



Restoration and recovery of stroke services during the COVID-19 pandemic

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Scope

This document is for multidisciplinary stroke teams working in acute or community settings. It aims to provide pragmatic guidance to support teams in delivering high-quality stroke care during the restoration and recovery phase of the COVID-19 pandemic.

Foreword

In normal times, quality improvement in stroke care for the most part happens incrementally. Planned changes are considered, agreed and implemented, and the impact of changes is monitored in the regular Sentinel Stroke National Audit Programme. This approach leads to slow, continuous improvement. Occasionally services have to deal with challenges that suddenly disrupt quality of care, such as staff departures, but these tend to be time limited, affecting individual units rather than entire networks.

The pandemic has presented challenges to stroke teams, which have required a different approach. The impact has been rapid and far reaching. All services have had to deal with challenges that have disrupted the quality and deliverability of care. These include reduced staffing levels across the whole stroke pathway and the need to continue to deliver time-sensitive life-saving care while also implementing strict infection control measures to protect patients, carers and staff.

Stroke services have had to adapt quickly using many new approaches. At the height of the pandemic, we produced our first guide to share learning to help stroke teams manage this adjustment. Now we have followed it up with a second report, which this time focuses on developing stroke services in the restoration and recovery phase. It aims to capture knowledge and best practice around innovation and service change and to offer practical support towards implementation along the whole stroke pathway.

This has been a collaborative approach, bringing together relevant skills, experience and expertise from the national stroke leadership in Getting it Right First Time (GIRFT) and elsewhere, as well as support from the British Association of Stroke Physicians (BASP) in reviewing and disseminating the guide. We thank Hannah Oatley and Jemma Lough for their support, which has enabled this guide to be produced very rapidly. We also thank everyone who contributed case studies and the reviewers who provided helpful feedback.

We hope stroke teams find the guide useful and encourage stroke teams to submit more examples of real-life solutions that have been deployed to meet challenges during the restoration and recovery period.

Gary Ford, Deb Lowe, David Hargroves

Executive summary

Since the coronavirus disease 2019 (COVID-19) pandemic began, many changes have been made to the way in which stroke teams work and the way in which stroke services are delivered. The UK has now passed the first peak of the pandemic and is entering a phase of ‘restoration and recovery’, during which services will stand down some ‘peak’ interventions while still adapting to the presence of patients, carers and staff who may be infected with COVID-19.

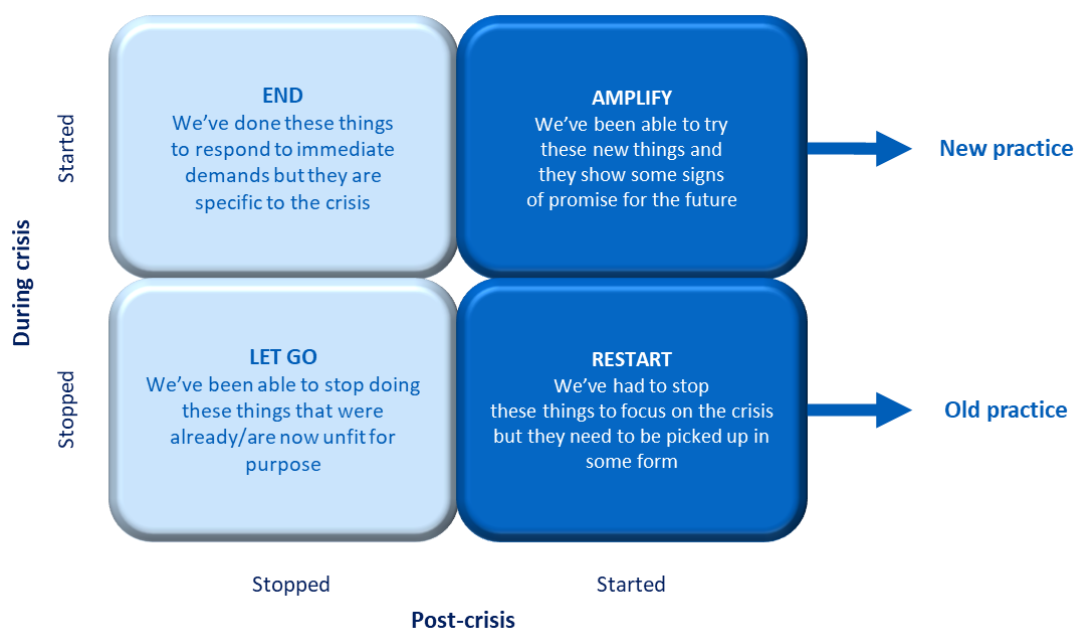
The pandemic has demonstrated the ability of NHS stroke services to adapt and change rapidly, to use digital solutions and explore the use of artificial intelligence technologies. It is critically important that stroke services continue to adopt effective interventions rapidly and that we do not move back to holding on to outmoded ways of working. Some changes that have been introduced will require further evaluation and continued monitoring of patient outcomes through the Sentinel Stroke National Audit Programme (SSNAP) and local audits. Engagement with patients and the public to understand how these changes have affected the patient experience is even more important than before the pandemic.

This document provides pragmatic guidance to support acute and community teams to deliver high-quality stroke care while maintaining staff wellbeing and safety.

Regular regional calls have been held with stroke teams in both hospitals and the community during this period, and common themes and questions have emerged. These are summarised below and are addressed in detail within this document.

Assessing the impact of interventions

A number of interventions have been introduced into stroke pathways during the pandemic, and it is important that the effectiveness of these is assessed as we move forward. We have used the model shown below, which was developed by the Royal Society for the encouragement of Arts Manufactures and Commerce to understand crisis-responses measures.¹ We use this framework throughout the document to assess common interventions that have been put in place across the whole stroke pathway.



Common themes

Staff wellbeing and workforce

This has been a time of unprecedented stress and pressure for NHS staff. There is now an urgent need to return to compliant rotas and sustainable ways of working. Every effort should be made to support staff wellbeing, recognising the emotional and psychological effects of delivering care during a pandemic.

Reduction in efficiency

Additional measures required to deliver safe care during the COVID-19 period – including enhanced cleaning protocols, the time taken for donning and doffing of personal protective equipment (PPE), and the need to maintain COVID-19-positive and COVID-19-negative bed bases – will all have an effect on the efficiency of processes and pathways. Stroke pathways have several time-sensitive elements, and stroke teams have put in significant work in recent years to improve the efficiency of pathways so that the best possible outcomes are achieved for patients. Stroke teams should aim to deliver care as efficiently as is possible in the circumstances; however, it should be acknowledged that some reduction in efficiency is inevitable due to the additional measures in place. It should also be recognised that while virtual clinics and reviews are highly effective and allow for greater flexibility in working patterns, they take longer to deliver than traditional face-to-face methods, and this should be reflected in future workforce and job planning.

Testing

All suspected stroke patients should have a rapid COVID-19 test performed in the emergency department (ED) so that their COVID-19 status is known prior to admission to a ward. Staff should also be regularly tested, and any staff member testing positive should inform occupational health and their line manager and immediately self-isolate. The NHS test and trace system has the potential to disrupt whole teams or departments. Staff should be reminded of the importance of social distancing and the need to wear face masks in the workplace. Staff who do not follow (or are unable to follow) social distancing are more likely to be named as a contact should a colleague test positive.

Bed management of stroke patients with COVID-19

COVID-19-positive patients should be cared for on COVID-19-specific wards, with in-reach from stroke specialist multidisciplinary teams (MDTs). This in-reach can be virtual or face-to-face with appropriate PPE.

TIA services

Many transient ischaemic attack (TIA) services across the country have moved to a virtual model. This should be continued during the restoration and recovery period. Guidance on delivering virtual TIA clinics can be found in our previous implementation guide on *Adapting stroke services during the COVID-19 pandemic* (<https://basp.ac.uk/wp-content/uploads/2020/05/Adapting-stroke-services-in-the-COVID-19-pandemic-May-2020-Virtual-TIA-clinic.pdf>).²

While changes to TIA services were introduced rapidly to respond to the pandemic, stroke teams should now critically review their TIA pathways to see which areas need to be remodelled in order to better facilitate virtual working. This should include reviewing clinic time allocation, recognising that it takes longer to deliver virtual reviews.

Infection control

Teams should follow national PPE guidance for both inpatient and community pathways. Some aspects of the national guidelines, including the guidance around PPE for nasogastric tube placement and swallow screens, have led to much debate within the stroke community. A pragmatic local approach, agreed with local infection control teams, is recommended.

In order to comply with social distancing, teams will need to adapt to new ways of delivering handover, safety huddles and MDT meetings.

Transfer of care between settings

There is a difficult balance between ensuring that patients are discharged as soon as is clinically appropriate to reduce the risk of nosocomial infection and ensuring that patients with undiagnosed or known COVID-19 do not compromise the setting to which they are being repatriated. Stroke teams need to find a pragmatic balance between rapid supported discharge and the need to protect community settings. A patient's COVID-19 status should be rechecked on discharge and, when the result is available, communicated to community teams; pending results should not delay transfer of care.

Early supported discharge (ESD) and community rehabilitation pathways

Some ESD services were able to expand their provision during the COVID-19 pandemic and are providing a 7-day service. This should be amplified going forward to support appropriate early discharge from hospital and a reduced risk of nosocomial spread.

Some services have not been offering community-based rehabilitation to all patients due to infection control concerns. The potential detrimental effect of not providing rehabilitation to patients is now an issue, as well as the burden this may place on the family or other services if patients do not receive appropriate therapy. Intensity and responsiveness of rehabilitation delivery needs to be resumed to meet evidence-based guidelines, maximising the use of telerehabilitation where therapeutically appropriate. Rehabilitation pathways need to have a risk assessment framework in place for face-to-face visits.

Face-to-face contact and therapy, with appropriate PPE and infection control precautions, should be offered to maximise rehabilitation potential of stroke survivors, especially those with more severe disability. Virtual rehabilitation models should be incorporated alongside face-to-face rehabilitation.

Communication

In an era of face coverings and virtual communications, careful attention needs to be given to the quality of communication with patients, carers and other staff. This includes appreciating that communication may take longer and so speaking slower, using non-verbal cues, and using the support of relatives and carers if needed. Clinic schedules will need to be reviewed and administrative support made available to arrange virtual communications.

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I. Introduction

In December 2019, an illness characterised by atypical pneumonia emerged in Wuhan, Hubei Province, China,³ and in January 2020 it was confirmed that a novel coronavirus was present in samples obtained from affected patients.⁴ The pathogen was named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and the condition it causes was named coronavirus disease 19 (COVID-19). These terms are used interchangeably in practice, so in this document we will refer to both the disease and the virus as COVID-19.

The disease began to spread within China and then to other countries, with the first documented case of COVID-19 in the UK being confirmed on 31 January. The World Health Organization (WHO) declared the outbreak as a public health emergency of international concern on 30 January.⁵ The global spread of the disease was such that, by 11 March, the WHO stated that COVID-19 could be characterised as a pandemic.⁶ On 23 March, the UK Government announced a partial lockdown to contain the spread of the virus.

Until the development of effective treatments, vaccines and population immunity, it is likely that the COVID-19 pandemic will continue to affect the way we work in the NHS for at least another 12 months. While further 'surges' are expected, it is hoped that these will be localised and their peaks will be smaller and flatter, thus allowing the NHS to enter a stage of 'restoration and recovery', albeit while still adapting to the presence of patients, carers and staff acutely infected with COVID-19.

Since the start of the COVID-19 pandemic in the UK, many changes have been made to the way in which stroke teams work. Some of these changes have been extremely positive and have clear patient and staff benefits that would apply beyond the COVID-19 crisis. Learning from these case studies needs to be shared, so that the benefits can be replicated in other centres. Other areas of the crisis response need to be stood down for now, but their effectiveness needs to be assessed should they be required again. In addition, patient or staff needs are not being met in some areas, and solutions need to be found.

The purpose of this document is to draw on examples of the UK and international responses to COVID-19 to produce stroke-specific guidance covering the various aspects of stroke care during this restoration and recovery phase. The aim is that stroke teams use this guidance to ensure that they can continue to deliver high-quality stroke care while maintaining staff wellbeing and safety.

The document will focus on seven key areas:

1. Assessing the impact of changes introduced in response to COVID-19
2. Supporting colleagues, keeping staff safe and building resilience within stroke teams
3. Patient and family/carer experience
4. Reducing spread of COVID-19 within the stroke pathway
5. Clinical pathway for acute stroke patients testing positive for COVID-19
6. Maintaining standards within the stroke pathway during the COVID-19 pandemic
7. Identifying how stroke teams can support the health of the community, including messaging around stroke and stroke prevention.

2. Assessing the impact of changes introduced in response to COVID-19

2.1 Background

The NHS response to the COVID-19 pandemic has demonstrated that necessity is the mother of invention. In response to the crisis, teams and individuals innovated to change the way they worked, enabling them to create capacity or adapt to infection control measures. Many individuals found themselves working in entirely new clinical areas, and all have had to adapt working practices, where practical, to adhere to social distancing measures during their working day. Virtual reviews in particular have played a vital role in the response to COVID-19. Many stroke services had already embraced telemedicine and are now looking to maximise and optimise its use in acute stroke care. Stroke services have also been using telephone and video reviews in virtual TIA assessment.

As we move into the next phase of responding to COVID-19, it is important to take stock of the changes that have been made and to assess the effect that they have had. In some cases, the pandemic has acted as a catalyst, speeding up the adoption of an innovation that would have happened at a slower pace. Other interventions may have worked well in a surge scenario but are now not required or would be unhelpful in the longer term. There may also be some interventions that did not work well – or caused harm – and should not be repeated, even in a surge scenario. All services should review the changes made and establish a plan to evaluate the effects of these changes and whether they have a role in future stroke care organisation.

Interventions can be assessed in a range of ways:

- staff and patient feedback
- clinical audit
- formal service and/or research evaluation.

The approach taken will depend on the complexity of the intervention, the type of intervention and the resources that can be committed to the assessment. For example, changes to methods of communicating with relatives and carers can be easily assessed through patient/carer feedback, whereas implementation of artificial intelligence imaging software to support remote decision-making will require qualitative and quantitative evaluation. Some evaluations may need the support of other organisations such as Academic Health Science Networks (AHSNs) or National Institute for Health Research (NIHR) Applied Research Collaboratives.

The Sentinel Stroke National Audit Programme (SSNAP) is a valuable audit tool. Data collection has mostly been maintained over the initial COVID-19 response, and analysis of these data will be important to assess and understand the effect that interventions may have on stroke pathway metrics. During the pandemic, 80% of teams have continued to submit data, and all stroke teams are encouraged to restart submitting these data as soon as possible. Currently, SSNAP is facilitating a core minimum COVID-19 dataset, as well as full dataset entry. All teams should at least be submitting the core minimum dataset.

The model shown in [Figure 1](#) is a useful way to assess crisis-response measures, and it is used throughout this document to highlight common interventions that have been put in place across the whole stroke pathway.

2.2 Preparing for a further surge

Although the UK is past the initial peak of the COVID-19 pandemic, learning from other countries suggests that there are likely to be further local or regional peaks in infection rates. Stroke teams therefore need to plan to adapt to further surges. This should include:

- planning for the redeployment of staff to support COVID-19 workload
- maximising the use of telemedicine throughout the whole stroke pathway (pre-hospital, acute phase and rehabilitation)
- having clear communication pathways in place between acute and community teams

- engaging with trust communications teams and planning messaging for primary care and, most critically, the public on the importance of contacting emergency services when symptoms of TIA and stroke occur, even in a ‘lockdown’ scenario.

Figure 1 Understanding crisis-response measures. Adapted from Royal Society for the encouragement of Arts, Manufactures and Commerce (2020).¹



Stroke services responded well to the first peak, with all units maintaining stroke pathways and the majority maintaining a stroke bed base. Early on in the pandemic, Getting It Right First Time (GIRFT) made a concerted effort to engage stroke teams in regional and national calls, during which issues were raised and learning was shared.

Some key areas that stroke services need to learn from in the event of a further peak include:

- transfer of care planning – patients with known COVID-19 status should be discharged with clear plans for rehabilitation and follow-up in place and effectively communicated to the community teams
- pre-hospital assessment – ensuring that people in care homes with suspected strokes are not denied appropriate specialist assessment, admission and care
- communication with patients, the public and primary care – there should be clear communications through a range of local media to provide reassurance that local stroke and TIA services are operating and, importantly, the risk of death and disability by staying away from stroke services far outweigh the very small risk of contracting COVID-19 in TIA and stroke services.

3. Supporting colleagues, keeping staff safe and building resilience within stroke teams

3.1 Staff wellbeing

Staff are the most important asset within the NHS. During this time of intense pressure and uncertainty, it is vitally important that staff are well supported both professionally and pastorally. Responding to COVID-19 has meant that staff have had to expose themselves to potential harms in a way that has not previously been seen in the NHS. Staff may also be experiencing fatigue, fear, uncertainty about the future and concerns about their own health. Stroke medicine has a high proportion of black, Asian and minority ethnic (BAME) staff who may need additional support given the increased risk of COVID-19 mortality in this group. During the surge phase of the pandemic, many frontline staff had to live separately from their families, and this is likely to have had a profound effect on their wellbeing; as well as eroding the line between work and other aspects of life.

Most stroke physicians co-trained as geriatricians, and there has been a pull of stroke physicians away from stroke medicine to cover acute medicine and COVID-19 services. This may have led to teams feeling fragmented, as well as increasing the workload for those left to cover stroke rotas. Therapists were also redeployed to support discharge to assess schemes and respiratory pathways, reducing the amount of stroke specialist therapists available to support stroke patients.

Some trusts have reported beneficial aspects to redeployment. For example, where neurologists have been redeployed to support stroke rotas, this has potential benefits for strengthening acute stroke teams and the future delivery of stroke medicine and should be amplified where possible.

Stroke units are specialist areas requiring rapid access. Lifesaving interventions need to be carried out, often hours before any COVID-19 test results are confirmed. Stroke teams reach into the emergency department (ED) on a 24/7 basis to assess patients and administer therapy. While this is part of delivering high-quality stroke care, it should be recognised that it can lead to significant stress and anxiety for staff. Stroke is a life-threatening condition with a high mortality rate. In normal times, the necessary and difficult conversations with relatives about prognosis, death and dying would happen face to face. However, during the pandemic, staff have had to convey these messages to relatives over the telephone and have had to be present as patients die without relatives by their side. The emotional burden of this cannot be underestimated. Staff working in the community will have experienced similar stresses and pressures and may also have experienced feelings of isolation, with less immediate access to colleagues for debrief about difficult situations.

Staff across all areas of the stroke pathway have reported feeling fatigued by the constant state of flux in recent months, including changes to rotas, hours and areas of work. While this was necessary during the early stages of the pandemic, staff now need a period of stability, particularly if they are to cope with a predicted second surge later in the year – and what will predictably be another difficult NHS winter. The hours of work and level of stress experienced during the surge phase of the COVID-19 pandemic are not sustainable in the medium term, and teams now rapidly need to revert to more sustainable ways of working.

The impact of work environment and leadership on staff wellbeing

Known contributors to staff wellbeing include:⁷

- leadership styles that encourage team members to communicate openly and participate in decision-making
- quality of relationships within teams
- positive organisational climate
- job satisfaction
- organisational support
- supervisor support.

Well-performing teams are also correlated with improved team members' wellbeing, which has been linked to safer and better patient care and experiences, as well as improved organisational performance.⁸

Team leaders have a key role in play in supporting staff through the COVID-19 pandemic and in helping teams to become resilient. However, leaders should also ensure that they do not neglect their own wellbeing. Some good resources to support leaders to look after themselves and their teams can be found at <https://people.nhs.uk/support-for-leaders/>.

Building resilience

The ABC guide to resilience developed by NHS People is a simple framework for maintaining and enhancing personal resilience during the COVID-19 pandemic. The full guide can be found at <https://people.nhs.uk/guides/abc-guide-to-being-personally-resilient/>, and a summary is provided below, in an easy format to share at team meetings.

Table 1 ABC guide to resilience.

| Step | Description | Things individuals can do |
|--------------------------|--|---|
| Accept and act | This is a global and unprecedented situation. There is a lot that we do not know. This can feel overwhelming and will affect everybody differently. To be resilient, we each need to understand the reality of our personal circumstances and the things we need to do. This will prepare us to take positive action, no matter how small, to give us a sense of moving forward with our lives | <ul style="list-style-type: none"> • Work situations through mentally • Act where you can make a difference • Accept that good enough is good enough • Focus on today • Set small realistic goals • Remember your training and experience • Be flexible • Be a realistic optimist • Stop, breathe, reflect, choose and act |
| Body and brain | You need to care for yourself, before you can care for others. Self-care is vital during challenging situations, as without it we are more likely to make poor decisions, suffer from stress and burnout. While it is sometimes hard to do, particularly in the current situation, looking after ourselves enables us to be more resilient | <ul style="list-style-type: none"> • Be energised through physical exercise • Eat well • Take a break • Rest and relax your body • Rest and relax your mind • Be thankful for the small things • Be kind to yourself • Listen to your emotions • If you feel unwell, seek help |
| Connection and community | Keeping connected with the people we have around us, both inside and outside of work, is one of the foundations of being resilient. We are stronger when we face challenging situations together and we solve problems better. We feel supported when we have others to go to and we feel good about ourselves when we help others | <ul style="list-style-type: none"> • Keep connected in all aspects of your life • Connect with colleagues • Check in on others • Ask for help • Do things together • Create new connections |

Safety huddles

Ensuring that all staff, wherever they are working, continue to feel part of the team is important during times of crisis. Safety huddles may improve team effectiveness by creating situational awareness and empowering colleagues to speak up. Safety huddles are regular, short, multi-professional briefings focusing on patient and staff safety. They are traditionally held face to face but can be carried out virtually.

The huddles are based around four simple questions:

- What went well yesterday?
- What did not go so well?
- What can we learn from this and do differently today?
- What risks are there for today that need mitigation?

Virtual multidisciplinary team meetings

Staff within community teams are at particular risk of feeling isolated due to the dispersed way in which they work. Virtual catch-ups and virtual multidisciplinary teams (MDTs) are ways to keep staff connected with colleagues and to share information and learning.

Access to external support

- www.nhsemployers.org/covid19/health-safety-and-wellbeing/staff-wellbeing
- www.mind.org.uk/information-support/coronavirus/coronavirus-and-your-wellbeing/#collapsea2b59
- www.samaritans.org/how-we-can-help/if-youre-having-difficult-time/if-youre-worried-about-your-mental-health-during-coronavirus-outbreak/
- www.rcpsych.ac.uk/about-us/responding-to-covid-19/covid-19-and-mental-health

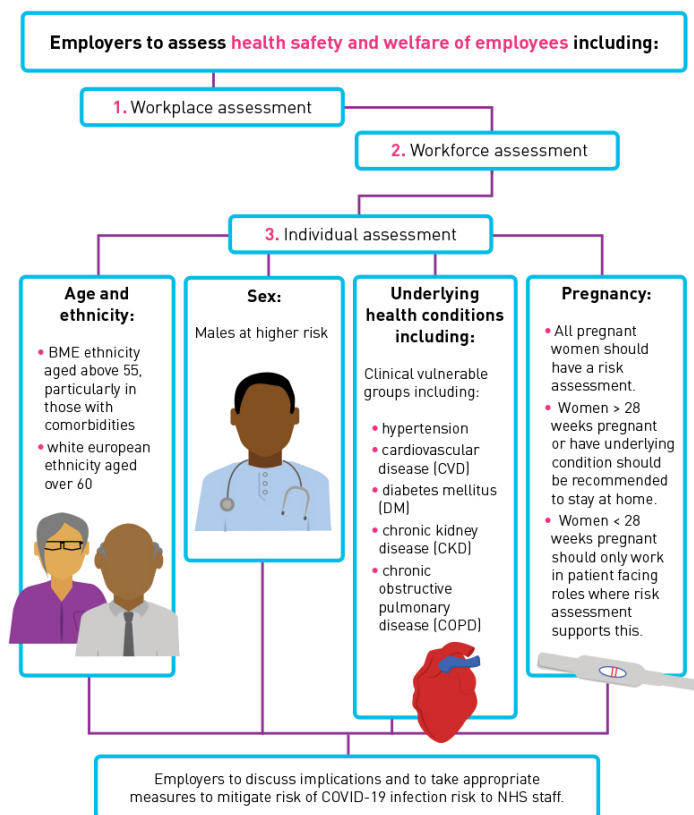
3.2 Workforce

Risk assessment of staff

COVID-19 is a novel virus, and risk factors for incidence and severity are gradually being identified. Age, obesity and comorbidities such as diabetes, hypertension and cardiovascular disease seem to be risk factors for severe disease. In addition, rates of COVID-19 fatalities in BAME groups in the UK have been disproportionately high.

NHS Employers has produced a risk-reduction framework for employers to use to ensure an equitable approach to risk management and risk reduction of potential workplace hazards, including the flowchart in **Figure 2** (www.nhsemployers.org/covid19/health-safety-and-wellbeing/risk-assessments-for-staff).

Figure 2 COVID-19 risk-reduction framework for healthcare workers.



A. Risk reduction framework needs to be used in conjunction with NHS Employers' guidance.

B. Employers need to take into consideration health care settings such as primary or community care, hospital settings or environments where aerosol generating procedures are performed.

Source: Risk reduction framework for NHS staff at risk of COVID-19 infection, Faculty of Occupational Medicine

Employers should carry out both a workplace assessment of risk and a workforce assessment to identify those individuals with potentially increased vulnerability to infection or adverse outcomes from COVID-19. This includes:

- specific long-term health conditions
- older age
- black, Asian and minority ethnic (BAME)
- pregnancy.

The workplace, the workforce and the individual all need to be considered. Supportive conversations between staff and managers, which take into account staff concerns and preferences, are required. This should include workplace adjustments if needed. Staff with underlying health conditions or with anxieties about their health or work may require further assessment, advice and support through occupational health.

Staff at higher risk could potentially be redeployed to work in COVID-19-negative clinical pathways or deployed to non-patient-facing roles. However, a potential consequence of applying a risk assessment to all staff is that some teams may be in a situation where the majority of staff are in a higher risk group. This can then lead to problems with service delivery. In this situation, exposure risk needs to be managed carefully, including the use of full PPE for certain staff.

In the community, higher levels of testing within nursing homes and community settings will identify areas of increased occupational risk of acquiring COVID-19.

Planning for self-isolation

The NHS test and trace service has launched (www.gov.uk/guidance/nhs-test-and-trace-how-it-works). People who test positive for COVID-19 will be asked to identify their recent contacts, and these contacts will then be asked to self-isolate for 14 days. This means there is the potential for any member of staff to have to stay at home for 14 days at short notice. Departments should put in place contingency plans for staff who are self-isolating but otherwise well to continue working as best they can. This may include:

- participation in telemedicine rotas
- virtual outpatient clinics for new and follow-up patients
- continuing professional development (CPD) opportunities
- virtual appraisals
- SSNAP data submission
- audit, mortality reviews and quality improvement work
- delivering virtual teaching sessions to other team members
- supporting remote ward management or rostering
- support with trust governance e.g. review of incident reporting
- telerehabilitation.

Trusts should take steps to prepare for staff having to self-isolate. This includes making sure that staff can access trust laptops and relevant systems.

Contractual issues

All staff may have been working outside their contractual terms and conditions. This includes nursing and therapy staff on agenda-for-change contracts, as well as medical staff. Working outside of normal contracts needs to be de-escalated:

- Non-compliant rotas should be stopped.
- Staff should be encouraged to book and take their annual leave.
- Staff working outside of their usual specialty/area should go back to their substantive role.
- Reliance on overtime should be reduced.
- Cancelled or curtailed parental leave should be retaken.
- Study leave should be approved, where appropriate.

Specific issues relating to consultant and specialty and associate specialist (SAS) contract

Some jobs plans will change during the restoration and recovery phase; the discussion in this document highlights new ways of working that clinicians will be keen to keep and adopt, as well as restoring some previous work commitments. For example, job plans may need to be changed to facilitate the additional time it takes to deliver virtual outpatient clinics.

In order to fulfil the statutory requirements for revalidation, the appraisal process will restart. Consequently, the necessary CPD and quality improvement work required will also need to be completed. This can only be achieved through the restoration of supporting professional activity time and study leave.

The British Medical Association (BMA) has responded by asking doctors to keep accurate records of working patterns to help inform current and future discussions. Each trust should have a local negotiating committee (LNC), and they should be the first contact with regard to such issues. They should also provide staff with recommendations on taking and payment of annual leave.

Trainee doctors

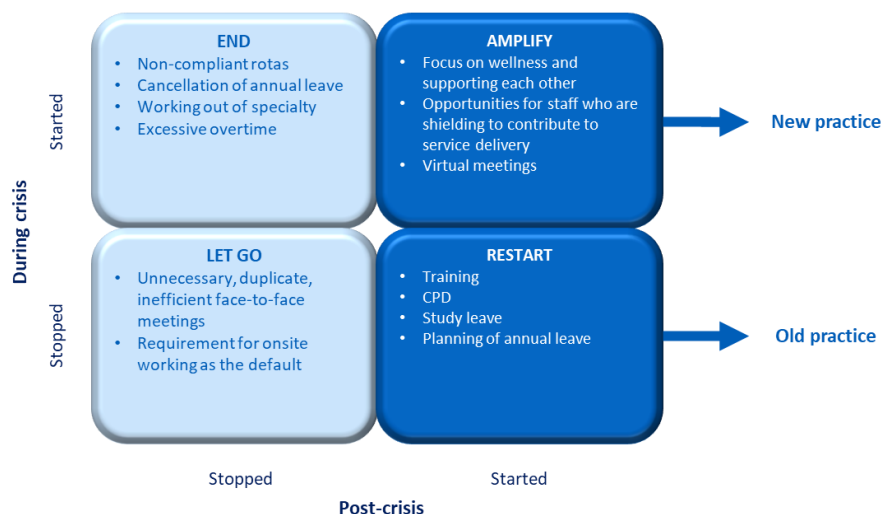
During the restoration and recovery period, it is important that the specific needs of trainee doctors are considered, as they may have issues related to their employment or their training.

Training requirements, including professional examinations, courses, procedural training and outpatient working, have and may continue to be affected. Although certain clinical opportunities may remain unavailable for some time, stroke services must make every effort to deliver appropriate training for their trainees. While telemedicine should be maximised across the stroke pathway, there is still a need for trainees to have face-to-face teaching and be observed carrying out clinical skills and procedures. This may not be possible when COVID-19 prevalence is high in a local area but when prevalence reduces normal training should resume.

Stroke team leaders should recognise that, in addition to the general stresses of working during a pandemic, trainees may face additional worries about lost learning opportunities or disruption to career progression. Specific efforts should be made to offer support and mentoring to trainees during this time: reassure them that training is capability based and that there will have been opportunities to learn during the pandemic, including working with new service developments such as telemedicine. The Royal College of Physicians recommends that there is an opportunity for debriefing at the end of each shift. This should be performed in a positive way to provide training but also to facilitate sharing of experiences and concerns.

Some trainees may be shielding due to underlying health conditions. They should be offered specific support and guidance, as well as being directed to virtual training opportunities. Trainees (and other grades of staff) who are shielding may benefit from being connected with others in the same situation.

3.3 Summary



4. Patient and family/carer experience

The COVID-19 pandemic has had a profound effect on the experience of patients, families and carers. Anecdotally it is suspected that many patients suffering TIA or minor stroke did not present to NHS services, either due to fear of becoming infected with COVID-19 or because they did not want to burden the NHS.

Patients who did present will have faced clinical staff in full PPE, which may have hindered communication and will have been confusing or distressing for some patients. Reduced visiting restrictions meant fewer interactions between patients and relatives and different modes of communication between them.

The patient experience is a pivotal part of providing high-quality care and in planning for future responses to local surges, and there is much that stroke teams can learn from the initial response to the pandemic.

4.1 Patient contact

Visits from family, carers and friends are an important part of a patient's hospital stay and their recovery. During the early stages of the COVID-19 pandemic, visiting restrictions were very strict, which was difficult for patients and their families.

National restrictions on visiting, introduced early in the pandemic, were lifted in June 2020, and visiting is now subject to the discretion of individual trusts. Local risk assessment and practical management should be considered, including whether visitors should wear PPE.⁹ Visiting restrictions limit the usual opportunities for communication between healthcare professionals (HCPs) and relatives. When visiting is restricted, stroke teams should consider adopting a system where the healthcare team call relatives on a daily basis. This managed communication flow may deter *ad-hoc* calls from relatives requesting updates. [Case study 1](#) and [Case study 2](#) highlight use of Attend Anywhere software to facilitate communication between patients and relatives.

Case study 1 – Royal Berkshire Hospital NHS Foundation Trust

The stroke unit at the Royal Berkshire Hospital introduced a system of video calling between patients and relatives in response to COVID-19. Video calling was felt to be an important way of facilitating communication between stroke patients and their family members while visiting was restricted. Thirty-minute slots were booked using the 'Attend Anywhere' videoconferencing software, and relatives were able to talk to patients and also to the stroke team.

An audit was carried out to review the impact that video calling had on patients. The audit aimed to establish:

- Do inpatients experience feelings of depression, loneliness or isolation and do video calls with relatives improve this?
- Was video calling an overall positive experience for inpatients?

Validated questionnaires, including the Patient Health Questionnaire-9 (PHQ-9) and University of California, Los Angeles (UCLA) loneliness score, were used, and qualitative feedback was obtained.

The audit showed that, despite having their own mobile telephones in hospital, patients who had access to the video calls spoke to their families more often. This is of particular note on the stroke unit, where stroke-related disability may have hindered a patient's ability to communicate using their phone.

Overall feedback from patients were very positive, and while feedback from relatives was not formally captured, they also made a number of positive comments. It is clear that the video call project facilitated communication and positive interaction between patients and their loved ones during the uncertain and challenging times of the pandemic.

Unexpectedly, patients who had taken part in a video call with relatives were more likely to report feelings of loneliness or isolation than those who had not taken part in a video call. This could be due to the small sample size or because taking part in the video call might have exacerbated the feeling of loneliness for that patient group. This interesting paradox should be taken into account and explored further when virtual systems are implemented in response to COVID-19.

4.2 Visiting for patients at end of life

NHS England (NHSE) has published guidance on practical considerations to support visiting at end of life during the pandemic,¹⁰ including:

- Dying people should be asked, where possible, if they would like a visit from a loved one or faith leader.

- The number of visitors at the bedside is limited to one close family contact or somebody important to the dying person. However, where it is possible to maintain social distancing throughout the visit, a second additional visitor could be permitted.
- People in attendance to support the patient’s needs (e.g. a patient advocate) should not be counted as additional visitors.
- Anyone who is showing symptoms of COVID-19 should not visit, even if these symptoms are mild or intermittent, due to the risk they pose to others.
- Visitors should be informed about what to expect when they see their loved one and given practical advice related to wearing PPE, handwashing and the risks associated with removing gloves to hold hands.

Additionally, other people who need to attend to support the visitor’s needs (for example, if the visitor is a close relative with a learning disability or dementia) should not be counted as additional visitors.

Case study 2 – North Cumbria Integrated NHS Foundation Trust

Changes to hospital visiting because of COVID-19 stopped us carrying out face-to-face progress and discharge planning meetings with families attending. Such meetings provide families with updates on medical/rehabilitation progress and allow us to manage families’ and patients’ expectations by setting goals and agreeing discharge plans in partnership.

The Attend Anywhere video consultation service was approved by the trust’s information governance department and staff were trained in its use. We identify patients who require meetings at daily board rounds and weekly MDT discussions. We then contact their next of kin and offer the appointment over Attend Anywhere. The meetings are held on the ward with members of the MDT – and the patient, where possible. Family members dial in remotely.

Our experience has been positive. For example, we were able to facilitate a successful progress meeting with a patient’s brother and sister who, due to social distancing measures, were dialling in from two separate parts of the county.

- **Family member 1:** *“I found the meeting informative and it gave me insight. It was straightforward to set up with clear instructions from yourself”.*
- **Family member 2:** *“I thought it was very good of you all to set up the video call. I had no issues with you breaking up. From our end, it was all very good and very clear, with no problems at all”.*

Overall, the video consultation service has meant we can maintain communication with patients’ families, reduce the travel time for families and MDT members, and reduce the infection risk to all involved.

Learnings included: completing ‘trial runs’ with colleagues to ensure connectivity was suitable in areas where meetings were held; ensuring everyone was up to speed with software, including clear explanations to family members dialling in; having quiet rooms for meetings with optimum lighting, and having good links to technical support.

4.3 Ongoing support for patients/life after stroke

Following the diagnosis of any long-term condition or acute event, patients must come to terms with their new life prospects and will have many questions and concerns. Life after stroke is frightening for survivors at any time but particularly during the COVID-19 pandemic. During the surge phase, many stroke survivors were discharged sooner than might usually have been the case. Many will be shielding or self-isolating – sometimes alone – due to comorbidities and other high-risk factors common in this typically older population. Some survivors will have minor residual disabilities, while others will be facing major changes to their daily lives. Where family and social networks would have provided support following a stroke in more usual times, many survivors will be feeling especially isolated and alone upon discharge from hospital during the COVID-19 pandemic. Support for stroke survivors post-discharge thus is even more important now than ever before ([Case study 3](#)).

It is vital that stroke survivors are offered 6-week and 6-month post-stroke reviews. These provide an opportunity to increase the choice that people have over the way their care is delivered and planned, based on what matters to them and their individual strengths, needs and preferences. It also provides an opportunity to identify unaddressed needs and consider wider support such as social prescribing. Practical guidance is available from NHSE (www.england.nhs.uk/publication/practical-guidance-supporting-the-2019-20-cquin-six-month-reviews-for-stroke-survivors/).

Research shows that structured telephone-based reviews to assess rehabilitation needs, with goal-setting and action planning, can be cost-effective and improve health-related quality of life and satisfaction with service provision.⁷ Services have reported success conducting reviews remotely, and it is important that all stroke survivors are followed up. Collection of SSNAP and local data from 6-month reviews will enable providers and commissioners to review the care provided in the longer term for stroke patients and facilitate improvement.

Case study 3 – Stroke Association

The Stroke Association has already been providing support for stroke survivors in England, Wales and Northern Ireland prior to the COVID-19 pandemic. These commissioned Stroke Support services, which are funded differently in different areas, offer a range of life after stroke services in partnership with NHS or social services across the UK (www.stroke.org.uk/life-after-stroke/our-stroke-support-services). The Stroke Association provides a number of other services direct to patients. Patients in Scotland benefit from a separate service offered by Chest Heart & Stroke Scotland.

In response to the COVID-19 pandemic, the Stroke Association, working with NHSE and NHS Improvement, has further developed its offering to stroke survivors in areas not covered by existing commissioned services. Similar services are planned for Northern Ireland, Wales and areas of Scotland not already covered by Chest Heart & Stroke Scotland. The new service, Stroke Association Connect, provides support to people discharged from hospital following stroke, offering reassurance, information and access to ongoing forms of support in areas where the Stroke Association is not already commissioned to provide Stroke Support services.¹¹ The aim is to ensure all stroke survivors receive some support to rebuild their lives in the context of COVID-19. The new service underwent an initial rapid test phase in four areas of the country and is now rolling out across England for NHS trusts with no existing Stroke Recovery or equivalent service.

Stroke Association Connect is accessed via referral by discharging NHS teams. Patients referred to the service will receive a contact shortly after discharge – by phone or videoconferencing app, such as WhatsApp or Facetime – to answer any initial questions they may have and provide information on support services they can call upon. A follow-up contact call a few weeks later will allow them to ask any new questions and address any issues that have developed since the previous call. More information on this new service, which will run for 6 months initially, is available at www.stroke.org.uk/connect.

Resources

- *Stroke Helpline*: telephone (0303 3033 100) or email (helpline@stroke.org.uk) access for anyone who needs support
- *My Stroke Guide*: online information and support tool, where people can connect with others using forums and access practical tools and information to manage the effects of stroke (www.stroke.org.uk/finding-support/my-stroke-guide)
- *Here for You*: volunteer delivered support for people following stroke (www.stroke.org.uk/webform/volunteer-telephone-support-people-affected-stroke)
- *Video calling for people with aphasia*: accessible guides to support people in setting up video calling, which were developed for people with aphasia but are useful for anyone who is not confident using technology (www.stroke.org.uk/what-aphasia/communication-tools/video-calling-people-aphasia)
- *Life After Stroke grants*: a means-tested grant of up to £300 to support someone in their recovery after stroke (www.stroke.org.uk/finding-support/life-after-stroke-grants)

4.4 Summary



5. Reducing the spread of COVID-19 within the stroke pathway

5.1 Infection control

Stroke remains a medical emergency even during the COVID-19 pandemic.^{12, 13} Rapid and comprehensive assessment and management of stroke is critical to ensure timely delivery of hyperacute treatments such as thrombolysis, mechanical thrombectomy and organised stroke unit care to optimise functional outcomes and reduce mortality.^{12, 13} It is also important to identify those with neurological symptoms, but alternative diagnoses, to arrange appropriate care.^{12, 13} However, the ability to deliver timely and efficacious care must be balanced with the risk of infectious exposure to the clinical team and the availability of appropriate PPE (see [page 21](#)).^{12, 13} Delivery of an effective and timely stroke pathway relies on rapid detection of a patient's COVID-19 status – i.e. point of care or rapid RNA screening in the ED.

Transmission of severe acute respiratory syndrome coronavirus 2

Transmission of SARS-CoV-2 – the virus that causes COVID-19 – is thought to occur mainly through respiratory droplets generated by coughing and sneezing and through contact with contaminated surfaces.¹⁴ The virus has been found in stools and conjunctival secretions of confirmed cases, so all secretions (except sweat) and excretions (including diarrhoeal stools) from patients with known or possible COVID-19 should be regarded as potentially infectious. Survival of the virus on environmental surfaces depends on the surface type, with viability reported for up to 72 hours on plastic, for 48 hours on stainless steel, and up to 8 hours on copper. Extensive environmental contamination may occur following aerosol-generating procedures (AGPs).

The incubation period is 1–14 (median 5) days.¹⁴ Most patients are not infectious until the onset of symptoms, but some evidence suggests infectivity prior to symptom onset, as well as a proportion of people who are asymptomatic.¹¹ The degree of infectiousness depends on the severity of symptoms and stage of illness. Most people seem to have sufficiently reduced infectivity seven days after the onset of symptoms.

Infection control measures

Infection control measures are required to reduce transmission of COVID-19 from patient to patient, from patients to staff, from staff to patients, and between staff. Initial data suggested that nosocomial spread has been a significant problem.

A rapid review of the burden of COVID-19 on HCPs and risk factors for infection found that a significant proportion of COVID-19 infections occur in HCPs, particularly after unprotected exposures. The same rapid review found that illness severity in HCPs was lower than in non-HCPs.⁹ The strongest associations were:

- decreased risk of infection with use of PPE/infection control training
- increased infection risk with intubations, direct patient contact, and contact with bodily secretions.

A study of 1,200 members of staff at Addenbrookes Hospital, Cambridge, in April 2020 found that 3% of 1,000 staff members who reported fit for duty were positive for COVID-19: one in five of these reported no symptoms, two in five had very mild symptoms that they dismissed as inconsequential, and two in five reported symptoms of COVID-19 that had stopped more than a week previously.¹⁵ Despite wearing appropriate PPE, staff caring for patients with COVID-19 were three times more likely to test positive than those working in non-COVID-19 areas. Whether this reflects greater rates of transmission from patients to staff in COVID-19 areas is uncertain, as staff may have transmitted the virus to each other or acquired it at home. Additional new advice from the World Health Organization (WHO) and the Department of Health and Social Care (DHSC) issued in early June suggests that all NHS staff should be wearing surgical face masks at all times when in a healthcare setting.^{16, 17} It is also essential for hospital staff to wear face coverings in non-clinical areas and adhere strictly to social distancing guidelines whenever possible, with special care taken during breaks.

Standard infection control precautions (SICPs) include hand hygiene, respiratory and cough hygiene, and patient use of face masks (where appropriate).¹⁸ Transmission-based precautions are applied when SICPs alone are insufficient to prevent cross transmission of an infectious agent and include:

- Contact precautions to prevent and control transmission via direct contact or indirectly from the immediate care environment, including care equipment

- Droplet precautions to prevent and control infection transmission over short distances via droplets (>5 µm) from the respiratory tract of one individual directly onto a mucosal surface or conjunctivae of another
- Airborne precautions to prevent and control infection transmission without necessarily having close contact via aerosols (≤5 µm) from the respiratory tract of one individual directly onto a mucosal surface or conjunctivae of another.

Interrupting transmission of COVID-19 requires droplet and contact precautions. In addition to SICPs, droplet precautions should be used for patients known or possibly infected with COVID-19; droplets travel only short distances through the air, so a distance of at least 2 m has been used to deploy droplet precautions, but this should be considered the minimum.^{9, 18} The risk of aerosol spread is increased during AGPs,¹ so airborne precautions must be implemented in addition to contact precautions during AGPs in suspected or confirmed cases of COVID-19.^{14, 18}

Personal protective equipment

Standardised pathways for the use of healthcare resources, including PPE, are necessary to protect staff and patients and to prevent depletion of assets and worsening of the crisis.^{12, 13}

General guidance on PPE for COVID-19

NHS England provides general guidance on PPE for COVID-19 online, which is updated regularly.^{19, 20}

- COVID-19 personal protective equipment (PPE) (www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe)
- COVID-19: infection prevention and control (IPC) (www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control).

Staff should know what PPE they should wear for each setting and context and should have access to that PPE.¹⁹ Tables summarising the guidance on PPE for COVID-19 for health and social care workers in secondary care inpatient clinical settings and for all settings in which COVID-19 transmission is sustained are available online and updated regularly.^{21, 22} [Appendix I](#) shows the recommendations online at the time of writing.

Staff should be trained on donning and doffing PPE.¹⁹ Gloves and aprons are subject to single use, with disposal after each patient contact; fluid repellent surgical mask and eye protection can be used for a session of work rather than a single patient contact; and gowns or coveralls can be worn for a session of work in higher risk areas. Hand hygiene should be practised and extended to exposed forearms after removing any element of PPE. Staff should take regular breaks and rest periods.

Personal protective equipment for stroke

Within the UK, opinions differ with respect to the appropriate PPE for some situations. For example, the latest guidance from Public Health England (PHE) does not consider nasogastric (NG) tube placement and swallow assessments as AGPs with a risk of transmitting infection.²³ However, the British Association of Stroke Physicians (BASP)'s Executive Committee issued a statement based on the experience and concerns of stroke physicians in everyday clinical practice, which states that swallow assessments and/or NG tube placements done with patients who have stroke and possible/confirmed COVID-19 are potentially infectious AGPs, which carry a similar risk to other AGPs that require full personal protective equipment (PPE: FFP3 respirator, long-sleeved fluid repellent gown, eye protection and gloves).²⁴ The BASP therefore believes that the precautionary principle should apply and healthcare workers performing swallow assessments and/or nasogastric tube placements with patients who have stroke and possible/confirmed COVID-19 should be provided with full PPE.

Availability of PPE

Availability of PPE has been a major issue, particularly in the early stages of the pandemic. This is a challenge for staff, especially those working with limited PPE. In an ideal scenario, every suspected stroke admission would be treated as potentially COVID-19 positive and the responding team would don full PPE.²⁵ Appropriate levels of PPE should be used based on clinical suspicion of COVID-19. It is advisable to send the fewest team members possible to evaluate stroke patients and into rooms for follow-up visits.

The effect of PPE on patient care

Examining patients in PPE can be challenging and can make both verbal and non-verbal communication difficult, particularly for those who have cognitive, processing or hearing impairments.²⁶ In addition, PPE is hot and uncomfortable and may affect the clinician's ability to examine a patient as well as they might like.²⁶ Individual teams should discuss roles and responsibilities on a daily basis to ensure that patients are adequately assessed and cared for while appreciating the demands of PPE on the stroke team.

The use of visors and masks means that patients cannot see clinician's facial expressions, and clinicians should be aware that the unfamiliar sight of clinicians in full PPE may cause alarm and distress for some patients. The use of pictures with clear labelling of name and responsibility has been used by many trusts, with anecdotal suggestion of patient satisfaction with this approach. The use of virtual video assessments, where the clinician's face may be visible, has been used with some success.

Patient placement

COVID-19-positive patients with acute stroke should be cared for on COVID-19 ward areas. The process of using side rooms on acute stroke units for COVID-19 positive patients may not meet local infection control guidance. Collaboration is needed within trust guidance to ensure stroke-specific MDT working is maintained.

All acute stroke patients should have rapid testing in the ED to identify COVID-19 status. In-reach of the stroke MDT – virtual wherever possible and face-to-face, if required (with appropriate PPE) – should occur daily to maintain high standards of acute and rehabilitation stroke care.

Special environmental controls, such as negative pressure isolation rooms, are not necessary to prevent the transmission of COVID-19.¹⁸ Wherever possible, patients with suspected or confirmed COVID-19 should be placed in single rooms; where this is not possible, patients with excessive cough and sputum production should be prioritised for single/isolation room placement. Single rooms in COVID-19-segregated areas should, wherever possible, be reserved for performing AGPs. If a single/isolation room is not available, separate possible or confirmed respiratory-infected patients with other patients with possible or confirmed COVID-19. Privacy curtains between beds should be used to minimise opportunities for close contact.

Where possible, a designated self-contained area or wing of the healthcare facility should be used for patients with COVID-19.¹⁸ This should:

- include a reception area separate from the rest of the facility and, if feasible, a separate entrance/exit from the rest of the building
- not be used as a thoroughfare by other patients, visitors or staff
- be separated from non-segregated areas by closed doors
- have signage displayed warning of the segregated area to control entry.

Hospitals should consider creating separate areas that differentiate the level of care required.³ It may also be prudent to consider separating in single/mixed sex wards/bays and according to underlying patient condition (e.g. immunocompromised).¹⁸

Other considerations

Given the potential for widespread contamination of patient rooms or environments, effective cleaning and decontamination are vital.¹⁸ More information on this, as well as procedures for disposal of waste and cleaning of linen, uniforms and equipment, can be found online (www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/reducing-the-risk-of-transmission-of-covid-19-in-the-hospital-setting).

Legislation and further information

Relevant legislation is found in the Health and Safety at Work etc. Act 1974.²⁷ Further information can be found in the references for this section and on the Healthcare Infection Society's website (<https://his.org.uk/journals/journal-of-hospital-infection/covid-19-content-from-his-journals/>).

5.2 Testing

Testing of patients

All patients whose COVID-19 status is unknown should receive a test on admission. The gold standard in stroke care should be a rapid test, through which COVID-19 status is known before the patient leaves the ED. In reality, this is currently unlikely to be available in most hospitals in the UK and poses particular issues for stroke care, where lifesaving interventions need to take place rapidly.

In practice, it is likely that hospitals will adopt ‘holding areas’ for patients awaiting results of COVID-19 testing. Three different types of patients need to be considered:

1. known COVID-19-positive
2. suspected COVID-19 i.e. fever, cough, hypoxia, or recent anosmia
3. potential COVID-19 (i.e. COVID-19 not excluded by negative test).

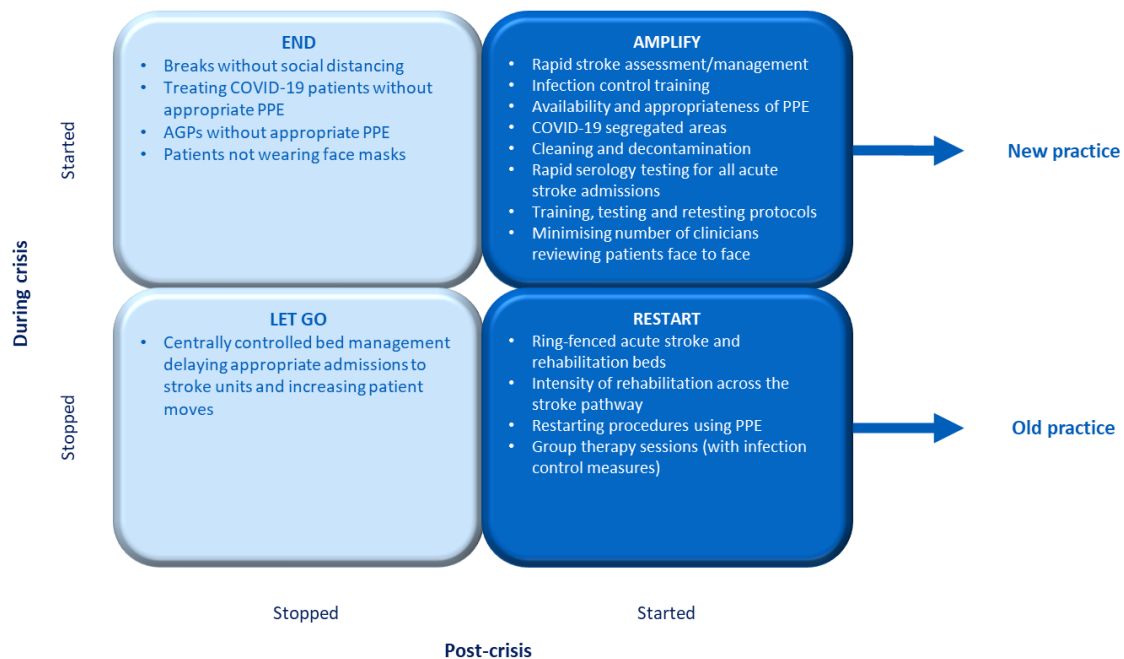
Clinicians should now have antibody tests available to use in routine management of patients as appropriate.²⁸ Clinicians can also offer antibody tests to patients without a specific clinical indication for the test, who are already having their blood taken and who want to know whether they have been infected with COVID-19. The protective nature of antibodies to COVID-19 has yet to be fully evaluated, and it is the clinician’s responsibility to inform the patient of the result and explain that a positive test does not indicate immunity to COVID-19.

Testing of staff

Staff testing is an evolving area. Stroke teams are advised to follow their local guidance for frequency of staff antigen and antibody testing.

Antibody testing is currently being rolled out to NHS staff and should progressively be offered to NHS staff who want it.²⁸ The antibody testing programme will provide information on the prevalence of COVID-19 in different regions of the country and help better understand how the disease spreads. It should be reiterated to staff that a positive test result for antibodies only means that an individual has had COVID-19. There is currently no evidence to show that it means someone cannot be re-infected with the virus, or pass it on to others, or have protective immunity. All infection prevention and control measures must continue to be in place irrespective of the presence of antibodies.

5.3 Summary



6. Clinical pathway for acute stroke patients testing positive for COVID-19

Ideally, a non-COVID-19 stroke pathway should be created, including consultation space, computed tomography (CT) scanner, wards and an interventional suite entirely separate from areas where COVID-19 patients are treated.²⁹ However, this is unlikely to be feasible for most hospitals in the UK. In addition, some stroke patients may have asymptomatic COVID-19 infection or may be diagnosed with COVID-19 at a later point during the stroke pathway. This makes maintaining a non-COVID-19 pathway for an emergency service like stroke highly problematic. Stroke services will therefore need to work with their trust infection control teams, ED, radiology and interventional radiology departments to develop pathways to ensure that COVID-19 transmission is minimised and all patients receive equitable care, regardless of COVID-19 status.

The single most effective strategy to avoid transmission of COVID-19 between patients and staff is to keep face-to-face contact to the minimum possible. In practice, this means:

- maximising the use of telemedicine
- reducing footfall between departments and teams
- reducing the number of HCPs who have contact with a patient.

[Figure 3](#) provides a consensus flowchart to guide the patient's journey from pre-hospital through to stroke intervention. Access to rapid RNA polymerase chain reaction (PCR) testing is pivotal to minimising nosocomial spread, but this may not be available in all hospitals, so an alternative pathway may need to be followed (dotted line in [Figure 3](#)). [Figure 4](#) shows the consensus pathway for patients who begin to show symptoms of COVID-19 once they are already in the stroke unit.

6.1 Pre-hospital

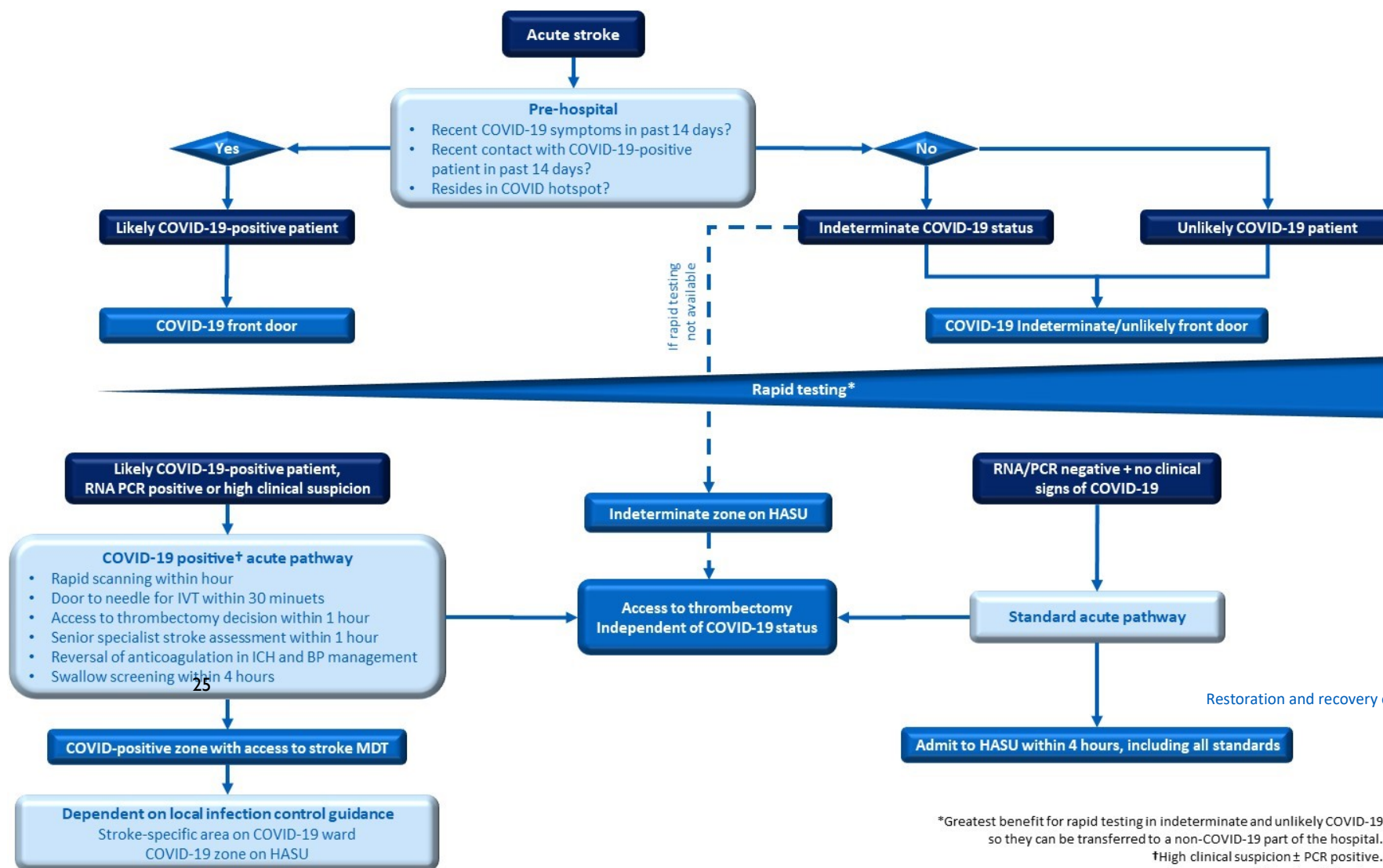
Case studies that demonstrate how telemedicine is being used for pre-hospital communication with paramedics in the UK are included in our previous guide on *Adapting stroke services during the COVID-19 pandemic* (<https://basp.ac.uk/wp-content/uploads/2020/05/Adapting-stroke-services-in-the-COVID-19-pandemic-May-2020-Implementing-telemedicine.pdf>).² Effective pre-hospital communication between consultant stroke physicians and paramedics, combined with virtual assessment using video calling, can prevent unnecessary or inappropriate transfer to hospital of COVID-19-positive stroke mimics and those who would not benefit from admission. Deciding whether a patient is likely to have COVID-19 in the pre-hospital setting is vital to understand which receiving front door to direct the patient towards. Knowledge about whether a patient has COVID-19 symptoms, has had contact with a COVID-19-positive patient in the past 14 days, and comes from a geographic hotspot may assist.³⁰

6.2 Front-door interface

The management of acute stroke requires rapid assessment, decision-making and intervention. In the absence of a point-of-care test for COVID-19, it is unlikely that COVID-19 infection can be confirmed within the window required for decision-making and intervention.²⁹ Any patient with clinically suspected COVID-19 should therefore be treated as COVID-19 indeterminate until a negative test result is received. If rapid testing is unavailable at the front door, obtain a chest X-ray to identify radiological abnormalities suggestive of COVID-19.²⁵ Checking D-dimer on initial presentation may be appropriate, with a cut off of >1 µg/ml stratifying patients at higher risk of poor outcomes.^{31, 32} Occasionally it may be appropriate to obtain a chest CT at the same time as brain CT if there is a high clinical suspicion when all initial tests are normal.

Where EDs are currently operating two front doors – one for patients with known or suspected COVID-19 and one for other patients – stroke teams should consider designating two individuals: one to cover the COVID-19 ED and one to cover the non-COVID-19 ED (should rotas allow). Alternatively, as ED staff will already have interacted with the patient, stroke teams should consider a system where they remotely support the ED staff to perform the initial rapid assessment.

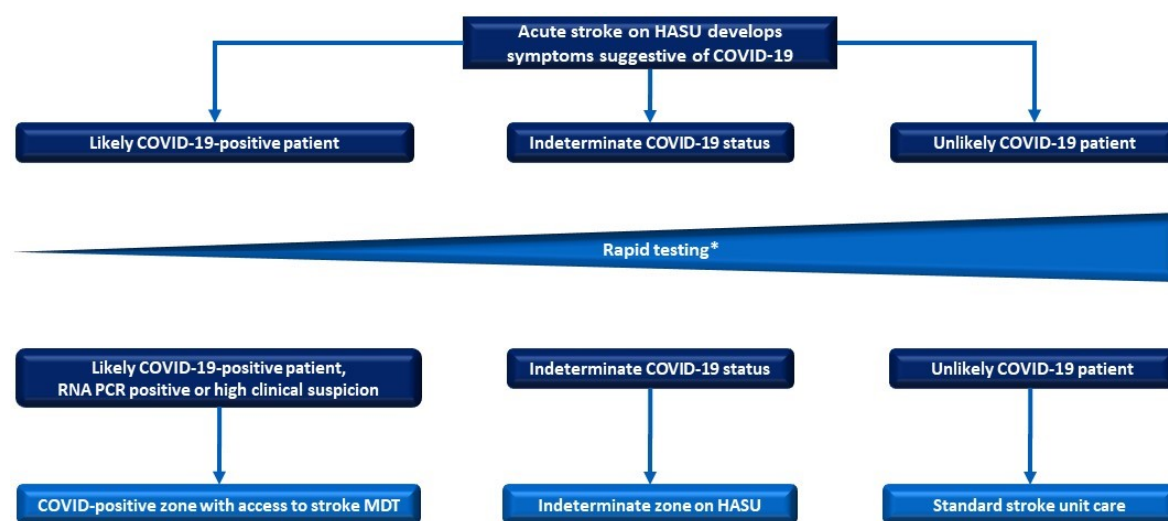
Figure 3 Pathway for acute stroke patients when rapid testing is available.



Restoration and recovery of stroke services during the COVID-19 pandemic

*Greatest benefit for rapid testing in indeterminate and unlikely COVID-19 so they can be transferred to a non-COVID-19 part of the hospital.
 †High clinical suspicion ± PCR positive.
 ‡If not rapid testing.

Figure 4 Consensus pathway for patients who begin to show symptoms of COVID-19 once they are already in the stroke unit.



*If rapid testing not available move to indeterminate zone on HASU.

Remote assessment by senior clinicians should be used wherever possible. Designated individuals in appropriate PPE should be patient facing, with other team members outside the room or remotely linked in via telephone or video call. Many elements of neurological examination key to stroke assessment (e.g. speech, language, visual fields, upper-limb function and walking) can be assessed reliably via videoconference and have good inter-rater reliability.³³

Clear pathways should be in place for the management of stroke mimics once diagnosed (e.g. seizures, sepsis).

6.3 Scanning

For most hospitals, it is impractical to have COVID-19 and non-COVID-19 CT scanners and intervention suites. In many cases, radiology departments are managing infection risk by batching COVID-19 patients and carrying out their scans/procedures at the end of the day or list. For acute stroke, where timing is critical, this is not a workable solution. All stroke patients should have access to rapid, lifesaving interventions regardless of COVID-19 status. This may be achieved through rapid cleaning protocols for CT scanners.

All requests for imaging should include details of the patient’s COVID-19 status – whether negative, positive or unknown.

Patients with COVID-19 are at greater risk of renal impairment, and the contrast exposure required for CT angiography (CTA) may lead to acute kidney injury. Only offer CTA to patients with COVID-19 for whom mechanical thrombectomy is a realistic treatment option.²⁹

If there is a query over a patient’s COVID-19 status, it is reasonable to proceed with scanning on the basis that they are infected rather than delay scanning while waiting for a confirmatory test.

6.4 Intervention

Telemedicine should be used by senior stroke specialists to review patients and CT images to inform decision-making. Guidance on setting up a telestroke network can be found in our previous guide on *Adapting stroke services during the COVID-19 pandemic* (<https://basp.ac.uk/wp-content/uploads/2020/05/Adapting-stroke-services-in-the-COVID-19-pandemic-May-2020-Implementing-telemedicine.pdf>).²

If there is a query over a patient’s COVID-19 status, it is reasonable to proceed with intervention if they would otherwise be eligible and on the basis that they are infected rather than delay intervention while waiting for a confirmatory test.²⁹

6.5 Thrombolysis

Most patients treated with thrombolysis will commence treatment in the ED or the CT suite. Patients who are awaiting the results of a COVID-19 test to determine which ward they are admitted to will need to be cared for in an environment capable of monitoring them post-thrombolysis. Stroke teams should ensure that nursing staff have the required protocols to monitor and manage patients after thrombolysis.

6.6 Mechanical thrombectomy

For most trusts, it is unrealistic to designate COVID-19 and non-COVID-19 intervention suites. Batching of COVID-19-positive patients to the end of the day is also unworkable for mechanical thrombectomy (MT) due to the timeframes in which intervention is effective. Rapid cleaning protocols will need to be developed to allow rapid turnaround of intervention suites.

There may be specific challenges with transferring confirmed or suspected COVID-19-positive patients to neuroscience centres for MT. However, there is an absolute commitment from specialised commissioning that patients should not be disadvantaged because of their COVID-19 status.

Systems that share images and use artificial intelligence (AI) to support decision-making could be used. These have the advantage of offering rapid image interpretation to support early referral for thrombolysis or MT, even with non-contrast CT.²

6.7 Stroke unit care

Patients requiring stroke unit care will need to be separated so that those who are COVID-19-positive are cared for in a separate dedicated COVID-19 ward or area. This may mean that:

- stroke teams need to deliver care across two or more areas within a hospital
- stroke teams are split across two hospitals (in the event of a hospital designating COVID-19 and non-COVID-19 sites)
- patients receive their nursing and therapy care from HCPs who are upskilled to deliver stroke specialist care with virtual consultation; guidance on delivering safe stroke care at hospitals without acute stroke services can be found in our previous guide on *Adapting stroke services during the COVID-19 pandemic* (<https://basp.ac.uk/wp-content/uploads/2020/05/Adapting-stroke-services-in-the-COVID-19-pandemic-May-2020-Delivering-acute-stroke-care.pdf>).²

The emphasis should be on reducing footfall between areas to reduce the risk of cross-infection. The solutions deployed must be flexible, sustainable and able to cope with fluctuations in demand. Stroke teams should seek the views of staff and potentially co-design solutions with their teams. There may be benefit in bringing together stroke and neurotherapy teams during the COVID-19 period to capitalise upon shared skilled sets to care for stroke patients.

6.8 COVID-19 patients who have a stroke during their inpatient stay

Stroke is a recognised complication of COVID-19. Estimates from studies vary, with between 1% and 5% of inpatients admitted with COVID-19 having a stroke during their stay.^{29, 34} A recent paper describes the characteristics and outcomes of 77 cases of stroke and COVID-19 reported in the BASP surveillance system.³⁵ Stroke teams should work with other specialty teams to advise on:

- identifying stroke in patients with COVID-19
- what they should do if they believe an inpatient with COVID-19 has had a stroke
- what support they can expect from the stroke team.

Stroke teams should make sure that all outlying wards have protocols in place to ensure that patients get evidence-based stroke care, including:

- stroke team alerted if stroke is suspected

- urgent access to brain imaging
- hyperacute treatment (thrombolysis/MT)
- acute treatment (e.g. antiplatelet therapy)
- venous thromboembolism (VTE) prevention
- swallow screen
- secondary prevention
- appropriate therapy
- anticipatory care planning
- appropriate discharge and follow-up arrangements.

6.9 Ward rounds

Although daily review of patients on the hyperacute stroke unit (HASU) is appropriate, repeat physical examination and close contact by all staff should only be undertaken when necessary.

Some units are using consultants for face-to-face reviews, as they are likely to make decisions more rapidly and less likely to need to re-examine a patient or have to return if a plan has changed. Other units, recognising the increased risk of COVID-19 mortality for certain groups of staff, are choosing to send specific doctors in to review patients and then providing consultant support remotely or outside the ward ([Case study 4](#)). When making decisions to deploy staff based on the relative risks of COVID-19 complications, stroke leaders should be mindful of the range of risk factors, including age, BAME and underlying health conditions.³⁶

Case study 4 – Virtual ward rounds in stroke care, Western Sussex Hospitals NHS Foundation Trust

With the recent COVID-19 outbreak, there have been innovative new ways of working using IT in the hospital setting to protect patients and staff. Worthing Hospital is a district general hospital with an acute stroke unit providing 24/7 thrombolysis, acute stroke care, ongoing stroke rehabilitation and daily TIA clinics. This work is covered by three whole-time equivalent (WTE) consultants. To minimise the risk of COVID-19 infection to patients and staff, the stroke team decided to adopt virtual ward rounds, utilising and building on their experience with telemedicine, which was already being used for hyperacute stroke calls. Fortunately, IT systems within the trust allow patient observations, blood results, patient notes, imaging and prescription charts all to be viewed electronically. By using FaceTime on a ward iPad, the trainee doctors, who are physically present with the patients and donned in PPE, are able to connect to the stroke consultants' iPad for a virtual ward round review. The stroke consultant has sight of all of the patient information outlined above, allowing them to make decisions akin to them being physically present on a ward round, despite them being in a remote location. The consultant is also able to make an entry in the medical notes by scribing on a history sheet, which is later filed in the patient's notes.

There was a small hurdle that needed to be overcome – the initial medical clerking would not usually be scanned into the electronic system until discharge (with the rest of the admission notes). Therefore, admission notes for any new patient to the stroke unit needed to be scanned by the ward clerk, so that they were electronically visible to the stroke consultant on the ward round.

The above process has enabled the team to provide effective stroke consultant input to stroke patients with or without COVID-19. It also means that trainee doctors only have to focus their attention on patient interaction rather than using multiple computer systems while donned in PPE. Patients do not seem phased by having to speak to a consultant on an iPad screen rather than in person.

This system also allows stroke consultants to provide rapid reviews in other areas such as the ED – not only for acute stroke calls but also to prevent unnecessary admission to hospital for a stroke review or inappropriate referral to the TIA clinic.

In the scenario where a stroke consultant has to self-isolate but is still well enough to work, the above system could still be implemented from the stroke consultants' home, allowing some resilience to be built into the stroke service at that site. It also opens up the possibility of cross-site or cross-organisational working if appropriate IT systems are in place.

All in all, the system works well and has multiple benefits, especially with the current COVID-19 outbreak. Whether it will replace traditional face-to-face doctor-patient assessment in the future altogether remains to be seen.

Ideally, and meeting national clinical guidelines for stroke, orthoptists would assess all stroke survivors when admitted to stroke units. Two new unique stroke tools for use by HCPs have been developed, which may reduce the need for orthoptists to visit the ward in person ([Case study 5](#)).

Case study 5 – University of Liverpool

The impact of visual impairment caused by stroke can be considerable, with impaired vision leading to increased rates of personal accidents and falls, social isolation, loss of confidence, impaired mobility, reduced quality of life, and increased anxiety and depression.

The COVID-19 pandemic has led to a drop in the provision of vision services on most acute stroke units across the UK. This suspension in delivery has led to inequitable care provision for stroke survivors who have visual problems, with the potential for long-term unmet needs.

Two new unique stroke tools for use by HCPs in the absence of access to orthoptist services have been developed and tested:

- Vision Screening Assessment (VISA) is a screening tool for detecting visual impairment among stroke survivors by clinicians involved in stroke care who are not specialists in vision problems and lack formal eye training.
- The stroke-vision care pathway identifies potential ways in which stroke survivors with visual impairment can access healthcare and what the appropriate referral(s) to vision services should be relevant to their specific problem(s).

Both VISA and the stroke-vision care pathway have undergone full validation studies, published recently in the *BMJ Open* and *Disability and Rehabilitation* journals.^{37, 38} The VISA tool (testing pack and instructions) and stroke-vision care pathway (pathway and guidance notes) are free to download and print from the VISION research unit website (www.vision-research.co.uk/). The VISA app for Apple tablet devices is pending release to aid further virtual use.

British and Irish Orthoptic Society Director of Research: *“In the current healthcare climate, high-COVID-risk stroke survivors are the very people for whom hospital visits and stays, and interaction with different professionals, need to be as efficient and targeted as possible, while still maintaining gold-standard care. Professor Rowe’s group has shown that vision and orthoptic assessment must be an integral part of stroke care in both hospital and community settings. The tools her group have developed allow vision care to be delivered flexibly and comprehensively wherever the patients are.”*

6.10 Moving patients within the hospital

Movement and transport of patients with possible or confirmed COVID-19 within hospitals should be avoided wherever possible. Where movement is necessary, there should be clear plans for infection control.¹⁸ All staff involved in moving patients and those at the receiving destination should be aware the patient has possible or confirmed COVID-19. If movement or transport is necessary, consider offering patients a surgical face mask to wear during transportation to minimise dispersal of respiratory droplets – when this can be tolerated and does not compromise clinical care. Patients must be taken straight to and returned from clinical departments and must not wait in communal areas.

Minimising movement is likely to mean that outlying stroke patients remain outliers, although every attempt should be made to repatriate stroke patients into the stroke rehabilitation pathway as soon as local infection control guidance permits.

6.11 Inpatient rehabilitation

Stroke rehabilitation should be provided to COVID-19-suspected patients by the stroke unit MDT with appropriate PPE. This should include timetabled visits to non-stroke wards if appropriate, augmented with care provided by non-stroke ward therapy staff and healthcare assistants (HCAs) (following stroke training) where possible. Patients who are COVID-19-positive should receive core rehabilitation unless medically unwell, in which case only urgent rehabilitation should be provided, e.g. chest physiotherapy.

6.12 Community rehabilitation

COVID-19 streams in the community

It is important that community stroke teams resume the required level of intensity of rehabilitation and that stroke survivors are offered face-to-face therapy (with appropriate PPE) if they need it.

The risks associated with not providing rehabilitation are rising, as is the burden this may place on families or other services if patients are untreated. Community stroke team members need to manage shielding and infection control measures (for themselves and the patient) while addressing the potential detrimental effect to the stroke survivor and family if stroke rehabilitation is not provided. Vulnerability of both the patient and members of the household also needs to be considered.

It is vital that staff members have access to appropriate PPE (see [Appendix I](#)), using levels depending on the COVID-19 status of the patient and/or procedures to be undertaken. Community teams have raised issues around donning, doffing and disposal of PPE, which present challenges when working in a community setting. Keeping up to date and regularly reviewing local and national PPE guidance is important. Guidance relating to secure storage and disposal of PPE waste is useful.

Community teams have also reported challenges with providing care for an increasing patient caseload while managing staff members who are shielding or at risk. Services will need to risk assess and make adjustments for staff groups who are high or moderate risk. Consideration also needs to be given to BAME staff members. Services are encouraged to allocate work accordingly to ensure that all staff can contribute to the management of patients. For example, staff within vulnerable, BAME and shielding groups could work more remotely to reduce their face-to-face contact with patients. Individual risk assessment should take place.

Taking time to plan and reflect as a team is important, as well as adapting procedures and tools to help with service delivery. Planning visits so that the same therapist visits individual patients would help reduce infection risk and may alleviate some of the anxiety experienced by patients and their family. Teams have also had success with other staff members joining the clinician who does the face-to-face visit remotely via video link, allowing other disciplines to contribute to the care provided to the patient.

Teams are encouraged to use decision-making tools ([Case study 6](#)) to enable:

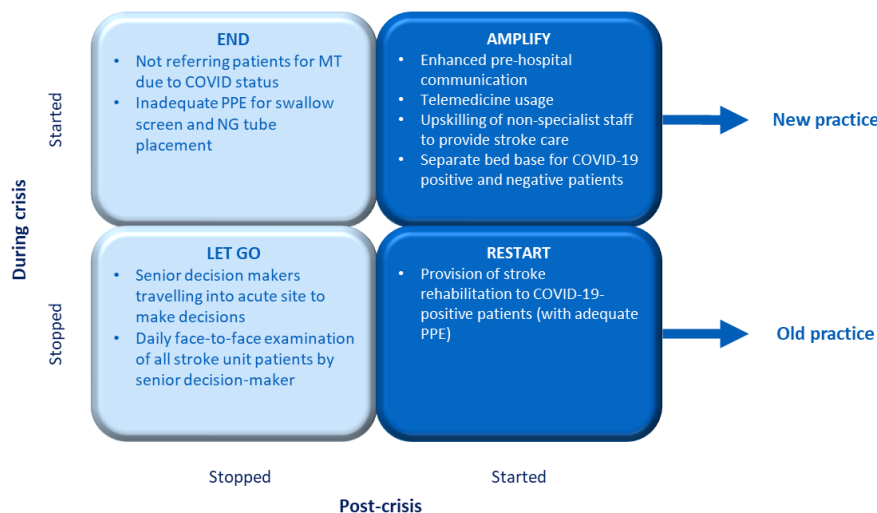
- stroke survivor needs and goals to be considered
- risks and benefits of face-to-face contact to be documented
- maximal use of remote and telerehabilitation approaches where deemed effective.

Therapists are also encouraged to stay up to date with discipline-specific guidance and guidance from NHSE.³⁹⁻

⁴¹ The Royal College of Speech and Language Therapists (RCSLT) advises that, given the suspected aerosol-generating nature of some speech and language approaches (mainly dysphagia), speech and language therapists (SLTs) particularly need to carefully weigh up the risk–benefit of face-to-face assessments and treatment in the community prior to considering PPE.⁴²

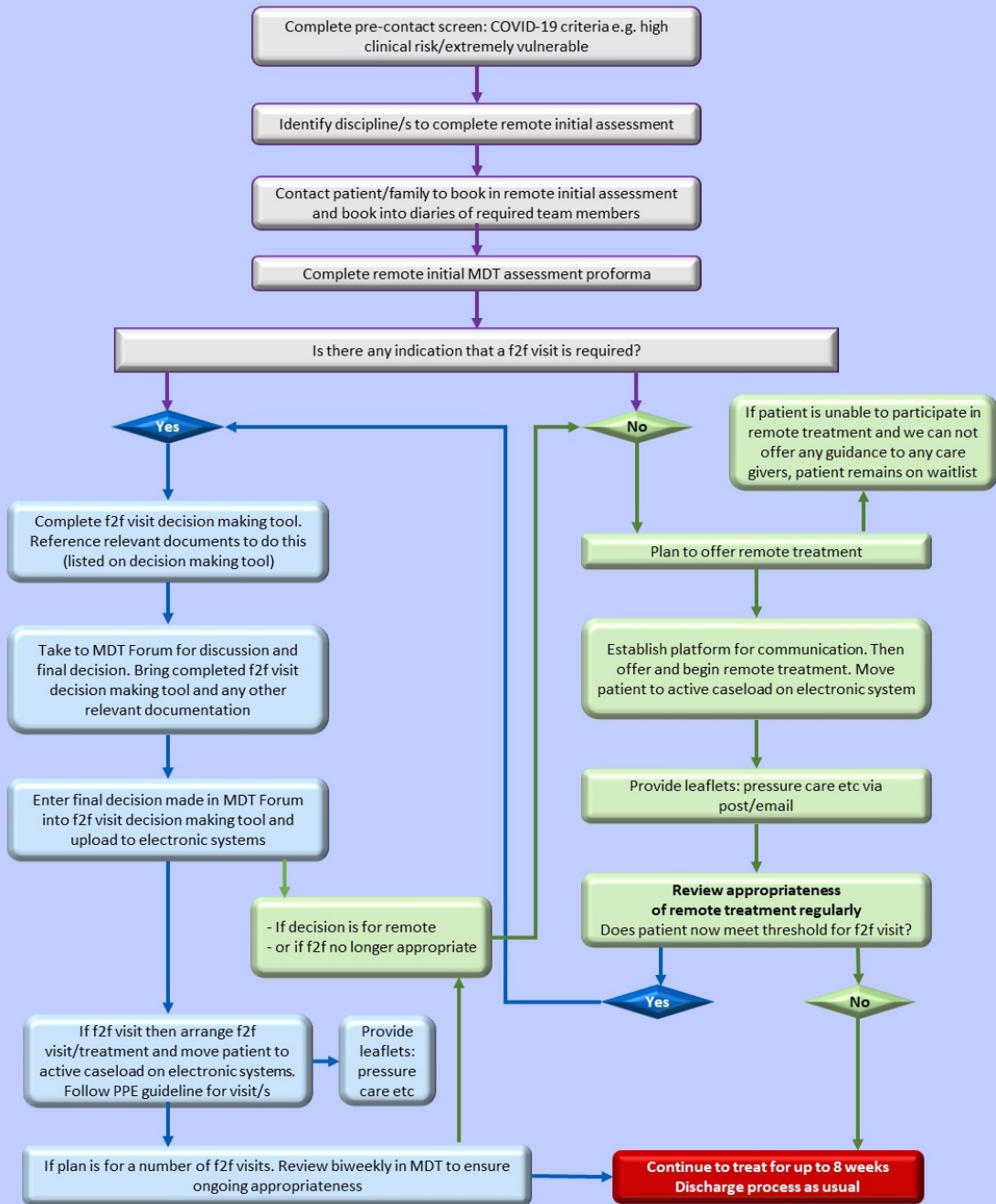
Many regions have now published guidance to support delivery of community rehabilitation during the COVID-19 pandemic (e.g. <https://gmsodn.org.uk/covid-19/>) ([Case study 6](#)).

6.13 Summary



Case study 6 – Berkshire Healthcare NHS Foundation Trust

The Berkshire Community Based Neuro Rehabilitation Team have created documents for ESD and neurorehabilitation services to assist with decision-making relating to face-to-face contact with stroke survivors. These include a flowchart (below) and decision-making-tools (see [Appendix 2](#)) to help with appropriate risk assessment and documenting actions.



7. Delivering high-quality care for all stroke patients

7.1 Maintaining key standards

Prior to the COVID-19 pandemic, most stroke units were performing well against quality standards. Every attempt should be made to admit patients to stroke units within 4 hours, but it is vitally important that nosocomial spread is reduced to a minimum. In normal times, standards tend to be stable once pathways of care have been embedded. However, delivery of quality markers during the pandemic is likely to have been disrupted. It is important for stroke teams to review revised pathways and audit data (including SSNAP) to see where quality standards may have slipped.

Many facets of the stroke pathway are deemed important, but some that should take precedence during this time of considerable pressure are outlined below.

Early senior assessment on admission (<1 hour)

As described in [Section 6.2](#), initial assessment can be carried out face to face (wearing PPE) or via telemedicine; see our previous guide on *Adapting stroke services during the COVID-19 pandemic* (<https://basp.ac.uk/wp-content/uploads/2020/05/Adapting-stroke-services-in-the-COVID-19-pandemic-May-2020-Implementing-telemedicine.pdf>).²

Early appropriate cerebral imaging (<1 hour)

As described in [Section 6.3](#), waiting for a COVID-19 test will delay access to a CT scan. If a patient is suspected to have COVID-19, they should be treated as such until test results are available.

Rapid cleaning protocols should be put in place to ensure that the turnaround time of CT scanners is not significantly affected – although some delay is inevitable.

Anecdotally, some centres have reported increased access to CT scanning during the pandemic due to a decrease in other activities. Any benefit from this is likely to decrease sharply as people and NHS services start to return to normal activities.

Rapid thrombolysis and referral for mechanical thrombectomy

Although increases in door-to-needle time (for thrombolysis) and door-to-groin puncture (for MT) have been seen across Europe, door to needle times for thrombolysis in England appear to have been maintained for acute stroke patients overall (personal communication SSNAP team). Reasons for delays in the MT pathway and thrombolysis of acute stroke patients with COVID-19 may include:

- testing protocols
- cleaning protocols
- incremental time taken for doffing/donning PPE at multiple stages during the pathway.

As described in [Section 6.5](#), rapid testing and rapid cleaning protocols can help reduce delays. Where possible, running parallel COVID-19 and non-COVID-19 stroke pathways may enable door-to-needle times to be maintained for both groups.

Early reversal of anticoagulation and management of raised blood pressure in patients with intracerebral haemorrhage (<1 hr)

Despite challenges of infection control/PPE and cleaning processes, this is a core clinical standard with a good evidence basis for improved outcomes, so all measures should be adhered to.

Direct admission to stroke unit

The creation of COVID-19 and non-COVID-19 areas within a hospital will inevitably reduce the flexibility of the bed base and result in the admission of acute stroke patients to non-stroke units. Stroke teams should agree protocols with outlying wards so that patients receive the same nursing and therapy care as they would on a stroke unit.

Early swallow screen

Despite challenges of infection control/PPE and cleaning processes, this is a core clinical standard with a good evidence basis for improved outcomes, so all measures should be adhered to.

Maintain stay on stroke unit for as long as patients are benefiting from care

Patients need to be cared for on the stroke unit for as long as they are benefiting from care that can only be provided in an inpatient setting – for example, patients with severe disability who require nursing support and specialist rehabilitation equipment.

Appropriate rapid discharge to community stroke services to minimise time spent in hospital

Many ESD and community stroke/neurorehabilitation services were able to expand to provide 7-day services during the early phases of the pandemic. This should be amplified to enable all patients who would benefit from community-based stroke rehabilitation to be discharged at an earlier point in their stay, reducing the risk of nosocomial spread.

TIA clinics

Reports from around the UK indicate that fewer patients with suspected TIA were being referred via their GP and from EDs during the early phases of the COVID-19 pandemic. This may have reflected changes in behaviour of those experiencing TIA symptoms or changes in referral practices from NHS 111, primary and secondary care. The importance of referring patients with suspected TIA symptoms for immediate assessment to prevent fatal or disabling stroke should be emphasised to colleagues and in public health messages to the local community.

Many stroke teams have started to provide virtual TIA assessment in response to the need to reduce face-to-face contact. A guide to delivering virtual TIA clinics can be found in our previous implementation guide on *Adapting stroke services during the COVID-19 pandemic* (<https://basp.ac.uk/wp-content/uploads/2020/05/Adapting-stroke-services-in-the-COVID-19-pandemic-May-2020-Virtual-TIA-clinic.pdf>).²

7.2 Standards for inpatient rehabilitation

During the pandemic, many patients who would have benefited from a longer hospital stay – e.g. patients with more severe disability or significant cognitive issues – have been discharged earlier than usual. It is now appropriate to end the rapid discharge of patients who would benefit from staying in hospital longer. These patients require the nursing support and equipment available in the hospital in order to get the most out of rehabilitation. Stroke rehabilitation teams may also have been asked to move location during the initial stages of the pandemic. They should now be able to return to their usual environment, with appropriate adaptations, so that patients can access the specialist rehabilitation equipment they require.

Rehabilitation teams have reported the benefits of using virtual communication platforms (e.g. MS Teams) to communicate with other inpatient sites and community stroke services to facilitate transfer. This has led to better working relationships, information transfer and collaborative working. This approach also works well to enhance information sharing with patients' families, which is a vital part of repatriating patients to their home.

In response to staff shortages (through shielding), interdisciplinary training with therapists has enabled cross-cover of staff across the stroke service but may also have the longer term benefit of maximising the opportunities for more collaborative interdisciplinary team working.⁴³ Flexible working arrangements put in place as a response to COVID-19 have also meant that there are increased therapy opportunities at weekends, which should be maintained where possible ([Case study 7](#)).

Individual exercise programmes to give to patients at discharge have been created to maximise the opportunity for exercise to continue, as well as positioning diagrams and other information to support patient/carers to help with maintenance when at home ([Case study 8](#)).

Staff have reported their concern about family members not being able to visit their loved ones. Supporting patients with digital ways to contact their family (e.g. WhatsApp or Facetime) has been effective and will be beneficial to maintain in the longer term.

Case study 7 – Nottingham University Hospitals NHS Trust

During the COVID-19 pandemic teams across the stroke inpatient pathway experienced a reduction in physiotherapy staffing numbers either due to shielding of staff or childcare issues. For the latter, flexible working was implemented; this mostly involved members of the team working some of their contracted hours at the weekend rather than during the week. As a result, this increased the workforce at the weekend, allowing the weekend focus not only to be on hyperacute admissions and discharges but also on increasing rehabilitation across the pathway.

Following discussions with management and therapy leads, flexible working was implemented, increasing rather than replacing the workforce at the weekend, which allowed efficient use of staff resources. The physiotherapists on the weekend rota were allocated either hyperacute or rehabilitation to help formalise the role, and close communication for handover and to determine if redeployment was required was ensured throughout the day.

This led to greatly increased rehabilitation across the weekend, not only with numbers of patients seen but also due to increased therapy presence prompting nursing staff to transfer patients out of bed more readily. This coupled with lower admissions meant that a higher percentage of patients received a 7-day physiotherapy service, as well as reducing the pressure on Mondays. Equally, patients requiring two therapists could receive more effective treatment sessions rather than requiring adapted treatment due to lone working. A secondary outcome was the beneficial effect of peer support, especially for complex stroke respiratory patients or when hyperacute services were particularly busy.

Band 6 physiotherapist: *“Increased weekend working has meant patients on the rehab wards have been receiving a rehab session they would not have previously had. At the moment, when visiting hasn’t been allowed, they have been even more pleased to see us!”*

Case study 8 – Nottingham University Hospitals NHS Trust

The COVID-19 pandemic led to increased pressure on inpatient teams to discharge patients as soon as safety allowed. This coupled with community teams limiting face-to-face therapy sessions led to significant uncertainty regarding rehabilitation for stroke patients leaving hospital. To help alleviate this, inpatient teams provided increased documented advice, including more comprehensive home exercise programmes and positioning charts for patients discharged from hyperacute and acute wards.

Patients nearing discharge from acute hospitals were provided with a more comprehensive individually tailored exercise programme prior to discharge. These were completed with the patient prior to discharge and, where necessary – for example, for patients with cognitive impairment or where family support was required – this session involved the family over WhatsApp video or FaceTime (on hospital devices) so demonstrations could be shown to the patient. This technology had not previously been used before. Where necessary, positioning charts were provided for patients with severe disabilities. Photos of the patient in a chair, for example, were taken with consent; these were then digitally annotated, printed and laminated and included within discharge packs to help with replication in the community by family or carers.

This led to improved patient satisfaction, as it reduced anxiety for their discharge while aiding their recovery by encouraging patient autonomy. For those with severe disability, who are particularly vulnerable, this approach helped to reduce deterioration (for example, development of pneumonia or spasticity) through incorrect positioning in the community when no face-to-face guidance was available. This also had a secondary outcome of improving staff anxiety, as high levels of stress are involved with discharging patients whose ongoing rehabilitation plan was unclear as a result of the COVID-19 pandemic despite demonstrating significant recovery potential.

Stroke rehabilitation beds are now required for patients who are unsafe for urgent discharge and who would make better functional gains by staying in hospital longer. It is also important that intensity of rehabilitation is provided across the stroke unit in line with evidence-based guidelines and with appropriate PPE and infection control. Visiting of family members (with PPE) should also be encouraged with regard to end-of-life care.

Given aerosol-generation concerns and the need for enhanced PPE, assessments for aphasia, dysarthria and dysphagia are challenging. Some SLTs have reduced provision of rehabilitation to mild/moderately impaired stroke survivors (those who can communicate their needs and are safe) to reduce exposure of staff and enable prioritisation of patients. Where safe to do so, restarting some procedures, with appropriate-level PPE in non-COVID-19 patients, is encouraged.

Some activities could be restarted over the longer term (with appropriate safety measures) – for example, group therapy sessions with patients (e.g. breakfast clubs, communication, social mealtimes and leisure). These provide additional rehabilitation opportunities to facilitate increased levels of independence in preparation for home, as well as improving wellbeing, especially at a time of significant isolation away from friends and family.

7.3 Standards for community rehabilitation

Community stroke services are now expected to return to full provision of rehabilitation to address stroke survivor needs.⁴⁴ Patients discharged urgently, who were deemed low or medium risk and were put on waiting lists, should now be followed up and rehabilitation should resume.

Virtual assessment procedures can be used to identify:

- the need for face-to-face rehabilitation
- options for care and advice to be given virtually, e.g. by video link/telerehabilitation
- carers/relatives/volunteers' support to assist with care provision.

Face-to-face contact and therapy, with appropriate PPE and infection control precautions, are important to:

- assess patients for whom virtual/remote assessment is not suitable, so that their rehabilitation needs, goals and living arrangements are determined
- provide hands-on therapy, e.g. physical assistance to start exercise plans and support activities of daily living
- maximise rehabilitation potential of stroke survivors (especially those with more severe disability)
- offer training and guidance to and reduce the burden on family members
- identify stroke survivors with severe cognitive, communication and/or psychological issues.

In any new models of care for delivering community rehabilitation, it is important that stroke patients continue to receive specialist stroke rehabilitation and that the models are evaluated to ensure that standards and outcomes are maintained.

Community stroke teams are encouraged to use the End/Amplify/Let Go/Restart model ([Section 2.1](#)) to reflect on and plan service provision. National community stroke calls have been held weekly and many common themes have emerged. Recommendations based on feedback from these calls are described below.

Resourcing of community stroke services

In the early stages of the pandemic, some staff from community stroke services were redeployed elsewhere (e.g. acute wards and rapid response community teams). To support restoration and recovery, community stroke services now need to be fully resourced.

Intensity and responsiveness of rehabilitation

Intensity and responsiveness of rehabilitation delivery needs to be resumed to meet evidence-based guidelines,⁴⁵ maximising the use of telerehabilitation where therapeutically appropriate and face-to-face visits with PPE for those (and their family) who need it. Patients should receive a frequency of visits that best suits their needs, up to daily visits if required. It is also important that focus is given to staff clinical supervision, training and wellbeing. Teams should consider whether family members can be trained to facilitate practice between rehabilitation sessions to maximise intensity.

Community stroke teams have reported issues with access to care homes, with minimal or no provision of rehabilitation for these patients. Access and treatment need to be resumed following risk assessment, with the incident report process used if access is denied. Teams have reported successful use of virtual communication with care home staff.

It is also important that patients discharged very early from hospital, those on a waiting list and those discharged but never seen by community stroke services are reviewed. Processes for 6-week or 6-month reviews should be reviewed in collaboration with acute stroke staff and restarted so that all patients can be followed up. Reviews may take longer, with more to discuss, and some patients in the COVID-19 cohort may need additional follow-up.

Restarting group interventions and face-to-face peer support requires risk assessment but is likely to be valued by stroke survivors and their families. Therapeutic activities such as outdoor mobility, community reintegration and vocational rehabilitation also need to resume in line with government advice on social distancing.

Working together

Office-based working will also need to restart for community stroke teams when social distancing can be adhered to. However, teams may need to consider a more 'agile' workforce, with team members working from home to reduce footfall in office spaces to allow for social distancing. It is vital that teams work together to support each other. Staff support should be provided locally, including clinical supervision and access to other support services. Supervision must be maintained using remote options where appropriate.

MDT communication

Frequent virtual communication with the acute service, instigated due to the COVID-19 pandemic, should be maintained for efficient and safe discharge. Services should be provided with adequate technology to achieve this so that decision-making criteria for delivery of rehabilitation are clear and transfer is seamless. Many community stroke teams have also moved to virtual MDT meetings (e.g. using MS Teams), which is working well. These should be maintained over the longer term to reduce unnecessary travel time and assist with dispersed working (particularly for rural teams).

7-day working and expansion of eligibility criteria

Many community stroke teams have implemented new ways of working to extend services during the COVID-19 pandemic. This has included 7-day working and expansion of service eligibility criteria instigated as part of urgent hospital discharge processes. While it is imperative to restart commissioned ESD services, services provided should not be limited to those meeting ESD criteria during this restart period. A needs-led rehabilitation offer should be delivered where possible, for all patients who require specialist input following stroke, with efforts made to identify and meet the needs of those with complex specialist needs who were discharged quickly during COVID. Delivery could be supported by flexing criteria and joint working between broader community stroke and neurorehabilitation services.

Teams should use learning from these changes to inform future service development and liaise with management and commissioning teams to evaluate the benefits. Services need to be commissioned appropriately so that improvements can be sustained over the longer term and evidence-based specifications⁴⁵ are adhered to, in line with the *NHS long term plan*.⁴⁶

Appropriate use of telerehabilitation

Many teams are using telerehabilitation as an alternative method to provide home-based stroke rehabilitation. Synchronous telerehabilitation uses videoconferencing facilities so the therapist and patient can communicate in real time, while asynchronous telerehabilitation uses computer-based interventions to remotely monitor and adapt exercises. Although there is low- or moderate-level evidence relating to whether telerehabilitation is a more or similarly effective way to provide rehabilitation, this approach offers exciting opportunities for innovation at this time.⁴⁷ An advantage of telerehabilitation is that it can be used to promote self-management exercises and practice between scheduled rehabilitation sessions with therapists, providing opportunities for efficient delivery of intensive or high-dose rehabilitation. Examples of teams successfully adopting this approach are increasing ([Case study 9](#)), with webinars conducted to facilitate learning and support ([Case study 10](#)). Some therapies (e.g. speech and language therapy and psychology) have been more easily delivered virtually than others (e.g. physiotherapy and occupational therapy). It is important for teams to actively gain patient feedback on the use of telerehabilitation to help inform future developments.

Teams need to be mindful of sociodemographic issues influencing provision of telerehabilitation, balancing the success of working with more digitally equipped or able patients with the time needed to overcome challenges of making remote video contact with others. Face-to-face visits (with PPE) need to be provided if telerehabilitation is deemed unsuitable.

Sharing learning

Community teams have been sharing learning and documentation through the Futures NHS Forum (<https://future.nhs.uk/strokecommunity/view?objectId=20201264>). A community stroke hub has also been created by a group of researchers and clinicians, with identified sources of training and guidance to help community stroke teams provide stroke rehabilitation remotely (www.bridgesselfmanagement.org.uk/csh-resources/; www.bridgesselfmanagement.org.uk/csh-community-of-practice/).

Case study 9 – Northampton General Hospital NHS Trust

Despite the COVID-19 pandemic, Northampton Community Stroke Team have been able to continue providing meaningful rehabilitation after hospital discharge through the use of virtual technology.

In attempts to reduce the spread of COVID-19, Northampton Community Stroke Team reduced their face-to-face contact with patients unless there was a risk of readmission. Telephone appointments were initially used; however, rehabilitation over the telephone was difficult to perform, with staff finding it challenging to form a therapeutic connection and patients feeling the therapy given was not meaningful. Consequently, the virtual platform Attend Anywhere was implemented with great success. Training was provided using trust resources and help guides, and a staff user guide was later created by the team for setting up and completing sessions. The platform allowed therapists to send activity plans in advance, signpost and gain rapport through video calling.

This opened new ways of working while still limiting the exposure for both patient and community therapist. Rehabilitation, such as upper limb or balance therapy, and movement analysis could be completed remotely, leading to greater satisfaction for both patients and staff. Patients were more empowered to take responsibility for their own rehabilitation, and activity plans could be more focused to the patients' needs due to the visual feedback. Attend Anywhere enabled the Northampton Community Stroke Team therapists to undertake successful rehabilitation while limiting exposure.

Patient: *"I was glad to still receive great input whilst staying safe"*

Case study 10 – South Yorkshire and Bassetlaw Integrated Care System

The South Yorkshire and Bassetlaw Integrated Care System's hosted network were aware that work around remote rehabilitation was taking place across the region. There was a desire to share new practice and also encourage others to 'be brave' and work differently. However, this required the network team to work in a different way and host a webinar, something in which they had not had experience. By working as a team and involving people from across the region and wider organisations, the team was able to arrange and deliver the webinar in just 5 days.

In total, 125 people from across the country took part in the webinar and, despite a few technical hitches, it was very well received. They are now planning a second webinar and plan to host further sessions to continue engaging with and developing the stroke workforce.

The pandemic provided the impetus for the delivery of training on a virtual platform, something that the team had previously not considered. Delivering the training in this way was cost effective (no catering, venue or travel expense costs), as well as being more accessible to busy clinicians, staff on lower bandings and those outside the NHS.

During the pandemic, community stroke teams have been able to deliver and also be part of webinars for CPD. This is something to be harnessed, and virtual education should be embedded into stroke services moving forward ([Case study 11](#)).

The Stroke Association Connect service (see [page 19](#)) has been funded as a pilot by NHSE&I, with suggested adoption in places where there are no commissioned services. This will be evaluated for effectiveness, and the learnings will help to inform future commissioning of services to support patients after hospital discharge and living with stroke.

Letting go of paper-based methods

The reliance on digital solutions at this time should empower staff to maximise time-saving opportunities by using virtual communication and electronic data rather than paper-based methods. Staff may also need to challenge data-governance procedures that prevent effective communication with acute stroke services, patients and their families.

SSNAP

Teams should now resume collection of the community SSNAP dataset, augmenting it with:

- mode of contact (face-to-face, remote rehabilitation, telephone)
- date/time, discipline and length of contact
- a patient experience outcome measure to monitor the quality of the session.

Case study 11 – Greater Manchester Stroke Operational Delivery Network

Following on from the excellent webinar on remote rehabilitation led by the South Yorkshire and Bassetlaw Integrated Care System stroke network in South Yorkshire (Case study 10), Greater Manchester Operational Delivery Network held a local event focusing on working remotely on 20 May 2020. The programme featured a summary of the guidance and current working in the region, with six examples of local best practice from teams, including two charities. The event was recorded and is available at: www.youtube.com/watch?v=ERU-zCt4DsY.

The aim was to provide training in this emerging area of practice to local teams (both NHS and the voluntary sector) via a webinar format. Teams will need to provide care/support more remotely for the foreseeable future due to the COVID-19 pandemic, but it may also be beneficial in the longer term to increase their capacity, and it also offers more choice to patients. The training programme had traditionally been run face to face (<https://gmsodn.org.uk/training-education-gm-stroke-training-programme-and-local-events/>). This was a first test run with a view to switching all training activities online.

The webinar was run via the MS Teams platform and, in future, it is hoped that this can be done via MS Teams Live, which has more functionality. However, this software is more complex, as it requires Windows 10 and a different licence. The aim is to migrate when able, as there is a need to ensure everyone can easily access via NHS IT systems.

Prior to the event, the network team rehearsed with the presenters via several test sessions to check they could connect and present as needed. Slides were sent in advance and collated into a single set, which was controlled by the network manager. The network coordinator asked for questions in advance and also collated questions via the chat function, which were read out and answered at the end of the event. The network administrator set up the event and invited participants via Outlook calendars and emails with a link; the administrator also controlled admission and any access queries during the event. The recording was edited, saved on YouTube, and shared locally and via Twitter and other social media platforms.

7.4 Transfer of care between settings

Once patients are ready to leave the stroke unit or hospital, the repatriation process must be managed to minimise the risk of the COVID-19 infection being transferred between settings ([Case study 12](#)). Guidance from NHSE guidance states that NHS organisations should ensure that patients are tested for COVID-19 in advance of timely discharge to a care home.⁴⁸ So that it does not delay discharge, testing should be planned up to 48 hours prior to the scheduled discharge time. The information from the test result, along with any supporting care home information, must be communicated and transferred to the care home. Where a test result is still awaited, the patient should be discharged and, pending the result, isolated in the care home in the same way as a COVID-19-positive patient.

The repatriation of patients to their own home environment is also an issue that needs careful consideration, not only due to the risk of patients with COVID-19 returning to homes with family members who are not infected and may themselves be frail, elderly and at high risk of complications but also due to the increased and close-contact support they may need from these relatives.

Case study 12 – Salford Royal NHS Foundation Trust

During the COVID-19 pandemic, existing pathway standard operation procedures (SOPs) have continued to operate well across the Greater Manchester Stroke Operational Delivery Network.

Developing pathways for inter-hospital transfers of COVID-19 patients proved complex, as a number of trusts within the network had different infection control policies. Relatively few stroke patients were moving around the system, so the decision was made to hold patients longer in the HASU (where there was capacity) or to repatriate to COVID-19 wards at district centres. The expectation is still that patients will be repatriated within 3 days (as per the pre-COVID-19 protocol) but it is recognised that some flexibility will be required. There are twice weekly calls with all units, so everyone is aware of how the flow is working.

COVID-19-positive patients are not being discharged to the community under the early supported discharge team; however, community teams are all operational and have access to PPE, so they would risk assess each patient.

7.5 Secondary prevention

During the surge phase of the pandemic, the need to protect patients from contracting COVID-19 in hospital and to free up beds for the wave of patients being admitted and requiring intensive care for COVID-19 meant that discharge of acute stroke patients was often expedited. Although this would have been done only when safe to do so clinically, some of the routine follow-up actions and messaging given on discharge may have been

deferred or overlooked at the point of discharge. Furthermore, follow up during the surge phase may have been less rigorous than usual given the pressures on staff in all settings at this time.

As part of the restoration and recovery phase, it is vital to ensure that all patients with TIA and acute stroke once again routinely receive the correction information and messages around secondary prevention, medicines adherence and lifestyle modification and that these are followed up to ensure they are adhering with these. For patients who were discharged during the surge phase, additional follow up and review should be arranged. For patients who have virtual consultations for TIA, which will likely continue during the recovery and restoration phase, and potentially beyond, it is also important to ensure that appropriate medicines are being delivered to them. Secondary prevention prescribing can be initiated in secondary care and then dispensed in the community (see [Case study 13](#) below and [Case study 14](#) on [page 40](#)).

Case study 13 – University Hospital Southampton NHS Foundation Trust

University Hospital Southampton NHS Foundation Trust use JAC as their e-prescribing solution. Online outpatient prescribing was originally set up to facilitate virtual clinics, but the trust has found it to be extremely useful during the COVID-19 pandemic. Users need to be trained to use JAC e-prescribing; however, the outpatient pathway works in a similar way to inpatient prescribing. Once the clinician prescribes the medications, the prescription is remotely printed in the hospital's pharmacy. The pharmacy then calls the patient to arrange a time and day for the drugs to be delivered by NHS volunteers or couriers, along with a medications card.

7.6 Follow-up

Outpatient follow-up should be carried out remotely wherever possible. Bear in mind that some patients who will be receiving follow-up appointments in the next 6 months may have been rapidly discharged at the height of the COVID-19 pandemic. For these patients, it is particularly important to check they are adhering with secondary prevention medications and any relevant lifestyle modifications.

When planning a virtual follow-up with a patient, ensure that patients who need hearing aids or telephonic adaptive devices are going to use them. It may be sensible to ask family members or carers to prepare the person for the call, perhaps practising with the video call technology. Many video call technologies allow a three-way call, which would enable carers or family members to participate in the follow-up appointment despite social distancing regulations.

Some patients may have cancelled follow-up appointments out of fear of attending. Teams should put measures in place to identify these patients and offer telephone or video follow-up. Efforts should be made to reassure patients that the hospital is a safe environment – both ahead of and during their visit. This could be as simple as explaining infection control measures (e.g. hand washing, surface decontamination) as they are carried out.

Six-month reviews are discussed on [page 39](#).

7.7 Stroke networks and system coordination

Stroke networks and the emerging integrated stroke delivery networks (ISDNs) can offer significant support and guidance to stroke teams during the COVID-19 pandemic. It is vitally important that stroke teams are engaged and in regular contact with their existing stroke network or ISDN at this time. This will help facilitate:

- coordination of a network response to a surge in a particular locality
- telemedicine across a network if one site has significant staff shortages
- joined-up protocols around transfers of care, i.e. transferring COVID-19-positive patients to neuroscience centres for MT
- rapid dissemination of learning and spread of innovation
- procurement at scale (e.g. of apps, devices, telemedicine equipment) where this is applicable
- overview of all patients across the system, including those who may have been discharged too soon.

Stroke networks should also ensure they are linked in to the newly evolving rehabilitation networks.

Case study 14 – Western Sussex Hospitals NHS Foundation Trust

Before the COVID-19 pandemic, we felt as clinicians that many of our TIA referrals were unlikely to be TIAs and we were using valuable consultant time and other resources to process these referrals that were probably more appropriate for other services e.g. syncope, neurology, ophthalmology, rapid elderly care assessment clinics, etc. Secondly, as the pandemic began to affect NHS stroke services, we felt we needed a more responsive way of dealing with TIAs/minor strokes presenting to the ED or acute medical admissions ward (EF) in hours, so these patients could have a timely one-stop assessment to prevent numerous delayed subsequent hospital visits/assessments at a time when face-to-face clinic consultation and investigations for outpatients were being significantly reduced.

Our stroke team decided to pilot a telephone triage system for TIA referrals for a full month in February 2020. This pilot was undertaken for several reasons:

- What percentage of patients referred actually had TIAs?
- What were the main sources of referral?
- Could we improve our performance of seeing more high-risk TIAs within 24 hours?
- Could we manage this work with initial telephone consultation and subsequent appropriate imaging, other investigations and targeted interventions e.g. anticoagulation?

This pilot was initiated before COVID-19 was declared a world pandemic and had a subsequent impact on all NHS services, including stroke.

On 1 February 2020, we moved to phone triage for all TIA referrals. We were able to take full histories and, where possible, collateral histories from carers and relatives on the day referrals were received. Imaging, bloods, cardiac tests and drug prescriptions were then arranged, if appropriate, on the basis of clinical history and available patient information. Some referrals were redirected to alternative departments.

On 23 March, when lockdown started, we designed a weekly rota available via switchboard for a stroke consultant to be available for TIA consults to review suspected TIA/minor stroke patients presenting to either ED or EF. This new service delivery model allowed us to organise investigations such as carotid Dopplers while the patient was in the ED and to prescribe appropriate secondary prevention treatment. Other patients were able to access rapid magnetic resonance imaging (MRI) imaging for diagnostic and treatment decision purposes.

We feel that both of these new TIA service delivery models have improved the speed and effectiveness of our assessment of patients with a likely clinical diagnosis of TIA. We have reduced the need for many patients to attend clinic appointments and have made more focused use of imaging and cardiac resources. Patients with alternative diagnoses have been redirected more quickly to alternative specialists for advice. For patients in hospital (ED or EF), we have been able to reduce admission rates or length of stay by offering more expedient reviews and appropriate advice and investigations.

Data from our urgent telephone triage of TIA referrals in February (Monday–Friday service currently) showed we could improve high-risk TIA assessment time (moving from <10% seen within 24 hours to 80% being seen within 24 hours) using this triage method with phone consultation. It also led to a much more efficient way of redirecting other referrals to more appropriate departments. Only 26% of referrals were felt to be likely TIAs in total, so there was significant scope to redirect many referrals to alternative departments appropriately. 67% of all referrals were from GPs, who incidentally were the best diagnosticians as referrers for actual TIA diagnosis.

This pilot has been workable for the consultants running the service, and patients/carers seem to like the improved response time to their referral being made and the instant opportunity to discuss the next steps in their management plan.

Our inpatient TIA service has reduced admission rates and length of stay and has reduced the need for these patients to be referred onwards to the TIA service. We feel that seeing this cohort of patients early has improved the speed of appropriate interventions, treatment and management plans for this group. We would like to keep these new ways of working longer term and gather more supporting data.

7.8 Sharing learning across organisations

As well as sharing learning across an ISDN, it is important that the stroke community shares at regional and national levels.

Weekly and fortnightly regional calls, chaired by Dr Deb Lowe and Dr David Hargroves, have been taking place across a number of NHSE regions. On these calls, stroke teams have shared their experiences of delivering stroke care at this time. Feedback has been positive, with teams recognising the benefits of:

- knowing that other teams are experiencing similar issues (e.g. reduced admissions)
- cross-pollination of ideas.

- peer-to-peer support during a stressful time
- national support or local and regional challenges

There is now a national call for regional leads of community stroke services across England (chaired by Dr Rebecca Fisher) to support evidence-based practice and delivery of stroke rehabilitation during the COVID-19 pandemic. This has stimulated initiation of regional virtual meetings of community stroke teams, enhancing establishment of ISDNs ([Case study 15](#)). It has also ensured a much-needed focus on provision of care when stroke survivors leave hospital and will be vital to support innovation, evaluation and improvement.

Case study 15 – Cheshire and Mersey ISDN

On 24 March, Cheshire and Mersey ISDN organised and chaired the first weekly C&M Integrated Community Rehabilitation group remote meeting to discuss COVID-19 and its impact on the ability to assess and see patients and on workforce, as well as its potential effect going forward. During this meeting, the clinical lead from Warrington, who is a clinical specialist physiotherapist by background, offered to pull together an SOP for Cheshire and Mersey ISDN to use during the COVID-19 pandemic. This was to be circulated to the group for ratification by the next meeting, with a view to disseminating to all ESD and community team members following ratification.

Within the same week, Cheshire and Mersey ISDN also organised and chaired a Cheshire and Mersey-wide clinical lead remote meeting. The development of the SOP was discussed as an agenda item. One of the clinical leads, a stroke consultant from another trust (Wirral University Teaching Hospital), offered to support the SOP development, as they had extensive experience in ESD and community work.

The SOP was written and agreed by both clinicians and was circulated to members of the ESD and community meeting and the clinical leads meeting. The document was ratified at both meetings and is being used at all ESD and community teams across Cheshire and Mersey ISDN.

This has led to high levels of consistency across the wider pathways, ensuring that patients within these services were provided with safe practices while reducing uncertainties for smaller teams.

7.9 Clinical governance

Some aspects of the clinical governance framework may have been paused during the surge phase:

- education and training
- clinical audit (including SSNAP and local audit)
- clinical effectiveness (including mortality reviews and strict guidance adherence)
- research and development
- openness
- risk management
- information management.

It is vitally important that these are started again to ensure that high-quality care is being delivered.

7.10 Patient safety and the ongoing management of clinical risk

All organisations are required to put in processes that maximise patient care, minimise risk and maintain patient safety. If clinicians feel patient safety has been, or is being, compromised, they should follow their local processes for raising concerns and recording incidents.

The National Patient Safety Strategy emphasises the need to follow such processes.⁴⁹ As it is likely that we are going to be managing services in a different way due to the continuing presence of COVID-19, this approach will be increasingly important to keep services safe as we adapt models of care.

In addition, the National Patient Safety Strategy also recommends following the ‘just culture’ approach.⁵⁰ The importance of such an approach is to recognise that mistakes will happen but to move away from a culture of blame to one of learning. This can be achieved only through transparency and openness and with a duty of candour to the patient, their families and carers.

7.1.1 Research and audit

Research

Clinical research is critically important to improving stroke care. Without research there is no evidence base underpinning clinical practice and treatment. The NHS has made major contributions to global stroke research, which has provided the evidence base for primary and secondary stroke prevention, reperfusion therapies, organised stroke unit care and rehabilitation. With NIHR funding, the UK is the most active country in stroke research in terms of patients recruited into stroke research studies. At the onset of the pandemic, all non-COVID-19 research studies ceased new patient recruitment. Many clinical research network (CRN) stroke research staff were moved into frontline service delivery roles to support NHS services. The focus of research support to COVID-19 studies by the research community, including the NIHR CRN, was critical in enabling the NHS to deliver clear evidence on the benefit of dexamethasone in reducing mortality from severe COVID-19 disease and showing that other proposed therapies, such as chloroquine, were ineffective.

In the restoration and recovery phase, plans need to be developed to reopen non-COVID-19 stroke studies. All studies suspended at the start of the pandemic will need to be reviewed and reopened unless the research question is no longer relevant. The NIHR has issued a framework to guide the restarting of NIHR research activities that have been paused due to COVID-19 (www.nihr.ac.uk/documents/restart-framework/24886). The NIHR guidance makes clear the roles and responsibilities of different parties in restarting research. Key principles to be followed are that the research should still be viable, that research should restart only when it is safe for research participants and research personnel to do so ([Case study 16](#)), and that the local health and care service and NIHR have the capacity to restart a study. As there may be resource constraints because of workforce capacity, three levels of prioritisation for NIHR CRN support have been developed: Level 1 – essential studies providing evidence for pandemic management; Level 2 – studies in which the research protocol includes an urgent treatment or intervention without which patients could come to harm; Level 3 – all other studies.

Case study 16 – Restarting research in Cardiff

In March 2020, COVID-19 studies were deemed a priority to the health board, NIRH, and Welsh Assembly Government in order to help with the pandemic, and clinical trials involving stroke patients were suspended. Restarting research required the usual focussed effort, with an additional time allowance for the necessary orchestration of permissions, consent and randomisation.

The first step of restarting was completion by the lead for stroke research of the necessary form to submit to the research and development department of the hospital to request the trial be reopened. The next step – for two patients without capacity – was to obtain consent from relatives, without exposing them to an increased risk of contracting COVID-19. The partners in each case were older than 70 years. We considered sending them consent forms in the post – but the time constraints of the OPTimal TIMing of Anticoagulation After Acute Ischaemic Stroke (OPTIMAS) study precluded this – or using email to send the forms, with a view to collecting them in person. However, the OPTIMAS study includes the option of using a nominated consultee – a medical professional who is not involved in the trial but who understands the clinical context and is able to judge the appropriateness of the patient being randomised in the trial.

Following a discussion on the telephone with the partners of both patients and with the consultant responsible for their management on the ward, a doctor who had been involved in their care – but not in the trial – was asked to review the information sheet and, following a period of time during which they were able to digest the information and discuss it with colleagues, consider signing consent as a nominated consultee.

The trial randomises to early (0–4 days after onset of symptoms) or later (7–14 days) anticoagulation in patients in AF who have had a cerebral infarct. Such patients would be anticoagulated in routine practice; the trial is about the timing of initiation. Relatives seemed to find this easy to understand on the telephone but still needed time to digest the idea and the information; in some cases, relatives from North America wanted to speak with the randomising clinician. The clinical information was gathered in the usual way from the notes, the computerised records and results, and, if necessary, from partners and relatives on the telephone. Each randomisation was done over the course of a day, and all concerned felt that it was an appropriate way to preserve clinical research.

Since these cases, the OPTIMAS study has issued a non-substantial amendment allowing consent to be obtained on the telephone from a personal consultee, e.g. a partner, ideally with a witness listening to the conversation. After verbal consent over the phone, a consent form is sent to the consultee to be signed in wet ink and then returned and placed in the site file. This will facilitate recruitment in the future.

As many acute stroke studies involve recruitment of patients in the ED or before their COVID-19 status is known, close attention will need to be paid to appropriate PPE procedures. Study follow-up assessments that were undertaken through a face-to-face appointment in the hospital or community should, where possible, be undertaken via remote assessment. In future research studies, it will be important to ensure that participants have confidence that study procedures and follow-up will not be associated with any increased risk of acquiring COVID-19.

Research training (MD, MSc, PhD students) that was suspended should now restart. Research trainees will need individual reviews and require individualised support, in addition to the support provided to the wider research team. Shared offices used by research staff will need review, and staff may need to be provided with equipment to enable home working.

Stroke services should support research studies seeking to understand the specific effects of COVID-19 infection in stroke patients. Early publications suggest people with previous stroke are at increased risk of more severe COVID-19⁵¹ and that COVID-19 infection in the early stage may be a trigger for acute stroke. Stroke and other neurological complications are well described in severe COVID-19 infection.³⁴ During the pandemic, BASP has comprehensive UK surveillance for stroke as a complication of suspected or confirmed COVID-19 infection (<https://basp.ac.uk/covid-19-basp-resource-hub/>).

The effect of the pandemic on stroke admissions and outcomes is unclear at this stage, and further research is needed to understand this in order to reduce the risks that a second wave of the pandemic poses to the delivery of stroke care. Many countries and some UK centres have reported reduced numbers of stroke admissions (see [page 45](#)). It seems fear of acquiring COVID-19 infection has led many patients with symptoms of minor stroke or TIA to avoid contact with 111 and 999. In addition, there may have been a reluctance from healthcare staff in the community to refer minor stroke and TIA patients into hospital services. It is also unclear whether people living in care homes were not referred to stroke services. An understanding of the changes in referral practices and reasons for them will be important to guide future stroke awareness campaigns and the response of pre-hospital services to suspected stroke.

SSNAP

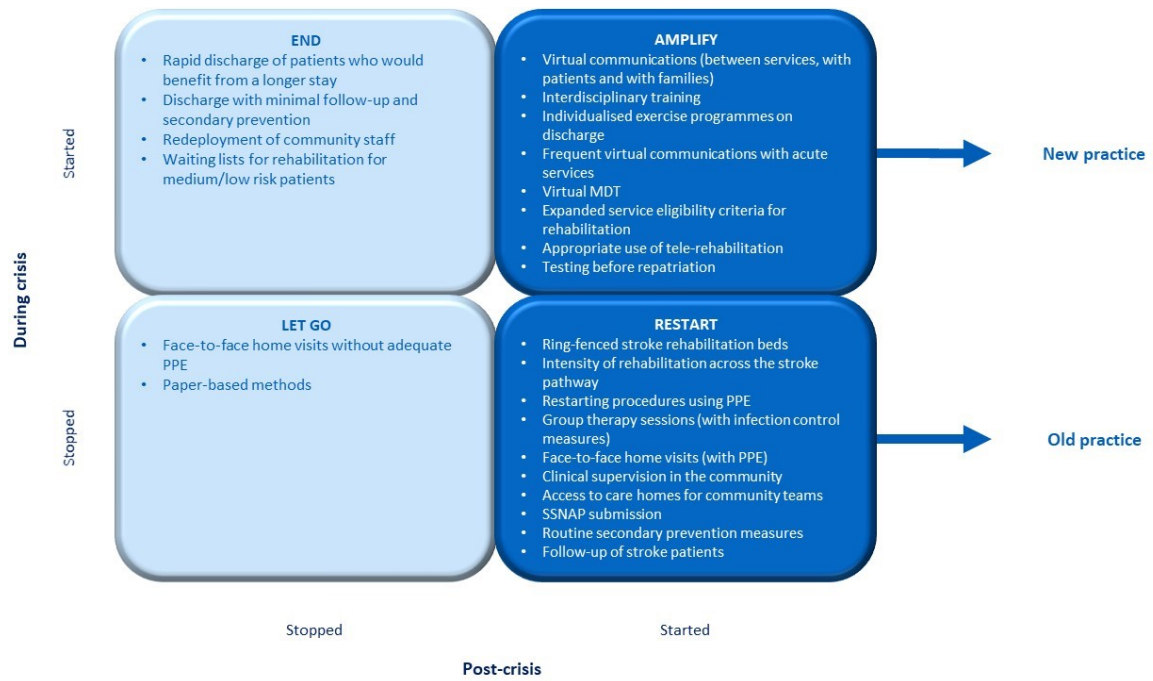
At the end of March 2020, SSNAP developed a core minimum dataset as an option for stroke teams to submit during the COVID-19 period. This core minimum dataset enabled teams to enter data for the first 72 hours with additional questions related to COVID-19. While there was the option to complete the minimum dataset, it has been encouraging to see that about 80% of stroke teams continued to complete the full dataset throughout this period.

The way in which these data will be reported has not currently been confirmed; however, it is expected that an abbreviated monthly report will be published for this period, with publication starting in early July 2020. Teams should note that this will not be comparable to a full quarterly report. It is unclear at this time if a full period 28 report will be published for the April–June 2020 quarter.

We encourage all teams going forward to complete the full dataset. The NHSE team are working with SSNAP to ensure that the web tool is able to collect COVID-19-relevant questions while also acknowledging the changes in pathway delivery that have occurred during this initial COVID-19 period – e.g. using virtual methods to deliver parts of the hyperacute and community rehabilitation pathways.

NHS England internal analysis using faster SUS suggests an approximate 25% reduction in stroke admissions during the initial surge period. There was a slight (2%) increase in all recorded stroke deaths during this period, based on the preceding 5-year average; however, data from the Office for National Statistics (ONS) suggests a significant increase in registration of death with stroke as a primary diagnosis in care homes and people's private homes, with a respective increase during the peak surge of 80% in care homes and 52% in private homes compared to the 5-year average.⁴⁹ Work is currently ongoing to establish whether these registered stroke deaths in care homes and private homes can be confirmed as stroke deaths or if there is a possibility that these were actually COVID-19-related deaths. Further hospital episode statistics (HES) and SSNAP data linkage will be required to understand further the excess mortality seen during the initial surge

7.13 Summary



8. How stroke teams can support the health of the community

8.1 Primary prevention

Prior to the COVID-19 pandemic, many clinical commissioning groups (CCGs) and primary care networks (PCNs) were running, or were planning to run, targeted programmes to detect atrial fibrillation (AF), hypertension and hypercholesterolaemia and to optimise medications to reduce the risk of stroke and other cardiovascular events.

During the surge phase of the pandemic, these initiatives will almost certainly have been put on hold as primary care looked to reduce face-to-face contacts and prioritise those with urgent needs. A recent Danish study found a 47% drop in new-onset cases of AF registered during the national lockdown in Denmark.⁵² The stroke community can play a role in supporting primary care colleagues to restart this important work. This may include:

- virtual education top-up sessions ([Case study 17](#))
- access to timely advice and guidance.

As the emerging integrated care partnerships (ICPs) and integrated care systems (ICSs) start to mature, it is likely that one of their priorities will be primary cardiovascular disease prevention. There is an opportunity for the stroke community to take a leadership role in this.

Case study 17 – Royal Berkshire Hospital

The Stroke Department at the Royal Berkshire Hospital supported general practitioners (GPs) in West Berkshire by delivering an 'AF champions' programme. The AF champions attended a series of intensive training sessions delivered by a consultant stroke physician. These sessions aimed to develop skills in AF detection and anticoagulation, as well as forming a community of peers supporting each other. The champions were encouraged to undertake quality improvement projects in their practices to improve 'detect, protect and perfect' aspects of AF management, utilising the technology and learning from the programme. They were given support with quality improvement methods and were encouraged to choose an aspect of AF management that requires improvement locally. A follow-up webinar is planned to ensure that GPs are supported during the COVID-19 pandemic.

8.2 Public awareness

Reports from around the world indicate that fewer patients with suspected TIA and stroke have been referred via their GP and from EDs since the beginning of the COVID-19 pandemic.^{30, 53-57}

A survey of more than 100 World Stroke Organization (WSO) members found that almost 90% had seen a reduction in stroke admissions (ranging from 10% to 90%) in 2020 compared with 2019.⁵⁴ Stroke admissions reduced by 40% at large hospitals in China,⁵⁴ by 18.2% at the regional hospitals of Barcelona, Spain,⁵⁵ and by 58% at the Beth Israel Deaconess Medical Center in Boston, USA.⁵⁶ The University of Padua School of Medicine in Italy saw decreases of 21% in all neurovascular consultations and 58% in consultations for TIAs.³⁰ In Barcelona, a 21% reduction in treatments for acute stroke overall was reported, including a 20% reduction in thrombolysis and a 13% reduction in MT,⁵⁵ which is similar to the 25% decline in thrombolysis and MT combined in large hospitals in China.⁵⁴ Stroke care providers who responded to a survey by the European Stroke Organisation (ESO) reported that only one in five stroke patients were receiving the usual acute and post-acute care at their hospital.⁵³ The situation in the UK is no different, NHS England internal analysis using faster SUS suggests an approximate 25% drop in stroke admissions and a 40-50% drop in stroke/TIA A&E attendances during the initial surge period.

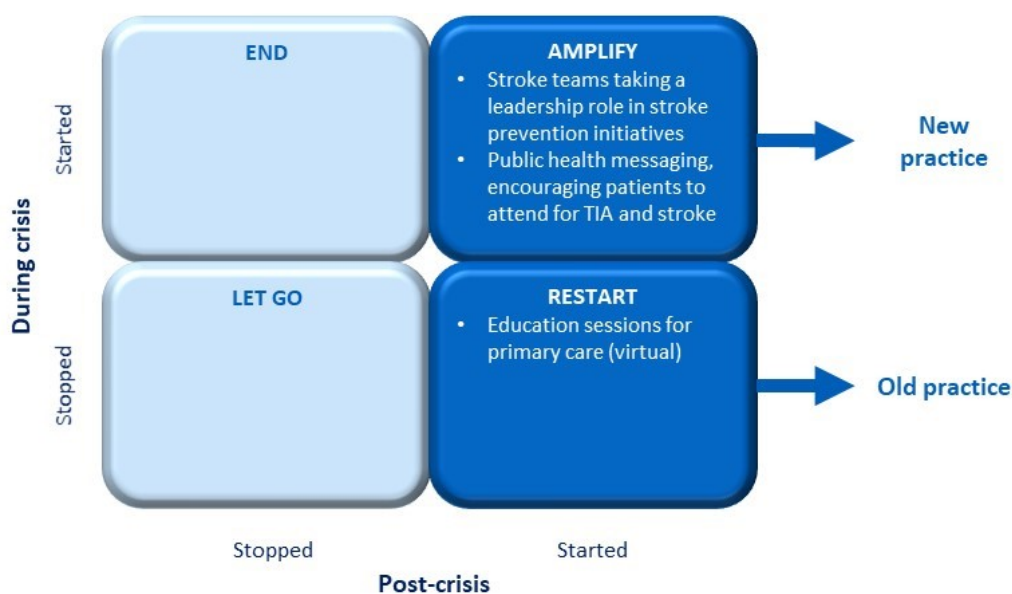
The reason for these reductions is multifactorial, reflecting a combination of changes in behaviour of those experiencing symptoms and changes in referral practices from primary and secondary care.² Patients with mild symptoms of TIA or minor stroke may be ignoring them for fear of catching COVID-19 or putting pressure on the NHS and so are not presenting to an HCP. Patients with major strokes may be older and frail, and they may have community orders in place, preventing them from being transferred from their home or care home to hospital. Emergency care may be less available than usual because of strained healthcare delivery systems.⁵⁴

There may also be a relative decrease in the incidence of stroke due to improvements in lifestyle factors, reductions in pollution, and people not coming into contact with common pathogens such as seasonal influenza due to lockdown and social distancing. In some cases, the symptoms may be missed in patients admitted with concomitant COVID-19, who seem to be at increased risk of stroke, particularly given the atypical presentation in this group.^{51, 58}

The importance of referring patients with suspected TIA symptoms for immediate assessment to prevent fatal or disabling stroke should be emphasised to colleagues and in public health messages to the local community. The ESO emphasises that patients with stroke symptoms should still present to hospital as soon as possible and that efforts should be made to maintain the usual level of stroke care, including intravenous and endovascular reperfusion strategies, irrespective of the patient’s COVID-19 status, to avoid unnecessary ‘collateral damage’ through inadequate treatment of this often disabling or life-threatening condition.⁵³ This is echoed by the WSO, which urges government leaders and healthcare agencies to continually remind people that stroke symptoms should not be ignored, even if they are mild or transient; that people with such symptoms and more severe manifestations should be evaluated at a local emergency department or urgent care facility; and that patients with milder symptoms should contact their HCP for appropriate triage.⁵⁴

Public health messaging is needed to encourage patients to come to hospital if they are experiencing symptoms of stroke – including mild symptoms of TIA and minor stroke. Patients should be reminded of the symptoms of stroke using the Face Arm Speech Test (FAST) acronym and urged not to ignore them but to call an ambulance. For patients fearful of catching COVID-19 in hospital, public health messaging should provide reassurance that it is safe to attend. A public health video campaign, in which HCPs urge the public to come forward when they have stroke symptoms, has been successful in Italy. The importance of presenting with stroke has already been raised in the press in the UK through interviews with stroke leads and stroke professional associations.

8.3 Summary



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Appendices

Appendix I: Recommended PPE

The infographics below are the PPE recommendations as of the date of publication of this document. These may be subject to change. Please check www.gov.uk for updates:

- COVID-19 personal protective equipment (PPE) (www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe)
- COVID-19: infection prevention and control (IPC) (www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control).
















Recommended PPE for healthcare workers by secondary care inpatient clinical setting, NHS and independent sector

| Setting | Context | Disposable Gloves | Disposable Plastic Apron | Disposable fluid-repellent coverall/gown | Surgical mask | Fluid-resistant (Type IIR) surgical mask | Filtering face piece respirator | Eye/face protection ¹ |
|---|--|---------------------------|---------------------------|--|---------------|--|---------------------------------|--|
| Acute hospital inpatient and emergency departments, mental health, learning disability, autism, dental and maternity settings | Performing a single aerosol generating procedure ¹ on a possible or confirmed case ² in any setting outside a higher risk acute care area ³ | ✓ single use ⁴ | ✗ | ✓ single use ⁵ | ✗ | ✗ | ✓ single use ⁶ | ✓ single use ⁶ |
| | Working in a higher risk acute care area ³ with possible or confirmed case ² | ✓ single use ⁴ | ✓ single use ⁴ | ✓ sessional use ⁵ | ✗ | ✗ | ✓ sessional use ⁶ | ✓ sessional use ⁶ |
| | Working in an inpatient, maternity, radiology area with possible or confirmed case ² – direct patient care (within 2 metres) | ✓ single use ⁴ | ✓ single use ⁴ | ✗ | ✗ | ✓ sessional use ⁵ | ✗ | ✓ sessional use ⁶ |
| | Working in an inpatient area with possible or confirmed case ² (not within 2 metres) | ✗ | ✗ | ✗ | ✗ | ✓ sessional use ⁵ | ✗ | ✓ risk assess sessional use ⁶ |
| | Working in an emergency department/acute assessment area with possible or confirmed case ² – direct patient care (within 2 metres) | ✓ single use ⁴ | ✓ single use ⁴ | ✗ | ✗ | ✓ sessional use ⁵ | ✗ | ✓ sessional use ⁶ |
| | All individuals transferring possible or confirmed case ² (within 2 metres) | ✓ single use ⁴ | ✓ single use ⁴ | ✗ | ✗ | ✓ single or sessional use ⁵ | ✗ | ✓ risk assess single or sessional use ⁶ |
| | Operating theatre with possible or confirmed case ² – no AGP ¹ | ✓ single use ⁴ | ✓ single use ⁴ | ✓ risk assess single use ⁵ | ✗ | ✓ single or sessional use ⁵ | ✗ | ✓ single or sessional use ⁶ |
| | Labour ward/area – 2nd/3rd stage labour vaginal delivery (no AGP ¹) – possible or confirmed case ² | ✓ single use ⁴ | ✓ single use ⁴ | ✓ single use ⁵ | ✗ | ✓ single or sessional use ⁵ | ✗ | ✓ single or sessional use ⁶ |
| Inpatient care to any individuals in the extremely vulnerable group undergoing shielding ⁷ | ✓ single use ⁴ | ✓ single use ⁴ | ✗ | ✓ single use ⁵ | ✗ | ✗ | ✗ | |

Table 1

1. This may be single or reusable face/eye protection/face visor or goggles.
 2. A case is any individual meeting case definition for a possible or confirmed case: <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe>. Note APGs are undergoing a further review at present.
 3. A case is any individual meeting case definition for a possible or confirmed case: <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe>.
 4. Single use refers to disposal of PPE or decontamination of reusable items e.g. eye protection or respirator, after each patient and/or following completion of a procedure, task, or session; dispose or decontaminate reusable items after each patient contact as per Standard Infection Control Precautions (SICPs).
 5. A session refers to a period of time where a healthcare worker is undertaking duties in a specific case setting/exposure environment e.g. on a ward round; providing ongoing care for inpatients. A session ends when the healthcare worker leaves the care setting/exposure environment. Sessional use should always be risk assessed and considered where there are high risks of hospital cases. PPE should be disposed of after each session or earlier if damaged, soiled, or uncomfortable.
 6. Risk assessed use refers to utilising PPE when there is an anticipated/likely risk of contamination with splashes, droplets of blood or body fluids.
 7. For reclassification of shielding and definition of extremely vulnerable groups see guidance: <https://www.gov.uk/government/publications/guidance-on-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19>.
 8. Ambulance staff conveying patients are not required to change or upgrade PPE for the purposes of patient handover.
Patient use of PPE: In clinical wards, communal waiting areas and during transportation, it is recommended that suspected or confirmed cases wear a surgical face mask if this can be tolerated. The aim of this is to minimise the dispersal of respiratory droplets, reduce both direct transmission risk and environmental contamination. A surgical face mask should not be worn by patients if there is potential for their clinical care to be compromised (e.g. when receiving oxygen therapy).

Additional considerations, in addition to standard infection prevention and control precautions,

where there is sustained transmission of COVID-19, taking into account individual risk assessment for this new and emerging pathogen, NHS and independent sector

| Setting | Context | Disposable Gloves | Disposable Plastic Apron | Disposable fluid-repellent coverall/gown | Surgical mask | Fluid-resistant (Type IIR) surgical mask | Filtering face piece respirator | Eye/face protection ¹ |
|-------------|---|---------------------------|---------------------------|--|---------------------------|--|---------------------------------|--|
| Any setting | Direct patient/resident care assessing an individual that is not currently a possible or confirmed case ² (within 2 metres) | ✓ single use ³ | ✓ single use ³ | ✗ | ✗ | ✓ risk assess sessional use ^{4,5} | ✗ | ✓ risk assess sessional use ⁶ |
| Any setting | Performing an aerosol generating procedure ¹ on an individual that is not currently a possible or confirmed case ² | ✓ single use ³ | ✗ | ✓ single use ³ | ✗ | ✗ | ✓ single use ⁶ | ✓ single use ⁶ |
| Any setting | Patient transport service driver conveying any individual to essential healthcare appointment, that is not currently a possible or confirmed case in vehicle without a bulkhead, no direct patient care and within 2 metres | ✗ | ✗ | ✗ | ✓ single use ³ | ✗ | ✗ | ✗ |

Table 4

1. This may be single or reusable face/eye protection/face visor or goggles.
 2. A case is any individual meeting case definition for a possible or confirmed case: <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe>.
 3. Single use refers to disposal of PPE or decontamination of reusable items e.g. eye protection or respirator, after each patient and/or following completion of a procedure, task, or session; dispose or decontaminate reusable items after each patient contact as per Standard Infection Control Precautions (SICPs).
 4. Risk assessed use refers to utilising PPE when there is an anticipated/likely risk of contamination with splashes, droplets of blood or body fluids. **Where staff consider there is a risk to themselves or the individuals they are caring for they should wear a fluid repellent surgical mask with or without eye protection as determined by the individual staff member for the care episode/shift session.**
 5. A session refers to a period of time where a healthcare worker is undertaking duties in a specific case setting/exposure environment e.g. on a ward round; providing ongoing care for inpatients.
 6. A session ends when the health care worker leaves the care setting/exposure environment. Sessional use should always be risk assessed and consider the risk of infection to and from patients, residents and health care workers where COVID-19 is circulating in the community and hospital. PPE should be disposed of after each session or earlier if damaged, soiled, or uncomfortable.
 7. The list of aerosol generating procedures (AGPs) is included in section 8.1 at: www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe. Note APGs are undergoing a further review at present.
 8. Ambulance staff conveying patients are not required to change or upgrade PPE for the purposes of patient handover.

Appendix 2: Community-based Neuro-Rehabilitation Team NHS Berkshire Healthcare

Face-to-face visit – decision-making tool

Adapted from Community based Neuro-Rehabilitation Team NHS Berkshire Healthcare: Face to Face visit – Decision making tool

| <p>Benefits of f2f visit NB: List goals of f2f visit and anticipated outcome</p> | <p>Risks of f2f visit</p> <p><input type="checkbox"/> Infection with covid19 – (patient/residents in same household)</p> <p>Patient/ residents in same household on extremely vulnerable /vulnerable list Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If yes, please specify:</p> <p>Details:</p> | <p>Risks if no f2f visit</p> <p><input type="checkbox"/> Safeguarding <input type="checkbox"/> Injury to pt/family member <input type="checkbox"/> Re/Admission to acute <input type="checkbox"/> Skin Damage <input type="checkbox"/> Development of pressure sores <input type="checkbox"/> Deterioration in health (of patient or resident in same household) <input type="checkbox"/> Risk of loss of rehab gains <input type="checkbox"/> Risk of injury due to unsafe equipment/incorrect handling <input type="checkbox"/> Falls <input type="checkbox"/> Aspiration <input type="checkbox"/> Placement breakdown <input type="checkbox"/> Overdose/serious medication errors <input type="checkbox"/> Other</p> <p>Do any of above meet threshold in threshold doc? Yes <input type="checkbox"/> No <input type="checkbox"/></p> | <p>Decision Making Process – Liaison and reasoning</p> <p>Consultation needed with:</p> <p><input type="checkbox"/> GP <input type="checkbox"/> Stroke consultant <input type="checkbox"/> Neurologist <input type="checkbox"/> Specialist _____ <input type="checkbox"/> Ward/Hospital _____ <input type="checkbox"/> Other _____</p> <p>Summary of Liaison/Reasoning for decision:</p> | <p>Final Decision to be made in MDT forum</p> <p>Summary of discussion (include reasoning):</p> | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|--|--|-------|----------|--------|----------------|--|--|--|--------|--|--|--|----------|--|--|--|----------|--|--|--|---|--|
| <p>Risk Matrix – Please mark with 'X' (if ≥1 needs grading, grade all) P.T.O. for more detailed version</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th rowspan="2">LIKELIHOOD</th> <th colspan="3">SEVERITY</th> </tr> <tr> <th>Minor</th> <th>Moderate</th> <th>Severe</th> </tr> </thead> <tbody> <tr> <td>Almost Certain</td> <td style="background-color: yellow;"></td> <td style="background-color: red;"></td> <td style="background-color: red;"></td> </tr> <tr> <td>Likely</td> <td style="background-color: yellow;"></td> <td style="background-color: red;"></td> <td style="background-color: red;"></td> </tr> <tr> <td>Possible</td> <td style="background-color: green;"></td> <td style="background-color: yellow;"></td> <td style="background-color: red;"></td> </tr> <tr> <td>Unlikely</td> <td style="background-color: green;"></td> <td style="background-color: green;"></td> <td style="background-color: yellow;"></td> </tr> </tbody> </table> | | LIKELIHOOD | SEVERITY | | | Minor | Moderate | Severe | Almost Certain | | | | Likely | | | | Possible | | | | Unlikely | | | | <p>Suggested decision:</p> <p><input type="checkbox"/> F2F visit <input type="checkbox"/> Remote <input type="checkbox"/> Referral onwards <input type="checkbox"/> Other _____</p> | <p>Final Decision</p> <p><input type="checkbox"/> F2F visit <input type="checkbox"/> Remote <input type="checkbox"/> Referral onwards <input type="checkbox"/> Other _____</p> |
| LIKELIHOOD | SEVERITY | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Minor | Moderate | Severe | | | | | | | | | | | | | | | | | | | | | | | |
| Almost Certain | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Likely | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Possible | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Unlikely | | | | | | | | | | | | | | | | | | | | | | | | | | |

Patients Name:
NHS number:
Clinicians Name:
Date:

FOR REFERENCE

| | | SEVERITY | | | |
|------------|---|---|---|---|----------|
| | | Injuries or illness requiring medical treatment (e.g. GP); temporary impairment | Injuries or illness requiring hospitalisation or specialist medical treatment (e.g. district nursing) | Injury or illness resulting in permanent impairment or fatality | |
| | | Minor | Moderate | Severe | |
| LIKELIHOOD | Expected to occur regularly | | | | |
| | Expected to occur at sometime | | | | |
| | May occur at some time | | | | |
| | Not likely to occur in normal circumstances | | | | |
| | | Almost Certain | Likely | Possible | Unlikely |

Face-to-face visit – decision-making tool

| Threshold for F2F visit during Covid-19 outbreak | Risk |
|--|---|
| Patient requiring assistance or supervision to complete mobility and transfers where there are concerns about safety of patient or family member during handling | Risk of injury to patient and family member & potential for re-admission |
| High risk of pressure damage and uncertainty about family ability/willingness to check skin What is medium to high risk? Waterlow above 15 or any reason to be concerned or lack of access to PR equipment | Risk of skin damage, development of pressure sores, escalation to septicaemia |
| When F2F physical assessment is required to make an assessment to progress abilities remotely e.g. UL assessment or assessment of knee control | Significant impact on recovery |
| Assessment/adjustment of/with equipment where this cannot be done remotely, check by family member is not thought to be reliable, patient lives alone, or not fitted/checked by NRS. This includes beds, mobility aids, transfer equipment and pressure relief | Risk of injury due to unsafe equipment, pressure damage, falls, unsafe handling causing injury to hemiplegic arm. |
| Patient has had falls or is judged to be at high risk, where remote assessment suggests assessment of physical ability/ environment/ use of equipment/ trial of on/off floor is required | Risk of injury due to falls |
| Swallowing requiring assessment/re-assessment as thought appropriate by dysphagia trained SLT that can't be completed via teletherapy or other remote appointments | Risk of aspiration and health deterioration |
| Demonstration of appropriate techniques around safe swallowing and/or correct modification of diet and fluids if needed e.g. inappropriate textures being given, unsure how to thicken drinks/provide appropriate diet/follow techniques and this cannot be done remotely. Lack of adherence to recommendations: where there are issues regarding capacity to consent to not follow the recommendations from either patient or carer | Risk of aspiration and health deterioration |
| Where information gathered from patient or family may be unreliable or communication is impaired and face to face visit is required to assess the patient or to support communication of key safety advice. | Risk of injury/ deterioration in health due to not understanding advice on the telephone Risk of injury/ deterioration due to insufficient information being gathered by remote means. |
| Complex case and/or complex social situation (e.g. chaotic family, unstable living situation, alcohol/drug abuse) that might give rise to or affect safeguarding / risk management concerns. In addition, assessment/intervention is best completed by our service and cannot wait until f2f restrictions are lifted (i.e. medium to high risk). Complexity may for e.g. be demonstrated by: Inability to establish, lack of, or challenging engagement over remote appointments. Behaviours that challenge Personality disorders Cognitive impairment e.g. that is severe or affects insight/awareness Lack of capacity etc | Risk of injury/ deterioration in health due to clinicians being unable to adequately remotely assess risk factors relevant to adequate engagement/compliance with assessment & intervention. Risk of injury/ deterioration in health due to clinicians being unable to adequately support patients/family/carers to engage/manage risks. |

| | |
|--|---|
| <p>Medication concerns that cannot be sorted out by telecommunication / family unavailable to support: concerns regarding compliance, errors/omissions with taking medication, confusion with new & existing supply of medications in the patient's house</p> | <p>Risk of overdose Risk of non-compliance</p> |
| <p>Safeguarding - Assessment needed to establish risk where risk could be significant but unable to establish remotely (include concerns re: medication management) e.g.: If patient has communication difficulties. Known allegations of abuse (e.g. violence) which may be increased by current circumstances (e.g. pt may have capacity to decide to be d/c home but may be more vulnerable e.g. unable to independently access help/raise alarm) Resistance from family/patient in engagement and where patient is vulnerable (e.g. lacks capacity)</p> | <p>Risk of inadequate risk assessment being completed which could place patient/others at risk of harm /deterioration in health.</p> |
| <p>Psychological risk: Concerns regarding psychological wellbeing of patient and/or carers that need addressing as a priority (e.g. patient is aggressive, family/carer relationship breakdown). There has been deterioration in psychological well-being over time (potentially due to lack of f2f intervention) which has resulted in risk escalating gradually to the point where f2f assessment/intervention is warranted in order to mitigate possibility of risk becoming high or crisis. There are concerns regarding the cognitive capability of the patient who does not or does not appear to have adequate support. Hence patient is or appears to be at significant risk. This may also relate to other domains such as medication management, self-care, compliance with advice... Communication – risk of patient/carer/relationship breakdown or safety concerns due to impairment of communication that cannot be managed remotely</p> | <p>Risk of injury/ deterioration in health due to clinicians being unable to adequately remotely assess risk or provide appropriate intervention.</p> |
| <p>Concerns around lack of access to essentials e.g. food</p> | |



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