Rapid review of potential labour and skills impacts

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Introduction

This paper collates and analyses existing data and evidence that has been produced in relation to the labour and skills impacts of developments in digital and technology within health and social care.

It is part of a wider project led by Rocket Science UK, working with SAMI Consulting and IES, to support the North East Local Enterprise Partnership in understanding future skills needs in digital and technology in health and social care and the green economy. These rapid reviews focus on a combination of:

- Known sources for relevant evidence – e.g. government funded research, independent research organisations, relevant trusts and foundations
- Research identified by the North East LEP
- Sources flagged by contacts/ colleagues with expertise in these areas

The reports also build on and include findings from earlier work commissioned by the LEP to understand the current employment and skills landscape. We did not do systematic searches of academic journals, given the time and resource available. In all, 53 reports and publications were reviewed across both strands of work.

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Future demand

The future workforce demand for health and social care across the UK is startling and the North East is no exception.

Nationally, the NHS employs 1.5 million people. It is the largest UK employer and one of the largest globally (Nuffield Trust, 2020).

According to a recent (currently draft) report by Ortus Economic Research, the health and social care sector in the North East employs 125,000 people, accounting for 15% of total employment (above the national average).

Although NHS staff shortages have been reported for several years, the trend continues and (with an ageing population and workforce) the situation is likely to deteriorate further.

In 2018, the reported national shortfall of NHS staff was already over 100,000 and the projected shortfall to 2030 was 250,000 (The Health Foundation, 2018).

The North East is identified as a relatively stable region, in terms of staff i.e. it has the highest rates of staff who stay in the NHS (this is a different measure than staff turnover, which focuses on those who leave). This has however, as with all regions, decreased slightly since 2010/11 (from around 91% to 89%).

That is, 89% of staff employed at the beginning of the year remained in their role at the end of the year. This still means that 1 in 10 staff do not (The Health Foundation, 2019).

In 2019, there were 122,000 national vacancies in social care (The King's Fund, 2020) and projections suggest that 320,000 more social care staff will be required by 2029/2030 (The Health Foundation, The King's Fund and Nuffield Trust, 2018). Recent North East specific research gave a 'base case' projection of 22,500 new social care jobs being needed by 2035 (Skills for Care, 2020).

More research may be needed to gain a better view of the overall numbers of staff that will be needed by the region's health and care sector in the future. However, this is a complex picture and subject to several factors, some of which are considered in the remainder of this paper.

> **"Our forecasts show that, in the North East region, if the adult social care workforce grows proportionally to the projected number of people aged 65 and over in the population between 2020 and 2035, an increase of 27% (22,500 extra jobs) would be required by 3035."**
>
> **The Adult Social Care Sector and Workforce in North East, Skills for Care 2020**

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Front-line shortages

Although the health and social care sector includes a diverse array of roles, 40% of the workforce is made up of four front-line occupations:

- care workers
- nurses
- nursing auxiliaries
- doctors

(Warwick Institute for Employment Research, 2018). Looking to the future, we found no evidence to suggest that this proportion will be subject to significant change. Much of the staffing needs, then, are likely to be of front-line staff.

Retention of staff is identified as a major problem and a way of minimising future skills shortages. This is a particular issue in nursing.

The NHS was projected to lose 84,000 nurses before retirement age over the 5 years from 2017 to 2022 (The Health Foundation, 2017) and it now seems inevitable that the experience of nursing during the Covid-19 pandemic will lead to burn out and further exacerbate this situation.

Informatics shortages

The Wachter Review, reporting in 2016, warned of a desperate shortage of Chief Clinical Information Officers (CCIOs), and others with clinical and informatics training, without whom full digitisation of the NHS would not be possible.

It claimed that CCIOs did not have the appropriate authority and resource, at Trust level, to ensure the successful deployment and benefits of health IT (Robert M. Wachter, 2016).

The Wachter Review advisory group recommended that an average-sized trust should have approximately five members of staff with skills in both clinical practice and information technology, with at least 25% of their time allocated to their IT and related work. In addition, researchers with expertise in clinical informatics, programme evaluators and system optimisers (data processors, analysts, quality and safety leads) need to be in place.

Although the NHS in England and Wales currently employs over 47,000 health informatics staff, there is a lack of systematic planning for, or development of, this crucial role and there is strong global competition for these roles.

Informatics specialists include health and care analytics, clinical informatics, clinical bioinformatics and health informatics science (National Information Board, 2014).

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Future skills needs

Technology is transforming the health and social care sector. Although there has a been high-profile failure to digitise secondary care ([National Audit Office, 2020](#)), with the sector often characterised as a technological laggard, change is happening and will happen.

The English GP sector began digitising in the 1980s and, by the mid-2000s, was almost fully digital ([Robert M. Wachter, 2016](#)). The NHS has committed to giving every patient the right to online GP consultations within the next 5 years. The NHS App will create a standard online way for people to access NHS services ([NHS, 2019](#)).

The NHS has also promised, over the next decade, to have 'redesigned' hospital support to reduce outpatient appointments and to ensure that all clinicians have access to patient records (with decision support and AI), wherever they are ([NHS, 2019](#)).

Getting the right skills mix

Over the next two decades, it is anticipated that 90% of all jobs in the NHS will require digital skills ([Health Education England, 2019](#)).

It is, therefore, critical that this element of their role is addressed in early training and at every stage of their professional development ([Robert M. Wachter, 2016](#)). Technologies predicted to be widely utilised within the sector, include genomics, enabling the prediction of health conditions and the targeting of specialist preventative and treatment strategies ([Health Education England NHS, 2019](#)).

This is something that will pervade all roles involved in the delivery of patient care and most clinical staff will need to be able to understand and share genomic findings digitally ([The Health Foundation, The King's Fund and the Nuffield Trust, 2019](#)).

A 'digital readiness indicator for health and social care' has been developed in the Building a Digital Ready Workforce Programme, a cross-organisational programme between Health Education England and NHS Digital, that is part of the Government's Digital Transformation Portfolio.

This includes being digitally willing (individual attitudes and organisational drivers) and digitally able (skills and technology) ([Warwick Institute for Employment Research, June 2018](#)).

In practice however, while formal training is required for high-level jobs, on the job and peer to peer learning may be more successful ways of ensuring that the wider workforce have the specific digital skills that they need ([Warwick Institute for Employment Research, June 2018](#)). Indeed, some literature suggests that clinicians already have the digital skills they need ([The King's Fund, 2016](#)).

It is important that the focus is on creating a high level of intuitive usability in the technology applications. Training should not be used as a short-cut to achieving this end goal ([Robert M. Wachter, 2016](#)).

Crucially, without the recruitment of individuals with a blend of informatics and clinical skills into leadership teams, the digitisation of the sector will continue to be slow and troublesome.

A major barrier to the roll out of the NPfIT programme to digitise secondary care, was the absence of workforce with experience of both large-scale IT implementation and the health service.

As well as the education of front-line providers, there will be a need for training of clinician and non-clinician informaticians and an investment in leadership skills ([Robert M. Wachter, 2016](#)).

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Supporting sustained transformation

A recent research (currently draft) report on North East employers in the health and care sector found that 18% of survey respondents from the sector reported a digital skills gap, however this dropped to just 5% post Covid-19.

Indeed, around a third of employers reported that their staff were fully proficient, with over 30% of health care respondents and around 17% of social care respondents not anticipating any increase in the need for digital skills. Although this supports the argument that digital proficiency may be latent among the workforce, it perhaps masks a bigger issue.

Although Covid-19 will have acted as a catalyst for the rapid adoption of digitisation in how staff communicate with one another and those that they care for, the sector remains at the early stages of realising the transformation that will come with the full adoption of technology.

It could be argued that the most important aspect of the technological advancement of the sector, is not the digital skills of the general workforce, but the provision of the infrastructure that will support them to make iterative improvements happen over a sustained period (The King's Fund, 2020).

Developing the data governance, cyber security, ethical frameworks and interoperability of systems is the cornerstone for a successful transition. Moreover, previous technological transformation programmes have demonstrated that, once the technology is in place and

being used, it will take time for work to be re-imagined and genuine improvements to take place. Indeed, it is likely that the implementation of technology will see an initial dip in productivity, with cost savings possibly taking 10 years or more to emerge. This is known as the productivity paradox of technology (Robert M. Wachter, 2016).

> **"Adaptive change involves substantial and long-lasting engagement between the leaders implementing the changes and the individuals on the front lines who are tasked with making them work. Successful implementation of health IT across the NHS will require the sustained engagement of front-line users of the technology." Making IT Work, Robert M. Wachter 2016**

To maximise technological advantage, the sector will need to encourage a highly adaptive learning culture, one where the workforce is encouraged to learn continuously (The Health Foundation, 2019).

High performance working cultures, that engage clinicians care providers using the technology, are going to be critical to supporting the adoption of technologies across the sector and encouraging greater retention of staff throughout the process (The Kings Fund, 2016).

Human skills will remain at a premium

Over the coming years some roles will be taken over, in part or completely, by Artificial Intelligence e.g. diagnosing tumours from scans (The Health Foundation, the Institute for Fiscal Studies, The King's Fund and the Nuffield Trust, 2018 et al).

With technological transformation we may see an increased recognition of digital skills, but it is human skills that will continue to be the differentiator to achieving excellence (The Health Foundation, 2019).

> **"There are limits to the tasks that technology can perform, where human intelligence and perception are still essential. The caring roles and skills that depend on human interaction – traditionally undervalued and underpaid – could become sought after. Human skills, intelligence and perception are likely to be of enduring value. How well industries and governments prepare the current workforce with the knowledge, skills and flexibility needed to adapt to new types of work will influence the impact of new technologies." Shaping Health Futures, The Health Foundation 2019**

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Bridging the digital divide

We must not forget the digital skills of the patient or care receiver. Many of the technological applications that are anticipated to be deployed over the coming years, will be used by patients and care receivers.

Case studies have demonstrated that the adoption of health technologies leads to a shift in power between the care giver and care receiver, creating a demand from the receiver for support to help them to help themselves (The King's Fund, 2020). There will be an ongoing and significant demand for training and support among the general population and, in the context of specialist technologies, the cohorts of individuals who will benefit.

Furthermore, these uses will lead to adaptive change to further exploit technologies to improve health outcomes. Increasingly, the workforce in the health and care sector will need to have the skills to facilitate the adoption of technologies by patients and care receivers (Health Education NHS, 2019).

> "The levels of digital literacy, the workforce's awareness of the required capability, access to training and support, and skills to enable patients and citizens to improve health and wellbeing through technology will all need to be improved, as a fundamental shift in the balance of skills in the workforce takes place over the next two decades."
> **The Topol Review, Health Education England 2019**

It will be particularly important (and challenging) to ensure that those who are in greatest need of care are enabled to utilise technology to manage their own health and the services they receive. Research suggests that those who are most in need of health and social care services are also those who are least likely to have a foundation of digital literacy nor broadband access (The King's Fund, 2016). A 2018 report from the Queen's Nursing Institute also found that poor connectivity (when in patients' homes) was one of the major barriers to the use of technology in patient care.

A faulty pipeline

To compound the skills shortages in nursing already outlined, the number of student nurses is also in decline.

Applications and acceptances of student nurses dropped for two years in a row and attrition rates of student nurses are increasing (The Health Foundation, 2019).

Furthermore, the North East had the lowest fill rate for medical post-foundation training posts in the country (The Health Foundation, The King's Fund and the Nuffield Trust, 2019). Although the NHS Long Term Plan does seek to address these pipeline issues (by increasing the numbers of University places, establishing online nursing degree and increasing investments in apprenticeships), it is currently unclear whether this strategy will be sufficient to meet the, increasingly desperate, need.

An NHS Digital Academy has also been established in response to the need to develop health informatics skills for the service. In order to attract technical talent, it is anticipated that the NHS will need to develop new apprenticeships and Masters schemes which introduce industry knowledge (Health Education England 2019).

However, this looks unlikely to address the issue of shortages of CCIOs and other clinician-IT experts. In 2016, the Wachter Review called for a concerted effort to work with professional bodies, such as the British Computing Society and the Royal Colleges, to complete the training and certification of at least 100 new graduates of CCIO training programmes in the UK, with a view to 80% of these taking positions in NHS healthcare delivery organisations (Robert M. Wachter, 2016).

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Political and economic factors

When exploring the political and economic context, it is notable that much of the literature reporting on the subject takes on an exasperated tone.

While the NHS Long Term Plan published in 2019, claims that there is a 'secure and improved funding path for the NHS', the budget restraints placed on the NHS over several years are lamented in the wider literature.

The underinvestment in training and continued professional development is a particular concern. In 2018/19, the central investment in ongoing training and development for existing staff was just a third of what it was in 2014/15. Furthermore, there has been a lack of capital investment in the technology itself (The Health Foundation, 2019).

The Wachter Review also commented that the £4.2 billion made available by the Treasury in 2016 to promote digitisation was not enough (Robert M. Wachter, 2016).

This is backed up by a more recent report from the National Audit Office which comments that 'recent investment in digital transformation has not been sufficient to deliver the national ambitions' (National Audit Office, 2020).

It appears, however, that we may have now reached the point where money alone will not fix the issue. Without major changes to recruitment and retention of staff, it is likely that budgets will go underspent (The Health Foundation, The King's Fund and Nuffield Trust, 2018).

The Wachter Review also recommended a gradual approach to digital implementation, suggesting that some trusts should be supported overall several years to ready themselves for successful implementation (Robert M. Wachter, 2016).

> **"The odds of failure will be increased by focusing only on buying and installing IT systems without attending to issues like hardware, network stability and speed, workforce training and development, programme evaluation, and iterative improvements."**
> **Making IT Work, Robert M. Wachter 2016**

There are conflicting reports on the impact of Brexit on the region's health and care sector. However, as high numbers of the workforce are British nationals, the region should be somewhat protected from the worse impacts. 96% of the social care workforce in the North East have British nationality, compared with just 61% in London (The Health Foundation, The King's Fund and the Nuffield Trust, 2019).

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Social, legal and environmental factors

The ageing population (and workforce) is a major consideration when assessing the future skills shortages within the sector, both of which are likely to add significant pressure to health and social care (The Health Foundation, 2019**).**

We should also consider the mental health crisis that we are currently witnessing. The pressures of Covid-19 on job insecurity, and the personal impacts of social restrictions, are taking their toll on the general population and this is likely to lead to an increased demand for mental health care. For example, the Topol Review mentioned the correlation between social media use and mental health issues among young people (Health Education England, 2019), something that is only likely to have worsened during the pandemic.

While mental health issues were gaining increasing recognition (pre Covid-19), and spending was set to rise, it is unlikely that the service will be prepared to meet a significant uptick in demand.

It is also important to consider the general conditions that many staff are working in and the toll this is taking on them. Staff shortages are increasing the burden on all staff and this is affecting their health and wellbeing.

Major change is needed to ensure that staff have the time and support they need. (The Health Foundation, The King's Fund and Nuffield Trust, 2018). Once again, Covid-19 will have significantly worsened this, already dire, situation.

Contractual terms and conditions also have a significant bearing on the turnover rates in the sector. In order to minimise skills shortages, it is important that impact of working patterns and pay are considered when modelling and developing a workforce strategy (The King's Fund, 2018). For example, according to the (currently draft) Ortus Economic Research report, those on zero-hour contracts are more likely to leave their roles.

Our review did not uncover any immediate or obvious impacts of the current environmental crisis on this subject area. There are, however, indications that climate was a contributing factor to the emergence of the Covid-19 pandemic (Harvard, accessed 2021).

As already mentioned, the Covid-19 pandemic that emerged in 2020 will have a major impact on the health and social care, in terms of both delivery and the demand for its services. However, it should be noted that most of the publications that we included in this review were produced prior to the pandemic and even those that were published subsequently would not have fully assessed its impact.

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The technology itself

Much has been written about the technologies that are likely to impact on the health and social care sector. Two publications stood out in our review as providing particularly helpful insights on this.

The first was What will new technology mean for the NHS and its patients, a joint piece of work from The Health Foundation, the Institute for Fiscal Studies, The King's Fund and the Nuffield Trust in 2018. This publication outlines four technological trends that are likely to effect health care over the next 5-10 years:

Genomics and precision medicine: targeting treatment at specific sub-groups of patients

Remote care: improving prompt access to health care services and potentially improving efficiency

Technology-supported self-management: empowering patients to self-manage their health

Data: improving and generating new research, alongside artificial intelligence (AI) to help with diagnosis, triage and logistics.

The second report was a set of case studies collated in Technology and innovation for long-term health conditions, published by The King's Fund in 2020.

This 'deep dive' into real life examples details how technology can transform health care delivery.

Many of the examples involved patients using technology, so the training, support and demands for adaptive improvements centred on them (with the staff acting as facilitators).

It is an illuminating and recommended read to better understand the kinds of niche, but life-changing impacts, technology is likely to have on this sector's service.

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