comment

"Managerialism over clinical leadership is rife in the NHS" **DAVID OLIVER**
"The involvement of a drug company has raised a few eyebrows" **HELEN SALISBURY**
PLUS Human frailty and medical mistakes; why we need to record food poverty

CUT TO THE CHASE Gabriel Weston

Fresh, springtime thinking

The garden is alight with sun. I've got the radio on and some seeds in my hand, and I'm ruing the habit of discriminating between good and bad bacteria.

Maybe it's this moralistic approach to nature that's stopped me realising what an amazing organism the recently renamed *Clostridioides difficile* is. After all, doesn't it seem prurient to take an interest in this bug, which is the biggest cause of nosocomial diarrhoea worldwide and has been slapped with the most severe warning level by the US Centers for Disease Control and Prevention?

It's surely right that, when I flew to the US with the BBC a few years ago to film the gastroenterologist Colleen Kelly using a faecal microbiota transplant to vanquish an intractable case of *C difficile* in a patient, we turned our camera on the cure for this devastating infection rather than revelling in its cause.

But, in sneaky solitude, I've luxuriated this week in the fascinating world of this bacterium. I love the mistakes and revelations of its history. I'm engaged by the diagnostic dilemmas. I'm in awe of its dynamic ability to produce new strains. And, most of all, I'm gripped by its shapeshifting powers.

C difficile needs two guises: a "spore" for transmission and a "vegetative" form for destruction. The spore is like a gobstopper, its arsenal encased in seven protective shells, inuring it to disinfectants, heat, and radiation. The outermost exosporium even has little projections to help it stick to bedding.

Once swallowed, the dormant spore passes, untouched by the acid onslaught of the stomach, into the small intestine. In a healthy gut it does nothing. But, if antibiotics have sufficiently disrupted the microbiological environment, it's action stations. A drop in the usual products of bacterial metabolism—for example, the secondary bile salt chenodeoxycholate—and a rise in precursors, such as the primary bile salt cholate, prompts germination. Once transformed into its vegetative form, *C difficile* produces more spores, but it also makes toxins that wreak havoc on the large intestine by dissolving its epithelium.

So, I'm marvelling at the presumably infested soil, guarding my shameful *C diff* zeal, when the physicist Paul Davies comes on the radio and makes me feel a whole lot better. A researcher of everything from Martians to theology, he's been invited to help solve some of the chewiest conundrums in cancer research. Why a physicist? For one simple reason, he explains: revelations come from curiosity. And doctors have become so bound up with seeing cancer as the enemy, they're no longer able to bring fresh, wondering eyes to figuring it out.

I like this springtime thinking. I spill a sachet into my hand and start to poke little holes in the ground. Who knows whether I'll have anything to show for it this year? But I sure as hell won't grow a single radish if I don't start by planting these seeds.

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Doctors, so used to seeing cancer as the enemy, no longer bring fresh, wondering eyes to it

PERSONAL VIEW
Giles Maskell

In humans, years of experience are no protection against the stupid mistake

As a radiologist I'm used to getting things wrong, but one missed abnormality really shook me up

A couple of years ago, while driving home from my mother's funeral, I did something really stupid. It was a long drive and I needed fuel so I pulled into a garage somewhere on the south coast and filled up with petrol. I was, unfortunately, driving my wife's diesel car.

I realised what I'd done while standing in the queue waiting to pay. I've never done that before and of course I'd like to think that I won't do it again. I can readily explain to myself why it happened—the unfamiliar car, the unique circumstances, my head full of a lifetime of memories of my mother. Looking back, some sort of error seems almost inevitable—it's a wonder that I didn't crash the car as well.

At work I did something that now seems almost equally stupid. I failed to spot an unusual, but important, abnormality on the radiographs of an injured patient. I won't give you details, not because I'm afraid of the consequences—someone else spotted the abnormality even before I missed it and no harm resulted this time—but frankly because I'm too embarrassed.

This is a condition about which I have taught registrars for a quarter of a century. If one of them failed to recognise it, I would have serious doubts about their competence. But I still missed it.

This time, no decent explanation comes readily to mind—I can't blame a bereavement, I wasn't sleep deprived or under any particular pressure. Perhaps I was aware, at some level, that others were likely to be reviewing the same images and somehow allowed my attention to drift. I don't know. As a radiologist I'm used to getting things wrong, but this one shook me up.

Unconscious inattention

The arch enemy of the radiologist is not so much ignorance as inattention. Not wilful inattention—few of us listen to the radio or carry out our online shopping while reporting—but the unconscious inattention and associated blindness derived from the host of perceptual and cognitive biases to which all humans are subject. Not to mention the myriad distractions that can intrude on any busy clinical environment.

Some have likened radiological error to a surgical complication—an unavoidable risk inherent in the process. If we accept that a certain level of error is inevitable, then should we perhaps warn patients about it in advance? The question of seeking consent for exposing patients to medical radiation has been debated for years, but the risk of harm from misdiagnosis is much greater. Some patients decline certain imaging tests because of radiation concerns. Would anybody decline a test because it might be misinterpreted?

I have often been asked to give an "acceptable" rate of error by a radiologist and of course there is no answer to this. From the patient's point of view, there is no acceptable rate. Had the patient above come to harm and subsequently found out about my error he or she would have had every right to complain. Perhaps a serious incident would have been declared, an investigation would have taken place, a "root cause analysis." A set of actions would doubtless have been proposed, all designed to prevent anything similar happening again. Effective? I doubt it.

Root cause

Yes, it does feel like a cop-out to blame my egregious error on human frailty, but that's exactly what it was. That was the root cause. Could it

BMJ OPINION Anna Taylor

It is crucial we know which UK families cannot afford to buy food

The government recently announced that it will start measuring food insecurity as part of its annual Family Resources Survey. This decision has been welcomed by many and represents a major breakthrough for campaigners who want to see an end to food insecurity in the UK.

Food insecurity is when a household faces periods during which it doesn't have enough money to acquire food, or when the household cannot buy the full variety of food needed for a healthy diet. It is a severe form of material deprivation, and the mental and physical health consequences for people affected are far reaching.

Whether or not food insecurity exists in the UK is contested. The response to the recent visit from the UN special rapporteur on extreme poverty is testimony to this, as is the media discourse about food bank statistics and whether they reflect a real problem or a shift in supply. Arguing over the numbers has created a vast space for inaction. This is why it is so important to have official statistics.

The government usually refers to the proportion of household income spent on food, and the fact that this has not changed much in recent years is used as evidence that food insecurity is not a problem. The fact that the absolute amount that many households are spending on food is much less than the requisite sum needed to buy a healthy diet, as defined

In the poorest 20% of households, a healthy diet would use 42% of disposable income, affecting around 3.7 million children

It feels like a cop-out to blame my egregious error on human frailty, but that's what it was. Could it happen again? Yes, it's more than likely

happen again? Yes, I'm afraid it's more than likely. The important thing, we are told, is to learn from our errors, so what have I learnt? Not much more, surely, about a condition about which I have been teaching for 25 years. I suppose I have learnt that all my experience and all those years in practice don't protect me from making really stupid mistakes. But maybe I knew that already.

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by the government, is not considered.

Indeed, the Food Foundation found that, in the poorest 20% of households, buying a healthy diet would use 42% of disposable income. Around 3.7 million children live in households that face these circumstances.

Food insecurity can create immense stress and anxiety in households, and it contributes to irregular eating patterns and a pressure to buy the cheapest calories to alleviate hunger. It is a shameful experience, and children feel this shame as profoundly as their parents.

The systematic measurement of this problem in official statistics will, we hope, create space for a much deeper look at the policy frameworks in place that prevent people from securing the basic right to eat a healthy diet.

If we can record the scale of the problem, it'll be the first step towards changing it.

Anna Taylor is the executive director of the Food Foundation, London

ACUTE PERSPECTIVE David Oliver

Why aren't more NHS chief executives doctors?

Last month, Susan Gilby joined a small band of doctors in the NHS acute sector when she was confirmed as chief executive of the Countess of Chester Hospital. We see more doctor chief executives outside the hospital sector, but it's still a small minority. NHS Providers found that only a third had clinical qualifications, 63% of whom trained as nurses but only 19% as medical doctors.

Amanda Goodall, of City University of London, and her research colleagues have found that, across several sectors, including hospitals and healthcare systems, organisations led by technical experts generally deliver better results. Her work with 300 hospitals in the US found that those led by doctors, on average, outperformed those led by managers. There's a growing consensus that clinically led organisations are better able to meet challenges around quality, improvement, and safety.

But operational and strategic management requires a different skill set from those traditionally taught in medical training. No one's suggesting that simply having clinical training is sufficient to become a competent senior manager. But I bet it's easier to select clinicians who show an aptitude for management and give them the right development and training than to give managers from a non-clinical background a deep understanding of the service they're managing—and credibility with patient facing clinical staff.

The barriers for doctors entering senior management and executive roles include doctors' identity being wrapped up with ongoing clinical practice and a reluctance to stop seeing patients. Another is a suspicion of pure executive roles—their exposed accountabilities, the perceived difficulty in returning to clinical work, a lack of confidence and training in the required competencies, and concerns about relationships with medical colleagues in a culture that's traditionally been one of equal peers.

Many of the overseas health systems we'd like to learn from have medical leadership from top to bottom. In the NHS, managerialism over clinical leadership has been rife since Margaret Thatcher's government. We have a big culture of centrally dictated performance management, based on regulatory metrics and cost containment.

In such a system, perhaps the people who do understand the business are career managers. Perhaps, for more doctors to enter the boardroom, they need more say in defining what real quality looks like.

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Many of the health systems we'd like to learn from have medical leadership from top to bottom

PRIMARY COLOUR Helen Salisbury

Who let the drug companies in?

In a recent *BMJ* article Tom Moberly brought our attention to joint working arrangements between the NHS and drug companies. Just such an arrangement is being rolled out in Oxford, in the form of an integrated multidisciplinary respiratory team, jointly funded by Boehringer Ingelheim and the local clinical commissioning group (CCG).

The project aims to improve care for patients with respiratory conditions and bring this care into the community. The team will include a respiratory consultant, GP, nurse, physiotherapist, psychologist, smoking cessation worker, and pharmacist. The CCG hopes that this will not only improve patients' symptoms but also reduce hospital admissions due to exacerbations of chronic obstructive pulmonary disease (COPD), thereby saving money. What's not to like?

The involvement of a drug company in this project has raised a few eyebrows. Boehringer Ingelheim is contributing the main share of the funding—£748 000, compared with £181 000 from the CCG—so it's reasonable to ask how the company will benefit.

According to the project initiation document, a stated aim of the project is to "increase and improve accurate, timely diagnosis of respiratory disease" and to reduce the deficit between registered and estimated COPD prevalence (1.4% *v* 2.0% of total population). And one of the potential benefits for Boehringer Ingelheim is said to be "more appropriate use of medicines for patients with respiratory diseases, some of which may be Boehringer Ingelheim medicines."

A specific element of the service provided by the integrated respiratory team will be joint respiratory and practice nurse clinics, which will include prescribing recommendations, although the CCG insists that the collaboration will have no effect on which drugs are proposed: "No use of BI's medicines is implied or required within the scope of this project . . . there is and will be no influence placed on . . . staff to use BI medicines."

Only one practice has declined to join, and it's facing considerable pressure from the CCG to change that decision. The GPs at that practice would rather the commissioners put money directly into smoking cessation and pulmonary rehabilitation than into this project.

To its credit the CCG has been open about this collaboration, and deals such as this may patch up some of the holes left by underfunding our NHS—many do see it as a win-win deal. But I still have misgivings: if this project is necessary and beneficial for our patients, why can it happen only when 80% of the funding comes from an outside investor?

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GPs at one practice would rather the commissioners put money directly into smoking cessation and pulmonary rehabilitation

LATEST PODCASTS

How to have joy at work

The medical profession is becoming increasingly and painfully aware of the harms that doctor burnout can inflict, but how can we tackle this problem? *The BMJ* speaks to Jessica Perlo, the director for joy at work at the Institute for Healthcare Improvement, about how she's working with healthcare organisations to help promote wellbeing in the workplace. Here she explains how hospitals need to start by looking at the essentials of what staff need:

"We need to meet the basics of Maslow's hierarchy of needs before we can start to make inroads in other places. I was shocked when we were working with a radiology practice and they said we just want water breaks and bathroom breaks during the day. These really foundational things needed to be tackled first before we were going to start to talk about camaraderie or team work or things like that."

Social prescribing

Social prescribing seems to be everywhere at the moment, but what is it, how do you do it, and does it work? In this podcast *The BMJ*'s Tom Nolan talks to Chris Drinkwater, emeritus professor of primary care, and Louise Cook, a link worker, who provide social prescribing support to people in their area. In the excerpt below, Drinkwater explains why he has reservations about using the term prescribing to describe this approach:

"Prescribing is a medical model and I think we have to remember that what's important for the doctor isn't always the same as what's important for the patient. Very often, thinking about patients, it's the impact that a long term condition has on their employment, the impact that it has on their life and social circumstances, that matters."

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Edited by Kelly Brendel, assistant web editor, *The BMJ*

ANALYSIS

Cost of extending the breast screening age range in England

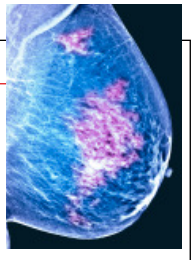
Susan Bewley and colleagues examine the clinical and ethical implications of Public Health England's trial of widening the age limits for the mammogram programme

AgeX is the acronym for the cluster randomised controlled trial of extending the NHS breast cancer screening age range in England, inspired and funded by the UK government.

The trial aims to assess the risks and benefits of extending mammography screening for breast cancer outside the current 50-70 year age range by offering one extra mammogram to women between the ages of 47 and 49 and up to three to those over 70. Announced as "likely to be the largest randomised controlled trial ever undertaken in the world,"[1] during 2010-16 AgeX randomised three million women into the extended age groups and screened one million.[2]

Concerns have been raised over the adequacy of information on benefits and risks provided to women in the study, which carries risk of surgical and other harms to participants. Women learn of their inclusion in research through a letter with a prebooked screening appointment. We highlight the likely surgical burden for women aged 47-49 and consider whether extending breast screening is still appropriate as accumulating evidence challenges its assumed benefits.

The design of this trial does not meet standards for generating evidence that would be robust enough to inform future policy



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KEY MESSAGES

- Public Health England began recruiting millions of women to the Age Extension Trial of Breast Cancer Screening in 2009, before of harms of overdiagnosis were fully recognised
- The cluster randomised trial is criticised for its design, conduct, and lack of transparent scientific processes
- The resulting evidence may therefore not be robust enough to inform policy
- Participants' understanding and consent to participate in research are not checked despite the risks of surgical and psychological harm

Policy and controversy

Mammography screening aims to find breast cancer before a lump is palpable, giving the opportunity to start treatment earlier.[3] The current UK screening programme, started in 1988, offers triennial mammography to all women aged 50-70. Of the 2.85 million women invited in 2015-16, 75% attended. In common with programmes worldwide, the screening age range was defined based on evidence of when mammography is most effective at detecting tumours.

The programme has been estimated to prevent 1300 deaths from breast cancer each year.[4] But evidence suggests improvements in breast cancer survival rates since the introduction of mass screening probably result from concurrent improvements in the adjuvant hormonal and chemotherapy used to treat breast cancer.[5,6] There is also evidence that screening does not reduce the number of tumours reaching late stage and that it results in substantial overdiagnosis,[7] with consequent radiotherapy, lumpectomies, and mastectomies.

Age extension trial

In 2007 the Labour government's cancer reform strategy recognised late diagnosis as a factor contributing to poor cancer survival rates in the UK.[8] It seemed logical to assume that the earliest diagnosis would offer the greatest chance of cure, so the government's proposals included extending the age range for breast cancer screening. By 2012, it promised, women would receive nine screens between the ages of 47 and 73, with a guaranteed first mammogram before age 50. Limited capacity forced a decision to phase in the proposed extension.

According to the organisers, randomising would, "provide a unique opportunity to obtain unbiased evidence on the net effects of the new policy," although the extension would "proceed regardless of whether the study goes ahead or not."

The Nationwide Randomised Trial of Extending the NHS Breast Screening Age Range was started by Public Health England in June 2009 with an original expected participation of 1.1 million women over 13 years. The cluster design randomises batches of 1000 screening invitations normally sent to women aged 50-70 to be extended to comprise those aged either 47-70 or 50-73. Half of all women aged 47-49 and half of all women aged 71-73 are invited to screening, while all women aged 50-70 are invited to screening as usual.

The trial compares breast cancer incidence and mortality between screened and unscreened participants in the studied population. In 2016, the Age Extension trial was renamed as AgeX. The recruitment target was raised to "at least six million."[9]

Shaky foundation

It is laudable to test government policy before it is rolled out. But the design of this trial does not meet standards for generating evidence that would be robust enough to inform future policy, as described below.

Evidence base—It is good practice for scientific experiments to be preceded by a systematic review of the evidence to avoid wasteful research and repeating unnecessary harms. Here, there was no such

review. Emerging concerns about the lack of efficacy and potential harms of screening were mentioned briefly as "so-called overdiagnosis" in AgeX's seven page original trial protocol. The trial's sponsor (University of Oxford), when asked whether the protocol had been subjected to independent scientific peer review, told us only that it had been reviewed by the Department of Health advisory committee on breast cancer screening.

Outcomes—AgeX's primary outcome measure is death from breast cancer. Total cancer deaths are not recorded, and overall mortality was added in 2016 as a subsidiary outcome but will not be included in the primary analysis. Measuring breast cancer mortality alone excludes deaths resulting from side effects of treatment or cancers caused by mammography. This is relevant as suitably randomised trials of breast cancer screening find no effect on total cancer mortality.[3]

Potential for bias—Estimates of breast cancer mortality in screening are particularly vulnerable to bias because large numbers need to be screened to see the small effect and there is a long lead time for outcomes to become evident. Bias in suboptimally randomised trials of breast cancer screening may have resulted in benefit being overestimated.[10]

During the past decade, AgeX increased its planned duration and sample size, study outcomes were changed, and a proposal for statistical analysis was retrospectively appended. These factors, coupled with the protocol's stated plan to continue the trial beyond a "fixed, predetermined sample size" until "clear answers emerge" all increase the likelihood of a biased assessment.

Lack of explicit, fully informed consent

According to good clinical practice, trial participants must be told that they are in a trial and given details of all known benefits and harms in language they can understand.

When the age extension trial was first conceived, screening was already known to be associated with harms, but these were not believed to outweigh the benefits of early detection. Harms range from false positive results with associated psychological distress to overdiagnosis—with abnormalities that would not have harmed the woman in her lifetime being found, leading to potentially dangerous, painful, and disfiguring treatment.

Early AgeX trial documentation refers to "so-called overdiagnosis." But the team's assumption that overdiagnosis was unimportant was challenged in 2012 when the Independent UK Panel on Breast Cancer Screening, chaired by Michael Marmot, published a detailed review of the evidence.

The report recognised and quantified overdiagnosis—for every breast cancer death averted, three "cancers" that would never have troubled women during their lifetimes would be found and treated.[4] The physical and psychological harms resulting from such treatment are substantial. Yet in 2016, when AgeX's recruitment target was raised to six million, this increase—with corresponding potential for harm—was not referred to or justified in an accompanying application for ethics approval.

With Marmot's publication, the confirmation that predicted benefits were accompanied by appreciable and quantifiable risks to participants should have triggered a reflective review of the research question and study design. Crucially, this should have included whether participants should now be given full risk-benefit information and the opportunity for explicit, fully informed consent.

In AgeX, an early decision had been taken to forgo such consent. The original protocol said, "100% coverage is essential for the scientific validity of the study, and excluding participants for whom we cannot get consent could seriously bias the results ... consent is implied for those who attend for screening."

Women in the invited clusters learn of their inclusion through a letter with a prebooked screening appointment, general mammography advisory notes with the sign-off, "Remember ... screening saves lives," a brief leaflet describing the trial (but not the potential risks of participation), and the standard pink breast cancer screening booklet written for women aged 50-70.[11] The trial participation leaflet was expanded in 2014 from one to four pages,[12] but description of risk is limited to "be[ing] asked to return for more tests." Trial participants' understanding that they are voluntary participants in research rather than routine NHS screening, and at risk of unnecessary surgery and other harms, is never explicitly checked.

Cluster randomised trials can be run without seeking individual participants' explicit, fully informed consent. As participants are randomised in large groups to invitation batches for a local breast screening unit, obtaining prior consent from individuals in the cluster is normally unfeasible.

International guidance on the conduct of such cluster randomised trials states that the requirement for consent may be waived when the study intervention(s) poses no more than minimal risk.[13] We believe that the level of risk to participants in AgeX necessitates a trial design that enables fully informed consent.

The public overestimates the benefits and has a poor sense of the harms of screening tests in general,[14-17] so researchers have a responsibility to dispel misconceptions. Doctors themselves often do not fully understand the benefit:harm ratios and consequently are poorly equipped to counsel patients.[15-19] Well designed decision aids[20] could support doctors and their patients, but AgeX does not refer to any.

Our complaint to AgeX's principal investigator about the paucity of participant information was rebutted by saying the approach had been approved by ethics committee. A similar complaint to the ethics committee was in turn responded to by deferring to the principal investigator's assurances.

Effects of extending age range

Information about the balance of risks and harms may be particularly relevant for women over 70. The risk of developing breast cancer increases with age. In 2014 a prospective nationwide population based study of breast cancer screening in women

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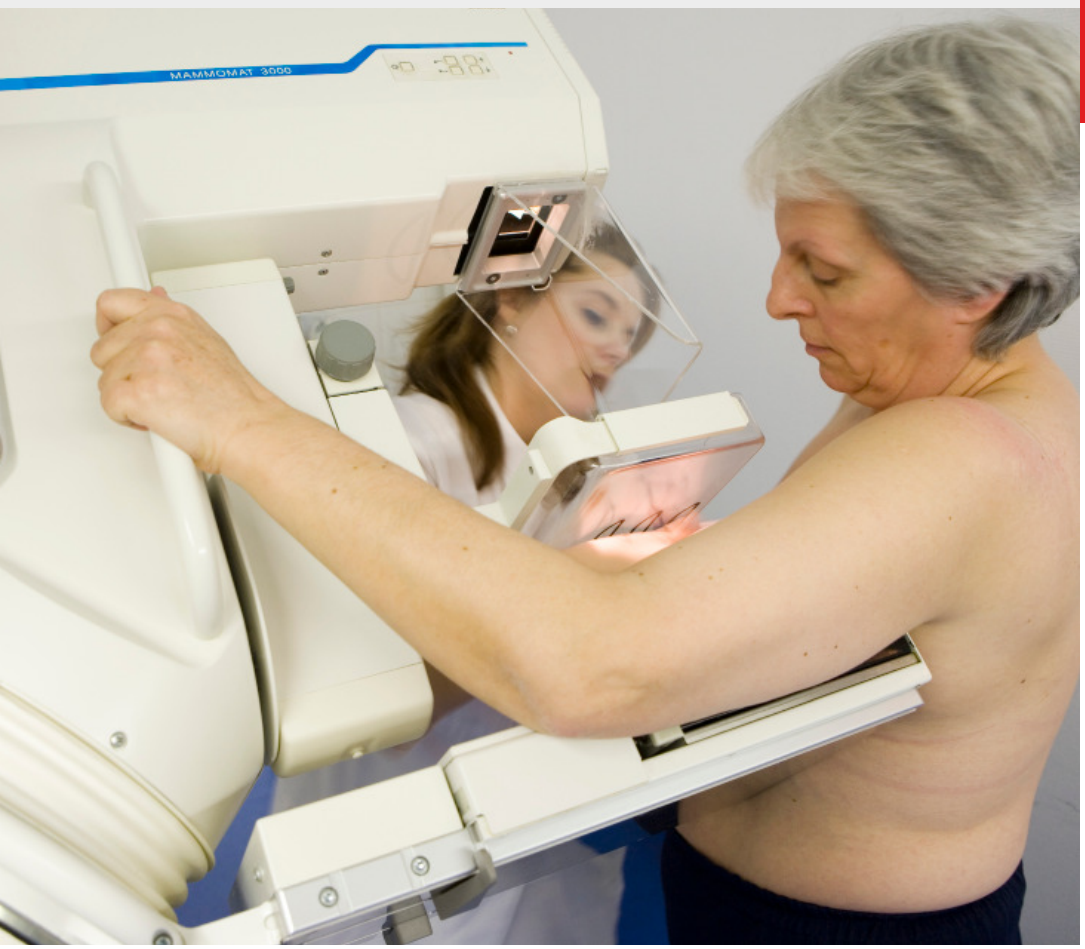

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aged 69-75 in the Netherlands reported a steep rise in the numbers of "early" cancers in the screened group, without significantly reducing numbers of advanced cancer cases.[21] Effectively, screening was leading to many more older women "living with cancer," with little effect on actual deaths from breast cancer.

Although such observational evidence may not be as powerful as that from a randomised trial, a study of this size should have flashed a warning light. Instead, in 2016 AgeX was amended to further extend the programme for older women, who would now be invited triennially at ages 71-76, or 71-79 subject to funding.[9]

Older women are less able to tolerate surgery than younger women because of increased likelihood of comorbidities,[22] so overdiagnosis and overtreatment have a greater effect on their quality of life and physical function. This information should be made available to women considering screening.

We cannot yet know the full effects—good and bad—of extending the age range for breast cancer screening, but a study from Devon sheds light on one aspect: the numbers of extra surgical procedures in the younger women screened.[23] In Devon, all women aged 47-49 are invited for screening because Inhealth, the region's breast cancer screening provider, is not permitted to take part in clinical trials. The results from the first year show that 4250 (76%) of the 5624 invited women in this age group were screened, resulting in 125 surgical outpatient consultations and 53 operations. This gives an indication of the short term extra surgical workload from screening women under 50, although as the study authors point out, estimating the longer term surgical and financial effect is more complex.

Women participating in the AgeX trial must be given the opportunity to balance the possibility of lesions being detected earlier (with more opportunity for breast conserving surgery) against real risks of harm. Extrapolating the Devon figures to the 1.5 million women in England screened before age 50 over the duration of AgeX, we estimate that several thousand women would need surgery.

Given what we know about overdiagnosis in breast cancer screening from sources such as the Independent UK Panel on Breast Cancer screening[4], we know that a substantial proportion of this surgery will be unnecessary. The full financial and human costs of AgeX will also include extra GP visits and physical and psychological harms from diagnoses of cancer that otherwise would not have caused problems during the women's lifetime. The trauma of living with cancer can be lifelong, including lasting effects of surgery or other treatments, fear of recurrence, and loss of self esteem and body confidence. Research shows that when women are fully informed of the risks and benefits of regular screening, fewer opt to be screened.[24]

When women are fully informed of the risks and benefits of regular screening, fewer opt to be screened

Despite pressures on NHS budgets, AgeX increases the workload for the already stretched NHS breast screening programme by 14%.[25] The resulting extra treatment also creates a considerable burden on the NHS.

Conclusion

The balance of benefits and harms from breast cancer screening remains contested. Three years after AgeX began, an architect of the NHS breast cancer screening programmes argued that deaths after treatment of screen diagnosed breast cancer may exceed those from breast cancer in an unscreened population.[26] In 2014, the Swiss medical board advised its government to stop recommending mammography screening.[27] In 2016, an open letter from French scientists who had conducted a consultation into France's breast cancer screening called for a halt to screening for low risk women under 50, and an end or thorough review of the programme for women over 50.[28]

People must be given sufficient information to decide whether they wish to participate in research, particularly when the risks are unclear. We recommend the National Screening Committee uses high quality fact boxes and icon arrays[20] to support patient consent in AgeX and all screening programmes. We call on the investigators and verifiers of any data resulting from AgeX to use all-cause death as the primary outcome.

An independent inquiry into the scientific quality, governance arrangements, and ethical issues arising from the trial would inform future high standards for the design and conduct of government run trials.

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Mitzi Blennerhassett, medical writer, York

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LETTERS Selected from rapid responses on bmj.com

LETTER OF THE WEEK

Four hour target prioritises the comparatively well

Whatever the merits of the four hour target for patients attending emergency departments—and these objectively seem to be confined to convenience—it has had a distorting effect on patient management (This Week, 16 March). It causes beds to be allocated to emergency patients over those coming from intensive care, which causes delays in admission to intensive care, which is harmful. The four hour target has diminished the time available to doctors to clarify the likely course of a patient's illness and is a clinically meaningless milestone. It prioritises the comparatively well over the sick—it may resonate politically, but it does not tally with the preservation of life or the priorities of patient safety.

Key performance indicators are not necessary in the NHS, but they must relate to things that actually matter clinically and be balanced so they do not distort practice unhelpfully.

Our failure to deliver reflects the NHS's obsession with efficiency over availability and flexibility. In unplanned care, services must be able to manage surges and that means a need for excess capacity. In the NHS anything running at less than 95% is perceived as inefficient and becomes vulnerable to "cost improvement programmes." We need to configure and fund services to run at 80% of capacity.

What targets should we have? Time from arriving to investigation or intervention would be better: antibiotics for sepsis, computed tomography with significant head injury, lysis for stroke, or time to theatre for time critical surgical emergencies. These could be encapsulated into a composite metric of timeliness, effectiveness, and responsiveness.

Simon Ashworth, consultant, London

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NHSE GUIDANCE

Does NICE support NHS England's plan to restrict interventions?

NICE's commitment to shared decision making is not reflected in its endorsement of advice from NHS England to commissioners on "17 evidence based interventions" (Letters, 16 March).

Despite arguing that variation in numbers of interventions between clinical commissioning groups was because doctors were not following established clinical guidelines, NHS England now predicts a universal fall in numbers of interventions rather than a more logical scenario of reduction in some areas and increase in others.

NHS England's cost cutting approach disregards the "human relationship between a patient and a doctor" at the centre of medicine. The essence of evidence based medicine—the integration of clinical experience with the best available research information and patient values—is undermined if the view of the patient is ignored. Where will NICE stand as NHS England pursues its stated intention of restricting ever greater numbers of interventions?

John W L Puntis, consultant paediatrician, Leeds

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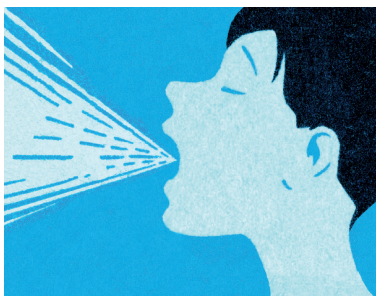
PERTUSSIS

Pertussis is common in teens and adults

Gopal and colleagues inadvertently perpetuate the idea that pertussis (whooping cough) is a childhood illness (Clinical Updates, 2 March). Most laboratory confirmed cases in the UK are now in teens and adults.



Despite much greater awareness among GPs, getting a diagnosis is still difficult, unless the patient suggests it or provides a recording of a typical paroxysm, which if regularly occurring is virtually pathognomonic of pertussis.

The characteristic that makes clinical diagnosis much more specific is long intervals with no coughing. If the patient reports these, then serological testing is indicated.

Standard serology testing is for pertussis toxin, which is only produced by *Bordetella pertussis*. If testing is negative in the presence of typical disease, it could be caused by *B parapertussis* or other rarer types that do not produce the toxin.

Douglas Jenkinson, GP, Gotham, UK

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DOCTORS' DEFENCES

Mutual peer support is lacking in medicine

Gerada is right that doctors need to develop healthy psychological defence mechanisms (Clare Gerada, 9 March). But this should be seen in the context of society and other workers.

Society encourages the open disclosure of emotional distress. But the work of clinicians can continue effectively only if distress is contained. Everyone has a resilience "vessel," which can be increased in size, but not infinitely, through training, sharing adversity with colleagues, and—crucially—mutual colleague support. Everyone can reach their limit: a lack of insight when this limit is approaching is particularly dangerous.

The closure of many hospital messes, the reduction in clinical firm cohesion and the tendency for juniors to be commuting shift workers rather than residents, all have the effect of reducing effective mutual peer support.

Prevention is better than cure: medical schools, trusts, and postgraduate medical educators must recognise their responsibility for training in the subtleties of psychological defence mechanisms.

Vernon H Needham, retired GP, Winchester

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PALLIATIVE CARE REBRAND

Enhanced supportive care is broader than palliative care

Boyd and colleagues imply that "enhanced supportive care" is a euphemism for palliative care (Editorial, 9 March). It was developed in response to the changing demographics in oncology and has a wider scope than traditional palliative care.

If healthcare professionals are to provide a comprehensive supportive care service, they need appropriate knowledge about supportive care problems. The management of chemotherapy induced nausea and vomiting, for example, is very different from the management of nausea and vomiting in patients with advanced cancer.

Some palliative care teams have rebranded, although they may not yet be providing a comprehensive supportive care service. Evidence shows that such rebranding facilitates more, and earlier, referrals to palliative care teams (which has to be a good thing). We need greater uniformity in use of the term and, more importantly, in the services provided to patients.

Richard Berman, clinical lead, Manchester

Andrew Davies, president of the Association for Palliative Medicine of Great Britain and Ireland

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Only 6% of people in the UK have formally registered their end of life preferences

Education is worth more than words

I agree that simply "rebranding" palliative care will not solve the problems surrounding attitudes towards it (Editorial, 9 March). The root of the problem, and thus the point for change, lies with education.

Evidence has shown that doctors feel unprepared and out of their depth when dealing with patients requiring palliative care, and these patients lack confidence in their doctors. Not only are doctors unprepared but also society; only 6% of people in the UK have formally registered their end of life preferences.

Changing palliative terminology may be beneficial but does not get to the heart of the problem. It would be more beneficial to lobby medical schools, invest in palliative medicine research, and fund public campaigns to improve people's understanding and awareness of end of life choices. A change in attitude will only come when doctors and the public understand what palliative care truly means—sugar coated or not.

Thomas Liney, medical student, Manchester

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Relocation rather than rebranding is needed

Palliative care is closely associated with hospices, which are often situated away from hospitals (Editorial, 9 March). Although the off-site, quite often serene location of hospices has some advantages, it promotes the view that palliative care is essentially terminal life care.

The expertise of palliative care teams is often needed before patients reach a hospice, particularly for those with cancer. Relocation of palliative care departments to hospitals, and their functioning as an integral part, could bring more benefits to patients and would also remove the stigma associated with referral to palliative care.

Santhanam Sundar, consultant oncologist, Nottingham

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ORGAN DONATION DEBATE

Building a culture of organ donation

England's presumed consent law is planned for 2020, so the debate is no longer opt in versus opt out but about how to make it successful (Head to Head, 9 March).

Norway recently underwent the first major revision of its organ donation legislation for almost 40 years. The country operates a system of presumed consent and does not have organ registers. Patients can indicate a preference, but clinicians must ultimately gain consent from the family, as is common in opt-out systems.

The legislation also increased the emphasis on clinicians gaining the informed consent of relatives

Revised legislation that permits donation after cardiac death has not resulted in the expected increase in donations. One reason is that the legislation also increased the emphasis on clinicians gaining the informed consent of relatives, which has had the unintended consequence of increasing the rates of family refusal.

Organ donation is rooted in voluntary reciprocity. For England's presumed consent law to have the desired effect, we all—healthcare workers, politicians, patients, and wider civil society—must brace ourselves for a sustained effort for years to come.

Anand Bhopal, doctor and researcher, Oslo

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OBITUARIES

Brian Wolstan Dixie Crawford

General practitioner (b 1926; q Durham (Newcastle) 1949; MRCGP), died from old age on 19 October 2018

Brian Wolstan Dixie Crawford was born in Washington, County Durham, the son of a history teacher. After house officer posts in the infectious diseases ward at Queen Elizabeth Hospital in Gateshead, where he remembered administering intrathecal streptomycin to patients with tuberculous meningitis, he did national service in Hong Kong. He married Mary Dixon, a fellow graduate, in 1952, and they started medical life as assistants in general practice in the village of Stamfordham in rural Northumberland. He then joined an inner city practice in Bensham, Gateshead, and over the next 35 years he became senior partner. In his later years, he increasingly became a carer for Mary, and in 2015 they moved together into a residential nursing home. Predeceased by his youngest son, he leaves Mary and two sons.

David Crawford

Cite this as: *BMJ* 2019;364:l1281

Judith Dixon

GP principal and GP medical director for the Camden Primary Care Trust (b 1944; q Barts 1969; MRCP, MRCS, DCH), died from cholangiocarcinoma on 26 February 2019

Judith Dixon (Lady Dixon) spent 37 years as a principal in general practice in Islington, leaving as senior partner to become the GP medical director for the Camden Primary Care Trust in 2009. In the mid-90s she was one of the pioneers using audit to improve primary care. Her final appointment as clinical director with the Camden Clinical Commissioning Group was to provide leadership and support to clinical leads. She was also the primary care adviser to HMP Pentonville for several years. After her diagnosis in early 2018, she had a Whipple procedure and, three months later, was walking in the Lake District and rowing on the Broads. Predeceased by a daughter, she leaves her husband, Peter; two children; and grandchildren.

Peter Dixon

Cite this as: *BMJ* 2019;364:l1174

Kurt Michael Laurence

Professor of paediatric pathology, research, and clinical genetics University Hospital of Wales, Cardiff (b 1924; q Liverpool 1950; MA Camb, FRCPath, FRCP Ed, DSc Wales, FRCPCH), died after a long illness on 20 December 2018

Kurt Michael Laurence considered a career in pathology after recovering from tuberculosis. His first paper was published in 1955 and resulted in a post as lecturer and research fellow in hydrocephalus and spina bifida at Great Ormond Street Hospital. He then moved to Cardiff to study the high incidence of spina bifida in south Wales. His study into the effectiveness of folic acid supplementation was published in 1981. Rose, his first wife, died from a rare malignancy in 2001. Michael married Kathrin Berger and moved to Switzerland. After an intracranial haemorrhage and two severe strokes, Kathrin nursed him for several years until his death. He leaves two of his three children and Kathrin.

Stephen Laurence

Cite this as: *BMJ* 2019;364:l1208

David Roy Lucas

Senior lecturer and honorary consultant in ophthalmic pathology Manchester (b 1922; q University College London 1944, MD, FRCPath), died from frailty of old age on 12 November 2018

David Roy Lucas served with the Royal Army Medical Corps from 1947. He was posted to Palestine, the Suez Canal, and Greece, where his wife, Kay, a nurse whom he married in 1947, joined him. He returned to England in 1949. From 1951 to 1959 David was on the scientific staff of the Medical Research Council in London and worked on ophthalmological genetics. He then moved to the MRC's radiobiological unit at Harwell in Oxfordshire but left in 1970 to take up a post at the University of Manchester and Manchester Health Authority. He was the author of the fourth edition of *Greer's Ocular Pathology*. Predeceased by Kay and his son, David leaves two daughters; seven grandchildren; and six great grandchildren.

Viv Lucas, Jacqui Reeds

Cite this as: *BMJ* 2019;364:l1213

Richard Gerald Hardwick

General practitioner Liphook, Hampshire (b 1925; q London 1949; MRCP), died from old age on 26 February 2019

Richard Gerald Hardwick was born in Kent, the son of a GP. He trained at St Thomas' Hospital, where he was the kicker of the rugby team and captain of water polo. His passion for swimming led him to be the medical officer accompanying the American swimmer Florence Chadwick in the second of her unsuccessful attempts to swim the Irish Sea. He moved to Liphook in 1959 and started what became 33 years in general practice. He was a dedicated GP providing the ultimate in continuity of care. In retirement he pursued his love for the outdoors, keeping bees, mountain biking, and playing tennis into his mid-80s. In later years, his health was marred by aortic stenosis for which he underwent transcatheter aortic valve implantation. He died peacefully at home and leaves Valerie, four children, and 13 grandchildren.

James Hardwick

Cite this as: *BMJ* 2019;364:l1173

Jean Eva Shorland

Consultant paediatrician Rotherham Hospital (b 1940; q King's College and Westminster Hospital, London, 1965; FRCP, FRCPCH), died from stroke on 13 February 2019

Jean Eva Shorland was born in Baghdad, where her father worked for the Crown Agents. An Iraqi uprising led to her evacuation to India, as an infant. In 1946 the family returned to Devon. After qualifying, she trained in paediatrics in London, Liverpool, and Cardiff. Her lifetime love of travel led to paediatric assignments in Kuala Lumpur, Malaysia, and Port Moresby, Papua New Guinea. She was consultant paediatrician in Rotherham for 24 years and had a special interest in children's disabilities. She retired to her holiday home in Ireland in 2000. She then moved to Sidmouth and concentrated on her two hobbies—travel and gardening—with vigour, managing to visit almost every country worldwide. She leaves a sister and nine nieces and nephews.

Tim Brook

Cite this as: *BMJ* 2019;364:l1282

Dennis Searle Smith

Global pioneer in stroke management and rehabilitation

Dennis Searle Smith (b 1930; q Birmingham 1954), died five years after being diagnosed with Alzheimer's disease on 18 November 2018

Dennis Searle Smith was born to Walter and Doris Smith in working class Coventry, the older of two boys. It was his wartime experiences, surviving some of the worst air raids of the Blitz, which sparked Smith's lifelong interest in the determinants of disability and recovery from injury.

The aspiring physician went on to win a scholarship to study medicine and chemistry at Birmingham University and graduated in 1954. Smith met and wed his wife, nurse Jean McGill, while working in Warwickshire Hospital's pathology laboratory during his studies. The couple had four children: Carol, Helen, David, and Roger. Their eldest, Carol, died aged 6 from the complications of disability.

Smith spent the decade after graduation in the Royal Army Medical Corps, attaining the rank of major and becoming a consultant physician in rheumatology and rehabilitation after training at Great Ormond Street and Guy's hospitals. His service took him to Australia for the Anglo Australian Tattoo in Sydney, where he was instantly enamoured with the lifestyle and left determined one day to return with his young family.

As director of rehabilitation at Harrow Medical Research Council's clinical research centre, Smith dedicated a decade to the development of outcome measures calculating the effectiveness of rehabilitation. He also served as foundation consultant in rehabilitation and director of rehabilitation services and research at Northwick Park Hospital. He was perhaps happiest at the clinical coalface, spending weekends as a Formula One attending medical officer at Brands Hatch, or in top and tails—stethoscope in hand—at Ascot.

Move to Australia

Smith grew increasingly frustrated with medical politics in the UK and convinced his family to move to Australia. He was appointed foundation professor, Bedford Industries Chair of Rehabilitation, at Flinders University—the nation's first full time academic position in the discipline.

He transformed Daw Park's Repatriation General Hospital into a centre for research, training, and teaching, and founded the research and training unit at Sydney's Royal Rehabilitation Centre in Ryde, where he was director of head injury services and rehab studies, as well as foundation professor of rehabilitation at Sydney University.

Smith served as president of both the Australian College of Rehabilitation Medicine (1989-91) and its successor, the Australasian Faculty of Rehabilitation Medicine (1994), where he was instrumental in securing support from the nation's specialist advisory council for fellows to be recognised as consultants in rehabilitation medicine.

In 1995 he chaired the scientific programme of the discipline's global congress, and he was an invited plenary speaker at the inaugural world conference on neurological rehabilitation the following year.

Smith was renowned as the "music man" at hospital parties, complete with BYO disco light show

Smith published some of the earliest randomised controlled trials in the discipline, predicting that the most significant gains and reductions in morbidity would be realised with early and effective treatment. He also wrote extensively on the determinants of disability.

In a cruel twist of fate, his mother died from a stroke in 1986, and Smith would eventually lose his brother, Tony—one time deputy editor of *The BMJ* and medical correspondent for the *Times*—to Parkinson's disease (read obituary at www.bmj.com/content/338/bmj.b983).

Smith would see out his career as emeritus consultant at the Repatriation General Hospital and professor at Flinders University, after an abortive return to the UK to take up appointments at Southampton University and Salisbury District Hospital.

Smith was a man of eclectic talents. He built his own darkroom to develop photographs, tried his hand as an amateur vigneron of blackberry wine, and was renowned as the "music man" at hospital parties, complete with BYO disco light show. He loved jazz, Motown, and big band tunes.

Smith died surrounded by family in South Australia. He leaves his wife, Jean; three children; 11 grandchildren; and seven great grandchildren.

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