In that circumstance, members of the household can be eligible for sick pay while they are self-isolating. However, an individual that is self-isolating ahead of the surgery date for another member of the household is not currently entitled to sick pay based on our understanding of the guidelines.)

(b) Shielding within their household

What does this mean?

- Here the rest of the household are relatively unaffected, but the individual awaiting surgery 'shields' to distance themselves from others in the home and thereby reduce the risk of infection.

- There is guidance on the Government website about shielding at the following link: https://www.gov.uk/government/publications/guidance-on-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19/guidance-on-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19.

- The Government guidance is aimed at individuals who need to shield for a very extended period of time due to their vulnerability to the virus. We are not asking patients to shield for this duration (unless they have already been instructed to do so), and they do not need to register on the Government website for shielding. We are advising patients only to undertake 'short-term shielding'.

What precautions should be taken?

- The key points from the Government guidance cover the importance of hand hygiene and social distancing for everyone in the household.

- Advice to the patient staying at home:
  - Minimise the time other people living with you spend in shared spaces such as kitchens, bathrooms and sitting areas, and keep shared spaces well ventilated.
  - Keep 2 metres (3 steps) away from people you live with and encourage them to sleep in a different bed where possible. If you can, use a separate bathroom from the rest of the household. Use separate towels from the other people in your house, both for drying themselves after bathing or showering and for hand-hygiene purposes.
  - If you share a toilet and bathroom with others, it's important that they are cleaned every time after use (for example, wiping surfaces you have come into contact with). Consider drawing up a rota for bathing, with you using the facilities first.
  - If you share a kitchen with others, avoid using it while they're present. If you can, take your meals back to your room to eat. If you have one, use a dishwasher to clean and dry the family's used crockery and cutlery. If this is not possible, wash them using your usual washing-up liquid and warm water and dry them thoroughly. If you are using your own utensils, remember to use a separate tea towel for drying these.
  - Everyone in your household should regularly wash their hands, avoid touching their face and clean frequently touched surfaces.

Appendix 2: COVID-19 Patient Risk Assessment

Any patient is at risk of severe respiratory disease and the morbidity / mortality that are attached to COVID-19. We do however know that certain risk factors increase the severity.

The stratification below is from the CDC. We are also aware that a major UK study of risk factors based on 17 million NHS records has been completed and is currently undergoing peer review, and may also be helpful for risk assessment purposes.[10]

Risk Factors Identified (CDC)
Asthma - Moderate to severe only
Chronic Lung disease – COPD. Pulmonary Fibrosis, Cystic Fibrosis
Diabetes
Serious Heart Conditions – Heart Failure, coronary artery disease, congenital heart disease, cardiomyopathy,
Chronic kidney Disease – Dialysis
Severe obesity – BMI > 40
Age - > 65 years
Immunocompromised – Cancer treatment, transplant including bone marrow, immune deficiency, HIV with low CD4, medication causing immunosuppression including long term steroids.
Liver disease – Cirrhosis

Low Risk	< 65 years with no risk factors
Medium Risk	>65 years with no risk factors < 65 years with 1 risk factor
High Risk	>65 years with 1 risk factor <65 years with 2 risk factors
Very High Risk	All patients with 3 or more risk factors

[10] The OpenSAFELY Collaborative *et al*. (2020) OpenSAFELY: factors associated with COVID-19-related hospital death in the linked electronic health records of 17 million adult NHS patients. In peer review and available currently at: https://doi.org/10.1101/2020.05.06.20092999. See Figure 3 in particular.