

LONG READS AND LIFE

1843 magazine

CORONAVIRUS

The NHS in peril: how Britain fought the first covid-19 wave

For three months, 1843 followed doctors, nurses and paramedics in London as they fought the most devastating pandemic for a century. This is what they told us

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BY SIMON
AKAM



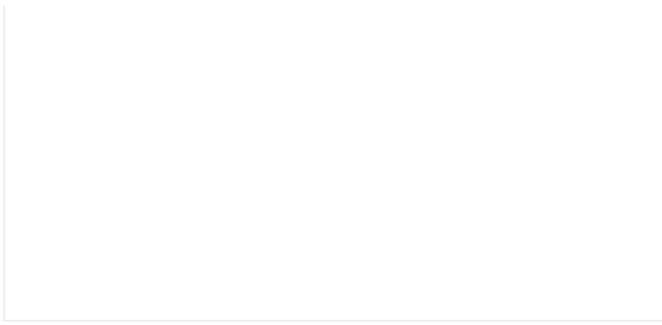
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On the evening of Friday March 6th, Nicola Rudkin, a senior nurse at the Royal London Hospital in the East End of London, met two colleagues in her cramped office. A whiteboard, still covered with scribbled plans for making operating theatres more efficient, seemed like a relic from another time. The virus was now their most pressing concern. Rudkin had spent the first week of March “frenzied”. Staff were fitted for masks and had practised the laborious process of donning and doffing protective gowns, gloves and goggles. Plans were drawn up in case public transport was shut down or schools were closed.

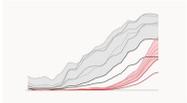
Rudkin had wanted to be a nurse since childhood. She’d been born with a dislocated hip and spent months in hospital. She prides herself on being meticulously organised, and struggled to adapt to the fluidity and uncertainty of the new situation. “You really couldn’t have a plan or whatever plan you had, it changed,” she recalled. “It was like quicksand...It tested me in every aspect of my being.”

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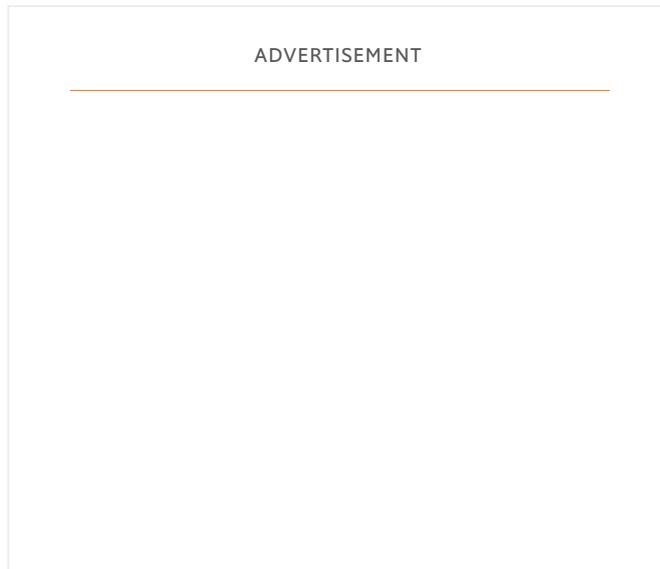
Each day brought further news of intensive-care units in Italy being overwhelmed by incoming patients suffering from covid-19. The message from their continental counterparts was ominous: get ready. The flood was surely coming, but they could not predict how big or how devastating it would be. As far as they knew, no one in the hospital had covid-19. But that evening, as the three colleagues reflected on the week’s achievements, Rudkin had an intuition. “I’m pretty sure we’ve got a positive patient in this building and we just don’t know it yet,” she said.

The following Monday, elsewhere in London, Rik Thomas, a consultant in the intensive-care department at University College Hospital (UCH), was on a call with his colleague Steve Harris. They were trying to solve an arithmetical conundrum. Using data from Italy the two men were

attempting to predict the growth of covid-19 cases in Britain. Thomas emphasises how crude their work was – not so much a model as a spreadsheet, he said. “It’s a spreadsheet that’s doing some really, really simple maths.” At that point there were 321 identified cases of covid-19 in Britain. UCH had encountered five of these cases, which was about 1.6% of the total, and the two consultants assumed they would continue to treat the same proportion of infections.

They also assumed that the number of infected people would increase by 20% every day.

Understanding of the new disease was still patchy. Scientists knew that the novel coronavirus attacked the lungs, that people often experienced difficulty breathing and that the worst-affected patients needed ventilation. But most medics thought that treating covid-19 was akin to treating other respiratory illnesses.



Thomas and Harris mapped out three scenarios. In the most optimistic one, a fifth of all cases would require hospitalisation and 3% would need intensive care. In the worst-case scenario, half would be hospitalised, and one in ten would need intensive care. On the spreadsheet that Thomas drew up for UCH, the tally of cases rose slowly at first, from five to six to seven to nine, then 11, then 13. But in ten days there would be 32 cases, and in 20 days 197 of them. "What people are very poor at understanding is what an exponential function is. We're all very bored of looking at graphs that go like this," Thomas said, tracing his finger upwards in

an ever-steepening curve. “What’s useful is to give people an idea of numbers.”

The first version of the spreadsheet ran up to March 30th, by which point they expected, under the worst-case scenario, to have 95 admissions and 24 patients in intensive care from covid-19 alone. Even under the best-case scenario, they would have seven patients in intensive care at this point, but within another ten days that figure would rise to 44.

What is striking is how few people ordinarily end up in intensive care. In normal circumstances UCH, the biggest hospital in a trust that sees more than a million patients a year, has just 33 intensive-care beds. As the hospital was preparing for the onslaught of coronavirus cases, 30 of them were occupied (Britain had fewer intensive-care beds per head than most other wealthy countries). Even if Britain were somehow to experience a milder epidemic than any other country – and there was no reason to expect that it would – the hospital was going to breach its intensive-care capacity. Though the unit could use anaesthetic machines as ventilators, they lacked trained staff, appropriately equipped bed spaces and, potentially, oxygen. “It doesn’t really matter which model you use,” Thomas summarised. “You go bust at some point.”

Over the next week Thomas presented his findings to staff in the intensive-care and anaesthetics departments; he wrote a paper for the chief executive; he sent a flurry of WhatsApp messages. The reception was mixed. A number of “flat Earthers” thought his anxiety was overblown. The Chinese didn’t know what

they were doing, they argued. Italy was badly hit because of its ageing population. Some physicians resented demands to redeploy junior members of staff to intensive care. Others were reluctant to stop elective surgery and the rest of the hospital's routine business.



“I felt panicked, slightly in tears at some points. I just thought to myself, ‘shit, this is going to be even worse’”



Care necessities A covid-19 patient on a ventilator at the Royal London Hospital (top). Rupert Pearse, a professor of intensive-care medicine, leads a ward round at the Royal London (above)

“People use the term now ‘to do stuff at covid pace,’” Thomas says. A number of weeks later requests would be carried out almost instantaneously, but in those early days, Thomas says understatedly, there were “a couple of people who didn’t seem to get the idea”.

Thomas’s campaign gained momentum as more senior doctors came on board. Yet even when preparations began in earnest,

he didn’t feel relief. One Saturday morning in mid-March he watched a webinar featuring an intensive-care physician from northern Italy who said that the virus had “destroyed” his department. “I felt panicked, slightly in tears at some points,” Thomas said. “I was just thinking to myself, ‘fuck’. I’d already been round telling everyone how bad this was going to be. I just thought to myself, ‘shit, this is going to be even worse’.”

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In his mind he saw bodies piling up outside hospitals. He felt that he, alone, appreciated fully the horror of what was coming. Even though it was a weekend, Thomas sent a message to the intensive-care department’s leadership group on WhatsApp. “I still do not think we are adequately prepared,” he said. “We have seven days to get this right. I propose having a meeting in the hospital from

20.00 this evening.” Thomas didn’t think people would come out on a Saturday night with only a few hours’ notice. But come they did.

They talked brass tacks: where to set up new ICU beds, workflows, rotas, communications procedures. The room felt nervy, but there was also an excitement. “You’re about to make your specialty the most important specialty in the world,” Thomas thought at the time. “And you’re going to be treating a disease which is entirely new, and no one knows anything about. It’s every doctor’s dream.”

A similar sense of urgency gripped the rest of London’s health-care network. The London Ambulance Service, which usually has 300-350 vehicles ready to go, raided the ranks of firefighters who’d done the four-week course to drive under a blue light, and pushed another 160 trucks into operation.

By the beginning of April, the National Health Service (NHS) had added 2,500 intensive-care beds to its initial tally of 4,000. Staff were drafted in from different specialties. Wards were given a makeshift makeover for their new use. At the Royal London, incident tape donated by the police was used to demarcate covid-contaminated zones from covid-free ones. Doctors were deluged with official and informal advice about treating the disease and protecting themselves. One intensive-care consultant counted 174 such emails in a single day.

At the Hammersmith Hospital in west London, Luke Howard, a consultant respiratory physician, talked to an Italian

colleague who explained the effectiveness of treating some cases of covid using a form of non-invasive ventilation known as continuous positive airway pressure (CPAP). This supplies the patient with oxygen-enriched air at high pressure through a tight-fitting mask, rather than inserting a tube down their windpipe and attaching it to a ventilator. (“It has been described like sticking your head out of a car at 70mph,” Howard said.)

The hospital didn’t have its own CPAP unit, so Howard built one himself. He annexed part of the cardiology department. Workmen were brought in to install extraction fans (more often used to remove asbestos) in order to create the negative-pressure spaces that would prevent the virus spilling into the building. “I’m absolutely astonished by how quickly these guys can move and how far they have moved,” Howard said. He spent £8,000 on his own credit card to buy respirator-style hoods for staff (eventually he was reimbursed).

After years of penny-pinching, when every purchase had to go through an interminable approval process, the money fountain was turned on. At UCH someone wrote a cheque for £500,000 for an order of ventilators, no questions asked. “Put it on covid,” became the cry around the nation.

One of the most dramatic examples of the new liberality occurred at the Royal London. The building had been completed in 2012, but the trust had run out of money: the 14th and 15th floors were still bare, concrete shells. Now the NHS signed off on £24m to fit them out. There was no

access for cranes, so bulky items such as wall panels were brought up in the lifts. Objects that were too large even for the lifts were delivered via a human chain stretching up 15 flights of stairs. The new wards were wide and without partitions – so-called “Nightingale style” – in order that experienced staff could supervise those drafted in from other disciplines and wouldn’t need to change their personal protective equipment (PPE) so frequently.



“I’m pretty sure we’ve got a positive patient in this building and we just don’t know it yet”



World turned upside down A patient is “proned” – turned onto their front to improve the flow of oxygen – at the Royal London Hospital (top). Staff use alphabet boards to communicate with patients who are unable

boards to communicate with patients who are unable to talk (above)

There were niggly problems to solve along the way. One Friday night, Rudkin found herself standing on a chair removing children's mobiles from the ceiling in what had previously been a paediatric ward. A contractor failed to install the right plugs for ovens to cook patients' meals, assuming that all intensive-care patients were fed by tubes. When Rudkin had encountered this problem before it had taken weeks of endless pleading to fix. Now the correct plugs were retrofitted in half an hour.

It turned out that Rudkin was right in her hunch that Friday evening in early March: the Royal London already had a covid-19 patient. Three days earlier a middle-aged man had been admitted to the accident-and-emergency department (A&E) with breathing difficulties. At this stage of the crisis, only people who had visited places where the virus was prevalent, such as China or northern Italy, were considered at risk. Luke Gillin, the nurse who treated him, discounted the possibility of coronavirus. "This man hadn't left the country for 18 years," he said. Gillin examined him wearing only an apron and gloves. He didn't use a mask.

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A chest x-ray showed pneumonia in the

lower lobes of the patient's lungs (pneumonia is simply the medical term for any inflammation of the lungs visible on an x-ray.) In time, pneumonia cases would immediately be tested for covid-19 but back then the staff had no grounds for thinking that he had the virus.

The man deteriorated and was moved to ICU the next day. He was soon put on a ventilator. The doctors inserted a tube down his windpipe while he was under general anaesthetic; since his oxygen supply would be interrupted during the procedure, they first blasted oxygen through a mask at a high flow-rate to buy them time. It quickly became clear to the medics that they were treating something more serious than conventional pneumonia. The patient was swabbed for covid-19 and the samples were sent off-site for analysis.

Three days later the results came. On Saturday March 7th Gillin was watching a film with his girlfriend when the hospital phoned him to tell him that he'd treated someone who had tested positive for covid without wearing protective equipment. He was told to isolate himself. Gillin struggled to remember which of the many patients who'd passed through A&E this could have been. His girlfriend felt frightened and confused.

Rudkin learned the news the following day. "Oh shit," she thought. She headed straight for the hospital, "for moral support more than anything". The covid patient was in a negative-pressure room. PPE was readied. Contact tracing had begun. Everything was being done by the manual, but the nerviness was palpable. The fact that their

first covid patient had acquired the disease without travelling abroad meant that coronavirus was already circulating in the local community.

The number of covid patients soon began to rise. It became clear that people of black and Asian ethnicity were disproportionately affected. The median age of a white covid patient on admission was 73; it fell to 59 for Asian patients. Many of them suffered from other health problems – heart or lung disease, or compromised immune systems. But some were young and had no obvious health problems.

Nick Bunker, an intensive-care consultant at the Royal London, was on duty early in the outbreak when a 19-year-old was admitted with complications from covid. He was placed in a bay with five other people. Normally each ward is host to patients with a range of complaints. In a pandemic, when everyone is suffering from the same disease, you gaze at your neighbour and imagine your own fate. Six patients were crammed into a space designed for four and the curtains couldn't be drawn; the young man looked on as two patients died and one more was placed on a ventilator. He "was very close to being intubated on a couple of occasions", Bunker remembers. "And he looked absolutely shit-scared." Bunker struggled to find words of reassurance. "What am I going to say? That's not going to be you? Well, I can't say that, because it might well be you."

He also came to another realisation. Doctors take lives into their hands – that's part of the job description. In ordinary times these lives are their patients' not

times those lives are their patients, not their own. Covid-19 was different. Colleagues were already falling ill. “This was the first time where it was very clear that, as clinicians, we were going to be in the firing line,” Bunker said. “We had skin in the game now.”

When Elaine Thorpe, a senior intensive-care nurse at UCH, returned to work on Friday April 10th after a couple of days off, she found a scene that would haunt her for weeks. Two days earlier London had reached what turned out to be the “peak”: 220 people died from covid-19 in the capital’s hospitals on a single day. In the past week, as admissions grew, a temporary intensive-care ward had been improvised in the recovery area near the hospital’s operating theatres (elective surgery had long been suspended).

The room Thorpe entered “was crammed, busy, staff were all tripping over each other”. There was no natural light, walls were painted a sickly yellow and there was a continuous din: the insistent beeping of dialysis machines, the ringing alarms of struggling ventilators, bins clanging shut and people straining to make themselves heard. Thorpe felt like she had spent an hour in there but, when she checked a clock, she found that three hours had elapsed.

One image particularly distressed her: the dozen or so patients who had been “proned” – laid on their stomach to aid the flow of oxygen to the back of the lungs. “It’s the fact that they were completely faceless,” she told me. “You know, it didn’t

feel human...Every patient was exactly the same...It almost felt like – it’s not a factory, but it’s just so surreal.” For weeks afterwards that sight flashed across her mind, at work and at home back in Cambridgeshire.



“This was the first time where it was very clear that, as clinicians, we were going to be in the firing line. We had skin in the game now”



Before the door An improvised antechamber to the rapidly erected CPAP unit at Hammersmith Hospital (top). Dr Luke Howard, a respiratory consultant at Hammersmith Hospital (above)

The origins of intensive-care medicine lie in the treatment of polio, which was endemic in Western countries until the 1950s when a vaccine was introduced. From the late 1920s onwards, doctors used “iron lungs”: primitive ventilators that kept alive people whose own lungs had been paralysed. The machines encased the patient’s body and forced air in and out of the lungs by lowering and raising the surrounding air pressure.

In subsequent decades intensive care has developed to treat a wider variety of conditions. Doctors now have access to far more sophisticated equipment – ventilators, dialysis machines for failing kidneys and, in extreme cases, devices that take over from the heart and lungs to keep a patient oxygenated.

The department’s name says it all: these are the very sickest patients who need constant care, often mechanical and human. Ventilated patients are sedated, sometimes for weeks, to tolerate the tubes inserted into them. They are fed through a line that enters via the nose. They need to be moved regularly to prevent pressure sores. Catheters drain urine but stools are passed onto the sheets. ICU patients often can’t blink; nurses take great care to keep their eyes well-lubricated and free from grit.

Though all patients who reach intensive care are perilously ill, you need a basic level of robustness to withstand treatment

there. A frail 85-year-old is unlikely to survive the rigours of a ventilator. The art of intensive-care medicine involves deciding whom to admit and when further treatment is likely to prove futile

treatment is likely to prove futile.

Even those who leave intensive care alive may never make a full recovery. Both covid itself and weeks of mechanical ventilation can inflict fibrosis (scarring of the lungs), which may leave patients breathless for life. The psychological trauma is significant too. Doctors compare the experience of intensive care to torture. There's no day or night under artificial lights. Patients can't move but their minds rove deliriously under sedation. Afterwards many suffer hallucinations, terrifying flashbacks and delusions.

The pace of treatment in intensive care is completely different from A&E. In the latter, on busy shifts, nurses frantically rush to patch up the never-ending influx of the injured and sickly. Intensive-care staff, by contrast, have a reputation for being perfectionist sticklers. They have time to plan care rather than improvise it: they get agitated if a chart isn't colour-coded correctly, wires get tangled or a patient's hair looks dishevelled.

In normal times, the sickest patients in intensive care are allocated their own nurses. As the pandemic strained the system, the ratio rose. At the worst times it was one trained intensive-care nurse to five patients. Nurses who lacked specialised training were drafted in to provide support. The hushed atmosphere of intensive care grew clamorous and frenetic. During one shift Mary Fullwood, another nurse in the unit at UCH, was the only person on the roster trained to work the machines. Alarms sound every time drug syringes are nearly empty or vital signs reach dangerous levels: "It was just

literally going from one machine to another to one alarm to one infusion,” she said. “We’re used to looking after incredibly sick patients. But never that amount of patients...so acutely unwell at one time.”

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On intensive-care units the number of pressure sores – wounds to the skin that can occur when someone lies still for a prolonged period – act as a “nursing indicator”, said Thorpe. To prevent them, you need to turn patients often, so a low pressure-sore count means the standard of care is high. The UCH unit had previously taken great pride in reducing that figure.

But as the crisis flared, the team had the capacity to turn patients only every four hours, not every two. Within six weeks the unit had 31 pressure ulcers, more than they’d usually see in three years.

The unpredictable nature of the disease compounded the stress from patient numbers. Covid-19 did not behave like other respiratory diseases. A patient who looked like she was turning a corner might nosedive inexplicably. At a certain point, the lungs might exude a fibrous material with the consistency of cheese that gummed up the bronchial tree and, occasionally, the ventilator itself. Blood clots developed with alarming frequency. Covid-19, said Rik Thomas, “had the potential to involve almost every organ

potential to involve almost every organ system...Trying to work it out is like trying to decode a cipher by spotting patterns and then every time you think you've found something, having the rug pulled from under you by the patient in the next bed."

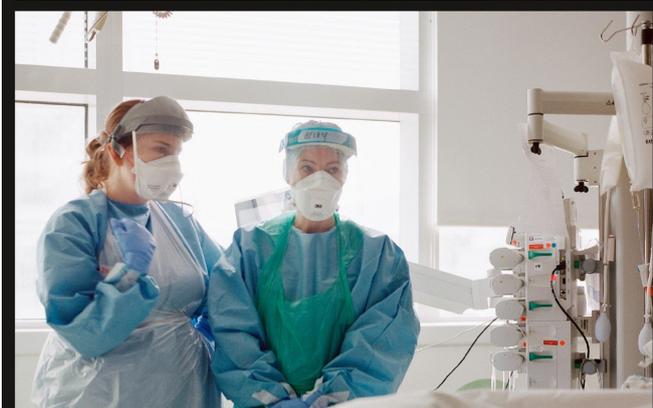
Doctors in intensive care have pastoral obligations as well as medical ones. They are practised at comforting the ill and holding difficult conversations with families, particularly as a patient approaches death. Restrictions on visitors, introduced to contain the virus, made this far harder. UCH allowed visits only if patients were about to go onto a ventilator or nearing death. The Royal London banned visits entirely, though later it allowed one relative to be present at the end of life, on condition that they wore PPE and self-isolated afterwards. This in effect meant that family members had to choose between visiting the dying and going to their funeral.

Alice Carter, an intensive-care consultant at UCH, remembers a young patient brought into ICU to be put on a ventilator. "It's difficult to hear what's going on with all the noisy machines," she said. "I was shouting at the poor man, but he was very, very unwell and couldn't really hear me. Normally, if somebody is very unwell, dying, you would sit, hold their hand, take time to explain what's going on." But PPE prevented that reassuring touch. Carter called the man's wife, so they could speak before he was sedated. In usual times the couple would have had the chance to talk in person. Instead, they rigged up "a speakerphone with a whole load of people watching and listening. There's nothing personal or private about that." Carter

wasn't sure whether the patient could hear anything at all. He was intubated, but died the next day.



“You’re about to make your specialty the most important specialty in the world. It’s every doctor’s dream”





Rest and recuperation Dr Alice Carter, an intensive-care consultant at University College Hospital (top).
Visors in the staff room, UCH (middle) A severely ill covid-19 patient in an intensive-care unit, UCH (above)

The conditions forced on intensive-care staff by the pandemic felt like a violation not just of standards, but of their values. Thorpe learned to identify the emotional state of her nurses through a glimpse of the only part of the face visible through layers of PPE: when anxious or stressed, their “eye muscles were intense, almost staring”.

One morning, Thorpe came across Maria Casado, a Spanish nurse, in a corridor. Seeing her eyes, Thorpe led her to an office. Casado confessed her “guilt”: “You always want to do more and you always want to be absolutely perfect.” The blur of proning patients, adjusting machines and administering drugs made that impossible. Casado said it was after her shifts that she struggled to cope: “Everything feels real again. You kind of have time to reflect on what’s happened inside there. You no longer have to keep that composure.”

Thorpe tried to comfort Casado and sought to lower her workload, but she had her own angst to contend with. On a dark night in March she arrived back at St Neot’s railway station to find that someone had keyed her car. “I’m travelling into London, I’m working on intensive care,” she recalls. “I’m putting myself at risk, and somebody could do this?”

could do this:

She found the short walk from UCH to King's Cross station eerily silent. Thorpe clutched her bag close to her. There had

been stories of nurses being attacked as they made their way to their digs, of people spitting at them or hurling racial abuse. The train back to Cambridgeshire – running at a reduced service – was largely empty. Thorpe would look out of the window as she glided through the inner city and leafy suburbs, out into the open fields. She often cried on the journey home.

The A&E department at the Royal London Hospital is among the busiest in the capital. As an inner-city hospital it regularly patches up victims of knife crimes and fights, as well as the usual fare of fractures and faintings. London's Air Ambulance service operates from its roof and heads farther afield to swoop up people injured in tractor accidents and motorcycle smashes.

A&E was the first point of call for suspected covid cases, so the unit had to reorganise itself as the pandemic descended. Karis Quaye, a senior nurse, was one of those overseeing the transformation. A 29-year-old from Bolton in north-west England, she missed out on studying medicine at university because she hadn't done well enough in her chemistry A-level. ("It took me a long time to come to terms with that.") Her father, a Ghanaian immigrant to Britain, had tried to dissuade her from following him into nursing. She ignored him and eventually came to love the job in

... .. "It took me a long time to come to terms with that."

its own right: “It just gives you a level of autonomy.”

Quaye is petite and wears a small Wonder Woman figure on her lanyard. She has worn a figurine – previous incumbents included Darth Vader and Batman – since working in paediatric A&E, where she used it to distract children while checking their pupils or heart rate. “Sometimes I think it reflects how I think of myself and my career,” she says, though she quickly corrects herself. “I don’t think I’m Wonder Woman.”

As coronavirus encroached, the most important change made in A&E units was to demarcate zones for patients with covid-19 and those without. Zone A, for the most acutely ill covid patients, was sealed off. Quaye often found herself looking through the windows at the frightened men and women there. She realised that, with her mask on, she looked like an alien. So she commissioned laminated A4 portraits that staff could pin to their PPE to humanise themselves (in hers she wore a purple wig).

Some covid-19 patients were brought in by ambulance but many were walk-ins. Quaye became accustomed to a new phenomenon known as “happy hypoxia”. Patients didn’t look unwell. They played on their smartphones even as the oxygen level in their blood dropped below 90%, an abnormally low reading. “You’re trying to explain to them the gravity of the situation,” said Quaye. “But they’re sat there feeling not that unwell.” Some individuals were incredulous, even resistant at being told they needed to stay in hospital.

The contrast grew between the silent

streets outside the hospital and the activity within. A weekly ritual took hold across the country: every Thursday night people would stand outside their homes applauding the NHS. Hospitals were deluged with freebies from grateful and admiring citizens. The Royal London A&E service received Hungarian goulash and katsu curry (a junior doctor at UCH managed to wangle two white faux-leather sofa beds from made.com, an online retailer, for fatigued medics). On one occasion, a pair of Instagram influencers pitched up at the hospital and attempted to film themselves handing over their offerings. Quaye was sent out to intercept them.

“Can we take pictures?” they asked.

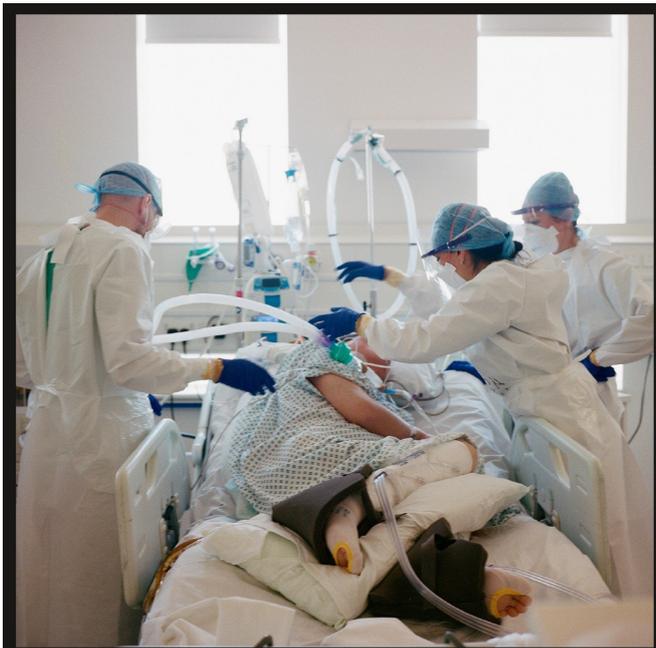
“No,” she said. “You really can’t.”

Not everyone appreciated the hospital’s work. Rumours flew round the local Bengali community that doctors were merely palliating covid patients, not treating them. As a result, some came to A&E later and more ill than they might otherwise have done; at this stage, medical care was less likely to be effective.

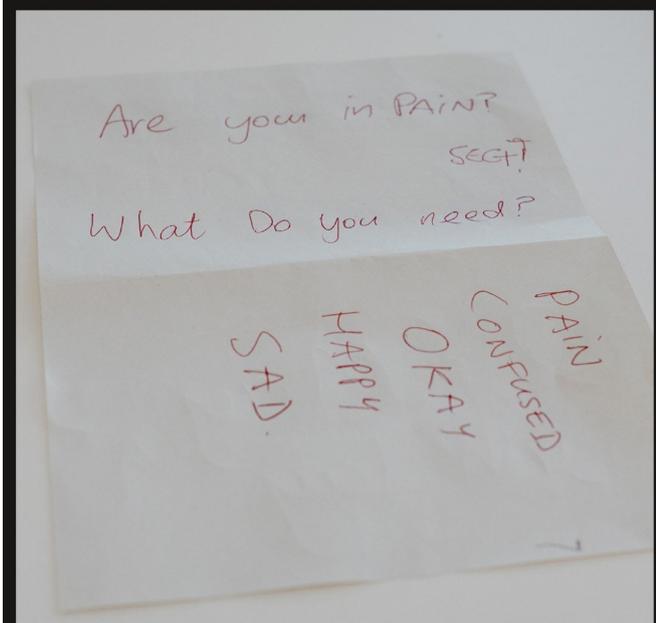
Other types of attendance at A&E plummeted after the British government introduced a lockdown on March 23rd. On a busy day in early spring Quaye and her colleagues might expect to see 140 patients – now that number dwindled to 40 or so, even including patients with coronavirus. People were staying home, so there were fewer car accidents; many regulars, the chronically sick or hypochondriac, were fearful of visiting.

The pandemic precipitated a different set

of unforeseen injuries. One patient, convinced that he'd be safe from covid-19 if he took refuge in a canal, had to be fished out by paramedics. A woman who'd weathered long-standing mental-health issues began to cut herself again as her support network shut down. There were injuries sustained while people, unable to call for external help, did DIY. On two successive days, patients came in after falling off their own roofs.



“You really couldn’t have a plan or whatever plan you had, it changed. It was like quicksand”



How are you feeling? A team of physiotherapists work to clear secretions in the lungs of a covid patient at the Royal London (top). A communication aid (above)

The second of these was a “Code Red”, an alert to prepare for a major haemorrhage case signalled by the ringing of an actual red telephone. These required swift, decisive communication and action. For the first time, the team had to deal with this sort of life-and-death case while wearing full protective equipment, which “made everything slower”, said Quaye. Behind their masks, they could barely hear each other.

A man in his 60s was wheeled in. He had a pelvic fracture: his pelvic cavity was full of blood, both lungs had collapsed and paramedics had made incisions in his chest in an attempt to re-inflate them. “We were struggling to stabilise him,” Quaye said. They got to work, rapidly giving him a blood transfusion and then sent him off for a scan to get a clearer idea of the damage. When the scan came back, they spotted a distinctive pattern on his lungs: speckling that had cropped up on imaging in Wuhan, then Lombardy and now across the world. It looked, said Quaye, like “a glass smashed on the floor”. The patient had come in with a broken pelvis and busted lungs. He also had covid-19.

Intensive care and A&E were on different floors and called for contrasting styles of nursing. But as staff fell sick and were forced to isolate for long periods, and as the expanded ICU’s need for personnel grew, borders between the two domains broke down. At 11pm on April 13th, a manager told Quaye that there were only

four covid intensive-care beds free. This was a carpaccio-thin margin. Quaye was asked to send four members of her A&E team to ICU but the nurses were reluctant. Earlier in the pandemic, one of them who had bad asthma had plaintively said to Quaye, “I don’t want to die. Do you think that we’re going to die?” They were scared and exhausted; some protested that they didn’t know how to work the machines in ICU.

Quaye had to persuade each nurse individually. One was fresh out of training, another worried about her mental state. “They took a lot of convincing but unfortunately, as nurses, you can’t refuse to treat any type of patient,” she said. “Otherwise it’s considered negligent.” She told them confidently that they’d have all the support they needed but, forced to mediate between the greater good and the genuine worries of her staff, she grew snappy. It took five hours to get four nurses up to the fourth floor.

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There was no respite. Quaye worked the night shift the following day too. In the early hours, she had to attend to a middle-aged woman who was desperately ill with covid. The required kit wasn’t in the right place and they couldn’t locate a specialist to ventilate the patient. Soon Quaye was drenched in sweat. A wave of tiredness swept over her and her head throbbed. She

struggled to do the basic arithmetic needed to titrate drugs. She thought she might throw up. “That’s the point that I knew that I needed to just step away,” she said. As she prepared to leave the covid zone, she tried to strip off her PPE. She couldn’t even manage that.

Someone helped her out, peeled off the layers, steadied her on her feet. Hopefully it was just a migraine, nothing worse. Eventually, at 5.40am, she felt well enough to drive across London to her home in Chelsea. The windows were down and two NHS-issue vomit bowls sat on the seat beside her.

At home her headaches continued and her breath became short. A test for covid-19 came back negative, but she was convinced that she’d caught it (she later tested positive for antibodies: up to 20% of covid-19 tests produce false negatives, though some staff members looked sceptically on colleagues who self-diagnosed). When a friend from work dropped off some butter at Quaye’s home, she found her breathless and sweaty after walking from the front door to the top of her stairs.

Within two weeks Quaye had recovered and returned to work. But others were falling ill. Her colleague Renz Belnas, a 30-year-old nurse from the Philippines with no underlying conditions, had worked at the Royal London for three years. In mid-April, after completing four night-shifts back-to-back, he came down with a fever. He bought a pulse oximeter, a finger-tip device that measures oxygen levels in the blood. After a few days, it recorded his saturation around 92%, a low reading. He started to vomit. Belnas ended up being

whizzed to the Royal London by ambulance; he ought to have been starting his next shift there.

It was frightening to see a friend metamorphosing into a patient. Quaye and her colleagues couldn't check up on him because his notes were governed by patient confidentiality. There was a debate about whether they could even visit him. Eventually the nurses prevailed and they managed to have a brief conversation with him in a covid ward. But the effect on morale in A&E was profound. Theoretically they'd all known that they were risking their own health. It was quite different when a severe case of covid struck so close to home.

Belnas's condition worsened. Wearing a CPAP mask made him feel like he was drowning; he begged to be intubated instead. While sedated, Belnas – an enthusiastic basketball fan – experienced strange reveries, finding himself playing with Kobe Bryant, then LeBron James, then Michael Jordan. In another dream, time sped up and he saw a photograph in which his family members aged and also people lying in hospital beds as their life support was turned off.

Eventually Belnas's condition became so critical that his heart and lung functions needed to be taken over, a treatment available in only five hospitals in Britain: Belnas was transferred to St Thomas', on the other side of the Thames. Belnas's wife knew the odds were bad. "I didn't want to entertain that thought, but it's always at the back of my head." Every morning she joined an online mass, broadcast from a church in Manila. In the afternoons she

counted rosary beads and prayed with her family over Facebook Messenger.



“They’re really scared that this is the last time they’re going to see their parent or their child”



Breathe out A CPAP mask (top). Two nurses gently turn a patient’s bed around so she can see the view as she regains consciousness (above)

After six days, Belnas began to improve. When he finally left intensive care for a normal ward, he was still delirious. “I was thinking that I was...like an extra in a movie. And that the nurses there were part of the crew” He tried to remove his

of the crew. He tried to remove his catheter and to pull out a feeding tube. His texted gibberish to his wife. Gradually he grew stronger and more aware.

Before the pandemic, Belnas had achieved a level of celebrity by posting videos on TikTok of him and his team dancing. Now he had himself filmed lying in bed in a gown, waggling his shoulders – that was all he could do – along to “Interior Crocodile Alligator”, a track by King Chip. Even after Belnas returned home, getting up to go to the toilet was enough to exhaust him. He planned to take six months off. But at least he was alive.

On a bright day in early April, Elizabeth Donoghue, a paramedic in her mid-30s, entered a run-down hotel near Earl’s Court in west London (1843 agreed to use a pseudonym because the Ambulance Service refused all requests to interview staff members). The hotel manager had called an ambulance after a guest failed to check out at 10.30am: “If

someone hasn’t come out when the door’s been knocked, there’s something not quite right,” Donoghue explained. Donoghue and her partner donned protective gear, suspecting that they might need to attempt resuscitation with chest compressions, one of the “aerosol-generating procedures” that can cause the virus to be expelled from the lungs.

In the room Donoghue found a Filipino woman who looked to be around 60. She was wearing only a T-shirt and the sheet was thrown back. Though the woman was clearly dead, the paramedics were required

to hook her up to a heart-monitoring machine to validate this. She had left no personal details when she checked in, so Donoghue searched the tiny room – there was just enough space for a single bed and chest of drawers – for identifying documentation. Her handbag was on the bed. It contained a prescription, an envelope full of money and a note that read: “We’re sorry you’re sick. When you get better, please do come back to us.”

“She was obviously a live-in something for a well-to-do family,” Donoghue said. “And as soon as she had got sick, they’d kicked her out.” The situation grew more distressing. They called for back-up to help take the body away. Around an hour later a car pulled up. It contained a firefighter and a policeman who’d been recruited to

bolster the ambulance service. Donoghue saw a pile of evidence bags in the boot and asked what they were for. She was told that, if covid-19 was suspected as a cause of death, new protocols required a plastic bag to be placed over the head of the corpse as a prophylactic against any accidental exhalations that might occur as it was man-handled out of the building.

Donoghue had always prided herself on treating the dead with respect. “I just find it incredibly undignified. I suddenly thought, would I want my parents or my brother or any of my loved ones to have that happen to them?” She couldn’t bear to watch the dead woman being treated as “just a lump of meat”.

In an average spring the London Ambulance Service receives around 5,000 calls a day. In March and April they got between 7,000 and 8,000 calls each day, a

volume that threatened to overwhelm the systems (paramedic students were conscripted as call handlers). In the early days of the pandemic, some 80% of Donoghue's callouts were covid-19 cases. Even then, it wasn't always obvious who had caught coronavirus.

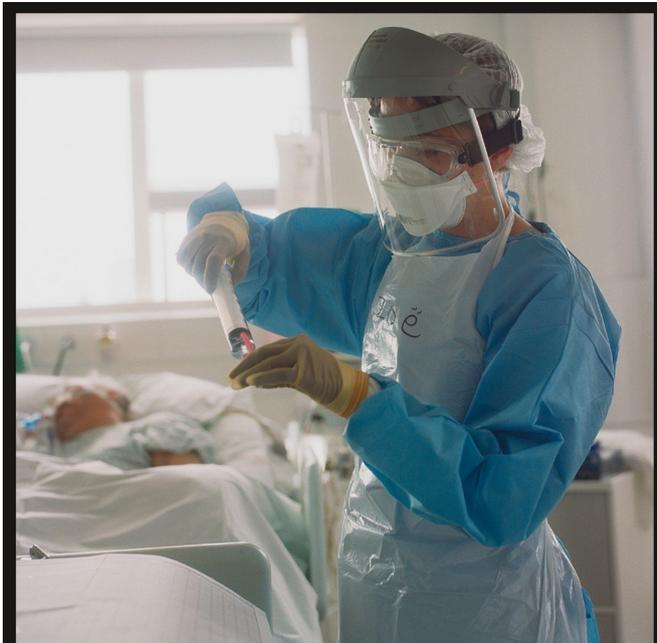
Late one night, Donoghue pulled up on a narrow driveway in west London. The ambulance had been called for a 75-year-old man who'd complained of back pain. Donoghue went into the house and found an elderly couple sitting under a picture of Mecca. Their three daughters surrounded them. Bowls of nuts and boxes of medicine stood on the table. The father had a smattering of English, his wife spoke only Farsi and the daughters translated. Once Donoghue examined the man, one of the daughters asked her, almost as an afterthought, to take a look at her mother.

"Why?" Donoghue asked.

"Well, she's also coughing," the daughter replied.

The elderly woman had a fever; Donoghue noted that her oxygen saturation was dangerously low. The old man was fine but it looked like his wife had covid-19 and needed to go to hospital. Ordinarily a relative would be allowed to ride along. This was now forbidden but the woman refused to leave without one of her daughters. "I find saying, no...quite difficult," Donoghue said. Going into hospital is always alarming, even more so in a time of covid. "They're really scared that this is the last time they're going to see their parent or their child." Eventually Donoghue managed to cajole the woman

into coming. As they left, Donoghue was proffered a Tupperware box full of chicken and rice. She dropped off the woman at Charing Cross Hospital and never found out what happened to her.



**“What am I going to say?
That’s not going to be you?
Well, I can’t say that,
because it may well be you”**



From top to bottom A nurse tends to a patient at the Royal London (top). Karis Quaye, an A&E nurse at the Royal London, in the area reserved for the most severely unwell covid patients (above)

Paramedics struggled to deal satisfactorily

with non-covid-19 cases too. They were forced to leave at home people who might otherwise be taken in for a check-up. Concentration on covid meant that other services were suffering: Donoghue saw cracks in the social-care infrastructure, which was designed to protect the most vulnerable.

In the middle of April Donoghue began to experience chest pains and shortness of breath. Two days later she drove to a covid-19 testing site located in Chessington World of Adventures, a theme park on London's outskirts. "It was a rubbish theme-park experience," she said. "You get locked in your car. Then someone stabs a stick up your nose." The test came back positive.

Donoghue thought she'd be back at work in a week and isolated in her flat in Holland Park. But she didn't get better. Her flatmate, a former nurse, listened to her chest with a stethoscope and heard crackles in her lungs, which can indicate infection. The gp prescribed antibiotics. One Saturday Donoghue felt "really short of breath, really unwell". She drove herself to Charing Cross Hospital and declared "I have covid." They x-rayed her chest and took her bloods, which showed nothing beyond mild inflammation. She drove home feeling "relieved and embarrassed". She'd seen the fear and paranoia of covid-19 in her day job. Now she had experienced it herself.

It didn't help that Donoghue's relationship was also disintegrating. "Not because of covid. I think it just hastened it," she said.

She and her partner, who lived in Cambridge, hadn't seen each other for six weeks. "It was very difficult to be

weeks. It was very difficult to be apart...and having such different lives. She was out in the garden all day, she was able to run and able to exercise and do all that kind of stuff. And I was sitting stuck.”

The National Health Service creaked and tottered under the strain of covid-19, but it did not collapse. A couple of smaller hospitals on the outskirts of London declared critical incidents: one experienced a surge of patients; another had problems with its oxygen supply. But though the big London teaching hospitals such as the Royal London and UCH ran hot, they never breached their newly expanded intensive-care capacity. The Royal London, which started the outbreak with 44 ICU beds, peaked on April 13th with 82 patients in the unit. UCH, which had begun with 33, reached a peak on April 18th with 70.

This rapid expansion was a triumph of organisation and improvisation. The clearing of the decks at the beginning of the crisis may have unwittingly seeded the pandemic in care homes, however. Rupert Pearse, an ICU consultant at the Royal London, told me that “people would have died in ambulances if we hadn’t done that...There wouldn’t have been space in the hospital. And those people would have been young people.”

The exponential growth predicted by Rik Thomas and his spreadsheet at the beginning of March suddenly stopped. The debate about why this happened will rumble on – but it seems likely that locking down the country successfully suppressed contagion. The precise lethality of the

disease remains uncertain. Four months on, it is still difficult to calculate the hospitalisation and death rates for covid, as the total number of cases can only be estimated. UCH found that 25% of admitted covid patients required CPAP or more intense respiratory support; 10% required ventilation. A study by the Barts Trust, the body that administers the Royal London and five other hospitals in London, revealed that 11% of white patients who were admitted had to be moved to intensive care, a figure that rose to 20% in the case of Asians.

Parts of the health-care system were readied for service but never used. The Nightingales, a series of pop-up hospitals erected across the country in a matter of weeks, took just a few patients. The CPAP unit that Luke Howard built at the Hammersmith Hospital only received five patients. “We got ready for...a super surge that never happened,” said Howard. In mid-May, workmen moved in to take the unit apart. Howard saw FOMO – fear of missing out – on the faces of some colleagues who wanted to get stuck into the great fight against covid-19. He felt a pang himself. “Would I have liked to have carried on? Well, that’s a slightly weird thing, because then I’m almost willing that there would have been more sick patients. So, I feel content that we stepped up.”

For many doctors in the thick of it, the crisis was the culmination of their career. “I fell back in love with medicine,” Pearse told me. He no longer wasted time stuck in meetings or wrangling over budgets. Like many consultants of his seniority, he felt “unchained and able to go and do what [we] trained to do”

Some nurses took a different view. Elaine Thorpe said those working under her now feel guilty for not having given patients enough attention. “One nurse can do lots for one patient, but can’t for four patients.” I asked another nurse if it had been exciting to treat a new disease, as some doctors had found it. “We, the nurses, didn’t perceive that,” she said simply.

Karis Quaye, the nurse at the Royal London, experienced a succession of emotions: anger, sadness, fear. In early June, after some restrictions had been lifted, she went to Manchester for the funeral of her 92-year-old grandmother, who had died from covid-19. “I was upset, as you can imagine, but also, I felt overwhelming anxiety.” She had spent so long taking precautions against the disease – donning her daily armour of gloves, gown and mask – that she flinched at some mourners’ more relaxed approach to social distancing. Only then, she said, did she realise that “actually, this has probably had a bigger effect on me than I thought.”

At the start of the outbreak Alice Carter, an ICU consultant at UCH, decided to send her two eldest children to stay with family members on the Isle of Skye in Scotland. As boltholes go, it was paradise – they were close to the sea, it was lambing time and her seven-year-old wanted to be a vet. But as the weeks went by and her daughters demanded “mummy cuddles” on their video chats, Carter was wracked by guilt and loss.

In mid-May she and her husband drove north to Gretna Green, a town on the Scottish border, where eloping couples

used to go to marry discreetly. The children had been driven south from Skye. The two cars drew up at either end of a service-station car park. Carter reacquired her children in a manoeuvre that resembled a drug deal. “I can’t describe how much I’d missed them,” she said.

Amid the individual losses and reunions, the challenges presented by covid-19 persist. Many London hospitals plan to make the doubling of their ICU capacity permanent. The Royal London is recruiting eight new intensive-care consultants, the largest ever single intake. Everyone worries about further waves of the disease.

Medical teams have learned a lot: the logistics of setting up new ICU units; the potential of drugs such as remdesivir and dexamethasone to treat the disease. On the other side of the equation, they have watched the extraordinarily high death toll of covid-19 patients on ventilators: by the end of June, half of those who had received “advanced respiratory support” had died (in ordinary times, around 30% of ventilated patients die). Doctors and nurses were also exhausted. If they knew when another surge was coming, said Carter, they could “mentally prepare for that”. But it was draining to be stuck in “limbo land”.

Covid-19 seems unlikely to disappear. The best that can be hoped for is that the disease becomes manageable, like flu, so doctors can treat it in an orderly fashion. But Carter knew the world had changed utterly. “We’ve not gone back to our business as usual,” she said. “I don’t know if we ever will.” ●

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