# CONFRONTING CORONAVIRUS IN THE NHS
## The story so far

# Foreword

## Who we are, the basis on which this briefing is written and what it covers

On 30 January 2020, national NHS leaders internally declared coronavirus a serious, level 4, incident. Over the last ten weeks, England's 217 acute hospital, ambulance, community and mental health trusts have been at the forefront of the NHS response to coronavirus. These trusts employ 800,000 of the NHS's 1.2 million staff and treat a million patients every 36 hours, so their performance is key to how the NHS copes with this new virus.

NHS Providers is the membership organisation for these trusts, with all 217 trusts in voluntary membership. We are not the government and we are not NHS England, but we do act as a two-way communications channel between trusts and the national leaders co-ordinating the NHS' coronavirus response. So, we understand both the local trust and the NHS national leadership perspectives.

Most of the current media coverage of the NHS response to coronavirus is split between testimony from individual frontline staff and what is said at the daily Downing Street press conferences. NHS Providers seeks to fill the gap in the middle, explaining what trusts are doing to meet the unprecedented challenge they face. The full basis on which we make our public comment on coronavirus can be found here.

This briefing draws extensively on the real time electronic communications channels and other communications we have had with our trust chief executives and chairs over the last ten weeks. It is structured in five sections.

In the first section, it looks back a little and sets out how NHS trusts have prepared. This is the work trust leaders believe will enable the NHS, in this first immediate demand spike, to avoid the sudden 'overwhelm' experienced in northern Italy.

In the second section, it sets out how NHS trusts are currently dealing with coronavirus as we reach the first peak of extra demand. It looks at how trusts are actually experiencing that extra demand, how they are adapting to cope as demand rises, the impact on frontline trust staff and what trust leaders feel has worked well.

In the third section, it looks at the pinch points that have emerged – personal protection equipment (PPE), testing, ventilators and oxygen system delivery capacity. It also sets out

two other current concerns: striking the right balance between coronavirus and the NHS's 'normal work' and that current circumstances inevitably mean trusts can't consistently provide the quality of care they would normally provide.

In the fourth section, it begins to look forward at an immediate wish list of what trust leaders feel they need at this point and the questions their current experience throws up, to help frame the developing NHS response to coronavirus over the next month or so.

In the fifth section, it takes a brief and tentative early look at the new, post coronavirus, NHS that trust leaders are determined should emerge from this crisis, ensuring some of the temporary coronavirus related changes the NHS is making become permanent.

By necessity, this is reportage at pace, not a meticulous research paper. It's our impression of how the situation feels to NHS trust leaders in mid-April 2020. Understanding of COVID-19, and how the NHS should organise to meet it, is constantly developing so some of what is written here will be quickly overtaken by new insights and learning.

This briefing has been written by Chris Hopson, NHS Providers chief executive, with input from the wider NHS Providers team.

# How the NHS has prepared

Trust chief executives are proud of what has been delivered over the last ten weeks to prepare for coronavirus. Few outside the NHS realise how much has been achieved in such a short time.

A good starting point is to remember how large and complex NHS trusts are. The largest have annual budgets of over £1.5bn and employ nearly 20,000 staff. Running them requires a stretching combination of providing consistently outstanding care to patients and enabling a large, specialist and highly-skilled workforce to perform at its best, within a tight fixed budget. This needs a complex support infrastructure, equivalent in size to a small town for the largest trusts, including estates, power, oxygen, catering, laundry, patient transport and cleaning.

For community and mental health trusts, the complexity also comes in running consistently high-quality services across hundreds of small sites and, for ambulance trusts, in being responsible for emergency response across a large region of more than five million people.

And some of this is life or death. If trusts fail to clean an infected area correctly, get a procedure wrong or suffer a critical ambulance equipment failure, lives are at risk. Fundamentally reconfiguring trusts at the drop of a hat is therefore a huge undertaking. But that's what's been done. There are different elements to this.

One, which has been widely featured in the media, is the creation of a brand new 4,000 bed hospital in the Excel Centre in London and the other new Nightingale hospitals being created across the country. They are our own UK equivalent of the stories from China of building new hospitals in a fortnight. But in terms of extra bed numbers for coronavirus patients, they're only a small part of the story.

Another way to look at this startling transformation is to focus on the 33,000 extra beds that have been created. That's the equivalent of building 53 more, average-sized, district general hospitals across the country. Or, if you like, a mini sized new hospital inside each existing hospital – in less than a month.

This scale of change is unprecedented in the NHS' 72-year history. It may be a bit Heath Robinson in places but it's like turning a five seat car into a 15 seat minibus overnight.

How has this been achieved? It's been a combination of five different things all happening at once, at unprecedented pace, any one of which would have provided a significant challenge on their own. It's the combination of all five that should, and this can be said with increasing confidence, mean that the NHS line will hold for this initial peak.

The five things are:

- discharging medically fit patients
- diverting/postponing planned care
- creating extra critical care capacity
- emergency training staff to support COVID-19 patients
- incorporating private sector capacity into the NHS.

A brief narrative on each follows.

## Discharging medically fit patients

NHS hospitals usually have somewhere between 20% and 30% of their patients, many of them frail elderly patients, ready to go home. But they can't go home because they are waiting for social care packages or a nursing/care home place. It's one of the areas where the 1948 division between health and social care, following the creation of the NHS, has had a significant negative impact. The NHS has completely rewritten its discharge procedures in a week to enable a much more rapid discharge process. Thanks to the work of NHS community and mental health trusts, local government and social care, hospitals have discharged record numbers of patients in record time. One chief executive said that his trust had cut the number of medically-fit patients ready for discharge from 250 to 20 in a fortnight. That's 230 extra beds to treat coronavirus patients.

## Diverting planned care

The NHS has been diverting planned care – the treatments or follow ups that hospitals had planned but which can be delayed or delivered in a different way. There's been a particular focus on identifying care which is critical – vital cancer operations being a good example – to ensure they continue to time and quality. With other planned care, routine outpatient appointments have been transferred to the phone, put online using a new platform that has been developed at breakneck speed or, where appropriate, delayed. It's been a huge trust administrative effort to make this redirection work as patients need to know how their new online, phone or delayed appointment will actually happen.

## Expanding critical care capacity

Trusts have been expanding their critical-care capacity. The experience from other countries shows there is a vital cohort of very ill COVID-19 patients who can survive if they get the right critical care, especially ventilation support. The NHS has therefore been seeking to rapidly expand this capacity. Again, it helps to be behind other countries like China and Italy, as the NHS has a better idea of what capacity, and how much of it, will be needed. Creating this extra capacity requires a lot of internal reconfiguring – think turning your bedroom into a kitchen overnight.

This has involved thousands of stories of frontline staff doing amazing things. For example, a proud tweet from a hospital paediatric intensive care unit (PICU) team who had literally 'picked up' their entire unit, very ill children and all, and moved it overnight to a completely

different part of their hospital with no loss of bed space. Another trust fitted an entire building with new oxygen piping and ducting within a week to ensure every bed in the building could now use a ventilator.

## Emergency training staff and expanding the workforce

Trusts have rapidly expanded the number of staff who can look after critically-ill coronavirus patients. They've ensured a much greater range of staff know how to support COVID-19 patients with breathing difficulties. They've trained staff to help patients with basic non-invasive breathing machines that help patients breathe. They've worked with anaesthetists and theatre recovery staff to grow the number of specialists who can operate complex, high-end, mechanical ventilators that do the breathing for the patients. They've also supported staff who are moving into new roles to bolster the support that can be provided to critically-ill adult coronavirus patients. At the same time, trusts have also been training and incorporating the 20,000 nurses and doctors who have volunteered to return to the NHS after recent retirement.

## Private sector capacity

The NHS has also struck a comprehensive deal with the independent hospital sector to use their capacity to both treat coronavirus patients and help the NHS deliver other urgent operations and cancer treatments. At a point where every extra bed, member of staff and ventilator could be vital, this means the NHS will have an extra 8,000 hospital beds, 1,200 more ventilators and 18,700 clinical staff available.

This narrative so far, and nearly all of the media coverage, has been focused on preparations in the 150 or so hospital trusts. But there have been similar extraordinary achievements in the ambulance, community and mental health services which have been equally important.

Important in their own right, as these trusts have their own patients to care for and the 'ordinary business' of the NHS goes on, however important coronavirus may be. But there's also been important preparation in these trusts to support acute hospitals to look after their ill COVID-19 patients. To give some examples:

## Ambulance services

The ambulance sector has had to scale up their service provision across the board as they need to convey large numbers of COVID-19 and suspected COVID-19 patients to hospital. One ambulance trust has increased the size of their ambulance fleet by nearly 30%, adding more than 60 brand new ambulances in five days, compared to their normal, two-a-week rate of onboarding new ambulances. They've also re-fitted 50 non-emergency response vehicles in a similar timescale, so these can also now be used for frontline emergency response. 111 and 999 services have been dramatically expanded at very short notice, with NHS 111 call volumes jumping by 105% in March 2020 compared to 12 months ago and a new online coronavirus 111 service launched in March. Ambulance services have been expanding their workforce, for example incorporating members of the fire service into

their teams. They've also been doing the behind the scenes work that's easy to miss, like establishing rapid turnaround facilities to ensure ambulances are deep cleaned after carrying a COVID-19 or suspected COVID-19 patient.

## Community service providers

Community service providers have faced the challenge of suddenly having to care for and support a significantly higher number of patients, given the volume of patients hospitals have needed to discharge at pace. The transformation of community services, in response, has been just as impressive and dramatic as that in hospitals. There's been a rapid move to telephone and video consultations, where appropriate, particularly for vulnerable groups. There's been a quick exercise to identify which services can be de-prioritised for the moment and where the staff can be re-deployed, with appropriate training, to more urgent tasks. To give a sense of the volumes here, one chief executive tweeted recently of how teams covering Barnsley (population 250,000) had, in the previous seven days, done 4,000 home visits and 10,500 video/telephone consultations, redeployed, inducted and trained 150 staff into temporary new roles and absorbed 25 hospital staff in support of a newly launched rapid discharge scheme that had been created from scratch in less than five days.

## Mental health providers

Mental health trusts have had to ensure their inpatient services are equipped to deal with coronavirus patients. That's been a particular challenge for those trusts with patients who are held in secure accommodation, where the flexibility to reconfigure physical space may be heavily constrained. Trusts have been working hard to create 24 hours a day, seven days a week, mental health emergency services to support those in mental health crisis. They have been creating empty wards to allow acute hospitals to transfer non-COVID patients. Staff have also been retrained to help provide physical care. One of the more distressing groups of COVID-19 patients to treat are frail, elderly patients with dementia who are suffering from multiple organ failure and need high-quality physical and mental health care as they reach the end of their life. Mental health trust staff who have previously focused on supporting the mental health needs of this group of patients have been rapidly trained in how to support their physical health needs and provide end of life palliative care.

## Primary care, social care and voluntary sector

Trusts are part of a wider health and care sector. Although NHS Providers does not represent these sectors, trust leaders have also commented on the huge effort these sectors have also made to prepare for coronavirus. They point, for example. to the speed with which GP consultations have moved online and the way that groups of GPs surgeries have cohorted themselves into dealing with COVID-19 and non-COVID-19 patients. They are also grateful for the way in which care and nursing homes, hospices and other voluntary sector organisations have been able to assist in enabling rapid discharge from hospital, recognising that this has placed a significant extra burden on these services.  As for NHS community services, there remains a need to ensure frontline staff in community settings are supported to cope with

the increased acuity of people now being cared for within their homes, or other community settings, who may have remained longer in hospital in normal times.

## Underlying themes

There are some important underlying themes to highlight.

The sheer scale of transformation and how it's touched every bit of the trust sector, the speed at which this has been done, the way the entire NHS workforce in trusts – estates, procurement, administrative staff, therapists, paramedics, doctors, nurses, healthcare assistants, midwives, allied health professionals, managers and leaders – have pulled together. The support from beyond the NHS – from suppliers to partners across the health and care system, the way that leaders at all levels of the NHS – national, regional and individual trust – have worked, hand in glove, as a single team.

There's a quiet, but enormous, pride in what has been achieved, most of it below the radar. And irritation with those, like the editor of The Lancet, who have described the NHS' preparations as "chaos and panic". Or Charles Moore who has argued that the NHS is a "lumbering" bureaucracy that has responded ineffectively because of its "lack of adaptability and readiness". In both instances, the precise opposite is the case.

## Demand and capacity modelling

There's one other important piece of preparation work to highlight. Key to effective running of a trust is to create the best possible prediction of future demand and then try to ensure the trust has the capacity to meet that demand, particularly if that level going to be out of the ordinary. Trusts have been working hard over the last two months, supported by national modelling, analysis and intelligence, to estimate what the likely pattern of extra coronavirus related demand would be. The modelling has predicted overall demand, ventilation requirement, morality rate and length of stay (key to estimating required bed capacity). Trusts have therefore had a pretty clear idea of what they were likely to be facing and have been doing all they can to scale up their capacity to meet this demand.

This modelling is a great example of the advantages of our state funded, nationally co-ordinated, National Health Service and one of the reasons why the UK was judged, before the outbreak began, to be one of the top three nations in the world in preparedness for dealing with a pandemic. Modelling, analysis and insight into pandemic spread is a public health function. No individual hospital or hospital group has the capacity or expertise to do this well. It has to be done 'centrally', at both national and regional levels, as the speed of regional spread is likely to differ. Any health system then needs to turn this insight into a series of regional, and individual local system, demand predictions to enable each trust to make detailed plans of how much extra capacity they will need so they can then create that capacity.

Regional health systems also need to develop a surge capacity plan of what would happen if demand exceeds capacity in any given trust and how mutual aid will work (e.g. which of

hospitals B, C, D and E would take hospital A's patients if it ran out of capacity). The key is to avoid what appears to have happened in some countries – individual hospitals left to sink or swim, then getting completely overwhelmed, struggling to provide the most basic care.

England's public health organisation, Public Health England, is well plugged into the rest of the NHS. There is a well developed and resourced national and regional NHS infrastructure (NHS England and Improvement) that supports local trusts and their wider local NHS systems. The NHS is used to critical incident planning, rehearsing these plans, and, as part of the plans, trusts providing mutual aid to each other. These have been significant advantages to the UK in preparing for the arrival of the pandemic and all flow from having a National Health Service rather than the fragmented health systems we see in other countries.

But how have these preparations held up as the first peak of demand has hit? And what lessons should the NHS learn from this first peak?

# How is the NHS coping at this point?

## Variation of experience can only produce educated guesswork at this point

As one might expect, trust leaders report very different experiences depending on how COVID-19 demand is actually affecting their trust. London has been the first region to experience the surge in demand. But the pressure is now nearly on an equal level in the West Midlands, with increasing activity in the North West, parts of the East of England and the South East. It's very difficult at this point to understand the reasons for this different pattern of demand, though population density seems likely to be a key determinant, with the virus spreading out from urban centres.

It's also striking that there appears to be significant variation in what's actually happening. To give an example, one trust chief executive was trying to understand why their intensive care unit (ICU) had managed so far, admittedly on a small sized cohort of patients, to successfully discharge all their patients who had been on mechanical ventilators with no deaths. The neighbouring trust, 20 miles down the road, with a much larger cohort, had a mortality rate of around 40% of their mechanically ventilated patients.

All this is a preamble to saying that the experience of how COVID-19 is impacting on trusts, that is shared here, can only be educated guesswork based on individual trust leader feedback.

## How does the reality compared to the expected modelling?

One way to look at how COVID-19 is impacting on trusts is to look at the reality of what appears to be happening against the modelling, referred to above, of what was expected to happen.

Most of the public dialogue around COVID-19 hospital patients has been framed as a single, large, undifferentiated group of patients. But to understand what's going on, it's probably better to think about different groups of patients and look at what is happening to these groups. There are a number of different ways of doing this grouping but the one that has resonated most is a three-part grouping, remembering that all of these patients are seriously ill and need hospitalisation.

One group are those who need basic breathing support to assist with their recovery. A second group are those who need full mechanical ventilation in critical care. The third group is made up predominantly of the frail elderly with multiple, serious, long-term conditions. For this group, the impact of COVID-19 is so severe that they are starting to suffer or are suffering from multiple organ failure. Ventilation support makes little to no difference to their long-term prognosis. For this group, the requirement is high-quality palliative care.

What we're hearing from hospital chief executives who are dealing with large numbers of COVID-19 patients at this point is the following, in relation to these three groups.

First, that the overall number of hospitalised COVID-19 patients is about as expected. Second, the number of patients requiring high-end mechanical ventilation capacity is actually lower than originally estimated. This is good news given the potential pressure on ventilation capacity. However, many trusts report that a large number of these patients, who are not necessarily frail and elderly, and who may not have long term conditions, can quite quickly develop multiple organ failure, often requiring significant renal support. Third, the overall mortality rate is also lower than originally estimated. This is also, of course, good news. Fourth, those who recover need a longer length of stay in hospital than originally estimated, as do those who need palliative care. Fifth, the clinical picture in a lot of patients is unlike that described in other countries. For example, trusts tell us they are increasingly concerned that, in this country, there seems to be a greater rate of prevalence of COVID-19 in its most serious, life threatening, form among black and ethnic minority patients, with several trusts now conducting more detailed analysis to try to understand whether and why this might be the case.

The emerging hypothesis, therefore, is that there are likely to be three capacity constraints. The first is the well known one of ventilated critical care beds. The second one is general and acute (G&A) beds for those who can recover without mechanical ventilation, or after having had it, and those needing palliative care. The third is dialysis machine capacity to provide renal support.

A typical "my last few weeks" story from a London hospital trust chief executive, focusing on the match between demand and capacity therefore runs something like this – lots of extra capacity created, a period of quiet, then a sudden influx of patients. Some initial nervousness that the hospital's critical care capacity is going to be quickly and fully used up, a lot of activity at pace to make sure this initial surge is appropriately cared for, given that the number of patients requiring critical care and ventilation support is unprecedented.

But then the increase in demand for critical-care capacity does not increase in the exponential way originally predicted. Critical-care capacity gets expanded chunk-by-chunk. At this point (i.e. right now) still some more critical care capacity to deploy as it's not filled as fast as first thought, compared to the initial surge, and the modelling. The rapid initial activity surge turns into a very hard and pressured, but more regular and stable, pattern of activity. But looking mid to long term, a realisation that greater extra G&A bed capacity will be needed given the longer length of stay and lower mortality rate.

It's important to remember that this pressure is not just hospital based. Community services providers are looking after the significant number of extra patients recently discharged from hospital, many with more complex needs than community service staff ordinarily experience. Mental health providers are providing new 24/7 emergency mental health services and intermediate care wards where those who are recovering can be cared for, freeing up vital hospital beds. And ambulance services are having to rise to completely new challenges like how to convey patients to and from the new Nightingale hospitals and fit these into their existing real time demand management systems.

## The importance of the NHS regional structure

Although the NHS has not, so far, had to trigger the full entirety of its regional surge capacity plans, the existence of these plans and the extra spare capacity has been hugely reassuring. It is also important to remember that modelling suggests the first peak of demand is still probably a number of days away.

As the NHS has moved from preparing for the extra COVID-19 related demand to dealing with it, NHS England and Improvement regional teams have become more important, ensuring that an accurate picture of each trust's capacity can be shared with all leadership teams in their region and adjustments made accordingly. It helps, for example, that because of the way demand surges are managed in winter, hospitals and ambulance services are already used to working closely with each other to monitor hospital capacity in real time and divert patients accordingly.

London trust chief executives talk of the reassurance provided by the daily London regional gold command phone calls. These are led by a London regional director who, just a year ago, was one of the country's leading hospital chief executives and therefore knows exactly what it is needed to lead a busy trust effectively. These calls enable every trust chief executive to highlight potential problems, seek mutual aid and escalate more complex problems for regional level support. Trust leaders describe them as a very far cry from the distressing stories they've heard of hospital leaders in Northern Italy who seemed to be trapped as isolated and overwhelmed individual islands without support from colleagues.

The power and importance of the NHS regional structure is well illustrated in the role it is playing in prioritising the support the NHS is receiving from the armed forces. Given the range of tasks the army can help with, and how many trusts could benefit from their support, it is vital that their resource and effort is targeted to best effect. All requests are therefore channelled through a single armed forces regional liaison officer sitting alongside each NHS regional team and prioritised accordingly. The result has been a much-needed immediate increase in capacity, right across the country, in key areas such as logistics planning, construction and transport.

## The problem of current staff absence rates

One of the biggest problem trust leaders tell us they have faced in dealing with this initial spike of coronavirus related demand has been the level of staff absence. Trusts are trying to deal with the biggest increase in demand for critical care they have ever experienced, with large levels of staff absence – a particularly difficult challenge to surmount.

The absences are due to four different factors. First, 'normal' staff absences. Second, staff members who actually have coronavirus. Third, staff members who have to self isolate for 14 days because they have a suspected household member with COVID or COVID-like systems. And, fourth, members of vulnerable groups having to self-isolate long term (two examples include four pregnant intensive care nurses from a single ICU in one trust and two 70-something year old ICU consultants in another trust).

Helpfully, some of this is being offset by staff being willing to delay planned leave, though this is only a short term, temporary, solution.

The NHS started this crisis with nearly 100,000 vacancies (around 8.1% of the workforce) and a workforce that had already been working flat out over winter with no 'traditional' summer lull. Trust leaders are saying that current levels of absence, on top of this, are problematic. That's why they have been so keen to ramp up staff testing (more below) as every member of staff returning to work is hugely valuable.

The ease of coping with these absences varies by type of trust and service. For example, a hospital might be able to flex its staff/patient ratios or rely on a different grade of staff to cover a gap on a general ward (e.g. a healthcare assistant temporarily covering a nurse). But if an ambulance trust has too many paramedics away from work, it has no choice but to take precious ambulances off the road. Community services depend significantly on 1:1 or 2:1 staff-to-patient care, so losing staff in these services can also have a particularly significant impact.

Trust leaders universally praise staff's response to these problems and highlight several aspects of that response. The willingness of staff to move rapidly to new areas of work in which they have little or no experience, with less than perfect induction or training before being expected to pitch straight in to their new work. Their readiness to adopt new and demanding shift patterns at very short notice, stay beyond the end of shifts and work extra shifts. Their willingness to take on new roles – for example, with no visitors allowed, qualified staff members being asked to act as the daily contact point with next of kin for daily patient updates and arranging video calls with family members. The fact that staff are prepared to work in new, expanded teams with very different patient/staff ratios to normal and much less expert supervision than would normally be expected. These all, of course, considerably add to the difficulty of the work staff are having to do.

## What's it like for frontline staff?

This narrative so far does little to capture the relentless reality of frontline staff's current experience. There have been a lot of well written, thoughtful pieces of frontline testimony. Two that caught the eye, written by experienced clinicians, are here and here. If you prefer moving images, the BBC's six-minute video report from a London critical care unit is equally compelling.

They all capture five features of the current experience of frontline clinical staff that are particularly echoed by trust leaders with selected paragraphs, from the two articles highlighted above to illustrate each point.

The dedication, commitment and professionalism of frontline clinical staff, and those who support them, to continue doing the best possible job they can, come what may: "*Being in and out of hot, restrictive face-covering protective gear and on constant vigilance for infection control is tiring. But the way in which the whole of acute care has within weeks reorganised*

*work-streams, ward areas and job roles, doubled up on rotas to provide more continuous cover, cut through usual rules, myths and rituals to ensure patients keep flowing through the hospital, increased capacity in intensive care and even stepped up to the challenge of creating field hospitals in exhibition centres has been a marvel – much of it fuelled by gallows humour and team spirit".*

The speed of difficult decision making that is required. *"We are used to people dying in hospital, because it's often a place where people die. But normally we are reflective in our practice, we give time, and time is a great instrument for us in health care. But in the hospital today we are making rapid decisions about life and death – decisions about ventilation, about escalation care and when to make the decision about end of-life-care".*

The frustration and sense of inadequacy at being unable to provide the quality of care staff would like to provide or are used to providing. *"We also risk what some researchers have termed "moral distress" at having to provide a standard of care, staffing or expert supervision that is less than we would want or be trained for because of unparalleled demand and staff absences. This includes not being able to see patients' families face-to-face on wards, coping with staffing gaps and rushed care, sending people home sooner than we normally might and with an imperfect home situation as it beats being exposed to infection in hospital".*

The impact that the current relentless intensity and pressure is having on staff. *"She [a ward sister] has also noticed the emotional strain that staff are under – people crying in a corner, or admitting that they cry when they get home and have to hide it from their children. She has raised the idea of designating a room as a "wobble room" where hospital staff can go for a moment if they are feeling emotionally wobbly. I think there is a mass insomnia among the staff, because our normal routine has suddenly been totally disrupted. I've taken to waking up through the night thinking about it myself".*

The sense of personal jeopardy that staff can feel. *"In 31 years as an NHS doctor I have never been scared of immediate personal risk from my job. But fear is now a constant companion for many of us, fear of becoming infected – perhaps fatally – with recent first-hand experience of how sick people can become and how many clinicians in other countries have been hospitalised by infection, fear of infecting our patients, families or colleagues".*

Trust leaders know that their most important task is to support their staff as best they can in these very difficult circumstances. The response is changing over time, as needs change. In the early days it was free car parking, working with supermarkets to enable easy access to shopping and providing accommodation for those who wanted to stay close to their place of work especially if they were having to separate from household members with COVID-19 or possible COVID-19 symptoms.

Now it's a combination of short-term needs – providing hot food on site and trying to ensure that everyone gets an adequate rest every so often – with starting to think about the mid- to long-term support that will be required. Trust leaders are clear that there will be considerable need for psychological and mental health support.

There is a big concern here. It seems increasingly likely that the NHS will successfully navigate this first initial peak. But it feels like the NHS may be moving, in a phrase of the moment, to a 'flat sombrero' where demand on the NHS is spread over a much long period of time than initially expected. But this will still require NHS staff to work at a very high level of intensity and pressure. If that is the case, the NHS is going to have to think very carefully and deeply about how it can support its staff over that period.

The NHS has good experience of supporting relatively contained groups of frontline staff through major, short duration, crises like the Manchester Arena bomb and Grenfell Tower. Even though these incidents are geographically concentrated and most patients had returned home within weeks, the level of support for the staff involved has been complex and long lasting.

Supporting the number of staff affected by this crisis, over a much longer period, feels to be of an exponentially greater magnitude. Will this, in the mid- to long-term, prove to be the NHS' biggest challenge?

What has moved trust leaders and frontline staff is the help provided from those outside the NHS to support staff. Free hot food, hotel rooms, shopping, transport, clothes, flowers – the list of items provided, and the number of people providing them, is endless. As is the appreciation back from those in the NHS in receipt of such striking generosity.

## What's been important?

If, as seems increasingly likely, NHS capacity will be sufficient to navigate the current peak, what will have been the key success factors? An initial guess would centre on four things:

- the extensive planning and preparation the NHS has done since January 30
- the amount of extra capacity the NHS has created in that time
- the impact of social distancing in slowing and spreading the demand
- the outstanding response from frontline staff to the intense demands placed upon them.

But it's not all been perfect. There have been well publicised challenges in a range of areas. Has the NHS been as effective as it should have been in addressing these?

# Pinch points and problems and dealing with them

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Trust leaders knew in advance that, with this scale of challenge arriving at such short notice, pinch points and problems would emerge. So it's proved. PPE, testing capacity, ventilator capacity and oxygen system delivery capacity have all, in their different ways, presented NHS leaders with difficult challenges.

Before considering each of these areas individually, it's important to understand how trust leaders have approached them in general. For understandable reasons the media discourse, particularly on PPE and testing capacity, has been to highlight the scale, nature and reasons for the problems and then seek to identify those responsible. Trust leaders share the sense of frustration around these issues – they highlighted PPE and staff testing as early concerns. But their task is to work with national leaders to solve these problems. For them, the debate on what could have been done better or differently is for later, not now.

The current list of gaps, problems and failures is, also, incomplete. More problems will emerge as trusts' experience of dealing with COVID-19 patients plays out, with oxygen system supply capacity (see below) being a good example. With something so unprecedented arriving so rapidly, trusts will only be able to identify some problems when they've actually encountered them.

Those operating with the benefit of hindsight will argue that each of the pinch points could have been identified from the experience of other countries. But that ignores the fact that the healthcare challenges presented by this pandemic are so numerous, extreme, and varied that it has been impossible to identify, in advance, which of the many potential pressure points should have been top of the list of priorities in the preparation phase. It also ignores the fact that the NHS only had ten weeks, at most, to prepare. Section one sets out how those weeks were used. But, inevitably, the NHS has not been able to prepare for everything that has subsequently proved to be important.

Many of the challenges trusts have faced have also been due to complex technical and operational details that aren't particularly interesting to those seeking to point a simplistic finger of blame. Supply chain logistics, the availability of testing kits, swabs and reagents and the capacity of hospital vacuum insulated evaporator (VIE) oxygen systems are key to understanding why some important things haven't happened in exactly the way the NHS would have wanted.

## Personal protection equipment (PPE) – distribution to trusts

The trust leadership perspective on PPE is simple. Nothing could be more important than ensuring their staff have the personal protection equipment they need, particularly given staff concerns about their own personal safety. Trust directors also have a legal obligation to ensure their staff have the right equipment. They are deeply concerned when the right equipment isn't available when needed. There have been two main problems – distribution and frontline staff confidence in the PPE guidance. A narrative on each follows.

In looking at the PPE distribution problems, it's important to distinguish between two different parts of England's health and care system as they have different requirements that

bring different logistical challenges. The trust sector, that NHS Providers represents, consists of a relatively small number of organisations (217) with a requirement for high volumes of equipment. The primary care (GPs), social care (nursing and care homes) and voluntary organisation (e.g. hospices) sector is much broader. It's over 50,000 organisations and they need smaller amounts of equipment than trusts. Demand for the higher level of protection equipment is also much greater amongst trusts.

Looking at trusts first, then the wider health and care sector.

A bit of background to start with. Over the last decade NHS procurement (buying supplies and equipment) and supply chain management (transporting and delivering those supplies and equipment) has been rationalised and centralised. It's what every large-sized organisation – be they a supermarket chain, a local authority or the military – has done. Demand for protective equipment in a pandemic is a well-known risk, so the UK has also always held a significant back up, reserve, stock of equipment ready for distribution.

The supply chain the NHS created over the last few years has served the NHS well, based on just in time delivery of a wide range of goods and supplies against a stable, predictable, pattern of demand. The challenge of coronavirus is that when the pandemic hit, demand from trusts for PPE escalated exponentially with demand for some items increasing 5000% overnight. Every trust wanted huge amounts of PPE at very short notice. There was sufficient stock in the national reserve but delivering so much of it, so quickly, so widely, presented a massive logistical challenge.

The response from national NHS leaders that NHS Providers observed was rapid recognition of the problem, quick mobilisation of help from the army and the UK logistics industry, and effective co-ordination with the existing supply chain and national strategic reserve. One of the most experienced hospital trust chief executives was asked to act as the link between the national NHS team working to solve the problem and local trust leaders.

The first step taken by national leaders was to do an emergency flip from the usual trust 'pull' ordering system to proactive 'push' deliveries – just getting stock from the national reserve out to trusts as quickly as possible, knowing they would need significant numbers of all PPE items. For trusts, after an understandable time lag, this approach has largely, but not completely, solved the immediate problem. Community, mental health and ambulance trust leaders also felt that it took too long for national leaders to recognise their needs and that a 'prioritise hospitals alone' mentality took time to shift.

This emergency approach has recently given way to an entirely new, trust specific, PPE-dedicated distribution chain to meet the much higher-distribution volumes required. This has been created from scratch within a fortnight.

There have been unhelpful, but understandable, complications. For example, it was impossible in this 'push delivery' approach to carefully allocate the 'usual' or a consistent

single brand of FFP3 mask to each trust. Given that each brand of mask needs to be fit tested for each wearer and a fit test can take as long as 60 minutes, that has required a lot of time consuming mask fit testing at the frontline.

There have also been shortages of certain items for trusts. For example, for a period of time, there was a shortage of mask fit testing liquid. This has been eased by the Army's Porton Down chemists assisting with production.

The national PPE strategic stock reserve did not carry large amounts of visors and the highest protection level clinical gowns. So a burgeoning 3D visor printing industry has sprung up overnight and trusts have shared approaches on the best way to ensure maximum reuse of existing visors.

The shortage of clinical gowns over the past week has been more difficult to address as, to protect staff, the gowns have to meet a high technical specification. The constraints around securing gowns are a good example of the problems national NHS leaders are currently grappling with.

China is the only immediate high-volume source of clinical gowns. Specialised fluid-repellent treatment is needed, very high-volume manufacturing capacity is required and other smaller-source manufacturing countries are placing export bans on gowns. There is massive global competition for gowns, all concentrated on China. National NHS leaders started buying stocks many weeks ago but the delivery has been erratic despite daily freight flights. The Chinese have apparently been delaying consignments to conduct local testing before releasing stocks. There have been instances of stock being mislabelled with gowns seemingly arriving only to find, on opening, that the boxes contained masks. Once actual stocks have arrived, they have to meet stringent safety tests with no guarantee that these will be passed. National leaders, working closely with the Foreign Office and the Department for International Trade, have worked hard to overcome these constraints. But the reality is that, for some trusts, stocks of gowns have started to run critically low over the last week.

National and NHS trust leaders have been working extremely hard to address these shortages. The remaining national reserve stock of gowns was carefully allocated to those most in need via a series of emergency deliveries over successive days. For some, this was literally just in time. Public Health England has now approved the use of coveralls in place of gowns and a consignment of 200,000 has now been released for use. Trusts have also been helping neighbouring providers to ensure gown stock is shared wherever possible with this mutual aid a key benefit of being in a National Health Service.

But these have been last-minute actions to prevent gown stock from running out, and the stock position for a number of trusts still remains precarious at time of writing. Trust leaders believe it is vital to include them early in helping to find solutions to problems like these. For example, if there is going to be a shortage of a particular item, then far better to know about it well in advance. There is always a risk to sharing potentially difficult information more widely, especially if it reaches the public domain and can be weaponised to attack. But fully enlisting the skill, commitment and ingenuity of trusts to solve PPE challenges is key.

## Personal protection equipment (PPE) – distribution to wider health and care sector

The problems of the wider health and social care sector have been more difficult to solve. Lots of these organisations were not customers of NHS Supply Chain and ordered their PPE from individual commercial suppliers who have no stock due to global shortages. So national leaders tell us they've adopted a similar 'emergency response first, sustainable longer-term solution follows' approach for these organisations. The emergency response has been two fold. Push drops to larger providers like GP surgeries with pre-packed mini packs of aprons, gloves, surgical masks from the national strategic reserve. And an emergency telephone ordering line directly connected to the national strategic reserve, though this has been swamped with enquiries. We understand that a longer-term, sustainable, e-commerce "register, order online, get delivery" system will be launched shortly.

There have been major and widespread problems with PPE availability, particularly in the wider health and care sector beyond trusts, that any post coronavirus public inquiry will need to examine. Questions that will need answering will include whether the UK reserve was carrying the right levels of the right stock items, whether responsibility for PPE was clear, and whether the risks around emergency distribution once a pandemic arrived were fully assessed and mitigated.

The public debate about PPE distribution has also seemed to get stuck in an unhelpful, seemingly irreconcilable rut. On the one hand, the government has been quoting ever-growing figures of how many millions of pieces of PPE being delivered to the frontline. On the other, frontline staff and their representatives have been pointing, with increasing frustration, to multiple instances of PPE not being available when required. The reality is that both have always been right. There is a huge NHS effort to supply PPE to the frontline, but gaps remain. There is a strong argument that it would have helped if those gaps had been publicly acknowledged and the reasons for them more clearly set out. It would also have helped if the work the NHS is doing to fill the gaps, overcoming major constraints along the way, was better understood.

## PPE guidance

The second PPE issue has been the national PPE guidance – the rules on what type of PPE to wear when. Frontline staff confidence in this guidance has been dented for a number of reasons. They didn't think the guidance was adapting quickly enough to increasingly widespread prevalence of COVID-19 and they therefore felt they were being asked to wear either no or inadequate protection when dealing with suspected COVID-19 patients. The guidance was changed a month ago, in early March, with what staff felt was inadequate explanation. The previous guidance felt very technical and didn't cover a range of important healthcare settings. And there was insufficient clarity on how the guidance related to World Health Organisation (WHO) guidelines with a strong sense that it was somehow inferior.

On 2 April, new guidance was published. These addressed frontline staff concerns in three helpful ways. The guidance was updated to reflect the latest understanding of COVID-19. The underlying assumption now is that, given its widespread prevalence, frontline staff should act as though every patient has coronavirus and that basic level protection equipment (apron, gloves, surgical mask and eye protection if danger of splashing) should accordingly be worn. The guidance was also clear, with appropriate supporting scientific evidence, on exactly when the higher level of protection (full gown, gloves, FFP3 mask and visors/alternatives) needed to be worn. Staff could therefore be confident in the basic level of protection for all other care.

The new guidance was presented in a clear and helpful way that covered the full range of healthcare settings where PPE is needed. It also contained a clear statement that the guidance was endorsed by the WHO and indeed, in some areas, was more stringent (e.g. use of FFP3 masks as opposed to the lower standard FFP2). In particular, WHO endorsed the long-held UK position on staff being bare below the elbow as acceptable.

Trusts report that, following the guidance change announced on 2 April, frontline staff now have confidence in the new guidance. Though there is frustration in how long it took change the guidance and that confidence could have been maintained through earlier, clearer communications. In the end, however, PPE will only subside as an issue when everyone who requires it can get the equipment they need, when they need it.

## Sustainability of PPE supply

There is a third PPE issue which has had very little discussion – the sustainability of supply. Is the NHS using its PPE at a rate that can be sustained in the long term? Particularly since every nation in the world is currently seeking to purchase stocks of PPE and supply is constrained.

Assessing total PPE risk over the lifetime of a pandemic's duration, the greatest risk probably occurs if a healthcare system runs out of stock of key items, particularly the highest level of protection equipment, at a certain point. The risk is often a short- to medium-term one, as there may be a gap between the stock in a national pandemic reserve being used up before the arrival of stock that's been ordered once the pandemic spread has started.

It's striking that the PPE debate in other countries has focused more on the importance of strict stock control to ensure sustainability of supply. In the UK because of the focus on the initial distribution problems and clinical confidence in the guidance, this debate has barely got going. Without knowing current and likely future stock levels, it's difficult to know how big the risk is, and therefore how important this debate should be.

National leaders argue that there is, and will be, sufficient stock. But trust leaders would like as much transparency around estimated stock levels as possible. If there is a risk that certain stock items will run short, as has happened with gowns, it's important that everyone knows that and does all they can to preserve stocks. If that risk doesn't exist, then every good reason to be public and clear about the reasons for that confidence.

## Testing

There have been similar frustrations around testing capacity from a trust leader perspective. Trusts leaders flagged very early on that they wanted to test significant numbers of staff. When the social distancing rules were announced on 16 March, those in a household who had someone with suspected or possible COVID-19 symptoms had to self isolate for 14 days. These rules meant a significant number of staff then had to leave work, despite strong anecdotal evidence that the relevant household member didn't actually have COVID-19.

Trust leaders suspected, and were subsequently proved right, that significant numbers of these staff (and the linked suspected household member) would test negative, allowing a return to work, as staff were keen to do. Trust leaders also wanted to test staff who were still working, but thought they might have COVID-19, to enable them to remain at work but also because staff understandably wanted to protect their own families.

However, testing capacity has been limited, with national leaders initially arguing that this limited capacity could only be used to test patients. Reasons for this focus on patient testing included the importance of identifying which patients actually had COVID-19, to separate them from non-COVID-19 patients, and to ensure they had the right quality of timely care. Second, to maintain patient flow in a hospital – when test results were taking up to five days to return in some places early in the pandemic, hospitals were having to keep patients on wards until the test results come back. The longer the delay on patient testing, the more congested the hospital became. And third, the patient testing data was key to identifying the national and regional spread of the virus which, in turn, was driving key decisions such as whether to speed and tighten up social distancing measures and where to allocate extra ventilator capacity.

Trusts were therefore formally instructed to use all capacity for patient testing until 29 March when they were allowed to use 15% of that capacity to test staff. This 15% cap was lifted on 1 April. Since then, after a time lag, staff testing capacity has grown and trust leaders tell us that they are now broadly able to get staff tested when required.

The post coronavirus public inquiry will need to identify why UK testing capacity was so constrained and why it took so long to grow that capacity, given the importance of staff testing and mass public testing for long term control of the virus. Indeed, it remains unclear at this point, whether the stated target of 100,000 tests by the end of April will be reached.

For trust leaders there were four issues. First, unlike some other nations, the UK did not have a single national testing regime with clear responsibility for policy, capacity levels and pandemic mobilisation in a single set of hands. It was only with the announcement of a clear testing plan and the appointment of a national testing co-ordinator on April 2 that, for NHS leaders, there was clarity on who was ultimately responsible for what.

Second, actual testing capacity is split across a number of different organisations. These included NHS trusts and their pathology laboratories, Public Health England laboratories, the newly commissioned private sector Lighthouse Laboratories, and the wider group of

smaller private laboratories now coming on stream. Prior to the beginning of April, there was no clarity on how all these different sources of testing capacity fitted together, what the purpose of each would be, and how quickly their capacity was meant to be growing. The involvement of the private sector added complexity as it brought the involvement of the government's Office of Life Sciences, the Cabinet Office and the Department for Business, Energy and Industrial Strategy (BEIS) on to an already crowded pitch. Trust leaders argue that it remains unclear to them exactly what contribution each of these sets of laboratories is meant to be making to delivery of the 100,000 target, for what purpose, when.

Third, trust leaders actually running pathology laboratories reported significant shortages of the swabs, plastic testing kits and chemical reagents needed to complete the tests. These shortages were exacerbated by the fact that there are a number of different testing equipment manufacturers with the consumable swabs, reagents and plastic kits often tied to the particular testing platform. NHS trust laboratories have the machine capacity, by themselves, to process around 100,000 tests a day. But shortages of swabs, reagents and plastic kits meant that in late March/early April they were only able to complete less than 10% of that number of tests. The tied consumables also meant that, frustratingly, in the early days when the virus was concentrated in London and a few other hotspots, some NHS testing capacity was going unused. These constraints are now easing but still remain in some places.

Fourth, trust leaders felt that there was a gap between top level government statements about testing and the underlying reality and detail. Statements were, for example, made at various points early in the pandemic about how much testing capacity was available, how quickly it would grow and when antibody ('have you had it') tests would arrive. For leaders working on the ground, trying to manage staff expectations and pressure from staff representative groups, these impressions of 'all being well', and the lack of detail on when they would actually be able to start and grow staff testing, made a difficult situation worse.

Again, community, mental health and ambulance leaders felt that they were significantly disadvantaged in this process. They had often not been full members of the regional pathology networks that manage most NHS trust laboratories and when those laboratories started increasing staff testing capacity, tests were concentrated on acute hospital staff. It is striking that London Ambulance Service, who were hit particularly hard by their levels of staff absence, were one of the first trust to enter the staff testing regime as their need was considered greatest given the constraints they were facing.

## Ventilators

Experience from other countries who were earlier in the cycle of dealing with coronavirus highlighted the importance of ventilator capacity, as oxygen support to assist breathing is the only proven treatment option for those most affected by the virus.

The NHS, as part of its preparations, conducted a complete inventory of available ventilation capacity and was able to identify around 8,000 ventilators, including private sector and armed forces capacity. Spare ventilators were allocated to a national reserve with a seven-

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day-a-week national team making decisions on how to allocate this reserve. This preparation work has made a significant difference. Trust leaders report that, as they have expanded their critical care capacity and needed more ventilators, their requests for equipment from this national reserve have, up to now, consistently been met.

Alongside this, there has been a government-led process to secure new ventilators from a range of commercial partners and from other countries. The public debate around this process hasn't always been particularly helpful. For example, the early focus on the need to reach a set figure of 30,000 ventilators before the virus was simplistic as it ignored a number of factors.

It ignored time – the fact that supply will grow over time. It ignored delivery and manufacturing timescale – ordering something is not the same as it being in use on the ground. For example, some trusts expecting ventilators from abroad have had export blocked by the host country government. Manufacturing a ventilator from scratch, getting regulatory approval (even if expedited), testing it and getting it into service are all bound to take some time and it's very difficult to predict in advance how long this will take.

Aiming for a single figure, at a single point in time, also ignores demand pattern. While ventilators are mobile, adequacy of supply will depend on actual demand. If every region is experiencing a peak of demand at the same time, it will be difficult to have adequate supply. If demand is spread across different regions at different times and ventilators can be moved to match that pattern, it will be much easier to meet required demand.

As a result of the focus on the single 30,000 figure, the public debate on ventilators seemed to veer between "we're miles short of 30,000, let's panic" and "we've just ordered 10,000 new ventilators from x, it'll be fine". Neither was particularly helpful.

There is another reason why it is difficult to answer the question of "have there been and will there be enough ventilators", as clinical thresholds for use of life-saving equipment will, inevitably, partially be influenced by the availability of that equipment. If there is a ventilator available and it might offer a very small chance of recovery, a clinician might decide to use that ventilator on the small probability that it could make a difference to the eventual patient outcome. If there are insufficient ventilators, that option is not available. In the current environment, there is clearly not enough capacity to give everyone who could have the slightest possible chance of benefitting, access to a ventilator. But does that mean "there aren't enough ventilators"? Many would argue this is the wrong conclusion to draw.

In the minds of trust leaders, they can never have enough ventilators to deal with the impact of this virus, recognising that having sufficient staff with the right skills to operate a complex piece of machinery is a limiting factor. But what we can say is that, overall, at this point, trust leaders argue that ventilator capacity does not seem to be the constraint they initially feared it might be.

There have been hiccups. As with testing, the division of responsibility has not always been clear with the Cabinet Office, BEIS and Department of Health and Social Care all involved

in the procurement of new capacity, alongside NHS England trying to ensure that the NHS had the right equipment it needed at the right time. Some of the early new ventilators have not had the levels of functionality that trusts hoped they would have. Some have required serious amounts of "bodging", in the words of one trust chief executive, to make them compatible with NHS systems.

There has also been frustration from external suppliers, as in testing and PPE manufacture and supply, that offers of help have not been properly or speedily taken up. As outlined above, NHS leaders are incredibly grateful for the support that has been offered and this is making a real difference in a range of different ways. Clearly, any post coronavirus public inquiry will need to examine how the NHS has handled the offers that haven't been taken up in the way those making the offer would have liked. But it is important to understand the constraints from the NHS side of the fence.

The sheer number and range of offers of support has been difficult to cope with. The capacity needed to log and process these offers is significant and is potentially employed on securing the items required from existing suppliers. Is it, for example, worth redirecting a procurement expert from contacting existing known, at scale, global suppliers of PPE to analysing a relatively small offer of support from a UK fashion producer that may be able to help, but it's not really clear whether they can or can't from the initial offer? Identifying which offers are valid and realistic, and which aren't, is not always easy. And, as in any situation where demand massively outstrips supply, there will always be unscrupulous people seeking to make a profit at others' expense so careful analysis of offers of support is vital.

Those offering help may not always be aware that there are exacting and complex technical specifications that must be met if the support offered is to be used safely – ventilators and PPE equipment being good examples. And once it arrives, the support offered must actually work to the required standards – there have been well publicised examples of testing kits and PPE items failing to work as required.

Some of this can be addressed. For example, the NHS has now published a detailed technical specification of the ventilation capacity it requires. And NHS leaders will do all they can to process all offers of help as quickly as possible but this is another clear, current, pinch point.

## Oxygen system delivery capacity

There has been much focus on ventilators. But ventilators can't work without adequate oxygen supply. Hospital oxygen is usually supplied via a central vacuum insulated evaporator (VIE) system. This involves a large tank storing oxygen at very low temperatures with the oxygen then distributed from the tank across a hospital site using piping and ducting to connect to operating theatres, beds in wards and, importantly for coronavirus, ventilator machines.

The amount of ventilator support needed to treat COVID-19 patients means that hospitals need to use unprecedented amounts of oxygen. The NHS, in fact, prepared well for most of

the oxygen supply issues it was likely to face, identifying which extra beds could be used for oxygen support and ensuring appropriate supply of oxygen and logistics support to transport it.

However, once hospitals started connecting ventilators to their VIEs in numbers they had never done before, it rapidly became clear that the key pinch point was not oxygen supply, ventilator capacity, or piping and ducting but VIE capacity. In particular, if hospitals try to draw more oxygen from their tanks than the maximum flow for which they were designed this can compromising supply to patients and/or cause permanent damage to the system. Indeed, two safety warning notices have been issued following VIE incidents of this type in late March and early April.

Hospitals have reacted accordingly. They have established new, more regular and precise, oxygen-flow monitoring processes. They have been working at pace with a range of specialist suppliers to expand their VIE system capacity as rapidly as possible. Where trusts have encountered capacity problems, they have triggered the well practiced mutual aid processes outlined above, to transfer patients to near neighbours.

The problem of oxygen system supply capacity is perhaps the best illustration of the process trust leaders are now continually cycling round. Do all you can to prepare well. Encounter a problem you hadn't expected and prepared for. Assess its importance and prioritise accordingly. Mobilise rapidly. Call on specialist outside support, as needed, which is always very willing to help. Create a 'make do and mend' temporary solution while longer-term, sustainable solutions are developed. Deploy longer-term solution. Move on to next problem.

## Other NHS care

What else is on trust leaders' worry list? The two main things are the impact of coronavirus on other care – the 'normal business' the NHS undertakes day in, day out – and the current quality of care being provided in some settings.

There have been previous times when the NHS has had to focus on a particular, immediate, pressing, capacity threatening, problem – for example winter flu. The evidence from these episodes shows that it's vital to keep a close eye on the overall level of patient harm. In the face of an overwhelming, widespread, pandemic like coronavirus, it would be easy for the NHS to over-prioritise combatting coronavirus at the expense of the treatment of other critical conditions like cancer.

This is a difficult juggling act. Compared to many other equivalent first world health systems, the NHS has much less spare capacity, regularly running at 90-95% bed capacity when other systems, like Germany's, run at 80%. This means that if the NHS is to create capacity to treat pandemic victims, it has to discharge medically fit patients and divert planned care. As outlined in section one, that has enabled the NHS to create an extra 33,000 extra beds to treat coronavirus patients.

But trust leaders are deeply aware that there could be risk of harm involved in every patient discharged early and each episode of planned care diverted. Trusts have tried to carefully identify and mitigate the risk each time but in such a fast moving environment, that will have been impossible to get right in each individual case.

This issue will, of course, be even more pronounced if it turns out that the NHS has created more critical care capacity than it ended up needing. It will, however, be important to remember that at the point when the expansion of critical-care capacity began, the NHS was looking at an unprepared Northern Italian health system in meltdown with a massive capacity shortage. The strategy, quite rightly, was to avoid repetition of this position. That is what has been done.

There is another related issue here, impacted by the behaviour of patients and other healthcare professionals. There can be a tendency for people to worry that trusts are so overloaded that they don't want to 'bother' a trust, that their problem must be less severe than those of the other patients the trust is dealing with or that the trust might be a dangerous place to come to.

While chief executives are, in one sense, pleased to see the volumes of patients attending A&E departments decline dramatically, they are also worried. One trust chief executive pointed to a 60% drop in A&E attendance volumes which worried hm more than a 30% drop as he felt sure this meant that there would be some patients who should be attending A&E who currently weren't. He commented, with a wry note, that for the first time in 20 years he had been publicly urging people who need to attend A&E to do so, rather than trying to dissuade them because of winter overload! This is a message that national NHS leaders have strongly echoed.

The same chief executive was concerned to see GP referrals for two-week target turnaround cancer diagnostics drop from 500 a week to 105. If coronavirus is with us for a long time, continuation of trends like these will be a real concern. And for trust leaders a particular worry because, unlike planned care, they can't control when or whether these patients actually ask for treatment.

## Quality of care

Trust leaders are also deeply aware that, by necessity, the quality of care being provided to some patients will sometimes be short of the standard of care their trusts would ordinarily provide and would ideally like to provide. It's 'by necessity' because of the unprecedented levels of extra demand trusts are experiencing and the level of staff absences they are currently having to cope with.

Trust leaders are clear that, as ever, frontline staff are providing the best possible care they can in the circumstances. But, as the frontline testimony above highlighted, gaps are inevitably opening up with care for both coronavirus and non-coronavirus patients.

The contrast, for example, between a 'normal' quality of critical care and current levels of critical care can, inevitably, be quite stark. 'Normal' critical care usually involves an experienced team, with the full mix of skills and experience, practiced at working with each other, with a staff-patient ratio of 1:1. The team will operate in a dedicated, purpose built, area with access to all the equipment required and time to consider important decisions like when to move to palliative care.

But, for a hospital currently working at full pelt with a large influx of COVID-19 patients, it will now usually be a makeshift larger team, with a number of people with little experience of critical care, with obvious skills and experience gaps, working on staff-patient ratios of up to 1:4. Many staff will be working in areas not dedicated or purpose built for critical care, like operating theatres or surgical recovery areas, and there may be shortages of equipment. The team will have little time to make an endless stream of important decisions.

Trust leaders rightly argue that the 'current' standard of critical care being provided is exemplary for the circumstances. They highlight the resourcefulness of staff in finding ways to improve that care wherever they can, for example providing electronic ways for relatives to comfort and say goodbye to patients at the end of their life. But, given the circumstances, this is very different to the 'normal' standard of critical care

So while trusts have prepared well and are dealing effectively with the current explosion of coronavirus related demand, these achievements have to be balanced with the fact that clear problems have emerged and there are obvious risks of patient harm.

But what lessons can be learnt for both the immediate future of how the NHS deals with coronavirus and the long term future of the service more generally?

# What next –
# the next few months?

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## What do trusts need now?

Taking all of the above into account, what do trusts need right now as the NHS approaches and surmounts the coming initial peak of coronavirus related demand?

They need a consistent supply of PPE to ensure that their staff have the equipment they require when they need it. They would also like greater visibility of future stock levels and delivery timelines so they can manage any supply risk. They need staff testing increased as quickly as possible with a clearer 'best estimate' trajectory of how and when this will happen in practice. They also want to understand what role the different types of testing laboratory, including the NHS laboratories they are responsible for, will play. They need as many extra ventilators as possible as quickly as possible, with greater visibility of when they will arrive.

Trusts would like more clarity on how and when the new extra surge capacity Nightingale hospitals will be used. They also want to ensure that this 'urban' model of surge capacity is appropriately reinforced by appropriate surge capacity availability in more isolated rural locations. There is a strong link between scale of challenge for a hospital trust and its geographic location, with many of the most challenged trusts being in more isolated rural locations. It is the hospitals in these areas that may be the least resilient but also the furthest away from surge capacity like the Nightingale hospitals in urban areas.

Trusts want more help and best practice sharing on the best way to use the extra capacity that the private sector can bring. There are a number of different models for using this capacity in the current context and trusts would like to better understand the benefits and disadvantages of these different approaches. They also want to be assured that they and their staff will be backed if they make sensible, difficult, prioritisation decisions in the heat of the moment that others might seek to challenge later with the benefit of hindsight.

## Looking just beyond the initial peak

Overall, the NHS has understandably focused on navigating this initial peak. As the service reaches the crest of the peak over the next fortnight, trust leaders will also want support in thinking through what the next phase will look like – how the service can get to 'the end of this crisis' in the best possible way.

Much of this will depend on the strategy adopted to exit the current period of social distancing and how coronavirus related demand is spread going forward. Trust leaders hope that the government will take full account of the NHS' needs as it formulates this exit strategy and ongoing approach. Obvious factors to consider include the need, if at all possible, to avoid a spike of coronavirus demand coinciding with the 'traditional' NHS winter January to March peak and how to get the best match between demand shape and maintaining the resilience of staff.

There will also be new pressures for the NHS to manage that will require rapid decisions and reconfiguration to meet these new demands.

How to manage the balance between coronavirus related demand, which may persist for some time, and 'ordinary' healthcare demand in a way that maximises overall patient benefit and minimises the risk of patient harm identified above. How to meet the likely significant increase in demand for mental health services given the economic impact of coronavirus, the need to come to terms with loss of life and the social and psychological impact of a prolonged period of social distancing and lockdown. How to meet the pent up demand from those who are not currently accessing NHS services but who will need to do so in future, particularly if these problems have become more acute in the meantime. How to ensure that community services can cope with the needs of the higher, more complex need, patients hospitals have had to discharge, including identifying who should be readmitted if capacity becomes available.

How to provide ongoing healthcare services to a highly vulnerable group that is likely to have complex healthcare need but will require shielding from the risk of COVID-19 for an extended period. How to support a mass testing regime that can test millions of citizens and mobilise at the highest possible speed should those tests identify a further outbreak of coronavirus. Longer term, the potential need for a mass vaccination programme against coronavirus. These are all requirements that the NHS has not had to meet before but will now need to meet.

And what of the longer term future?

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# What next – the future?

This briefing deliberately ends on a note of optimism. Trust leaders are clear that the NHS has already achieved, and is achieving, extraordinary things that they want to preserve going forward. There is a strong sense of "we should never go back".

The NHS will need a proper, considered, debate on which temporary changes it should adopt permanently but a starter for ten might include the following five:

- **Digital transformation**
  The NHS has managed to move significant amounts of health care provision – GP appointments, outpatient appointments, basic consultations – online at record pace. This has shown what can be done when digital transformation is prioritised and appropriate funding is made available.

- **Integration of health and care**
  The rapid discharge of tens of thousands of medically fit patients from hospital into social and community services shows how quickly care can be integrated when organisational and budgetary silos are ignored or bypassed.

- **Tearing up red tape**
  The NHS has been able to adapt and shift shape at incredible speed by either rewriting or bypassing the myriad of regulations that have ossified existing structures and ways of doing things. Healthcare provision carries lots of risk so some level of regulation will always be necessary. But it's amazing how much has been achieved how quickly with a significantly lighter, and more flexible, approach to regulation.

Underpinning the above are two more generic changes that trust leaders want to preserve.

- **Pace of change through local empowerment**.
  The NHS has shown that, when galvanised behind a single, clear, vital, imperative, it can change at a pace that would previously have been inconceivable. Trust leaders have been empowered to change what their trust does at the drop of a hat – they've been given a clear objective and told to do whatever they thought was best. That's then cascaded down throughout the rest of the trust – frontline teams have been able to change how they work to best meet what they know needs to be done.

- **Mobilising partnerships**
  The outpouring of support for the NHS has been extraordinary. By mobilising the support of a wide range of partners from specialist suppliers and the army to volunteers and colleagues in other public services, the NHS has been able to achieve things it could never have done by itself. We know that the NHS can often seem an inward looking, difficult to partner, behemoth. The service needs to maintain the highly productive set of relationships it has forged over the last two months.

The experience of coronavirus will also bring us back to four important debates.

## The NHS long term plan

The NHS has been working to a new strategic plan, launched in January 2019. That set out some important commitments to improve care in areas like mental health, cancer treatment, learning disability, cardiovascular disease and children and younger people's health. These will make a significant contribution to improving the long-term health of the nation. However, dealing with coronavirus will, at best, delay the delivery of these improvements. At worst, it could make achievement of them impossible for the short- to medium-term. The NHS will need to re-assess what can be delivered when.

## NHS structure

The government has already indicated that it intends to legislate on NHS structure. Timing will be important here, as it will make sense to learn the lessons of coronavirus before drafting legislation. It's been very noticeable that, as the NHS has come under significant and sustained pressure, it has been the 217 trusts, alongside GPs and social care providers, who have needed to step forward to deliver what's been required. The NHS will need to consider how that fits with the future role of clinical commissioning groups (CCGs) and the new emerging sustainability and transformation partnerships (STPs) and integrated care systems (ICSs). Many of the problems around testing, ventilators and the PPE supply chain have been exacerbated by dispersed and unclear accountability between a number of different health arms length bodies and different parts of government. We will need to think how the lessons learnt from this experience should be applied.

## Workforce

Many in the health and care sector have been arguing for some time that the current workforce models in both the NHS and social care are unsustainable. Both sectors have been carrying significant long running vacancy rates, have become highly dependent on increasingly scarce overseas staff and have been trying to close an underlying demand/capacity gap by just working existing staff harder. The strains put on both sectors by coronavirus will highlight and exacerbate these problems. Both sectors will need to consider how to move, as rapidly as possible, to more sustainable underlying models including ensuring support and reward packages reflect the critical role of key workers and provide the right size of workforce required. This will involve significant and far reaching change.

## Capacity and funding

Coronavirus will also, inevitably, prompt a debate on what size and capacity of health and care service we want and need as a nation. The NHS is one of the most efficient and best health services in the world. But we have been running both the NHS and social care, 'in the red zone', some way over sustainable capacity, for some time. The long running social care funding crisis and failure to find a long term funding solution are rightly described as a national scandal. While the decision of the government led by Theresa May to increase funding for the NHS was welcome, the rate of increase is lower than the long run NHS average and barely keeps up with growing demand. It does not enable the NHS to

recover the impact of the longest and deepest financial squeeze in its history or fund the transformation it needs. The government's clear statement that the NHS will have what it needs financially to deal with the current challenge was very welcome. But if better funded health services with greater underlying capacity, like Germany, are able to weather coronavirus much better than the UK, then there will be understandable debate about what level of health and social care funding and how much capacity our health and care system really need.

For the moment, though, we should all celebrate the incredible dedication and professionalism of frontline NHS staff who, once again, have risen to an unprecedented challenge when it was most needed.

**Your feedback
is very welcome.
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For more information:
**www.nhsproviders.org/confronting-coronavirus-in-the-nhs**

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