comment

"Nowhere do I see any urgency about the scale of this workforce crisis" **DAVID OLIVER**
"Even in healthcare each revolution starts with a single step" **HELEN SALISBURY**
PLUS Can the NHS cope with omicron?

CRITICAL THINKING Matt Morgan

Your 1800 weeks of work

As another year ticks silently into the next, along with the resolutions broken, I reflect on my place as a speck on this Earth. My Christmas gift of a brilliant book by Oliver Burkeman, *Four Thousand Weeks: Time Management for Mortals*, has helped to make this seemingly morbid festive activity feel life affirming.

With just 4000 weeks or so in an average human life, Burkeman—a self-confessed recovering productivity geek—argues that we concentrate too much on getting more and more done while forgetting what it is in life that really matters. In any life there will always be too much to do, and, with the whole of documented human civilisation contained within the span of just 60 centenarian lifetimes in a row, you are really no big deal. Instead of denting the universe, Burkeman argues, what really matters is "making some tiny contribution to the betterment of the environment, or your neighborhood, or the political culture."

It struck me that those 4000 weeks of my life will contain 1800 weeks of caring for patients. Eighteen hundred weeks of work. Boiling your entire career down to these simple numbers may help you to move from last year to the next with a different view of how you relate to time, to people, and to yourself.

In any career in healthcare there will always be too much to do. As the whole of medicine's documented history could be contained within the span of just 20 centenarian human lifetimes, you can make a big difference. Not in an Elon Musk, dent-the-universe kind of way, but by making tiny improvements for patients, for your colleagues, or to the health systems people rely on.

These seemingly insignificant gestures are not only enough—they are the ones that really matter. And, while the 24 hour news channels batter us with gloom, not everything that weighs us down is ours to carry. Allow the good days to bring you happiness; the bad ones will bring experience of this short life and even shorter career.

So, when making resolutions for the next 52 weeks of your life in medicine, remember that the true value of any time management strategy lies in it helping you to neglect the things that don't really matter.

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Seemingly insignificant gestures are not only enough—they are the ones that really matter

OPINION Martin McKee, Christina Pagel, and Deepti Gurdasani

The NHS is complex, and that's why we should be worried

The loss of staff, due to sickness and self-isolation, is causing a crisis

It was a step too far for 99 Tory MPs. They were simply unwilling to support the government's proposal to require people attending large events, such as football matches, to show that they had been vaccinated or had a recent negative test. Yet, a few days later the argument seemed rather academic. Only a handful of matches actually took place. Football players across the country were coming down with covid-19.

At the same time, those looking forward to a pre-Christmas trip to a West End show were finding these were also cancelled. What these events have in common is that those falling ill have specialised skills. Those paying often very high ticket prices expect to see the stars of the pitch and the stage. But it's not just football and the theatre. There are many other places where the loss of a few people with particular skills can bring the entire enterprise to a halt. And what is worrying ministers and their advisers is that the NHS is one of them, along with many other critical services.

At some point there's a real danger the system will no longer be able to cope. The warning signs are already here

Throughout the pandemic, health and care workers have been at increased risk of contracting and dying from covid-19. But if they become infected they also create a risk to those they come in contact with, who inevitably will include many vulnerable patients. It is imperative they isolate until no longer infectious. And if they have specialist skills their absence means their teams may become unviable. You simply can't expect an orthopaedic surgeon to operate on someone with a brain tumour.

This is a reminder of something that many people fail to understand. The NHS is a complex adaptive system. This is important. There are questions about whether even health ministers actually understood how it works. Complex adaptive systems have certain properties. One is path dependency. Where you start from matters. If your hospital is designed in a way that makes it difficult to redesign and repurpose when needed, then you have problems. Hospitals are built to last. They are not like conference centres where you can simply move partitions around (and as we saw with the Nightingale hospitals, it takes a lot more than space, beds, and partitions to create a hospital). But many NHS hospitals face problems not experienced in most other countries. The Private Finance Initiative means any major changes need complex and expensive renegotiation with whoever runs the hospital. And when you need to make changes rapidly, they hold all the cards. We should not underestimate the ingenuity with which NHS staff have adapted facilities in the pandemic, often despite the system.

Second, there are variable lag periods. Some things happen at once, or almost so. A virus that is doubling every two days leaves little time to adapt. But training a doctor takes five years, and several more to gain specialist skills. We cannot magic up thousands of new doctors or nurses in a few months. At the same time, many experienced staff have left. A significant proportion (>3%) now report long covid symptoms, higher than any other occupation. Traditionally, the answer (at least for the UK) was to recruit trained staff from abroad (here we note, but temporarily set aside, the important ethical issues). But this is made more difficult within a hostile environment for migrants, coupled with disincentivising bureaucratic barriers for those who might come from the EU.

The water lily principle

Third, many of the relationships involved are non-linear. This is something most people should now be familiar with, given how often politicians and scientists have talked about the exponential growth of covid-19. But are they really? You can try this one. Water lilies start growing on a pond, doubling every day. In 20 days they will cover the entire surface. When will they cover half of it? Now of course, the answer is day 19. But when asked, surprisingly few people get it right. But maybe this isn't so surprising because, time and again, politicians have made decisions incompatible with this principle. As a result they act late, when even a few days would have made a huge difference.

But there are other non-linear relationships to consider. One is the example we started with. If a show's star and understudy have to isolate, it will be cancelled. If different people are ill, say box office staff, it is likely it will go on. So risk calculations involve more than numbers. One particularly scarce resource is ICU nurses, who are leaving the service after the trauma of three covid waves and the prospect of a fourth.

Bed capacity also changes non-linearly with hospital infections. If someone is found to be infected on a ward, it needs to quarantine, and any of its available bed space cannot be used until everyone is tested and those infected are isolated, and space freed up. So covid infections in hospitals tend to use up more bed space than just those infected. This makes it critically important to reduce hospital spread with high quality masks and ventilation.

And finally, there are feedback loops. When NHS staff isolate the urgent work doesn't go away. We can compensate for a while, discharging patients more quickly and cancelling non-urgent care. But the pressure on those who are still at work gets greater and greater until, at some point, they can take it no more. And routine care that's delayed manifests in more unplanned admissions and increased need for urgent care, further diverting resources from routine care. And so it goes on. But again there are other feedback mechanisms. Higher rates of the infection in the community and poor infection control protocols, and inadequate PPE in hospitals means that more patients will bring it into hospital, potentially infecting those who are there for other reasons, increasing the workload even further.

When we put all of these things together, the dangers should be obvious. At some point there is a real danger that the system will no longer be able to cope. The warning

signs are already here. As the omicron variant spread through the population in December the mayor of London declared a critical incident. This is not because hospitals are facing unprecedented numbers of admissions. Instead it is the loss of critical staff prompting the declaration. But unlike a football match or a West End show, postponement or cancellation is not an option. If people get sick, they will need care.

Meanwhile, much of the political and media debate is dominated by comments like "surely this variant only causes mild illness," ignoring how even if omicron is found to be milder, the increased transmissibility and higher numbers of people getting covid will potentially put pressure on the NHS.

Nosocomial transmission

But mildness is not even the main concern. Rather, what matters is that every health worker who becomes infected must isolate for seven days to protect their colleagues and patients. And, as we have seen, the loss of a few key individuals will have much wider consequences. Staff who are contacts of cases are now being asked to come in to protect staffing numbers—but increasing the chance of nosocomial transmission. Covid outbreaks in hospitals are already going up in the age of omicron. Leaving aside all the other issues, such as the threat to those who are immunosuppressed and the avoidable burden of long covid, we can surely understand why those advising ministers are concerned.

We have had some lucky escapes. The most plausible explanation for the large spike in deaths in England and Wales in January 2015 was the NHS just about coping. It recovered rapidly, but we may not be so lucky next time. There is a real risk that omicron could change this.

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ACUTE PERSPECTIVE David Oliver

Act on workforce gaps to save the NHS

As we start 2022, the NHS workforce is under more pressure than ever: unmanageable workloads, burnout, and moral distress, compounded by covid-19. Without enough clinical staff the health service won't recover, let alone thrive.

Other urgent issues are social care, preventable ill health, and inequalities. But failings in recruitment, retention, and planning are the biggest existential threat to the NHS. Professional leaders, policy experts, and politicians have been saying this for a decade. Where's the rescue plan for the sinking NHS ship, battling increasingly hostile conditions as its crew evacuates?

The NHS operating plan for 2022-23 claims to prioritise workforce but says that "Health Education England and NHSEI will work with systems to develop workforce plans." Is that all there is? In every sector of health and social care, workforce gaps abound: the NHS and social care each have over 100 000 unfilled vacancies. Whole time equivalent GPs are fewer than in 2015, despite government promises to increase numbers. One in 10 NHS nursing vacancies is unfilled, and district nurse numbers have declined sharply.

Brexit and "points based immigration rules" have harmed recruitment from overseas. This year reports by the CQC and the GMC have highlighted recruitment, retention, and workload as major problems for practitioners and patient care. In 2019, just before the pandemic, the Nuffield Trust's *Closing the Gap* report made recommendations including "supply of new staff," "pay and reward," "a good employer," "workforce redesign," "international recruitment," and "social care recruitment and retention."

NHS bodies have been promising a comprehensive workforce strategy since at least 2017. Anything but a short term fix has been pushed down the road, and we're still waiting. This August NHS England promised its "first ever national inventory of medical workforce gaps," whose results haven't seen the light of day despite freedom of information requests by me and others. Perhaps a longer term workforce strategy is too big an ambition, especially as we reorganise NHS structures through a health and social care bill and oversee service recovery from the pandemic.

With ever rising demand, no additional capacity, and longer wait times accelerated by the pandemic, exhausted staff face higher rates of attrition. Workforce gaps mean unmanageable workloads, departures, reduced hours, and disengagement. Real terms NHS pay has fallen significantly for clinical staff over the past decade, and pension tax changes deter senior medics from taking extra work or staying on.

We need to train more staff, allow more from overseas, and treat them better. Among those holding the government purse strings, nowhere do I see any urgency about the scale of this crisis, in an NHS that's increasingly struggling to stay afloat.

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NHS bodies have been promising a comprehensive workforce strategy since at least 2017

PRIMARY COLOUR Helen Salisbury

New year's revolutions?

As the season turns and the days begin to lengthen, it is traditional to look back at the year just past and think about what we might do to make the coming one better. Usually, the promises we make to ourselves concern our own health and happiness: I will eat less, exercise more, give up alcohol, or even take up mindfulness. But now is also the time to look at what is important in the wider world and to think about where we are spending our energy.

The urgent problems that are crying out for change, from the climate crisis to health inequalities, can seem too big to be affected by the actions of individuals. It is tempting to consign them to the depths of my mental inbox, where any issues "too difficult to think about just now" habitually lurk. But each revolution starts with a single step, and unless I make concrete plans during this brief pause in the turning seasons, nothing will change.

At our practice we have made a small start in reducing carbon emissions by switching from metered dose inhalers (MDIs) to the more environmentally friendly dry powder ones whenever we can. One calculation gives the carbon footprint of a salbutamol MDI as equivalent to driving from London to Sheffield (175 miles), compared with just a four mile journey if you use the dry powder version. We need more information like this to inform our choices while putting our patients at the centre of these decisions, and the Greener Practice website (greenerpractice.co.uk) is a good place to start.

There are some stark health inequalities in the UK, such as a gap of 19 years of healthy life expectancy between the most and the least deprived areas. GPs have been asked to look at inequalities in our own practice populations and to come up with ways to tackle them. There is a temptation to throw our hands up in despair at the size of the task, and at our own powerlessness, as so much of this difference is down to wealth and opportunity rather than healthcare. Alternatively, however, we could accept the invitation to think about how we can improve the uptake of cancer screening among our more disadvantaged patients or improve access to appointments for people with disabilities.

In our practice there will be no grand new year's revolution. But I resolve to raise my head above the keyboard and think beyond the daily firefighting needed to keep the surgery staffed and functioning. I will try to see the bigger picture. I will also stop eating all of the biscuits in reception—or at least contribute more often to the tin.

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I resolve to raise my head above the keyboard and think beyond the daily firefighting

LATEST PODCAST

Green general practice

After the COP26 climate change summit, this episode of Deep Breath In hears about the commitments made there and the role that GPs can have in reducing the carbon footprint of their practice. Joining the team is Richard Smith, chair of the UK Health Alliance on Climate Change, who discusses the hopes that people had for COP and whether they were realised:

"A lot of people beforehand wanted this to be a health COP, so instead of talking about transport or agriculture or trade and all the things that get talked about at COP, there would be a lot on health. We think health is a way to really bring climate change alive for people because there are huge threats to health from climate change, but there are also potentially big benefits. Slowly but surely, that message is getting through."

Aarti Bansal, a GP and the founder of Greener Practice, also talks about how it can feel overwhelming to act on climate change, while describing what motivates and energises her:

"The things we would do to act on the climate crisis are the same things that we would do for public health even if there wasn't a climate crisis. So if there wasn't a climate crisis, we would be trying to reduce air pollution. We'd be trying to improve physical activity levels. We'd be trying to engage people with nature because we're learning so much more about how beneficial contact with nature is. In terms of social prescribing, that movement existed before people were really aware of the sustainability issue, but we know that connected communities where people feel that they belong is a really important part of health. And we need to create those local connected communities as part of our solution to the climate crisis."

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Edited by Kelly Brendel, deputy digital content editor, *The BMJ*

ANALYSIS

Boosting healthier choices

Thomas Rouyard and colleagues discuss use of the boosting approach as an alternative to nudging in developing non-coercive interventions to promote health

The idea of using nudges to change behaviour, introduced by Thaler and Sunstein in 2008,[1] sparked great enthusiasm in policy making communities, including those promoting public health.[2] Nudges are interventions designed to steer people towards better choices through subtle changes to their environment, such as making unhealthy food less accessible in cafeterias to promote a healthier diet. They can promote behaviour change without using regulations (such as bans) or financial incentives (such as taxes), making them particularly appealing to policy makers. A decade on, many governments and international organisations have established "nudge units" or have developed such behavioural influencing policies.

Yet, despite generating considerable attention, the effects of nudges on health related behaviours are not always clear.[3-5] While nudges are quite good at motivating one-off behaviours such as getting vaccinated[6] or attending a health check,[7] their effects on more complex, continuing behaviours such as self-management of chronic conditions[4] remain unclear. In addition, long term studies are still lacking for many nudging techniques,[4-8] and new evidence suggests that some nudges may not be as effective as originally thought when implemented outside experimental settings.[9]

Nudges are said to be rooted in libertarian paternalism—a framework conceived to improve people's wellbeing while preserving their freedom of choice.[1] However, critics have challenged these claims, arguing that nudges can undermine liberty[10] and autonomy,[11] generating heated debate around their legitimacy.[10-15] Alternative approaches to behavioural policy and interventions have been proposed,[16] some of which avoid these ethical concerns. One such approach potentially well suited to health promotion is called boosting. It was conceptualised by philosopher Till Grüne-Yanoff and psychologist Ralph Hertwig[17] on the premise that human decision making is at odds with some of the assumptions underpinning the nudging approach.

Boosts equip people with skills or tools to make better choices themselves

KEY MESSAGES

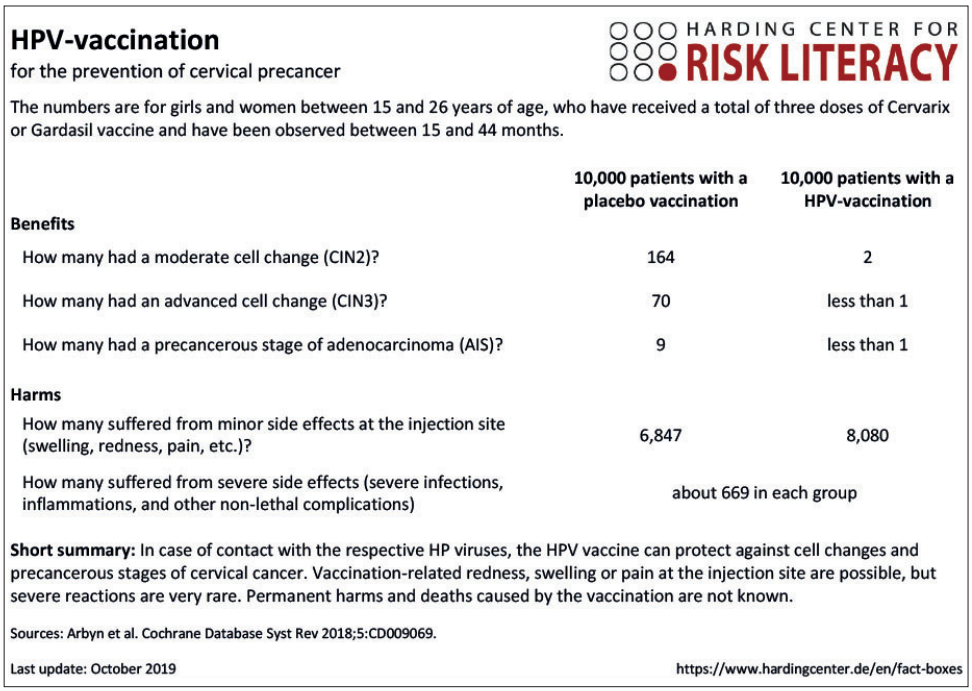
- The legitimacy of some health promoting nudges is subject to debate and their effectiveness is not always clear
- Another approach to behavioural policy has recently been proposed, known as boosting
- Boost interventions provide people with skills or tools to make better choices themselves
- Unlike nudges, boosts do not threaten autonomy or agency but may reduce equity
- Boosts should be considered when designing non-financial, non-regulatory behavioural interventions

What are boosts?

Just like nudges, boosts are interventions aimed at influencing people's decisions without coercing them or changing their economic incentives. However, while nudges do so by subtly changing the choice environment, boosts equip people with skills or tools to make better choices themselves.

Take, for example, people with yearly gym memberships who fail to exercise regularly despite genuinely wanting to do so.[18] This apparent conflict between inner values and actual choices, which can incur economic and health costs, can be explained by a common tendency to overvalue immediate rewards (such as watching television instead of exercising) compared with future, bigger rewards (such as reaching a healthy weight). While there is still uncertainty around what causes this tendency, similar patterns occur when people want and need to follow diets, take medication, and undergo screening.[19]

The boosting approach assumes that, in many cases, people can learn to detect and overcome these cognitive errors, thereby over-ruling seemingly irrational choices.[20] For example, teaching people temptation bundling strategies can boost their self-control and increase gym attendance.[21] These strategies consist of simultaneously pairing a behaviour that provides delayed rewards (such as exercise) with a pleasurable indulgence (such as watching television), so the former becomes more instantly gratifying.



HPV-vaccination

for the prevention of cervical precancer

HARDING CENTER FOR RISK LITERACY

The numbers are for girls and women between 15 and 26 years of age, who have received a total of three doses of Cervarix or Gardasil vaccine and have been observed between 15 and 44 months.

	10,000 patients with a placebo vaccination	10,000 patients with a HPV-vaccination
Benefits		
How many had a moderate cell change (CIN2)?	164	2
How many had an advanced cell change (CIN3)?	70	less than 1
How many had a precancerous stage of adenocarcinoma (AIS)?	9	less than 1
Harms		
How many suffered from minor side effects at the injection site (swelling, redness, pain, etc.)?	6,847	8,080
How many suffered from severe side effects (severe infections, inflammations, and other non-lethal complications)	about 669 in each group	

Short summary: In case of contact with the respective HP viruses, the HPV vaccine can protect against cell changes and precancerous stages of cervical cancer. Vaccination-related redness, swelling or pain at the injection site are possible, but severe reactions are very rare. Permanent harms and deaths caused by the vaccination are not known.

Sources: Arbyn et al. Cochrane Database Syst Rev 2018;5:CD009069.

Last update: October 2019 https://www.hardingcenter.de/en/fact-boxes

Fact box communicating the benefits and harms of HPV vaccination[26]

Boosts can target people's skills directly, as in the previous example, or target the environments in which people make choices. For instance, using fact boxes[22] to communicate the benefits and harms of a treatment can lead to better informed treatment choices without requiring people to acquire any new skill.[23 24] Fact boxes simplify the choice environment by providing information in formats better suited to human reasoning, such as natural frequencies (5 out of 1000 people experience X) rather than probabilities (the risk of experiencing X is 0.5%),[25] thereby boosting people's capacity to process complex information (figure).

These examples highlight a key difference between boosting and education. By equipping people with simple decision strategies or providing information in a way that improves their decision making capacities, boosts are typically less effort and more effective than teaching universal skills, the focus of traditional education.[17 20] Boosts targeting decision making specific to a single choice environment (choosing a treatment using a fact box) are considered short term, whereas those targeting skills applicable across various relevant environments (temptation bundling for different motivational deficits) are considered long term (table 1).[20]

Table 1 | Examples of long and short term boost interventions related to health

Target skills	Target population	Boost intervention
Long term boosts		
Self-control	People wanting to exercise regularly but failing to do so	"Temptation bundling"—ie, simultaneously pairing a behaviour that provides delayed rewards (such as exercise) with a pleasurable indulgence (such as watching a TV series), so the former becomes more instantly gratifying[21]
	Smokers wanting to quit	Meditation techniques to help control nicotine cravings[27]
Processing complex information	General public	Teaching intuitive decision strategies based on meal colour variety to facilitate healthy food choices[28]
Short term boosts		
Health literacy	Patients choosing between treatment options	Fact boxes to communicate treatment benefits and harms[23-25]
Accurate diagnosis	Doctors assessing patients with suspected cancer	Collective intelligence rules: simple decision rules derived from the pooled judgments of multiple doctors[29]
Accurate perception of risk	Patients receiving information about risk (such as risk of breast cancer)	Experience based information formats[30]: user friendly simulators allowing people to explore the likelihoods of possible outcomes associated with particular behaviours (such as risk of breast cancer associated with drinking alcohol)
Processing complex information	People deciding whether they should self-isolate during the covid-19 pandemic	"Fast-and-frugal" decision trees: simple decision aids that limit the number of questions or frame choices intuitively and memorably[31]

How do boosts differ from nudges?

Both nudges and boosts address seemingly irrational decisions resulting from human reasoning and both build on psychological and behavioural insights. In fact, some interventions, such as putting nutrition labels on the front of packaging—arguably qualify as both nudges and boosts.[20] However, the two types of intervention typically work in different ways. Unlike boosts, nudges redesign so called choice architecture and create environments that harness people's cognitive or motivational deficiencies to prompt choices in largely non-conscious ways. For example, switching from an opt-in to an opt-out policy for organ donation relies on people's tendency to prefer inaction over action (status quo bias), resulting in higher rates of organ donor registrations.[32]

To illustrate the difference, think of interventions to reduce smoking rates. A nudge could consist of reducing the visibility of tobacco products in stores to mitigate the effect of smokers' "attentional bias" for tobacco related cues.[33] This strategy is both libertarian (smokers can still buy tobacco) and paternalistic (the environment is modified to prompt them not to buy tobacco). Alternatively, a boost strategy could consist of teaching smokers meditation techniques that increase self-control over nicotine cravings.[27] Table 2 provides further examples.

The differences in design between nudges and boosts reflect differing interpretation of people's decision making processes.[17] Proponents of boosts think that people's poor choices result from a misuse of their inner decision making toolbox —for example, because of confusing information—and assume that people can often learn new skills or use adapted tools enabling them to overcome these problems. Conversely, for proponents of nudges, poor choices result from cognitive deficiencies that occur systematically because of the way human cognition works. People will never be free from these deficiencies, but nudges can be designed to harness them to promote better outcomes.[17]

Table 2 | Boost and nudge interventions targeting similar health related choices

Choice	Boost intervention	Nudge intervention
Exercising	Temptation bundling strategies to enhance self-control abilities through the pairing of exercise with a pleasurable indulgence	Using motivational signs to prompt stair use
Diet	Intuitive decision strategies based on colour variety in meals to facilitate healthy food choices	Rearranging food items at cafeterias to make healthy food easier to choose
Cancer screening	Fact boxes to boost processing of complex information and facilitate decision making	Framing risk information to make it more impactful
Smoking	Meditation techniques to enhance self-control over nicotine cravings	Reducing the visibility of tobacco products in shops to mitigate smokers' attentional bias

Why do conceptual differences matter?

Conceptual differences between boosts and nudges matter because they have different ethical implications. Nudges do not require people to be aware of the intervention, which can raise concerns about autonomy and consent. Boosts, by contrast, require a minimum of motivation and cooperation.

Consider, for example, a health professional who wants to motivate a patient to exercise by communicating their risk of a heart attack. A boost might provide brief statistical literacy training to enhance the patient's understanding of probability, so that they can make better informed lifestyle choices.[34]

A nudge, however, might present risk information in a way that is more likely to trigger behaviour change automatically (eg, using relative not absolute risks[35] or emotionally charged images[36]). While the nudge uses unconscious factors to influence choices, arguably threatening the patient's autonomy,[11] the boost requires their active participation, thereby avoiding such a charge.

Another problem is the criteria used to decide in which direction people should be nudged. Nudge originators, Thaler and Sunstein, argue that "it is legitimate for choice architects to try to influence people's behaviour in order to make their lives longer, healthier and better." Importantly, they indicate that the ultimate objective is to "make choosers better off, as judged by themselves."[1] Without this criterion, behaviour would be steered towards what nudgers think best, making nudges no different from classic paternalistic interventions.[10 37]

However, meeting this criterion assumes that nudgers can identify people's life goals and design nudges accordingly. This is arguable. Preferences can vary across time and contexts. They can also vary across people, implying that one-size-fits-all nudges cannot realistically benefit everyone.[10 37]

Even when a nudger is genuinely benevolent their idea of benefit might differ from that of the nudge recipient. And nudgers aren't always benevolent, even in healthcare—for example, clinicians nudging patients towards treatments in which they have a vested interest.

Boosts, on the other hand, are relatively immune to such concerns. They are designed to help people make better choices themselves. Boost recipients are free to use their acquired new skills or not. Knowledge of their life goals is not required, and differences in life goals within and between individuals are irrelevant.

Nevertheless, boosts also have limitations, particularly for people without the cognitive resources or motivation to learn and use new skills. For example, boosts may primarily benefit health conscious individuals who are willing and able to invest time and effort in boosting a skill. These individuals may already have healthier habits and higher socioeconomic status.

Boosts may therefore worsen (socioeconomic) inequalities in health. The fact that boosts promote agency and maintain autonomy in ways that nudges often do not, has the downside of making boosts more demanding and potentially less effective or equitable.

What matters is which interventions achieve enduring changes in behaviour without violating autonomy and agency

Boost, nudge, or both?

Empirical evidence on the relative benefits and harms of boosting remains limited. The seminal paper was published only five years ago,[17] although some earlier interventions have since been classified as boosts.[23-38] While various boosts have been shown to promote health related outcomes,[21-28] effects may vary over time and across target populations and behaviours.[24-29] What matters in the end is which interventions achieve enduring changes in behaviour without violating widely held values such as autonomy and agency.

Importantly, boosting shows promise in protecting people from the detrimental effects of "unhealthy" nudges already present in the environment (from fast food or gambling industries, for example). Assuming that the boosted skills effectively overcome cognitive biases, people may become less prone to malign nudges that rely on such biases.[39] However, by neutralising the biases that make people susceptible to nudges, boosts may reduce the opportunity for effective nudge policies should they be required (nudging always leaves open the option for boosting, but not vice versa).[39]

The key challenge, then, is to determine the situations best suited to boosting or nudging. Nuanced policy making should not consider either of these behavioural policy tools a silver bullet, or systematically prefer one over the other. More research is required to explore benefits of both types of intervention in different settings and populations, and also in the long term. In the meantime, boosts should be considered a useful additional tool for both health policy makers and clinicians.

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LETTERS Selected from rapid responses on bmj.com

LETTER OF THE WEEK

Dissenting voices are essential

To remove such clinicians from our organisations could lead to a disastrous impoverishment

Sokol's arguments for mandatory covid-19 vaccination of healthcare workers do not take into account several relevant matters (Opinion, 13 November).

In praising the increased vaccine uptake among healthcare staff in France, who otherwise faced losing their jobs, Sokol fails to consider the consequences of undermining their bodily autonomy or their respect for patients' bodily autonomy. He tells us there is no time to wait and see. But there is little real life evidence across the world that fight or flight is a wise approach, given that SARS-CoV-2 is now in wide circulation among both vaccinated and unvaccinated people.

Sokol does not ask himself what the loss of healthcare staff who have not accepted the vaccination might mean for healthcare delivery and for the systems of which they are a part. This cohort of clinicians is more likely to question the status quo, not just in relation to the purported benefits of the vaccination, but in other areas of practice. Dissenting and questioning voices are essential to the healthy functioning of any organisation. These members of staff often act as advocates for patients' care by making proposals for change or raising alarms that might prove beneficial to all. To remove these clinicians from our organisations could lead to a disastrous impoverishment.

Sokol takes a reductionist approach, as so many have over the past 18 months. Covid and data in relation to it have dominated almost all aspects of healthcare. A single minded approach to medicine (and to ethics) can quickly turn it into a coercive and cruel practice. It attacks professional and personal relationships, which are much needed to help us accept the complex reality and interplay between health, illness, and society.

Matteo Pizzo, consultant psychiatrist, London

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MANDATORY COVID VACCINATION FOR HEALTHCARE WORKERS

Vaccinated people can still infect others

Sokol's main argument for mandatory covid-19 vaccination of healthcare workers is that vaccination of patient facing healthcare workers protects patients (Opinion, 13 November). The author makes this claim based on a health department study from Australia.

A recent study in *Lancet Infectious Diseases* indicates, however, that vaccinated people who subsequently become infected are just as likely to infect those around them as unvaccinated people who develop covid-19. This does somewhat weaken the argument for mandatory vaccination of healthcare workers as a means of protecting patients.

The best way to protect patients is for all healthcare workers who work directly with patients to have mandatory weekly testing. Showing a lack of infection will surely provide better protection to patients than a passport that indicates vaccination at some point in the past.

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Managing risk in some areas but not all

For decades, the NHS has required healthcare workers to be vaccinated against hepatitis B—even requiring proof of adequate antibody response—as well as measles, varicella, and tuberculosis. Healthcare workers without immunity won't necessarily lose their jobs but might be considered medically unfit for certain duties.

Perhaps, in the name of personal freedom, we should ditch all that? Perhaps not require surgeons to be screened for bloodborne viruses and vaccinated accordingly? Should we put a new clause in the surgical consent form: "I understand that my surgeon has not undergone any checks for HIV; hepatitis B or C; or any other bloodborne virus that could be transmitted during invasive surgery"?

The risk of serious harm to the population from a surgeon with HIV is lower than from an unvaccinated healthcare worker with asymptomatic covid-19. Why do we demand risk management in one area but protest against it in others?

Steve J Waters, early retired specialist in occupational medicine, Brighton

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ME/CFS

Finding consensus on the role of exercise and CBT

The BMJ reports the royal colleges' discontent with the NICE guideline on myalgic encephalomyelitis (or encephalopathy)/chronic fatigue syndrome (ME/CFS), particularly regarding graded exercise therapy (This Week, 6 November).

The quality of the evidence and the rigour of its assessment are contested by the colleges, patients, and researchers. The colleges emphasise the potential benefits of exercise, the patient community emphasises the potential harm that exercise can cause, and both communities quote research supporting their hypotheses, the quality of which is contested.

Consider a patient with ME/CFS who, after attempting exercise, reports a worsening of their symptoms. Should the physician interpret this as the body's normal response? Or should they abandon exercise?

The guideline says: "Health and social care professionals should take time to build supportive, trusting, and empathetic relationships." Trust cannot be achieved if a patient believes the treatment is causing them harm. Surely royal colleges, researchers, and patients can agree on this?

Stuart I Brown, researcher (retired), Kinross

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TURNING UP THE HEAT ON THE NHS

Time to change and rebuild with 21st century tools

Politicians' short sighted "fixes" are not going to help rebuild the NHS (Editorial, 13 November). Decades of erosion for political gain, bullying into absurd performance tasks, recurrent organisational changes, and waste of resources have led us here. The workforce crisis is not new; it is endemic, and there is no solution in sight.

Primary care was looking for different ways to improve access to services before the pandemic. In 2014, many clinical commissioning groups engaged with their practices looking for new models of care and for better technology use. We need to work more efficiently and look for new ways to deal with current demand. We need urgent change, not to waste time thinking the past was better. It is time to build new models of care using the 21st century technology at our disposal: it is time to progress and to support and encourage people to be part of it.

Pablo Millares Martin, GP, Leeds

Cite this as: *BMJ* 2021;375:n3024

It's not fair to blame only the government

Threat of industrial action is looming large in primary care, consultants are unhappy, and NHS leaders are expressing concerns about their ability to deliver care this winter.

We are just coming out of a pandemic. The government has taken bold steps and we have many things to celebrate. Our vaccination rates are the envy of many of our European neighbours. We have kept case numbers and impact on the NHS stable, with few restrictions. We successfully managed the pandemic by working collaboratively.

The government seems to be under constant attack. We need to avoid using inflammatory language and work together to get through winter with minimal loss of life and suffering. We must work out how best to look after our ageing population, and this can only happen with an open and honest dialogue between different players in the health and care system, the government, and the public.

Padmanabhan Badrinath, consultant, public health medicine, Ipswich

Cite this as: *BMJ* 2021;375:n3038

MEDICAL SCHOOLS

First the words, now the actions are needed to tackle sexism

We are heartened that our students feel empowered to speak out about sexism and that our institution takes it seriously (Letters, 2 October and 20 November). We can report actions triggered by these letters and pre-existing activities that make positive change.

Discussion was quickly initiated between medical teachers and learners in clinical debrief sessions, attended by all students in years 3 and 5. This aimed to raise awareness of sexism and develop skills in allyship.

Students and faculty have co-produced curriculum changes and contribute to tackling all forms of discrimination at personal and institutional levels, including removing stereotypes in written cases; incorporating reflection on diversity and lived experience in portfolio entries; providing dermatology resources for diverse skin types; and contributing to active bystander training.

We ask students to continually hold us to account. Their active involvement will make meaningful change to their experiences, and those of their successors.

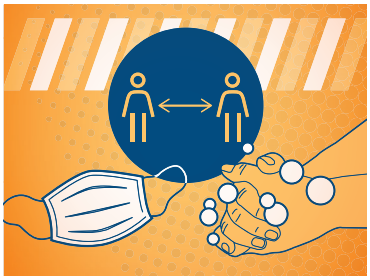
Rebecca Farrington, senior clinical lecturer; Enam Haque, senior clinical lecturer, University of Manchester

Cite this as: *BMJ* 2021;375:n3034

PUBLIC HEALTH MEASURES

Understanding the role of ventilation in the pandemic

Talic and colleagues assessed public health measures for reducing covid-19 but did not assess interventions designed to reduce the presence of virus in inspired air, such as filtration, window opening, or the installation of ventilation (Research, 20 November). These are potentially important considerations in the design of buildings, workplaces, and homes for "antiviral sustainability."



A lot of hospital based transmission of covid-19 is likely to take place in poorly ventilated non-clinical areas. Variations in the effectiveness of school closures may have related to differences in ventilation or climate, which could be major determinants of school transmission.

It is hard to understand why ventilation, high efficiency particulate air filtration, ultraviolet disinfection, and ambient carbon dioxide monitoring were not mentioned in an article that seeks to inform policy. To deliver effective responses to viral threats, surely it is important to understand the relative effectiveness and interactions between all the different measures?

Simon Ashworth, consultant and clinical director critical care, London

Cite this as: *BMJ* 2021;375:n3050

INTERNATIONAL MEETINGS

Online conferences need playbooks for participants

I agree that international in-person medical conferences have had their day (Head to Head, 13 November). But running international meetings online has its problems—having a "playbook" for how each online conference works would be helpful.

The annual conference of the Association of Contextual Behavioural Science was online last year. Live events were scheduled for the middle of the night in my time zone, so I took time off work, before discovering I had taken off the wrong weekend and the talks were not available to view for two weeks.

Another option is to pre-record sessions and make speakers available at the end for live commentary. Either way, the playbook for the conference needs to be made clear at the beginning of any advertising. As a fellow carbon criminal, I use 800 litres of aviation fuel to fly to Europe, and I am keen not to do that in future.

Bruce Arroll, professor of general practice, Auckland

Cite this as: *BMJ* 2021;375:n3020

Ian Rothwell

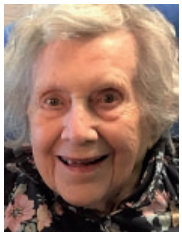
Consultant clinical oncologist Cookridge Hospital, Leeds (b 1942; q Middlesex Hospital, London, 1966; FRCS, FRCR), died from cerebrovascular disease on 1 August 2021

Ian Rothwell trained in surgery and went to work in Sabah, East Borneo. In 1978 he returned to the UK and retrained as a clinical oncologist at Cookridge Hospital in Leeds. Soon after completing his training he was appointed consultant with a special interest in gynaecological cancer. Ian had three separate cancers during his life and that gave him considerable empathy, which was a great help to his patients as well as the local and national cancer self help groups to which he gave unstinting support. In retirement he developed an interest in medical history and was a popular lecturer at the Thackray Museum and in venues around Yorkshire. Ian leaves Mary, his wife of 51 years; three children; and five grandchildren.

Dan Ash

Cite this as: *BMJ* 2021;375:n2522

Elizabeth Fincham



GP Yalding (b 1922; q Guy's Hospital, London, 1952), died from old age on 28 February 2021

Elizabeth enrolled at Guy's Hospital in its first batch of six female students. In 1948 she married Paul Fincham and in 1956 they settled as GP partners in the village of Yalding in the Weald of Kent. The surgery was contained within the family home, which allowed Elizabeth to raise their four children while still attending to patients. Paul and Elizabeth retired at the end of 1986, and their elder son, Anthony, remained there as senior partner for a further 32 years. Elizabeth enjoyed a happy and active 34 year retirement, slowly succumbing to the pathological vicissitudes of old age but dying peacefully in her own home at Fairwarp on Ashdown Forest. She leaves three of her children and a host of grandchildren and great grandchildren.

Anthony Fincham

Cite this as: *BMJ* 2021;375:n2506

Maria Helena Gilleece

Consultant haematologist Leeds Teaching Hospitals NHS Trust and director of the Yorkshire Blood and Bone Marrow Transplant Centre (b 1959; q Liverpool 1984; MRCP, MRCPath, PGC Med), died from ovarian cancer on 24 June 2021

In 1997 Maria Helena Gilleece took up a two year Kay Kendall Leukaemia Fund fellowship at the Dana Farber Cancer Institute in Boston, USA, and subsequently was a research fellow in Brisbane, Australia. On her return to the UK in 2000 she worked in London and north Wales, before being appointed as a consultant in Leeds in 2005. Maria had a lifelong interest in medical education and staff development. She was a collaborative colleague and a source of wisdom and support to all who were lucky enough to come across her. Throughout her life, her strong faith never wavered. Maria leaves her mother, Margie, and her brother, Aidan.

Anne Robinson, Rod Johnson, Mark Hughes

Cite this as: *BMJ* 2021;375:n2507

William Larkworthy

Consultant gastroenterologist (b 1933; q University College Hospital, London, 1957; FRCP Edin, DCH Eng), died from heart failure on 18 September 2021

William Larkworthy ("Bill") spent the first 20 years of his medical career in the Royal Air Force. He specialised in internal medicine, became a consultant, and was appointed as consultant adviser in gastroenterology. He left the RAF with the rank of wing commander and became chief of gastroenterology at the King Faisal Specialist Hospital in Riyadh, Saudi Arabia. After five years he moved to the Gulf and worked for almost 20 years as a medical specialist in Sharjah and Dubai. Thereafter he retired to Provence and lived happily among the vines. He spent his retirement enjoying France and writing for pleasure. Despite health problems in later years, Bill maintained his enthusiasm for life. He leaves his wife, Maria; three children; seven grandchildren; and five great grandchildren.

Bill Larkworthy, Joanna Fahey

Cite this as: *BMJ* 2021;375:n2519

Thomas Manners

Consultant pathologist Ashington General Hospital, Northumberland (b 1923; q University of Durham, 1946; FRCPath), died after a short illness on 20 August 2021

Thomas Manners ("Tom") studied medicine at King's College, Newcastle upon Tyne, then part of the University of Durham, in 1939. He was appointed consultant pathologist at Ashington General Hospital in 1955 and was responsible for haematology, microbiology, and biochemistry as well as general pathology. In 1988 he retired and was replaced by three consultants. He continued working part time in his retirement until 1991. He managed his large workload with dedication and good humour and always found time to discuss patients' problems with his clinical colleagues. He made a point of welcoming and supporting new colleagues and members of staff and was vice chairman of Northumberland Area Health Authority for several years. Tom leaves Amy, his wife of 75 years; two daughters; and four grandchildren.

Joy Manners, Louise Manners, Paul Crook

Cite this as: *BMJ* 2021;375:n2520

Camilla Bosanquet

Psychiatrist and psychoanalyst (b 1921; q Cambridge/London 1945; DCH, DPM, FRCPsych), died after a fall on 14 June 2021

Camilla Bosanquet was a Jungian psychoanalyst, a former chair of the Society of Analytical Psychology, and involved in setting up the Guild of Psychotherapists. In 1950 she moved to Kent with her family. She had a severe nervous breakdown and spent several months as an inpatient. Afterwards she became a full time medical officer at the Oakwood Mental Hospital, which made her painfully aware of how little individual psychiatric care was available to the inpatients. In later years, macular degeneration gradually took her sight and she became increasingly deaf. Covid added to her isolation, but she celebrated a lockdown 100th birthday on Zoom, with the Queen's birthday card proudly on display by her side. Predeceased by her husband and one of her children, she leaves two children.

Robin Bosanquet

Cite this as: *BMJ* 2021;375:n2505

Alexander McNeish

Paediatric gastroenterologist, clinical researcher, and academic administrator

Alexander Stewart McNeish (b 1938; q Glasgow 1961; PhD; FRCP, FRPCH, FMedSci), died suddenly on 2 August 2021

An only child, Alexander Stewart McNeish ("Sandy") was born in Glasgow to Angus Stewart McNeish, a general practitioner, and Minnie (née Howieson), a housewife. His father's medical practice was part of the family house and run by his mother.

Educated at Glasgow Academy, he was an all rounder, good at academic subjects and at sports. An excellent swimmer, his 100 m backstroke was fast enough for McNeish to be considered for the Empire Games. He also developed a lifelong passion for golf.

He originally wanted to read classics at university but changed his mind and decided to become a doctor, like his father.

Medical career

McNeish first trained in cardiology but found that he enjoyed working with children and switched to paediatric gastroenterology.

He moved to Birmingham in 1970 to work with the formidable Charlotte Anderson, who encouraged him at the forefront of the new subspecialty of paediatric gastroenterology. Six years later he became the first professor of paediatrics at the new medical school at the University of Leicester, where he developed an interest in neonatal gastroenterology and infectious diarrhoea, a common cause of malnutrition in the developing world.

He returned to Birmingham in 1980 as the Leonard Parsons professor and continued his research. A keen traveller, he built up links with several African countries and trained medical students in Nigeria, Zimbabwe, and Ethiopia, weeks before Haile Selassie was deposed. He had a narrow escape during the troubles surrounding Zimbabwean independence when the plane he had been planning to travel on was hit by a missile and crashed, killing all on board.

One of the major highlights of McNeish's career in paediatric gastroenterology was his presidency of the European Society of Paediatric Gastroenterology and Nutrition (ESPGHAN). Popular with his peers, he organised a successful annual meeting in Edinburgh. Together with Peter Milla and Ian Booth, he established the ESPGHAN summer school in Birmingham in 1989.

In 1995, after a successful period as dean of medicine in Birmingham, he became director of the Medical Research Council clinical research centre at Hammersmith Hospital, London. His colleague Amanda Fisher, head of the Institute of Clinical Sciences, paid tribute to McNeish, "He will be fondly remembered by many of us as someone who loved great science, promoted clinical science in all its different guises, and helped navigate the institute through uncertain times with characteristic wit, skill, and good humour."

Ancient rivalries

In 1997 he accepted a challenging role that required him to amalgamate two ancient, competing institutions—St Bartholomew's Medical School and the Royal London Medical School. In 1995, the two schools had merged and were integrated into Queen Mary University of London. McNeish had the necessary leadership and administrative experience.

"He helped navigate the institute through uncertain times with characteristic wit, skill, and good humour"

As an outsider, he seemed the ideal appointment as he was deemed to be neutral when dealing with complex problems arising from the ancient rivalry. With strong, pragmatic leadership, McNeish did an admirable job in bringing together the two schools.

In his retirement, he undertook a doctorate on the history of human tissue legislation in the UK, which he achieved in 2011. The research was conducted largely by interviewing senior civil servants over lunch at the Athenaeum.

For relaxation, he enjoyed golf with an accomplished handicap of four, and was a keen traveller. Although he never returned to live in Scotland in the 50 years after he left, he retained a strong Scottish accent all his life and was proud of his roots, although he abhorred Scottish nationalism.

McNeish married Joan Hamilton in 1963, and they had two sons and a daughter, who died of Friedreich's ataxia aged 37, having been diagnosed at the age of 8. He leaves Joan, two sons, and four grandchildren.

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