NHS Confederation lecture 2018

The NHS @100: Professional bureaucracy, managerial industry, automated technocracy or bust?

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Introduction

I'm really honoured to be asked to give this inaugural lecture. I've had the pleasure of working with Niall and also Stephen Dorrell over the years. So thank you, both, for this opportunity, especially in the NHS's 70th year.

I'm a hybrid animal. My career in the NHS started 34 years ago and as you see from the biog has covered different roles, doctor, policy analyst, regulator, chief executive. I'm now very privileged to lead the Health Foundation, one of the largest independent Foundations in the UK.

But, when push comes to shove I'm more of an academic than anything else. My comfort zone in a lecture would be to set out a challenge, present dense empirical evidence – slides, data - venture a heavily bombproofed conclusion, ending, of course, with 'more research needed'.

I'm going to stray from this comfort zone tonight, terrifyingly without slides, and risk a bigger sweep. The NHS is almost 70 after all, the same vintage in fact as the WHO, the state of Israel, the Universal Declaration of Human Rights, and perhaps the more sinister North Korea, Hells Angels, and...Sven Goran Erikkson. But is the NHS in better shape? And how might it get to a healthy centenary and beyond?

So for those who've read Daniel Kahneman's 'Thinking fast and slow' the points I make tonight will be from my intuitive system 1 not my usual analytical system 2 thinking. And I'll try to get to 45 minutes without mentioning STPs, ICSs, ICOs, ICPs ACOs ….or even Brexit. Not that all of these aren't very important, they are.

First of all I want to ask the question where is the NHS today?

Clearly since 1948 the NHS has improved wherever you look: outcomes, throughput, infrastructure, data, and so on. A peer of this house - the late Lord Walton – once wrote that just before the NHS began one of his first assignments was to be a locum for a single-handed GP in Northumberland who hadn't had a holiday for five years. In the practice he found no staff, and practically no equipment – just 'one elderly rubber glove and not even a couch'. Whatever we've done since then, the NHS has changed beyond recognition and the public is broadly satisfied with it.

So, why not just continue just as we are? Well we could. But, first, economic growth, productivity, are limper than we'd like. Even if Theresa May and Philip Hammond agreed to 3.8% real extra per year – what we've been used to – as a birthday present for the NHS, it's only one of the five giants of the welfare state. Health care contributes - what - 10%, 20%? - towards our overall health. Cutting other budgets - education, welfare, social care, public health - would clearly pile on more pressure on the NHS because it's the place where the lights are always on. It's the safety net of the safety net.

Second, quality of care is clearly improving at a respectable rate in many areas. But we still trail behind other nations we like to compare ourselves with. Yes, the Commonwealth Fund international survey makes us look good. But check out a few others: the global burden of disease survey published in the Lancet last year. Or the Concord analysis on cancer. OECD analyses. And the recent study by Ashish Jha and colleagues in JAMA, to name a few. The OECD's verdict in 2016 on the UK health system was 'middling funding and middling performance'. While you might conclude – you get what you pay for - the OECD was puzzled why the surfeit of initiatives sweeping the country hadn't translated into more improvement. They were too polite to say that the UK is the country with hyperactive policy disorder (and maybe with attention deficit too).

Third, we know about the pressures stacking up that will severely affect demand and supply in future: these would take a full lecture to describe, so I won't.

And fourth, to continue just as we are would be to accept a slower speed to a healthier future. Big opportunities are visible – AI, robotics, machine learning, genomics, virtual reality and so on. These are stacking up on the horizon and could be here quicker if we play our cards right.

So the awkward question I want to ask tonight is, if initiative-itis has got us to where we are - not bad, but no better - what should we do differently to get the NHS fitter to last until at least 2048?

Let's get the bleedin' obvious point out of the way first. We don't spend enough to get the outcomes some other countries manage.

We spend about the average for the EU 15 in terms of % GDP on health care. Yes, the EU 15 average does include much lower spenders like Luxembourg, Greece and Portugal. Compare us to Germany, and as John Appleby recently calculated on the back of a beer mat, if the UK had spent the same as Germany since 2000, we would have pumped in a whopping £620bn more on health care. That's about four times the current annual UK health care spend. Put another way the UK spends circa £185bn a year on health and social care, the Germans spend a full £60bn more.

And that's partly why, when you ask German hospital CEOs about winter pressures, as I did last month, they don't turn a hair. Do they have more integrated care than we do to offset emergency demand? They don't. Better primary care? No. More effective public health? Nein. Better social care – well, yes (but who doesn't). They just have more: beds, doctors, nurses, kit…you name it. And with Euro 20-30bn extra a year we might be in the same position. Might…

But we don't have the German economy. We are facing lower economic growth, stubbornly low growth in productivity, low wage growth, ergo a more disappointing tax take. The OBR and IFS forecast we won't be out of the woods anytime soon.

Now you could take this with a pinch of salt, after all Galbraith quipped that' the function of economic forecasting is to make astrology look respectable'. Or you could believe Brexit will save the day. But OBR and others have concluded that our challenges are unfortunately not temporary, but structural.

But if true, we don't need to take this lying down. It doesn't follow that the NHS should not or will not have real growth levels of 3-4% per year. Investment in health care clearly produces better health. Better health has economic benefits. So paying for health is not a drain on the public purse you can afford only when the economy picks up. And the population wants more health care. There's a strong argument for raising taxes to give it to them.

But assuming there'll be less investment than we'd like, the exam question for tonight is how could we do better in future?

This is where I'd like you to indulge me a bit in taking a brief detour into the past. How've we got to where we are and what might it mean for the future? I want to look at four areas; government, management; clinicians; patients and public. And I'll focus mainly on England and on the NHS itself not social care.

Government

First the government and how it's handled the NHS. The 1940s to the late 60's, it was hands-off by the government. There was a cross party consensus about the NHS, with government interventions mainly to boost infrastructure, settle unrest over pay and conditions, and the occasional row about paybeds and patient charging. As Rudolf Klein famously put it, the agreement was the government would set the budget, the doctors would spend it, and each wouldn't interfere with the other.

From the 70's onwards the government became more muscular across the public sector. A big search for efficiency, a widespread NHS reorganisation in '74 under Keith Joseph, plus something called consensus management, which was widely thought of as a shambles. One senior doctor at the time complained he needed the approval of 16 committees to get a junior doctor post agreed. And despite the big shocks to the economy in the mid 70's, basic management of the NHS's biggest cost centres – hospitals – was left largely untouched, as was the clinical care in them.

The 80s and 90's – clearly a time when the government became hyperactive. General management introduced post-Griffiths, more efficiency scrutiny and performance reviews by ministers. The Audit Commission set up (think I was their longest serving board member by the way). Competitive tendering for non-clinical services, and then of course Mrs Thatcher's NHS Review, the ground-breaking white paper *Working for Patients* and the internal market for clinical care introduced in 1991, along with what was called 'new public management'. All at the same time as increasing centralisation: targets and a bit of terrorising of hospitals via performance management. And of course huge controversy within the NHS. Remember

those BMA posters: ‘ What do you call a man who ignores medical advice’? Answer: ‘Kenneth Clarke’.

In the next decade of 2000-2010 came a big slug of investment to reduce waiting times, the NHS Plan, and the architecture underpinning choice and competition was developed. That architecture is familiar: new payment currencies; foundation trust; use of independent treatment centres; patient choice of hospital; and of course regulation. Much more regulation; not just in response to public scandals in care, but because if you have arms-length autonomous large cost centres (hospitals), you need to check up on them more. And of course an even heavier dose of: targets, scrutiny, performance management because there was more data, and because of course there was “No investment without reform”.

And from 2010 onwards? Most of all of the above, with new Labour’s reform architecture taken to its conclusion with the infamous 2012 Health & Social Act. But as ideology about markets has now receded in current policy thinking at least, we now seem to be in a period of what has been unkindly called ‘post-modern mush’. Or more accurately ‘belief-free pragmatism’. That’s to say how to get effective improvements in the NHS seems to be more a technocratic than political question. For example deciding what blend of ‘levers’ work best to prod the NHS forwards on the priorities of choice. In particular how much regulation, what type of financial incentives, how much directive, strong arm performance management, and (now said in a very low voice) how much competition.

Clearly a lot of other initiatives have gone on too, driven centrally by government. Many of these truly helped to benefit patients: reducing waiting times; closure of mental health institutions; reducing hospital acquired infections, to name a few. But as someone who spent a lot of time in the last two decades trying to evaluate the bigger national reforms here’s a couple of observations.

First, the size of the reforms was not matched by funds set aside to understand what worked and why. It took the King’s Fund to fund this analysis in the 1990’s. And second, no one was able to examine the blend of reforms clearly enough to know what the most active ingredients really were in prodding providers to improve, if indeed they did. Was it the internal market? Was it the management thumbscrews? Was it just more investment? And if you don’t find out what works then what counts is, well, whatever is your preferred set of lurching reforms. You just need to find a disaster to justify them.

And sometimes not even that.

For example I was in the audience in Washington in the late 2000’s when the Commonwealth Fund’s international survey was presented to a panel of eight ministers of health, one being Andrew Lansley who was Secretary of State at the time. On performance, the NHS came out ahead of 10 other health systems, *just* as the reforms that underpinned the unpopular 2012 Health & Social Act were being developed. The Commonwealth Fund’s results were, as I saw, very visibly inconvenient.

Chris Hood and Ruth Dixon (no relation) looked at a range of big reforms by central government linked to New Public Management over the last 30 years. It took years of detective work to track down the costs and benefits to central government. Their overall conclusion on the big policies was: 'cost a bit more and worked a bit worse' – in other words 'not what it said on the tin'. Why? They mooted that big centralised reforms were vulnerable to ongoing changes in context. In other words, things changed. They also mooted that the design of the reforms could be more down to what they euphemistically called "some sort of rent-seeking or client politics", over the desire for better outcomes for users. In other words, ulterior motives were in play.

Put this conclusion next to Patrick Dunleavy's analysis in the annual UK democratic audit he and colleagues carry out from LSE. He cites many strengths to the current way we organise central government, but among the weaknesses is the following: "The UK still has the fastest law of the west with the fewest checks and balances of any liberal democracy on the PM, core executive, and especially on one party governments with secure commons majorities". And he added "Arguably the UK is more prone to major policy disasters than other liberal democracies and there is little evidence of substantial policy-learning capacity within the core executive".

Why am I banging on about all this? Not to be unduly negative, or to ignore the many positive central initiatives by government. Or the hard work and commitment by ministers - some here tonight - which have benefited patients and the NHS, sometimes in response to examples of unforgivable care. But I want to make the obvious point that to do better in the future, we can't ignore how government handles the NHS. As the service has become more complex, costly, risky, more transparent and visible in the news, government action has understandably increased since 1948. And so the NHS has been prone to administration-defining grand policies, often justified by a disaster narrative that provoked high confrontation with the NHS, rather than tranquillity-defining incremental policies, working with the grain of the system.

Next to this the period we're in of 'belief free pragmatism' in policy-making for the NHS might be as good as it gets. Or maybe the phrase today would be better described as 'don't-have-much- cash-or-legislation-time' pragmatism.

What I'm not saying here is 'government, get out of the way, let the technocrats take more control in future'. But I am saying 'can the way that government tries to shape a large increasingly complex risky public service be more effective'? Given the obvious cross party political positive consensus on the NHS, can governments do something more sophisticated than the sporadic big 'unfreeze, redesign, refreeze' approach to central reform, to something more ongoing, experimental, evidence-based course correcting? And inclusive – making the most of new digital tech? And making the future count more?

There have been examples along these lines: High Quality Care for All 2008 – which was preceded by a mass listening exercise - and to an extent the NHS Plan a few years earlier.

But what could get us there more of the time, with fewer of the big lurches? Better management of ministers by No 10? Stronger evidence to justify reform, from say an OBR for health? Or better phasing of investment so that lean times aren't then followed by rebound investment and big reforms? All relevant now if there are plans for a long term settlement for the NHS.

Or changes to democracy itself which might improve how government works. More representative democracy? PR? Devo, which isn't just a mini form of central government? Perhaps a more slow moving corporatist consensual style as in Germany or the Nordic countries? Here's a thought experiment: if the UK NHS had been linked instead to the German political system, would it have made faster progress?

Or a move to more participative democracy, digitally enabled, where the population is involved in suggesting improvements to local public services – which could be a legitimate counterweight to national political reforms? Even if the public are just 'clictivists'?

Yes these questions are big. But they matter for the NHS, and shouldn't be off limits for the future.

I'll leave the politics thread hanging there for a minute, because I want to turn to the next of the four areas - management.

Managers

Looking at the history books, at evidence and talking to NHS managers, to cut a long story short it's difficult to trace a distinct 'managerial' story shaping the NHS separate from the political one I've just charted.

As benign administration of the NHS morphed to more active management in the 70's and especially the 80's and 90's, to be sure managers have been at the centre of reforms. In part this is because a prevailing mindset is that the key route to improvement in the NHS is through its institutions, places for which managers are accountable. We have some highly talented managers and they have advised government, been in government, designed policy initiatives, implemented them. I could see this alive and well on the fourth floor of Richmond House when I was fortunate to work as policy advisor to Alan Langlands, the CE of the NHS, in the late 1990's.

The managerial story in the NHS seems very closely entwined with the political. As the late Andrew Wall noted, managers are, after all, public servants. I'll go out on a limb to assert that there has been, and is still, no strong normative view, as to how best the UK's largest and most high profile 'industry' (let's frame it like that for a second) should best be managed. At least, from where I sit, that normative view hasn't been articulated well or loudly enough. Government can hardly be expected to know the answer – politicians and civil servants haven't generally managed anything as complex as the NHS. That's why, in moments of frustration, they've turned to senior business figures to advise them, from Roy Griffiths mentioned earlier from Sainsbury's, to more recently Stuart Rose (from M&S).

Since the 1940's management practices in other industries may have had fleeting foot hold in the NHS – new public management, total quality management, business process reengineering, lean, maybe even a bit of 'agile' somewhere. But there doesn't seem to be a clear view of some basic questions like: this is how we approach management in the NHS and why; this what we've learned from high performers; this is how we are going to learn from other countries, other industries, and so on...

A cursory look at what's coming out of the main business schools and research centres on management in the NHS, confirms the same. The biggest flurry of thinking on management in the NHS may well have been in the early 1990's with new public management, at the King's Fund College under its then Director Tom Evans. Why? Perhaps then there was more space resource, time to think and write.

But it's less visible now, and arguably the default style in the NHS is still faintly Taylorist, albeit with some notable exceptions. For those unfamiliar, Taylorism is a type of extreme hierarchical management, almost entirely controlled from the top, where workers are thought to be disinterested and inherently knavish unless firmly kept in line by rules and checks. It was prevalent in the 1940's, but one or two of you here tonight just might recognise it today.

The lack of a firm imprint of 'this is what we think of as being good management and here's the evidence for its impact' . This could be linked to the fact that for the last 30-odd years up until very recently, we've considered the NHS less as one public service or 'industry' and more as a collection of semi-autonomous units – that's hospitals – or private small businesses – that's GP practices. Many of these, and the managers in them, have been on their own.

Yes there are some consistent messages. Here's a random selection: 'the NHS is too big to manage as one nationalised industry'; 'more doctors are needed in management'; ''less top down command and regulation' 'better talent management' 'look after staff better'; 'more standardisation needed', 'collaboration is needed over competition' 'Leadership styles are better like this than like that' … and so on. Oh, and of course 'bring back regions'.

But are these messages just folklore? What is good management in a service as complex as the NHS? Under what conditions can autonomy in management really work and what should be mandated across the NHS? What mechanisms are there to spread good management and leadership once we see it? And pertinent now, how can you best argue the case for investment in management?

This will matter more in future as developments on the ground, and how to manage them, move faster than the ability of the centre to clock and respond to them. And they also matter because of Nick Bloom and John van Reenen's Insights over the last decade. These two academics looked at thousands of industries and found that management is the single most important factor which influences productivity and value – above technology. If good management were a technology everyone would be investing in it.

Yes, managers are hugely talented, motivated, under inhuman pressure now at great cost to themselves and their families, and they can barely do the day job. It is testimony that many do stay in the NHS. We know the average time of tenure of CEs is less than two years and many posts are currently unfilled. Do we really treat management as an asset in the NHS? Is that how large private sector industries go on?

But the question on the table tonight is, could NHS managers, many here tonight, develop into a stronger force as a collective that could help speed us to a better future? To mount more effective arguments to government and to the public for wider change when needed? And in turn better argue an investable proposition to boost management?

Clinicians

I'll now turn to the third area I mentioned earlier - the clinical world.

Clearly there's an unusual amount of talent in the NHS on the shop floor. While the large tectonic plates of reform have been shaping the NHS from the top down, often in confrontation with NHS staff, meantime science and technology have revolutionised treatment and been put into practice by clinicians bottom up. They've carried on almost regardless of the weather. Clinicians, plus science and tech, must have had more impact on the shape of care in the NHS for patients since 1948 than most anything else.

But the clinical universe (I'll speak about the medical universe which is what I know more about) is very different from the managerial and political. For example how clinicians are organised; their aspirations; focus; way of thinking; the factors which motivate them or command respect; their role models; and type of evidence on which they just might be prepared to change their practice.

To caricature some of the differences a bit for effect: the medics rate effectiveness of medicine over efficiency of service; collegiality over hierarchy; say they prefer rationalism, science and certainty over intuition, uncertainly and balance of probabilities; they like the unusual over the usual; RCTs over, well, almost any other form of evidence; and academic recognition as their professional pinnacle (think Nobel Prize rather than running the NHS – sorry Simon and Jeremy).

You get the picture: managers are from Mars, clinicians (let's say doctors) are from Venus. Some of this is nature and selection bias into medicine. But having been through medical sheepdip of training myself, far more is nurture, which is modifiable.

One big result is, as we know, the direction of energy by many talented clinicians - OK

the docs - is towards more specialisation. There is amusing snobbery: when I qualified, cardiology and neurology were at the top of the status pile. This all skews R&D investment and academic bias towards pushing the frontiers of medical science, over improving the overall care for patients, and developing generalism, integrated care, primary care and of

course public health. I won't tell you what the professor of cardiology I worked for said when I explained I was taking a detour into public health. A lot of it rhymed with …duck.

This is challenging, because of the growing surge of old age, multiple co-morbidities, frailty, and the need to tackle inequalities rooted in social factors. Our most deprived populations start getting sick at 52 – a full 19 years before the least deprived. Our impressive clinical talent needs to grip not just medical treatment, but improving complex pathways of care, and at least clock upstream determinants of health. In my experience many doctors know this, but just don't identify with it. If they did, then maybe the slick caring and efficient colonoscopy service my relative just had, might be matched with the same effort to communicate the results and next steps to him (it took 4 phone calls and two months). Insert your own example here.

There's definitely been progress – far more docs these days work as part of a team. But if we believe that faster incremental change at the front line is more effective than bazooka central reform then we can't muddle on as we have. And the truth is, neither can clinicians if they want to harness all the new tech goodies, or face being harnessed by them in future.

The types of tech coming mean that that professional work will change, a lot. And not just for radiologists. The change will come from machines (I heard the term robocalypse the other day), or from other humans aided by assistive technology, including the patient themselves. Or as the Economist put it recently 'the future doctor is you'. Put even another way a senior doc recently described his experience of a big medical meeting in the US discussing this: someone in the audience stood up, announced 'the doctor is dead', then sat down to stunned silence.

That's an extreme view. New digital tech could free up more time for doctors to spend with their patients rather than with their computers. This would be a reversal of an unpopular long run trend which may be adding to the rates of depression in the profession. Or yes it could mean fewer doctors.

One of the best contributions on this area is the FT book of last year by Richard and Daniel Susskind on the future of the professions. They describe what they call 'the end of the professional era' as being characterised by several trends including: more standardisation of care relative to the bespoke 'craft' approach by doctors; and the bypassing by patients of the traditional gatekeepers for knowledge, as far more will be available to them. More of this knowledge will be freely available in the 'commons' (eg via the internet). And a lot might be behind a paywall (eg to access apps, some developed by private companies). Some of you will know of Dr Eric Topol, who is reviewing these and related important issues for the NHS this year.

So a big task for clinical professionals will be actively to embrace these changes. The estimated 15 year lag to diffuse innovation from coast to coast in the UK, and the 25 year plus lag in developing integrated care won't wash with patients. The irony is that the big challenge on clinicians and the way they practice in future may well be less from politicians

and managers as in the past, but far more from our hitherto friends – science, technology, and patients.

OK, so what might help?

First, to encourage doctors to see their role as bigger than medicine and science, to take more responsibility for larger bits of the service that are part of patient care. Yes, many do very impressive work here, but there aren't enough of them. The good news is that there is marked interest in this, and in management, particularly by younger doctors. They get it. They are active. They are networked. They collaborate. They want to make a difference for patients in new ways. There isn't much support for them yet. They come to me asking if they should be doing MBAs, begin a start up for example. If the NHS doesn't respond faster we may lose them.

Second, it would help if quality improvement in the NHS is seen as legitimate role of every clinician, part of their skill set and everyday objective at work. By quality improvement I mean specific systematic techniques to improve care, for example using some of the techniques that grew out Deming and Shewhart's work in manufacturing from Toyota. It doesn't really matter what variety, just a systematic approach to experiment and change.

Of course this is home turf for the Health Foundation. And there are already some great efforts, in Scotland, Wales, NHS I, some hospitals, bodies like IHI, AQuA, Haelo, some ASHNs and CLARHCS. The Royal Colleges in particular RCP, RCGP, and the Academy MRC are doing impressive work. This kind of approach is the essence of Don Berwick's report in response to the mid Staffs scandal. He advocated developing a learning health care system – not just for safety but to improve productivity and wider value of health care for patients.

Third, for clinicians to develop stronger peer communities to spot and spread innovations and good practice. And work with innovators inside and outside of the NHS to do it. There are already great assets in the UK, for example Colleges, clinical audits, clinical networks. And others are using general purpose technologies in digital and social media to support themselves – eg young docs using WhatsApp to spread ideas, there's Doximity for docs in the US too. Even the American College of Surgeons recently announced 'surgical collaboratives (that's a form of improvement network) represent what they described as the '*highest calling* of surgeons to act as part of a fellowship that selflessly advances the interests of our patients'. There are good examples here in the UK but all of these could be boosted, in particular the networks and the data they collect and use.

The Health Foundation with NHS Improvement has developed Q – a networked community of now over 2000 people across the UK with expertise in QI, supporting each other and developing communities of interest to improve care. Many in this community are clinicians, and many have formed special interest groups to trial improvements. The Health Foundation also made its biggest single investment last year to found THIS Institute at Cambridge University to boost the evidence for quality improvement, and make applied research big

across the NHS in part through crowdsourcing across networks. For more info check our website.

In the US there are interesting learning health systems like Improve Care Now. ImproveCareNow is a networked community of clinician and families improving care for children with inflammatory bowel disease. It combines four huge assets to make progress: clinicians patients and families in connected communities; patient level data and analytics; clinical research; and QI techniques to speed up improvements prioritised by patients. Remission for iBD has improved 55-77% in 10 years across the paediatric centres in the US involved – that's half of all the paediatric centres. The improvements by the way came largely through standardisation of best practice across paediatric centres, not new drugs or other treatments.

So there are growing assets in the UK to support clinicians to speed up change. But the dosage, particularly in using quality improvement skills at the front line, is still subtherapeutic. For example I met a group of 50 junior doctors in Wales last summer. You could not want for better talent, and all impatient to make this type of change but not having any support to do it.

That support, as Richard Bohmer explained recently in the New England Journal, doesn't just mean training and skills. Clinical teams need support from management and the board (in hospitals) and senior partners in the case of GP practices.

In the US high performing health care providers do this. They also have some kind of standing unit that can act as support, as well as structured programmes to develop the best clinicians in management, a famous example being the Mayo Clinic. Progress doesn't happen by magic, it has to be carefully planned.

So what I am saying then in these remarks about clinicians? Perhaps to their leaders some of whom are here tonight? Embrace the future – seek it out. Widen your concept of being a clinician to the service for patients not just the treatment of the individual in front of you. Use systematic tools, for example QI techniques, to improve care as part of everyday work. Develop active peer (and patient) communities to support you, share data and best practice spot and trial new innovations. Take a more active role in leading change, and in management.

Some is happening. We need more. The challenge of course is also on policymakers and managers to invest in and support clinicians to do this and give them space to think.

Patients and the public

So lastly then I want to turn briefly to the fourth area: patients and the public. Since 1948 up until recently, they've been a voice transmitted to the NHS through a succession of bodies like CHCs, Healthwatch, LiNKs and so on. There's been progress: now there's a choice of provider, a lot more accessible information, some online peer support, personal budgets,

some person-centred care. Everyone recognises there's a long way to go and neither patients nor the public in of themselves are a big enough driving force shaping care.

Not yet, but that will change.

I was struck by a quote recently from a patient who said recently 'I don't want to be consulted, I want to park my tanks on the hospital's lawn'. An extreme view, perhaps reflecting wider trends like lower deference, better information and consumerist behaviour. But can this type of energy be used effectively?

There's no doubt we're on the cusp of a change, with far more information flooding out to individuals about their own health risks, and resources to manage them. Information about your genetic make-up and lifestyle to predict future risks, new generations of apps to help us modify our risks, and new ways of interacting with formal health services - all available on a smartphone.

Those reading the business pages of the papers will be clocking some interesting moves in this area. For example big tech companies becoming health care companies. in January Apple revealed its plans to let patients use their smartphones to download their medical records, signing up 13 big provider systems in the US – including University of Pennsylvania and Kaiser Permanente.

The strategy seems broadly this. Tech companies provide platforms to health care providers - software, tablets, wearables - then integrate these with the electronic health record, then access this EHR with patients consent, then create new channels - apps and so on -to provide care directly to people. This way tech companies can ultimately bypass traditional providers, offer their smartphone or platforms to a variety of groups/apps offering tailored services. These moves in the US aim to increase the so-called 'liquidity' of the electronic health record to add value by linking to other sources of person-level data, with the individual patient's consent of course.

On this side of the Atlantic one-third of Swedes have now set up accounts to access their EHRs. two million people in Stockholm county have access to 'always open', a smartphone app like GP- at-hand. They can book appointments, access test results in near real time. This links with their electronic health record.

Pharma companies are adding digital apps to add to the therapeutic value of drugs. The so called 'digiceuticals'.

I wouldn't describe myself as 'techno-ecstatic'. But anyone can see the potential here for wellbeing, prevention, treatment. Exciting yes, but also with big questions for the NHS. Will these developments empower or manipulate patients, promote health or raise anxiety ('cyberchondria' as I heard it called last week). Will they add or reduce demand, narrow or widen inequalities - it's just not clear. But what is clear is that the NHS will need to respond, develop its scanning ability, and speed up the way it evaluates the impact of these developments. There are thousands of health apps but, when I last looked, less than 40

officially sanctioned on NHS choices website. How to speed up assessments? By example using live linked person-level data to give more rapid results. Others are doing it: I see that data from the online network 'linked-in' are being used to assess migration movements; and the Bank of England is now saying that real time mapping of economic activity is close, with daily inflation updates available by collecting data from online retailers.

We're behind the Swedes – I looked last week how to access my own electronic health record summary. To do that I needed to see my GP first… partly to check my identity… so that scuppered everything. I'm too busy and so is my GP. But here too there are interesting developments that we don't have time to explore now such as self-sovereign identity systems based on blockchain technology – a unique and persistent identifier that cannot be taken away – and could be applied for other purposes such as voting or linking with other public sector records. Again the NHS must be ahead of these developments.

But key to progress will not just be to keep individual data confidential, but build public trust in its use. In particular use that will not be monetised but used for public benefit. This is where the NHS has a unique and spectacular advantage and could really sweat public support for wider good.

I heard the other day that to read the terms and conditions fully when you sign up to the commonest internet sites it would take an average of 340 hours. So few do. To prove the point researchers in a study inserted a clause which required those signing up to give away their first born child. Many signed. It's a strange world if this can happen and yet there is resistance to using anonymised health care records for individual and public benefit. This cries out for more leadership.

My comments so far have really been on patients, and have taken a relatively consumerist tone. But there will be wider developments for citizens and groups – for example ways that groups can make their voices known to shape care and other local services. We haven't got time now to delve into this, but it's an area of opportunity. It links to what I was saying earlier about new forms of representative democracy, which may be easier now to trial in devolved areas, and meaningful enough to influence politicians holding public funds. Some places around the world are testing this, for example the Better Rekjavik initiative has engaged half of the city's population through online means to set priorities for spend to improve the city. The city government is mandated to spend money on the public's top three priorities each year.

These possibilities – more information and digital tools to empower patients and the public - hold potential (and threat) to shape healthcare over the next 30 years. The NHS must be able to identify and understand these fast-moving developments, rapidly assess new developments and their impact, and support patients and staff to use them intelligently and effectively. We've made a good start but we all know more could be done.

I am now going to finish by making one or two concluding comments.

Some of you are sitting here thinking, OK this all well and good, but I've got to face tomorrow with not enough staff, the CQC about to re-visit, patients queuing around the corner and with aggro about my control total which is still not agreed.

And I've tried to take you away from today, towards the NHS @100 in part by peering into the past and what's in our path for the next few years. I've tried to pull out some issues in four areas - to do with government, managers, clinicians and patients and the public – that are either here or ahead of us, that need to be responded to very actively if the NHS is not to lose ground.

So to boil it all down what am I really saying?

The NHS is an increasingly complex system, facing formidable challenges and opportunities. If you frame it as an industry (which is controversial I know) it is Europe's largest.

Taking the givens of tax funded, universal access, comprehensive benefits, free at the point of need, the critical question now is how to make progress faster for patient benefit.

The reform debates on how to do this over the last 30 years have basically been political – pivoting on questions of ownership, essentially how much state control versus market-like incentives. They have been associated with big what I've called 'bazooka' national reforms, and central control has increased. The transmission mechanism for reforms has largely been seen as flowing through institutions – through those lines of accountability.

I believe we are genuinely at an inflexion point now. The future challenge will be more to respond faster to new innovations ground up, and support the front line to do it. A front line that patients are part of, and a front line that will move upstream towards reducing the risk of ill health. Old style central reforms focusing on institutions - mainly hospitals - will be too blunt, too late, and off beam. The transmission mechanism for improvement will be far more through collaborating networks and communities using data, across agencies. Simply poking, controlling and to an extent reshaping NHS managerial administrative structures, or indeed managers, in different ways won't do what we need. That's very 20th century.

Current policy with the Five Year Forward View is definitely in the right direction with the emphasis on integration, collaboration, upstream population health, innovation and diffusion. Boosting data analysis, workforce skills, management, networks and digital innovation should be central in the next round of investment.

So for government this means at least the following. Make the NHS a tranquil zone, ditch confrontation. Invest in it properly – 3-4% real per annum. Use the obvious political support for the NHS to build consensus and evidence to support investment and for the types of changes I've charted. Engage more to the service and patient communities before advocating change. Facilitate faster experimentation with innovators outside the NHS. Take much more obvious leadership to build trust in the use of patient level data, for collective benefit that isn't monetised into profit.

For managers this means building a stronger collective voice as to what works in management to speed up improvements, in particular productivity. It means working up a practical strategy for boosting quality improvement at the front line, building the networks and data analysis to support it, and demonstrating the leadership style to match. It means developing more evidence to push back at government when needed. It means challenging yourselves about poor management. It means developing stronger peer networks to support and learn.

For clinicians it means doing your job, and taking a wider role in improving care, working with patients to make progress. Being active in clinical and patient communities in your field to spot new developments and test them. Being trained in quality improvement skills and using data. Supporting and challenging peers. Leading the diffusion of innovation.

For the patients and the public it means taking opportunities that are about to come our way to take more control over our health, and being helped to turn pent up aggression into positive energy for change.

All that is a massive agenda for leaders in the NHS, and patients. But we have plenty of talent, will and values to do it.

At its last big anniversary the NHS was more popular with the public than the Queen's Coronation and the Beatles. The social model represents security, public benefit and identity which chimes fully with the public. The 'values capital' in the NHS is truly gigantic a piece of capital, almost unique in the world. And more than anything this has attracted the best and the brightest to work for it, unites the public and the political class. I can't think of a better basis in any other system in the world to move forward to a healthy 100.

Thank you.