> GPs are often nicknamed "gatekeepers," but in austerity-onomics we've been recast as barrier builders

NO HOLDS BARRED Margaret McCartney

Why are we reviewing GP referrals?

NHS England wants all GP referrals to secondary care to be peer reviewed, and it believes that this can reduce referrals by "up to 30%." The plans have met with shock and outrage in the press.

Outrage is justified, but for rather different reasons. This is yet another example of non-evidence based policy making, capable of doing more harm than good. And it's not a new idea. The NHS has been looking at similar proposals for years.

The BMJ reported in January that a third of clinical commissioning groups have employed private companies to scrutinise referrals: three quarters were unable to show whether they'd saved any money. Some private companies rejected referrals if they didn't fit within guidelines, and GPs were told that they'd have to challenge rejections and then have their challenges adjudicated by an "independent specialist." Some private companies are keen to emphasise how marvellously they have reduced referrals, but there's little or no reckoning of harms from delayed diagnosis or inconvenience for patients.

Then there's the opportunity cost. When GPs are sorting out bureaucratic tangles they're not available to do more worthwhile work. Any talk of "no decision about me, without me" from back in 2012 seems dead in the water. Or, as a 2014 review put it, "more research is needed to develop and evaluate interventions that acknowledge the role of the patient in the referral decision."

No good evidence has shown that this will work. Referral management doesn't reduce outpatient attendance rates. We have no details of the peer review that NHS England seems to desire. Some publications do suggest that variability between practices can be reduced by using peer review for referrals for lower urinary tract symptoms—but, crucially, this was part of a supportive package that also provided education, not blame.

Indeed, we should question the purpose of peer review. If it's to improve care we should work out the best way to do it; notably, this should include asking whether referrals are made often enough and soon enough. If the sole purpose is reducing referrals we should ask what the harm is and how we'll recognise it. GPs are often nicknamed "gatekeepers," but in austerity-onomics we've been recast as barrier builders.

I'm old enough to remember that we used to phone consultants for advice, talk to our colleagues when we questioned our own judgment, and have joint meetings between primary and secondary care doctors to discuss how best to run referrals locally. I even remember when consultants used to read the referrals they were sent, upgrade some to urgent, downgrade some to routine, and phone to discuss queries and how to proceed (in some places—whisper it—this still happens).

The new GP cluster working in Scotland offers opportunities to get back to these kinds of essential basics. I'd love for consultants and GPs to talk to each other, without a referral manager in the middle.

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Cite this as: *BMJ* 2017;358:j4240

PERSONAL VIEW Jonathan Glass

Is herd thinking in medical training leading us astray?

We are a lesser profession for not having an open discussion about the direction of medical training

"Consultants do more and more, and we see our registrars less and less." "I can't get a decent registrar on our professorial unit." "We know national selection is not fit for purpose." "My juniors don't know how to suture."

I could probably fill pages with similar comments that have been made to me over the past few months by senior consultants—all great trainers with so much to offer, all motivated to teach and to share their experience, yet all distressed by the direction in which they see British medicine going.

I recognise that the plural of anecdote is not data. Nevertheless, it can be challenging to gather data to confirm the opinion of the many—particularly when the majority opinion is not the same as that held by those in authority. Many are willing to have a quiet word at a conference here or a corridor conversation there, but aren't prepared to speak out about their concerns over the quality of training.

It's easy to see how this kind of herd thinking happens. The herd seems safe, and stepping away and voicing a view that is at odds with those in authority puts the individual in the spotlight and makes him or her vulnerable. If no one is prepared to express an alternative view, however, we may all be dragged along a path leading to deterioration.

I think many consultants currently feel that the quality of training is declining. I think many believe that the processes we have in place allow a pretence that training is improving. And I reckon that many doctors think much of their time is spent on pointless processes and superficial assessments. I know that most feel that it's easier to say nothing, to appear to comply, while stepping away from the trainee and losing interest in the next generation. Senior GPs are opting out of continued practice instead of going through the administrative burden of revalidation. Trainers have told me that they are weighed down by paperwork, which takes time away from meaningful teaching.

If no one is prepared to express an alternative view we may all be dragged along a path to deterioration

Minimum competence

Medical school emphasises a target of "minimum competence," rather than the achievement of detailed

ACUTE PERSPECTIVE David Oliver

Admission should allow for patient aids

I've never believed that all hospital admissions are undesirable or avoidable. Sometimes admission is the best, only, or safest option. But it shouldn't avoidably make patients worse for reasons unconnected to the illness causing admission.

It's a bewildering enough start, to be whisked out of your home at short notice into an ambulance, through a busy emergency floor and into the alien environment of a hospital ward. So why compound it?

Patients often have walking aids and familiar chairs, as well as moving and handling devices they are practised with. Granted, some

The NHS often pays for replacements, but these can take days or weeks to arrive

are unsafe. But rigid policies that prevent them being brought in with the patient or prevent hospitals from stocking or borrowing similar furniture don't aid recovery; nor does our tendency to lose the mobility aids that patients do bring. It's the antithesis of patient centred care.

Talking of losing things, it's still too common for patients to be admitted without their spectacles or to lose them when on the ward. And we sometimes fail to make appropriate adjustments for patients with known visual impairment or to pick up previously undetected visual problems—despite their high prevalence, especially in patients with presentations such as falls.

Hospital staff's training in basic oral care is patchy and easily neglected. Yet, as inpatients have a high risk of malnutrition, and dental and oral hygiene are key factors in hospital acquired infections, it's essential. We compound this problem far too often by losing patients' dentures during admission. The NHS often pays for replacements, but these can take days or weeks to arrive—while risks to nutrition mount.

Too often we also lose patients' personal hearing aids. Hospital

and comprehensive understanding. I'd not heard the word competence with respect to training until a few years ago. Medicine, throughout its long history, has never been about achieving competence—it has always been about the pursuit of excellence.

It is time for the profession to have an open debate about this. It is time for more of us to step away from the herd and proffer the view that some—if not a lot—of what we do in the teaching of surgery and medicine in 2017 is of limited value.

Challenge dogmas

Let's challenge the established dogmas. Let's discuss this out loud and highlight, in medical meetings and surgical forums, how these processes have an adverse impact on the training of junior doctors and the NHS in general. Processes that suppress excellence, such as competency based training; processes that suppress personal drive, such as the European Working Time Directive; processes that waste time, such as many of the assessments in the Intercollegiate Surgical Curriculum Project; processes that stop us from inspiring the next generation, such as taking juniors out of surgery house jobs and out of the emergency department; processes that waste money, such as the appointment of physician associates to do the jobs our junior doctors should be doing; processes that take doctors out of clinics and waste hours of consultant time, such as mandatory training; processes that have become superficial and process obsessed instead of pastoral, like the annual review of competence progression.

Trainees need us to stand up and question what's happening. I don't know if I'm necessarily right in what I believe, but I do know that we are a lesser profession for not having the discussion.

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Cite this as: *BMJ* 2017;358:j4297

staff should improve their skills and systems for communicating with patients with hearing loss. We're not always knowledgeable about using, checking, or adjusting hearing aids. And we don't routinely access or use personal listening devices. But to compound this by losing hearing aids (which, like dentures, can take a good while to replace even when we do pay up) is unacceptable.

You won't see much of this recorded on incident forms, discussed at root cause analysis meetings, or featured in mandatory training. But you will see it in many complaints. And the NHS pays millions each year in compensation for lost hearing aids, glasses, and dentures. It's the kind of thing that can cause patients, and their families, to lose trust and confidence in our relationship.

More importantly, getting these care essentials wrong can inadvertently compromise patients' dignity and make them more disabled, disoriented, delirious, depressed, or dependent—to paraphrase Shakespeare: "Sans teeth, sans eyes, sans ears, sans taste, sans everything."

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Cite this as: *BMJ* 2017;358:j3953

BMJ OPINION Philip Berry

Teething problems with duty of candour

In my roles as departmental governance lead and, formerly, trust lead clinician for patient safety, I have helped to develop duty of candour processes in two hospitals. Deciding when and how to have a "candour discussion" has shown that this responsibility contains grey areas and unforeseen challenges.

When should they take place? The answer seems simple: if significant harm has occurred during a healthcare episode. Yet we are not agreed on how to define significant harm. The Care Quality Commission and the National Reporting and Learning System give some examples: a patient whose surgery was postponed because of the failure to manage their warfarin prescription is proposed to have suffered moderate harm, for example. To me, that sounds like an inconvenience—one which may cause psychological distress—but which causes minor or zero harm (assuming the operation was not for cancer).

What began as a transparent human response has evolved into a series of deadlines

At the other end of the spectrum, a bowel perforation during surgery that requires a defunctioning stoma and subsequent surgeries is cited as an example of serious harm. That seems appropriate, but even this example can be quibbled over. Was that bowel perforation the result of an error in technique, or was it a known, statistically inevitable complication of intestinal surgery? The assessment may be subjective. Who should make that judgment? The surgeon, or a peer? This is controversial.

Duty of candour is about more than saying sorry. After a harm event has been identified, the patient will be spoken with. Regulation 20 requires the conversation to be reiterated in a letter so that the incident, its impact, remedial action, apology, and a commitment to investigate (if appropriate) are formally recorded. It is here I suspect many departments fall down: it requires organisation. That means administrative support—for instance, a governance manager. This person must also keep an eye on the state of the investigation, ensure that it is completed within 60 days, and arrange for its conclusions to be communicated back to the patient.

Duty of candour has thus become a process, overlapping with the Serious Incident Framework. To the clinician, what began as a transparent human response has evolved into a series of deadlines. This overlap, however, is clearly necessary if lessons are to be learnt by organisations, and if patients are to understand how the harm they experienced came to pass.

Philip Berry is a consultant hepatologist at Guy's & St Thomas' NHS Foundation Trust

JUDGING MEDICINES

Collective effort to improve research

Our report on appraising the benefits and harms of medicines (Editorial, 8 July) calls for changes to the Research Excellence Framework to recognise efforts supporting reproducibility, "intelligent openness," and better research communication. These changes could galvanise the culture shift needed in research institutions and universities.

All organisations involved in research and its communication must look closely at the processes governing our work. We will review the way we declare interests; whether they present a conflict is context dependent, and conflicts are not limited to industry links.

We are brought together by the motivation to ensure the robustness and trustworthiness of scientific research so that society reaps the maximum benefit. This is more likely if the whole research community aligns its efforts.

John Tooke, former president, Academy of Medical Sciences

Cite this as: *BMJ* 2017;358:j4201

Put more trust in the trustworthy

The Academy of Medical Sciences recommends involving patients, carers, and the public in research to tackle concerns about the erosion of public trust, overmedication, and conflicts of interest (Editorial, 8 July). Patient and public involvement, however, is already an imperative for much publicly funded UK health research and has been for some time. Moreover, the field of involvement is not outside of or immune to conflicts of interest or the erosion of trust, especially given that involvement is often reduced to time consuming and tokenistic box ticking exercises.

We should aim for more trust in the trustworthy and less in the untrustworthy, not for more trust across the board. This requires building, or rebuilding, trustworthiness in health research. Pervasive discussion of the "deficit model," which implies that all public and professional scepticism of science is unfounded and that corrective communication by experts is necessary, is unhelpful.

Mary Madden, lecturer in applied health research, Leeds

Cite this as: *BMJ* 2017;358:j4202

LETTER OF THE WEEK

It's time to fund health and social care properly

Majeed correctly points out that restrictions on prescribing and reduced availability of drug treatments on the NHS, as well as stopping prescription of gluten free food products for patients with coeliac disease, might have unforeseen negative consequences, particularly in vulnerable groups (Editorial, 19-26 August). These might increase healthcare costs in the longer term.

Although Clinical Commissioning Groups cannot enforce prescribing restrictions on GPs, this is likely to change as national guidance is rolled out. Majeed says that publicly funded healthcare must be cut or patients must pay more for their own treatment. This is not a dichotomy as one will inevitably follow the other, creating inequity related to the ability to pay—a fundamental undermining of the basic principles of the NHS.

A recent report indicated that as many as 30 000 excess deaths might be related to dismantling of health and social care by this government. The unprecedented slowing down of increasing life expectancy has led Michael Marmot to say, "We need to recognise that you can't keep cutting and cutting and cutting and expect nothing to happen."

Surely it is time to end austerity, fund health and social care properly, and get rid of the market in healthcare, freeing up billions of pounds for treating patients? Is this not what politicians and the public really need to understand?

John W Puntis, consultant paediatrician, Leeds

Cite this as: *BMJ* 2017;358:j4298

Are the public being listened to?

We can only gain the trust of the public if we listen to them.

One of us (PJG) raised a petition with the Scottish parliament to consider a Sunshine Act for Scotland, and as part of this a consultation was undertaken with the Scottish public. The majority of those consulted agreed that it should be mandatory for all financial conflicts of interest to be declared on a public register.

The academy has gone no further than recommending the development of "frameworks for declaring and managing interests." This will do nothing to restore the public's trust.

P J Gordon, psychiatrist for older adults

S F Gordon, general practitioner, Bridge of Allan

Cite this as: *BMJ* 2017;358:j4203

Credibility and trust are required

Freer and Godlee lament the weak recommendations made by the Academy of Medical Sciences.

Medical journals need robust policies on conflicts of interest. Progress in this area has been inconsistent, with some prominent journals taking a "flexible" approach. The rationale of the International Society of Drug Bulletins (ISDB) is that drug bulletins without industry funding avoid problems faced by editors of other journals.

ISDB members recently voted to further strengthen the society's policy on conflicts of interest, deciding that its editorial teams and external authors must be completely free from conflicts of interest.

This reflects the accumulating evidence of bias arising from financial and advisory links with industry, as well as the recognition that disclosure of conflicts of interest is often inadequate and can aggravate bias. Credible drug information requires that conflicts of interest are not merely managed but excluded.

David B Menkes, academic psychiatrist, Hamilton, New Zealand

Dick Bijl, president, International Society of Drug Bulletins, Utrecht

Cite this as: *BMJ* 2017;358:j4204

ALAMY

BMJ.COM HIGHLIGHTS

Not so natural disasters

After the past month has seen a spate of extreme weather events, Jeni Miller, executive director of the Global Climate and Health Alliance, writes in BMJ Opinion about the aftermath of hurricanes Harvey and Irma. With the storms now past, she describes how people are grappling with injuries, displacement, lack of clean water, and lack of access to their medications. Hurricanes are a fact of life in these regions, she says, but human decisions are ramping up the intensity and frequency of such storms and making their consequences worse.

Another BMJ Opinion piece discusses India's climate paradox: water scarce in dry seasons, yet prone to severe flooding during monsoons. After a summer that has seen south India parched, and the city of Mumbai submerged in floods, authors Banalata Sen and Manu Gupta observe that tackling this problem in a country of 1.3 billion people will be a Herculean task. Yet communities have dealt with natural climatic variability for centuries, they say. By informing local practices with scientific methods, they argue that communities can work to overcome the climate change challenges ahead.

Read these articles in full at http://blogs.bmj.com/bmj/

MOST READ ONLINE

Beating type 2 diabetes into remission
BMJ 2017;358:j4030

Oral surgeon whose misconduct was "serious, persistent, and shocking" is struck off
BMJ 2017;358:j4255)

David Oliver: What GPs told me about how they see the future
BMJ 2017;358:j3976

No overall increase in all cause mortality with HRT, study finds
BMJ 2017;358:j4230

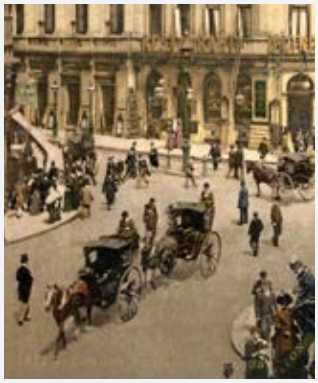
A brief history of post-truth in medicine
BMJ 2017;358:j4193

FROM THE ARCHIVE

A matter for doctors' consciences

Last week *The BMJ* reported comments from Richard Vautrey (*Br Med J* 2017;358:j4291), chair of the BMA's General Practitioners Committee, warning that "the cost of running a local GP service continues to rise well beyond the funding increases provided by the government." One expense that today's GPs don't have to pay for, at least, is the provision of horses and carriages, which in 1841 was a source of much financial consternation to doctors.

In September that year, a country practitioner wrote to *The BMJ* (at that time called the *Provincial Medical and Surgical Journal*) to highlight a "recent decision of the commissioners of taxes" that medical men must not make any deductions for their horses and carriages when estimating their professional incomes, in case of their ever using them for any other purpose than that of visiting patients (*Prov Med Surg J* 1842;s1-4:445). "Surely," this doctor continues, "I cannot be singular in thinking this a most oppressive and unjust decision against a body of men, who have, perhaps, more claims on the leniency of the commissioners than any other class subject to the tax."



He was not alone in thinking this unfair. A provincial surgeon (*Prov Med Surg J* 1842;s1-4:501) replied: "Were I a brewer, I should not the less regard my horses as part of my necessary expenditure, because I occasionally used one for sending my family to church; and as I keep horses and carriages entirely for the purpose of carrying on my profession, I should not think of omitting to put them down, as items of unavoidable professional expenditure, in calculating the amount of my income."

"The return of my professional gains for the year 1841 is an affair between me and my conscience (not commissioners)," he proclaims, before ending his letter by tartly wondering, "how far the London physicians and surgeons have complied with the commissioners' decision?"

PODCAST

Googling depression

People in the US who use Google to search for clinical depression will now be presented with a link to the PHQ-9 screening test. Google has developed this in collaboration with the National Alliance on Mental Illness, and in a new podcast Ken Duckworth, the alliance's medical director, debates the merits of this approach with Simon Gilbody, a professor of psychological medicine.

Also joining the podcast is David Gilbert, a mental health services user, who argues that it's only through patient involvement that real improvements to mental health can be obtained.

Listen to the podcast at http://bit.ly/google_depression

Too much medicine: what is driving this

Mapping the drivers of overdiagnosis to potential solutions, **Thanya Pathirana and colleagues** explore strategies to tackle the problem of too much medicine

In our collective enthusiasm to diagnose and treat disease, a growing body of evidence indicates that we may often be doing too much of a good thing.[1-5] "Overdiagnosis" is now widely recognised to occur when people are labelled with or treated for a disease that would never cause them harm—often as a result of undergoing screening—and it can lead to the overuse of further tests and treatments.[2 6] One example is thyroid cancer, with estimates that over 500 000 people may have received overdiagnoses across 12 countries in the past two decades, leading to unnecessary surgery and lifelong medication for many.[7]

Overdiagnosis is a challenge to the sustainability of human health and health systems. Its causes—including the best of intentions—are as complex and multifaceted as the potential solutions.[8-13] As part of the preparation for a possible national action plan in Australia, we searched the literature for causes of and responses to overdiagnosis. Here we provide the first comprehensive analysis of the possible drivers of overdiagnosis and related overuse, mapped to potential solutions.

Searching the literature

Our initial searches of the literature yielded a total of 36 articles, to which we added a further five (see bmj.com for details). We included articles that explicitly discussed possible drivers and potential responses or solutions to the problem of overdiagnosis. We included original research as well as opinion, commentary, and analysis articles.

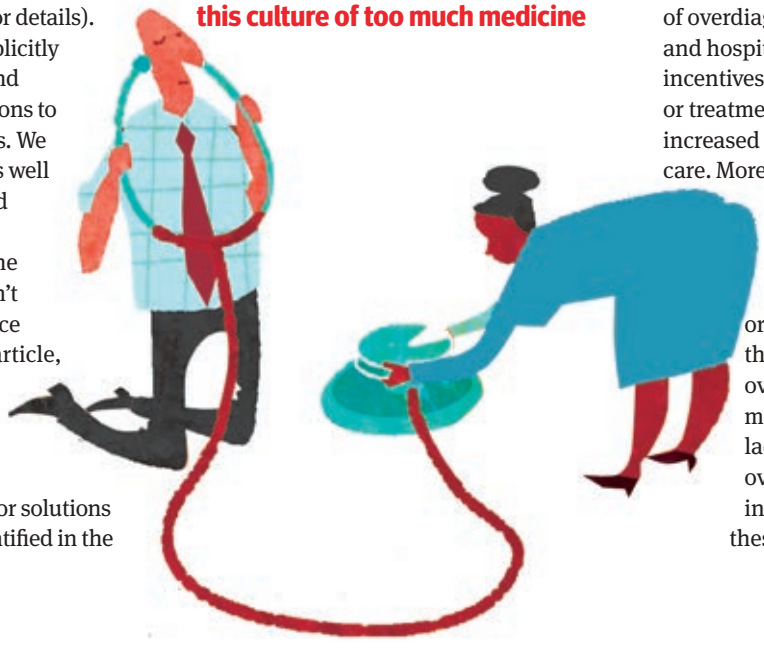
Given the limitations of the literature to date, we couldn't assess the quality of evidence behind each claim in each article, so this is not a systematic review.

The map arising from our analysis is broad but not definitive—potential causes or solutions might not yet have been identified in the literature, and breadth might come at the cost of depth. In addition, our search was based in medicine, and a wider analysis might identify important sociological investigations of medicalisation[15] resulting in different conceptions of the problem, drivers, and solutions. Importantly no strict or established criteria for what defines a driver or a solution exist, so our decisions about inclusion and mapping are open to discussion.

KEY MESSAGES

- Interest is growing in tackling the problems of overdiagnosis and overtreatment
- Possible drivers and potential solutions arise across five inter-related domains: culture, the health system, industry and technology, healthcare professionals, and patients and the public
- More work is needed to develop and evaluate interventions aimed at preventing overdiagnosis
- Raising public awareness of overdiagnosis is a priority

Fears of uncertainty, ageing, death, and disease contribute to this culture of too much medicine



ILLUSTRATIONS: PAUL BOSTON

WHAT'S DRIVING OVERDIAGNOSIS?

Possible drivers of overdiagnosis span five domains: culture, the health system, industry, professionals, and patients and the public.

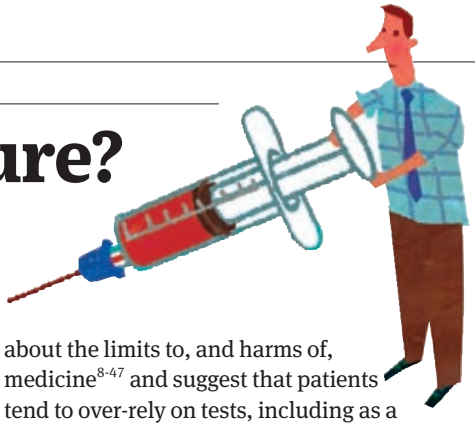
Culture drivers

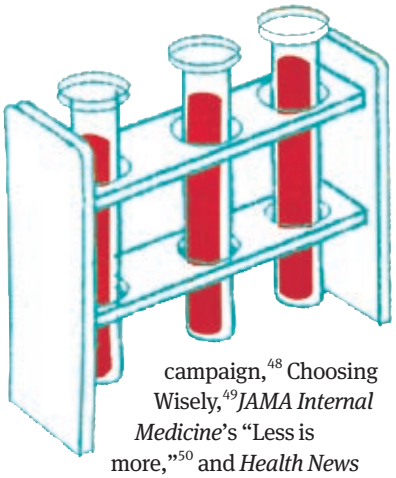
Popular deep seated beliefs that in healthcare "more is better" and "new is better" are often cited as drivers of unnecessary testing and overdiagnosis.[3-24] Related to this is a strong collective faith in the benefits of screening the healthy and making an early diagnosis, arising in part from our fears of a serious disease being missed or a diagnosis made too late.[3-29] As Welch, Schwartz, and Woloshin argue in their 2011 book *Overdiagnosed*, which draws on a wealth of empirical evidence, "early diagnosis is a double edged sword," with the potential to help but also hidden danger: "the detection of abnormalities that are not destined to ever bother us."[2] Fears of uncertainty, ageing, death, and disease also collectively contribute to this culture of too much medicine.[8-47]

Health system drivers

Expanding disease definitions, which identify more previously healthy people as "sick," are commonly cited as a driver of overdiagnosis.[3-47] Health professionals and hospitals frequently have financial incentives to perform more investigations or treatments for their patients, favouring increased and sometimes unnecessary care. Moreover, a system based on fee for service may lead to time restraints during consultations with inadequate time available for shared decision making or the complex explanation of the counterintuitive problem of overdiagnosis.[4-32] Current quality measures in health systems may lack emphasis on preventing overdiagnosis or overuse and instead may indirectly promote these problems.[3-21]

harmful culture?





Industry and technology drivers

The most important driver in this domain is the use and promotion (to clinicians and the public) of increasingly sensitive tests, leading to detection—often incidentally—of minor "abnormalities," which may be of uncertain clinical significance and can cause overdiagnosis.[3-47] Industry promotion can also include the funding of patient and advocacy groups.[8-28] As Eric Coon and colleagues point out in their well reasoned and evidence based exploration of potential drivers of overdiagnosis among children, "Advertisements capitalize on our fear of undiagnosed disease and urge us to see our doctor for testing . . . Once considered unbiased, third party advocacy groups are often used to deliver the same message."[17] Commercial imperatives and conflicts of interest, including financial or reputational conflicts of interests of those involved in guideline panels that expand disease definition, are also cited as a concern.[3-47]

Professional drivers

Many authors argue that health professionals are driven to practise defensive medicine owing to their fear of litigation arising from a purported omission.[3-41] Closely related is the doctor's fear of missing a diagnosis, also commonly cited as a potential driver of overdiagnosis.[3-29] Health professionals' unease with dealing with an uncertain diagnosis may lead them towards overtesting and overdiagnosis. This lack of professional confidence and knowledge of harms,[8-30] as well as the tendency to routinely diagnose or "do something" may arise from flaws in medical training,[9-23] with underemphasis on patient preferences and overemphasis on diagnosis.[20-47]

Patient and public drivers

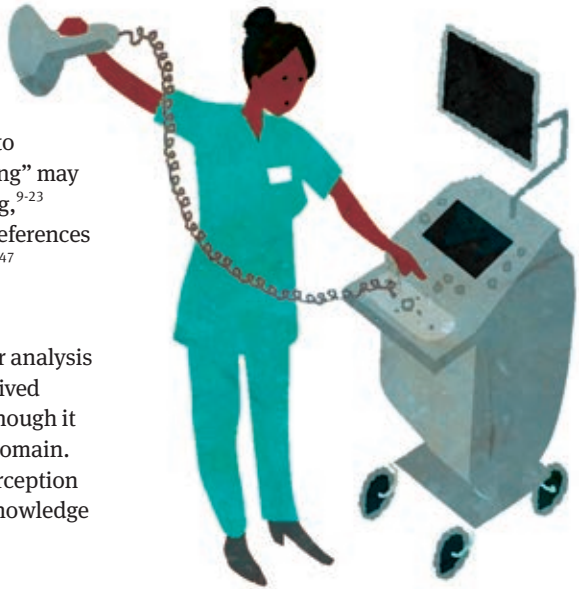
While important, the results of our analysis indicate that this domain has received less attention in the literature, although it clearly overlaps with the culture domain. A number of authors point to a perception that many people have a lack of knowledge about the limits to, and harms of, medicine[8-47] and suggest that patients tend to over-rely on tests, including as a means of reassurance.[8-28] Others identify patient expectations that clinicians will "do something" as a potential driver.[9-21]

WHAT ARE THE POTENTIAL SOLUTIONS?

Many of the potential solutions commonly identified in the literature map closely to explicit drivers, with some important exceptions. For some drivers, such as the increasing complexity and fragmentation of care, specific relevant solutions were not identified. Other drivers showed considerable overlap, both within and across domains. The health system domain, for example, overlaps with the industry and technology domain, where enhanced government regulation of commercial promotion or health technology evaluation clearly falls primarily to policy makers. We made every attempt to link drivers to potential solutions.

Culture solutions

Public awareness and education campaigns are needed to challenge beliefs that in healthcare "more is better" [9-26] and to promote a more healthy scepticism about the benefits and potential harms of early diagnosis.[2-22] Arguably, initiatives like *The BMJ*'s Too Much Medicine campaign,[48] Choosing Wisely,[49] *JAMA Internal Medicine*'s "Less is more,"[50] and *Health News Review*[51] are moving in this direction. Given the powerful role that media can play in shaping public beliefs, strategies to improve media reporting on overdiagnosis are needed.[2-28]



Health system solutions

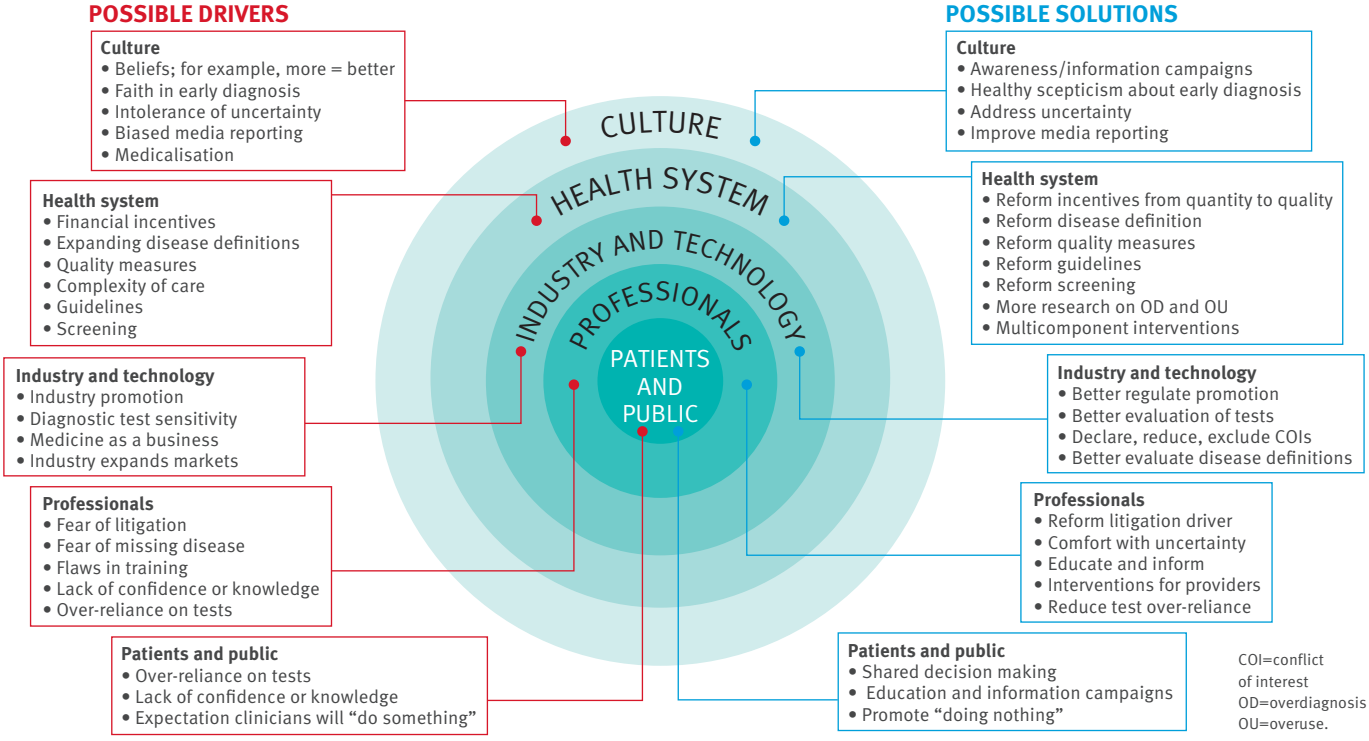
Reforming incentives for professionals and healthcare organisations to reward the quality rather than quantity of care is commonly cited as a key way to tackle the problem of too much medicine.[3-30] Some authors also cite the need for new evidence informed frameworks to be used when disease definitions are changed,[52] with calls for changes to disease terminology and new expert panels that are more widely representative and have reduced or minimal conflicts of interests.[3-37] An influential group convened by the US National Cancer Institute is among those advocating changes to disease terminology for indolent lesions.[26] Quality indicators and guidelines are also targeted for reform, to tackle any incentives for medical excess, as well as include new measures of overdiagnosis and overuse.[4-38] More targeted screening programmes that might, for example, limit some screening to well defined high risk populations[9-39] and mandated strategies to inform patients of the benefits and harms of screening[3-36] are among potential solutions for minimising the risks of overdiagnosis associated with screening. The 2016 systematic review of studies aimed at reducing low value care and underuse across different parts of the health system found that interventions using multiple strategies and targeting the roles of both clinicians and consumers had the greatest potential.[10]

Industry and technology solutions

More rigorous evaluation of the effects of both new and existing diagnostic technology on health outcomes is commonly

When more is not better

Mapping possible drivers of overdiagnosis to potential solutions



COI=conflict of interest
OD=overdiagnosis
OU=overuse.

recommended[3-39] as a key solution to the problem of increasingly sensitive tests that detect "abnormalities" of uncertain clinical significance. Drawing from the field of ecological economics to frame overdiagnosis as overconsumption, Hensher and colleagues call for "a more rigorous application of the precautionary principle" in technology assessment to avoid giving "potentially harmful overuse the benefit of the doubt."[12] Other potential solutions include stronger regulation of the advertising of new tests and treatments to the public and health professionals[30] and paying greater attention to managing and reducing conflicts of interest with industry.[47]

Professional solutions

The need to tackle the medicolegal concerns regarding missing or delaying a diagnosis was one of the key solutions discussed in the literature.[3-47] Another recommended solution is updating current medical curriculums and continuing medical education to include overdiagnosis and overuse, for both students and practitioners.[3-47] As future practitioners, students must be taught to "look always for the possibility of harm alongside that of benefit."[25]

Patients and the public solutions

Widespread awareness campaigns to inform and educate patients and the public on harms as well as benefits of screening and treatment options are commonly cited as essential to tackling overdiagnosis,[3-47] echoing and overlapping with solutions we have classified in the cultural domain. Another frequently recommended solution was promoting shared decision making as a response to several key drivers in this domain.[13-47] In addition, several authors proposed the need for prioritising treatment options such as watchful waiting or active surveillance, where appropriate.[3-35]

WHERE TO FROM HERE?

We have attempted to retrieve, analyse, and summarise the existing literature on drivers and responses to overdiagnosis and related overuse. The results of this analysis emphasise the need for more evidence about the problem, increased evaluation of potential solutions, and enhanced education across all sectors, to help wind back the harms of too much medicine effectively, safely, and fairly.

As part of multiple level strategies, in our view the most urgent need is to generate accessible evidence based information and educational materials about overdiagnosis for the public, professionals, and decision makers—both general information and condition specific. Tackling the gamut of financial incentives that drive unnecessary diagnoses and strengthening regulatory processes to enhance evaluation of new and existing diagnostic technology are two more solutions, as difficult as they are desirable. Reforming inappropriately widened disease definitions is arguably the most challenging but most important solution.

We hope this analysis will help offer a suite of possible solutions to those seeking to reduce iatrogenic harm and enhance health system sustainability.

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Cite this as: *BMJ* 2017;358:j3879

Tessa Holyoake

Experimental haematologist whose work transformed the treatment of chronic myeloid leukaemia

Tessa Laurie Holyoake (b 1963; q Glasgow 1985), died from breast cancer on 30 August 2017

Tessa Holyoake, a world renowned expert in chronic myeloid leukaemia (CML), has died at the age of 54. She was the professor of experimental haematology at the Institute of Cancer Sciences at the University of Glasgow and director of the Paul O'Gorman Leukaemia Research Centre. Born in Aberdeen in 1963, she studied medicine at the University of Glasgow before embarking on research in Glasgow and, for two years, Vancouver.

Scientific achievement

She joined Glasgow University in 1992 and was awarded a personal professorship in October 2004. Her observations have transformed understanding of CML and its treatment. Most notably, she was the first to identify the existence of cancer stem cells in CML in 1999 during her research fellowship in Vancouver. Later, she showed their resistance to CML-specific therapies, such as imatinib and newer, more potent CML therapies.

Tessa made a crucial contribution to her specialism by identifying key CML stem cell survival pathways that can be manipulated to develop potential new treatments. As a result of her research, patients with CML who have not responded to standard therapies have been offered treatment in clinical trials in an attempt to achieve remission. From 2002 onwards, Tessa studied resistance to treatment. This prompted much research activity across the world and generated new therapeutic strategies that are currently being evaluated in clinical trials.

In addition to her research work and expertise in driving international strategies for patient management, Tessa was a member of many grant awarding bodies, including the European Hematology Association, Medical Research Council, Cancer Research UK, the Academy of Medical Sciences, and Bloodwise. She also sat on the editorial boards—including *Blood*, *Leukaemia*, and the *British Journal of Haematology*—and organised and gave plenary lectures at conferences around the world. She had numerous publications in journals including *Nature*, *Cancer Discovery*, and the *Journal of Clinical Oncology*.

Energetic leader

Tessa was the director of the Paul O'Gorman Leukaemia Research Centre and a key member of the advisory board for the fundraising campaign to build the centre, raising over £4m. She also led the design and commissioning of the facility, which was opened in 2008. The centre now houses and supports seven translational research team leaders and around 45 research scientists and students, all working in experimental haematology. The centre is recognised internationally for its leukaemia research and houses the largest biobank of CML patient samples in the world.

Tessa held research grants worth over £8m from research councils, charities, and industry. In addition to her role as director of the centre, she was a consultant haematologist at the Beatson West of Scotland Cancer Centre. While her patients there often expressed their admiration for her scientific achievements, her main focus was always to be an excellent and compassionate clinician.

In 2009 she won the Scottish Health Awards Cancer Care Award; in 2011 the Lord Provost of Glasgow Health Award; and in 2015 she was awarded the Scottish Alba Saltire Society Fletcher of Saltoun award, and the Scottish Cancer Foundation's inaugural prize and Evans/Forrest Medal. She was appointed a fellow of the Academy of Medical Sciences in 2013. In March 2017, she was awarded the Rowley Prize by the International CML Foundation in recognition of her work on understanding and targeting CML stem cells.

Tessa was the first to identify the existence of cancer stem cells in CML

She was elected to the Royal Society of Edinburgh (RSE) in 2007, and in July 2017 she was awarded an RSE Royal Medal in recognition of her contribution to life sciences, through her discovery of the existence of cancer stem cells in CML and her development of a new therapy for this condition.

Mountain biker and cake lover

Outside work, Tessa spent time with her husband, Andy, at their holiday house on Loch Tummel, usually in the company of friends and family. Cycling, running, swimming, or some other exercise was invariably on the agenda, as was a soak in the hot tub in the early evening. With the help of friends, family, and excellent support from her GP and district nurse, Tessa was able to stay at the holiday home until she died.

Tessa was energetic, enthusiastic, and motivational. She will be remembered as a dedicated clinician, outstanding scientist, fearless mountain biker, and cake lover. She leaves Andy; her mum, Mary, and siblings Sylvia and Nick.

Mhairi Copland, Jeff Evans, Owen Samson, Mark Drummond

Cite this as: *BMJ* 2017;358:j4224

OBITUARIES

Eileen P Kane

Consultant psychiatrist (b 1921; q Queen's University, Belfast, 1944; FRCPsych), died from old age and mild cerebrovascular disease on 30 August 2016

Eileen P Kane was appointed consultant at the new Gransha Hospital, Derry/Londonderry, in 1962. Her career continued there—with a subspecialty in psychiatry of old age—until she retired at age 65. She served as chair of the Londonderry, Limavady, and Strabane subdivision of the BMA, before the 1973 reorganisation of health services in Northern Ireland. She later served as chair of the Western (NI) Division. A member of the Charles Hastings Wine Club, she often travelled with the BMA on overseas trips to medical conferences and "associated leisure trips." Outside medicine, her main interests lay in travel, bridge, fine wines, the U3A, and painting. Eileen was not married. She is buried in her native County Armagh and leaves nephews, nieces, grand nephews, and grand nieces.

Ailbe Beirne, Yvonne Kane

Cite this as: *BMJ* 2017;358:j4095

John Withers Crossley

General practitioner and regional medical officer, Welsh Office (b 1934; q Manchester 1959), died from heart failure on 29 July 2017

John Withers Crossley was a registrar at Park Hospital, Davyhulme, before he joined the Court House Practice in Caerphilly, south Wales, in 1964 as partner, then senior partner. He was also a GP anaesthetist at the Caerphilly Miners' Hospital. Twenty five years later he became a regional medical officer at the Welsh Office in Cardiff and stayed in post until he retired. John had a great love of all sports and played cricket, table tennis, and golf until his 80s. With his wife, Nettie, he moved to Hampshire, where he continued his community interests. He had an in depth knowledge of the first world war and was suddenly taken ill as he travelled to the Passchendaele memorial event in Ypres. John leaves Nettie; two daughters; and five grandchildren.

Janet Warwick

Cite this as: *BMJ* 2017;358:j4093

Roeland Leonard Raymakers

Consultant orthopaedic surgeon Leicester Royal Infirmary (b 1933; q Westminster Hospital 1957; FRCS), died from acute bowel obstruction on 21 March 2017

Roeland Leonard Raymakers was born in the south of the Netherlands. His family moved to Accrington, Lancashire, in 1934. Although they eventually returned to Holland, Roeland made England his home. While training at Westminster Hospital he met Joan Creasey, a student nurse; they married just before he took up the post as resident medical officer and casualty registrar at the hospital. He was appointed to his consultant post at the Leicester Royal Infirmary in 1971 and was its clinical head of orthopaedics service from 1986 until he retired in 1993. In retirement he was able to enjoy his love of the Leicestershire countryside, travelling around Europe, and watching the sports he had so enjoyed playing as a young man. He leaves Joan, four children, and eight grandchildren.

Kate Raymakers

Cite this as: *BMJ* 2017;358:j4151

Frederick Brian Cookson

General practitioner Askwith Road, Gloucester (b 1936; q Cambridge 1961; MA, FRCGP), died from heart failure and myelodysplasia on 16 June 2017

Frederick Brian Cookson ("Brian") studied natural sciences at St John's College, Cambridge, with clinical years in Birmingham. He cared passionately about medicine and people and established the first purpose built GP surgery in Gloucestershire, where he provided personalised care of the highest standard to generations of patients. Intrigued by language and the process of GP consultations, he gave his patients the expert attention of a doctor who really listened.

As a trainer, Brian was enthusiastic and inspirational. An accomplished pianist, with a fine bass voice, Brian sang with Gloucester Choral Society and the Three Choirs Festival Chorus. His literary interests were wide, and to be in his company guaranteed humorous and stimulating conversation. He leaves his wife, Hilary; four daughters; and six grandchildren.

Bill Foster

Cite this as: *BMJ* 2017;358:j4092

Simon Oakeshott

Psychotherapist and child psychiatrist Cambridge (b 1931; q St Mary's Hospital Medical School, London, 1966; MA (Oxon), MRCPsych), died from respiratory failure on 17 July 2017

The son of an eminent philosopher, Simon Oakeshott studied European languages at Oxford. He was literary editor on the *Birmingham Post* and wrote fiction, then worked as a hospital porter before turning to medicine. For some years he was an anatomy demonstrator at Cambridge University, later becoming interested in psychiatry. He trained at Fulbourn Hospital and the Tavistock, specialising in child and family psychiatry. His lifelong interest in literature and language led him into practice in psychotherapy. His gentleness, generosity, and compassion endeared him to patients and colleagues alike. He continued working until not long before his death. His marriage to Eleanor Birks, ended. He leaves Natasha, his partner of 25 years; two sons; and five grandchildren.

Nicola Blandford

Cite this as: *BMJ* 2017;358:j4148

John Duncan Egdell

Regional medical officer Mersey Region, consultant in public health (b 1938; q Bristol 1961; FFPH), died from a sarcoma on 23 June 2017

After house jobs in Bristol, John Duncan Egdell initially went into general practice in Northampton and Montgomeryshire. In 1966 he started training in community medicine (later public health) in Newcastle and at Edinburgh University. He secured a consultant post in Bristol in 1969, and in 1976 he was appointed the country's youngest regional medical officer, for Mersey Regional Health Authority. In 1986, wishing to devote more time to outside interests, he returned to a consultant post in public health with Clwyd Health Authority before taking early retirement in his 50s. Duncan enjoyed numerous interests, including wildlife (cultivating a wildflower meadow and nature reserve), local history, and classic vehicles. He leaves his wife, Linda (also a doctor); three children; and four grandchildren.

Linda Egdell, Rob Egdell

Cite this as: *BMJ* 2017;358:j4147