this week

SPL

"Brexit" threatens science research

The possible exit of the United Kingdom from the European Union, so called "Brexit," could cause serious damage to the country's science infrastructure and research funding and could cut universities' income, science experts have predicted.

Most commentators believe leaving the EU would have a negative effect on research collaboration, funding, movement of researchers, access to data, and regulation.

A letter published in the *Sunday Times* on 21 February, signed by more than 100 UK university leaders, said that an exit would harm UK research and damage universities' education alliances.[1]

The Royal Society published a briefing report in December last year on the role that the EU plays in UK research, which said that the UK was one of the largest recipients of research funding in the EU and that UK scientists have earned more back in EU research grants (€8.8bn from 2007 to 2013) than it contributed to EU research expenditure (indicative figure of €5.4bn).[2]

Martin McKee, professor of European public health at the London School of Hygiene and Tropical Medicine, one of the organisers of a soon to be launched "Healthier in the EU" initiative for health professionals who support the UK staying in the EU, told *The BMJ*, "The UK currently engages deeply with the European institutions on innumerable initiatives, and a vote to leave would trigger an extremely complex programme of renegotiations, potentially lasting for a decade or more, on terms that Brexit proponents have been unable to specify."

If the UK left it would still be required to adopt most aspects of EU policies and standards, he added. "In many instances participation would be based on much less favourable terms than the remaining member states."

In contrast, Sarah Wollaston, chair of the parliamentary health select committee, and a former GP, believes that the UK would be better out of the EU. In a personal blog posted on 21 February, Wollaston said, "There is a tendency to think of EU regulations and the European Court of Justice as benign, but interference with decisions like minimum unit pricing in Scotland show the power of big business interests . . ."I simply do not believe that cooperation on issues as important as trade, security, defence and science would collapse in the event of a vote to leave."

Adrian O'Dowd, London

Cite this as: *BMJ* 2016;352:i1117

The Royal Society says that the UK receives more research funding from the EU than it contributes

NEWS ONLINE

- £220m funding uplift agreed under GP contract deal
- Consultants oppose government proposals for contract changes
- Less than a third of NHS staff think their organisation has enough staff

SEVEN DAYS IN

DAVE WHINHAM/CORBIS

Junior doctors announce three more strikes

Junior doctors have announced dates for three more 48 hour strikes and have launched a judicial review into the government's plan to impose a new contract.

The BMA said that the government failed to provide evidence that it had conducted an equality impact assessment ahead of its decision on 11 February to impose a contract on junior doctors in England from August.

Johann Malawana, chair of the BMA's Junior Doctors Committee, said, "It now appears that in trying to push through these changes the government failed to give proper consideration to the impact this contract could have on junior doctors."

NHS Employers had previously said that an equality impact assessment would be published in March. In a letter dated 17 February, Bill McMillan, assistant director at NHS Employers, told the Medical Women's Association that the assessment was under way.

The BMA said that further industrial action was also planned, after the leading US health policy expert Don Berwick said that the government should apologise to junior doctors (see p 298).

If the action goes ahead, junior doctors would provide emergency care only from 8 am on Wednesday 9 March to 8 am on Friday 11 March, from 8 am on Wednesday 6 April to 8 am on Friday 8 April, and from 8 am on Tuesday 26 April to 8 am on Thursday 28 April.

Abi Rimmer, BMJ Careers Cite this as: *BMJ* 2016;352:i1129

NHS finance

NHS overspend reaches £2.3bn

The NHS overspent by £2.26bn in the first three quarters of this financial year (April to December 2015), figures from Monitor and the NHS Trust Development Authority show, and the overspend is forecast to reach £2.37bn by the end of March. Three quarters of providers are in deficit, including 132 acute care trusts. The regulators blamed use of agency staff, delayed transfers of care, and "failure to deliver the level of cost improvement schemes planned at the start of the year." (See *The BMJ*'s full story doi: 10.1136/bmj.i1072.)

Tobacco control

Over half of e-cigarette users vape to quit smoking

More than half (53%) of e-cigarette users claim that their main reason for vaping is to help them quit smoking, shows a 2015 survey of users by the Office for National Statistics, while 59% of vapers admitted that they also smoked tobacco cigarettes. The next most popular reason for vaping was that e-cigarettes were deemed less harmful than

cigarettes (22%), and 9% cited their cheapness and 9% the ability to use them indoors.

Smoking among young women rises for first time in a decade

About 21% of women aged 16-24 were smokers in 2014, up from 20.3% the previous year, show figures from the Office for National Statistics, bucking a slow decline since 2008, when the figure was 29%. The rise was even steeper in women aged 25-34, rising from 20.4% to 21.8% over the year. As a result, overall prevalence of smoking in women rose slightly from 16.8% to 17.2%, while in men it fell to the lowest ever recorded: 20.4%.

Major changes proposed for NHS Scotland

A new clinical strategy recommends major changes that would transform the way healthcare is provided in Scotland. The health secretary, Shona Robison, said that primary care would be delivered by multidisciplinary teams, integrated with social services. GPs would focus on complex cases and give expert assessment of new cases. Most hospitals would deliver outpatient, diagnostic, and day case surgical services, while specialist services would be available at fewer sites (doi:10.1136/bmj.i1028).

Health policy

Sugar tax could stop 3.7 million people becoming obese

A 20% tax on sugary drinks could reduce obesity by 5% over the next decade in the UK by stopping 3.7 million people from becoming obese, says a report from Cancer Research UK and the UK Health Forum. The report said that if current trends continued, the prevalence of obesity in the UK could rise from 29% of the population in 2015 to 34% in 2025 (doi: 10.1136/bmj.i1064).

In the dock

Junior doctor suspended for citing colleagues without their knowledge

Gemina Doolub, a junior doctor who cited senior colleagues without their knowledge as coauthors in papers while she was working in cardiology for Oxford University Hospitals NHS Trust in 2013, has been suspended for 12 months by the Medical Practitioners Tribunal Service. The papers were later retracted for faulty or fabricated data (doi:10.1136/bmj.i1054).

Pregnancy

Cardiac abnormalities identify recurrent pre-eclampsia risk

Researchers followed 75 women with normal blood pressure and previous pre-eclampsia and 147 controls who all became pregnant again within two years of giving birth. Twenty two (29%)

MEDICINE

of the women with previous pre-eclampsia developed it again, and echocardiography between pregnancies showed they had significantly lower stroke volume and cardiac output and elevated total vascular resistance values and unusually thick left ventricles, when compared with controls (doi:10.1136/bmj.i1089).

Antibiotics

Macrolides not linked to arrhythmia in older people

The findings of a large study contradict those of a previous study that prompted the US Food and Drug Administration to issue warnings about the risk of QT interval prolongation and fatal ventricular arrhythmia with use of azithromycin. The study matched 503 612 patients who used macrolide antibiotics with 503 612 controls who used other antibiotics that were not associated with ventricular arrhythmias (amoxicillin or cefuroxime) or with weak pro-arrhythmic potential (levofloxacin). The study found no difference in the development of ventricular arrhythmias at 30 days (doi:10.1136/bmj.i1083).

Feedback to GPs cuts antibiotic prescribing

Sending a letter to GPs in England with above average antibiotic prescribing rates reduced their antibiotic prescribing by just over 3% in six months, showed a nationwide trial. The researchers randomly allocated GPs in 1581 general practices with the top 20% antibiotic prescribing rates in their local areas to receive a letter from England's chief medical officer about their antibiotic prescribing or to a control group (doi:10.1136/bmj.i1038).

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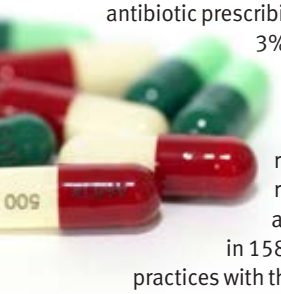

Pregnant women

Pregnant women should receive personalised budget for maternity care, review says

Maternity services in England should offer more personalised care, with women given genuine choices informed by unbiased information, concluded an independent review commissioned by NHS England. *The National Maternity Review* recommended trialling an NHS personal maternity care budget, worth around £3000, to allow women to choose the provider of their antenatal, intrapartum, and postnatal care (doi:10.1136/bmj.i1111).

Sepsis

Three key symptoms can help identify sepsis earlier

A panel of 19 specialists in sepsis reviewed the evidence on how to differentiate sepsis from uncomplicated infection. Data from nearly 150 000 patients indicated that adults with suspected infection may have sepsis if they have two of three clinical criteria: fast respiratory rate (≥22/min), altered mental status (Glasgow coma status scale score ≤13), or low blood pressure (≤100 mm Hg) (doi:10.1136/bmj.i1108).

Cite this as: *BMJ* 2016;352:i1110

NHS STAFF

Only 31% of NHS staff agree that their organisation has sufficient staff to enable them to do their jobs properly

SIXTY SECONDS ON . . . VAGINAL SEEDING

FIRST OF ALL, WHAT IS IT?

The term describes the use of a gauze swab to transfer maternal vaginal fluid (and therefore vaginal microbiota) onto infants born by caesarean section.

SOUNDS A BIT UNPLEASANT

It might rank alongside faecal transplants in the "Top Trumps" of distasteful sounding medical procedures. But just as faecal transplantation has become a common treatment for *Clostridium difficile* infection, vaginal seeding is now growing in popularity.

WHY IS THIS?

The theory is that the procedure has the potential to restore the microbiota of infants born by caesarean section to a more "natural" state and therefore decrease the risk of common non-communicable diseases.

BUT DOES IT WORK?

We can't be sure. An editorial in *The BMJ* this week argues that, although evidence is accumulating that the human microbiota can be manipulated to benefit health, there is not yet evidence that vaginal seeding is beneficial to the infant.

AND ARE THERE RISKS?

Potentially. The editorial warns that the procedure could put newborn babies at risk of severe infection from exposure to vaginal commensals and pathogens that mothers may carry without showing symptoms.

SO SHOULD DOCTORS PERFORM IT?

The authors have advised staff at their hospitals not to perform it as they believe that the small risk of harm outweighs the benefits. But as it is a simple and cheap procedure they acknowledge that mothers can easily do it themselves.

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SELF SEEDING?

In some cases, yes. The authors advise doctors to respect patients' wishes, while ensuring that they are "fully informed about the theoretical risks."

Gareth Iacobucci, *The BMJ*

Cite this as: *BMJ* 2016;352:i1095

UK warned to act on pollution urgently

The United Kingdom needs to take urgent action on air pollution, which contributes to 40 000 deaths a year, says a report from two royal colleges.

The report from the Royal College of Physicians and the Royal College of Paediatrics and Child Health showed evidence that air pollution causes harm "from a baby's first weeks in the womb all the way through to the years of older age."

As well as looking at outdoor pollution, the report highlighted the effects of indoor air pollution—caused by kitchen products, faulty boilers, open fires, fly sprays, and air fresheners—which it estimated has caused or contributed to 99 000 deaths a year in Europe.

While the UK government and the World Health Organization have set acceptable limits for various pollutants in the air, the report said that no level of exposure could be said to be safe as all carry an associated risk.

It suggested measures to tackle the problem, including tougher local, national, and European-wide regulations on polluters, such as reliable emissions testing for cars.

At a local level, it called for local authorities to be given the power to close or divert roads to reduce the volume of traffic, especially near schools.

Gareth Iacobucci, London

Cite this as: *BMJ* 2016;352:i1099

Genetically modified mosquitos may be used in fight against Zika

The World Health Organization is considering introducing transgenic mosquitos as a way of tackling the Zika virus.

WHO's vector control advisory group is to be convened in the next few weeks to look at how to control the *Aedes aegypti* mosquito, the main vector of the Zika virus. Besides looking at conventional vector control techniques, the group will consider the introduction of transgenic mosquitoes.

Pedro Alonso, director of WHO's global malaria programme, told a press conference that controlling *A aegypti* was complex. These mosquitoes have adapted well to human environments, live in urban areas, and have a particular attraction to humans. They bite during the day, unlike most malaria transmitting mosquitoes, and their eggs are sticky so are difficult to eliminate. Their larvae can also survive for many months.

"They have a good capacity to survive in complex situations. The females tend to bite multiple times and may lay eggs in different places. This makes it a particularly effective vector to transmit a pathology," he said.

Alonso added that WHO had been considering the introduction of transgenic mosquitoes for some time. He said, "These [transgenic] mosquitos can reproduce, but the larvae die early on and do not reach adulthood. They have shown promising results as a mechanism to reduce the population density of *A aegypti*, but we have not yet seen the full public health value," he said.

WHO has been looking at the OX513A mosquito, developed by the UK biotechnology firm Oxitec, which has already been introduced into Brazil in a bid to tackle dengue fever, also carried by *A aegypti*. Genetically modified male mosquitoes are released into the population to mate with wild female mosquitoes. The male insects have been shown in laboratory tests to be successful at competing with wild male populations.

Concerns have been expressed that this genetically modified mosquito is responsible for the increase in the number of babies born with microcephaly in Brazil, but a statement on WHO's website says that there is no evidence that Zika virus disease or the increase in incidence of microcephaly is caused by genetically modified mosquitoes.

The statement continues, "WHO encourages affected countries and their partners to boost the use of current mosquito control interventions as the most immediate line of defence, and to judiciously test the new approaches that could be applied in future."

Other new techniques considered by WHO include the introduction of

Berwick advises government to apologise to junior doctors

The UK government should apologise for alienating England's junior doctors, leading US health policy expert Don Berwick has said.

Speaking at the health think tank the King's Fund at a launch of a new report on improving quality in the NHS in England, Berwick said that it was vital to "de-escalate" the conflict between the government and the junior doctors, as it would stand in the way of the quality improvement the NHS needs.

"The government should apologise" he said. "It would be an act of generosity and courage." The junior doctors, for their part, should find a way to make seven day services work and embrace the policies outlined in NHS England's *Five Year Forward View*.

Berwick, founder of the US Institute for Healthcare Improvement, is a long term enthusiast for the NHS. In 2013 he wrote a review of patient safety in the NHS, commissioned by the government.

Today the NHS in England had "a highly conflicted environment and a demoralised workforce," he said, which was not helpful to quality, and moreover early signs of deterioration were already evident. "It is a troubling time to watch the NHS," he said. "You should remember the greatness of what you've got: you are the holders of an enormously important trust for the world."

All the evidence on quality improvement in healthcare showed the importance of an engaged workforce, he

male mosquitoes carrying *Wolbachia*, a genus of bacteria that affects only invertebrates and that can shorten the lifespan of mosquitoes and reduce the number of viruses that mosquitoes harbour and transmit to humans. Another technique involves the release of male insects that have been sterilised with low doses of radiation.

Between January 2007 and February this year 41 countries reported transmission of the Zika virus, with six countries or territories reporting an increase in the incidence of microcephaly in newborns or of Guillain-Barré syndrome. Brazil has seen the highest number of babies with microcephaly.

No definitive link between the virus and these two syndromes has yet been found, but Bruce Aylward, WHO's executive director for outbreaks and health emergencies, said that the organisation was working on the presumption of "guilty until proved innocent."

Anne Gulland, London

For all *The BMJ*'s articles on the Zika epidemic go to bmj.co/zika

Cite this as: *BMJ* 2016;352:i1086

said. Younger clinicians were the most inventive, but unless some way could be found to resolve the issues between junior doctors and the government, there would not be the space for them to reach their full capabilities.

The new report, *Improving Quality in the English NHS*, says that despite many previous efforts the NHS still lacks a clear view of how to improve the quality of care. Recent developments have not helped, with unrealistic expectations raised about how much could be achieved by inspection and a relative neglect of quality improvement. Berwick added, as a personal opinion and not part of the report, that the government must reflect on the effects of austerity on the ability of the NHS to survive and thrive. "I know of no nation that is trying to provide healthcare at the level Western democracies can at 8% of GDP, let alone 7% or 6.7%," he said. "That may be impossible, and it's very important for the government to reflect on whether it has overshot on austerity."

Nigel Hawkes, London

Cite this as: *BMJ* 2016;352:i1124

FIVE MINUTES WITH . . .

Andrew Pollard

The chair of the UK Joint Committee on Vaccination and Immunisation explains the decision to limit the meningitis B vaccination.

"The amount and severity of a disease are the most important factors that drive vaccination decisions. Invasive meningococcal disease due to capsular group B meningococcus (MenB) infection is rare and has decreased significantly over the last decade for reasons we don't fully understand. Babies under 1 year are at highest risk.

"Then we look at the vaccine. Is it safe, and does it work? For many vaccines, data from clinical trials show how much disease they prevent. But MenB is so rare that trials couldn't measure this, so we had to use laboratory data to get the best estimate.

"The next stage is to look at cost effectiveness, taking into account the current burden of disease and the consequences of having it. For meningococcal disease, these costs include deaths, intensive care admissions, and complications, such as those leading to amputations.

"Academic health economic and disease modellers then take this information and model the likely cost impact of vaccination. The reason why we recommended vaccinating the under 1s was that it was the programme most likely to be cost effective. And even that is pretty borderline. During our deliberations there were three different findings on this. The first suggested that MenB vaccination was just cost effective, a second iteration suggested that it wasn't cost effective, and the final model, after external consultation, showed that it was just cost effective.

"Vaccinating everyone up to the age of 11 would not be cost effective, because the disease is so rare later on in childhood. We have to fit in with the cost effectiveness requirements of the NHS.

"We are concerned that the methodology used to value benefits of vaccination that will occur in the future is different from that used for other public health interventions. We asked the Department of Health to look at this two years ago, and they set up a group that should report back next year."

Susan Mayor, London

Cite this as: *BMJ* 2016;352:i1098

Junior doctors create art protest

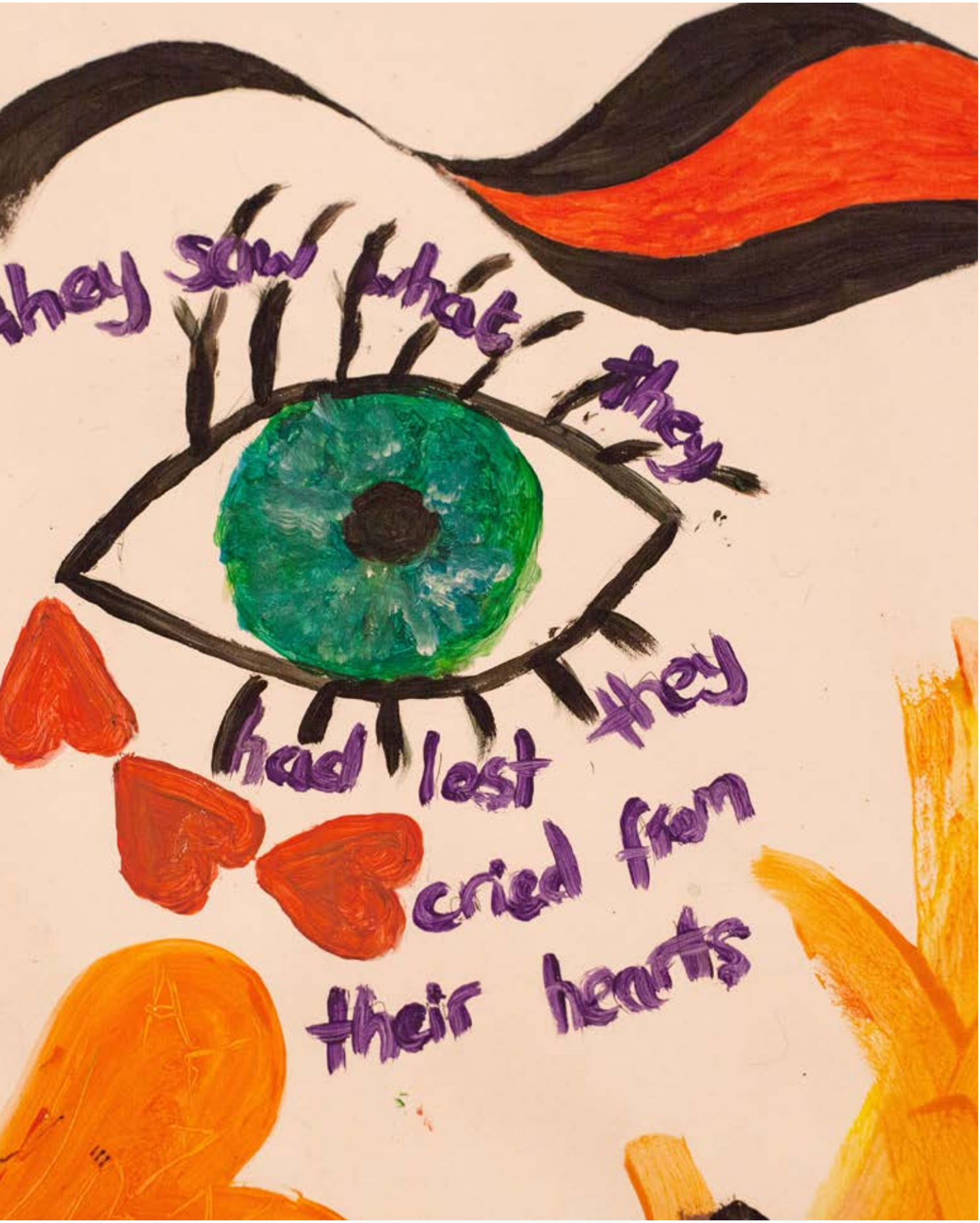
Junior doctors created artworks last weekend to protest against the imposition of a new contract for junior doctors in England.

Artist and former doctor Kato Wong ran a workshop entitled "Screw Jeremy Hunt—Let's Paint" at a studio in Hackney, London from 19 to 22 February. He provided materials, arranged for studio space to be available, and promoted the event on social media.

Junior doctors came to the studio and, over the course of the workshop, produced two large artworks. "They express so much, there's so much heart in there," Wong told *The BMJ*. "Some people directly addressed the political situation in words and images, others just made really colourful patterns."

Wong, who used to work in emergency medicine, now runs a weekly creativity support group. "When Jeremy Hunt announced his imposition I thought this was a good time to see if I could contribute something," he said. "Creativity is powerful because it provides us with the opportunity to express ourselves. It helps us make sense of things and process our lives."

Tom Moberley, London



CHAIRMANKATO

EDITORIAL

NHS in England embraces collaboration in tackling biggest crisis in its history

Sustainability and transformation plans are being developed as competition takes a back seat

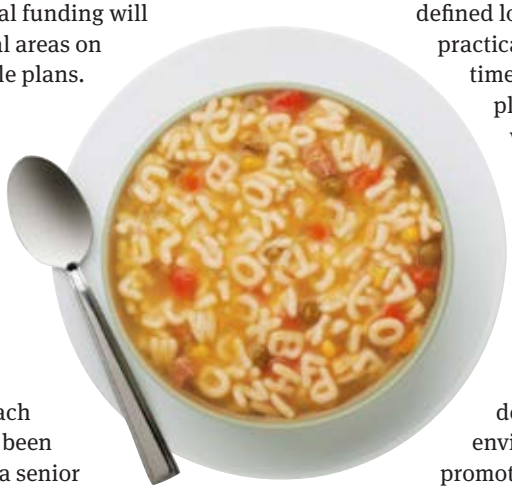
The NHS is in the grip of the biggest crisis in its history. Hospital budgets are in deficit by £2bn or more; targets for patient care are being missed; and the dispute over the junior doctors' contract is unresolved, with consequences for patients and medical staff. There is also the possibility—even a probability—that the Department of Health will fail to balance its budget, with major ramifications for health ministers and senior civil servants.[1]

Enter sustainability and transformation plans (STPs), the latest addition to the NHS alphabet soup. Announced in the NHS planning guidance published in December,[2] these are multiyear plans centred on the needs of local populations. NHS organisations serving these populations have been asked to come together to prepare "place based plans" by the end of June—and around 45 areas in England have been identified as the footprints on which they will be based. Additional funding will be allocated to local areas on receipt of acceptable plans.

Collaboration may be a worthy aspiration, but making it happen is altogether more difficult

New directions

STPs signal the clear intent of national NHS bodies to move away from competition as the main driver of reform in favour of collaboration. Each of the 45 areas has been asked to nominate a senior and credible leader to bring organisations together to work on their plans. The promise of STPs is to establish a platform for transforming health and care services. Work is already under way to develop new care models. Examples include "primary and acute care systems," in which hospitals lead the integration of primary and secondary care, and "multispecialty community providers," in which general practices work at scale to lead the integration of primary and community health services.



More acronyms

Challenges ahead

The challenge is to implement and spread these models in geographical footprints much bigger than those in which they were incubated. Many organisations involved will only have a loose affiliation at best with many of their partners. In some parts of the country, there is concern that the footprints being used for the STPs have been imposed from above rather than defined locally. There is also the practical difficulty of finding the time and expertise to prepare plans on such a scale when the NHS is focused on tackling growing operational pressures rather than thinking further ahead.

The bigger challenge is the legacy of the Health and Social Care Act. STPs are being developed in an NHS environment designed to promote competition rather than collaboration. The natural reaction of the leaders of NHS providers in this context is to adopt a fortress mentality, acting to secure their own future regardless of the effect on others. This means focusing on issues of concern to regulators such as their organisation's finances and quality of care. The incentives for providers to work in partnership with other NHS providers, commissioners, local authorities, and third sector organisations are weak. Recognition that "we are all in this together" may therefore be trumped by legislation that appears out of tune with an NHS in siege mentality.

Inescapable logic

Despite this, the logic of organisations working together in place based systems of care is inescapable in an NHS in which budgets are fixed.[3] All the more important, therefore, that national bodies work together to support collaboration at a local level and the most experienced leaders in the NHS step up to provide leadership of local systems of care. Encouragement can be taken from areas of England, such as the Isle of Wight and Northumbria, where this is already beginning to happen.

The prize on offer is the development of integrated models of care that can bring together health and care services and also establish a platform for improving population health.[4] Collaboration may be a worthy aspiration, but making it happen is altogether more difficult, and changes to the NHS's statutory framework may be needed to overcome the barriers that get in the way. A light can be glimpsed at the end of the tunnel, but it will take goodwill and sustained effort across the NHS to ensure it is not extinguished.

Hugh Alderwick, senior policy adviser to chief executive
Chris Ham, chief executive, King's Fund, London, UK C.Ham@kingsfund.org.uk

Cite this as: *BMJ* 2016;352:i1022
Find this at: http://dx.doi.org/10.1136/bmj.i1022

EDITORIAL

"Vaginal seeding" after caesarean section

How should health professionals engage with this increasingly popular but unproved practice?

The microbiota is the community of microbes that colonises our bodies, outnumbering our own cells 10 to 1.[1]

The term "vaginal seeding" describes the use of a gauze swab to transfer maternal vaginal fluid, and hence vaginal microbiota, on to an infant born by caesarean section.[3 4] The composition of the early microbiota of infants is heavily influenced by mode of delivery.[4] In infants born by caesarean section the microbiota resembles that of maternal skin, whereas in vaginally born infants it resembles that of the maternal vagina.[4 5]

These early differences in the microbiota have been suggested to determine susceptibility to an increasing number of common non-communicable diseases.[2-6] In theory, vaginal seeding might restore the microbiota of infants born by caesarean section to a more "natural" state and decrease the risk of disease.[4] The potential benefits of vaginal seeding have recently been reported in the press[3-8] and, as a result, demand has increased among women attending our hospitals. Demand has outstripped both professional awareness and professional guidance on this practice.

What the papers say

In many countries more than a quarter of babies are now delivered by caesarean section.[4] Large epidemiological studies and systematic reviews have shown that

delivery by caesarean section is associated with a modest increase in the risk of obesity, asthma, and autoimmune diseases.[4-10] These same diseases are also associated with alterations in the microbiota.[4-11] Furthermore, mode of delivery has been reported to influence the development of immune responses that might predispose to allergic and autoimmune disease.[6]

Evidence is accumulating that the human microbiota can also be manipulated to benefit health,[2] but not (yet) that vaginal seeding is beneficial to infants. Indeed, such evidence will be difficult to gather, requiring large clinical trials with many years of follow-up. It might seem reasonable to perform this simple and cheap procedure, even without clear evidence of benefit, but only if we can be sure that it is safe.

We lack that certainty at present. Newborns may develop severe infections from exposure to vaginal commensals and pathogens, which the mother may carry asymptomatically. These include group B streptococcus (the most common cause of neonatal sepsis), herpes simplex virus, *Chlamydia trachomatis*, and *Neisseria gonorrhoeae*. These pathogens would probably also be transferred on a vaginal swab.

We have advised staff at our hospitals not to perform vaginal seeding because we believe the small risk of harm cannot be justified without evidence of benefit

We are aware of only one current clinical trial investigating vaginal seeding (ClinicalTrials.gov NCT02407184), but the primary outcome is alteration of the neonatal microbiota rather than a clinical outcome and it excludes women with vaginal carriage of potential pathogens. Many countries do not screen all women for these pathogens in pregnancy, and with 20-30% of pregnant women carrying group B streptococcus, vaginal seeding could result in many unintended neonatal exposures.

Minimising risk

How should health professionals engage with the increasing demand for vaginal seeding? We have advised staff at our hospitals not to perform vaginal seeding because we believe the small risk of harm cannot be justified without evidence of benefit. However, the simplicity of vaginal seeding means that mothers can easily do it themselves. Under these circumstances we should respect their autonomy but ensure that they are fully informed about the theoretical risks.

Health professionals should be aware that vaginal seeding is increasingly common and ask about it when assessing neonates who may have an infection. Parents and health professionals should also remember that other events in early life, such as breast feeding and antibiotic exposure, have a powerful effect on the developing microbiota.[2-7] Encouraging breast feeding and avoiding unnecessary antibiotics may be much more important than worrying about transferring vaginal fluid on a swab.

Cite this as: *BMJ* 2016;352:i227

Find this at: http://dx.doi.org/10.1136/bmj.i227

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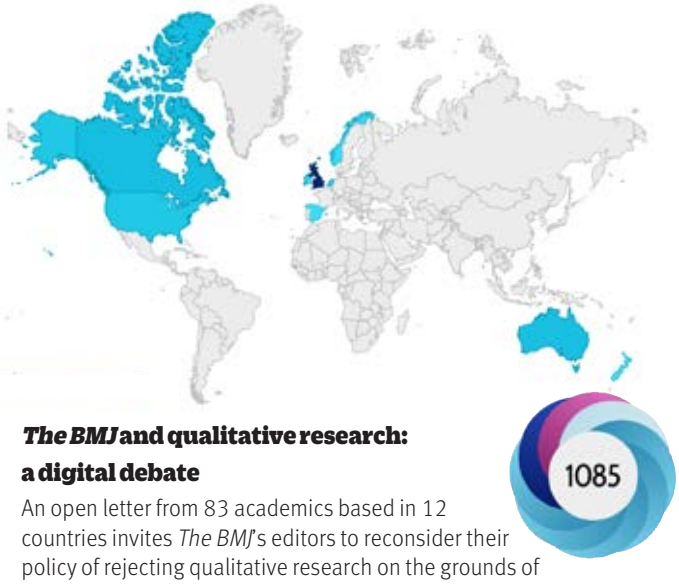


The BMJ and qualitative research: a digital debate

An open letter from 83 academics based in 12 countries invites *The BMJ*'s editors to reconsider their policy of rejecting qualitative research on the grounds of low priority.

The article (doi 10.1136/bmj.i563), published on 10 February, and the journal's response to it (doi:10.1136/bmj.i641), has generated more than 39 000 page views, received dozens of responses, and triggered a lively debate across social media and *The BMJ*'s blogs website.

As *The BMJ* went to press, the open letter had attracted an Altmetric score of 1085 (see map for global social media response). Altmetric captures online activity generated by scholarly content. Here is a selection of some recent tweets and article responses.

"Qualitative research is not about opinions but about in-depth inquiry of complex phenomena and enriching our understanding of a complex world."
Jos E Aarts
associate professor of Biomedical Informatics, University of Buffalo, NY

"Qualitative studies can be definitive and change clinical practice, and the distinction between what is qualitative and what is quantitative is fuzzy."
Andrew J B Fugard
lecturer, UCL Educational Psychology Group, London
@inductivestep

"Rather than repeatedly defending our territory in the same way, and fighting the same old fight, we should consider what fundamentally we might be missing or could do better. How qualitative research might be reinvented?"
Gavin J Andrews
McMaster University, Hamilton, Canada

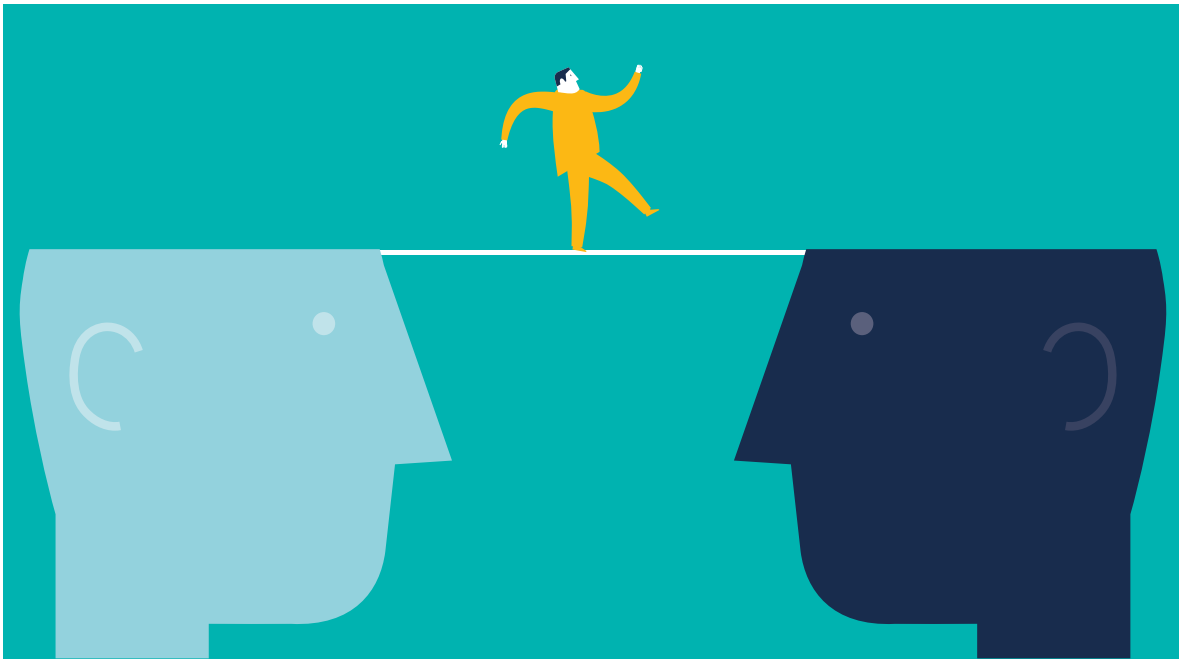
"I support the call...for a monthly slot for a qualitative paper, with an accompanying methodological commentary from an international expert. This has the potential to further enhance the research literacy of the clinical community and would be of great value to early career researchers looking to expand their toolkit in answering the most pressing questions of our age."
Laura-Jane E Smith
clinical research fellow, Imperial College London
@drlaurajane

Twitter @bmj_latest

ANALYSIS

Walking the tightrope: communicating overdiagnosis in modern healthcare

Communication that empowers the public, patients, clinicians, and policy makers to think differently about overdiagnosis will help support a more sustainable healthcare future for all, argue **Kirsten McCaffery and colleagues**



Overdiagnosis and overtreatment have serious implications for individuals, healthcare systems, and society,[1 2] and effective strategies are urgently needed to help the public, clinicians, and policy makers address this problem. Communication about overdiagnosis has been highlighted as essential for moving forward but presents several challenges, such as the potential to confuse the public, undermine trust, and adversely affect people who already have a diagnosis. Various communication based strategies offer real promise; we describe what is known and what we need to know to communicate effectively and safely about overdiagnosis and overtreatment.

Box 1 | Overdiagnosis and its consequences[1 2]

Overdiagnosis occurs when a diagnosis is "correct" according to current professional standards but when the diagnosis or associated treatment has a low probability of benefiting the person diagnosed.[2] It is caused by a range of factors such as:

- Use of increasingly sensitive tests that identify abnormalities that are indolent, non-progressive, or regressive (overdetection)
- Expanded definitions of disease—for example, attention-deficit/hyperactivity disorder and dementia—and lowering of disease thresholds, such as osteoporosis (overdefinition)
- Creation of pseudodiseases (also called disease mongering), such as low testosterone and restless leg syndrome
- Clinicians' fear of missing a diagnosis or litigation
- Public enthusiasm for screening or testing and desire for reassurance
- Financial incentives

Potential consequences of overdiagnosis

- Psychological and behavioural effects of disease labelling
- Physical harms and side effects of unnecessary tests or treatment
- Quality of life affected by unnecessary treatment
- Hassles of unnecessary tests and treatments
- Increased financial costs to individuals
- Wasted resources and opportunity costs to the health system
- Overmedicalisation of society

WHAT YOU NEED TO KNOW

- Overdiagnosis provides no benefits to patients and is a challenge to the sustainability of modern healthcare systems
- Communication based strategies could help reduce overdiagnosis and its negative impact on individuals and health systems
- Mass media education, shared decision making, terminology changes for disease states, and deliberative methods (juries) all have potential as effective communication strategies

What are the key messages to be communicated?

Understanding of overdiagnosis among the general public and health professionals is limited, so it is essential to communicate what it means for individuals, the health system, and society (box 1). For societies with free public healthcare, the financial strain and opportunity cost are usually at system level—resources wasted on unnecessary tests and treatments are unavailable for people in greater need. But in private healthcare systems, overdiagnosis can be a huge personal financial burden, even for those with insurance.

Communication is further complicated because it is usually impossible to know whether an individual has been overdiagnosed or benefited from the diagnosis—overdiagnosis can only be observed at the aggregate level. Recent efforts to communicate the concept and likelihood of overdiagnosis in breast screening have had some success, albeit with much room for improvement. When given a patient decision aid including an infographic and icon array (see figure on thebmj.com), 29% of women understood both the concept and quantitative outcomes of breast screening (including deaths avoided, false positive results, and overdiagnosis); 59% of women understood the conceptual information alone.[3]

Communication based strategies to mitigate overdiagnosis

Several communication based strategies have been directed at individual, community, or policy levels (box 2).

Strategies for individuals

Shared decision making is a consultation process where a clinician and patient jointly make a health decision. It changes the way decisions are framed by identifying that there is a decision to be made (not an obligatory test or default treatment), and explaining the range of options available and their benefits and harms. It also involves deciding with patients "what is most important to them" in terms of their values, preferences, and circumstances.[4] Importantly, the option of doing nothing or active surveillance can be discussed as a deliberate or positive action[5] to counter people's bias for tests and treatment, especially in cancer.[6]

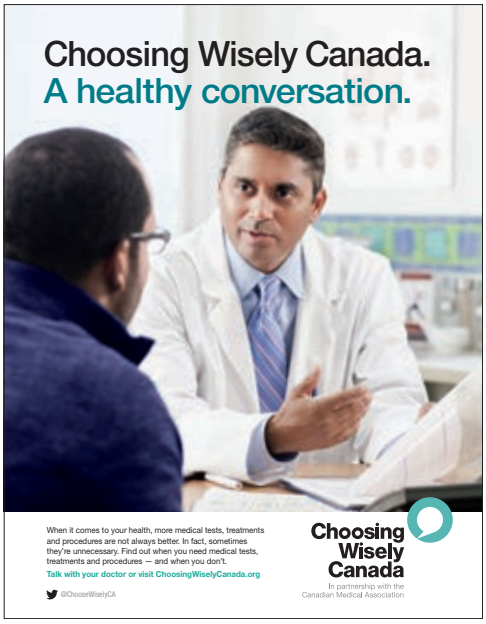
Patient decision aids support shared decision making. High quality evidence from 115 trials shows that they improve patients' knowledge and understanding of options and their risks and benefits, and increase consistency between patients' values and choices.[9] Decision aids have successfully informed women about overdiagnosis in breast screening,[3] reduced men's desire for prostate specific antigen (PSA) testing[10] or surgical management for prostate cancer, and reduced preferences for potentially unnecessary elective surgery.[9]

Strategies for communities

Mass media and direct to consumer campaigns can influence large numbers of people simultaneously and promote sustained beneficial changes in behaviour.[16] For example, a mass media campaign about back pain, driven partly by concerns about unnecessary back imaging, changed both community and general practitioner beliefs about management, resulting in reduced imaging, work insurance claims, and healthcare usage.[17] Other important initiatives include the Choosing Wisely campaign, now operating in nine countries (www.choosingwisely.org), and the United Kingdom's "do not do" list.

Policy directed strategies

Deliberative democratic methods (such as community juries) support policy decisions by gathering informed public responses about disputed issues. Because overdiagnosis is scientifically and politically contested, this topic is ideal for deliberative democratic methods. Community juries have considered PSA testing in Australia[19 20] and mammographic screening in New Zealand, where participants changed their recommendation at least partly because of potential harms from overdiagnosis.[21]



Changing terminology: Behaviours can be influenced by medical terminology, and changing the names for medical conditions may help reduce the effect of overdiagnosis. Independent experts convened by the US National Cancer Institute[25] and National Institute of Health have proposed dropping the word "cancer" entirely for ductal carcinoma in situ (non-invasive cancer), arguing for it to be reserved for lesions likely to progress if untreated.[25 26] Similar arguments exist for thyroid and prostate cancer,[27] but effects of disease labels extend beyond cancer. Parents were more likely to accept medication when "gastro-oesophageal reflux disease" (compared with no label) was used to describe excessive irritability in infants, even when told the drugs would not control the symptoms.[28]

Potential challenges to effective communication

Low levels of awareness: Awareness of overdiagnosis is low, particularly for cancer screening, with few people understanding overdiagnosis of cancer is even possible.[29 30] In one study, 18% of Australian men and only 10% of women said they had been told about overdiagnosis in screening for prostate and breast cancer, respectively.[31]

Cognitive biases and counterintuitive messages: Longstanding, prominent public health messages have emphasised the benefits and ignored the harms of early diagnosis for many diseases.[36 37] This makes the concept of overdiagnosis unfamiliar, counterintuitive, and difficult to understand. There is widespread faith in the importance of early detection,[38 39] and people may choose cancer screening because it is the apparent default decision, even if their informed preferences would be different.[40-42] Furthermore, when people are predisposed towards an intervention, they may perceive benefits to be high and risks low, even when explicitly told otherwise.[43] Suggesting a reduction in tests that are popular with the public can provoke emotionally charged, even hostile responses,[44] reflecting cognitive dissonance.[45]

Uncertainty and trust: Intolerance of uncertainty and anxiety about missing rare cases underpin much medical excess.[46] Communicating about overdiagnosis requires us to acknowledge the inherent uncertainty in the size and extent of the problem and its consequences. These issues are often hotly contested.[47] Communicating uncertainty adds complexity and may lead to confusion and avoidance of decision making[48] and can undermine trust in the healthcare provider.[49] However, distrust can also arise when patients discover that information about harms has been withheld.

Box 2 | Examples of effective communication strategies for overdiagnosis or overtreatment

Community back pain campaign (three year campaign 1997-99)[17]

- Significant improvements in community (n=4730) beliefs about back pain over three years in Victoria (where campaign was run) versus New South Wales (no campaign)
- General practitioners'(n=2556) knowledge improved—for example, time when patients can to return to work, not prescribing complete bed rest. In a patient scenario, GPs in Victoria were 2.51 times less likely to order tests for acute low back pain and 0.40 times as likely to order lumbosacral radiographs. Over the duration of the campaign insurance claims for back pain reduced by 15%

Patient decision aids[9]

- A Cochrane review of 115 randomised controlled trials reported that decision aids reduced number of people choosing major elective surgery in favour of more conservative options (relative risk 0.79) and reduced number of men choosing PSA testing (RR 0.87) in nine studies
- A randomised trial of a decision aid for women approaching 50 years (n=879), which explicitly explained the concept of overdiagnosis and presented quantitative information on its likelihood, found that it increased informed choice by 9% (intervention 24% *v* control 15%), reduced intentions to screen by 13% (74% *v* 87%)[3]

Changing disease terminology

- A study of 394 women compared the commonly used cancer term for ductal carcinoma in situ (non-invasive cancer) with non-cancer terms (breast lesion, abnormal cells). Results showed 47% preferred surgery when cancer term was used compared with 34% and 31%, respectively[22]

Citizen juries

- 27 men randomly allocated to PSA screening community jury (12 men) or control (15 men). The jury concluded that the Australian government should not invest in PSA testing and recommended an education programme for GPs with better quality and consistent information about PSA for doctors and patients. After the jury, men had significantly lower intentions to screen compared with controls[24]

Research must also consider potential harms of communicating overdiagnosis, and herein lies the problem

Vested interests and persuasive communication: Vested interests may influence how information is presented in the media and the scientific arena. Pharmaceutical and device manufacturers have direct interests in maximising product sales. Industry funded disease awareness campaigns often increase the numbers of people portrayed as patients.[50] Narrowing the boundaries that define disease or raising diagnostic thresholds is a threat to turnover, profit, and professional interests.[51] Similarly patient advocacy groups, often also industry funded, can have interests in portraying their condition as widespread, severe, and treatable to optimise media, professional, and policy attention and to attract resources.[52] Politicians too have seen mileage in supporting screening programmes without offering more nuanced assessments of their benefits and harms, including risks of overdiagnosis.[53]

Further research directions

We need studies about what the public, patients, and clinicians currently know, understand, and want to know about overdiagnosis and their attitudes, reactions, and choices when provided with such information. Then we can research effective communication—how to increase understanding among all parties and the effectiveness and acceptability of such strategies. Once effective interventions are identified, we need to understand how to implement them within healthcare systems that currently reward overdiagnosis. However, research must also consider potential harms of communicating overdiagnosis, and herein lies the problem. Possible harms include overburdening and confusing the public, adversely affecting patients already diagnosed and treated, and creating distrust in conventional medicine.[29]

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Full author details are in the version on thebmj.com

Cite this as: *BMJ* 2016;352:i348

Find this at: http://dx.doi.org/10.1136/bmj.i348

yes

Vaccine schedules are evidence based, safe, and highly effective in reducing the global burden of infectious diseases

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Vaccines undergo extensive testing and review before licensing to evaluate their immunogenicity, safety, and effectiveness in preventing disease.[1] For example, prelicensing trials of pneumococcal conjugate and rotavirus vaccines are among the largest randomised controlled trials ever conducted, enrolling tens of thousands of infants.[2-4] In addition to randomised controlled trials, which produce the highest level of evidence and provide the basis for vaccine licensure, vaccine policy also benefits from the additional supportive evidence obtained from thousands of other types of vaccine studies. Such studies generate critical data regarding age specific immunogenicity, dose and dosing intervals, interaction with other vaccines, duration of immunity, and overall vaccine safety to inform schedules.

What evidence is needed to make the most appropriate schedule?

Data from clinical trials represent only a portion of the evidence considered in determining vaccination schedules.[5] Burden of disease, immunogenicity, and efficacy studies enable countries to select vaccines and schedules appropriate for their populations, as shown by the recent infographic in *The BMJ*.[6] Vaccine schedules are further refined by considerations such as timing and efficiency of access to the target population to optimise uptake. For childhood vaccines, integration with existing local or national well child visit schedules is a critical consideration.

Once vaccines are in general use local surveillance is generally conducted to evaluate their effect on disease burden. Comprehensive surveillance systems are also maintained by the Centers for Disease Control and Prevention in the United States, Eurosurveillance in Europe, and the World Health Organization expanded programme on immunisation (EPI).[7-9]

Role of expert advisory bodies

In nearly every jurisdiction, decisions regarding vaccine schedules are made by formal advisory bodies consisting of experienced practitioners, public health officials, vaccinologists, and epidemiologists. Available data are reviewed, burden of disease assessed, and practical considerations for vaccine delivery evaluated to produce an appropriate schedule for each country. So, expert advisory bodies may develop differing recommended schedules, based on local, regional, or national considerations. For example, the second dose of MMR vaccine is routinely given in Germany at 15-23 months of age, while in the US it is administered at 4 to 6 years. Strong trial generated evidence shows that two doses separated by at least 28 days and the first dose administered on or after the first birthday will produce measles immunity in 99% or more of people. The timing of the second dose varies in each country is based on the ability to provide the earliest possible second dose that will minimise the burden of measles. Ongoing surveillance of measles cases ensures that the timing of doses remains appropriate to the epidemiology of disease.

Monitoring optimises protection

Evidence continues to be gathered and used after implementation. The increase in *Haemophilus influenzae* type b (Hib) cases in the United Kingdom after implementation of a Hib conjugate vaccine schedule at 2, 3, and 4 months prompted an altered schedule that moved the 3 month dose to 12-13 months, with a resultant reduction in the burden of Hib disease.[10] The value of continued surveillance was also highlighted by the introduction of maternal tetanus, diphtheria, and acellular pertussis (Tdap) vaccination to reduce pertussis among infants in the US and many European countries.[11]

In summary, vaccine schedules are evidence based, safe, and highly effective in reducing the global burden of infectious diseases. Evidence to develop and maintain these schedules involves a multifactorial and robust process carried out worldwide. The real world effectiveness is shown by the millions of children spared annually from the morbidity and mortality of vaccine preventable infections.

Is the timing of recommended childhood vaccines evidence based?

A recent infographic in *The BMJ* highlighted variation in global vaccination schedules. **Kathryn Edwards and colleagues** argue that schedules are based on good evidence and robust processes but **Tom Jefferson** and **Vittorio Demicheli** think we need to know more about threat of disease

DR P MARAZZI/SPL

no

In the absence of trial evidence, the main evidence that should be used to guide the development of vaccine schedules is the threat that the targeted diseases pose in the first years of life

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If taken literally, the answer to the question is a simple no. No field trials have compared the effectiveness and harms of all vaccines used according to various schedules listed in the recent *BMJ* infographic.[6 12] The time for such studies is ethically and logistically past.

However, childhood vaccination schedules are a complex and delicate matter because they reflect a multiplicity of inputs: the threat from the target disease, the vaccines' capacity to build immunity and offer a reasonable harms profile, duration of effect, and (last but not least) organisational factors.

The full evidence base to make such complex decisions as the timing of each vaccination, in conjunction with developmental issues and the effect each vaccine has on the response to the others, is seldom fully available when vaccination schedules are devised.

Serious childhood diseases can be prevented by immunisation programmes when children respond to a vaccination by building immunity to the target disease, when the harms profile is reasonable, and when parents or guardians find the whole idea acceptable. Giving multiple compatible vaccinations in a single session may make it more likely that children will receive the full range of recommended vaccines, and despite concerns about overloading infants' immune systems we can find no evidence of harm. So should we vaccinate all children with all available vaccines against all targetable diseases?

Knowledge about disease threat is crucial

No. The main evidence that should be used to guide the development of vaccine schedules is the threat that the targeted diseases pose in the first years of life. The threat assessment should include potential morbidity, mortality, and disability from the disease in question, as well as the risk of exposure to the disease. This type of evidence could even be more important in ascertaining the net benefit of a vaccine than detailed knowledge of efficacy.

Even if the threat of disease is remote, vaccination would still be warranted if the disease is associated with an unacceptable risk of morbidity and disability, as in the case of polio in rich countries. Assessment of the threat posed by the targeted disease should be based on public health surveillance, but surveillance has often been of low quality and there may be no reliable incidence data for a disease targeted by a new vaccine.

For most of the vaccines in *The BMJ* infographic,[6] the evidence of efficacy is apparently good. However, because detailed reports for most clinical trials of vaccines are not available, and have not been independently reviewed, we cannot be certain of vaccines' harms profiles.

For some vaccines, early age at first vaccination necessitates extra boosters in an attempt to maintain sufficient antibody response. In these cases, the decision when to vaccinate is tied to threat assessment: if the threat is present around birth an extra booster is well worth the lowered disease risk. This is the case for meningitis B vaccine, which requires four doses when started at 4 months of age but only three injections when started at 6 months.[13]

Balancing the age at first dose with the number of doses should ideally be based on the families' perception of threat. Even if the threat of a particular disease is low or unknown, the possibility of some diseases may trigger alarm and anxiety in some families. If governments decide to offer a vaccine but many families refuse it the policy may be ineffective.

Better evidence

The vaccine schedule is a function of different interventions, contexts, and values. The evidence base used in designing schedules is incomplete. So how can we improve current practice? We should start by carrying out a more accurate assessment of the magnitude of disease threats. Those vaccines not targeting impending or credible threats should then be phased out or delayed. We also need randomised trials comparing different vaccination schedules to provide good quality data on the potential harms of single or multiple vaccinations.

Cite this as: *BMJ* 2016;352:i867
Find this at: http://dx.doi.org/10.1136/bmj.i867

Seven day NHS services: what trusts are doing

Anne Gulland looks at what is being provided by NHS trusts at the forefront of seven day services

"There is no 'one size fits all' answer to introducing seven day urgent and emergency care services—local solutions will need to be found." This was the message from NHS England's medical director, Bruce Keogh, in 2013 when he outlined his vision for transforming the NHS. It is true that trusts have followed their own path, but a snapshot of how trusts in England have implemented seven day services reveals many similarities.

Wrightington, Wigan and Leigh NHS Foundation Trust, one of 13 "early adopter" pilot sites for seven day services, took its cue from a Royal College of Physicians report in 2013.

Working with other trusts

Consultants work one weekend in six—more than before—and the trust now has onsite consultant cover from 8 am till 9 pm, seven days a week. It has seven day computed tomography and ultrasonography and an agreement with a neighbouring trust for magnetic resonance imaging (MRI) at the weekend and consultant radiologists or a qualified radiographer to interpret the scans.

For inpatients who need a scan but don't need to stay in hospital there is a "discharge to scan" policy.

Dorset County Hospital NHS Foundation Trust was part of the same "early adopter" pilot. But one of the ground rules for Dorset County Hospital, says its medical director, Paul Lear, was that the trust was not going to—and probably never would—offer full seven day elective services.

"The question being asked was: is it feasible for a small rural acute hospital to run seven day services? And the answer is yes," he says.

The trust has extended the working day so that there is a consultant physician "on the shop floor" until 9 pm or 10 pm. Some 88% of patients are reviewed within 14 hours of their admission, double the 40% a year ago. And in most cases a consultant will undertake that review. Patients are also able to undergo a full range of diagnostic tests at the weekend.

Government's exemplars

Salford Royal NHS Foundation Trust has often been held up by the prime minister, David Cameron, and health secretary, Jeremy Hunt, as an exemplar of seven day services. There has been some debate about what seven day services actually mean in Salford, but consultants are available in Salford Royal's emergency department from 8 am to midnight every day, the emergency admissions unit has acute physicians, and geriatricians are present from 8 am to 8 pm every day of the week. Radiology services are provided 24 hours a day, seven days a week for all core procedures needed by urgent and emergency patients, and seven day services are offered for computed tomography, MRI, ultrasonography, and x ray services. The trust has three consultant anaesthetists working 8 am to 6 pm at weekends, covering general, neurosurgical, and trauma anaesthesia. There is also a consultant neurosurgeon and spinal surgeon on the site every day.

Trusts have followed their own path, but a snapshot of how trusts in England have implemented seven day services reveals many similarities

Another trust often name checked by Hunt is Northumbria Healthcare NHS Foundation Trust, which last July opened the first dedicated emergency and acute admissions hospital in England. The new hospital has emergency consultants on site 24 hours a day, seven days a week—one of the few hospitals in England to offer this. And consultants in acute care, anaesthetics, cardiology, critical care, elderly care, gastroenterology, maternity, paediatrics, respiratory, surgery, and trauma are on site daily from 8 am to 8 pm. Diagnostics operating 24/7 include MRI, ultrasonography, and computed

FIVE WAYS THE GP CONTRACT WILL CHANGE IN 2016-17

The BMA and NHS Employers have reached an agreement on contractual arrangements for GPs in England for 2016-17. Here are five of the key changes to the contract

1 Core funding
General practices will receive an overall funding increase of £220m (3.2%). This includes a pay uplift of 1% and 2.2% to cover expenses such as staffing and higher fees due to the Care Quality Commission.

2 Dementia care
The additional enhanced service payments outside core funding for proactively assessing patients who may be at risk of dementia will cease. Instead, the £42m attached to this will transfer to GPs' core funding.

3 Vaccination fees
All general practices will receive an increase to the item of service fee for vaccinations next year. This change will see the fee rise by 28% from £7.64 to £9.80.

4 Extended opening
GPs will have a new contractual requirement to record data on the availability of evening and weekend opening for routine appointments every six months. They must allow this to be extracted or manually reported.

tomography, interpreted by consultant radiologists. There are also seven day services in physiotherapy, occupational therapy, and discharge planning.

Job plans

Consultants' job plans are split into blocks so that they spend one week in eight to 10 focusing solely on acute services and the rest of the time either on their elective work or on supporting professional activities.

Torbay and South Devon NHS Foundation Trust might not enjoy the spotlight like Northumbria or Salford but it was certainly ahead of the game when it introduced seven day emergency and urgent care services in 2012. Consultants there lead emergency ward rounds twice a day at weekends, and the trust has onsite emergency radiology weekend services, seven day interventional radiology, and a surgical consultant of the week for seven day emergency work.

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5 Locum payments
General practices will now have to record annually the number of instances where they pay a locum doctor more than a new maximum indicative rate that is being introduced by NHS England.

How junior doctors in New Zealand fought for better working conditions

Kathryn Frame reflects on what doctors in England can learn from New Zealand's dispute over junior doctors' pay and conditions

The bitter dispute over the junior doctor contract is making many trainees in England consider a career overseas, where the grass seems greener. I worked in New Zealand after my foundation training, arriving in 2008 to discover that the junior doctors there had just finished their own battle over a new contract. Industrial action was fresh in their minds and I found their attitudes to be enlightening and in stark contrast to the culture in UK hospitals at the time.

The negotiations in New Zealand occurred in the context of large numbers of healthcare professionals having left for higher salaries in Australia. The Resident Doctors Association sought consecutive annual pay rises of 10% for juniors. After two 48 hour strikes a settlement was agreed. The association achieved an initial pay increase of 8.86%, followed by a further 2% eight months later. They also secured back payments, additional study leave, and more recognition for time spent in clinical research.

Acting cohesively

My new colleagues were interested to hear how their situation compared to that in the United Kingdom. To their astonishment, I was unable to offer much detail on the pay structure or contractual terms back home. I had worked hard and had been quite well paid, but that was as much thought as I had ever given to it.

One of the registrars advised that I join the union and collect some extra duty forms. We were encouraged by the consultants to submit claims for working late or taking on extra work to cover the absence of a colleague. There were lots of gaps on the rota, so we often worked beyond our contracted hours, but we were properly compensated. Overall, the junior doctors I met were happy, well motivated, and shared a strong and supportive team spirit.

One of my posts was designed to cover doctors on nights or leave. But there was a long term vacancy on the rota and I was usually used to fill that slot instead. My colleagues let me know that this was not permitted and that I should claim all of these shifts as an internal locum, effectively doubling my salary. They were surprised and amused by my embarrassment in doing so. They felt that having been through the uncomfortable experience of industrial action, everyone must continue to act cohesively, to protect the terms agreed.

Long term effects

In New Zealand, I joined a politically aware and united group of doctors who were well informed about the terms of their employment and not ashamed to defend them. Although we have been similarly activated by our own contract dispute, we have been unable to achieve the same positive outcome of a negotiated settlement. I fear that the anger this has generated will see many of my current colleagues joining my former ones in New Zealand.

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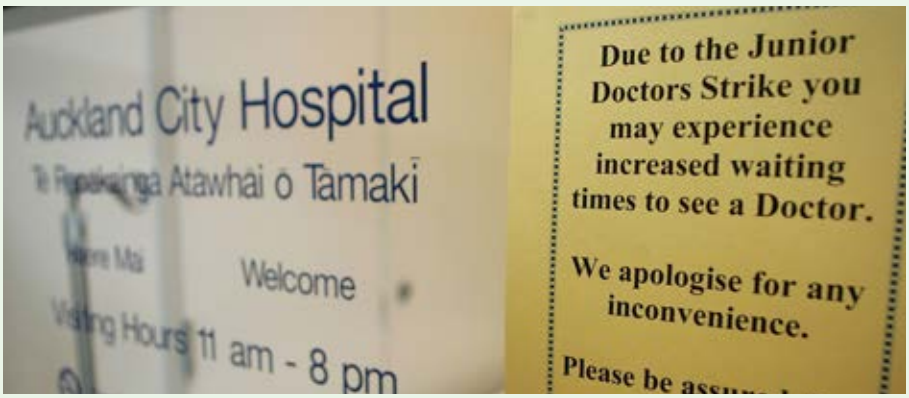

SANDRA MU/GETTY IMAGES

PETER LOCKE

Partha Kar, 42, consultant diabetologist at Portsmouth Hospitals NHS Trust, has led an award winning transformation of diabetes care in the area. The Super Six model of diabetes care increased the community care by discharging from acute care those whose needs did not meet agreed criteria, as well as reinforcing primary care by paying hospital specialists to spend part of their time there. He was shortlisted in the clinical leadership category at The BMJ Awards 2015 for a project aimed at adolescents moving from paediatric to adult care, a vulnerable group who are often "lost" to the system.

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Partha Kar
Still hoping to be Batman

What was your earliest ambition?
To be—genuinely—a superhero. Batman is still a hero to me. Dark, with a fair bit of angst and lots of money, but working for the right side: what's not to like?

Who has been your biggest inspiration?
My parents, without a shadow of a doubt, for working incredibly hard to give me the education I needed, not to mention their level of dedication towards patients.

Bevan or Lansley? Who has been the best and the worst health secretary in your lifetime?
Not a great bunch, but if I had to I'd say that Milburn was best and Hewitt was worst. The incumbent, with an ill advised and unnecessary battle with our future colleagues, nearly got a mention—but, at least before the 2015 election, he showed signs of commitment to patient safety. I'm still mystified as to what changed.

If you were given £1m what would you spend it on?
I could say many grand things, but I suspect that my other half may have first dibs on it, so I don't know. I'll have to ask her first.

Where are or were you happiest?
With my family at home: simple, pure happiness. Nothing trumps that.

What single unheralded change has made the most difference in your lifetime?
Social media. This change has given us huge insights into patients' lives, challenges, and scope of interaction.

What book should every doctor read?
Not a book, but the TV series *Star Trek*. It shows the importance of teamwork, the significance of technology, and the ever burning inquisitiveness to explore something new.

What song would you like mourners at your funeral to hear?
"Don't Stop Me Now," by Queen. Very apt.

What is your guiltiest pleasure?
A glass of Talisker single malt with ice, and enjoying Bollywood songs.

If you could be invisible for a day what would you do?
Go and visit the Queen. How does she spend her day? It's always bugged me.

What is your most treasured possession?
My hair, thanks to the conditioners I've stolen (sorry, borrowed) from my daughter.

What personal ambition do you still have?
Incredibly, it still is Batman. I think that the dream's slowly slipping away.

What is your pet hate?
Break of trust. I may come from the land of Gandhi, but even I have my limits.

What would be on the menu for your last supper?
Luchi and kosha mangsho [flatbreads and mutton curry], a Bengali delicacy.

Do you have any regrets about becoming a doctor?
Absolutely none. I love every single bit of it. I couldn't have hoped for a better job.

If you weren't in your present position what would you be doing instead?
I can't think of anything else. A Bollywood henchman, maybe?

Cite this as: *BMJ* 2016;352:i1002