Institute and Faculty of Actuaries

2 December 2024

DHSC Change NHS consultation

The Institute and Faculty of Actuaries (IFoA) is a royal chartered, not-for-profit, professional body. We represent and regulate over 32,000 actuaries worldwide, and oversee their education at all stages of qualification and development throughout their careers.

The Institute and Faculty of Actuaries (IFoA) welcomes the opportunity to respond to the DHSC consultation on its 10-Year Plan for the NHS. This response is by members of the IFoA Health and Care Research Subcommittee and is written in the public interest.

Actuaries are big-picture thinkers who use mathematical and risk analysis, behavioural insight and business acumen to draw insight from complexity. Our rigorous approach and expertise help the organisations, communities and governments we work with to make better-informed decisions. In an increasingly uncertain world, it allows them to act in a way that makes sense of the present and to plan for the future.

Summary

The NHS needs a more sophisticated approach to measuring and monitoring population health, and the financial risks associated with this, at both national and Integrated Care System (ICS) levels. To do this, enhanced population health and financial risk frameworks should be developed. These allow the future benefits of investing in preventative services today to be recognised and quantified. Additionally, they encourage organisations within ICSs to work together to share financial risks for the benefit of improving health outcomes for their populations.

The NHS needs to continually adapt to the evolving health and care needs of the English population. The NHS plan needs to fully understand the benefits that focusing on the long-term investing in prevention and improving integrated working between provider organisations can bring.

We recommend the NHS applies principles like the actuarial control cycle that create the conditions for a continually improving health and care system at both national and regional levels.

Beijing	Room 512 · 5/F Block A · Landgentbldg Center · No. 20 East Middle 3rd Ring Road · Chaoyang District Beijing · 100022 · People's Republic of China	**Tel:** + 86 10 5878 3008
Edinburgh	Level 2 · Exchange Crescent · 7 Conference Square · Edinburgh · EH3 8RA	**Tel:** +44 (0) 7632 2100
London (registered office)	1-3 Staple Inn Hall · High Holborn · London · WC1V 7QJ	**Tel**: +44 (0) 7632 2100
Malaysia	Arcc Spaces · Level 30 · Vancouver suite · The Gardens North Tower · Lingkaran Syed Putra · 59200 Kuala Lumpur	**Tel:** +60 12 591 3032
Oxford	Belsyre Court · 1st Floor · 57 Woodstock Road · Oxford · OX2 6HJ	**Tel:** +44 (0) 7632 2100
Singapore	Pacific Tech Centre · 1 Jln Kilang Timor · #06-01 · Singapore 159303	**Tel:** +65 8778 1784

www.actuaries.org.uk

Q1: What does your organisation want to see included in the 10-Year Health Plan and why?

Long-term view

We highly commend the fundamental approach to develop a long-term plan. As actuaries, we are vastly experienced in developing long-term projections of demographics and morbidity and the financial risks arising from these evolving aspects of populations. In the run-up to the last UK General Election, the IFoA ran a campaign to promote long-term policy-making.[1]

We propose the planning process itself could be even longer term than 10 years and even more embedded into the everyday working of the NHS organisations. We recommend the NHS considers developing a 20-Year Plan and propose that this is a yearly exercise rather than a once-in-a-parliament exercise. This is not to say that the plan developed in 2024 will remain the plan in 2044, but that the principle of developing a plan and allowing it to evolve as conditions evolve is a fundamental principle for managing population health. Conversely, a plan developed in 2025 would not be a completely new view of the world but would be an evolution of the 2024 plan, finetuned to the year-to-year evolving demographics and health needs of the English population. The formulation of the Plan should apply demographic projections, with scenario testing, to anticipate the impact of the ageing population and chronic disease prevalence. There should be continuous monitoring against the Plan metrics, and assumptions of parameters within the plan should be reviewed and updated regularly.

National and ICS population health risk and financial risk frameworks

The NHS's current population health and financial risk frameworks need to be developed at the national and ICS levels. This requires:

- A long-term view
- The use of person-level linked data to enable health outcomes and financial costs of health services to be understood by population risk segments. This allows the impacts of evolving health needs and care delivery models to be quantified.
- Defining the right metrics to measure population health status and health outcomes along with financial metrics. This includes defining standardised versions of metrics such as healthy life expectancy and population risk segment transition rates to ensure consistency across ICSs.
- Measuring these metrics rigorously and projecting future scenarios of how these metrics could evolve.

The positive impacts of introducing preventative services may take years to materialise, but it is these future positive impacts that must be understood and acted upon today in order to make the business case for implementing them now.

A health care specific example of this way of working is found in A New Fiscal Model to Deliver Prevention (institute.global).

[1] beyond-the-next-parliament-the-case-for-long-term-policymaking.pdf (actuaries.org.uk) (IFoA, September 2023)

Accountability for the Long-Term Plan

Accountability for long-term financial risk is needed at both national and ICS levels. At ICS level, we recommend the establishment of a team to be accountable for planning and managing the long-term population health risk and financial risk of the ICS. Ultimate accountability for such a team's work would reside with a 'Chief Health Risk Officer'. Their role would be regulated by a national body, and they would provide recommendations to the Integrated Care Board (ICB) about its long-term planning, investment decisions and overall financial risk. In order for the role to hold accountability, metrics of performance would need to be defined alongside careful consideration of the unintended consequences of those metrics. Enterprise risk management principles could be followed. The role could include accountability for the development and maintenance of person-level linked datasets of NHS and non-NHS data to be used in deriving and monitoring the Plan.

A continually improving health and care system

The IFoA is not making any proposals regarding the strategic organisational structure of the NHS. The principle proposed by The Institute for Global Change to maintain the existing structures, at least in the medium term, is sensible.[2]

In this response, we focus on exploring ways of improving population health outcomes within the current structure.

The principles of the Actuarial Control Cycle can be applied to develop and implement the NHS long-term plan.

Actuaries work in many industries with a commonality in the way of working. Within our profession, this is called the actuarial control cycle. In essence, this requires an iterative way of working: understanding the problem, developing a solution, and monitoring its effectiveness and adapting as needed. The IFoA proposes that this way of working is recommended within the 10-Year Plan.

Preparing for future pandemics

The Plan should consider preparations for future pandemic scenarios. The IFoA has created a resource hub that brings together research and thinking about epidemic handling and response.[3]

Q2: What does your organisation see as the biggest challenges and enablers to move more care from hospitals to communities?

Risk-sharing between ICS organisations

One of the biggest challenges to move more care from hospitals to communities is the current financial arrangements between provider organisations within each ICS.

[2] Fit for the Future: A Modern and Sustainable NHS Providing Accessible and Personalised Care for All (institute.global)
[3] Coronavirus (actuaries.org.uk)

The enabler is an enhanced population health risk and financial risk framework that would allow for risk-sharing and payment mechanisms between ICS organisations. This would include all provider organisations within the ICS, so that the central Integrated Care Board (ICB) could make optimal decisions about commissioning care and investing in preventative services.

As outlined in Q1, we recommend the establishment of a team to be accountable for planning and managing the long-term population health risk and financial risk of the ICS. The team leader could have a job title such as 'ICS Chief Health Risk Officer'. Their role would be regulated by a national body and would provide recommendations to the ICB about its long-term planning, investment decisions, and adequacy of data used to formulate and monitor the Plan.

This thinking aligns with the health care-specific example found in Fit for the Future: A Modern and Sustainable NHS Providing Accessible and Personalised Care for All (institute.global), where a proposal is made to *"develop financial arrangements and mechanisms to support integrated working within and across ICS. These should apply across provider organisations, with incentives for integrated working and appropriate accountability*".

Hospital to community – between NHS organisations

It is necessary to acknowledge the current mix of health system funding, which is wider than just the NHS funding:

- State funding to NHS
- State funding, via Local Authorities, to social care and public health and their interaction with NHS funding for some services
- Patients' out-of-pocket payments for items such as optical and dental services and non-prescription medicines, and for services from non-NHS providers such as private GPs
- Private medical insurance
- Acknowledgement if there are funding gaps

The government needs to consider the management and integration of budgets and financial plans across provider organisations.

The lack of capacity in GP practices and primary care networks for people to see a health practitioner when they need it often means they end up going to A&E instead, which is more costly for the ICS. The plan should increase capacity in communities before reducing capacity in hospitals. It is necessary to maintain the financial sustainability of hospitals which are still needed. Disparities in funding and capacity across Primary Care Networks (PCNs) need to be identified and addressed.

Hospital to community – non-NHS organisations and considerations for social care

An enhanced framework is needed to improve planning and spending between providers and organisations within each ICS. It should consider:

- Joining up NHS services and social care services
- Managing NHS and social care budgets in a more aligned way, such as developing further the approaches of pooling budgets of Local Authorities and NHS ICBs. This requires identifying and addressing disparities in social care funding from one local authority to another.
- Joining up NHS services with other services by modelling the dynamics of different services and the effects on population health of different services
- Make crystal clear the understanding of the population for which the organisation is responsible

The need for shifting care from hospitals to the community is nowhere more vital than for social care. The IFoA has produced much research and a number of policy proposals on the topic of adult social care. Much of this could inform the development of the NHS's Long-Term Plan.

"*Shortcomings in social care provision are [ ] placing a significant burden on the NHS. During the 2017–2019 Parliament, research from Age UK found that over 2.5 million bed days had been lost in the NHS due to shortfalls in social care provision. Over the same period, these delayed discharges cost the NHS a total of £587 million, or £27,000 every hour. This should not be seen as older people creating a 'burden' on health and care services, but as evidence that the system is inadequate*."[4]

There needs to be increasing transparency and better public understanding of who pays for social care. There is uncertainty and lack of clarity about carer's allowance and who gets it. The NHS plan should consider impacts and interaction of social care providers and family carers, care allowances and other social security benefits. This includes who is eligible for Local Authority social care packages and consideration of these alongside NHS Continuing Health Care (CHC) packages, as well as capacity and funding of social care and nursing care providers.

Q3: What does your organisation see as the biggest challenges and enablers to making better use of technology in health and care?

Data is a key enabler

Making better use of technology is a vital enabler for addressing the other two strategic shifts (see Q2 and Q4). Our response to this question focusses mainly on technology linked to **personal health data and NHS cost data and analytics applied to that data**.

The challenges and enablers below focus on data and analytics, a cornerstone of the system 'understanding the problem' and 'monitoring effectiveness', as described in the actuarial control cycle.

Information Governance and personal data privacy topics

The NHS has vast amounts of data. This represents a huge asset for the NHS and the population of the UK. The opportunities to harness and use this data to improve health outcomes is immense but also complex. The IFoA has written about the challenges of working with sensitive data in general and these points are especially relevant for the health and care domain:

" Given the potential ethical and wider public interest issues arising from the increasing use of data science, it is important to consider the regulation of professionals working in this field, be they actuaries, data scientists, risk managers, or otherwise."[5]

Faster development of expertise to work with data and analytics outputs

The benefits of technology and data can be better achieved when staff are appropriately trained and empowered with understanding on both. The following steps can be considered in a 10-Year Plan to empower staff:

- Developing expertise on the advantages of using data and how to use it appropriately and effectively to turn it into operational intelligence

[4] beyond-the-next-parliament-the-case-for-long-term-policymaking.pdf (actuaries.org.uk)
[5] ibid.

- Understanding which elements of the vast datasets within the NHS are informative for the specific purpose of the analysis
- Enhancing understanding of what can and cannot be done with the data that NHS organisations hold
- Improving interdisciplinary trust, e.g. health practitioners engaged in the use of data and the power of analytics to assess and improve patient outcomes can better create informed business cases for investment with the collaboration of finance and data teams
- Embracing and enhancing data science, and developing approaches on applying it in domains where there are gaps in data and highly regulated environments

Considerations for advanced structured training by 3 categories of staff: analytics, finance and clinical professionals:

1. Accelerating the development of the expertise of the **analytics workforce (BI / data analysts / data scientists / etc.)**
    - Consistency of training/ professionalism across analytics teams
    - Enhancing professionalism
    - Developing a core syllabus, training path, career path
    - Raising the profile of analysts
        - Analytics leaders should be as influential and important as clinical leaders for specific topics
    - Recognising the high skill level and importance of existing analytics staff
    - Encouraging more commonality of training for analytics leaders

2. Accelerating the development of the expertise of the **NHS finance teams** to understand and make decisions based on outputs of analytics of person-level health data alongside financial and accounting data:
    - Training programmes to develop expertise in working with data and outputs of data analytics
    - Linking health outcomes data with finance data at an operational finance level
    - Ensuring finance teams develop methods for integrating person-level health data with service unit cost data at the appropriate points for planning, budgeting and financial reporting

3. Accelerating the development of expertise of **medical practitioners** on understanding and making decisions based on outputs of analytics and data
    - Training programmes to develop expertise in working with data and outputs of data analytics

.

Secure data infrastructure at national and ICS levels

The 10-Year Plan should consider:

- The interoperability of systems: industry standards so that data sets follow standard rules/ formats
- Not allow technology providers to get monopolies on any aspects of the data environment or analytics capabilities
- Data: develop robust, secure platforms and processes for managing data that are appropriate for the specific type of data, how it has been collected and how it will be used, for
    - Administrative purposes
    - Research
    - Operational and financial planning
- Linking finance and health outcomes data
- Information Governance security must be of the highest importance and infrastructure must enable IG concerns to be addressed effectively
- Patient's consent to use their personal data for these purposes

- Recognition that data is an asset of the NHS/ UK population but only when used appropriately, with an open conversation regarding to whom the data belongs (e.g. Patients, GPs)
- Cost-benefit analysis of buying the platform/ software/ technology

---

Q4: What does your organisation see as the biggest challenges and enablers to spotting illnesses earlier and tackling the causes of ill health?

Population health risk and financial risk framework at national and ICS levels

As outlined in Q1,the NHS's current population health and financial risk frameworks need to be developed further at the national and ICS levels. This means taking a long-term view and defining accountability.

We recommend ringfencing the budget for investing in prevention to increase the willingness of, and incentives for, NHS organisations to invest in preventative services when there is an upfront cost. Accounting is currently on a one-year cycle, which means that investment to improve health beyond the current year is not incentivised.

The NHS should define metrics to be measured (past) and monitored in future that show how progress is being made, or not, against the prevention goals. Metrics should be specified at national and ICS levels and could include **healthy life expectancy**, **healthy working life expectancy** and **transition rates between population risk segments**. Advanced demographic modelling, including these metrics, would enable better planning.

Investing for prevention

The IFoA sees merit in the principle described here Prosperity Through Health: The Macroeconomic Case for Investing in Preventative Health Care in the UK (institute.global) and here A New Fiscal Model to Deliver Prevention (institute.global).

In particular, the comment that this response "*does not advocate for specific preventative-health measures but instead shows that a strong health and macroeconomic case can be made for prevention through upfront investment.*"

The Long-Term Plan could consider developing analyses such as the one described in that paper:

"As well as quantifying the macroeconomic impact of prevention, this approach helps illuminate why prevention has such large potential economic benefits. Preventative-health measures are effectively an investment – an action now that leads to better later outcomes."

These ideas are broadly aligned with what we are calling in this response an enhanced national population health risk and financial risk framework. This could be taken further by developing 42 regional frameworks at the ICS level that would feed into the national framework.

The IFoA recommends:

- Long-term financial planning that allows budgets and spend to be effectively planned across financial years
- Applying a long-term view that accepts there needs to be investment upfront which will take some years before full positive effects are noticed

Accelerate implementation of population health management techniques

The NHS should use its vast data assets and enhance analytics teams to continue to develop and refine predictive and prescriptive analytical methods such as:

- Population segmentation
    - demographic modelling including transition rates between population segments (segments could be defined as health states and other informative segmentation methods such as employment status)
- Risk stratification for population health: accelerate the development and rigorous implementation of these techniques across primary and secondary care
- Impactability modelling (predictive risk models that can help identify patients who would benefit most from specific interventions): accelerate the development and rigorous implementation of these techniques across primary and secondary care
    - as part of this, it is necessary to understand which patients are most likely to engage with a given intervention and therefore realise the benefit (activation)

The outputs of these methods are intended to support clinical decision-making and not replace the professional expertise of clinicians.

The techniques could be advanced further by exploring and linking non-NHS datasets which offer indicators of health risks through wider bio-psycho-social lenses. The comments made for Q3 would apply here.

Q5: Specific policy ideas for change

Here we outline specific, measurable, achievable, realistic and timebound proposals for implementing in the NHS 10-Year Plan. We focus on areas in which the IFoA and its members have experience and expertise, either gained from working with NHS partners or in domains from which the skills and techniques are transferable.

Quick to do, that is in the next year or so

- (linked to Q1, Q2, Q3 and Q4) Develop **national** enhanced population health risk and financial risk framework for managing the NHS budget and spend at national (England) level linked with health risks across the population:
    - Financial mechanisms that support investing for prevention
    - Defining and measuring the right metrics to support change, such as healthy life expectancy and healthy working life expectancy, and transition rates between population segments
    - Regulation and accountability of financial risk management within and between NHS organisations
- (linked to Q1, Q2, Q3 and Q4) Develop **ICS** enhanced population health risk and financial risk framework for managing the NHS budget and spend between organisations within each ICS, linked with health risks across the ICS population, **initially for the 4 leading ICSs**:
    - Financial mechanisms that support investing for prevention
    - Financial mechanisms that support risk-sharing between ICS organisations, whilst maintaining financial sustainability of key providers such as hospital trusts
    - Defining and measuring the right metrics to support change, such as healthy life expectancy and healthy working life expectancy, and transition rates between population segments

    - Integrating into the national framework
    - Regulation and accountability of financial risk management within and between NHS organisations within each ICS
- (linked to Q1, Q2, Q3 and Q4) Accelerate the development of expertise of NHS Finance Teams to develop skillsets to build and operate forward-looking population health financial risk tools
- (linked to Q3) Accelerate the training and professionalisation of data and analytics teams and the clinical staff working with the outputs of analytics
- (linked to Q3) Promote public awareness and obtain public consent for using their personal health data and sharing it within and between NHS organisations

In the middle, that is in the next 2 to 5 years

- (linked to Q1, Q2, Q3 and Q4) Roll out and embed the new financial arrangements and mechanisms built around **ICS** enhanced population health risk and financial risk framework for the majority of the remaining 42 ICSs
- (linked to Q1, Q2, Q3 and Q4) Develop the enhanced population health risk and financial risk framework at the **national** level and for the **4 leading ICSs** to a **20-year time horizon**
- (linked to Q2) Fix social care funding arrangements and public awareness campaigns to inform that care is not free. See: Principles for Reform (beyond-the-next-parliament-the-case-for-long-term-policymaking.pdf (actuaries.org.uk))

Long-term change, that will take more than 5 years

- (linked to Q1, Q2, Q3 and Q4) Roll out and embed the new 20-year **ICS** enhanced population health risk and financial risk framework to the remaining ICSs so there is a fully functioning 20-year financial planning and population health financial risk management framework covering the entire budget and spend for the NHS in England and covering all health and social care services.

Should you want to discuss any of the points raised please contact Caroline Winchester, IFoA Policy Manager (caroline.winchester@actuaries.org.uk / 01259 761020) in the first instance.

References

IFoA materials

1. beyond-the-next-parliament-the-case-for-long-term-policymaking.pdf (actuaries.org.uk) (IFoA, September 2023)
2. Health and Social Care (actuaries.org.uk) (IFoA)
3. Intergenerational Fairness (actuaries.org.uk) (IFoA)
4. intergenerational-fairness-bulletin-health-and-care-oct-2017.pdf (actuaries.org.uk) (IFoA, October 2017)
5. actuaries.org.uk/document-library/thought-leadership/policy/100-year-life/health-and-social-care/health-everyones-business-proposals-reduce-ill-health-related-job-loss/ (IFoA, October 2019)
6. Longevity Bulletin Issue 9.pdf (actuaries.org.uk) (IFoA, December 2016)
7. Coronavirus (actuaries.org.uk) (IFoA Pandemics Hub)

Other authors and organisations

1. Public Health England. 'Life expectancy and healthy life expectancy'. Available at: https://www.gov.uk/government/publications/healthprofile-for-england/chapter-1-life-expectancy-and-healthy-lifeexpectancy
2. Age UK. 'Lack of social care has led to 2.5 million lost bed days in the NHS between the last Election and this one'. Available at: https://www.ageuk.org.uk/latest-press/articles/2019/december/lack-of-social-carehas-led-to-2.5-million-lost-bed-days-in-the-nhs-between-the-lastelection-and-this-one/
3. Prosperity Through Health: The Macroeconomic Case for Investing in Preventative Health Care in the UK (institute.global) (Tony Blair Institute for Global Change, July 2024)
4. Fit for the Future: A Modern and Sustainable NHS Providing Accessible and Personalised Care for All (institute.global) (Tony Blair Institute for Global Change, July 2023)
5. A New Fiscal Model to Deliver Prevention (institute.global) (Tony Blair Institute for Global Change, August 2024)
6. Demos and PDEL-Briefing-paper_final-version.pdf (demos.co.uk) (Demos, October 2023)
7. Marmot Review 10 years on the-marmot-review-10-years-on-full-report.pdf (instituteofhealthequity.org) (Institute of Health Equity, 2020)
8. The Hewitt Review - An independent review of integrated care systems, https://www.gov.uk/government/publications/the-hewitt-review-an-independent-review-of-integrated-care-systems/ (2023)
9. Guidelines on Actuarial Work for Social Security, 2022 - International Social Security Association & International Labour Organization, https://www.issa.int/guidelines/act
10. Demographic, health, physical activity, and workplace factors are associated with lower healthy working life expectancy and life expectancy at age 50 | Scientific Reports (nature.com), (M. Lynch et al., Nature, 2024)
11. Extending Working Lives: A Systematic Review of Healthy Working Life Expectancy at Age 50 | Social Indicators Research (springer.com), (M. Parker et al., 2020)
12. The Wanless Report - Securing our Future Health: Taking a Long-Term View, 2002, contentsp1.pdf (guardian.co.uk)