this week

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GRAHAM TURNER/GUARDIAN NEWS & MEDIA

Be "less precious," colleges are told

Medical royal colleges must be "less precious" about the content of their training programmes in order to deliver the workforce competencies and skills needed to transform local health and care services, the chair of Health Education England has said.

Keith Pearson said that plans to integrate the planning and delivery of health and social care across England would succeed only if the whole medical workforce was equipped with "a suite of skills" that transcended individual specialties.

Speaking at an event hosted by the King's Fund to discuss how to implement the 44 sustainability and transformation plans (STPs) across England, Pearson warned colleges that delivering the STPs "may not fit nicely" with existing models of training.

Pearson said, "We are going to have to have a very clear conversation about the workforce competencies and skills that will deliver that vision.

"We are going to have to be less precious about the content of the training programmes that many of the colleges protect, because what we're looking for is a suite of competencies and skills that are able to deliver.

"It may not fit nicely into the moulds of training that we are seeing today. We need to have that conversation."

Royal colleges cautiously acknowledged that there was a need for change. Ian Eardley, vice president of the Royal College of Surgeons (RCS), said, "Most surgery will still need to be provided in acute settings so we do not envisage the STP process having a significant impact on current training programmes. However, we know improvements can be made to help surgeons receive better training."

Eardley said that the RCS was currently trialling a new programme with Health Education England to improve the quality of training and the training service balance for trainees, and to develop a modern version of a surgical firm involving multidisciplinary teams.

A spokesperson for the Academy of Medical Royal Colleges said, "Colleges certainly are up for change when it comes to content. When done well it will obviously bring benefits. What we can't do, though, is make changes at the expense of quality, standards of care, and the best safe outcomes for patients—of that we will always be fiercely protective."

Gareth Iacobucci, *The BMJ*

Cite this as: *BMJ* 2017;356:j935

Keith Pearson, chair of Health Education England, said integration of health and social care delivery would succeed only if the whole medical workforce was equipped with "a suite of skills" that transcended individual specialties

LATEST ONLINE

- NICE tells professionals to act on their instincts if they suspect child abuse
- Study claims NHS failures played a part rise in excess deaths in 2015
- Statin side effects are strongest predictor of poor LDL control

SEVEN DAYS IN

NHS trusts face £900m end of year deficit

Record levels of demand for hospital treatment this winter have left England's NHS trusts struggling to meet financial targets and facing a combined end of year deficit of almost £900m.

The regulator NHS Improvement, which published the figures for the third financial quarter of 2016-17, said that hospitals had experienced "one of the toughest winters on record."

The NHS Confederation's chief executive, Niall Dickson (pictured left), said that "real suffering for patients and exhausted staff" lay behind the headline figures, and urged the government to invest more money in social care services in the upcoming budget to help ease pressure on the NHS.

The figures show that NHS trusts are on course for a substantial reduction from the record £2.45bn combined deficit recorded in 2015-16, but the projected deficit of £873m for 2016-17 still exceeds the planned £580m deficit by almost £300m.

NHS leaders said that the struggle to meet financial targets this year was particularly alarming given that the NHS benefited from a relatively generous 3.6% increase in funding in 2016-17. Far smaller annual uplifts of 1.3% and 0.4% over the next two years will increase pressure on staff and services, they warned.

Gareth Iacobucci, *The BMJ* Cite this as: *BMJ* 2017;356:j910

Youth suicide

Same sex marriage policies cut youth suicides

US researchers estimated that same sex marriage policies were associated with a 0.6% drop in suicide attempts, representing a 7% fall in the proportion of high school students reporting a suicide attempt in the past year. The study, in *JAMA Pediatrics*, looked at changes in suicide attempts among all public high school students before and after 32 states introduced policies permitting same sex marriage, comparing them with 15 states without such policies.

Social care

One in eight over 65s has unmet care needs

A report by Age UK called for a cash injection for the adult social care system in the spring budget and for a long term solution to care provision. It said that almost one in eight people over 65 (nearly 1.2 million) do not receive the support they need for everyday tasks such as eating, dressing, and bathing. This is up 17.9% from last year and 50% from 2010.

Council tax rises will not meet social care needs

Most social care authorities in England (147 of 151) are planning or considering a 2-3% social care tax in 2017-18, an analysis by the Local Government Association found. This would raise £543m but go towards paying the £600m additional annual cost of the national living wage. Because of a predicted £5.8bn funding gap by 2020, councils will have to continue cutting local services, the association said.

Hospitals

Bed numbers fall by a fifth in a decade

The number of overnight hospital beds fell by a fifth from 2006-07 to 2015-16, a BMA report showed. In 2000 these beds had averaged 3.8 per 1000 people, and by 2015 this was 2.4, the second lowest in Europe. In the first week of January 2017 almost three quarters of trusts had an occupancy rate of 95% on at least one day. Mark Porter, BMA council chair, said, "High bed occupancy is a symptom of wider pressure and demand on an overstretched and underfunded system."

General practice

College scheme aims to get GP clinics back on track

The Royal College of General Practitioners launched a service offering expert advice and guidance for practices, including those finding it hard to recruit GPs or match patient demand or those facing closure. Practices can invite expert teams to visit and assess their surgeries and tailor advice to getting on a more secure footing. The service costs £7500+VAT per practice.

GP surgeries get free wi-fi

Twenty CCGs (www.digital.nhs.uk/nhs-wi-fi) plan to give more than five million patients at 991 general practices free wi-fi access in their waiting rooms by the end of March. Internet access will be granted through an nhs.uk landing page that will host national healthcare information alongside locally generated content, such as information about local clinics and health services. All general practices are set to offer NHS wi-fi by the end of 2017, said NHS England, and the whole of the NHS will be linked up by spring 2019.

Military medicine

Screening troops does not reduce mental disorders

Mental health screening for soldiers returning from battle is a waste of money, a study published in the *Lancet* found. Some 10 190 service personnel filled out a mental health questionnaire on returning from Afghanistan. Platoons of 15-35 people were randomly assigned to screening or no screening, and troops in the screening group whose answers indicated signs of post-traumatic stress disorder, depression/anxiety, or alcohol misuse were offered tailored mental health advice. Results showed no significant difference between the groups in accessing mental health services when followed up for 10-24 months. (doi:10.1136/bmj.j861)

MEDICINE

Mental health

Cat ownership is not linked to mental health

A study published in *Psychological Medicine* found no link between cat ownership and psychotic symptoms, casting doubt on suggestions that people who grow up with cats are at higher risk of mental illness. The study included 5000 people followed up until age 18, where the data showed whether cats were present in the household during childhood and their mother's pregnancy.

Cats are the primary host of *Toxoplasma gondii*, which is linked to mental health problems such as schizophrenia

Two questions identify elderly depression

Two simple questions can diagnose depression in older people as effectively as more complex screening tools, a review in the *British Journal of Psychiatry* showed. Researchers identified 133 studies evaluating 16 diagnostic tools in 46 651 patients aged 60-87. The two question screen, asking patients whether in the past month they had felt "troubled by feeling down, depressed or hopeless" or "experienced little interest or pleasure in doing things," had a combined sensitivity of 91.8% and specificity of 67.7%. (doi:10.1136/bmj.j874)

Smoking

GPs are told to cut stop smoking scripts

To save money, an increasing number of CCGs have instructed GPs to stop providing smoking cessation support, arguing that it is no longer their responsibility, a Freedom of Information investigation showed (local authorities were made responsible for public health in 2012). In many areas this has led to rationing of treatments, such as nicotine replacement therapies, bupropion and varenicline, which studies have shown to substantially increase the chances of quitting when used in conjunction with counselling.

Research news

Pre-eclampsia increases future heart disease risk

Women who had pre-eclampsia in pregnancy have a four times higher risk of heart failure in later life and twice the risk of coronary heart disease, stroke, and death due to cardiovascular disease, showed an analysis of 22 studies including more than 6.5 million women, published in *Circulation: Cardiovascular Quality and Outcomes*.

Testosterone benefit in older men is not clear

Testosterone treatment increases the amount of coronary artery non-calcified plaque rather than reducing this early sign of increased cardiovascular risk in older men with low testosterone levels, showed a randomised study in *JAMA*. But a separate observational study found a 33% lower risk of cardiovascular events in men given testosterone treatment to normalise low levels of the hormone compared with men who were not treated, while further randomised trials showed improvements in anaemia and bone density but no increase in cognitive function in hypogonadal older men with impaired memory. (doi:10.1136/bmj.j885)

Cite this as: *BMJ* 2017;356:j915

MENTAL HEALTH

Only **7%** of women experiencing mental health problems during or after pregnancy are referred for specialist care, and **38%** wait more than four weeks to be seen

SIXTY SECONDS ON . . . THE FULL COURSE

IT'S VITAL I TAKE THE FULL COURSE OF ANTIBIOTICS, ISN'T IT?

Almost everybody says so. Listen to NHS Choices: "If you stop taking an antibiotic part way through a course, the bacteria can become resistant to the antibiotic." So by stopping you're contributing to the growing threat of antimicrobial resistance.

BUT SURELY THE LONGER YOU'RE TAKING THE PILLS, THE LONGER BACTERIA HAVE TO BECOME RESISTANT?

Hmm, I see I can't fob you off so easily. A growing number of experts agree with you, and they say that the advice given by NHS Choices and almost every GP is wrong.

WHICH EXPERTS?

One is Louis Rice of Brown University in Providence, Rhode Island, an infectious disease specialist. He's been arguing for 10 years that the reason given for finishing a course "never made sense." Another is Gwendolyn Gilbert, an Australian specialist, who wrote in 2015 that it's a misconception that resistance will emerge if a course isn't completed. And a report prepared for a World Health Organization meeting next month by its own Collaborating Centre on Patient Safety says, "The shorter the course, the lower the resistance."

STOPPING REDUCES THE SIDE EFFECTS

True. That's why many people stop.

DOESN'T IT RATHER DEPEND ON WHAT YOU MEAN BY A COURSE?

If we knew exactly how long it took to clear any particular infection, courses might safely be made shorter. But we don't, so doctors tend to err on the generous side. Some infections really do need quite long courses, but lots can be cleared in a couple of days.

TRICKY TO KNOW WHAT TO DO

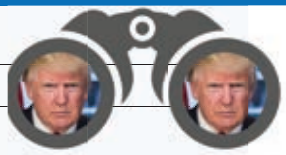
The US Centers for Disease Control and Prevention, which used to advise people never to stop, has now added the words "unless your healthcare professional tells you to do so."

MORE WORK FOR GPs, THEN?

They'll welcome it, I'm sure.

Nigel Hawkes, London Cite this as: *BMJ* 2017;356:j894

TRUMP WATCH



Experts debate Trump's mental health

In a letter to the *New York Times* on 13 February, 35 mental health professionals said that "too much was at stake" for them to remain silent any longer about Donald Trump's mental health. The president had shown that he was unable to tolerate views different from his own, they said, adding, "We believe that the grave emotional instability indicated by Mr Trump's speech and actions makes him incapable of serving safely as president." The next day Allen Frances, who helped establish the diagnostic criteria for narcissistic personality disorder, the diagnosis most commonly attributed to the president, wrote, "He may be a world-class narcissist, but this doesn't make him mentally ill, because he does not suffer from the distress and impairment required to diagnose mental disorder . . . It is a stigmatizing insult to the mentally ill (who are mostly well behaved and well meaning) to be lumped with Mr Trump (who is neither)." The American Psychiatric Association and the American Psychological Association hold that it is unethical for their members to diagnose illness in public figures from afar.

Senate lifts ban on people with "mental impairment" from buying guns

The US Senate voted on 15 February to overturn a regulation designed to prevent people with "mental impairment" from obtaining guns. Under the regulation, the Social Security Administration was required to report people who were unable to work or manage their own social security benefits because of severe "mental impairment" to the agency that conducts background checks on gun purchases. Gun rights organisations had opposed the regulation, as did several advocacy groups for disabled people, which argued that the rule implied people with mental impairment were violent.

Rules on lack of health insurance weakened

The US Internal Revenue Service has said that it would not reject tax returns that failed to indicate whether the taxpayer had health insurance. Under the Affordable Care Act people have to show that they have obtained coverage or pay a tax penalty. The requirement, called the individual mandate, was the law's most unpopular provision. The IRS's action does not eliminate the penalty but suggests that the Trump administration does not intend to enforce the mandate while Congress works on repealing Barack Obama's 2010 health reform law.

Michael McCarthy, Seattle Cite this as: *BMJ* 2017;356:j889

Politicians "colluding" in unsafe care if they block NHS plans, says King's Fund chief

Politicians will be guilty of "colluding" in the delivery of unsafe care if they fail to back evidence based changes to NHS services across England, the head of a leading healthcare think tank has said.

The message from King's Fund chief executive Chris Ham came as the organisation published a new analysis of the 44 sustainability and transformation plans (STPs) being developed across England.

The report, which makes a series of recommendations for turning the draft proposals into credible plans (box below), argues that, despite the controversy that has accompanied the plans to date, STPs remain the best hope of delivering "essential reforms."

But it says that the government must help local leaders deliver potentially

ACTIONS RECOMMENDED BY THE REPORT

Local STP leaders

- Make better use of existing community services to control demand for hospital care
- Consider whether hospital reconfigurations could improve care
- Recognise that cutting acute bed numbers won't work without investment in community services
- Engage more with staff, patients, and local authorities

National NHS leaders

- Support and spread innovation across the country
- Strengthen governance and leadership of STPs
- Send out consistent messages to local leaders
- Adopt a more realistic timescale for STPs

Politicians

- Support hospital reconfigurations backed by evidence
- Invest more in health and social care
- Amend aspects of the Health and Social Care Act 2012 that could delay service changes

Doctor restored to register as reinstatement becomes less rare

A doctor struck off in 2007 for dishonesty has been returned to the UK medical register by a medical practitioners' tribunal despite opposition from the General Medical Council.

Reinstatement remains a rare event but not quite as rare as it once was. Christopher Lamming becomes the third doctor in nine months to be returned to the register after being struck off for disciplinary reasons. In the six years from the beginning of 2011 to the end of 2016 only 10 doctors were restored to the register, while 42 had one or more applications for reinstatement denied.

Lamming, who qualified at Nottingham in 1991, was struck off at his second disciplinary hearing. He had already been suspended for three months in 2004 for falsely claiming a PhD from the United States and exaggerating his experience in his CV.

The second hearing arose out of 11 months of mistaken salary payments he received from Leeds Teaching Hospitals NHS Trust as a specialist registrar in paediatrics in 2000 while he was on unpaid leave, working in a research post at the University of Minnesota.

At the reinstatement hearing in Manchester, tribunal chairman, Peter Scofield told Lamming: "The onus is on you to demonstrate that you are fit to practise and are suitable to be restored to the register."

Although he had not practised for 10 years, Lamming had kept his clinical skills up to date, said Scofield, "despite the significant limitations placed upon you since your erasure." The excess payments had since been repaid, he noted.

Clare Dyer, *The BMJ*

Cite this as: *BMJ* 2017;356:j877

TURNING DOWN THE NOISE?

One STP has angered unions by advertising for a new marketing and communications specialist to run a "guerilla marketing" campaign designed to "turn down the noise" about its proposed service changes. Humber, Coast, and Vale STP set aside £10 000 to pay for the role on a nine month contract. The advertisement read: "We want to turn down the noise about cuts to services and risks to the NHS, and be able to demonstrate that our population understands that a focus on quality and prevention will sustain services into the future."

Despite controversies surrounding STPs, Chris Ham said they were the best hope for delivering "essential reforms"

controversial changes by backing plans that have a convincing evidence base.

Examples may include the concentration of specialist services in acute hospitals or the consolidation of small local hospitals which are struggling to provide safe care because of chronic staff shortages, it says.

Ham told a briefing on the report: "Local plans must be considered on their merits, but where a convincing case for change has been made, ministers and local politicians should back NHS leaders in implementing essential and long overdue changes."

He added, "If you're not willing to support plans of this kind, you're colluding as politicians in the continuation of unsafe services. Politicians need to step up to the plate and be brave, not in all cases but where the evidence is clear."

Politicians need to step up to the plate and be brave

The report described plans to cut the number of acute beds as "not credible" given the pressures on hospitals this winter and the current lack of investment in community services.

Responding to a recent analysis by the *I* newspaper, which suggested that 19 NHS hospitals could close under STPs, Ham said that far fewer were under threat as some areas were already revisiting their initial plans, published in October.

The report called for greater realism about the time needed to implement changes, saying that it was "too optimistic" to deliver them in the next three years.

In a previous report the King's Fund warned that the plans were being held back by a failure to engage clinicians and the public. The latest report said that "a huge effort is now required to make up lost ground" to engage NHS staff, patients, and local authorities. Recent efforts by one STP highlight the potential pitfalls (box above).

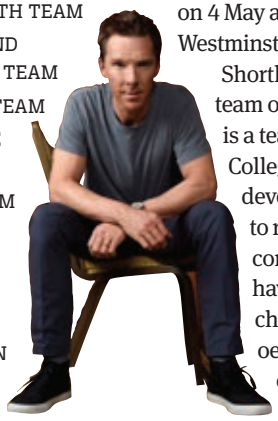
Gareth Iacobucci, *The BMJ*

Cite this as: *BMJ* 2017;356:j886

Shortlisted teams announced for The BMJ Awards 2017

CATEGORIES FOR THE BMJ AWARDS 2017

- ANAESTHESIA TEAM
- CANCER CARE TEAM
- CARDIOLOGY TEAM
- CLINICAL LEADERSHIP TEAM
- DERMATOLOGY TEAM
- EDUCATION TEAM
- IMAGING TEAM
- INNOVATIONS INTO PRACTICE TEAM
- MENTAL HEALTH TEAM
- PALLIATIVE AND HOSPICE CARE TEAM
- PREVENTION TEAM
- PRIMARY CARE TEAM
- SURGICAL TEAM
- UK RESEARCH PAPER OF THE YEAR
- OUTSTANDING CONTRIBUTION TO HEALTH



Anyone in any doubt that clinicians are pushing the boundaries of innovation despite the pressures engulfing the NHS need look no further than The BMJ Awards finalists for 2017.

The awards, now in their ninth year, attracted 290 entries and have three new categories: imaging, surgery, and mental health.

The winners will be announced on 4 May at the Park Plaza Westminster Bridge, London.

Shortlisted in the surgical team of the year category is a team from Imperial College London who developed a new strategy to reduce postoperative complications of patients having neoadjuvant chemotherapy for oesophago-gastric cancer. Preventive action improved physical function and self confidence, and reduced complications and length of stay in hospital.

A team from Birmingham Children's Hospital shortlisted for the anaesthetic team category set out to tackle the problem of elective surgery cancellations, which stood at 25% before clinicians took action. After introducing a programme of pre-assessment, the hospital can now boast a cancellation rate of 0.5%, substantial savings, and improved patient safety.

In the category of palliative and hospice care, a team from Velindre NHS Trust in Cardiff has confronted the issue of talking about DNACPR (do not attempt cardiopulmonary resuscitation) decisions with patients near the end of life. They have made a series of videos aimed at patients, carers, and healthcare professionals, and launched a website (talkCPR). The videos have boosted doctors' and nurses' confidence in discussing this topic with patients, while the website has had more than 100 000 hits, with mentions of the campaign from Benedict Cumberbatch (left) at the Hay Literary Festival and Jarvis Cocker at Freemason's Hall.

MDDUS is the major sponsor of The BMJ Awards 2017, and the primary care team award sponsor. Category sponsors include the Royal College of Anaesthetists, Alliance Medical, Leo Pharma, Macmillan Cancer Support, the GMC and FMLM, Public Health England, and Marie Curie and Hospice UK.

For the full list of shortlisted teams see thebmjawards.bmj.com/home.

Zosia Kmietowicz, *The BMJ*

Cite this as: *BMJ* 2017;356:j854

Foundation programme will have unfilled places this year

Posts will be cut to manage undersubscription. **Abi Rimmer** reports

The UK foundation training programme will be undersubscribed in 2017, and 63 training posts will be cut in England, the UK Foundation Programme Office has said.

The UKFPO said that when applications for the 2017 programme closed in October 2016 it had received 98 more applications than the number of places available. Using data on withdrawals from previous years, it predicted that the programme would be undersubscribed by 444 applicants at the point of allocation in March 2017.

Before 2017 the foundation programme has been oversubscribed every year since 2011. But despite the oversubscription, every year all applicants had been placed.

In its report on foundation programme undersubscription the UKFPO said that the overall percentage of UK medical students applying to the UK foundation programme had fallen only slightly, from 94.8% in 2015 to 94.1% in 2016. However, looking at the proportion of applicants who withdrew their applications in previous years, it predicted that 7% of applications would be withdrawn.

"When applying the 7% reduction to the foundation programme 2017 oversubscription figure, the data suggest there will be sufficient withdrawals to accommodate all applicants, with 444 vacancies," the UKFPO said.

In previous years each devolved nation has managed its own vacancies, the UKFPO said. This year it will be running a UK-wide process to recruit fully registered doctors to the anticipated vacancies. The UKFPO will also be "looking to recruit doctors who hold or are eligible to apply for full registration with the GMC to work in recognised training posts as part of the UK foundation programme."

In addition to this, the UKFPO said that it had decided to cut 63 foundation training posts in England: "This is with a view to ensuring all applicants are placed during the primary list allocation based on previous withdrawal trends."

It said that it would use weighted capitation to decide which posts should be removed and that the greatest proportion would be removed from London and the south east of England. "The devolved nations have confirmed there are no plans to remove posts from Northern Ireland, Scotland, or Wales," the UKFPO said.

Specialty training

The UKFPO's announcement of unfilled vacancies in the foundation programme comes in the same month that it announced that half of those doctors who had successfully completed the foundation training programme chose not to go straight into specialty training in 2016.

Earlier this month the UKFPO released data from a survey of the career destinations of foundation year 2 doctors who completed their foundation training in August 2016. The survey found that 50.4% of those who responded planned to go directly into specialty training.

The proportion of successful foundation year 2 doctors progressing directly into specialty training has fallen year on year: 71.6% in 2011, 67% in 2012, 64.4% in 2013, 58.5% in 2014, 52% in 2015, and 50.4% in 2016. However, there are still more doctors applying for posts than there are positions available in the first year of specialty training, and in 2015 a total of 12 033 doctors applied for the 8545 available posts.

Sixty three training posts in England will be cut

Medical school applications

Also this month the University and Colleges Admissions Service released data showing that applications to study medicine and dentistry in the UK fell by

FIVE WAYS MEDICAL TRAINING NEEDS TO CHANGE

Health Education England's medical director has set out a series of ways in which she believes medical training needs to evolve

1 Meeting need

HEE's medical director, Wendy Reid, argues that the additional 1500 medical school places promised by the end of last year should be used to ensure that more doctors are trained in the specialties needed most by the NHS.

2 Starting early

Earlier this month, Reid said that plans to change the medical workforce needed to include the undergraduate curriculum. "I think we have got to have a conversation with medical schools," she said. "The NHS wants GPs, community doctors, people who understand prevention and public health, and psychiatry."

3 Reducing anti-GP stigma

Medical schools should pay heed to a HEE report about students' experiences of general practice, Reid said. The report found that there was "anti-GP rhetoric" in medical schools and that in some cases students "were actively discouraged from entering primary care," she said.

MEDICSHOTS/ALAMY

3.6% this year from the 2016 figure. Overall applications were down from 86 650 in the 2016 application cycle to 83 540 in the 2017 cycle.

A third of the drop in applicant numbers was down to the fall in numbers of applicants from the EU. Applications from the UK were down 1.4%, from 65 250 in 2016 to 64 340 in 2017. From outside the UK, applications from the EU were down 14.7%, from 7990 in 2016 to 6810 in 2017. Applications from outside the EU were down by 7.6%, from 13 410 in 2016 to 12 390 in 2017.

The number of UK students applying to study medicine has been falling since 2014, but the BMA has warned that pressures on the NHS risked "making medicine a less desirable career choice." Responding to the figures, Harrison Carter, co-chair of the BMA's medical students committee, said, "It's likely that the government's handling of the junior doctor contract negotiations, and the continuing financial pressures on the NHS, are deterring many from pursuing medical careers."

He added, "At a time when our health service is overstretched and facing huge staff shortages, it is vital that the government addresses the underlying issues that are affecting the NHS's ability to recruit and retain staff and provide them with attractive and flexible careers, in order to provide the best possible care for patients."

Abi Rimmer , BMJ Careers

Cite this as: *BMJ* 2017;356:j903

4 Increasing flexibility

Doctors need to be more open to different career paths, Reid believes. "We need a more flexible workforce," she said. "The fact that you can never do anything but gastroenterology when your hospital is falling over because of problems in acute medicine is no longer acceptable."

5 Crossing boundaries

Traditional divisions between specialties and professions need to be reconsidered, Reid said. "We need to think about working across boundaries within medicine as well as across the other healthcare professions."

Royal college welcomes government's commitment to EU workers

The Royal College of Physicians has welcomed the government's commitment, as part of its negotiations on leaving the European Union, to securing the status of EU nationals working in the UK.

Jane Dacre, president of the Royal College of Physicians, welcomed the government's response to a report by the House of Commons Science and Technology Committee on what leaving the European Union would mean for science and research. The report called on the government to "deliver on the prime minister's early reassurance to EU researchers currently working in the UK, that certainty for them will be a government priority, by making an immediate commitment to exempt them from Brexit negotiations on any reciprocal immigration controls for workers already in post."

In response the government said, "Providing reassurance to these individuals and to UK researchers working in Europe will be important for the government going forward.

"Securing the status and providing certainty to EU nationals already in the UK—and to UK nationals in the EU—is one of this government's top priorities for the forthcoming negotiations."

Dacre said that the government's response was "a step towards the reassurance needed by all EU nationals working in the NHS and in research." She added, "International colleagues in the NHS workforce are a valuable asset in an underfunded, underdoctored, overstretched workforce and should be welcome. The UK should also continue to be a welcome and attractive place for those seeking to work in the NHS."

Earlier this month Mark Porter, the BMA's chair of council, warned that European doctors and medical students currently in the UK were "frightened and anxious" about their future status. He said that this risked demoralising health service staff as a whole.

Speaking at a Westminster Health Forum conference on priorities for the health and social care workforce, Porter said, "We're in serious danger, having gone through the Brexit vote . . . of demoralising our workforce, 30% of whom come from overseas, [with] half of them from the European Union."

Abi Rimmer, BMJ Careers

Cite this as: *BMJ* 2017;356:j921

EU doctors' contribution to the NHS was highlighted in pictures posted on social media last June

Staff at Homerton Hospital in east London tweeted their support for the One Day Without Us campaign

JACK TAYLOR/GETTY IMAGES

THE BIG PICTURE

Support swells across UK in day of action for migrant workers

NHS staff joined thousands of people across the UK this week in a day of action to celebrate the contribution of migrant workers and EU citizens to national life. Demonstrations included those in Belfast, Edinburgh, Lincolnshire, Kent, and Exeter. In London thousands filled Parliament Square in Whitehall to call on the government to guarantee EU workers the right to stay in the UK. The action, coordinated by the campaign group One Day Without Us, coincided with a debate in the House of Lords on the bill that will trigger the start of negotiations for the UK's exit from the EU next month. Speaking to the *Times*, NHS psychotherapist Ursula du Souzay, from Germany, said that the uncertainty facing foreign born workers after the "Leave" vote was "alienating." She said, "European migrants living in the UK make a massive contribution—without it lots of services just wouldn't run."

Patients also voiced their support on social media. One patient (@TopherBaggins) tweeted: "Migrant doctor performed life saving surgery on my twisted bowel 20 years ago & is why I'm still here. #Onedaywithoutus

NEWS, p 301

Rebecca Coombes, *The BMJ*

Cite this as: *BMJ* 2017;356:j943

EDITORIAL

Pregnancy after bariatric surgery: screening for gestational diabetes

Safer alternatives are needed to traditional test

Obesity affects a quarter of adult women in the UK, western Europe, and Canada, and a third in the US. More women than men have bariatric surgery every year,[1] and most are of childbearing age. Of 12 869 women in the UK who had primary bariatric surgery in 2011-13, 8469 (66%) were younger than 50.[1] Furthermore, fertility in obese women generally improves after bariatric surgery as menstrual irregularity and ovulatory problems resolve with weight loss.[2 3] Thus, increasing numbers of women with obesity start or complete their families after bariatric surgery.

Dumping syndrome presents a particular challenge in screening for gestational diabetes

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Handrean Soran, consultant physician and endocrinologist
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Screening required

Despite weight loss after surgery, many women still require screening for gestational diabetes mellitus during pregnancy. A history of bariatric surgery has important implications for the choice of test since an oral glucose tolerance test carries a high risk of both early and late dumping because of high osmolality and glucose loading. This presents a particular challenge in screening for gestational diabetes. Hyperglycaemia in pregnancy affected an estimated 20.9 million (16%) of live births in 2015, in 85% of which the mother had gestational diabetes.[5] The UK recommends screening for gestational diabetes with a two hour 75 g glucose tolerance test at 24-28 weeks' gestation in women who have a body mass index over 30, a history of fetal macrosomia, previous gestational diabetes, family history of diabetes, or who belong to high risk ethnic groups.[6] Although bariatric surgery reduces the risk of gestational diabetes,[7] as the lowest body mass index after surgery exceeds 30 in 66% of women of childbearing age,[3] most such women will qualify for screening on at least one criterion.

We know of no guidelines for screening for gestational diabetes in women who have had bariatric surgery. Wide variations in glucose excursions in pregnant women after bariatric surgery make diagnosis difficult.[8 9] Intriguingly, a survey of midwives in the UK found that most are using oral glucose tolerance tests.[10] However, test induced dumping syndrome can lead to inaccurate results and pose significant risk.[11]

Practical approach

We suggest that obese women who have had bariatric surgery should be deemed high risk for gestational diabetes and be screened using one of two approaches. The first would be capillary blood glucose monitoring, starting at 14 to 16 weeks of gestation and continuing throughout the pregnancy, similar to the recommendation for women with previous gestational diabetes.[6] The second would be to record capillary blood glucose daily before and after meals for a week at 24 to 28 weeks' gestation. This may prove more acceptable to pregnant women and less demanding of scarce healthcare resources. The diagnostic or intervention thresholds for either approach would be >5.3 mmol/L before meals, >7.8 mmol/L one hour after eating, and >6.4 mmol/L two hours after eating.[6]

We also recommend measuring glycated haemoglobin at the first antenatal visit to exclude pre-existing diabetes in all women who have had bariatric surgery[6 12]; its use for screening for gestational diabetes, however, is not supported by robust evidence and may delay diagnosis. Continuous glucose monitoring profiles are similar in pregnant and non-pregnant women after gastric bypass and have been suggested as another approach to screening after bariatric surgery.[9] Continuous monitoring, however, is expensive and not widely available. Continuous glucose monitoring and capillary blood testing have not yet been shown to influence perinatal outcomes. Both approaches deserve further research.

Guidelines are urgently needed for managing gestational dysglycaemia in women who have had surgery, encompassing preconception care, screening for diabetes, and management of hyperglycaemia and hypoglycaemia in pregnancy. Guidance is also required on nutritional supplements, since micronutrient deficiencies could theoretically contribute to adverse pregnancy outcomes.[2]

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EDITORIAL

The holy grail of health and social care integration

Cost savings may be hard to identify but the real benefits are human

FIONA BLAIR

According to a recent report by the National Audit Office (NAO),[1] "nearly 20 years of initiatives to join up health and social care . . . has not led to system-wide integrated services" and "there is no compelling evidence to show that integration leads to sustainable financial savings or reduced hospital activity."

The only strictly incorrect element in the NAO's critique is the timeline: we have been trying to integrate care for much longer, going back at least as far as the joint care planning, joint finance, and joint consultative committees of the 1970s. We also saw joint hospital discharge protocols in the 1990s, the growth of multidisciplinary mental health and learning disability teams, national guidance on joint commissioning, pooled budgets, a single assessment for older people, the creation of care trusts (integrated health and social care organisations), and the advent of joint strategic needs assessments—not to mention Labour's integrated care organisation pilots; the Coalition government's Better Care Fund, integrated care pioneers, and vanguards; and greater regional devolution of health spending.[2-5]

While progress has been made over time, health and social care remain separate entities with different legal frameworks, different budgets, different cultures, different geographical boundaries, different accountability mechanisms, and different approaches to whether services are free or means tested—all of which make joint working difficult at the best of times. With rising need, challenging NHS finances, and draconian cuts to local government, the pressures we face mean that there is an even greater incentive to guard our organisational boundaries more jealously and to focus only on core, internal priorities. Money, after all, can damage the closest of relationships—and joint working between health and social care might be no different.

The main impact of poor integration is human

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Lessons learnt

Over all this time, we have learnt at least three lessons. Firstly, we must beware of structural "solutions." Although major structural change looks bold, it often gives simply an impression of change, morale and productivity tend to fall, and positive service development usually stalls. In both public and private sectors, organisational mergers tend not to save money, and many commercial mergers fail.[6-10] Despite this, structural change is still a favourite tactic, with the NHS experiencing repeated reorganisations. Often this means that the potential benefits of the first reorganisation are not realised before we move on to the next one; time and energy are wasted in the process; changes are often cyclical (with the same structures coming and going over time); and front line staff quickly become disillusioned and change weary.[11]

Secondly, it's difficult to stay together in a system not designed with integration in mind: while a number of local areas have tried to develop long term relationships and new approaches they have struggled to maintain these as policy priorities change.[12-14] As the NAO argues, three longstanding barriers are misaligned financial incentives, workforce challenges, and difficulties with information sharing. These arguably need national rather than local action to resolve.

Finally, we have learnt the hard way that silo based approaches don't work for people with complex needs. While attempts to integrate care have struggled to save significant amounts of money, they can sometimes improve patient experience and make services more person centred. They can also have some positive effects on hospital admissions and length of stay for some conditions.[16]

So even if we don't know how well integrated care "works," we do know that unintegrated care typically doesn't.

Whenever an older person becomes the subject of a dispute over "bed blocking," when a mental health and a learning disability team argue over who should take referral of a service user with a "dual diagnosis," when a young person with a disability turns 18 and faces a lack of coordination between children's and adult services, the result is always damaging, distressing, and counterproductive. There may be financial and organisational costs, but the main impact of poor integration is human.

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EDITORIAL

Standing up for science in the era of Trump

Be fair but challenging, critical but constructive

Any president of the United States is entitled to implement policies that reflect personal ideology and political beliefs. The public may disagree on the merits and drawbacks of these policies, but as long as the supporting arguments are based on facts and comply with constitutional principles then so be it. In its first weeks, however, Donald Trump's presidency has raised worrying questions about its likely impact on science and health policy.[1 2] Many of the new administration's pronouncements seem to place little value on facts or analysis. They also seem lacking in careful consideration of the consequences for biomedical research, healthcare, and ultimately the health of people in the US and the rest of the world.[3]

Arguments should be based on data, evidence, and, ultimately, the scientific method

Concerns

We are particularly concerned that Trump's administration is acting in ways that will suppress research and limit communication on scientific topics that it deems politically inconvenient. All scientific communications from the Environmental Protection Agency may need to be approved by political appointees before being presented or published.[2] Scientists from the Department of Agriculture, the Department of the Interior, and the Department of Health and Human Services (which includes the National Institutes of Health) are restricted in their communications with the public.[3] Scientific information on government websites is being removed and becoming inaccessible.[3] Some agencies are responding through self censorship, cancelling key scientific meetings out of fear of retribution from political appointees.[4] Members of the president's cabinet, including those responsible for energy and the environment, deny the evidence on climate change without attempting to counter the overwhelming scientific consensus with better or even different information.[5 6] Proposals to reform the Food and Drug Administration will scale back the agency's ability to ensure the safety and efficacy of approved drugs, harming not only people in America but those in other countries that often follow the FDA's lead.[7]

Trump's policies in other areas also have the potential to damage health. Instant repeal of the Affordable Care Act, without a viable alternative, will surely prove damaging.[8] His immigration policy will disrupt the flow of scientific ideas and knowledge, hinder recruitment of scientists to American institutions, limit training opportunities for international physicians, and worsen national shortages of healthcare workers.[9] A federal hiring freeze will restrict the ability of government agencies to fulfil their research and clinical missions.[10] Cutting funding to international health organisations and global health projects will harm women and worsen the health of vulnerable populations.[11]

More than just "alternative facts"

Of course, Trump isn't the first politician to flout scientific principles or favour "alternative facts." Whenever someone of prominence snubs or distorts science, it is up to the scientific community to hold them to account.[13] But this situation seems different and more worrisome. The United States is a powerful nation with a profound influence on the health of the world's population. It is one of the largest funders of global health, and offers unparallelled research capacity, innovative technology and products, and a skilled healthcare workforce. That power and influence, if misdirected, will damage efforts to create a healthier, stronger world.

How should science and medicine respond to these challenges? *The BMJ*'s solution is to reaffirm our commitment to fostering and applying the best evidence for policy and practice, to be an open forum for rigorous debate that challenges the status quo and holds us all to account, to speak truth to power and support others who do the same, and to actively campaign for a better world, based on our values of transparency, independence, and scientific and journalistic integrity.

The Trump administration's early policies risk head-on collision with the scientific and health communities. These communities must commit to serving the best interests of patients and the public. Arguments, whichever side of the debate they fall on, should be based on data, evidence, and, ultimately, the scientific method. Clinicians, researchers, and policy makers in the US and elsewhere need independent evidence and open debate. That is our promise to *The BMJ*'s community. By arming ourselves with the fruits of science, being guided by facts and evidence, we can create a healthier planet, not just for Americans but for all who share this planet.

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BRIEFING

Handing NHS data to the Home Office

A furore emerged last month when it was revealed that NHS Digital had agreed to hand over patient information to allow the Home Office to identify "immigration offenders." **Anne Gulland** reports

What is the agreement?
A memorandum of understanding published in January stipulated that NHS Digital must give the Home Office information about patients it believes have committed an immigration offence. This includes people who have absconded from immigration control, escaped from detention, or exceeded their permitted length of stay in the UK.

What information will be shared?
NHS Digital will not be asked to share clinical information but will be required to provide a patient's last known address, date of birth, full name, and date of NHS registration. The memorandum states that the information to be provided "falls at the less intrusive end of the privacy spectrum, making disclosure easier to justify as the public interest threshold is lower."

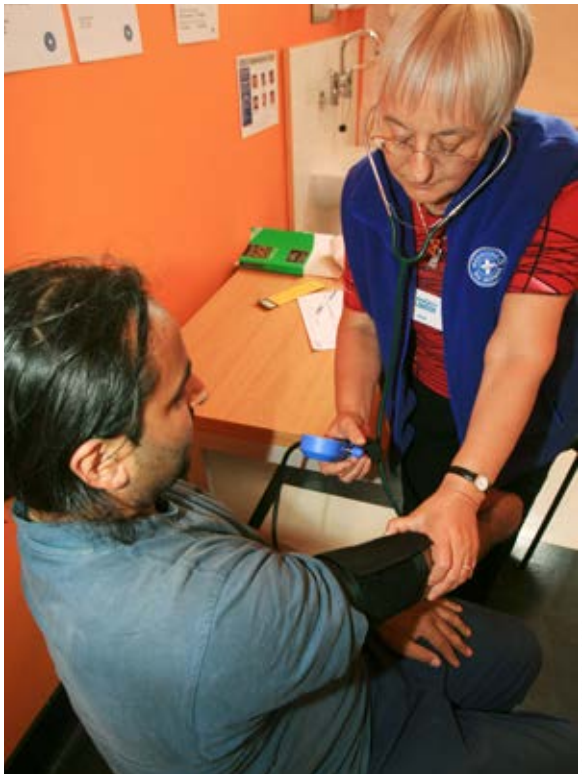
What will the Home Office do with the information?
It will encourage people who have committed an offence to return home by denying them access to benefits. In more serious cases it will arrest, detain, or deport them.

Is this a new agreement?
Yes, the agreement is new but the Home Office has been requesting data from the NHS on migrants since "at least" 2005, says Kingsley Manning, former chair of the Health and Social Care Information Centre, as NHS Digital was known until last year. However, previously the Home Office had to write directly to GPs for a patient's last known address and, according to charity Doctors of the World, GPs often refused to share this information. Doctors of the World said it refused one such request last year and knows of another GP who has also refused these requests. Now NHS Digital will hand over the information, bypassing GPs.

How much information is being handed over?
The Department of Health said that the Home Office made 8127 requests for data in the first 11 months of 2016, which led to 5854 people being traced by immigration enforcement. This is a considerable increase from 2014: there were 725 requests for information in the first three months of that year but 2244 requests in September and October 2016.

What has been the reaction?
A letter to the *Guardian* signed by organisations such as Doctors of the World, the National Aids Trust, and the British HIV Association warned that the agreement "marks the intrusion of a political agenda into how our medical records are kept and safeguarded. It shows that NHS Digital cannot be trusted with our confidential information." Fiona Caldicott, the NHS's national data guardian, will also look at the practice to ensure that all uses of patient information are "transparent, legal and proportionate."

GPs often refused to share information. Now NHS Digital will hand over the information, bypassing GPs



DOCTORS OF THE WORLD

In a joint statement, the Department of Health, NHS Digital, and the Home Office said: "Access to this information is strictly controlled, with strong legal safeguards. Immigration officials only contact the NHS when other reasonable attempts to locate people have been unsuccessful."

How will public health be affected?
Jessica Potter, a clinical research fellow at Queen Mary University of London who is undertaking research on migrants' access to healthcare in the UK, believes that the move will deter many undocumented migrants from seeking healthcare or encourage them to give false names and addresses.

"People often take other people's names and addresses. That can be dangerous when someone comes into hospital and there's a record that they have been treated for a particular illness. It will also mean that people will present later and be more likely to present to emergency departments," she says.

She points to various studies showing the links between the threat of deportation and reluctance to seek healthcare. One study of 268 legal immigrant students in Sweden showed that threat of deportation was the main factor in students avoiding seeking healthcare for treatment of HIV.

Anne Gulland, freelance journalist, London

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COMPETING INTERESTS

An endorsement of PCSK9 inhibitors funded by…their manufacturers

How objective were consensus panel recommendations for use of expensive PCSK9 inhibitors in patients who experience side effects with statins? **Nigel Hawkes** reports on industry links

When cheap and effective drugs are available, who needs expensive and unproved ones? That's the problem faced by the manufacturers of the heavily promoted PCSK9 inhibitors, which aim to do better than statins in reducing cardiovascular mortality, but at roughly 300 times the cost.

One strategy has been to play up the side effects of statins. Although the clinical trials show serious adverse events to be uncommon, many statin users complain of muscle pains. If doctors and healthcare systems can be convinced that these patients are "statin intolerant" and should be treated instead with PCSK9 (proprotein convertase-subtilisin/kexin type 9) inhibitors, the market would be increased.

So Amgen, Eli Lilley, Pfizer, and Sanofi-Regeneron—four companies that have invested in PCSK9 inhibitors—must have been pleased by the conclusions of a consensus panel set up by the European Atherosclerosis Society (EAS)[1] to offer guidance on the best way to treat patients who experience muscle symptoms with statins. The EAS says that the panel comprises leading internationally recognised scientists and clinicians and the conclusions reached are based on "exhaustive systematic literature review and expert discussion."

The panel's conclusions, published in February 2015 in the *European Heart Journal*, say that patients experiencing statin associated muscle symptoms (SAMS) with three or more statins should be considered for specialist referral. "By recognising SAMS and adhering to a structured work-up, the panel anticipates that individuals with clinically-relevant SAMS will be offered alternative and/or novel therapeutic regimens that can satisfactorily address their cardiovascular risk," it concluded.[1]

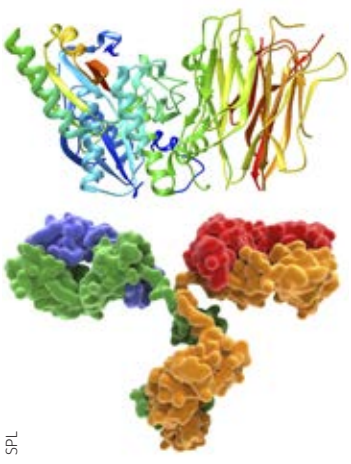
PCSK9 inhibitors aim to do better than statins in reducing cardiovascular mortality, but at roughly 300 times the cost

Industry links

The panel, whose conclusions have been widely read, was supported by grants from the four companies plus Astra Zeneca, Esperion, and Merck. Of the 26 authors, 20 declared a conflict of interest with Sanofi-Regeneron, 16 with Amgen, 14 with Pfizer, and seven with Lilly. In addition, 18 acknowledged conflicts of interest with Merck, which as the manufacturer of ezetimibe, another cholesterol lowering drug, also stands to gain from statin intolerance.

The panel's work was facilitated by Sherborne Gibbs, a Warwickshire based publishing company that is thanked in the panel's report for "logistical support" and also hosts the PCSK9 Forum, an online forum that describes itself as "an important new initiative devoted to reducing premature cardiovascular death through a novel therapeutic approach—modulation of hypercholesterolaemia through targeting of PCSK9."

The panel met three times—in London, Barcelona, and Madrid. The meetings were chaired by John Chapman of the Pitié-Salpetriere University Hospital in Paris and Henry Ginsberg of Columbia University in New York, both leading members of the PCSK9 Forum. Both declared conflicts of interest with Amgen, Pfizer, Sanofi-Regeneron, and Merck. The report says that the companies were not present at the panel meetings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WHAT ARE PCSK9 INHIBITORS?

- PCSK9 (proprotein convertase subtilisin/kexin type 9) is an enzyme found in many tissues. It binds to the receptor for low density lipoprotein (LDL) cholesterol, causing the receptor to be degraded once it has transported an LDL cholesterol particle into the cell
- PCSK9 inhibitors are monoclonal antibodies that block the enzyme, stopping it from binding to the LDL receptor, which goes on working and reduces LDL levels in the bloodstream
- Given by injection every two to four weeks, the PCSK9 inhibitors alirocumab and evolocumab reduce LDL cholesterol effectively.[5] There is some evidence that they also reduce deaths from heart disease, but bigger trials now in progress are needed to prove that
- Because they are biologicals, they will never be as cheap as statins. The need for injections is a further drawback, and market take up has been slow

and had no role in drafting the final document, which was approved by all panel members.

In fact one member, Jane Armitage, professor of clinical trials and epidemiology at the University of Oxford, did not approve the final document. She told *The BMJ* she had attended all three meetings. "I assumed when I was attending those meetings that they were being funded by the EAS and didn't realise until late on the extent to which industry was funding the development of the statement," she said.

"I was being naive. However, I got increasingly frustrated by their focus on non-randomised evidence, and when it came to the draft publication there were statements that I could not accept about the excess of muscle symptoms (or not) in the STOMP trial. I was having real difficulty persuading them to change the wording and emphasis.

"At that point I asked colleagues for advice and realised the extent to which the process was industry funded. As a consequence, I decided to withdraw my name from the manuscript."

Chapman told *The BMJ* that no commercial organisation plays any part in, or contributes to, any of the consensus panel papers. "Indeed, the first time any commercial organisation views any of the EAS consensus panel papers is after publication," he said.

The panel, he said, favoured maximum tolerated doses of statins as the primary therapeutic option. "Only in the small minority who cannot tolerate any dose of statin or who fail to attain guideline recommended LDL cholesterol goals on statin alone, are other LDL cholesterol lowering therapies recommended, with ezetimibe the second choice after statins."

"I asked colleagues for advice and realised the extent to which the process was industry funded"
—Jane Armitage, Oxford University

A lengthy statement issued to *The BMJ* on behalf of the co-chairs of the panel and the current and past presidents of the EAS says that "the process for preparation, and final recommendations of the EAS panel was entirely independent of any funding provided for the meeting logistics, and was not in any way influenced by financial disclosures of members of the panel."

Amgen also supported the Canadian consensus working group on statin adverse effects and intolerance, which reported early in 2016.[2] Of the 12 strong panel, 10 declared conflicts of interest with Amgen, seven with Sanofi, four with Pfizer, and three with Lilly.

John Mancini, professor of medicine at the University of British Columbia and lead author of the working group's report, said it had solicited support from industry. "Amgen accepted; others did not," he said. "There was no influence of funding on any of the deliberations or conclusions of the group. In a country of this size it was inevitable, and fully declared that experts knowledgeable in this area had to work with pharmaceutical companies."

Wasted resources

The panel suggested that PCSK9 inhibitors might be "logical alternatives" in patients for whom the maximum tolerated dose of statins plus ezetimibe still leaves LDL cholesterol 20% or more above the desired goal. "Unfortunately, cost and circumscribed indications might limit access," the panel comments.

That seems to be true, to judge by the poor sales of PCSK9 inhibitors. Amgen's evolucumab and Sanofi-Regeneron's alirocumab have been described as "close to, if not the biggest, wastes of development and commercial investment in recent industry history" by one US analyst, Geoffrey Porges of Leerink, a Boston based investment bank.[3]

Pfizer recently decided to abandon its own PCSK9 drug, bococizumab, while Amgen and Sanofi-Regeneron have fallen out over patents. Lilly's candidate PCSK9 inhibitor, LY3015014, has yet to complete phase III trials.

The drugs' high cost—around £4400 a year per patient in the UK compared with less than £15 for statins—has discouraged their use except in very limited indications: patients with familial hypercholesterolaemia and those whose high cholesterol levels cannot be controlled by statins.[4] The National Institute for Health and Care Excellence (NICE) initially rejected both drugs but changed its mind in 2016 after representations were made and both Amgen and Sanofi-Regeneron offered undisclosed price cuts.

Among those complaining was the charity Heart UK, which lists both Amgen and Sanofi among its corporate partners. The companies' transparency declarations show that in 2015, Amgen paid £43 500 to Heart UK to implement a national familial cascade testing programme and another £18 000 for its work in preventing premature deaths caused by high cholesterol. In 2014 Sanofi paid Heart UK £21 600 for core funding and £27 600 for project funding, in addition to £15 000 for sponsoring the annual conference and £14 000 for a symposium at the conference.

Heart UK's chief executive, Jules Payne, said: "We are pleased to work with Amgen and Sanofi, as well as a range of other companies and dedicated individuals to support our work to help patients and save lives. Our campaigns promote awareness of the risks associated with high cholesterol and these are often with our corporate partners. Any activity following a decision by NICE has always been independent of all corporate partners, including pharmaceutical companies such as Amgen and Sanofi."

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Editorial: PCSK9 inhibitors for hypercholesterolaemia (*BMJ* 2017;356:j188).

ILLUSTRATION: DUNCAN SMITH

Alan Boyd, 62, is president of the faculty of pharmaceutical medicine and an honorary professor at Birmingham Medical School, from which he graduated in biochemistry and medicine. He worked in drug development for Glaxo, ICI (later Zeneca), and Ark Therapeutics, where he led the development of gene based drugs. In 2005 he launched Boyd Consultants, a company based in Crewe, which focuses on supporting universities and early stage life science businesses. His ambition for the faculty is to make it the "go-to expert" on matters relating to pharmaceutical medicine.

BMJ CONFIDENTIAL

Alan Boyd
Happiest flying kites

What was your earliest ambition?
I always wanted to be a doctor. I grew up on a council estate in Blackpool and only a few people made it to grammar school from there, let alone university.

What was the worst mistake in your career?
Staying too long working in "big pharma" and not moving into biotech sooner.

What was your best career move?
Starting Ark Therapeutics, a small biotech that develops gene based therapies.

Who has been the best health secretary?
Bevan was the best: he had a long term vision for healthcare that is still relevant.

Who is the person you would most like to thank, and why?
My parents. They struggled to pay for things like my school uniform.

If you were given £1m what would you spend it on?
Provide grants for doctors to go and work outside the UK for a while.

Where are or were you happiest?
Flying my kite on a beach with the challenge of using all the string. I must have a lot of string, as I have only achieved this three times after many years of kite flying.

What change has made the most difference in your field in your lifetime?
The discovery that viruses could be used to deliver DNA into human cells that then formed the basis for gene therapy.

What book should every doctor read?
Birdsong by Sebastian Faulks— a story about a British soldier in the first world war and how traumatic experiences shape individual psyches.

What song would you like mourners at your funeral to hear?
"Always Look on the Bright Side of Life." I would prefer people to feel happy rather than sad and hopefully everyone would join in on the whistling bits in the chorus.

What is your most treasured possession?
A small piece of lava that my father picked up after the eruption of Mt Vesuvius in 1944 when he was in the RAF. He carried it with him to the end of the war.

What personal ambition do you still have?
To help change the public perception of the pharmaceutical industry—medicines development has brought benefit to so many patients.

Summarise your personality in three words
Passionate, witty, and understanding.

Where does alcohol fit into your life?
I enjoy investigating the different tastes and flavours of gins. I even bought my wife a gin advent calendar at Christmas.

What is your pet hate?
People eating in the cinema—particularly popcorn.

Do you have any regrets about becoming a doctor?
None whatsoever.

If you weren't in your present position what would you be doing instead?
I would love to be the gardener at the Royal College of Physicians in London.

Cite this as: *BMJ* 2017;356:j689