this week

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JANE BARLOW/PA/ALAMY

NHS mask mandates return as covid rises

Hospitals and GP practices across the country have reintroduced mask wearing for staff and patients

Hospitals and general practices around the country are once more insisting on mask wearing by staff and patients in response to high rates of covid.

Responsibility for infection control decisions beyond national guidance is now a "matter for local discretion," NHS England confirmed in updated advice in June that underlined the importance of local risk assessments.

Now, just weeks after the rules on wearing masks in healthcare settings were relaxed, many hospitals and practices have announced that they are reinstating them.

In Sussex all NHS organisations have reintroduced masks. An announcement from Sussex Integrated Care System said it acted after data showed a 33.3% rise in numbers of people testing positive in England.

The NHS England Midlands regional team also sent out a letter to all providers asking them to review their guidance with a view to moving back to universal mask wearing for all staff, including primary care settings, as well as encouraging it for patients and visitors. "It is apparent that we have entered the next covid-19 wave," the letter said. "Across the last seven days we have had a 97% increase in our nosocomial covid-19 cases in acute trust settings and a 25% increase in our mental health settings; this has also included a rise in the numbers of patients who have been admitted into critical care beds."

Other trusts that have announced a return to mandatory mask use in all areas include Oxford, Southampton, Sheffield, Cornwall, North Tees and Hartlepool, Gloucestershire, Nottingham, Lewisham and Greenwich, Nottinghamshire, and Lancashire.

Saffron Cordery, interim chief executive of NHS Providers, said, "We have consistently called for individual trusts to be able to make their own decisions on mask wearing and other measures to minimise the spread of covid, based on their particular circumstances. One size fits all was never the right approach."

Cordery added that, while some trusts have reintroduced masks, others had never moved away from insisting on face coverings.

In Wales it is also a matter for individual NHS organisations. But Eluned Morgan, minister for health and social services, said there had been an increase in people admitted to hospital with covid, as well as staff off work. And while not making face coverings mandatory for healthcare she said she would encourage everyone to wear one.

Emma Wilkinson, Sheffield

Cite this as: *BMJ* 2022;378:o1712

LATEST ONLINE

- FDA authorises US pharmacists to prescribe Paxlovid for covid-19
- Essex doctor who secretly filmed women with hidden cameras is struck off
- President Biden issues executive order to try to protect abortion rights

SEVEN DAYS IN

BMA wins judicial review over cost of government's pension mistakes


SARAH TURTON/BMA

The BMA has been granted permission for a judicial review appealing the government's attempts to make members pay for the costs of the "McCloud remedy"—the mechanism put in place to fix mistakes the government made when reforming the NHS pension scheme in 2015.

The McCloud judgment found that the government had discriminated against younger members when it implemented changes to public sector pension schemes in 2015, which offered transitional protection to senior members. As a result, all members were moved back to their legacy schemes until April 2022 and will have the choice of moving to either scheme for the remedy period at the point of retirement.

In 2021 the Treasury published directions seeking to use the "surplus" arising from the 2016 valuation of the NHS pension scheme, which should have resulted in improved benefits for members, to finance the cost of the McCloud remedy. The BMA said that the judicial review was "another major achievement" in its fight to protect members "from the government's indefensible approach to NHS pensions." The case will be heard in the High Court.

Vishal Sharma (left), chair of the BMA's pensions committee, said, "The government acted unlawfully in 2015 and consequently is obligated to fix its mistakes."

Ingrid Torjesen, London Cite this as: *BMJ* 2022;378:o1676

Covid-19

Canada disposes of 13.6 million AstraZeneca doses

Canada is destroying 13.6 million expired doses of the Oxford-AstraZeneca coronavirus vaccine. Almost all of these vaccines were previously reported as being donated to Covax, the international vaccine access programme set up by the World Health Organization, or to individual countries, but the governments they were intended for chose not to take them. Health Canada said in a statement, "Due to limited demand for the vaccine and recipient country challenges with distribution and absorption, they were not accepted."

Call to plug immunity gaps as infections rise

Senior officials at the World Health Organization warned that the global increase in covid infections was likely to be just the beginning and that nations must plug immunity gaps quickly before these could be exploited by new sub-lineages of SARS-CoV-2. They told a media briefing on 6 July that poorer nations were particularly vulnerable to a surge driven by the new lineages of the omicron variant, as many of those countries had still not reached WHO's vaccination targets or gained access to antivirals.

Litigation

Doctor is jailed after woman dies in botched procedure

An 85 year old doctor who admitted gross negligence manslaughter after a woman died from his botched biopsy procedure was jailed for three years. In 2018 the patient, 48 year old Shahida Parveen, had gone to the Royal Oldham Hospital for investigations into suspected myeloproliferative disorder. Isyaka Mamman, a specialty doctor in haematology, attempted to carry out a bone marrow biopsy but failed to obtain a sample from the patient's hip bone. Using the wrong needle, he then attempted the "highly dangerous" procedure of trying to take a sample from her sternum, causing severe internal bleeding.

Patient safety

New commissioner faces "monumental task"

England's patient safety commissioner, Henrietta Hughes (right), acknowledged that she faced a "monumental task" in the new role. The post was created in 2021 to ensure the healthcare system would respond to reports about harmful side effects from medicines and medical devices, after failures to act adequately on problems with sodium valproate, pelvic mesh, and Primodos. Hughes, a practising GP, said that patients whose cases had been acknowledged by recent reviews into avoidable harms could be "merely the tip of the iceberg."

Climate

NHS has new duty to tackle climate change

The Health and Care Act has placed new duties on the NHS in England to consider climate change when making decisions. The service will have to comply with the Climate Change Act 2008, which set targets to cut greenhouse gas emissions, and the Environment Act 2021, which outlined targets for improving the natural environment, including air quality. The NHS must also "adapt to any current or predicted impacts of climate change" as identified in reports the government has to put before MPs at least every five years.

Emergency care

"Recovery plan is inadequate"

The government's 10 point action plan to mitigate pressures and improve performance in urgent and emergency care services is "inadequate" on every metric, concluded a "report card" assessment by the Royal College of Emergency Medicine. The college's president, Katherine Henderson, said that while the plan was well intended there had been "little increase in same day emergency care provision. Little help for community health teams. Little funding. No timescales. No transparency. No accountability. No improvement. The 'plan' has comprehensively failed so far."

Mental health

Antidepressant use is on the rise, statistics show

Figures from the NHS Business Services Authority showed that an estimated 8.3 million patients received an antidepressant drug in 2021-22, up 6% from 2020-21. The data showed that an estimated 83.4 million antidepressant drug items were prescribed in 2021-22, up 5%.The number of items issued and patients receiving antidepressants rose for the sixth consecutive year.

MEDICINE

Abortion

US laws restrict access to autoimmune drug

Patients in the US are having trouble accessing drugs for autoimmune diseases as some states ban abortion inducing drugs, charities have warned. One key example is methotrexate, which can be used to terminate a pregnancy but is also approved for treating rheumatoid arthritis, lupus, and cancer. It is also used to treat patients after early pregnancy loss, including ectopic pregnancy and miscarriage. Since the US Supreme Court's overturning of Roe *v* Wade, 15 states have banned abortion or have severely limited the circumstances under which it is permitted.

Methotrexate is one of the drugs that are in short supply in US states that have banned abortions

Workforce

NHS cuts headcount in revamped system

NHS England will reduce the size of its workforce over the coming 18 months as it responds to a new commissioning system that began on 1 July. Matthew Taylor, chief executive of the NHS Confederation, which represents organisations across the sector, said, "With local integrated care systems up and running, we need to devolve more power, control, and autonomy to them if they are to succeed. A centre reformed to support systems, rather than control them, is crucial, and that requires a different role for NHS England, which this announcement rightly signals."

Psoriatic arthritis

NICE recommends further treatment option

In final draft guidance NICE recommended guselkumab for treating some patients with active psoriatic arthritis. The drug, also known as Tremfya and manufactured by Janssen, has been recommended for people whose disease does not respond to conventional disease modifying antirheumatic drugs (DMARDs) and who have had at least one biological DMARD or in whom tumour necrosis factor (TNF) alpha inhibitors are contraindicated. The treatment can be taken alone or in combination with methotrexate. Treatment should be assessed from 16 weeks, NICE added, and should be stopped at 24 weeks if the psoriatic arthritis has not responded adequately.

Surgery

College considers "hubs" for waiting list recovery

The Royal College of Surgeons of England has described three types of surgical hubs that it says are required in different areas of the country to tackle the record NHS waiting list. These are: standalone hubs (sites away from the hospital that undertake less complex surgery); integrated hubs within a ringfenced area of a hospital; and specialist surgical hubs (described as standalone hospitals providing specialist surgery). The college's president, Neil Mortensen, urged the government to work with new integrated care systems "to address regional gaps in surgical provision."

Cite this as: *BMJ* 2022;378:o1708

EXERCISE

The percentage of adults who were physically active fell to 61.4% in the year to November 2021, down 1.9 percentage points from the year to November 2019, the last full year before the pandemic

[National Audit Office]

SIXTY SECONDS ON ... THE LATEST NHS RESTRUCTURING

YOU'RE JOKING—NOT ANOTHER ONE!

Yes, Brenda from Bristol's famous 2017 response to another general election being called was echoed by doctors when another NHS reshuffle was announced. The changes have been formalised by the Health and Care Act 2022, and they kicked into gear on 1 July.

WHAT ARE THE NEW THREE LETTER ABBREVIATIONS WE'LL NEED TO KNOW?

It's quite simple: in England there are 42 ICSs (integrated care systems) in charge of local NHS commissioning and spending. Overseeing them are ICBs (the B stands for "board")—not to be confused with ICPs (the P is for "partnership"), which do the delivery bit and might be smaller than ICSs but might not.

EH?

Remember the strategic health authorities (SHAs) that were abolished by the Health and Social Care Act 2012? Well, it's a bit like that. The NHS is going big again because the last overhaul seemed to lead to a lack of joined-up thinking. Each ICS will cover about 1-3 million people and has been tasked with getting hospitals, primary care, mental health, and social care services to work together to agree a plan of action.

WHAT ABOUT CCGs AND PCNs?

You've been learning your initialisms—well done. Clinical commissioning groups are no more. Primary care networks still exist (for now), in a magical land called "place."

I'LL REGRET THIS, BUT WHAT'S "PLACE"?

This is where the NHS, local authorities, and the third sector will join forces to deliver the priorities agreed by the ICS. Strangely enough, a "place" is about the size of a CCG.

SO, A PCN SITS IN A PLACE, WHICH IS PART OF AN ICS GOVERNED BY AN ICB?

You're getting the hang of this. There are also neighbourhoods within places, but we could be here all day if we're not careful.

OK, LET'S MOVE ON. WILL IT WORK?

That's not clear. No one seems quite sure how the new NHS will fit together. But what seems more certain is that we'll be back here in several years' time for another reshuffle and more initialism lessons. See you then.

Emma Wilkinson, Sheffield

Cite this as: *BMJ* 2022;378:o1682

Medical leaders give their views on race in the NHS today

What needs to change in health education?

- **Victor Adebowale**, NHS Confederation chair and guest editor of *The BMJ*'s Racism in Medicine special issue (bmj.com/racism-in-medicine): "As part of your initial training you need to spend time in the community, and it's not an elective. I think you need to understand the people you're working with. You need to go to places where you might not normally engage, because your assumptions are challenged and tested."

- **Yvonne Coghill**, Race and Health Observatory adviser and former director of NHS England's Workforce Race Equality Implementation Team: "This is about making sure people from different ethnic groups have equal opportunities. We need to start thinking about building race into everything we do. Into the medical curriculum, into the nursing curriculum, but also into schools and nurseries. Across the board, we need to start educating people."

- **Tinuke Awe** and **Clotilde Abe**, co-founders of Five X More, a campaigning group aimed at tackling the inequalities in maternal health: "The medical curriculum should be more inclusive of conditions that affect black and minority ethnic people. For example, health professionals should be trained on how certain conditions present on darker skin."

Elisabeth Mahase, *The BMJ*

Cite this as: *BMJ* 2022;378:o1721

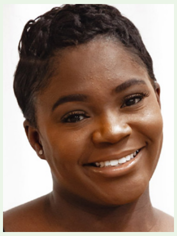
"Overhaul training to tackle inequalities in maternal health"

Tackling the large racial inequalities seen in maternal health will require changes to healthcare workers' education and training so that they reflect the diversity of patients, health leaders and campaigners have said.

Speaking at the NHS Race and Health Observatory conference at BMA House in London on 7 July, Tinuke Awe, cofounder of Five X More, a group that campaigns on inequalities in maternal health faced by black women, said that hiring more black midwives and doctors and increasing representation at all levels wouldn't solve the problem unless their education was also improved.

"We have to remember that the medical curriculum is essentially white. It doesn't account for a lot of conditions and the way things present in black skin. So we might be bringing in more black midwives, more black professionals, but if they're all learning from a Eurocentric perspective nothing will change," she said.

In recent years there has been more discussion—including through *The BMJ*'s Racism in Medicine issue (bmj.com/racism-in-medicine)—of the fact that medical education fails to take into account the range of patients that doctors see. This led to medical student Malone Mukwende creating the internationally recognised handbook of clinical signs in black and brown skin, *Mind the Gap*.



We have to remember that the medical curriculum is essentially white
Tinuke Awe

Cultural competence

Leaders also spoke about the importance of cultural competence, a term used to describe the understanding of matters concerning culture and health and how they might influence health needs and outcomes.

Daghni Rajasingam, a consultant obstetrician at Guy's and St Thomas' NHS Foundation Trust, said, "Cultural intelligence should be a core part of clinical training . . . but we still aren't there. If we are serious about this, there

Ethnic minority staff felt vulnerable during pandemic, says nursing leader

Healthcare workers from ethnic minority groups have felt "vulnerable" and uncared for during the covid pandemic, with some reporting that managers hid personal protective equipment from them and refused to carry out the required risk assessments, a senior nurse has said.

Speaking at the conference, Felicia Kwaku, chair of the Chief Nursing Officers Black and Minority Ethnic Strategic Advisory Group, shared some findings from her discussions with thousands of ethnic minority staff since April 2020.

"This is the stark reality of what some staff went through. Some died on their own because of social distancing. Some couldn't get to the phone because they were so hypoxic, so they died alone. If you were a nurse or midwife who was new to the country, you didn't have a lot of the networks, so it was very isolating."

Kwaku, associate director of nursing at King's College Hospital NHS Trust, added, "Many staff failed their FFP3 mask fit tests because the dimensions of the mask didn't fit their faces. These masks were designed around the white male face. If you had slightly different features, a different shape of nose or mouth or jaw, you didn't fit it. And if you don't fit your mask you may be at increased risk.

If you had a different shape of nose or mouth or jaw, the mask didn't fit
Felicia Kwaku

"Remember the risk assessments? When they first came out they didn't really take ethnicity or disproportionality into consideration. So many staff felt vulnerable because they didn't feel that the risk assessment was for them. Many didn't have the risk assessment done because managers refused to do so, and some staff told us that managers hid PPE.

"There was also a policy that if you were 28 weeks pregnant you could go on maternity


JAMES GIFFORD-MEAD

are systemic changes that need to be made, not just within the NHS but within the professional organisations that have responsibility.”

Benash Nazmeen, a midwife and chair of the Sheffield Maternity Cooperative, said she thought this should be part of the recruitment process. “If I saw being multilingual or being aware of cultural issues, cultural competence, on a job description, I and people like me might be more likely to put ourselves forward,” she said.

Improvements in perinatal mortality

During the same panel discussion, England’s chief midwifery officer, Jacqueline Dunkley-Bent, said that, despite the NHS providing one of the world’s safest maternity care systems, women from black, Asian, and mixed ethnicity backgrounds were still more likely to die in pregnancy than white women.

She said there had, however, been some progress on improving this. “By way of example, five times more likely to die in pregnancy is now four times more likely. Additionally, the stillbirth rate for black babies in 2019 was 7.1 per 1000 births. In 2022, it is 6.3 per 1000 births. The data tell us that the gap in inequality in health outcomes is reducing.”

Last year NHS England released equity and equality guidance for maternity systems, which called for local providers to act, including by increasing support for women at risk, such as by making sure that clinicians have a lower threshold to review, admit, and consider multidisciplinary escalation in women from ethnic minority groups. It also called for systems to design locally suitable interventions to improve equity for women and babies and race equality among staff.

Elisabeth Mahase, *The BMJ*

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leave, and many ethnic minority staff told us that this rule didn’t apply to them in some workplaces.”

Filipino staff

During the same discussion, Joron Jimenez, a committee member of the Filipino Nurses Association UK, spoke about the struggles facing Filipino staff.

Jimenez, who spent 20 years in the NHS before working as a nurse lead (pre-operative assessment) at the Cleveland Clinic London, volunteered to work on a 24 hour association hotline for workers and their families set up during the pandemic.

“We got calls from the families of people who were self-isolating, because they couldn’t ring us themselves. They would say, ‘My husband is self-isolating in a hotel. He was sent there by his trust because he is symptomatic. So, what can we do? We can’t buy food.’

“We started providing them the basics of living. And then, after that, one by one, we couldn’t get hold of these self-isolating people, because unfortunately they had passed away.”

Elisabeth Mahase, *The BMJ*

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KIRSTY WIGGLESWORTH

Ethnic minority staff reported that they felt that covid risk assessments did not properly include them

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FIVE MINUTES WITH . . .

Michael Marmot

The head of UCL Institute of Health Equity on the social determinants of health and the need for better data

“During the pandemic I knew we had to look at ethnic differences in health because of the high mortality among people from black African, black Caribbean, Bangladeshi, Pakistani, and Indian backgrounds. That was statistically, in some measure, accounted for by geography—where people lived, level of deprivation of the area, other socioeconomic traits—but only in some measure. Racism was, in a sense, the cause of the causes of the causes. When those figures came out from the Office for National Statistics and our health minister was on the TV saying he was terribly concerned and people should wash their hands, I was asked what I thought. I said, ‘Good advice, and we should deal with structural racism. And when should we? This afternoon.’

WE SHOULD DEAL WITH STRUCTURAL RACISM. AND WHEN SHOULD WE? THIS AFTERNOON

“The Commission on Race and Ethnic Disparities report last year was distinctively unhelpful. It had ample evidence of structural racism in the police, in education, in employment. Yet it said, ‘There is no evidence.’ I’ve come across that many times in my scientific life. They were, however, very helpful in bringing evidence to the fore.

“We documented in the covid Marmot review the high correlation between high risk occupations and the proportion of people from different minority ethnic backgrounds who are employed in those occupations. Why should people from a particular ethnic background be selectively employed in high risk occupations?

“However, we had difficulty reporting systematically on ethnic differences in health. We did report on it, but we said there wasn’t good routine data. One of the functions of the Race and Health Observatory is to improve this situation.

“There’s no question that if certain ethnic groups are disproportionately represented in lower socioeconomic groups, reducing socioeconomic inequality would benefit those groups. But that’s clearly not the whole story. There is something else going on and it’s that which should exercise us.”

Michael Marmot was speaking at the conference on 7 July

Marina Politis, *The BMJ*

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NEWS ANALYSIS

Will new health secretary Steve Barclay get the chance to leave his mark?

He took over as the head of England's health and socal care department in tumultuous circumstances and faces an uphill task in an uncertain political climate. **Adele Waters** reports

It's never easy being the "new boy." Walking into new territory, all eyes on you, scrutinising your every move. It helps to build credibility fast. But as Steve Barclay was appointed as England's new health and social care secretary on 6 July that task had just got a whole lot tougher.

The government was in freefall, reeling from high profile cabinet resignations—his predecessor as health secretary, Sajid Javid, being among the most high profile. Barclay, appointed by Boris Johnson, who within hours was being written off as prime minister, may have been wondering if he would even still have his new job by the end of the week, as MPs resigned from their roles in government (the toll stood at over 50 by the time Johnson eventually fell on his sword).

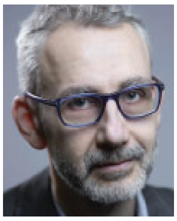
The job insecurity was not lost on his new adversary Wes Streeting, shadow health and social care secretary, who was quick to tweet, "Congratulations to Steve Barclay on becoming the shortest serving health secretary in history."

Time will tell how long Barclay is in post. In the interim, the question for the NHS is: what will he bring if he does survive long enough to achieve anything meaningful?

NHS leaders' "worst nightmare"?

According to insiders, Barclay didn't win many friends during the 11 months he was a junior health minister in 2018. He was responsible for NHS workforce, finance, and efficiency but, interestingly, had little to do with the BMA in this time, despite workforce being a consistent policy priority.

According to sources quoted in the *Health Service Journal*, officials dreaded the idea of Barclay ever becoming health secretary because of his attitude and their clashes with him, mostly over spending. In a damning editorial this week headlined "Steve Barclay is NHS leadership's worst nightmare" the *HSJ*'s editor, Alastair McLellan, quotes insiders' views. "A real nightmare, vindictive, arrogant, a bully, hostile to the NHS and all its works, a micro-manager of the wrong things, views NHS management as bloated and profligate," was one of them.



Steve Barclay is NHS leadership's worst nightmare
Alastair McLellan

If the government has no plan to address the long term decline in doctors' pay, it will set it on a collision course with the profession
Philip Banfield

"Never has a politician arrived in the post . . . trailing a worse reputation among NHS leaders than Steve Barclay," commented McLellan. "His 'hard edged' style rubbed people up the wrong way."

"All the bombast and unfounded assumption of expertise of Hancock but without being a nice bloke," was how one NHS leader summed him up.

Not the best start, perhaps.

"Tough" interrogator

Born to a trade union official father and a civil servant mother, the privately educated Barclay has previously described himself as coming from a "working class Northern background." The first in his family to go to university (Cambridge), he went on to train as a lawyer and moved into politics only in 2010, after a successful career in the financial sector (regulatory roles at the Financial Services Authority and at Barclays Retail Bank).

This background made him particularly suitable to serving— and impressing— on the House of Commons Public Accounts Committee early on in his political career, during the coalition years. Here he proved a tough and effective interrogator of officials, taking on former NHS chief executive David Nicholson over severance payouts to NHS staff, for example.

Barclay's political career progressed quickly from his junior health minister role. He went on to become Brexit secretary in November 2018 under Theresa May, and this was followed, in February 2020, by an 18 month stint as chief secretary of the Treasury, where he was responsible for controlling government spending and public sector pay and pensions.

Hawkish on spending

Political commentators have described him as hawkish when it comes to spending public money, particularly on health. At the Treasury, he is said to have pushed back on signing off the cheque for the covid vaccine programme on the basis of "value for money." This left the NHS with no choice but to press ahead anyway, and by the time official approval had been gained close to a million people had been vaccinated.

He was also criticised over his refusal to apologise for the mistakes the government made in its handling of the pandemic.

Barclays's voting record shows he is a resolute loyalist—consistently voting with the government since becoming an MP. He has voted in support of government reforms to the NHS and against restricting the amount of income that trusts can earn from private patient care. On a crucial vote to improve workforce planning in the NHS (amendment 29 to the Health and Social Care Bill) he did not vote.

On health matters, he has voted against allowing terminally ill people to be given assistance to end their life and almost always backed smoking bans.

Can the "fixer" fix health?

Barclay has a reputation as someone strong on detail, a safe pair of hands, a fixer. Perhaps a gap year spent in the army at Sandhurst has injected him with a sense of getting the job done.

This explains why Johnson called him in to instil some discipline into Downing Street in February when he became his chief of staff. "When the going gets tough, UK prime ministers send for Steve Barclay" is how the politics site Politico put it.

But just how good a fixer can he be? Downing Street built a special brand of chaos in those five months.

His fix-it skills will now face their toughest test yet. There is certainly no shortage of outstanding problems waiting to be fixed in his new department.

The BMA's recently elected new chair of council, Philip Banfield, said Barclay's most immediate priority should be working with the Treasury to secure proper funding of the health service, social care, and public health services. This will mean investing in recruiting and retaining staff and giving doctors a pay rise, unless he wants to invite a battle with the profession.

"If the government chooses another sub-inflationary outcome with no plan to address the long term decline in doctors' pay, it will set them on a collision course with the profession," Banfield warned.

Richard Murray, chief executive of the health think tank the King's Fund, urged Barclay to make the workforce his priority. Barclay's success will rest on his ability—or willingness—to convince a sceptical Treasury that a serious workforce plan is better value for money than the current drift into a deeper crisis, Murray said.

Barclay has much work to do and, if he had previous misconceptions about the NHS workforce and its leadership being inflexible or inefficient, he surely has no time to waste on underestimating the talents of the sector now. All eyes are on Barclay, for as long as he lasts in post.

The BMJ asked Barclay and the Department of Health and Social Care for a response but had not received one by the time of publication.

Adele Waters, *The BMJ*

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NEWS ANALYSIS

After a year in the job, what is Sajid Javid's health service legacy?

Ingrid Torjesen considers his 12 months as England's health secretary

When Sajid Javid resigned on 5 July he had held the post of England's health and social care secretary for only a year and 10 days, having been appointed on 26 June 2021 to replace Matt Hancock.

Although the worst of the pandemic had passed (in terms of pressure brought on hospitals), burgeoning waiting lists and an exhausted staff were left in its wake. Meanwhile, scant attention had been paid to the 2019 manifesto priorities such as extending healthy life expectancy by five years by 2035, reducing health inequalities as part of a "levelling-up" agenda, tackling workforce shortages, and treating mental illness with the same urgency as physical illness.

The pandemic

On his appointment, Javid said his immediate priority would be to get out of the pandemic. Covid cases were still rising steeply, yet all social distancing restrictions were due to end on 19 July. Labour accused him of "complacency" when he said he wanted life "back to normal as quickly as possible" and that the roadmap out of lockdown was "going to be irreversible."

Six months later, in January 2022, covid numbers in England, hit the highest level of the pandemic, although admissions reached only around half the level of the previous January. Hospitals did face another difficult winter, mainly from workforce shortages that were due to staff having to isolate, coupled with efforts to tackle the elective care backlog.

HE SPOKE PASSIONATELY ABOUT THE TASK OF TACKLING HEALTH INEQUALITIES

In his resignation letter Javid argued that the UK had "led the world in learning to live with covid," adding that the "British people have enjoyed months more freedom than other comparable countries," because of the "amazing rollout of our booster programme, investment in treatments, and innovations in the way we deliver healthcare." In reality, the mechanisms for these were already in place before he was.

Elective care backlog

Javid provoked ire in the NHS when he threatened to name and shame hospitals that persisted with covid control procedures, because this restricted their capacity to tackle the elective care backlog.

His resignation letter claimed that "the longest waiters are down by 70%." But the latest waiting list data for April 2022 show that the waiting list as a whole has grown by a million during his time in office, to almost 6.5 million.

Health inequalities

One area in which Javid expressed a strong interest was inequalities in health.

He launched the Office for Health Improvement and Disparities and independent reviews into ethnic inequalities relating to medical devices and tobacco control, and he spoke passionately about the task.

"Where someone is born, their background, their gender, or the colour of their skin should not impact their health outcomes," he said.

The workforce

Javid did little to tackle the NHS's complex workforce problems. A highly anticipated 15 year strategy being drawn up by NHS England and Health Education England is unlikely to be published before the end of the year, and rather than growing the general practice workforce, as pledged, GP numbers are falling . There was no move to fix longstanding pension tax issues, and a threat of action over erosion of doctors' pay is growing.

Javid barely had time to get a grasp of such complex and difficult issues. "There's so much I planned for the long term reform of our health and care systems, and it is a wrench to leave that important work behind," he told the House of Commons.

Ingrid Torjesen, *The BMJ*

Cite this as: *BMJ* 2022;378:o1694

WHY DID JAVID RESIGN?

On 5 July Sajid Javid told the prime minister that he had lost confidence in his leadership amid a series of recent scandals, including parties at Downing Street during covid lockdowns and Boris Johnson's handling of allegations of sexual misconduct against a former deputy chief whip, Chris Pincher. Javid's resignation, along with that of Johnson's chancellor, Rishi Sunak, triggered a domino effect of over 50 resignations before Johnson finally agreed to quit.

THE BIG PICTURE

Lift off for chemo drone delivery service

England's cancer patients will be the first in the world to benefit from chemotherapy delivered by drone if a new trial launched on the NHS's 74th birthday is successful.

The drones, set to make their first flight from Portsmouth to the Isle of Wight in the coming weeks, will mean lifesaving treatment can be picked up and dropped to patients on the same day.

Announcing the trial, NHS chief executive Amanda Pritchard said, "Delivering chemo by drone is another extraordinary development for cancer patients and shows how the NHS will stop at nothing to ensure people get the treatment they need as promptly as possible—while also cutting costs and carbon emissions."

The drones will be used to collect medications from Queen Alexandra Hospital in Portsmouth and fly them to St Mary's Hospital on the Isle of Wight, cutting the current delivery time from four hours to 30 minutes. If successful, the trial will be extended to Northumbria.

Alison Shepherd, *The BMJ* Cite this as: *BMJ* 2022;378:o1709

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EDITORIAL

Transforming mental health for all

Services must be affordable, personalised, and integrated

The World Health Organization's latest world mental health report aims to inspire the transformative action necessary to improve mental health for everyone everywhere.[1]

Since WHO's inaugural 2001 report our understanding of the epidemiology and experience of poor mental health has improved.

Yet the effects of mental health problems continue to be devastating for individuals, communities, and economies around the world.[1-6] Some 129 m years of full health are lost to poor mental health globally.[3] Nearly 800 000 lives are lost to suicide annually.[1] The economic cost of mental health problems will rise to $6tn a year by 2030.[7] Fundamental gaps in information, governance, resources, and services make mental wellbeing unachievable for many people around the world, especially those in low and middle income countries.[1]

It is against this backdrop that the latest WHO report describes avenues through which decision makers can turbo charge a transformation to improve mental health for all. The recommendations are comprehensive but may benefit from more targeted guiding principles: mental health services must be affordable, personalised to an individual's needs and circumstances, and integrated within existing systems of caregiving and community life.

Around the world, access to mental health services remains hampered by the cost, commercialisation, and institutionalisation of those services.[1] Many continue to consider good mental health a privilege of the wealthy because of the high costs of care. Considerations of cost and affordability should be part and parcel of all research, policy, and practice. Innovative care delivery methods—such as task shifting, tiered caregiving models,[8-10] digital options,[1] and inventive financing options such as pooled financing and employee benefits—should be carefully considered by decision makers. If we make mental healthcare better and more affordable, we can scale it to everyone who needs it.

Mental wellbeing is unachievable for many people around the world

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Personalised care

The experience of poor mental health varies across societies and cultures, yet often efforts to improve it are not salient to the individual and contextual features of mental distress.[11 12] The guiding question should shift from "How can we replicate this intervention that worked in this context in another?" to "How can we build context informed interventions that are adaptable to individual needs?" Recent research has shown how to put personalisation at the heart of improving mental health—for example, by using localised diagnostic tools to capture features of mental distress specific to the person's context.[13] Inclusion of diverse multicultural perspectives strengthens our ability to accommodate for nuance in research, practice, and policy.[14]

Finally, technology also offers a cost effective route to personalisation. Precision care algorithms, for example, allow us to tailor mental health services to individual and local contexts.[15] A commitment to personalisation should be a guiding principle for all renewed efforts.

Mental healthcare must also be integrated within existing systems of caregiving and community life. In the past, researchers, practitioners, and policy makers worked in silos, hampering efforts to improve the accessibility of mental health services. Researchers developing an intervention often fail to consider how it will be implemented and scaled up within existing care systems (the responsibility of the "implementation" scientist). Similarly, when mental health policy is formulated, how a policy translates into practice is often a secondary consideration.

Recent efforts—such as WHO's call for mental health to be integrated with the universal health coverage agenda[16]—have given impetus to the movement for integration. Our work in Kenya shows that it is possible to involve all local stakeholders in efforts to improve the mental health of communities.[17]

This is an exciting time to be working in global mental health. Research dedicated to mental health is increasing, public health funding for mental healthcare is growing, and the policy environment continues to be favourable. The new WHO report will galvanise efforts to improve mental health through better and more accessible care. If these efforts can privilege services that are universally affordable, personalised to individual and community contexts, and integrated within existing systems of care we can hope to improve mental health for all.

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EDITORIAL

Pulse oximetry and the pandemic

Widespread use highlights the need for formal training in pulse oximetry

At the height of the covid-19 pandemic large numbers of patients with acute respiratory symptoms needed to be assessed, triaged, and monitored to identify those requiring admission to hospital and those who could be managed with medical supervision at home. Presence of hypoxaemia is one of the criteria used during this decision making process.

The ability of pulse oximeters to detect and quantify hypoxaemia led to pulse oximetry featuring prominently in guidelines for the assessment and management of patients with covid-19, especially after reports that some patients develop "silent" hypoxaemia.[1,2] However, the increased use of pulse oximetry in clinical decision making reawakened longstanding concerns about its role in clinical assessment. In response to these concerns, the UK's Medicines and Healthcare Products Regulatory Agency (MHRA) and the US Food and Drug Administration (FDA) issued patient safety alerts on the accuracy of pulse oximeters, the limitations of pulse oximetry, and the interpretation of oxygen saturation readings.[3,4]

The accuracy of a pulse oximeter is determined by comparing its reading (SpO_2) with the arterial blood gas value (SaO_2). Pulse oximeters certified for medical use are required to be accurate to within 2-3% (FDA) or 4% (MHRA) of the SaO_2 value, across a range of readings between 70% and 100%. However, it is important to be aware that testing is performed under laboratory, not clinical, conditions and that 66% of readings are within 2-3% and 95% within 4-6% of the SaO_2.[4] This led the FDA to state that, for a SpO_2 reading of 90%, the SaO_2 will generally be between 86 and 94%.[4] Both the MHRA and FDA have advised that SpO_2 readings should be regarded as an "estimate" of the SaO_2, adding that clinical decisions should be based on trends in readings rather than on individual readings. Accuracy is important because inaccurate readings create the potential for hypoxaemia to be missed or underestimated. Furthermore, it emphasises the need to understand pulse oximetry, in terms of the physiological difference between pulse oximeter and arterial blood gas readings and the potential pitfalls in using pulse oximetry for spot assessment rather than for continuous monitoring.


LTH NHS TRUST/SPL

Training in pulse oximetry is as important as training in electrocardiography

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Clinical interpretation

Accuracy can be affected by technical, physiological, and pathological factors, including the quality of hardware and software used in pulse oximeters, the sampling technique, the quantity and quality of the person's circulating haemoglobin, their peripheral perfusion, and skin colour.[5-10] Accuracy is highest for readings of 90-100% but decreases as readings approach 90%—the point at which many critical clinical decisions are made. Clinicians should be aware of these factors when interpreting SpO_2 readings.

Pulse oximeters identify hypoxaemia not its cause. Correct identification of the cause requires clinicians to interpret readings within the context of a patient's symptoms and other clinical findings.[11] Correct interpretation also requires clinicians to account for factors such as smoking or longstanding respiratory disease that could influence the accuracy of pulse oximetry readings.[13-15]

The FDA summarised the situation as follows: "Pulse oximeters have limitations and a risk of inaccuracy under certain circumstances. In many cases, the level of inaccuracy may be small and not clinically meaningful; however, there is a risk that an inaccurate measurement may result in unrecognised low oxygen saturation levels. Therefore, it is important to understand the limitations of pulse oximetry and how accuracy is calculated and interpreted."[4]

Evidence suggests, however, that many clinicians have received little, if any, formal training in pulse oximetry and may therefore be unaware of the many factors that affect accuracy and interpretation of readings.[16-19] Given the increasing use of pulse oximetry by both clinicians and patients, we need further studies to determine clinicians' understanding of pulse oximetry.[20]

Training in pulse oximetry is as important as training in electrocardiography, so it should be included in undergraduate and postgraduate curriculums. In addition, the NHS should commission an online training programme that all clinicians can access through e-learning platforms. The pandemic is a further reminder that, when using pulse oximetry, patient safety depends on clinicians being able to interpret SpO_2 readings correctly.

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BMJ INVESTIGATION

Long covid patients travel for expensive and experimental “blood washing”


BELLE MELLOR

As clinics in Cyprus, Germany, and Switzerland offer blood filtering apheresis and anticoagulation drugs, experts question whether these invasive treatments should be provided without sufficient evidence. **Madlen Davies** reports

Gitte Boumeester, a trainee psychiatrist in Almelo, the Netherlands, was infected with SARS-CoV-2 in November 2020.

She was tired for weeks afterwards but chalked it up to the virus. Soon, she was experiencing such extreme fatigue that it took her two hours to walk to the kitchen to make breakfast. She had brain fog and heart palpitations, was short of breath, often felt sick, and woke up in the night with chest pain. A battery of tests found nothing wrong with her heart or lungs, and she was sent back to her GP. She left her job in November 2021, after two failed attempts to go back to work.

She joined a Facebook group for patients with long covid, many of whom discussed travel to Germany for apheresis, what some of them call a “blood washing” treatment. Apheresis, in which large needles are inserted into the veins and the blood is filtered, removing lipids and inflammatory proteins, is recommended by the German Society of Nephrology as a standard last resort in the country for lipid disorders. A new clinic offering apheresis for long covid patients, called the Long Covid Center, was opening in Cyprus, and she could be treated there in March. “I thought, what’s the worst thing I’ve got to lose?” she said. “Money was the only thing. I thought, OK, well, why not give it a try?”

Two months later she was back home in the Netherlands, having spent nearly all her savings—more than €50 000 (£42 400)—with no improvement in her symptoms.

Thousands of patients like Boumeester, frustrated at the lack of treatment available for long covid, are travelling to Cyprus, Germany, and Switzerland for apheresis, an investigation by *The BMJ* and ITV News can reveal. Many are also prescribed anticlotting drugs, including clopidogrel, apixaban, and heparin, on a hypothesis that the symptoms of long covid are caused by small clots in the blood that are blocking the flow of oxygen through capillaries.

Although some doctors and researchers believe that apheresis and anticoagulation drugs may be promising treatments for long covid, others worry that desperate patients are spending life changing sums on invasive, unproved treatments.

In most European countries doctors can offer experimental treatments or off-label drugs to patients if they believe there is a benefit, explain the risks, and obtain consent. But some experts have criticised the Long Covid Center’s consent process as unsatisfactory, as it doesn’t make it clear that these are experimental treatments for long covid and the consent form asks patients to sign away their right to sue the clinic if they become injured after having apheresis, which is regarded as a safe procedure.

“It’s unsurprising that people who were previously highly functioning, who are now debilitated, can’t work, and can’t financially support themselves, would seek treatments elsewhere. It’s a completely rational response to a situation like this,” said Shamil Haroon, clinical lecturer in primary care at the University of Birmingham and a researcher on the Therapies for Long Covid in Non-hospitalised Patients (TLC) trial. “But people could potentially go bankrupt accessing these treatments, for which there is limited to no evidence of effectiveness.” Delivering such an experimental treatment should occur only in the context of a clinical trial, he added.

“I am worried these patients have been offered therapies which have not been assessed by modern scientific methods: well designed clinical trials,” said Beverley Hunt, medical director of the charity Thrombosis UK. “In this situation the treatment may or may not benefit them but, worryingly, also has the risk of harm.”

The treatment may or may not be of benefit but, worryingly, also has the risk of harm
Beverley Hunt

Spiralling costs

Boumeester spent two months in Larnaca, a port city on the south coast of Cyprus, renting an apartment on the beach. Once or twice a week she would travel to the Long Covid Center for her apheresis and for "add-on" treatments such as hyperbaric oxygen (breathing in oxygen in a high pressure room) and for intravenous vitamin infusions she received at the Poseidonia clinic, a private clinic next door to the Long Covid Center.

The Long Covid Center offers a type of apheresis (heparin induced extracorporeal LDL precipitation or HELP apheresis) where the blood is passed over a heparin filter to filter out unwanted lipids and proteins, a process it says reduces the stickiness of the blood and improves microcirculation. The treatment is normally used as a last resort for patients with lipid disorders that have not responded to other treatments. Needles are put into each arm, and the blood is passed over the heparin filter, separating the red blood cells from the plasma. The plasma is filtered before being recombined with the red blood cells and returned to the body through a different vein.

Boumeester received six rounds of apheresis, costing €1685 a session, at the Long Covid Center and nine rounds of hyperbaric oxygen costing up to €150 a session, together with an intravenous vitamin drip and a vitamin D injection at €50 each at the Poseidonia clinic. Intravenous glutathione and amino acids were also recommended to her. "I was a little ambivalent about all the extra treatment, but I promised myself if I was there I would do anything, to just try," she said.

A spokesperson for the Poseidonia clinic said all treatments offered are "always based on medical and clinical evaluation by our doctors and clinical nutritionist, diagnosis via blood tests with lab follow ups as per good medical practice."

Boumeester was given a treatment memo that advised she start taking an anticoagulation therapy—of aspirin, clopidogrel, and an intravenous infusion of an anticoagulant and an antiviral—up to twice a week. It advised her to buy three months' worth of these drugs before she left.

Boumeester was also advised to buy two weeks' worth of clopidogrel and 10 days' worth of hydroxychloroquine as an early treatment package in case she was reinfected with SARS-CoV-2, despite a Cochrane review published in March 2021 concluding it was "unlikely" that hydroxychloroquine had a benefit in the prevention of covid-19. Additional over-the-counter supplements and a ketogenic diet were also recommended.

Apheresis, and the associated costs of flying across Europe over weeks or months, is so expensive that patients are setting up fundraising pages on websites such as GoFundMe to raise the money.

"I'd have sold my house and given it away to get better, without a second thought," said Chris Witham, a 45 year old businessman from Bournemouth who spent around £7000 on apheresis (including travel and accommodation costs) last year in Kempten, Germany. The treatment did not improve his long covid symptoms, but six patients told *The BMJ* they felt better after a few rounds of the treatment, although none were cured of all their symptoms.

What's important is to communicate the experimental nature of the procedure
Daniel Sokol

Informed consent

Boumeester was asked to sign a consent form at the Long Covid Center before undergoing apheresis, a form lawyers and clinicians described as inadequate. As well as being full of spelling mistakes, grammatical errors, and half finished sentences, it asks patients to waive any claims that they might have against the Long Covid Center and employees for "any personal injury, loss or death arising from the resulting of this treatment."

Under English and Welsh law this clause would be invalid, said Daniel Sokol, a barrister at the 12 King's Bench Walk chambers in London and a medical ethicist. "You can't say, 'By the way, you agree not to sue us if we cause you horrible injury or kill you, even if it's through our own negligence,'" he said. "You can't do that."

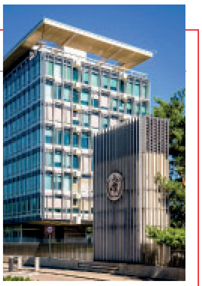
The form lists contraindications in technical language and asks patients to declare that they are medically fit to undergo the treatment. "These are questions that should be answered by the clinician," said Sokol. "I don't think you can put that onus on the patient."

Sokol voiced a concern that the form's description of apheresis as a "unique therapeutic option with clear advantages" may overstate the benefits for patients with long covid. He said, "What's important in these cases is to communicate to the patient the experimental nature of the procedure and the fact that there is quite a lot we don't know about the effectiveness of it, and indeed also about the risks, the complications, the side effects with patients who have long covid, as opposed to patients who may have cardiovascular issues."

"I do think they should emphasise the experimental nature of the treatments more, especially because it's so expensive," Boumeester said. "I realised before I started that the outcome was uncertain, but everyone at the clinic is so positive you start to believe it too and get your hopes up." The Long Covid Center did not respond to these criticisms.

The BMJ contacted Cyprus's Ministry of Health and the Cyprus Medical Association to ask whether the clinic or doctor was breaking any professional or ethical standards in the country but did not receive a response.

LONG COVID SYMPTOMS AND TREATMENT



The World Health Organization (WHO, right) has estimated that between 10% and 20% of patients suffer symptoms for at least two months after an acute covid-19 infection – a phenomenon commonly known as long covid.

According to the latest official data, as of 1 May 2022, there were an estimated two million people in the UK self-reporting long covid symptoms, which can include fatigue, muscle weakness, breathing and sleep difficulties, memory problems, anxiety or depression, chest pains, and loss of smell or taste.

Currently, there is no internationally agreed treatment pathway for the condition. There are 90 long covid clinics in the UK offering variable treatments including physiotherapy, advice on self management, advice on exercise and psychological support to cope with the symptoms.

Success stories on social media

Boumeester decided to travel to Cyprus after reading testimonials and research on the website and Facebook page of the Apheresis Association, a group with 4700 members that promotes apheresis as a treatment for long covid. The association was set up and is run by an Austrian businessman, Markus Klotz, who also set up the Long Covid Center in Cyprus.

The association coordinates appointments at clinics across Europe that offer the treatment and acts as a patients' forum. Moderators post positive statements about apheresis as a treatment when only anecdotal evidence exists. "Over 80% of patients report to keep their gains permanently," one post read. "There are no known risks," said another. *The BMJ* contacted the Apheresis Association but did not get a response.

Klotz decided to set up the Long Covid Center after having had the condition himself and trying a range of treatments, including HIV medication, antivirals, and supplements. He flew to Mülheim, west Germany, for apheresis and anticoagulation therapy after hearing Beate Jaeger, who runs the Lipid Center North Rhine, talking about the treatment on the radio.

Jaeger, an internal medicine doctor, told *The BMJ* that in March 2020 she read reports saying that covid causes problems with blood clotting. Apheresis is a standard treatment in Germany for patients with lipid disorders that have not responded to drugs, and she believed that the HELP apheresis treatment she had used for decades to treat patients with cardiovascular illnesses could help those with long covid.

She talked to colleagues, hoping they would allow her to treat covid patients in intensive care wards in Germany, but was denied permission, and tried to get her hypothesis published in a German medical journal, but was rejected. In February 2021 the relatives of two of her cardiovascular patients who had been suffering from long covid agreed to undergo HELP apheresis. Jaeger said their symptoms improved after just a few sessions.

She treated around 60 patients for free, to see if she was on the right track or not, and found the treatment "extremely successful." She told *The BMJ* she has now treated thousands in her clinic, with success stories spreading on social media and by word of mouth.

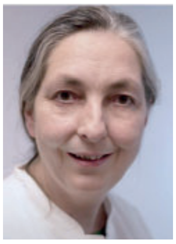
She treats long covid patients with HELP apheresis, which she says reduces the viscosity of the blood and improves organ perfusion. She also offers plasmapheresis, which filters autoantibodies out of the blood, and regularly puts patients on a triple anticoagulation treatment made up of drugs including aspirin, clopidogrel, apixaban, heparin, and dabigatran, with patients flying back to Germany periodically for prescriptions.

In case reports and television interviews, Jaeger said she had had patients with long covid who came into the clinic in a wheelchair who were able to walk after the treatment and people who couldn't walk who became able to jog. Clinics around the world are copying her methods. "There are now many centres in Germany following me, centres in Switzerland, a centre in Turkey is starting. I think Italian centres have started," she said.

Jaeger accepts that the treatment is experimental but said trials take too long when the pandemic has left patients desperately ill. "If somebody is desperately sick and you have no other way out, you are allowed to treat him if he agrees to treatment," she said. "And the patients I have treated, they have agreed to treatment, and their profit is a lot."

She said she has also tried to weather the expense of the treatment for her patients, allowing a British printer to live in her house for weeks, for example, and refusing to take money from patients who are spending their life savings. The North Rhine Medical Association, which examines whether doctors have violated their professional code of conduct, told *The BMJ* it has not received any complaints about Jaeger or her clinic from patients or other organisations but will investigate if it does.


An ITV reporter talks to a patient undergoing the controversial treatment


The patients have agreed to treatment, and their profit is a lot
Beate Jaeger


We cannot tell if this treatment will stop microclots
Robert Ariens

The evidence

Jaeger and Klotz point to research by Etheresia Pretorius, a professor in physiological sciences at Stellenbosch University, South Africa, to justify treating long covid patients with apheresis and triple anticoagulation therapy.

Pretorius's group has published a peer reviewed study, review articles, and preprints that hypothesise that "microclots" present in the plasma of people with long covid could be responsible for most long covid symptoms. Stellenbosch University has filed a provisional patent for Pretorius's method of detecting microclots through fluorescence microscopy, and her laboratory is working on a diagnostic tool that could detect microclots and be rolled out in hospital pathology laboratories worldwide. A fundraising page set up by supporters has raised $161 000 to support the project. Jaeger has bought a €200 000 microscope for her clinic and pays licence fees to Stellenbosch University for use of its method.

But experts contacted by *The BMJ* said that more research is needed to understand how microclots form and whether they are causing long covid symptoms.

"They [microclots] may be a biomarker for disease, but how do we know they are causal?" said Robert Ariens, professor of vascular biology at the University of Leeds School of Medicine. He believes the clinics offering apheresis and anticoagulation therapy are prematurely providing treatment that is based on a hypothesis that needs more scientific research. "If we don't know the mechanisms by which the microclots form and whether or not they are causative of disease, it seems premature to design a treatment to take the microclots away, as both apheresis and triple anticoagulation are not without risks, the obvious one being bleeding," he continued.

There is as yet no published and peer reviewed evidence showing that apheresis and anticoagulation therapy reduce the microclots. "As we don't know how they form, we cannot tell if this treatment will stop microclots from recurring," Ariens said.

In June 2022 the German Society for Nephrology (DGfN), the organisation that writes the guidelines on apheresis in Germany, said case reports were sufficiently motivating to warrant controlled trials but no recommendation could be made about apheresis or immunoadsorption, a similar process in which autoantibodies are filtered from the blood, until scientific data had shown benefit.

"Currently, these therapies are offered on a self-pay basis by a number of centres, including those from non-medical specialties such as naturopathy, with the support of primarily commercially driven interest," said Volker Schettler, head of the DGfN's commission for apheresis. "The DGfN calls for randomised controlled trials on the benefit of apheresis therapy in these patients," he said.

Jaeger told *The BMJ* that carrying out a randomised controlled trial would be ideal but that she does not have the money. "It costs millions," she said. "I'm not rich enough to do it, unfortunately." She has tried to persuade companies to fund trials and has set up an international research collaboration looking into treatments for long covid.

She said she is angry about "dogmatism" in medicine. "So, this is a cruel, horrifying disease. And we have to act on this," she said. "If I see a child in a wheelchair suffering for a year, I prefer to treat and not to wait for 100% evidence. . . . There is never a treatment without risk in medicine. But I've been working my whole life on sky high risk patients. And I saw in this treatment it did no harm."

I'm concerned this has been pushed in a vulnerable group
Amitava Banerjee

No recommendation can be made about apheresis until scientific data has shown benefit
Volker Schettler

We need to get out of this slavish adherence to guidelines
Asad Khan

Follow-up care

Some clinicians are concerned about the lack of follow-up care for patients when they leave clinics that offer apheresis. Anticoagulation should be given in a supervised way by clinicians who regularly follow up patients, because bleeding could present as bruising or nosebleeds but could also be a brain haemorrhage, said Amitava Banerjee, a cardiologist in London and chief investigator on the Stimulate-ICP trial into long covid. "I'm concerned that this has been pushed in a vulnerable group," he continued. "We haven't got solid evidence for single anticoagulation therapy, let alone triple."

A triple anticoagulation regimen can have "devastating consequences" if someone falls or has an injury, said Benjamin Abramoff, director of Penn Medicine's Post-Covid Assessment and Recovery Clinic in Philadelphia.

Jaeger said she trains patients to look for the signs of bleeding, provides them with a passport detailing their drug regimen, and gives them a letter for their GP, sometimes trying to contact the GP directly. Patients from the UK and Denmark told *The BMJ* that doctors in their home countries refused to prescribe such regimens.

Klotz told *The BMJ* that prescriptions are individually assessed by the clinic's doctor. "We as a clinic neither advertise, nor promote. We accept patients who have microcirculation issues and want to be treated with HELP apheresis," he added.

"Too long to wait"

Some patients debilitated by long covid say they can't wait years for the results of trials. Asad Khan, a respiratory doctor in Manchester who has long covid, said doctors should consider off-label prescribing of drugs such as anticoagulants after an informed discussion with the patient about risks and benefits. "We need to get out of this slavish adherence to guidelines," he said. "Doctors need to grow a bit of a spine and just go, OK, others have done this. They've found it helpful. Let's think outside the box and offer a trial of treatment to the patients and see if they benefit from this."

Khan speaks about his experience of apheresis on television interviews and in YouTube videos, after receiving 21 rounds at Jaeger's Mülheim clinic, which he said improved his symptoms greatly. He has spent nearly £40 000 on apheresis, private prescriptions, including triple anticoagulation therapy, and other complementary treatments such as cranial osteopathy and breath work for long covid.

"All these rules about evidence based medicine and trials, they all go out the window when you're facing a future in a darkened room and a life of disability," he said. He wants to see research being carried out more quickly. "Nobody should have to travel abroad for treatment using their life savings," he said.

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COVID-19

How long does SARS-CoV-2 stay in the body?

What happens to the virus when it enters the body. Nearly three years since it was first discovered, this is still a mystery. **Chris Stokel-Walker** asks what science has learnt so far

How long does SARS-CoV-2 stay in the body?

There is no definitive answer. The reality of 6.2 million deaths with covid-19 means that many people die from the effects of the virus within their body before the virus itself does, so it's difficult to know how long they would have continued to shed the virus if they'd survived.

Also, different people clear viruses quicker than others, depending on underlying health conditions. For example, says Paul Hunter, professor in medicine at the University of East Anglia, "even before covid, we've known that people who have certain immune deficiencies can struggle to clear viruses."

What are the longest bouts of covid-19 infection recorded to date?

One patient tested positive for covid-19 for 505 days until they died, according to a case presented at the European Congress of Clinical Microbiology and Infectious Diseases in April 2022. Another report by Spanish researchers describes a 52 year old man undergoing chemotherapy who was still shedding virus after 189 days. Elsewhere, Chinese researchers reported a 64 year old man shedding the virus for 169 days after infection.

That's all recorded through the mouth and nose—which is normal for a respiratory virus. But what's unusual with SARS-CoV-2 is where else in the body it has been showing up, and for how long.

Autopsies have found traces of the virus in the appendix, eyes, heart, and brain

Two studies found that the virus was present in a patient's faeces seven months after diagnosis, indicating that the virus stays in the body longer than first thought. It creates a conundrum for researchers, who are now probing the potential links between SARS-CoV-2 in the gut and long covid.

A meta-analysis looking at the amount of time those infected with SARS-CoV-2 continue to shed the virus found that the average person continued to shed for roughly a month. Some people, however, are super shedders, with prolonged release of virus from their bodies. One 22 year old healthcare worker, for example, was continuing to shed the virus 110 days after infection.

Where does the virus persist?

As indicated above, it doesn't just stay lodged in the respiratory tract—autopsies have found traces in the appendix, eyes, heart, and brain. However, those traces have not been infectious, says Nathan Bartlett, associate professor in viral immunology at the University of Newcastle, Australia. "No one has actually isolated infectious virus from tissues outside of the respiratory tract," he says. "There is no evidence—and people have looked very hard for infectious virus persisting outside it."

Even in the respiratory tract, the virus is often not infectious. One autopsy by Italian researchers of an exhumed patient who died from covid found traces of the viral gene targets in her lungs and heart a month after her death, but the virus itself was not alive—which would be expected, as the virus relies on live cells. Maria Grazia Cusi, associate professor in the virology unit of the University of Siena, who conducted the study, says she found the presence of the nucleic acids in the lung and the heart.

"It was interesting to see the organs were still conserved in a good way," she says, expressing amazement that the viral RNA could exist for so long within a dead body. (That said, traces of avian influenza have been shown to last up to 240 days at room temperature.)

"The behaviour of SARS-CoV-2 is strange," says Cusi. "It's difficult to understand how this virus can stay in the body for so long."

Does SARS-CoV-2 stay in the body longer than other infections, like the flu and colds?

All three are RNA viruses, but covid-19 appears to stay in the body for longer than either influenza or the common cold. Cusi says SARS-CoV-2 appears to burrow itself in parts of the body that are difficult for the immune system to reach.

In influenza viruses there is the acute phase of the disease, then the clearance of the virus from the body—usually within days or weeks. For SARS-CoV-2, the number of variants makes it more difficult to say definitively how long it lasts, but it appears to persist for far longer.

Does the length of time the virus stays in the body increase the risk of long covid?

"We don't really understand that link," says Bartlett. It's something that has been suggested in academic literature, but hasn't been definitively proven. "It's conceivable that if there are pockets of viral RNA that are making a little bit of viral protein, that could be triggering localised immune responses," he says. That could make inflammation which, if it happens in the body's central nervous system, could develop symptoms like brain fog and fatigue. There is research that shows a rise in antibody titres after patients begin symptoms, Bartlett says, however, that the numbers involved are quite low. "One needs to be cautious," he advises.

Hunter says that while it's plausible that there's a link between the length of time the virus stays in the body and the risk of contracting long covid, caution must be taken when talking about post-infection syndromes. After all, long covid is not a single condition but a term encompassing a wide range of symptoms that last for more than 12 weeks after infection and are believed to have been triggered by the novel coronavirus.

For some people who caught covid, there is almost certainly some residual damage to the gas exchange membranes in the lung, or microvascular damage that affects cognition in the brain—both of which have been cited as problems for those with long covid. For others this may not be the case.

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