Re:State

HOSPITAL OF THE FUTURE

Hospital as a service, not a building

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ABOUT RE:STATE

Re:State is established as the leading Westminster think tank for public service reform. We believe that the State has a fundamental role to play in enabling individuals, families and communities to thrive. But our vision is one in which the State delivers only the services that it is best placed to deliver, within sound public finances, and that both decision-making and delivery is devolved to the most appropriate level. We are committed to driving systemic change that will deliver better outcomes for all.

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ABOUT RE:IMAGINING THE STATE

After a decade of disruption, the country faces a moment of national reflection. For too long, Britain has been papering over the cracks in an outdated social and economic model, but while this may bring temporary respite, it doesn't fix the foundations. In 1942 Beveridge stated: "a revolutionary moment in the world's history is a time for revolutions, not for patching." 80 years on, and in the wake of a devastating national crisis, that statement once again rings true. Now is the time to fix Britain's foundations.

Re:State's new programme, 'Re:Imagining the State', will put forward a bold new vision for the role and shape of the State. One that can create the conditions for strong, confident communities, dynamic, innovative markets, and transformative, sustainable public services.

'Re:Imagining Health' is one of the major work streams within this programme.

ABOUT RE:IMAGINING HEALTH

This paper is part of the ‘Re:Imagining Health’ work stream. While the National Health Service was once visionary, as demand rises and outcomes deteriorate, a fundamental rethink is needed. The current model no longer works for patients, who too often struggle to access high-quality timely care; for medical staff, who feel disempowered, stressed, and burnt out; or for taxpayers, who foot an increasing bill for a service which is struggling to cope. In short, the structures and institutions designed to meet the challenges of the post-war world are not equipped to deal with our current and future health challenges.

'Re:Imagining Health' seeks to explore how to transform England’s approach to health. It will consider how to move from a treatment-oriented model to one geared towards health creation, the changes necessary in healthcare to facilitate this, and how to build a fair and sustainable approach to funding.

Re:Imagining Health Council

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The arguments and any errors that remain are the authors' and the authors' alone.

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Recommendations

Principle 1: Reimagining care pathways

Recommendation 1: To redesign pathways, ICSs should commission a clinically led review, similar to the Get It Right First Time programme, of care pathways for multimorbidity and frailty within an integrated system spanning primary, secondary, and social care. The review should prioritise strengthening primary care, supported by remote specialist input. Where appropriate, ICSs could collaborate with neighbouring systems with similar populations.

Recommendation 2: DHSC should conduct a short review on which types of care have critical physical requirements/interdependencies, and which are more flexible. The findings should be used as a template to encourage providers to redesign care pathways from a virtual first approach where appropriate.

Recommendation 3: To support implementation and track progress, ICSs should establish a new peer review programme – backed by the Care Quality Commission – for the development of new multimorbidity and frailty pathways across primary, secondary and social care. It should explicitly be a pathway peer review rather than a peer review of individual clinicians, specialties, or hospitals.

Recommendation 4: As recommended in *Prescription for Prevention: a new model for primary care,* GPs and trusts should be supported in implementing these new pathways by a 'SWAT' change management team employed at the ICS level, who can be deployed across that specific locality to provide change management expertise. This should be supported by appropriate funding from DHSC.

Recommendation 5: To test with different population compositions, a group of ICSs with varied demographics should pilot a three-year Payment by Results model in primary care, backed by additional DHSC funding. General practice should receive Payment by Results income for selected outpatients appointment types, with a new tariff reflecting the complexity of cases requiring significant investigation. This should be supported administratively by NHS trusts, underpinned by a new communication and technology infrastructure, as outlined in Recommendations 7 to 9.

Recommendation 6: Following the three-year PbR trial, a formal evaluation should assess its impact on incentives and activity, its suitability across different specialisms, and whether alternative funding models offer better value. This evaluation should be closely aligned with the clinically led pathway reform work in Recommendations 1 to 3. If successful, it could inform a setting-agnostic PbR model.

Principle 2: Prioritising communication over location

Recommendation 7: An NHS wide clinician-to-clinician communication platform should be nationally procured and deployed across the health and care system, tailored to the specific data protection and cyber security needs of the NHS. DHSC's digital capabilities must be strengthened to oversee its development and ensure long-term sustainability.

Recommendation 8: DHSC should procure an NHS Directory, supported by generative AI for semantic search, situated at a national level as a component of the NHS wide clinician-to-clinician communication platform.

Recommendation 9: ICSs should design financial incentives to encourage secondary care providers to allocate clinician time for specialist input via the clinician-to-clinician platform. These could be 'carrot or stick' depending on what the ICS identifies as appropriate. The financial incentives should be oriented around rewarding efficient, outcome-focused communication rather than volume.

Recommendation 10: A Unified Clinical Record (UCR) – a single national clinical data repository, serving as the backend for all EPRs – should be rolled out. For any EPR to be eligible for use in the NHS, it must use the UCR as its backend and offer an interface that sits on top of the UCR. All health and social care providers in England must use the UCR to store their clinical information, and then procure an eligible EPR for use in conjunction with the UCR.

Recommendation 11: DHSC should set uniform national standards, covering: data codification standards (including coding for diagnostics, results, observations, medications, scheduling information); a common data model; interoperability requirements across EPRs; minimum data quality standards; and security requirements.

Recommendation 12: Legislation requiring adherence to these standards (Recommendation 11) should be implemented for the NHS and EPR providers. There should be a transition period (defined by technical experts) for clinical data to be restructured to meet these uniform national standards.

Recommendation 13: The UCR should be developed and piloted in a group of ICSs during a transition period, refined through iteration, and formally approved. Following this trial, it should be rolled out nationally across all health and care providers.

Recommendation 14: DHSC should introduce mandatory NHS guidance capping EPR contracts at a maximum of five years. Shorter EPR contracts will promote competition, incentivising higher quality, more innovative, and diverse EPR solutions at better value.

Principle 3: Redefining the hospital around remote care

Recommendation 15: At least three ICSs – potentially merged – should pilot a Remote General Hospital supported by seed funding from DHSC. After two years, it should be evaluated for cost-effectiveness, clinical outcomes, and patient experience. If successful, it should be scaled nationally. This Remote General Hospital should cover an appropriate population scale for the ICS population, and could involve the participation of another ICS.

Recommendation 16: DHSC should define a core set of emergency and elective services that every Remote General Hospital must provide, including a virtual A&E for emergency care. The minimum elective services should include clinical specialisms suited to remote delivery, such as dermatology and ophthalmology. In participating areas, these services should be delivered exclusively through the Remote General Hospital, which can then refer patients to a District General Hospital if clinically needed. The elective services/specialisms allocated to the Remote General Hospital should then be expanded as appropriate.

Recommendation 17: The Chief Medical Officer in DHSC/NHS England should work with the Royal Colleges to develop a consensus on training clinical staff to deliver remote secondary care across specialties. This should determine how best to integrate remote consultation skills into existing medical education and provide upskilling.

Recommendation 18: DHSC should commit to a five-year ringfenced funding settlement for virtual wards, distributed to ICSs, alongside a revised national virtual ward bed target. Given

the length of the funding settlement, DHSC should implement an incentive to reach the target within five years. When allocating the funding to trusts, the funding should be contingent on a reward/penalise incentive to protect overall hospital beds numbers from increasing in perpetuity.

Recommendation 19: ICSs should allocate a portion of virtual ward funding to residential care providers and introduce a financial incentive or tariff that pays care homes for each virtual ward patient they support. This will encourage greater participation and integration of residential care into virtual ward delivery.

Recommendation 20: DHSC's long-term funding settlement should include provisions for recruiting change and implementation staff with a specialisation in virtual wards, who can assist with their delivery across the ICS population, learning from different approaches in trusts and residential care. DHSC should also establish a national information repository to document successes and failures in virtual ward implementations across different settings.

Recommendation 21: NHS England/DHSC should develop data standards specifically for remote monitoring. This should include data standards to enable interoperability between devices in remote monitoring systems *and* with Electronic Patient Records. This should include protocols for real-time data exchange.

1. Introduction

As *Re:State* outlined in the framing paper launching the 'Hospital of the Future' series, hospitals are experiencing a fundamental crisis. Costs are growing, performance and productivity has plummeted, and access is declining while patient experience suffers. At the core of these issues lies a shift in clinical demands and escalating financial pressures. The symptoms, diagnosis and long-term prognosis of this crisis all demonstrate the need for a reinvention of the hospital system.

For decades, hospitals have evolved as a result of advancements in medicine, not in response to shifts in demand. This has resulted in an overly specialised and highly expensive hospital system, ill-fitted to an increasingly complicated patient profile.

At the same time, considerable attention is given to how hospitals can adapt to meet demand they should not be receiving in the first place, and little thought is given to the role of the hospital in a prevention focused health system. This perpetuates a post-1945 episodic model of care designed for an infectious disease burden, despite the well-established, and overwhelming, chronic disease burden that now dominates demand.

This is not to undermine the case for specialist care. Hospitals play a crucial role in providing specialist expertise, at scale, quickly – this will always be needed. But it does not need to be, and should not be, provided in the way it is now. The physical hospital building should be reserved for the most complex, risky and acute care, and little else.

In the current model, hospitals provide specialism when complex patients with multiple long-term conditions need expert generalists. The co-location of so many functions and processes in one building leaves hospitals vulnerable to inefficiency and low productivity. Simply being an inpatient often makes patients more unwell. And the physical buildings – hospitals and general practice – tend to operate as islands when they need to be seamlessly working together.

A radical rethink

In short, the configuration of the hospital needs to fundamentally change. The hospital should no longer be considered a physical building but a service that can be accessed anywhere at any time without undermining the quality of care. Patients should be able to receive specialist clinical care in a general practice, be hospital inpatients in the comfort of their own home and receive hospital-level monitoring and observation while going about their daily lives. This would drive meaningful advantages in clinical care, patient experience, productivity and cost efficiency.

Moving care out of the hospital should not be confused with physically moving the specialists or the infrastructure outside of the traditional hospital building. Evidence clearly shows that simply moving secondary care services and staff will neither deliver better care nor a more cost effective model.

Instead, designing the hospital of the future means reimagining the pathway between primary and secondary care, accepting that communication between different parts of the health system is more important than physical location, and that virtual care will be the backbone of the future hospital.

Translating these principles into a programme of reform is not straightforward. Achieving the integration ambition has puzzled policymakers for decades, with attempts often frustrated by the seemingly unshakeable organisational barriers between primary, secondary, and social care.

The entire hospital model is oriented around face-to-face care in a world where this is no longer necessary. As such, the NHS must reimagine the pathways that have defined how care has been delivered for decades, and redesign them based on the demand and modes of care that exist today. Technology infrastructure underpinning the health system needs to be re-evaluated, with a new communication infrastructure between clinicians and unified clinical record. Indeed, this should be taken further with the establishment of a Remote General Hospital.

In order to outline what this model should look like, the paper starts by exploring current and previous attempts to provide secondary care outside of the hospital, and evaluates them based on their clinical effectiveness, cost-effectiveness, and patient and staff experience.

Learning from this evidence, the paper then sets out a new model of hospital care as a service, with analysis on the funding model, technology infrastructure and pathway reform that should underpin it.

2. Separating the service from the building

Even if the hospital model was currently operating at optimum efficiency and effectiveness, which it is not, the long-term trends facing healthcare – changing clinical demand, increasing costs, and the shift to prevention – should force policymakers to reconsider how the physical hospital fundamentally operates. The traditional post-war model of hospitals is no longer suited to dealing with changing demand and economic pressures.

It is true there is indisputable logic behind the hospital estate that will remain irrespective of changing social and economic contexts. As covered in *Hospital of the Future: a framing paper,* it enables substantial economies of scale through high-volume use of specialist capacity, both human and technical. A natural consequence of economies of scale is the co-location of numerous different functions, processes and specialisms in one building, as outlined below in Figure 1.

However, the changing clinical demand on the health system means that increasingly, patients need to access specialist expertise, care, or monitoring, but do not need to, and should not, be physically present in the hospital to do so. Inappropriate and ineffectual hospital usage substantially increases costs on the health system, worsens outcomes for patients, and undermines patient experience.

There are also distinct benefits to divorcing service provision from the physical hospital building that could substantively improve care. It can help to transition the secondary care model away from hyper specialist care, reduce the need for expensive and unpleasant inpatient admission, improve integration with other key service providers and enhance productivity.

Enabling more generalist care

The operating model underlying the physical hospital building – that of specialist, episodic care – clashes with the needs of a patient cohort requiring more generalist, whole person care.

It is difficult to overstate the role of growing multimorbidity and frailty in the future of the NHS. The population is ageing, and more people are living with long-term conditions such as diabetes, chronic obstructive pulmonary disease, or hypertension.

These patient cohorts dominate healthcare use and expenditure. People living with frailty account for 47 per cent of hospital inpatients.[1] Underpinning this, it is estimated that 70 per cent of inpatient bed days are due to long-term conditions.[2]

Episodic care refers to medical treatment provided for a specific, acute health issue or ‘episode’ of illness. It is a treatment approach focused on addressing immediate needs as they occur, with defined start and end points. This model is the inheritance of the post-war infectious disease burden (for example, tuberculosis or diphtheria) which prevailed at the

[1] Doody et al, ‘The Prevalence of Frailty and Pre-Frailty among Geriatric Hospital Inpatients and Its Association with Economic Prosperity and Healthcare Expenditure: A Systematic Review and Meta-Analysis of 467,779 Geriatric Hospital Inpatients’, *Ageing Research Reviews*, 2022.
[2] BMA, ‘NHS Hospital Beds Data Analysis’, Web Page, n.d.

founding of the NHS. However, this is not applicable with chronic long-term conditions or frailty, where the person's symptoms can be treated but the underlying condition persists (for example, diabetes or chronic obstructive pulmonary disease).

That is not to say that episodic care is no longer required – time-limited medical emergencies will always occur – but, the importance of 'whole person' or 'holistic' care is vital given the chronic disease burden.

One of the major benefits of formally moving specialist expertise outside of the hospital building is that it can be delivered in partnership with expert generalists that already exist in the health system, in primary care. Combining specialist hospital expertise with general practitioner knowledge of the patient would deliver significant benefits.

The advantages for the patient and the system in a more blended specialist-generalist model are extensive. It improves the clinical effectiveness of care by understanding the patient as a whole, including their living conditions and access to family and friends, alongside other medical conditions. All the while, reducing costs by generally reducing physical footfall in the hospital and mutually educating specialists and generalists.

Reducing patient risk

Because it is targeted at the acute end of need, secondary care is by design not as preventative as other parts of the health care system. But where it could be more preventative – through the avoidance of re-admission or ensuring a patient's condition does not worsen as a result of hospital care – it is not.

The physical hospital building can lead to further deterioration simply from the impact of being an inpatient. There is a strong body of evidence on people living with frailty that suggests inpatient hospital treatment is not preferential and presents a number of risks. People living with frailty decondition when inpatient, in that they can rapidly lose muscle mass and functional ability when confined to bed for extended periods during hospitalisation. Up to 65 per cent of older patients experience decline in function during hospitalisation.[3]

People living with frailty are also particularly susceptible to developing delirium – a state of acute confusion often triggered by unfamiliar surroundings, disruptions to routine and medications administered in the hospital setting.[4] This both increases the likelihood of these patients needing to stay in hospital longer, or being re-admitted in the future.

Evidence also suggests that hospitals are not guaranteed to improve the condition of inpatients, and are increasingly worsening or adding to their condition rather than improving it. Between 2010-11 and 2016-17, there was a 41.3 per cent rise in emergency readmissions for conditions that are classified as "potentially preventable".[5] These "potentially preventable" readmissions include patients with pneumonia, pressure sores and venous thromboembolism, and were conditions that patients were not diagnosed with when they

[3] *Deconditioning Awareness* (British Geriatrics Society, 2017).
[4] Edward R. Marcantonio, 'Delirium in Hospitalized Older Adults', ed. Caren G. Solomon, *New England Journal of Medicine* 377, no. 15 (12 October 2017): 1456–66, https://doi.org/10.1056/NEJMcp1605501.
[5] Nuffield Trust, 'Emergency Readmissions to Hospital for Potentially Preventable Conditions on the Rise, New Research Shows', June 2018.

were first admitted to hospital. For example, the number of emergency readmissions for pressure sores almost tripled between 2010-11 and 2016-17.[6]

Aside from being unpleasant for the patient, avoidable inpatient care obviously increases costs on the health system. Being an inpatient is one of the most expensive services a health system provides. A standard bed day in a hospital costs £345.[7] By contrast, the unit cost of a district nursing appointment is typically £27.40.[8]

None of this removes the need for inpatient provision where patients are extremely unwell and need specialist care and monitoring, but divorcing inpatient care from the physical hospital building is increasingly common practice.

Technology now provides ways for patients to receive inpatient-level care without being physically present in the hospital, still receiving professional monitoring and close observation, but remotely. This reduces the clinical risk of inpatient care without affecting the quality of care, while reducing costs on the system.

Enabling more and better integration

Integration between the different parts of the health system has been an objective of health policy reform for decades. Achieving it has proven complex, as it involves answering difficult trade-offs about where resource should sit in the system and therefore where funding is directed.

The disadvantages of poor integration in the daily delivery of care are significant. Long-term condition management, for example, is largely managed at a primary and community level. This care may require input from a hospital specialist to avoid an exacerbation of a patient's condition. But this does not often take place, and when not managed effectively, people are more likely to be admitted to hospital, rather than preventing the issue in the first instance. Fragmentation between these services is bad for prevention, unpleasant for patients and costly for the system.

The current hospital or primary care model is not set up to ensure that appropriate specialist expertise can be provided outside of the hospital. There are broadly two different types of specialism that a hospital provides: specialist equipment and infrastructure (e.g. operating theatres, diagnostic equipment) and specialist expertise (e.g. a consultant gastroenterologist). Specialist equipment cannot always be provided outside of the hospital. Specialist expertise can and should be, but it is not.

Moving service provision out of the hospital should mean providing more of it in alternative care settings – such as primary and social care. The integration benefit of this is self-evident. If specialist expertise is provided in conjunction with GPs, communication between different practitioners in the health system would be commonplace. This would allow an exchange of information on how to provide specialist types of clinical care, in turn helping to avoid hospital admission wherever possible, while simultaneously educating clinicians. Fewer hospital admissions in turn reduces cost in the system.

[6] Ibid.
[7] Will Quince MP, 'Hospital Beds: Costs: Answer to Written Question' (HC165361, 14 March 2023).
[8] Joanna Thorn et al., 'Cost-Effectiveness of a Patient-Centred Approach to Managing Multimorbidity in Primary Care: A Pragmatic Cluster Randomised Controlled Trial', *BMJ Open* 10, no. 1 (January 2020). Data derived from two different dates so manually adjusted for inflation.

Boosting productivity and increasing cost efficiency

Expenditure on the acute sector is currently poor value for money. Both performance and productivity has plummeted in recent years. While hospitals had 15.8 per cent more consultants and 24.6 per cent more junior doctors in 2023 compared to 2019, they had 4.3 per cent fewer emergency admissions and 1.3 per cent fewer non-emergency admissions.[9] Activity levels have improved slightly in 2024, with elective activity now slightly higher than in 2019, but not in proportion to the increase in staffing.[10]

The UK also performs poorly in the treatment of certain diseases compared to other comparable countries. In particular, the UK's five-year cancer survival rates for the most common types of cancer are especially concerning.[11]

Serious reform is needed to overcome some of these trends, including more capital investment, more managers, and better technology. But moving service provision outside of the hospital also enables significant productivity and efficiency benefits that are currently underappreciated.

The benefit of introducing more technology-enabled forms of specialist care is that it reduces labour input in the NHS. This means that they can provide the same level of care with less resource, without undermining patient safety. Cambridge University Hospital's virtual ward treats up to 85 patients at a time with a small team, usually made up of one generalist consultant (either an emergency medicine or an internal medicine consultant), one junior doctor and a team of three to eight nurses.[12] For context, one traditional inpatient ward will have one nurse for every eight patients, whereas based on the above data, CUH virtual ward has one nurse for approximately every 17 patients.

Similarly, more remote outpatient formats are shown to increase efficiency. They create faster throughput, enable hospitals to triage cases more effectively, reduce the number of 'Did Not Attends', and enable advance knowledge of complex cases which can streamline face-to-face appointments (see Section 4.1.2). Remote monitoring, particularly for long-term conditions, also displaces the need for 'lower value' appointments – follow-up appointments for unnecessary check-ups where nothing has changed, or needs to change, in treatment.

[9] Max Warner and Ben Zaranko, *Is There Really an NHS Productivity Crisis?* (Institute for Fiscal Studies, 2023).
[10] Royal College of General Practitioners, 'GPs Have Seen a 20% Workload Increase and Appointments Growing in Complexity, Says College Vice Chair', 2023.
[11] Rosie Beacon, Florence Conway, and Alice Semark, *Hospital of the Future: A Framing Paper* (Reform think tank, 2024).
[12] Information kindly shared by the Cambridge University Hospitals NHS Foundation Trust's Virtual Ward team

3. The current model

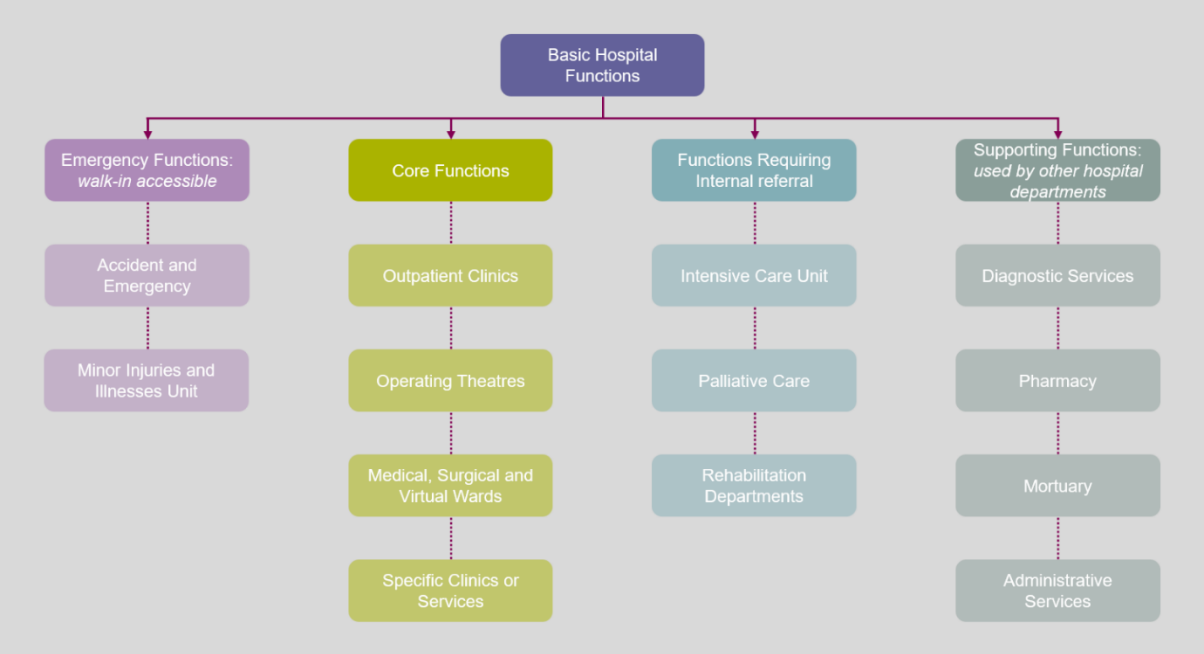
The logic and necessity of the physical hospital building is irrefutable. However, evidence and experience indicates there are increasingly ways to achieve economies of scale with specialist capacity without needing to be physically present in the hospital estate – today, this potential remains untapped.

Virtual wards are variably designed and so have variable outcomes. Community specialist care is narrowly thought to involve the relocation of hospital infrastructure and staff 'in to the community', a resource intensive, costly endeavour. Rather, rethinking funding incentives and pathways, in turn breaking down the barriers between primary and secondary care, would prove far more fruitful. Telemedicine and remote monitoring in secondary care remains the exception rather than the rule, despite its clear advantages for patients, staff and the system.

This suboptimal implementation of specialist care outside of the hospital estate has meant many attempts have not delivered either cost efficiencies or improvements in clinical outcomes in comparison to a traditional hospital setting. There are, however, clear examples of excellence that should be used a as a template for the hospital of the future.

This Chapter analyses the clinical effectiveness, efficiency, patient experience and staff experience of the current innovations in home and community secondary care. It then draws lessons from these innovations and outlines how to construct a new model of secondary care as a service.

Figure 1: Basic hospital functions



3.1 The limitations of a simplistic ‘shift to community care’

The term ‘community’ is pervasive in health policy, and means many different things to many people. In the context of *secondary* care specifically, it refers to the relocation of specialist equipment and staff, in turn moving care into locations outside of the physical hospital estate, for example in repurposed retail outlets or general practice.

However, the evidence suggests that for patients needing varying degrees of specialist investigation, relocating specialist care into the community is not necessarily more clinically effective or cost efficient than attending the hospital estate. There are two key examples of this highlighted below: the colocation of primary and secondary care and community diagnostic centres (CDCs).

The failure to realise assumed benefits happens due to three reasons. First, providing care outside of the hospital has substantial workforce implications. This requires either splitting the hospital workforce between multiple smaller locations, in turn diluting the staff in the hospital and potentially undermining the efficiency of the hospital services, and/or significantly increasing the workforce in order to provide multiple services in multiple locations simultaneously.

Workforce is by far the most significant cost in the NHS, in 2022-23, it accounted for 45.6 per cent of the NHS budget.[13] The diagnostic workforce already faces significant shortfalls, creating fierce competition among providers to recruit staff.[14] Attempting to increase the size of this workforce will exacerbate these issues.

Second, and relatedly, more disparate physical locations for hospitals can undermine economies of scale in specialist infrastructure. As outlined previously, one of the primary motivations for the hospital building is the economies of scale in expensive, specialist equipment. If demand is reduced, the unit cost of every diagnostic test executed in a hospital could increase to account for the cost of maintaining the equipment and staff required to run it.

Or third, economies of scale could still be achieved but instead this is achieved by an overall increase in secondary care utilisation. Generally in health care services, additional capacity creates supply induced demand (when creating more service capacity stimulates additional use of services that would not have otherwise occurred), and the degree of unmet demand in the health system often means additional services are quickly consumed.

Meeting this unmet demand could still be considered a positive outcome for patients. Nonetheless, it is questionable whether increasing overall secondary care utilisation is the best use of limited financial resource in the NHS.

Given the already high cost of hospitals relative to the rest of the system, and the need to shift limited financial resources out of secondary care, evidence suggests that moving specialist care into the community for the sake of ‘being closer’ would not be the preferred direction for the future hospital. There are more efficient and effective ways to move care out of hospital that do not require relocating infrastructure or staff.

[13] *Key Facts and Figures about the NHS* (King’s Fund, 2024).
[14] *CDCs Unveiled: Challenges and Triumphs* (All Party Parliamentary Group for Diagnostics, 2024).

3.1.1 Co-location of primary and secondary care

Generally evidence indicates that specialist outreach clinics in primary care may improve some access to care and patient experience, but they may also be inefficient. While clinics in the community tend to be popular with patients, and have the potential to reduce waiting times, they do not appear to reduce demand or cost – although very few studies on these arrangements exist.

Indeed the main purpose of more closely embedding secondary care clinicians 'in the community' – that is, in primary care – is ambiguous, and many of the inefficiencies outlined above in the dilution of specialist workforce would apply here.

Context

The physical co-location of primary and secondary care has been experimented with sporadically over the years. Some trusts have experimented with hosting clinics in a general practice, but it remains novel.

Four main models of secondary care specialists working with primary care doctors have been identified:[15]

- The 'shifted outpatients' model, where outreach provides similar consultations, investigations and procedures to those provided in hospital clinics
- The 'replacement' model, where specialists replace the general practitioner as the doctor of first contact
- The 'consultation' model, where the relationship between specialist and primary care is enhanced but most patient care is mediated through primary care
- The 'liaison attachment' model, where the specialist is part of a team of visiting services

In the 1990s, when general practice fundholding in the UK enabled the 'shifted outpatients' model, it was more common for GPs to 'purchase' visiting specialist services from hospital trusts.[16] However since this is not now a widespread practice, robust evidence on outreach clinics in primary care is not widely available, with the last comprehensive study of costings and effectiveness conducted in 2001.[17]

Assessing impact

Clinical effectiveness

Measuring the clinical effectiveness of primary and secondary care co-location depends on the type of model adopted and for what purpose. If the motivation is to better manage patients that are complex, multimorbid or living with frailty, then the clinical effectiveness could be measured by avoidable admissions. If the objective is to meet elective demand in a location closer to the home, then it could be measured through productivity.

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[15] Russell L Gruen et al., 'Specialist Outreach Clinics in Primary Care and Rural Hospital Settings.', ed. Cochrane Effective Practice and Organisation of Care Group, *Cochrane Database of Systematic Reviews* 2010, no. 1 (20 October 2003), https://doi.org/10.1002/14651858.CD003798.pub2.
[16] Ibid.
[17] A. Bowling and M. Bond, 'A National Evaluation of Specialists' Clinics in Primary Care Settings', *The British Journal of General Practice: The Journal of the Royal College of General Practitioners* 51, no. 465 (April 2001): 264–69.

As outlined previously, since this is not a well-established model, this data is not available. There has been little analysis of the quality of care compared with hospital clinics nor of the implications for equity of access, but the studies that do exist have not shown any consistent difference in health outcomes between outreach and hospital-based clinics.[18]

There are wider benefits which may improve clinical outcomes in the long-term. A systematic review of the studies evaluating attempts to do this concluded that it did lead to improved communication between GPs and hospitals.[19] In a study of 19 outreach clinics in 2000, over half of the GPs reported that they had broadened their skills as a result of the outreach clinic.[20] However, it is unclear if this is the most effective way to improve communication and upskilling between general practitioners and hospitals.

Overall, it is not obvious that clinical effectiveness is improved through co-location. The health benefits of outreach can be small and the costs considerably higher if not designed properly.

Efficiency and cost-effectiveness

While the evidence is scant, it does consistently demonstrate that while well planned outreach clinics could improve communication between GPs and specialists and improve patient experience, this is at greater cost and with less efficient use of specialists' time.[21]

This is for a number of reasons. Specialists tend to see fewer patients in community settings as they are not supported by junior staff. Secondly, a significant proportion of patients seen in a community clinic subsequently need to be seen in a hospital setting. Thirdly, in most cases, community-based clinics are provided as an addition rather than an alternative to outpatient clinics.[22]

The 2001 evaluation of specialist outreach clinics in general practice found that the mean total NHS treatment costs per patient were significantly higher than in outpatients. The mean medical and nursing staffing costs were also significantly higher in outreach, this may partially be down to staff travel times and costs.[23] That said, it is possible that the financial viability of outreach clinics increases over time if closer collaboration leads to clinical skill exchanges and enhanced patient management in the long-term.

It is also worth noting that only 9 per cent of GP appointments resulted in a referral to secondary care in 2023.[24] If 91 per cent of appointments do not need specialist expertise, shifting secondary care clinicians could be a poor use of specialist resource. Specialists cover a much larger population than a GP, and interviewees for this paper emphasised that allocating one day to one general practice may not provide enough appointments to fill the day. With that said, it may be that more of those appointments should have been referred,

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[18] John Powell, 'Systematic Review of Outreach Clinics in Primary Care in the UK', *Journal of Health Services Research & Policy* 7, no. 3 (1 July 2002): 177–83, https://doi.org/10.1258/135581902760082490.
[19] Ibid.
[20] M. Bond, 'Evaluation of Outreach Clinics Held by Specialists in General Practice in England', *Journal of Epidemiology & Community Health* 54, no. 2 (1 February 2000): 149–56, https://doi.org/10.1136/jech.54.2.149.
[21] Powell, 'Systematic Review of Outreach Clinics in Primary Care in the UK'.
[22] Candace Imison et al., *Shifting the Balance of Care: Great Expectations* (Nuffield Trust, 2017).
[23] Bond, 'Evaluation of Outreach Clinics Held by Specialists in General Practice in England'.
[24] Stuart Hoddinott and Nick Davies, *Performance Tracker 2023: General Practice* (Institute for Government, 2023).

and delays to care due to misdiagnosis could be avoided through better cross-working between GPs and hospitals.

Experience

Patient satisfaction was notably higher for outreach clinics than it is for outpatients clinics.[25] This difference was greatest in relation to the convenience of the location of the clinic, the waiting area in the clinic and the length of the wait at the clinic. The costs for patients to attend an outpatients hospital clinic is also significantly higher. This is largely owing to greater travel costs.[26]

3.1.2 Community Diagnostics Centres

The idea of ringfenced locations to focus solely on diagnostic tests – considering these tests constitute a large part of the elective backlog – was sensible. However, CDCs have been known to create supply induced demand, they are often staffed from the core hospital in turn diluting capacity in both settings, and can be significantly more expensive to run with little added clinical effectiveness.

Evidence does suggest they are more effective for areas of high health inequality and poor health access, and that when targeted well, they can be of more value. But they may not be suitable as a universal policy intervention.

Context

Community diagnostic centres (CDCs) solely exist to provide diagnostics: imaging (CT scans, MRI, Ultrasound, X ray), pathology (blood testing), among a wide range of other tests.[27]

They were first launched in 2021 in a range of settings including hospitals, football stadiums and repurposed retail outlets. As of August 2024, 165 sites are operational.[28] A CDC must be located away from other acute hospital services on a separate site. They are run by a host trust often using trust employees, but this depends on the location, as they can also be funded directly by the ICS.

Diagnostic services overall currently account for over 85 percent of clinical pathways within the NHS and cost over £6 billion per year.[29] Generally the elective waiting list is measured by the 'Referral to Treatment' target (RTT), of which diagnostic waiting times are a key part. Therefore, ensuring patients receive their diagnostic test within 6 weeks is vital to ensuring the delivery of the 18-week standard.

As of September 2024, these sites (originally introduced in 2021) had provided 9 million tests, checks and scans.[30] However this is relatively small when put in context: the total number of diagnostic tests provided overall in one year (2023-24) was 25.9 million.[31] Indeed,

[25] Powell, 'Systematic Review of Outreach Clinics in Primary Care in the UK'.
[26] Ibid.
[27] NHS England, 'Community Diagnostic Centres', September 2024.
[28] Ibid.
[29] *Community Diagnostic Centres: Guidance for Planning, Design and Implementation* (NHS England, 2022).
[30] NHS England, 'Community Diagnostic Centres'.
[31] '6 Million Vital Checks Carried out at Local Diagnostic Centres', *GOV.UK*, n.d., 2 January 2024 edition.

analysis from the All Party Parliamentary Group for Diagnostics found that the pace of activity has been slower than anticipated, with only 6.5 per cent of total diagnostic activity taking place in CDCs in September 2023.[32]

Assessing impact

Clinical effectiveness

To improve clinical effectiveness, referral to diagnosis or referral to treatment needs to be faster and more efficient than it would be *without* CDCs. While CDCs generally increase the volume of diagnostic procedures, this does not necessarily equal faster outcomes for patients. And of course their ability to improve overall clinical outcomes is limited by the fact that time to treatment relies on other parts of the system beyond CDCs.

Overall, the evidence is mixed. CDCs are not yet fully matured as a model so determining their clinical effectiveness is difficult. Nonetheless, some instructive evidence can be drawn from their rollout in other countries and individual case studies. Some international evidence suggests that diagnostic centres can reduce various waiting times, including time to surgical consultation and time from consultation to treatment.[33] They could also positively impact health inequalities as the volume of diagnostic procedures associated with the introduction of CDCs is slightly larger for those hosted in deprived areas.[34]

However, the evidence is mixed for other wait time outcomes including the time to first visit, time to diagnostic examination and time to diagnosis.[35] Evidence also suggests their ability to reduce waiting times is sometimes countered by supply induced demand.[36] As the supply of diagnostic tests increases, waiting times should fall if demand remains constant. CDCs appear to have been opened in trusts with higher waiting times but there is currently no evidence that this has led to a fall in waiting times after opening the CDC.[37]

It is, though, also possible that the effect of CDCs on waiting times is gradual, and it is too early to see in the data. This supply induced demand could also be the case for any increase in diagnostic capacity, whether in a CDC or in a hospital. And as previously noted, meeting unmet demand could still be considered an overall positive contribution.

Efficiency and cost-effectiveness

Identifying cost-effectiveness in a relatively less mature innovation is difficult. In terms of direct running costs, interviewees for this paper suggested that CDCs can in fact be significantly more expensive than running the same diagnostic procedures in the hospital setting: again, economies of scale in a hospital allows for more efficient use of staff and specialist resource.

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[32] *CDCs Unveiled: Challenges and Triumphs*.
[33] Alesha Wale et al., 'The Effectiveness and Cost-Effectiveness of Community Diagnostic Centres: A Rapid Review', *International Journal of Public Health* 69 (23 January 2024): 1606243, https://doi.org/10.3389/ijph.2024.1606243.
[34] Peter Sivey and Jinglin Wen, 'The Effect of Community Diagnostic Centres on Volume and Waiting Time for Diagnostic Procedures in the UK', *Health Policy* 147 (September 2024): 105101, https://doi.org/10.1016/j.healthpol.2024.105101.
[35] Wale et al., 'The Effectiveness and Cost-Effectiveness of Community Diagnostic Centres'.
[36] Sivey and Wen, 'The Effect of Community Diagnostic Centres on Volume and Waiting Time for Diagnostic Procedures in the UK'.
[37] Ibid.

Setting up diagnostic centres in community-based sites is also expensive; not only are upfront costs high, but there are risks associated with private landlords charging more, alongside the cost of relocating equipment.[38]

In terms of system wide efficiency, in theory, with equipment usage focused solely on elective tests and not disrupted by emergency diagnostics, scheduling should be more reliable. This should also be taking away demand from hospitals.

Again, the reality is less positive. The Royal College of Radiologists found that 89 per cent of CDCs are staffed with existing trust employees and so rotating staff between the CDC and acute sites might be diluting capacity in both settings.[39] As a result, specialists from diverse diagnostic fields report that CDCs have introduced a notable increase in workload.[40] It is unclear whether this is because by increasing diagnostic capacity – irrespective of location – workload increases, or whether this is exacerbated by the CDC not being on the hospital estate.

In October 2020, Sir Mike Richards recommended that community diagnostic hubs should be developed to separate inpatient and outpatient pathways.[41] However, while CDCs do this, it comes with its own complexity.

Specialists such as pathologists and radiologists, who interpret cell, tissue, blood, bodily fluid samples and images respectively to diagnose disease, depend on smooth digital integration between CDCs and other healthcare sites, as they are typically situated in acute hospitals or laboratories. An investigation by the King's Fund found that sharing data, including diagnostic images and pathology records, between sites is often difficult, meaning that diagnostic tests are often repeated to obtain the result in a timely way or when the patient moves between CDC and acute hospital settings.[42] This is actively building in duplication and therefore inefficiency.

Experience

Patients are overwhelmingly positive on CDCs. Almost everyone Healthwatch spoke to – 93 per cent – reported good experiences at CDCs.[43] They are more convenient: 70 per cent of the people arrived in less than 30 minutes and 26 per cent in less than an hour. However while increasing patient choice is supposed to be a design feature, most people were not offered a choice of location or time for their appointments.[44] Interviewees for this paper suggested that it is likely patient experience is better in part because CDCs are considerably less busy than a hospital.

Staff experience is less positive. Interviewees highlighted that diagnostic staff are less incentivised to work in CDCs because the work is repetitive and unexciting. As outlined above, CDCs have also led to a notable increase in workload.

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[38] *CDCs Unveiled: Challenges and Triumphs*. Ibid.
[39] *Two Years on, How Are Community Diagnostic Centres Doing?* (King's Fund, 2023).
[40] *CDCs Unveiled: Challenges and Triumphs*. Ibid.
[41] Professor Sir Mike Richards CBE, 'Diagnostics: Recovery and Renewal, Report of the Indpendent Review of Diagnostic Services for NHS England', Independent Review of Diagnostics Services for NHS England, October 2020.
[42] *CDCs Unveiled: Challenges and Triumphs*.
[43] *A Local Diagnosis: Learning the Lessons of Community Diagnostic Centres* (Healthwatch, 2024). Ibid.
[44] *A Local Diagnosis: Learning the Lessons of Community Diagnostic Centres*.

3.2 The benefits of shifting care, not clinicians, into the community

Instead of physically relocating infrastructure and staff, interviews and research conducted for this paper indicates that the 'hospital as a service' is more likely to be achieved through digitally-enabled remote forms of care.

This is for three core reasons. First, remote secondary care reduces labour input while simultaneously increasing supply of services. Virtual wards, for example, require less staff to observe more patients in comparison to an inpatient ward. Remote monitoring enables complex patients to be monitored with almost no human intervention unless the observations indicate a problem. In addition to removing human observation, continuous monitoring can also be more preventative in that remote monitoring can act as an early warning system.

Relatedly, by treating patients outside of the physical hospital building through remote channels, it opens up physical capacity within the hospital to use for procedures or activity that can only be done within the hospital. For example, additional inpatient bed capacity, freed up by treating patients in virtual wards, enables that space to be redeployed for elective procedures. This helps to shape the physical hospital into a space that only looks after the most complex and high-risk patients.

Lastly, unlike community delivered secondary care, there is evidence to suggest that remote secondary care increases throughput without necessarily creating supply induced demand or higher costs.

While this reasoning is largely efficiency based – which is crucial given the disproportionate expense of physical hospital buildings – there is also strong evidence to suggest these innovations improve the patient experience. This ranges from less disruption from not having to attend the hospital, to high patient satisfaction with virtual wards. What's more, evidence indicates these innovations improve on or match the clinical effectiveness of care delivered in the physical hospital.

The current system is not characterised by consistent, wide-spread digitally-enabled remote forms of care. Instead, numerous innovative, effective and efficient digital programmes are seen at a local level, that are not scaled.

3.2.1 Virtual wards

Where done well, virtual wards require less resource to provide a high level of care to patients, equivalent in quality to inpatient hospital care.

However, this potential remains untapped. Virtual wards have been implemented with high variability between localities which means their outcomes have also varied. Nevertheless, where they have worked well, evidence indicates that they could be the backbone of the future hospital. They save money on ward capacity and actively increase income by enabling other types of clinical care within the physical hospital, while still providing high-quality clinical care and preventing readmission.

Context

The terms 'virtual ward' and 'Hospital at Home' both refer to hospital-level care, provided in a home setting, which is a substitute for acute inpatient hospital care. The NHS does not

distinguish between virtual wards and Hospital at Home models, with a preference for the term ‘virtual ward’.[45]

The main distinction is that Hospital at Home incorporates face-to-face care for patients in their home, usually daily.[46] Virtual ward is a broader term, referring to any hospital-level care provided to patients in their home, which can rely on remote monitoring, phone/video appointments and/or similar remote care, not requiring face-to-face care.

Given these terms are treated as synonymous by the NHS and virtual ward is the preferred NHS term, the subsequent analysis of the current implementation of such care uses the term virtual ward.

In April 2022, the national virtual ward programme was launched, with £450 million made available to introduce virtual wards nationally over the following two years.[47] By August 2022, virtual wards were available in every ICS.[48] The NHS set an aim of 40-50 virtual ward beds per 100,000 people in England by the end of 2023.[49] However, only about half this target was achieved in the timeframe.[50] Virtual ward bed capacity actually dipped in April 2024, meaning by the end of 2024 this capacity was lower than at the end of 2023, at 20.1 per 100,000 (November 2024).[51]

Virtual wards can provide:

- Step-up care or admission avoidance – for patients who become acutely unwell, helping them avoid hospital admission; or
- Step-down care or early discharge – for patients who are not yet ready to be discharged from secondary care, enabling them to leave the hospital setting sooner than they otherwise could.

The exact model of each virtual ward in England varies hugely, even within ICSs.[52] The justification of this variety is that the freedom to choose a model enables workforce constraints, existing initiatives and local population health needs to be accounted for.[53] In practice, such variation, including deviation from NHS guidelines, means inconsistent outcomes and a lack of understanding of what ‘best practice’ is.

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[45] NHS England, ‘What Is a Virtual Ward?’, Web Page, n.d., accessed 21 February 2025; National Institute for Health and Care Excellence, ‘Supporting the Health and Care System to Implement Virtual Wards’, Web Page, n.d., accessed 21 February 2025.
[46] World Hospital at Home Community, ‘What Is Hospital at Home?’, Web Page, 2023; Hospital At Home, ‘What Is Hospital at Home?’, Web Page, 2023.
[47] Paul Chappell et al., *What Do Virtual Wards Look like in England?* (The Health Foundation, Improvement Analytics Unit, 2024). Ibid.
[48] NHS England, ‘Virtual Wards Operational Framework’, Web Page, 27 August 2024. Ibid.
[49] UK Authority, ‘NHS England Sets Target for Virtual Wards in Integrated Care Systems’, Web Page, 10 May 2022.
[50] NHS England, ‘Virtual Ward (Monthly Virtual Ward Data)’, Web Page, n.d., accessed 21 February 2025. Ibid.
[51] NHS England, ‘Virtual Ward (Monthly Virtual Ward Data)’.
[52] NHS England: Transformation Directorate, ‘A Guide to Setting up Technology-Enabled Virtual Wards’, Web Page, 21 December 2021. Ibid.
[53] NHS England: Transformation Directorate, ‘A Guide to Setting up Technology-Enabled Virtual Wards’.

Many virtual wards are for specific conditions, primarily for acute respiratory illness, frailty and heart failure – which NHS guidance encourages.[54] However, it is unclear if there are medical or operational justifications for a condition-specific virtual ward model.

Other virtual wards implement a 'whole hospital' approach, meaning they treat patients across specialities and conditions in their virtual ward. There will still be eligibility criteria, typically based on the level of intervention a patient requires and their likely future improvement/decline. Another type of virtual ward is organised by patient group, for example providing treatment to children or to people over a certain age.

The NHS operational framework for virtual wards includes that all virtual wards should be 'technology-enabled', for example using remote monitoring, remote communication and digital patient management software.[55] However, despite this NHS specification, in December 2023, only 59 per cent of virtual wards reported being technology-enabled and it was estimated under one third of virtual ward patients actually received technology-enabled care.[56]

Assessing impact

The anticipated benefits of virtual wards include: improved clinical outcomes, avoiding some of the risks associated with a hospital stay, improved patient and staff experience, supporting patient choice and personalised care, freeing up hospital bed capacity, increased effectiveness of the workforce, and improvements in hospital patient flow.[57]

However, the empirical evidence for these claims is currently mixed. Firstly, virtual ward care is still in its infancy, having been first used in England during the pandemic (though pioneered in American in the late 90s). Secondly, the huge variety of virtual ward models operating in England makes analysis difficult. There are nevertheless some general trends that can be drawn from the evidence which indicate these are a positive innovation.

Patient profile

In practice, likely due to NHS guidance for condition-specific virtual wards, frailty and acute respiratory infections are the most common conditions of patients in virtual wards, with around half of virtual wards treating such patients.[58]

Virtual wards are often preferable to inpatient hospital care for patients living with frailty or elderly patients because these patients are at a much higher risk of experiencing harm due to being in a hospital environment (as detailed above).[59]

For those with acute respiratory infections or COPD exacerbations, who are relatively stable or improving, care management is quite straightforward, with predictable trajectories for the

[54] NHS England, 'Guidance Note: Virtual Ward Care for People with Acute Respiratory Infection Including Chronic Obstructive Pulmonary Disease', Web Page, 8 November 2023; NHS England, 'Guidance Note: Frailty Virtual Ward (Hospital at Home for Those Living with Frailty)', Web Page, 22 December 2021; NHS England, 'Guidance Note: Virtual Ward Care for People with Heart Failure', Web Page, 27 October 2023; NHS England, 'Virtual Wards Operational Framework'.
[55] NHS England, 'Virtual Wards Operational Framework'.
[56] Ibid.
[57] Ibid.
[58] Chappell et al., *What Do Virtual Wards Look like in England?*
[59] Dr. Warren Wong, 'Hospital at Home - A Conversation with Dr. Bruce Leff', Web Page, 5 November 2024.

patient's condition and deterioration easy to detect. These patients consistently make up one of the largest proportion of emergency hospital admissions, hence being able to treat them in a more efficient way in virtual wards, while maintaining clinical effectiveness and safety, is very beneficial.[60]

Virtual ward care may also be preferable for patients with multiple long term conditions. Interviewees noted that these patients often prefer not to be treated as 'ill', as management of their medical issues is their 'normal', and this is easier to achieve in a home setting. Interviewees also explained multimorbid patients are often more in-tune with their health and its decline than the typical population, enabling them to effectively alert clinicians if their treatment needs to be escalated.

That said, non-clinical aspects of a patient's situation must also be taken into account when deciding their suitability for virtual ward care. This may include a patient's living situation, support system (formal and personal) and level of digital literacy, among other things.

Clinical Effectiveness

Clinical effectiveness for virtual wards would mean patients receive at least the same standard of clinical outcomes as traditional inpatient hospital care. This would include professional monitoring and observation – and where this is not the case, the model of care is not meeting the requirements of a virtual ward.

Evidence from the British Geriatrics Society and the Royal College of Physicians finds that definitional ambiguity means the evidence in relation to virtual wards is in general misleading, and the evidence indicates only Hospital at Home models – which include more face-to-face care than virtual ward models require – are clinically effective.[61] Indeed, people living with frailty treated in virtual wards – which tend to be virtual wards which could also be described as Hospital at Home[62] – are five times less likely to acquire an infection and eight times less likely to experience functional decline if treated in a virtual ward compared to if treated in a hospital.[63]

On the other hand, there is evidence indicating some virtual wards which don't meet the classification of Hospital at Home are highly clinically effective. The Cambridge University Hospitals NHS Foundation Trust (CUH) virtual ward programme, run by Addenbrooke's Hospital, provides a whole hospital virtual ward model – meaning their virtual ward patients are from all specialties – and would not be considered Hospital at Home, because most patients do not receive face-to-face care each day. CUH reports a 6-10 per cent readmission rate for virtual ward patients within 30-days, compared to a 12 per cent readmission rate for Addenbrooke's inpatients.[64]

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[60] NHS England, 'A&E Attendances and Emergency Admissions 2024-25', Web Page, 2025.
[61] British Geriatrics Society, 'Joint Statement: "Hospital at Home" Not "Virtual Wards"', Web Page, 27 August 2024.
[62] NHS England et al., 'Making the Most of Virtual Wards, Including Hospital at Home: Practical Guidance for Clinicians to Maximise Use of Virtual Wards for the Benefit of Patients', Web Page, January 2025; NHS England, 'Guidance Note: Frailty Virtual Ward (Hospital at Home for Those Living with Frailty)'.
[63] NHS England et al., 'Making the Most of Virtual Wards, Including Hospital at Home: Practical Guidance for Clinicians to Maximise Use of Virtual Wards for the Benefit of Patients'.
[64] Information kindly shared by the Cambridge University Hospitals NHS Foundation Trust's Virtual Ward team

Other 'virtual wards' amount to little more than remote monitoring in a patient's home, which could not be considered equivalent to hospital-level care and does not meet the requirements of what a virtual ward is.[65]

The huge variation in the models of virtual wards operating in England, and in the patient groups they treat, directly impacts clinical outcomes. Where virtual wards are designed and implemented well, they can clearly be extremely effective.

Efficiency and cost-effectiveness

Some virtual wards operate very efficiently, across cost-effectiveness, workforce requirements and other resource allocation.

For example, CUH's virtual ward treats up to 85 patients at a time with a small team, usually made up of one generalist consultant (either an emergency medicine or an internal medicine consultant), one junior doctor and a team of 3-8 nurses. This team is based in one office and make use of one consultation room in Addenbrooke's Hospital for patients to have diagnostics, treatments or appointments. The average cost of one virtual ward 'bed day' for a patient is ~£90, compared to ~£300 for one inpatient ward bed day in Addenbrooke's Hospital. [66] In terms of workforce allocation, estate usage, freeing up hospital bed space and cost, this virtual ward is highly efficient.

Interviewees for this paper also highlighted that additional inpatient bed capacity, freed up by treating patients in virtual wards, enables that space to be redeployed, potentially for elective procedures. In addition to improving the operational productivity of the hospital, elective care is a large income generator for hospitals. The freeing up of one inpatient bed could allow an elective procedure, generating thousands of pounds, to be completed. This significantly increases the net contribution of virtual wards.

However, there is also research indicating that some virtual wards are not cost effective compared to inpatient care in a hospital.[67] Such cost ineffectiveness could be the result of a wide range of factors. For example, the contract to procure remote monitoring technologies for a virtual ward could fail to deliver good value for money. Or, commonly, uncertain and short-term funding allocations may prevent a virtual ward programme arranging contracted staff. This can necessitate instead relying on (expensive) locum clinical staff.

Evidence is also poor on whether virtual wards have indeed eased capacity pressures on hospitals, or if virtual wards are treating patients who otherwise would have been treated as an outpatient or in primary care. [68] If that is the case, then virtual ward care would almost certainly be more resource intensive, and therefore costly.

Experience

[65] Hospital Times, 'Virtual Wards Are Failing Patients and Clinicians: We Must Bridge the Gaps before Winter', Web Page, 12 September 2022.
[66] Information kindly shared by the Cambridge University Hospitals NHS Foundation Trust's Virtual Ward team
[67] Abdollah Jalilian et al., 'Length of Stay and Economic Sustainability of Virtual Ward Care in a Medium-Sized Hospital of the UK: A Retrospective Longitudinal Study', *BMJ Open* 14, no. 1 (January 2024): e081378, https://doi.org/10.1136/bmjopen-2023-081378.
[68] Chappell et al., *What Do Virtual Wards Look like in England?*

The experience of virtual ward patients is consistently positive, reflected in high patient satisfaction scores.[69] This was true of the original covid virtual wards. For example, of the 70 per cent of covid virtual ward patients who answered the patient satisfaction survey in Leicester, Leicestershire and Rutland, 100 per cent answered they were 'very satisfied' with the quality of care.[70] Of CUH virtual ward's patients, only 4 per cent recorded their patient experience as 'dissatisfied', with 74 per cent reporting 'highly satisfied'.[71]

Similarly, early evidence indicates virtual wards improve staff experience and retention.[72] Interviewees for this paper described staff enjoying the office atmosphere and collaborative culture. Virtual ward work is also often less physically demanding and less stressful than working in hospitals. Further, many staff enjoy the variety offered to them by sometimes working on a virtual ward and sometimes in a physical hospital. Lastly, virtual wards can facilitate more flexible working than is possible in hospitals.

Despite these benefits, there are often challenges staffing virtual wards. This is primarily the result of chronic staff shortages, especially of nurses and generalist hospital consultants. The current funding model, with typically uncertain funding for virtual ward programmes, further adds to the challenge of staffing virtual wards by forcing them to they rely on locum staff.

3.2.2 Virtual consultations

Virtual consultations are remote appointments between a healthcare professional and patient, which previously would have happened face-to-face. These consultations are typically for patients receiving elective or outpatient care.

They are an increasingly 'typical' form of appointment, with 19 per cent of first appointments before a main procedure and 25 per cent of subsequent appointments regarding a main procedure occurring virtually in 2023-24.[73] Additionally, the Government have committed to scaling up the provision of virtual outpatient consultations and want this to be an available appointment mode for all patients.[74]

Assessing impact

Patient profile

Virtual consultations can be used for any patient profile and specialty, provided the patient is sufficiently digitally literate. The main differentiator is the purpose of the appointment – whether a diagnosis needs to be made, tests need to be done, or whether it is a follow up appointment.

Virtual appointments are primarily beneficial due to their increased convenience. They are also especially useful for patients more at risk of contracting infections from visiting a hospital setting, such as patients living with frailty, multimorbid patients, or patients who

[69] Liam Sheasby, 'Impact of Virtual Wards', Web Page, Access, 12 September 2024.
[70] Ibid.
[71] Information kindly shared by the Cambridge University Hospitals NHS Foundation Trust's Virtual Ward team
[72] NHS England, 'Virtual Wards Operational Framework'.
[73] NHS England, 'Hospital Outpatient Activity 2023-24: National Statistics, Accredited Official Statistics', Web Page, 26 September 2024.
[74] NHS England, 'Reforming Elective Care for Patients', Web Page, 9 January 2025.

struggle to travel longer distances, such as patients in rural areas or those on lower incomes.

Clinical effectiveness

Determining the clinical effectiveness of remote consultations for outpatient care will vary depending on the specialty. Different types of outpatient care require different types of evaluation. For example, paediatric outpatient care necessitates evaluation of children in many different stages of physical and cognitive development and usually requires the presence of a parent or guardian.[75] Whereas dermatology is heavily image based and a consultation could be executed based on image alone, indeed teledermatology is expected to be a large feature of dermatology going forward.[76]

Nevertheless, a majority of the 'Get It Right First Time' reports recommended a shift to virtual outpatients where appropriate which suggests the impact on clinical effectiveness – if negative – is negligible and outweighed by the potential efficiency benefits.[77]

The question of clinical effectiveness specifically in outpatient clinics is highly contingent on the efficiency of the virtual consultation model, and whether access to an outpatients clinic substantively improves referral to treatment or referral to diagnosis time. Assuming that the enhanced productivity benefits of remote appointments improve throughput, it is fair to assume when planned well they could actually enhance clinical effectiveness. There is also little evidence that the virtual modality presents substantial clinical risk.

Efficiency and cost-effectiveness

Efficiency of remote outpatients appointments, depending on workforce planning and scheduling, is generally high.

Evidence and experience from implementing remote outpatient consultations suggest significant benefit for the system. Research on the North West Coast for example, found that clinicians reported a more flexible work base, less travel between clinical sites, improved recruitment due to greater geographical reach and encouraged wider digital working with multidisciplinary teams.[78] The report also found remote outpatient appointments can enable better triage, reduce 'Did Not Attends' and create faster throughput. Advance knowledge of complex cases can also help streamline face-to-face appointments.

Analysis done by the NHS Strategy Unit in 2018 – before the pandemic and acceleration of remote appointments – found significant economic value in remote outpatient appointments.[79] For example, in the West Midlands' economy, if 10 per cent of outpatient follow-up appointments across all specialties were shifted to virtual provision, it would produce £5.34 million GVA annually. In terms of parallel benefit to the NHS, the analysis

[75] Eve Akintomide et al., 'Clinical Perception of Effectiveness of Virtual Appointments and Comparison with Appointment Outcomes at a Specialist Children's Hospital', *Future Healthcare Journal* 8, no. 3 (November 2021): e660–65, https://doi.org/10.7861/fhj.2021-0044.
[76] Professor Nick Levell MD FRCP MBA, 'Dermatology: GIRFT Programme National Specialty Report' (GIRFT, August 2021).
[77] NHS England, 'Getting It Right First Time (GIRFT)', Web Page, n.d., accessed 25 February 2025.
[78] 'Outpatient Remote Consultation: An Appreciative Enquiry' (NHS, Innovation Agency, 2021). Ibid.
[79] 'The Potential Economic Impact of Virtual Outpatient Appointments in the West Midlands: A Scoping Study' (The Strategy Unit., 2018).

suggests that a 2.5 minute saving per appointment could free up an additional 5,200 hours of appointments (where 10 per cent of all specialties move to virtual).[80]

Efficiency evidence of remote appointments can also be drawn from other parts of the health system. Remote appointments in general practice for example, saved time for doctors, reduced waiting times and were seen as more convenient.[81]

There are some limitations on their efficiency however. If a patient is inappropriately given a video consultation when they need a physical consultation, this could add unnecessary time and administration. For example, an analysis of remote appointments done during the pandemic at Great Ormond Street Hospital found that the proportion of patients offered further contact following a virtual appointment was just over double that of the patient group seen in a face-to-face appointment.[82]

In addition, blood tests and other standard investigations which might previously have been performed immediately before or after the consultation cannot be as readily organised. However, this is generally why remote appointments are more commonly used for follow ups rather than first appointments.

Experience

Many hospitals and trusts have found virtual consultations have led to improved patient experience. The benefits of more remote outpatient appointments include less disruption, less travel (especially for regional specialty services), and less cost (lost work, car parking and public transport costs).[83] For example the Royal Berkshire NHS Foundation Trust, delivering hundreds of thousands of virtual outpatient appointments each year since 2020, has seen improvements in patient satisfaction as a result.[84]

However, some patient experience suggests that remote outpatient appointments can feel less personal, the standard of care perceived as less good and for patients that cannot hear well, they struggled to lip read.[85] In addition, many clinicians say they have had inadequate training in video consultations.[86]

3.2.3 Remote monitoring

Remote monitoring is technology that enables monitoring of patients' health information remotely. This enables clinicians to have up-to-date information on a patient's condition and any changes to their condition, entirely remotely. This could include: heart rate, blood pressure, oxygen levels, temperature, pain levels and more. In a physical clinical setting, this health information would usually be gathered by nurses.

[80] 'The Potential Economic Impact of Virtual Outpatient Appointments in the West Midlands: A Scoping Study'.
[81] NIHR: Imperial Biomedical Research Centre, 'Study Demonstrates Remote GP Appointments as Effective as In-Person for Some Conditions', Web Page, 5 September 2023.
[82] Akintomide et al., 'Clinical Perception of Effectiveness of Virtual Appointments and Comparison with Appointment Outcomes at a Specialist Children's Hospital'.
[83] *Remote Consultation Experiences, Engaging with Hospital Outpatients about Their Experiences of Remote Consultations* (Healthwatch Together, 2021).
[84] NHS England, 'Outpatient Transformation: Delivering Video Consultations for Outpatients', Web Page, n.d., accessed 21 February 2025.
[85] *Remote Consultation Experiences, Engaging with Hospital Outpatients about Their Experiences of Remote Consultations*.
[86] 'Outpatient Remote Consultation: An Appreciative Enquiry'.

Remote monitoring can occur in a wide variety of ways. Some remote monitoring does not require advanced technology – for example, a patient may take their blood pressure at home at regular intervals and upload their readings to an app or platform the clinician has access to. Remote monitoring can also involve subjective, patient-reported data, including rating pain levels or mood, similarly uploaded.

However, some remote monitoring makes use of more cutting-edge medical technology. Typically, this is through wearable medical devices, such as watches, wristbands, adhesive patches or clip on devices. These wearables devices can measure a wide variety of metrics, from heart rate and oxygen saturation levels, to sleep patterns and physical activity. This technology is rapidly developing, and there are likely to be seismic advances in the capability and affordability of this sort of technology in the coming decades.

Some remote monitoring is intermittent. This includes patient-measured information, such as blood pressure readings every two hours, but also could include wearable devices which take readings only at set intervals. Alternatively, for more severe or high-risk cases, continuous remote monitoring can be used, meaning the medical device is continuously taking readings. The purpose of continuous remote monitoring is to identify decline as quickly as possible, ensuring timely intervention.

Assessing impact

Assessing the impact of remote monitoring interventions is complex because they typically involve multiple components (data collection, education, feedback) and various stakeholders across different settings (primary, community, secondary and social care).[87]

Patient profile

Remote monitoring underpins the delivery of virtual wards and Hospital at Home. However, the availability and use of remote monitoring has been highly varied throughout the NHS. This means the benefits of such technologies, especially for effective virtual ward care, have been inconsistently felt.

Remote monitoring is also incredibly useful for outpatient appointments and management of long-term conditions. Recognising this, in January 2025, the Government announced ICBs must expand remote monitoring to all clinically appropriate patients with long-term conditions from 2026-27.[88] It is hoped this will eliminate 500,000 ‘lower value’ follow-up appointments per year.[89]

Clinical effectiveness

The empirical evidence is varied because remote monitoring can be applied so differently. In addition to the diversity of the tools themselves, studies use different patient populations and intervention durations.

However, generally, the evidence is positive. A synthesis of 29 Randomised Control Trials (RCT) found that remote monitoring positively impacted patient safety, evidenced by reduced

[87] Emma E Thomas et al., ‘Factors Influencing the Effectiveness of Remote Patient Monitoring Interventions: A Realist Review’, *BMJ Open* 11, no. 8 (August 2021): e051844, https://doi.org/10.1136/bmjopen-2021-051844.
[88] NHS England, ‘Reforming Elective Care for Patients’.
[89] Ibid.

major complications and adverse events.[90] Outcomes for medication and lifestyle prescription adherence were also encouraging.[91]

One example of remote monitoring demonstrating clinical effectiveness is the rollout to care home residents in 227 care homes across Mid and South Essex in 2020.[92] The purpose of the programme was to protect residents against developing serious infections, such as sepsis, and generally to stay in better health. Vital sign readings, including blood pressure, pulse and temperature, were regularly taken, helping to more quickly identify and treat patients who are developing infections. Additionally, the Istumble app was used to assess residents' risk of falling, ensuring more interventions are provided to those most at risk.

Over the 13-month period June 2020 to June 2021, compared to the prior 13-month period (accounting for the impact of Covid), this programme resulted in a 24 per cent reduction in emergency hospital admissions.[93] Additionally, there was an 18 per cent reduction in length of stay for residents who did have emergency hospital admissions.[94]

Efficiency and cost-effectiveness

Despite the variation in application, empirical evidence clearly demonstrates reduced risk of hospital admission/readmission, length of stay, number of subsequent follow ups and non-hospitalisation costs.[95] Several systematic reviews of the evidence show at least a plurality, if not a majority, of studies indicating a reduction in acute hospital use.[96] It can also help with early diagnosis. Royal Papworth Hospital NHS Foundation Trust's cardiac remote monitoring programme, has reduced the number of days it takes for atrial fibrillation to be detected by ~45 days.[97]

One study from Imperial College Healthcare NHS Trust, involving 337 patients with acute coronary syndromes and who were considered to be at high risk of a second heart attack, found remote monitoring patients were 76 per cent less likely to be readmitted to hospital

[90] Si Ying Tan et al., 'A Systematic Review of the Impacts of Remote Patient Monitoring (RPM) Interventions on Safety, Adherence, Quality-of-Life and Cost-Related Outcomes', *Npj Digital Medicine* 7, no. 1 (18 July 2024): 192, https://doi.org/10.1038/s41746-024-01182-w.
[91] Si Ying Tan et al., 'A Systematic Review of the Impacts of Remote Patient Monitoring (RPM) Interventions on Safety, Adherence, Quality-of-Life and Cost-Related Outcomes', *Npj Digital Medicine* 7, no. 1 (18 July 2024): 192, https://doi.org/10.1038/s41746-024-01182-w.
[92] NHS England: Transformation Directorate, 'Trust, Tech, and Teamwork: How Essex's Health and Care Professionals Are Using Technology-Enabled Remote Monitoring to Protect Health and Prevent Hospital Admissions.', Web Page, n.d., accessed 24 February 2025.
[93] Ibid.
[94] Ibid.
[95] Nancy L. Dawson et al., 'Home Telemonitoring to Reduce Readmission of High-Risk Patients: A Modified Intention-to-Treat Randomized Clinical Trial', *Journal of General Internal Medicine* 36, no. 11 (November 2021): 3395–3401, https://doi.org/10.1007/s11606-020-06589-1; Hui-Wen Po et al., 'Efficacy of Remote Health Monitoring in Reducing Hospital Readmissions Among High-Risk Postdischarge Patients: Prospective Cohort Study', *JMIR Formative Research* 8 (13 September 2024): e53455, https://doi.org/10.2196/53455.
[96] Monica L Taylor et al., 'Does Remote Patient Monitoring Reduce Acute Care Use? A Systematic Review', *BMJ Open* 11, no. 3 (March 2021): e040232, https://doi.org/10.1136/bmjopen-2020-040232.
[97] Information kindly shared by Royal Papworth Hospital's Cardiac Physiology team

within six months. They were also 41 per cent less likely to attend A&E in comparison to those who followed normal care pathways.[98]

The potential impact of this if scaled is enormous. In the UK, around 100,000 hospital admissions a year are due to a heart attack, and around 15 per cent of patients admitted to hospital for a heart attack in England are readmitted as an emergency within 30 days of discharge.[99]

Experience

The evidence available suggest patients have a generally positive experience with remote monitoring. In research conducted by the Nuffield Trust, both patient and staff feedback on remote monitoring was positive, suggesting remote care could feasibly reduce the burden on secondary care. Patient interviewees of remote monitoring reported that it was “easy” or “straightforward” to relay readings.[100] Healthwatch also found that remote monitoring can bring many benefits to patients, including peace of mind, feeling in control, and convenience.[101] They found that 52 per cent of staff using mixed technology models reported a positive impact on their workload compared to 35 per cent using analogue-only communication.[102]

[98] Nasser S. Alshahrani et al., ‘Randomized Trial of Remote Assessment of Patients After an Acute Coronary Syndrome’, *Journal of the American College of Cardiology* 83, no. 23 (June 2024): 2250–59, https://doi.org/10.1016/j.jacc.2024.03.398.
[99] Imperial College Healthcare NHS Trust, ‘Remote Monitoring of Heart Attack Patients Significantly Reduced Hospital Readmissions’, Web Page, 8 April 2024.
[100] Lauren Herlitz et al., ‘Patient and Staff Experiences of Using Technology-Enabled and Analogue Models of Remote Home Monitoring for COVID-19 in England: A Mixed-Method Evaluation’, *International Journal of Medical Informatics* 179 (November 2023): 105230, https://doi.org/10.1016/j.ijmedinf.2023.105230.
[101] *The Public’s Experience of Monitoring Their Blood Pressure at Home* (Healthwatch, 2022).
[102] Herlitz et al., ‘Patient and Staff Experiences of Using Technology-Enabled and Analogue Models of Remote Home Monitoring for COVID-19 in England’.

Figure 2: Summary of innovations

Innovation	Applicable patient group(s)	Effectiveness	Efficiency	Experience
Virtual wards	Low to medium complexity patients, medium risk Lower complexity multimorbid patients or frail patients (who would typically be categorised as complex patients), for low to medium time sensitivity	For some patient profiles, more clinically effective than inpatient hospital care and, for some patient profiles, as clinically effective as inpatient care	If set up appropriately and providing care to appropriate patients, highly efficient If patients are treated who would not be under inpatient hospital care otherwise, virtual wards are inefficient, so thorough and effective patient screening is vital	Excellent patient experience Good staff experience
Virtual consultations	All patients	If used for the appropriate patients in the right way, very clinically effective	Generally efficient Very accessible Some concerns accessibility can cause supply induced demand or duplication of work Can help system-wide efficiency by ensuring patients access care in the right setting	An adjustment for patients and staff, but patient and staff experience can be very good Significantly greater convenience for patients can deliver very good patient experience
Remote monitoring	Virtual ward patients Management of chronic conditions	Highly clinically effective if implemented well	Generally efficient Facilitates earlier interventions, so good for prevention	Very good staff and patient experience
Community Diagnostic Centres	Anyone with a clinical need requiring further investigation	Somewhat clinically effective, but little evidence to suggest they reduce waiting times	Only efficient when operating at full capacity and when targeted at deprived communities, otherwise low efficiency	Positive patient experience
Co-location of primary and secondary care	Complex multimorbid patients Low acuity frail patients	No more clinically effective than the same clinics in a hospital setting, but some value in cross-pollination of knowledge	Inefficient use of specialist staff	Better patient experience versus the same service in a hospital setting

4. Moving to a future model

As healthcare demand grows both in volume and complexity, it is especially important patients are treated in the most appropriate setting, by the most appropriate clinician, in a timely manner. Contrary to this aim, many patients who would more suitably or more effectively be treated in other settings are currently treated in hospitals. This is not good for patients, for hospitals or for the wider health and care system. A radical rethink and reorganisation is essential.

The evidence in Chapter 3 clearly shows that simply moving secondary care services and staff out of the physical hospital will neither deliver better care nor a more cost effective model. Instead, designing the hospital of the future means rethinking the boundaries that have defined the NHS, in turn allowing timely and high-quality care to be delivered in the right setting.

This chapter details three foundational principles, drawn from the available evidence on what works, for the future hospital, and puts forward a new model of secondary care.

4.1 Key principles of the hospital as a service

Principle 1: Reimagining the pathway between primary and secondary care is more important than moving infrastructure

There is broad consensus that care needs to move out of the hospital, yet none of the innovations detailed in the previous Chapter in and of themselves completely break down the barriers between primary, secondary and social care: complex care remains the domain of secondary care and generalist care the domain of primary care.

The evidence outlined in the previous section demonstrates that attempts to move care out of the physical hospital are largely oriented around infrastructure rather than process, and do not achieve this.

This means fundamentally revising the pathway between primary and secondary care. As Figure 3 outlines, not only is the referral pathway long-winded, but it is secondary care centric both in terms of funding and process. Reimagining this pathway between primary and secondary care is essential if more specialist care is to provided outside of the physical hospital building.

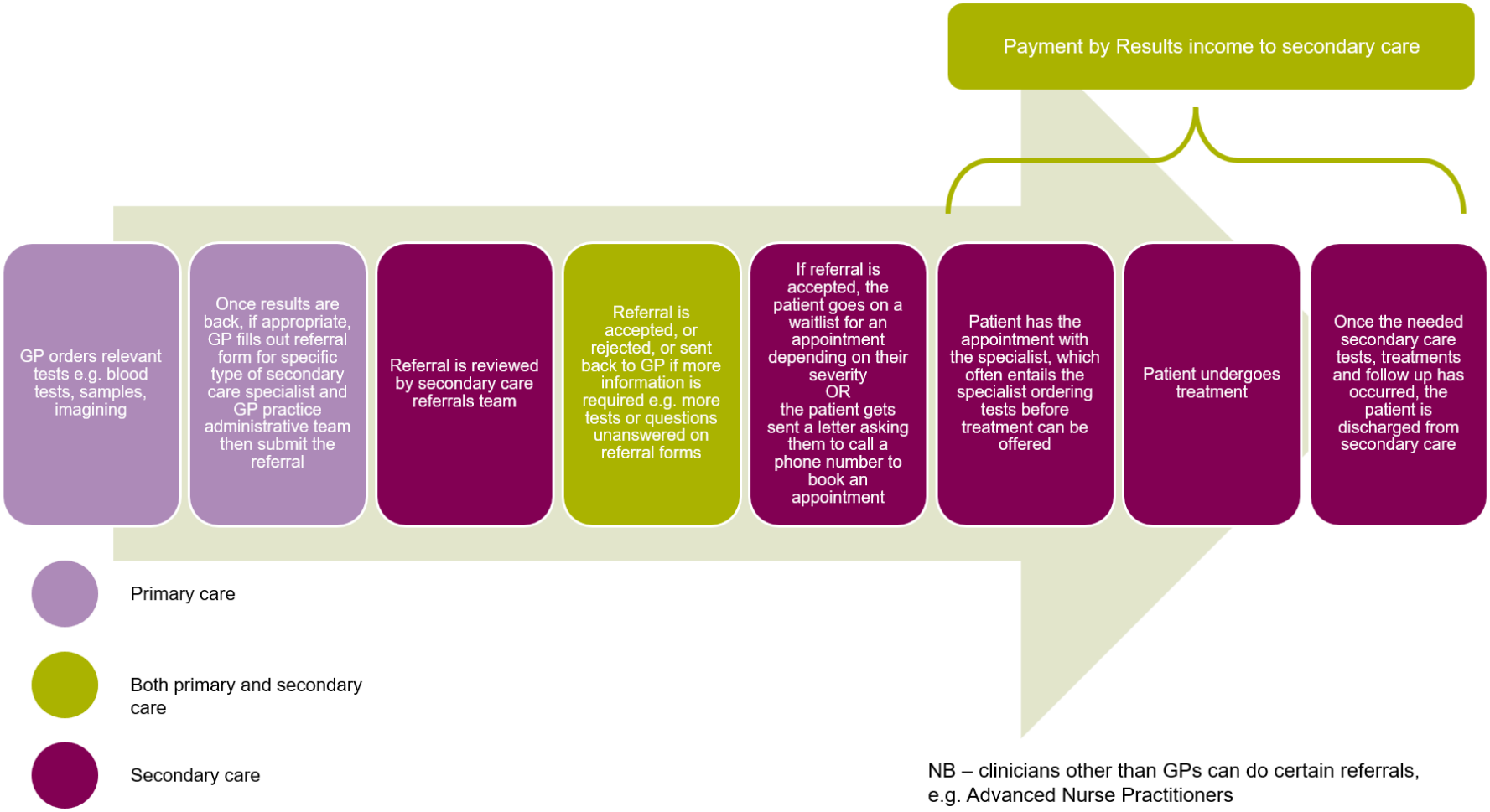
Indeed, the referral process is one of the oldest processes in healthcare, and many innovations have been introduced over the years to make the ambiguous grey area between primary and secondary care more effective. These have included referral management centres, clinical triage and assessment, peer review and feedback, and guidelines.[103]

But none of these reforms have gone far enough because they have all been introduced under the assumption that the referral model is the only way things can be done. Considerably more can be managed outside of the hospital if the pathway – particularly for

[103] Candace Imison and Chris Naylor, *Referral Management: Lessons for Success* (The King's Fund, 2010).

multimorbid patients – is redesigned in conjunction with a new communication infrastructure and funding model. It would also enable much more effective ‘whole person’ care because the GP would oversee care, rather than multiple specialists at different hospitals. Ultimately, this would mean that resources would move gradually out of hospitals and into primary care.

Figure 3: Current referrals pathway



Principle 2: Communication is more important than location

The location of secondary care indisputably plays a role in accessibility. However the evidence from existing initiatives demonstrates that when effectiveness, efficiency and experience are all taken into account, the physical movement of infrastructure or specialist staff does not deliver significantly improved outcomes. To maximise the operational efficiency of one CDC, for example, a significant workforce uplift is needed, and even then, this may not guarantee shorter waiting times.

Instead, moving care out of hospitals should enable the delivery of expertise without the specialist needing to be physically present. This point was consistently highlighted in interviews: what enables effective, efficient care with a good patient experience is clinicians having easy and rapid access to specialist expertise if and when they need it.

Rather than having specialists and GPs located on the same corridor in the general practice, which would be a "waste of everyone's time" according to one GP, having them at the end of a phone or available for online chat could be transformative. Travelling for both patients and staff is time consuming, and retaining specialists where they have immediate access to equipment in the hospital setting maintains the economies of scale that hospitals provide.

The problem is that there are no communication channels in place between relevant specialists and general practice, meaning GPs are most likely to err on the side of caution, increasing demand on both elective and emergency care in hospitals.

For example, adults with long-term conditions are largely managed in primary care through multidisciplinary teams. However, at the severe end of those conditions, primary care staff need quick access to a specialist in the case of an exacerbation. There are also more uncommon conditions, such as epilepsy and multiple sclerosis, where specialist advice will be needed for both management and exacerbations. Neither need end up in a hospital visit, yet they frequently do.

That is because, currently, the common way to access specialist advice is through a hospital switchboard, which is time consuming, inefficient and the patient is kept out of the loop until a resolution has been reached. GP surgeries manage a large volume of waiting list enquiries and spend significant time writing expedite letters to encourage secondary care colleagues to see the patient sooner.[104] Even where communication channels do exist, phones often go unanswered due to operational pressures and relevant email addresses are difficult to find. And where relevant individuals are contacted, communications are rarely stored reliably in the care record.[105]

[104] *General Practice and Secondary Care: Working Better Together* (Academy of Medical Royal Colleges, 2023).
[105] Ibid.

Principle 3: Virtual hospital care will be a foundational element of a modern hospital

As detailed in the previous Chapter, virtual care has been evidenced to deliver benefits across the three performance measures. Technology, as many have argued, will indeed play a fundamental role in the hospital of the future.

The scalability of technology enables the core purposes of secondary care to be delivered – specialist care, at scale, quickly – while simultaneously reducing labour input. While virtual hospital care may sound obvious in a post-pandemic world where remote appointments are far more common, its implementation has been varied and its potential largely untapped, particularly in the delivery of virtual wards and remote monitoring.

The efficiency advantages of technology on an increasingly cash constrained system are significant. It reduces the number of staff needed for continuous monitoring whilst proactively identifying issues that, if not identified early, would prove resource intensive to fix. One of the most effective and efficient ways to provide specialist care out of the hospital is to minimise travel to an appointment, or indeed remove the need for any appointment at all, which technology can enable. Technology doesn't just provide a different mode of care, it enables a different model. This cannot be achieved by relocating infrastructure, which simply lifts the current, inefficient model and places it in a different physical place.

There will be several operational issues to address as new, more remote outpatient pathways are developed, especially in conjunction with primary care. This would include a mix of consultation formats for consultants and other clinician job plans; changes to the roles of administrative, nursing and allied health professional staff in outpatients; adaptation of medical records; and reforms to how commissioners procure and pay for different approaches to outpatient consulting. It may also involve new operational logistics for the transportation of monitoring, treatment or diagnostic equipment to patients' homes.

Moving to a new model

Translating these principles into a programme of reform is not straightforward. This requires fundamentally rethinking the boundaries that have defined how the NHS has operated since its inception, as well as being open to entirely new ways of delivering care.

The recommendations outlined below build on previous *Re:State* work that propose radically shifting the centre of gravity in the health system to local decision makers, in a way that has not yet been achieved by Integrated Care Systems.[106]

As outlined in detail in *Close enough to care,* among better integration and more innovation, a primary motivation for a more devolved system would be to create financial incentive models that materially reward more preventative healthcare. What this means for the delivery of secondary care would vary depending on the locality. But it would entrench the principle that the physical hospital should only exist for the most complex, high risk acute care and little else. This would be reflected in the way the system is designed and how money flows to particular services.

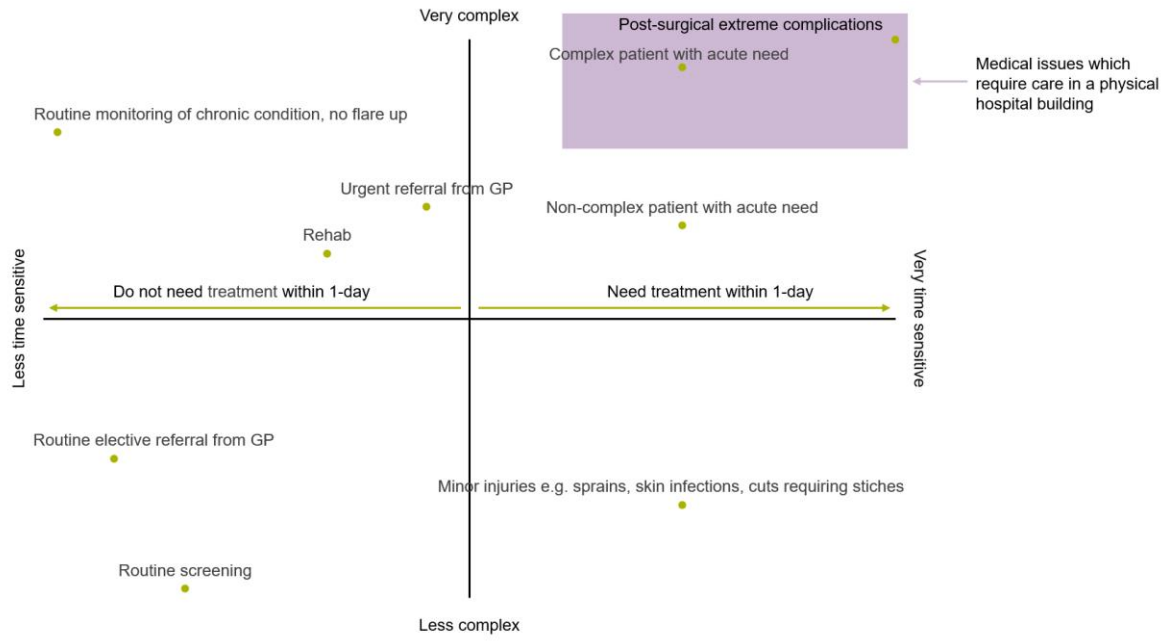
Figure 4: The current model versus the future model of secondary care as a service

Current approach	New approach
All elements of specialist care are bottlenecked in a physical hospital building	Patients receive the right care from the right clinician in the most appropriate setting, whether home, general practice, or hospital
Clear delineation between primary and secondary care	Disintegration of the barriers between primary and secondary care
Communication between primary and secondary care is rare and operationally difficult	Regular, rapid communication between generalist practitioners in the community and specialists in the hospital is regular practice
Patients are treated according to individual episodes of care for individual conditions by individual specialists	Patients generally managed by general practitioners, understanding the patient as a whole, unless severe or rare conditions
Financing model incentivises elective care in secondary care setting only	Financing model rewards collaboration between primary and secondary care in the diagnosis and management of complex patients
Technology delivered secondary care is a nice-to-have add on in a hospital	Virtual wards, remote monitoring and remote consultations are a fundamental component of a modern hospital
Workforce are trained to deliver care in a traditional hospital setting	Workforce are trained to deliver a combination of hospital, community and remote models of care

Before outlining the policy interventions needed at a national level to achieve this model, it is necessary to break down the different types of demand in secondary care, and where the physical hospital setting remains the most appropriate. This then helps to identify the functions that are plausibly deliverable outside this setting. This is outlined in Figure 5. The most effective way to essentially 'triage' demand groups is through acuity (time sensitivity and urgency) and complexity.

[106] Rosie Beacon, *Close Enough to Care: A New Structure for the English Health and Care System* (Reform, 2024).

Figure 5: Different use cases of secondary care rated in terms of complexity and time sensitivity



A substantial portion of the matrix requires some specialist input but comparatively little should require inpatient hospital care. Where input is required, it should be provided in alternative locations, such as primary care or the home, with the support of secondary care.

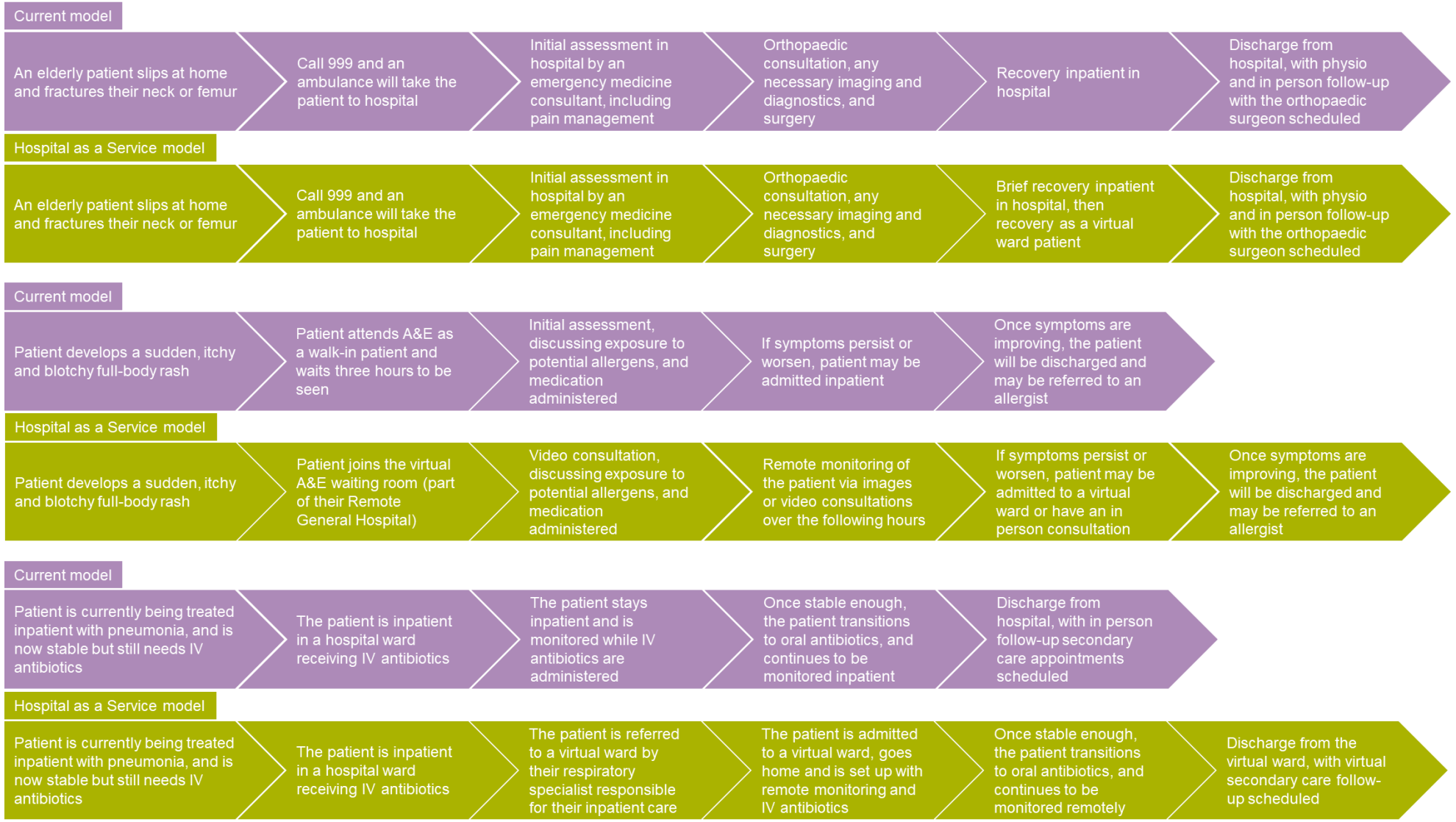
It is worth distinguishing between use cases which require:

- Specialist equipment, which is considerably more likely to require the physical hospital estate depending on the locality and complexity of the pathology needs (for example, blood tests are very commonly done in the community.)
- Specialist expertise, which can easily be provided from outside the physical hospital estate.

It is thus possible to draw from these functions a general view of just how much specialist care could, in an ideal system, be delivered outside of the physical hospital estate with the right supporting infrastructure.

Yet, despite the fact that many functions can and should take place outside the hospital, the current system sees the large majority of this care provided physically in the hospital estate.

Figure 6: The current approach versus the new approach for example patients requiring hospital care



4.2 Reimagining care pathways

Principle 1: Reimagining the pathway between primary and secondary care is more important than moving infrastructure

4.2.1 Reforming care pathways

If the traditional barriers between primary and secondary care, and hospital and home, need to be dismantled, the traditional processes that structure how care is delivered will need to be revised. The best way to understand these processes is through the 'care pathway'.

The use of clinical pathways started in Europe in the 1990s, beginning in the UK. Essentially, care pathways, also known as clinical pathways or critical pathways, are used to systematically plan and follow up a patient or client care programme.[107]

Despite the long-held ambition to move care into the community, it is not clear that care pathways have undergone significant reform with the advent of ICSs. Since these processes tend to underpin all of the cross-organisation interaction in the NHS, reforming them would be an essential precondition for a more integrated hospital of the future.

Care pathways are a way of setting out a process of best practice to be followed in the treatment of a patient with a particular condition or with particular needs. They are often developed at the local level to meet local needs, circumstances and expectations and so, even for the same type of care, these locally developed care pathways are likely to differ from one another not only in their content but also in their effectiveness. Nevertheless, they generally have three characteristics:[108]

1. To translate guidelines or evidence into local structures
2. To detail the steps in a course of treatment or care in a plan, pathway, algorithm guideline, protocol of other 'inventory of actions'
3. To standardise care for a specific clinical problem, procedure, or episode of healthcare in a specific population

They serve as useful tools to reduce variations in clinical practice, thereby maximising patient outcomes and clinical efficiency.[109] An additional rationale for policymakers and healthcare institutions is that they have also been proposed as a strategy to optimise resource allocation and cost-effectiveness, as well as reduce costly variations in care. A systematic review of care pathways in different countries showed reductions in length of stay and hospital costs compared with usual care.[110]

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[107] *The Effectiveness of Care Pathways in Health and Social Care* (Centre for Policy on Ageing, 2014).
[108] Thomas Rotter et al., *Improving Healthcare Quality in Europe: Characteristics, Effectiveness and Implementation of Different Strategies* (European Observatory on Health Systems and Policies, 2019).
[109] Thomas Rotter et al., *Clinical Pathways as a Quality Strategy* (European Observatory on Health Systems and Policies, 2019).
[110] Thomas Rotter et al., 'The Effects of Clinical Pathways on Professional Practice, Patient Outcomes, Length of Stay, and Hospital Costs: Cochrane Systematic Review and Meta-Analysis',

The increasing disadvantage of such standardised care pathways however, is that they may be in tension with person-centred care, they do not allow for sufficiently non-standard situations such as complex co-morbidities, and can become a tick box exercise with “too much pathway and too little care”.[111] Pathways tend to be oriented around specific conditions, hence forcing clinicians to follow a relatively standardised process instead of taking the patient as a whole with multiple conditions. There is also particular resistance to the implementation of care pathways as they are often described as “cook-book medicine” by clinicians who may fear a loss of autonomy.[112]

The current system

Upon the introduction of Integrated Care Systems, developing integrated care pathways was intended to be one of the key ways to improve population health. But it is not clear how far pathways have been amended across the NHS with the gradual movement towards more integration.

Given that the core recommendations for the hospital of the future involve developing both the funding model and communication infrastructure that fill the traditional void between primary care on the one hand and specialist care on the other, this presents a significant opportunity to practically rethink the care pathways that reinforce organisational barriers and in turn the episodic care model.

Such pathways should be designed so that the patient:

- Maintains their primary relationship with the GP team and wherever possible obtains the specialist investigations, treatment and rehabilitation they need close to home
- Receives diagnostic investigations and treatment for all related organ systems by a single pathway linking primary and secondary care
- Does not have to chase multiple referrals

Evaluation & the Health Professions 35, no. 1 (March 2012): 3–27, https://doi.org/10.1177/0163278711407313.

[111] Independent Review of the Liverpool Care Pathway, *More Care, Less Pathway: A Review of the Liverpool Care Pathway*, 2013.

[112] Rotter et al., *Clinical Pathways as a Quality Strategy*.

Figure 7: Different integrated care pathways depending on complexity

Model	Example condition	Suggested pathway	Requires access to specialist support
Community	Community acquired pneumonia	Primary care management	No
Community based multidisciplinary care	Significant musculoskeletal injury	Community multidisciplinary team, with physiotherapy and support for adjustment reactions, such as anxiety and depression	Yes
Community based care with integrated support	Chronic disease such as type 2 diabetes	Primary care by GP and/or diabetes nurse, with primary care clinicians receiving support from a specialist for complex cases	Yes, to ensure the right treatment and to prevent potential exacerbations
Secondary care supported community care	Chronic medical condition such as rheumatoid arthritis or COPD	Care provision mostly in primary care, with secondary care needed in case of exacerbations and specialist medication	Yes, to ensure the right treatment and to prevent potential exacerbations
Integrated care	Comorbid physical and mental health conditions such as uncontrolled diabetes or bipolar disorder	Case management provided by specialist team	Yes, psychiatric and physiological specialist teams
Integrated care	More than two long-term conditions and/or medically unexplained symptoms	Multisystem specialist approach encompassing both primary and secondary care	Yes, case management may be in primary or secondary care depending on the severity of the conditions

Source: British Journal of General Practice, 'Integrated care pathways: a new approach for integrated care systems', September 2023.

The current progress of the ICSs in building out new pathways remains ambiguous. This is partially due to the fundamental structure of ICSs as largely an extension of NHS England (now DHSC) just at a more local level. Only 40 per cent of ICS leaders surveyed believe accountabilities are well defined between ICBs and NHS England's national team.[113] In

[113] Annie Bliss, Skeena Williamson, and Lottie Alayo, *The State of Integrated Care Systems 2023/24: Tackling Today While Building for Tomorrow* (NHS Confederation, 2024).

addition, ICSs are generally focused on short-term firefighting rather than longer term pathway reform.

The announcement that NHS England will be abolished does not in itself resolve these problems.[114] If the relationship between central policymakers – who will now be in DHSC – and ICSs stays the same, the same problems will persist.

Moving to a new model

Moving to a new model of care pathways – particularly in the context of a system which should be defaulting to virtual wards, remote monitoring, digital appointments and digital communication – is essential for the future hospital.

However, there are some practical concerns to consider when developing new pathways. The first is that they must be accompanied by appropriate financial incentives and communication infrastructure across the health system. These are outlined in Recommendations 4 and 6.

While much of the change in pathway reform should happen at a local level – in order to respond to differing population needs – there are some national interventions which could facilitate and incentivise pathway reform.

Identifying the right model

Successful implementation of care pathways to a large extent depends on the involvement and investment of both clinical service providers and managers. Much of the implementation of new care pathways relies heavily on providing information, and many healthcare institutions develop such initiatives without significant clinician engagement.[115] That risks the essential buy-in of clinical and management staff, who may be unconvinced of the rationale for implementation, disagree with the principle of pathways, or find the pathway overly prescriptive.[116]

The literature on the actual implementation of care pathways is sparse, but it does demonstrate that much of the change happens at an ICS, trust or PCN level. Designing and successfully rolling out new pathways requires time and staff, and in a highly pressured system in which clinicians are ruthlessly focused on meeting demand it is unclear if such capacity and capability exists.

Nationwide efforts at clinical improvement are commonplace. The Get It Right First Time (GIRFT) programme, for example, is designed to improve the treatment and care of patients through in-depth review of services, benchmarking, and presenting a data driven evidence base to support change.[117] This approach could be applied to pathway reform, particularly for patients with multimorbidity and/or who are living with frailty who experience the majority of their care pathway outside of hospital.

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[114] The Rt Hon Sir Keir Starmer KCB KC MP, 'PM Remarks on the Fundamental Reform of the British State', Speech, Prime Minister's Office, 10 Downing Street, 13 March 2025.
[115] Alice G. Gosfield and James L. Reinertsen, 'Sharing the Quality Agenda with Physicians', *Trustee: The Journal for Hospital Governing Boards* 60, no. 9 (October 2007): 12–14, 16–17, 1.
[116] Sara Evans-Lacko et al., 'Facilitators and Barriers to Implementing Clinical Care Pathways', *BMC Health Services Research* 10, no. 1 (December 2010): 182, https://doi.org/10.1186/1472-6963-10-182.
[117] NHS England, 'Getting It Right First Time (GIRFT)'.

Alternative clinically led models in change implementation and process improvement include clinician to clinician peer reviews. This would involve the professional assessment, against standards, of the organisation of healthcare processes and quality of work.[118] While interviewees emphasise the value of these exercises, peer reviews are used sporadically in the NHS. Indeed there is currently no consistent strategy in place in England for the use of external assessment to improve and assure standards. They are mostly used in the sharing of information for best practice and for accreditation.[119] Many professional societies, regional teams and royal colleges have developed voluntary peer review programmes which look to raise standards, rather than look to address a specific local problem.[120]

Interviewees for this paper highlighted this model as particularly effective where it had been used and, if it was sufficiently empowered – for example with endorsement from the Care Quality Commission – could add significant delivery value to a clinically led programme of pathway reform.

Change management and implementation

Once comprehensive investigation has been done into what the most effective care pathways could look like in a more integrated system, gaps in implementation capacity would need to be addressed. Clinicians are not explicitly trained in change management and yet the responsibility for innovation implementation falls on them. In *Prescription for Prevention: a new model of primary care, Re:State* proposed that ICSs have a central change management team for deployment on change projects across different providers.

Recommendation 1: To redesign pathways, ICSs should commission a clinically led review, similar to the Get It Right First Time programme, of care pathways for multimorbidity and frailty within an integrated system spanning primary, secondary, and social care. The review should prioritise strengthening primary care, supported by remote specialist input. Where appropriate, ICSs could collaborate with neighbouring systems with similar populations.

Recommendation 2: DHSC should conduct a short review on what care has critical physical requirements/interdependencies, and what is more flexible. This can then be used as a template to push providers to redefine their care pathways from a virtual first perspective.

Recommendation 3: To support implementation and track progress, ICSs should establish a new peer review programme – backed by the Care Quality Commission – for the development of new multimorbidity and frailty pathways across primary, secondary and social care. It should explicitly be a pathway peer review rather than a peer review of individual clinicians, specialties, or hospitals.

Recommendation 4: As recommended in *Prescription for Prevention: a new model for primary care,* GPs and trusts should be supported in implementing these new pathways by a 'SWAT' change management team employed at the ICS level, who can be deployed across that specific locality to provide change management expertise. This should be supported by appropriate funding from DHSC.

[118] Barry McCormick, *Pathway Peer Review to Improve Quality* (The Health Foundation, 2012).
[119] Ibid.
[120] Ibid.

4.2.2 Funding primary care for elective care

How to fund the health system while incentivising overall population health is a policy question that has perplexed policymakers for decades. Financial incentives are well established to drive particular types of activity and outcomes, and identifying the model that creates the *right* activity and outcomes is a challenge.

First and foremost, at a system level, hospitals have to contribute to the overarching goals of the health system: most notably the shift to prevention. This means funding hospitals for what only they can do, and incentivising the rest of the system to do everything else.

Secondly, a funding model for hospitals needs to create incentives that meet three different outcomes simultaneously: efficiency, activity, and quality. Hospitals should be incentivised to produce the most output with the least amount of input, to increase or decrease types of activity, and to be constantly finding improvements in quality, safety and patient experience.

In order to create the right financial incentives within the overall system, not just in hospitals, careful consideration must be given to where power lies within, and how money flows through, the system. Decisions about these will determine, to a large extent, what services are incentivised. One of the key issues within the current system – helping to explain why it has consistently failed to make the shift away from acute towards more preventative services – is the funding model.

Re:State has consistently argued that the current model of Integrated Care Systems has not sufficiently created the financial incentives to reward prevention and population health.[121] Rather than being liberated from central control, ICSs have to meet numerous targets set from the centre. This gives little freedom over how to spend their money and in turn significantly undermines their 'autonomy' to create meaningful change on how financial flows work in their system.

Instead, health and care should be formally devolved to Combined Authorities. This would involve pooling and devolving the entire health budget to elected regional leaders, via block grant settlements of at least 5 years in duration; scrapping national contracts, pay settlements and tariff rates for procedures; and allowing leaders to spend 'NHS' money on non NHS services if they think that will lead to better outcomes. This is a longer term goal but one that is fundamental to creating a prevention oriented health and care system.

With these fundamentals taken into account alongside the analysis included in the previous Chapters, a new funding model for the hospital also needs to adequately fund and incentivise 'hospital as a service' innovations (virtual wards, remote monitoring, digital appointments), fund and incentivise primary care to manage more specialist demand, and fund specialists for engaging with primary care.

The current system

The NHS in England is funded by public monies via allocations from the government to the Department for Health and Social Care. Most of this funding is passed on to ICBs, which commission services from NHS and non-NHS providers of healthcare for their populations, with some services directly commissioned by NHS England/DHSC.[122] The flow of funding

[121] Beacon, *Close Enough to Care: A New Structure for the English Health and Care System*.
[122] Fiona Boyle, *Introduction to the NHS Payment Scheme* (Healthcare Financial Management Association, 2024).

will be different once the two-year transition to abolish NHS England is complete, but the specifics of this are not yet clear.

Primary care has multiple funding streams but it is largely funded through a capitation based block payment and performance incentives (the Quality and Outcomes Framework).

Secondary care has undergone several payment reforms over the years. The most well-known of these was the activity based payment model, Payment by Results (PbR), which was first introduced in 2003-04 and applied to secondary healthcare. The service provider is paid a fixed price for each patient treated and the price is adjusted based on the complexity of the patient's needs. Between 2003 and 2020, this was the system for reimbursing healthcare providers in England for the costs of providing elective treatment, based on the use of a national tariff payment system.[123]

But within the last decade, there has been a shift away from a purely activity-based model to value-based healthcare – the idea that providers should be paid for outcomes rather than activity alone. There was a consensus that the long-established activity-based or block contract payment systems do not support these objectives.

The NHS Long-term Plan, launched in January 2019, signified a commitment to transform the way that services are delivered as medicine advances, health needs change and society develops. The plan recognised the need to focus on population health management and reducing health inequalities for long-term sustainability, and that this requires increased collaboration and cross system working.[124]

The premise of the new payment system was that it would make it easier to redesign care across providers, support the move to more preventative and anticipatory care models and reduce transaction costs.

This introduced the blended payment which is now the funding model for hospitals. This involves a combination of:

Fixed payment

- A provider-specific fixed block payment – this enables the commissioners to set a payment that acknowledges the current financial reality of a provider and persistent variations in the cost of care. This largely funds emergency care.

Variable payment

- Activity payment – this is used exclusively for elective care, primarily introduced to reduce the elective backlog. A key decision for policymakers and NHS system leaders is how much of the overall payment system should be devoted to activity based funding and therefore increasing elective activity.

While some of the changes in the funding model are welcome, these have failed to integrate the healthcare system or helped adapt it to changing demand. Shifting specialist care out of the physical hospital setting will require two core interventions: funding primary care for more specialist care and funding virtual wards as a permanent and long-term feature of the health system (as explored in Sections 4.2.2 and 4.4.2).

[123] Ibid.
[124] Ibid.

Shifting more specialist care to a primary care setting would require a different approach to funding. Since primary care is not funded on activity, but on capitation-based block payments, general practitioners are not incentivised to investigate or manage more specialist care. Instead, when a more complex case presents, both the systems and the financial incentives encourage GPs to refer rather than manage it themselves where appropriate.

This means that patients have to endure a lengthy, often confusing, referral process, that may end up in their referral being rejected. Or, if accepted, long waiting times to see a specialist who can help with one problem but not any of their other conditions.

Current incentives to reduce referrals in primary care

Some schemes have already been rolled out to change this. For example, in the Elective Recovery Plan published in January 2025, GPs will be paid £20 for undertaking advice and guidance with hospital specialists, and this was solidified in the 2025 GP contract. This is known as the Advice and Guidance (A&G) scheme, introduced in 2015, enabling GPs to submit queries to specialist secondary care consultants to get their advice or input, prior to referring them to secondary care.[125]

This principle is robust, however the implementation of A&G has been flawed, reflected in its relatively slow take-up and underwhelming impact. In July 2023, 209,031 requests were made through the A&G platform, just 18 per cent of overall referrals in that month (1,116,642).[126] Some areas use it considerably more than others. Where it has not been used, this is chiefly due to funding, resourcing, and time lag in responses.

The introduction of A&G meant GPs and specialists have experienced an increase in their workload, without commensurate compensation or the provision of additional capacity.[127] It puts pressure back on the general practice because they might have to generate another appointment to speak to a patient about what the plan is. There also may be scans or tests that the trust requires before referring, which GPs may not be able to undertake or which place extra pressure on admin teams, without funding for additional capacity.[128] The A&G £20 per appointment does not sufficiently cover this additional work.

As one GP outlined in an article for *Pulse*, “If I do a letter to refer someone for a face to face appointment, that whole process is going to take a minute or two. For advice and guidance, I might be committing six hours of my time getting a response, calling the patient in. That’s an enormous difference.”[129]

In addition, some GPs have found that they retain clinical responsibility for patients they may not feel comfortable with, without commensurate advice or education to manage these patients.[130] GPs are lucky to get a response from a consultant within a week, but more often it takes two to three weeks, with the request sent to a general specialty within a hospital, and then passed on to clinicians.

Interviewees for this paper highlighted that the A&G *is* finding a small number of patients where the GP would have referred and the specialist says ‘don’t’, or where the GP had

[125] ‘The Agony around Advice and Guidance’, *Pulse*, 27 October 2023.
[126] NHS England, ‘Hospital Outpatient Activity 2023-24: National Statistics, Accredited Official Statistics’.
[127] ‘The Agony around Advice and Guidance’.
[128] Ibid.
[129] Ibid.
[130] Ibid.

missed something and the specialist says ‘send them to me’. But more often, the specialist is simply confirming what the GP would have done and telling them to refer anyway, in turn adding an additional doctor and time into the decision-making process. This suggests that A&G is not sufficiently aligned with genuine edge cases between primary and secondary care, and can end up needlessly lengthening the referral process.

One interviewee emphasised that following the expansion of A&G, an evaluation might say that it has added a lot of cost for a small number of patients to be kept in primary care. It might also say that A&G is effective for specific specialties, but not others, and useful if the GP has done the diagnostic tests first, but not if they haven’t.

In short, the A&G scheme lacks sufficient communication infrastructure with hospitals to properly support it and so responses are slow, is not sufficiently targeted towards areas that primary care would be more effective at managing, and does not pay for the additional resource required to deliver it properly. The conception of the scheme – to financially disincentivise referrals – is sound, but the execution has been suboptimal.

Funding more specialist care in general practice

If the system is to shift demand towards primary care and out of hospitals, this needs to be replicated in the payment model. An enhanced version of the current A&G model would be to fund elective care in general practice through Payment by Results (PbR), matched by a specific outline of what it can and cannot pay for, alongside a new communication infrastructure and new pathways, outlined in Sections 4.3.1 and 4.2.

PbR is often proposed for elective recovery due to its effectiveness in incentivising activity. Evidence from the 2000s and from other countries suggests PbR is associated with an increase in acute hospital activity, particularly an increase in the volume of care, proportion of day case activity, and reduction in length of stay.[131] With this said, its effectiveness is generally intertwined with other interventions, such as resource increases and waiting time targets. It has nevertheless remained part of the funding model for hospitals.

Payment by Results has never been introduced in primary care, largely because the volume of activity taking place in primary care is almost triple that of outpatients activity. In 2023-24, there were 135.4 million outpatient appointments,[132] while 369 million general practice appointments were booked in 2024.[133] Only 9 per cent of general practice appointments resulted in a referral in 2023-24.[134]

In the hospital of the future, PbR should be rolled out in primary care for tasks (such as diagnostics, complex multimorbidity management and preliminary investigation for certain specialties) that would otherwise be carried out in secondary care. This would be supported through a more effective and direct communication infrastructure with specialist clinicians, as outlined in Section 4.3.1. This would not prevent all referrals, however, even if it prevented 10 per cent of referrals, 13.5 million hospital appointments would be avoided. It would also come with crucial additional benefits. These include much closer working between primary

[131] Shelley Farrar et al., ‘Has Payment by Results Affected the Way That English Hospitals Provide Care? Difference-in-Differences Analysis’, *BMJ Open* 339, no. b3047 (August 2009).
[132] NHS England, ‘Hospital Outpatient Activity 2023-24: National Statistics, Accredited Official Statistics’.
[133] *Pressures in General Practice Data Analysis* (British Medical Association, 2025).
[134] Hoddinott and Davies, *Performance Tracker 2023: General Practice*.

and secondary care, better experience for the patient, and education of both GPs and specialists.

To ensure this does not further burden already overstretched GPs, as *Re:State* argued in *Prescription for prevention: A new model for primary care,* additional staff such as Advanced Nurse Practitioners should be addressing the lower complexity, high volume demand.[135] This would mean GPs primarily deal with the most complex cases.

There are some obvious cases of referral prevention that could be better incentivised, including dermatology, non-surgical musculoskeletal conditions (MSK), and delivering/explaining diagnostics for scans that could have led to referral but further tests indicated this was not necessary. Crucially, developing a model of referral prevention through PbR may need to include a clinically-led process to more effectively identify edge cases between primary and secondary care for different specialisms, for example when symptoms of IBS require a gastroenterologist or when UTIs might require a nephrologist, rather than a GP.

It would also be essential to identify specific tariffs for complex multimorbidity management. As below, PbR is designed specifically to account for complex clinical coding, but the tariff would need to be designed in a way whereby it incentivises clinicians to use the platform, but does not incentivise them to overuse it to generate income.

Realistically, PbR for primary care would pay for activity – it would be very difficult to pay for avoided treatment or health outcomes due to measurement issues, and would not be able to take advantage of current PbR infrastructure because it would involve a set of new tariffs. Outcomes for elective referrals are also difficult to define because they vary so extensively in their substance and the specialism. Additionally, while the short-term priority is to process the backlog as quickly as possible, driving activity is key and PbR is well placed to encourage this.

Implementing Payment by Results

PbR is designed to be able to account for complex delivery of clinical care.[136] Commissioners frequently adapt PbR models to suit a particular outcome they are trying to achieve (e.g. more activity) and it should be relatively straightforward to adapt tariffs to alternative models of care split between primary and secondary care. If much of the consultation between primary and secondary care happens digitally, payments could be automated in the medium term.

On the suitability of PbR, the National Audit Office outlined the features of services suited to PbR,[137] which are largely met by primary care:

- Clear overall objectives
- Clearly identifiable cohort or population
- Ability to clearly attribute outcomes to provider interventions
- Data available to set baseline
- An appropriate counterfactual can be constructed
- Services are non-essential and underperformance or failure can be tolerated

[135] Rosie Beacon, Patrick King, and Florence Conway, *Prescription for Prevention: A New Model of Primary Care* (Reform think tank, 2024).
[136] *2023/25 NHS Payment Scheme, Annex B: Guidance on Currencies* (NHS England, 2023).
[137] Pauline Ngan, Hannah Robinson, and Victoria Keilthy, *Outcome-Based Payment Schemes: Government's Use of Payment by Results* (National Audit Office, 2015).

- Sufficient evidence exists about what works

One of the criticisms of the Quality and Outcomes Framework in primary care is the administrative burden, and for PbR to be effective, commissioners need accurate, reliable, and timely information. However, this administrative PbR infrastructure already exists in hospitals and ICSs, and since the collaboration would technically be on hospital systems (given that they would be communicating with specialists in order to perform the task), the administrative burden could sit with hospitals at least in the short-term. What's more, since much of the communication between GPs and specialists would be taking place digitally, the data should be automated.

The development of new clinical coding specifically for digitally enabled communication between primary and secondary care also needs to be considered. Identifying exactly how this would be executed and built into the design of a new communication tool is fundamental to its success. But as outlined above, PbR is already designed to deal with a variety of different appointment types, for example, currently, PbR has separate outpatient attendance prices that are based on:[138]

- Clinic type
- Consultant led or non-consultant led
- First or follow up attendances
- Single professional or multiprofessional clinic
- Face to face or non-face to face
- Multiprofessional consultation attendances

There are two major factors to consider in particular when introducing new financial incentives for GPs to take on more specialist care responsibility: potential perverse incentives and queue jumping.

In terms of perverse incentives, GPs could 'raise a case' with a specialist even if they know the answer already or have multiple similar cases, in order to maximise the income for primary care. This could be remediated by giving specialists the ability to reject cases that they think or know are already answered from previous cases, or refer them to previous cases – secondary care clinicians already act as gatekeepers for referrals.[139] An incentive is outlined in Recommendation 8 specifically for secondary care clinicians. It could also be remediated through tariffs based on specialism or severity (e.g. a patient with COPD and several other conditions would pay more than a straightforward dermatology enquiry).

In terms of queue jumping, if GPs are going to do additional tasks and diagnostics that are currently done by hospitals, they may need to start with the wait list backlog from their clinic, rather than prioritising people who have just presented. Interviewees told us this patient selection was a problem with GP Fundholding (a scheme created in 1991 to give general practices budgets to buy hospital services for their patients). This meant patients that presented later got treated earlier because the initial waiting list that existed prior to the consultant joining the practice was not taken into account.

There may be ways to triage these cases. AI powered triage already exists for general practice in pockets, but delivering this for secondary care, which includes approximately 60 to 70 specialisms, has not yet been done and would be time consuming to develop given the complexity (not least as it would have to pass regulatory approval in order to be rolled out). It

[138] *2023/25 NHS Payment Scheme, Annex B: Guidance on Currencies*.
[139] Imison and Naylor, *Referral Management: Lessons for Success*.

could be a long-term goal but AI would likely be best applied by clinical specialism rather than overall referrals.

Nevertheless, even in the absence of systematic triage, the population coverage of a GP is much smaller (approximately 10,000) and approximately 9 per cent of their appointments result in a referral.[140] The individual backlog per practice would therefore be substantial but not insurmountable. Nevertheless, it would require additional capacity, at least in the short-term. As outlined in Section 4.4.1 on the Remote General Hospital, more generalist secondary care clinicians, that are not wedded to a particular specialty or hospital, could be deployed to offer at least short-term resource for processing older referrals.

While PbR should be rolled out for a long enough period of time that GPs can plan their resource appropriately, it should also be accompanied by a formal evaluation. It may appear that after a three year trial, alongside new multimorbidity pathways, a block payment only allocated if a certain volume of activity has been provided would be more appropriate than an activity based payment.

Recommendation 5: To test with different population compositions, a group of ICSs with varied demographics should pilot a three-year Payment by Results model in primary care, backed by additional DHSC funding. General practice should receive Payment by Results income for selected outpatients appointment types, with a new tariff reflecting the complexity of cases requiring significant investigation. This should be supported administratively by NHS trusts, underpinned by a new communication and technology infrastructure, as outlined in Recommendations 7 to 9.

Recommendation 6: Following the three-year PbR trial, a formal evaluation should assess its impact on incentives and activity, its suitability across different specialisms, and whether alternative funding models offer better value. This evaluation should be closely aligned with the clinically led pathway reform work in Recommendations 1 to 3. If successful, it could inform a setting-agnostic PbR model.

[140] Hoddinott and Davies, *Performance Tracker 2023: General Practice*.

4.3 Prioritising communication over location

Principle 2: Communication is more important than location

4.3.1 Communication infrastructure

It is well established that, despite efforts to address it, the current technology and communication infrastructure of hospitals and secondary care is inadequate, resulting in substantial productivity losses, lower quality patient care and a risk of worse clinical outcomes.[141] It means a less efficient system that impedes the safe and effective delivery of secondary care outside of the hospital, and prevents integration across different parts of the system.

To deliver the hospital of the future, key infrastructure must be put in place, including:

- An NHS wide clinician-clinician communication platform;
- An NHS directory of clinical staff; and
- A Unified Clinical Record, meaning one national repository for clinical data which serves as the backend to store information for all EPRs used by any NHS health and care provider.

Achieving this will require substantial cultural and operational change. The NHS has a mixed history of delivering large technology infrastructure efficiently and cost-effectively, and too often insufficient time and resource is put into change management. There has also been limited progress in ensuring interoperable systems across primary and secondary care.

Achieving these changes will be far from straightforward, but they are essential for building the hospital of the future. What's more, these changes will enable adaptability and continuous improvement, ensuring the system retains the standard of technology and communication infrastructure they need over time.

The current system

The current technology and communication infrastructure landscape across the NHS is complex, varied and frequently ineffective: there are layers of technology, platforms, and programmes, with very little uniformity, interoperability or adaptability.

There have been attempts to deliver both communication infrastructure and a nationwide health record. In April 2005, the NHS Connecting for Health Agency (CFH) was established to implement the National Programme for IT. Its goal was to create seven nationwide IT services, including a secure NHSmail system and an electronic prescription service. Although many of these services have now been incorporated into everyday practice, the programme's primary objective was never realised: to establish a single nationwide database of electronic health records.[142]

[141] Beacon, Conway, and Semark, *Hospital of the Future: A Framing Paper*, 2024.
[142] James Seymour Morris, 'A Call to Reconsider a Nationwide Electronic Health Record System: Correcting the Failures of the National Program for IT', *JMIR Medical Informatics* 11 (28 December 2023): e53112–e53112, https://doi.org/10.2196/53112.

The Summary Care Record (SCR) – now the National Care Record Service (NCRS) – was introduced to try and overcome the problems resulting from clinicians being unable to access patients' medical history.[143] The SCR/NCRS provides a high-level summary of each patient's GP record, covering allergies, recent acute prescriptions, repeat prescriptions and recently discontinued repeat medications.[144]

However, there have been problems that have prevented the SCR/NCRS from having as much impact as it could in resolving information barrier problems. Secondary care clinicians can only view the SCR/NCRS, and cannot amend or contribute to the record.[145] Only a small snapshot of medical information is included, thus clinicians are still often unaware of pertinent medical information.[146] The information is only sourced from a patient's GP Electronic Patient Record (EPR), meaning important information from other health and care providers, including other hospitals, UTCs, 111, pharmacies and more, will not be captured, again resulting in relevant information potentially being missed.[147]

As outlined previously, the A&G scheme is also inadequate. The time it takes to get responses to A&G queries is too long – at best one week, but frequently three or more weeks.[148] Patients are kept out of the loop throughout the communication between clinicians. Given failure to refer is one of the biggest reasons for patients to complain about their GP, the time A&G queries take can increase the chance of patient complaints.[149] Additionally, there are legal concerns around clinical liability for A&G, that have largely not been addressed at a national level.[150]

Moving to a new model

Clinician to clinician communication platform

The current NHS wide communication infrastructure is inadequate, and there is no simple way for clinicians to quickly and securely contact one another. Innovation tends to happen in pockets rather than across the system. For example, there are several private providers of clinician-clinician communication platforms, helping clinicians overcome the barriers between primary and secondary care. However, these seem to be privately sourced, sometimes by the clinicians themselves, or by the specific care provider.

There are also instances of innovative communication programmes set up and run by specific specialisms in hospitals or trusts. For example, one interviewee for this paper highlighted West Hertfordshire Teaching Hospitals NHS Trust's dermatology programme, aimed at reducing inappropriate referrals. Local GP practices are offered training by the dermatology secondary care team and given a dermatology specific camera. Primary care clinicians then submit queries, with photos, to the dermatology team, prior to referrals. These queries are reviewed by a consultant dermatologist and typically dealt with within 48-hours.

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[143] Beacon, Conway, and Semark, *Hospital of the Future: A Framing Paper*, 2024.
[144] Ibid.
[145] British Medical Association, 'Supporting Effective Collaboration between Primary, Secondary and Community Care in England in the Wake of Covid-19', 2020.
[146] *Best Practice Review of the Implementation of Summary Care Records* (Health Information and Quality Authority, 2020).
[147] British Medical Association, 'Supporting Effective Collaboration between Primary, Secondary and Community Care in England in the Wake of Covid-19'.
[148] 'The Agony around Advice and Guidance'.
[149] Ibid.
[150] 'Do GPs Have Legal Liability When Acting on Advice and Guidance?', *Pulse*, 30 November 2023.

Most patients are then treated in primary care, with only the most serious cases, requiring specialist care, being referred. This shortens waiting times for patients, both those treated in primary care and those referred to the specialists. However, participation by local GP practices is optional, and many have opted out of the programme as they feel unable to take on the additional workload.

An NHS wide platform is needed which enables rapid and straightforward communication between clinicians. An easy, quick and secure clinician to clinician communication platform should be introduced, enabling clinicians – in secondary care or in other parts of the health and care system – to message a relevant specialist to obtain or offer input, guidance and advice for patients when needed. This platform will require a communication tool, to facilitate clinicians' interactions, and an NHS wide directory, to enable the correct clinician to be identified.

Use of the platform will ensure patients that can be treated and/or managed outside of hospitals are, and will reduce pressures on specialist and acute services. Similarly, patients being treated in secondary care – perhaps in a virtual ward or with a more rare condition inpatient – will be able to have greater continuity of care if their less specialist clinicians are able to seek support and input from the relevant specialist.

Developing the platform

There are several options for delivering a clinician-to-clinician communication platform at scale, including developing the platform in house to be rolled out nationally, procuring the platform at a national level or procuring the platform at an ICS level.

Figure 8: The pros and cons of the different delivery options for a clinician-clinician communication platform

	Pros	Cons
Develop in house to be rolled out nationally	• Interoperable by design • Uniform meaning all NHS staff are trained to use the same platform, enabling work across or moving between organisations • Entirely customisable to the exact needs of the NHS and workflows, not limited by what is available from software providers • Upskilling DHSC's digital capabilities • Low vendor lock in risk because the NHS would own the platform	• Generally slower to develop • Must build all AI integrations manually • Developing the platform in house may take longer than procuring • Digital capability to develop this does not currently exist • Potential perception of ICS autonomy being undermined, a current priority of the health and care system • All data housing, cybersecurity, and technical support would be DHSC's responsibility

Procure at the national level	• Ensures uniformity and interoperability nationwide
	• Strong bargaining power with the big providers (compared to procuring at the ICS level)
	• Better economies of scale
	• Competitive instant communication market, enabling economical customising, adapting or upgrading of the platform
	• Quick speed of deployment and proven scalability
	• Would be able to embed cutting edge AI and other data integrations
	• Data housing, cyber security, and technical support would be the responsibility of the expert tech company provider
	  • Likely to be more reliable and effective than if provided by DHSC
		• Risk of vendor lock in, as switching providers is costly
		  • Could contribute to higher long-term costs (for future adaptations and upgrades) due to weaker bargaining position
		  • Risks the platform becoming outdated due to high costs associated with upgrades or switching vendor
		• Less control over it than a completely homegrown solution
		• Potential perception of ICS autonomy being undermined, a current priority of the health and care system

Procure at an ICS level	• Communication platforms can be procured based on local needs and local clinician/provider preferences
	• Contracts may be more flexible because scale of procurement is smaller
	• Potential for innovation to be fostered, as different ICSs can try different options, and then best practice can then be shared
		• Potential interoperability challenges
		  • This may make communication with specialists in another ICS difficult or impossible
		  • Given for some sub-specialisms there's only a handful in the country, this is a significant problem
		• The smaller scale means less bargaining power to get good value for money contracts
		• ICSs may feel/be unable to take on the work of procuring and rolling out the platform given existing demand pressures
		  • This may result in suboptimal procuring and/or suboptimal contracts
		• Inevitable local variation in the quality of the new platforms which may impact their positive impacts and how much they're used
		• Given the difficulty and challenge of switching technology providers at this scale (demonstrated by EPRs), there is significant potential for ICSs to get 'locked in' to suboptimal contracts
		  • This is true despite the smaller scale of procuring theoretically enabling agility

The need for local variation in a clinician-clinician communication platform is limited and therefore procurement at an ICS level is impractical. National delivery enables economies of scale to be maximised, and ensures standardisation and interoperability.

Considering the choice between developing the platform in house or procuring it, there are major trade-offs in both models. It is likely that on balance procurement may be the desirable option, given that it would still enable the customisation of the platform, and would enable government to rely on the scalability of a pre-existing provider. With a national bargaining position, they could also drive better commercial terms. Instant messaging platforms have also existed for decades, and it is well established practice to procure these and adapt for

individual organisations' circumstances, without undermining the security of the conversation. The contract could require integration with other core platforms (e.g. ERPs) to reduces the risk of vendor lock-in, along with bespoke requirements on data protection and cybersecurity (e.g. multi-factor authentication).

Developing the platform in house requires DHSC to have the technical capability to create, test and implement a new platform. It is unclear whether developing this capability would be more or less expensive than procuring the platform. Irrespective, if developed or procured, it is vital that DHSC has sufficient technical digital capability to deliver and run the procured product as a uniform service for all NHS providers. This will require the development of greater DHSC digital capabilities.

Directory

Given the diversity of roles in the NHS, the communication platform should be made of both a communication tool and an NHS directory that is enhanced by generative AI (gen AI). Gen AI is artificial intelligence which can create original content based on a prompt or question, for example ChatGPT.[151]

Creating an internal search function, based on a directory, is a well-established function within large organisations and other than collecting the relevant information about staff, this should not be excessively complex to deliver. Embedding generative AI into this search function to allow for e.g. semantic search should also be relatively straightforward given the growing market in this area, though evaluation will be vital to ensure a high quality of predicted matches.

The querying clinician should be able search their question or problem and gen AI will identify relevant clinicians to message. This is evidenced to be significantly more precise and effective as a search tool than traditional search functions. Its precision for each matches has been suggested as especially important for medical domains.[152] It is also particularly suited to a workforce as large and varied as that of the NHS. Given the diversity of roles, specialisms, and locations in the NHS, an optimised search function would be productivity enhancing. Gen AI has already become commonplace for professional and personal usage, with the majority of businesses making use of gen AI already.[153]

This directory should be procured at a national level, as detailed in Figure 8 and the reasoning above. This could be from the same or a different provider as the communication tool itself. Consequently, DHSC will require the digital capabilities to integrate different commercially-procured products (if multiple different products are required to deliver the overall service), as well as ensuring the tools stay technologically up to date, secure and adaptable.

Clinical liability

A potential obstacle to the successful implementation of this clinician-to-clinician communication platform is clinical liability. This concern is frequently raised regarding A&G. On the one hand, GPs worry about retaining clinical liability for more complex patients, even if they are receiving specialist support to manage them. On the other hand, specialists worry

[151] IBM, 'What Is Generative AI?', Web Page, 22 March 2024.
Cole Stryker and Mark Scapicchio, 'What Is Generative AI?', IBM, 22 March 2024.
[152] 'AI-Powered vs. Traditional Search (Vol.2): AI in Action', *Croz*, 14 March 2025.
[153] Quantum Black AI by McKinsey, 'The State of AI in Early 2024: Gen AI Adoption Spikes and Starts to Generate Value', 30 May 2024. Ibid.

about giving advice for patients they haven't seen themselves and don't have the full medical context for. Similar concerns may be levied against the clinician-clinician communication platform. Given the patient and system benefits, it is crucial that this is addressed.

Recommendation 7: An NHS wide clinician-to-clinician communication platform should be nationally procured and deployed across the whole health and care system. The platform should be tailored to the specific data protection and cyber security needs of the NHS. The current digital capabilities of DHSC need expanding to enable them to successfully monitor the development of the platform, and to successfully run the platform in the long-term.

Recommendation 8: DHSC should procure an NHS Directory, supported by generative AI for semantic search, situated at a national level as a component of the NHS wide clinician-to-clinician communication platform. This will enable clinicians to quickly identify appropriate specialists to contact for input into a patient's case.

Incentivising use of the platforms

Primary care clinicians should be incentivised to keep suitable patients under their care with specialist support via the communication platform, instead of referring the patient to secondary care, because they will be paid for the provision of this care with PbR.

Secondary care clinicians and specialists will also be incentivised to provide this virtual support and input. While there is an inherent incentive to do so because this would reduce the demand pressures on hospitals, responding to messages and queries will still take time away from their other workload. At a hospital level, this may reduce the capacity to see patients who do need treatment within the hospital, with revenue implications.

There are a variety of payment mechanisms which could be used or adjusted for use to reimburse hospitals for diverting clinical time to providing support and input via the communication platform (detailed in Figure 9).

Figure 9: Different variations of Payment by Results (PbR) which can (dis)incentivise (un)desired practices

PbR variation	Explanation
CQUIN	Penalty (ranging for 1.5 to 2.5 per cent of the whole contract) for failure to deliver on set quality goals and targets
Incentives for local service improvement	'Consequences' – either penalties or rewards – for mandatory quality requirements, contract breaches, planned service improvements
Best practice tariffs	Case payment set at day case rate for some procedures, with extra payment conditional use of specialised units
Penalties	No payment for emergency readmission within 30 days and no payment for the occurrence of 'never events', meaning an event which should never happen
'Cherry-picking'	Commissioners adjust tariff downwards if provider limits the types of patients treated, resulting in lower costs
Innovation payments	Additional payments for new devices, drugs, treatments, etc over and above tariff

Source: The King's Fund, 'Payment by Results: How can payment systems help to deliver better care?', 2012.

It is important the financial incentives for secondary care providers do not solely incentivise activity and volume, as this would be likely to reward and promote inefficient and ineffective communication. Instead, they should be paid based on patient outcomes, or speed of responses, or both.

It would be up to ICSs to determine which payment mechanism(s) they wish to implement for secondary care clinicians, but, for example, payments could be made for each resolved elective patient case which stays out of secondary care. This payment could come with reductions in the rate if responses were on average slower than a set minimum. This would be a version of best practice tariffs, and incentivises secondary care clinicians to help resolve elective cases as efficiently as possible (to then receive the tariff) and to respond to messages quickly (to receive the bonus and avoid the penalty).

4.3.2 Unified Clinical Record

Despite the fact attempts to develop a consistent electronic patient record (EPR) throughout the NHS began two decades ago, clinicians and patients alike continue to suffer the absence of an NHS wide solution.

It is unthinkable that the hospital of the future will not have patients' clinical information easily accessible to every clinician. While shifting from a jigsaw of non-interoperable EPRs delivered by a variety of providers to a model of shared access is clearly not straightforward, the end outcome – seamless access to patient information – will be worth it.

A substantial barrier to effective and efficiently delivered care is a lack of access to, or interoperability of, different providers' patient records. This means, for example, that tests may be repeated, lengthy conversations needed with patients to understand their medical history, and reasons for particular prescribing decisions are unknown. At worst, this information barrier can cause patient harm.

The current state of play

NHS trusts currently have the option to choose from 40 different approved suppliers.[154] Due to competition, these suppliers offer limited cross compatibility. This means NHS staff cannot always access notes from previous admissions due to them being recorded on a different EPR system, nor can they always access previous laboratory results and radiographs with which to compare recent investigations.[155]

For example, one study found that in one year, on more than 11 million occasions, patients sought care at a trust that used a different EPR system than their previous attendance, implying that for 9.1 per cent of all acute presentations, clinicians could have been left uninformed about their patient's recent medical history.[156] There is inconsistent record sharing between providers, but where there is shared access, clinicians may be able to see the notes and results, but the information may be recorded differently and the clinicians cannot easily add to records.

There have been many attempts to resolve this issue. For example, the Summary Care Record (SCR) – recently renamed the National Care Record Service (NCRS) – offers a snapshot of the most crucial patient information from their GP record.[157] However, as detailed above, there have been many logistical problems that have prevented the SCR/NCRS from sufficiently resolving information barrier problems.

Another issue with the EPR landscape is that healthcare providers often become locked into their EPR contracts or reliant on a specific provider. Each EPR, even if it is supplied by the same provider, is configured uniquely. This means the backend – the part of the EPR responsible for recording and storing each patient's clinical information – varies from one EPR to another.

Consequently, if a hospital or healthcare provider wants to transition to a new EPR system, the process is incredibly complicated, costly and time consuming. Extracting the data from the previous EPR's backend is a difficult task, and this data must then be restructured for the new EPR. This typically takes years and costs millions, or hundreds of millions, of pounds.[158] Training staff to be able to use a new system is also an expensive and time consuming

[154] Morris, 'A Call to Reconsider a Nationwide Electronic Health Record System'.
[155] Ibid.
[156] Leigh R Warren et al., 'Improving Data Sharing between Acute Hospitals in England: An Overview of Health Record System Distribution and Retrospective Observational Analysis of Inter-Hospital Transitions of Care', *BMJ Open* 9, no. 12 (December 2019): e031637, https://doi.org/10.1136/bmjopen-2019-031637.
[157] Beacon, Conway, and Semark, *Hospital of the Future: A Framing Paper*, 2024.
[158] Jordan Sollof, 'Guy's and St Thomas' Delays £450m EPR Go Live to Ensure Safety', *Digital Health*, 1 March 20223; Sheffield Health and Social Care NHS Foundation Trust, 'SHSC – EPR – Full Business Case', Business Case, 22 December 2021; ehi INTELLIGENCE, *Routes to EPR: Trust Strategies for Electronic Patient Records and Progress towards Paperless Working*, 2013.

task.[159] As a result, providers are often reluctant or unable to transition to a new EPR, regardless of the quality of their current one.

Accordingly, the EPR market is far less competitive than it could or should be. This is a huge problem because it means the quality and functionality of EPRs is much lower than it could be and their costs not sufficiently competitive. Interviewees consistently stressed that many EPRs' functionality is suboptimal, despite their high price tags. Similarly attributable to an uncompetitive market, interviewees described currently available EPRs as failing to offer particularly innovative solutions and seeming to be advancing technologically slower than other products.

To ensure seamless care for patients throughout the health and care system of the future, this lack of a competitive EPR market must be addressed.

The table depicted in Figure 10 (below) compares two potential solutions with the current state of play. The first proposed solution is one national EPR. This would address the lack of interoperability between EPRs and the absence of shared access to patient records across health and care providers. However, this solution would fail to promote competition in the EPR market and there's a risk the national EPR could quickly become outdated.

Rather, one national clinical data repository – known as the Unified Clinical Record (UCR) – is proposed. The UCR would function as the backend for any and all EPRs, and all health and care providers would use it. Providers would then procure their own EPR software on top of this to use in combination with the UCR. Not only would this successfully resolve any interoperability and access issues, it would also make switching from one EPR to a different one a simple process. Easy switching between EPR providers and EPR system would promote a far more competitive EPR market, while simplifying and unifying the data.

[159] 'A Way Forward for NHS Trusts Struggling to Implement Electronic Patient Records', *Digital Health*, 7 November 2023.

Figure 10: Comparison of different options to address the issues in the EPR landscape

	Providers procuring their own EPRs	Summary Care Record	One national EPR	The Unified Clinical Record with providers procuring their own EPR
Current model?	Yes	Yes	No	No
Encourages EPR market competition?	No	No	No	Yes
Where does the information held come from?	The health or care provider records each patient's information	Each patient's GP EPR	All health and care providers a patient interacts with	The health or care provider records each patient's information, which runs on the national repository
What information does it hold?	The patient's entire medical history with that health or care provider, and any patient information shared with them by other health and care providers	The highlights of the patient's medical history held by their GP practice, including key personal information, current medication, allergies, and bad reactions to medicines	The patient's entire medical history from across all health and care providers	The patient's entire medical history from across all health and care providers
Who can access this information?	Clinicians and appropriate administrative staff from the provider whose EPR it is and from other providers, if there is a shared access agreement	Nearly all clinicians, including from 111, A&E, ambulance care, other emergency secondary care, community services, out-of-hours GPs, mental health teams, hospices, and maternity services	All clinicians and appropriate administrative staff	For each provider, anyone who can access their EPR can access relevant information for their patients
Can individual patients opt out?	No	Yes, via their GP practice	No	No
Is the information live, i.e. up to date?	No, because the EPR does not automatically hold information from other providers	No, because it only holds information from the patient's GP records	Yes	Yes
How interoperable is it?	It depends on the EPR	It is a web-based application, so it is accessible for all clinicians regardless of the IT system they use, but different EPRs are more and less interoperable with the SCR	Fully interoperable	Fully interoperable
What does transitioning involve?	N/A (already the case)	N/A (already the case)	EPR providers would need to shift to new uniform data codification standards, a common data model, interoperability requirements, and data quality requirements; and NHS staff would need to be retrained to use their EPR once the transition has occurred	EPR providers would need to shift to new uniform data codification standards, a common data model, interoperability requirements, and data quality requirements; and NHS staff would need to be retrained to use their EPR once the transition has occurred

Transitioning to the UCR

Development of the repository

Unlike the communication platform consisting of a communication tool and NHS wide directory, there is a stronger case to develop this national clinical data repository in house. The NHS already runs several database infrastructures, and there is less need for sophisticated AI to be integrated. These include NHS Spine, Personal Demographics Services, Hospital Episode Statistics, the Electronic Prescription Services, and the NHS App. While some of these vary in quality, more of the digital capability already exists in DHSC which would be needed for developing the national clinical data repository.

There is also a distinct longevity benefit to keeping this database in house rather than procuring it. It may also have a public interest benefit, particularly since it will house sensitive patient data.

Interoperability

To successfully transition to the UCR, first a process of clinical data standardisation will need to occur to create sufficient uniformity and interoperability across all the distinct EPRs currently in use. DHSC will therefore need to set national standards, then require current EPR providers and any potential EPR providers wanting an NHS contract to adhere to these standards.

These uniform national standards will include: data codification standards covering coding for diagnostics, results, observations, medications, scheduling information, definitions and more; a common data model; interoperability requirements across EPRs; minimum data quality standards; and security requirements.

There will be a transition period in which health and care providers and EPR providers collaborate to restructure their clinical information, stored in the backend of their current EPR, to meet these new standards.

There could be a significant cost associated with this restructuring of clinical data. While unfortunate, shifting to an EPR landscape in which all EPRs are interoperable and data is easily accessed across organisations is an essential component of a modern healthcare system and this does require uniform data standards. What's more, the longer this inevitable and necessary transition is delayed, the more clinical data there will be to restructure which will only make the transition more difficult.

To encourage this restructuring to happen quickly, DHSC could consider financial incentives to EPR providers that meet the new national data standards and shift to an interoperable model within a certain time frame.

Although this precondition to deliver the UCR is notable, other countries have successfully undertaken similar programmes. Singapore implemented their National Electronic Health Record (NEPR), which providers began contributing to in 2011.[160] The NEHR aggregates patient records from across different care providers into one record creating what is essentially a single nationwide EPR.[161]

[160] Government of Singapore, 'Synapxe', Web Page, n.d., accessed 25 February 2025.
[161] Ibid.

Singapore, like England, originally had a variety of preexisting EPRs supplied by different commercial providers that were not interoperable, had various data sources, with different data codification and standards, different basic definitions and more.[162] However, a year-long programme to synchronise and integrate the legacy systems with the new NEHR system was successfully undertaken.

The scale of this project in Singapore was clearly orders of magnitude smaller than would be required in England – Singapore's population was 5.2 million in 2011 compared to England's current population being just under 60 million.[163] It is therefore likely such a project in England would be more complex and take longer, but the Singapore case still demonstrates this restructuring of data to uniform national standards is feasible.

Data security and patient privacy concerns

Data security concerns may be levelled against the UCR. Data security is primarily dependent on the security of the data housing. Currently, data housing is highly fragmented across the NHS, meaning the extent of data security is likely very varied. The clinical data of EPRs is largely stored in secure data centres hosted by the EPR provider. These vary because NHS providers – hospitals, general practice, social care – have procured different EPR systems. This highlights that the current security of clinical data is neither uniform nor optimal. The rollout of the UCR therefore presents an opportunity for DHSC to assess the current security of clinical data and take any necessary actions to address any such issues.

Furthermore, EPRs are not even fully rolled out throughout England, and some data storage is still in fact paper based. In a 2023 survey from the British Medical Journal, 71 per cent of trusts were still using both paper and electronic records.[164]

Lastly, there may be concern about patient privacy – a common concern in medical contexts. However, clinicians, especially in secondary care, consistently cite a lack of access to their patients' medical history as contributing to patient safety risks and worse health outcomes.[165] A balance must be struck between enabling the highest quality, most seamless care possible and protecting personal privacy, especially when more information is available to clinicians. DHSC should investigate whether additional privacy preserving protections are necessary and act accordingly before the UCR is implemented.

Recommendation 9: ICSs should design financial incentives to encourage secondary care providers to allocate clinician time for specialist input via the clinician-to-clinician platform. These could be 'carrot or stick' depending on what the ICS identifies as appropriate. The financial incentives should be oriented around rewarding efficient, outcome-focused communication rather than volume.

[162] Hospital & Healthcare Management, 'Singapore's Journey to Build a National Electronic Health Record System', n.d., accessed 25 February 2025.
[163] Singapore Department of Statistics, *Population in Brief 2011*, 2011; Office for National Statistics, 'Population Estimates for the UK, England, Wales, Scotland and Northern Ireland: Mid-2023', Web Page, 8 October 2024.
[164] Jo Best, 'NHS Still Reliant on Paper Patient Notes and Drug Charts despite Electronic Upgrades, *The BMJ* Finds', *BMJ*, 13 September 2023, p2050, https://doi.org/10.1136/bmj.p2050.
[165] Rosie Beacon, Florence Conway, and Alice Semark, 'Hospital of the Future: A Framing Paper' (Reform Think Tank, December 2024).

Recommendation 10: A Unified Clinical Record (UCR) – a single national clinical data repository, serving as the backend for all EPRs – should be rolled out. For any EPR to be eligible for use in the NHS, it must use the UCR as its backend and offer an interface that sits on top of the UCR. All health and social care providers in England must use the UCR to store their clinical information, and then procure an eligible EPR for use in conjunction with the UCR.

Recommendation 11: DHSC should set uniform national standards, covering: data codification standards (including coding for diagnostics, results, observations, medications, scheduling information); a common data model; interoperability requirements across EPRs; minimum data quality standards; and security requirements.

Recommendation 12: Legislation requiring adherence to these standards (Recommendation 11) should be implemented for the NHS and EPR providers. There should be a transition period (defined by technical experts) for clinical data to be restructured to meet these uniform national standards.

Recommendation 13: The UCR should be developed and piloted in a group of ICSs during a transition period, refined through iteration, and formally approved. Following this trial, it should be rolled out nationally across all health and care providers.

Recommendation 14: DHSC should introduce mandatory NHS guidance capping EPR at a maximum of five years. Shorter EPR contracts will promote competition, incentivising higher quality, more innovative, and diverse EPR solutions at better value.

4.4 Redefining the hospital around remote care

Principle 3: Virtual hospital care will be a foundational element of a modern hospital

4.4.1 Remote General Hospital

If a hospital is to be 'virtual by default' and if only the most complex and high-risk care should take place in the physical hospital building, then infrastructure must be developed that can replicate a significant portion of hospital tasks outside of the hospital, and which does not involve the relocation of specialist staff.

While current remote forms of hospital care – virtual wards, remote monitoring and some digital consultations – indisputably make a difference, they do not cover the majority of services that a hospital provides. They are also particularly targeted towards frailty and long-term condition management, and while these do constitute a large portion of demand, a substantial amount of the demand on hospitals will not fall into either category and is largely managed via the traditional analogue model.

As a result, these innovations are a necessary but not sufficient condition for a virtual-by-default hospital. Given the range of specialist functions a hospital provides – emergency treatment, diagnostics, inpatient care, outpatient care, and surgery – a more expansive approach is needed before a sizable proportion of secondary care becomes virtual by default. Cross cutting remote hospital infrastructure should exist that can provide some of the services a traditional hospital would provide.

This should be achieved via the roll out of Remote General Hospitals, which would ideally sit at a larger population scale than a typical District General Hospital, preferably managed at the ICS level or even merged with another ICS. Various fragments of a virtual secondary care already exist, but the aggregation of them within one unit across a large population scale has never been done.

The benefits of using an entirely remote hospital unit are extensive. It is cheaper to roll out and maintain the service, it is more efficient for certain types of care, it can enable more high intensity care more frequently for more complex patients, it suits patients who are less mobile, it is more convenient particularly for A&E, it more effectively embeds AI and machine learning, it enables staff to work from home, and it can be scaled extremely quickly.

A Remote General Hospital cannot, of course, replicate the entirety of the physical hospital, and should not attempt to. There are several functions that it would not be able to provide, such as surgery, diagnostic scans, physical examinations, and intensive care. But evidence outlined below suggests that it can broadly be more efficient and effective, with a good patient experience, when applied to the appropriate hospital functions.[166]

[166] *Rapid Deployment of Emergency and Outpatient Opthalmology Video Consultation Services at Moorfields Eye Hospital* (NHS England, 2020); *HUC's Award Winning Virtual Waiting Room Service* (HUC, 2021); Seema Verma et al., 'Ophthalmology Demand-Capacity Management in South East London through a Single Point of Access (SPoA): A New Model Using NHS eRS', *Eye* 39, no. 2 (February 2025): 382–84, https://doi.org/10.1038/s41433-024-03486-3.

With this in mind, the broad functions of a Remote General Hospital could be fourfold:

1. Urgent care
2. Referral management
3. Remote outpatient pathways
4. Complex long-term condition management of high intensity patients

Accident and Emergency

Delivering virtual accident and emergency services has reasonably compelling evidence to support its rollout. Previous examples have illustrated the range of benefits it can offer in triaging and directing emergency cases and ensuring the only people in the physical hospital building are those that need to be there.

In the short-term, it is worth noting that these models are extremely quick to scale. In its first month, Moorfields created 32 virtual waiting areas to support different services, and two of the large services had already scaled to large patient volume with A&E seeing 40 to 50 patients each day.[167]

Once scaled, these models are notably efficient. Patients are sent to the right place at the right time, rather than a range of people with a range of different needs presenting in one place. They also demonstrate improved patient experience and accessibility. A&E is inconvenient for patients with delays often taking significant time out of the day, physically sitting in a waiting room. Shifting this wait into the home or workplace could minimise the inconvenience for patients, allowing them to use that time productively, without undermining their ability to obtain medical advice.

Moorfields A&E

Moorfields Eye Hospital is one of the largest providers of ophthalmology services in Europe. Between 2018 and 2019, the trust handled nearly 800,000 patient encounters. During the pandemic, Moorfields rapidly deployed the 'Attend Anywhere' platform to provide video consultations to patients at home.[168]

Preliminary data suggested 86 per cent of patients managed in the A&E service can avoid the need to visit the hospital, and of those who attend, clinical details were provided to the receiving team via instant messaging to minimise assessment and contact time. What's more, the availability of clinicians was not a limiting factor in the A&E service, with calls answered after sixty seconds of patient wait, on average. The trust estimated that it was able to avoid more than 540 face-to-face appointments within the first two weeks of launching its video consultation service.[169]

Two clinical models were launched:

- Drop-in video consultations

These were launched by the A&E department less than 48 hours after the UK lockdown was announced. Patients do not need an appointment and can access a virtual waiting room via a link on the Moorfields website. Care is delivered by ophthalmologists – mainly trainees

[167] *Rapid Deployment of Emergency and Outpatient Opthalmology Video Consultation Services at Moorfields Eye Hospital*.
[168] Ibid.
[169] Ibid.

who are able to work from home. Senior and sub-speciality input to these consultations is supported by a separate clinical instant messaging app.

- Scheduled invitation only video consultations

Patients needing specialist consultation services – usually for conditions affecting the area around the eye, such as cancers – are contacted by phone, email, or text with an appointment time and information about how to join the virtual waiting room.

Cambridge and Peterborough virtual A&E

HUC (a social enterprise), Cambridge University Hospital, Northwest Anglia Foundation Trust, and the Clinical Commissioning Group at the time, collaborated to pioneer a virtual waiting room service.[170] During the trial, the Virtual Waiting Room downgraded an average of 66 per cent of potential admissions to A&E.

A healthcare professional with experience with minor injuries would consult with the patient via video as the first step. Often this can result in an alternate treatment, e.g. a patient with a possible fractured wrist could be sent for an X-ray at an Urgent Treatment Centre rather than the ED. Other alternatives to the ED include attendance at a GP practice, Minor Injury Unit, dentist or pharmacy, or self-care.

For patients who are assessed as requiring an ED attendance, the consultant can often arrange for diagnostic tests, e.g. scans or X-rays to be taken before the patient attends the department, saving the patient waiting time and congestion in the waiting room. They can also arrange an immediate referral to a speciality, bypassing the ED entirely.

Referral management

A new and more effective approach to referral management is essential. The current system is struggling to meet demand now, and demand will only continue to grow. Waiting lists for elective secondary care are vast: 7,428,309 patients in January 2025.[171] The number of referrals being rejected by secondary care are greater than pre-pandemic, despite similar levels of referring.[172]

As outlined in Section 4.1, there have been numerous attempts in the past to manage referrals for secondary care more effectively. Broadly, for an elective referral there are two stages. First, identifying necessity – managed via collaboration with primary care. As Recommendation 6 intends, improving access to specialist care in primary care would help in identifying the *necessity* for referral.

Second, identifying the destination of the referral and managing the process. This will need to be carried out by secondary care clinicians. Particularly for elective care, it involves diagnostic tests and assessments that will need to be examined by a clinical specialist. With the increasing levels of complexity and sub-specialisation within specialist services, it is also getting more difficult for primary care clinicians to correctly select the best destination for each referral, particularly in the absence of specialist diagnostic tests that are commissioned and managed at a secondary care level.

[170] *HUC's Award Winning Virtual Waiting Room Service*.
[171] NHS England, 'Referral to Treatment (RTT) Waiting Times', Web Page, 2025.
[172] *GP Referrals; Part 1 - The Referrals Black Hole* (Healthwatch England, 2023).

The referral management role would encompass three key responsibilities:

- Ensuring appropriate referrals;
- directing referrals to the most appropriate pathway; and
- managing appropriate referrals for diagnostics if their appropriate pathway is yet to be determined.

Ensuring appropriate referrals

A core aspect of referral management is ensuring appropriate referrals. Most intuitively, this means filtering out the referrals which are not medically needed.

The Remote General Hospital could reject these referrals, providing advice to the referrer as to why this referral was inappropriate, helping referrers learn and improve their future practice. Interviewees also highlighted that, in more advanced models, AI could be used to identify patterns of unnecessary referring, both from individual primary care clinicians and primary care organisations. Targeted training would then be provided to the individual or organisation to help improve their referral practice.

Directing referrals to the most appropriate pathway

For accepted referrals, this would include both escalation and de-escalation based on urgency, as well as identifying patients suitable for specific secondary care initiatives in the area. This helps ensure patients receive the most appropriate care within the most appropriate timeframe, including escalating referrals for patients who actually need emergency care immediately. It also improves the efficient delivery of health services and allocation of resources.

Once urgency is determined, referrals will be allocated to the most appropriate pathway. This includes determining the correct specialism, the correct sub-specialism within that specialism, and the most appropriate way for care to be delivered.

There are a vast number of sub-specialisms within any specialism. It is therefore persistently an issue that referrals are made to the wrong sub-specialism.[173] Sometimes this means a patient will wait for their first appointment, only to find out this is not the right clinician to help them and have to restart the wait, joining a new waiting list for the appropriate specialist. This is a waste of both the patient's and the clinician's time, as well as risking a patient's condition deteriorating while they wait for the right care. The Remote General Hospital will be far better able to match appropriate referrals to the right specialists, significantly improving this issue.

Currently, there are many different routes for patients with similar conditions to receive similar secondary care. Performance against waiting time targets, across diagnostics and treatment, vary depending on the route patients take. For example, there are three different referral routes for a patient to receive a cancer diagnosis and performance against the 28-day faster diagnosis standard varies across the four most common types of cancer in England.[174] The Remote General Hospital undertaking referral management could help to

[173] Verma et al., 'Ophthalmology Demand-Capacity Management in South East London through a Single Point of Access (SPoA)'.
[174] Care Quality Commission, *The State of Health Care and Adult Social Care in England 2023/24*, HC 274 (House of Commons, 2024).

standardise and streamline these processes, ensuring effective and fair prioritisation and demand management.

Lastly, for unnecessary referrals rejected back to primary care, these could include recommendations of the appropriate pathway for the patient in primary care. For example, a patient's condition may be most suitable for GP care, or community nursing, or local primary care initiatives.

Managing appropriate referrals for diagnostics if their appropriate pathway is yet to be determined

Many referrals require secondary care diagnostics before the appropriate next steps for their care can be determined. In March 2024, 1.62 million patients were waiting for a secondary care diagnostic test or procedure after being referred from primary care.[175] Nearly a quarter, 22 per cent, waited longer than the target six weeks.[176] Yet only once diagnostics are completed and interpreted will these patients join the waiting list for whichever secondary care speciality they need to receive treatment from.

This is an inefficient, unfair and stressful process. The Remote General Hospital could instead manage this group of patients, including communicating with them, ensuring they undergo the relevant diagnostics, interpreting their results and then allocating them to the most appropriate pathway. This will ensure more efficient, seamless and coordinated care for patients.

Benefits will also be felt by the system, as well as the patient, because Remote General Hospitals will be able to better manage and balance diagnostic demand. Remote General Hospitals will sit at a larger scale than trusts, meaning they can balance demand across the whole area they cover.

South East London Ophthalmology referral management

In 2020, an Acute Provider Collaborative was formed, bringing together all the acute NHS trusts in South East London.[177] To address ophthalmology demand and capacity problems, the Collaborative created a Single Point of Access (SPoA) to undertake referral management of all routine ophthalmology referrals.[178]

Primary care clinicians were required to make their routine referrals to the SPoA and experienced optometrists from the minor eye condition secondary care service in the area triaged all referrals within 24 hours.[179] The optometrists triaging referrals provide feedback for rejected referrals, escalate any referrals which are more urgent than routine and book the remaining accepted referrals into the right care at the trust of the patient's choice.[180] In its first year, the SPoA released an additional 2,184 Hospital Eye Service appointments and in the second year, 3,617 additional such appointments.[181]

[175] Ibid.
[176] Ibid.
[177] Verma et al., 'Ophthalmology Demand-Capacity Management in South East London through a Single Point of Access (SPoA)'.
[178] Ibid.
[179] Ibid.
[180] Ibid.
[181] Ibid.

In the decade before, there had been attempts at the trust level to manage ophthalmology demand, including a programme which directed less serious referrals to a distinct secondary care service.[182] However, such attempts were largely unsuccessful highlighting important components needed for successful referral management. [183] Firstly, referral management is more likely to be effective when occurring at a larger scale and mandatory use of the service makes success more likely.

Entirely remote pathways

The evidence outlined in Section 4.1.2 demonstrates there is a clear efficiency and effectiveness benefit to remote outpatient appointments. Remote pathways will not be universally appropriate, but they can help to expedite the process of obtaining the right diagnostics and/or referral to a face-to-face appointment in a traditional hospital setting.

Remote appointments were normalised during the pandemic, but their rollout in a secondary care setting has been slower than that of primary care. While the 2019 Long Term Plan intended for more appointments to be delivered remotely, it was the pandemic that expedited their use. Since then, they have declined quite significantly. Only 15 per cent of first outpatient appointments took place remotely in 2023-24,[184] while 35.6 per cent of appointments in general practice happened remotely in December 2024.[185] 24 per cent of follow up outpatient appointments took place remotely.[186]

There may be legitimate logistical reasons for this: the patient may need multiple diagnostic tests, a physical examination and a conversation that needs to be delivered face-to-face. As outlined in Figure 11 below, there are straightforward ways of identifying the appropriateness of a remote consultation. Factors tending towards remote consulting include the extent to which the patient is in good control of their disease, the patient and/or carer is well educated in disease management, no physical intervention is required, and the patient is perceived to be able to handle the technology. From this point onwards in a Remote General Hospital, the patient can be referred to the relevant NHS trust.

However, setting up a remote consultation service in a face-to-face setting requires designing a new pathway, agreeing cross department procedures and new clinic templates.[187] With service pressures from backlogs, higher emergency activity and workforce shortages, it is difficult to find the time and space for service improvement. As in many types of innovation in health care, there is often no strategic roll out plan, and it is generally considered an add-on to a broadly analogue system.

There are significant practical and managerial issues that need addressing in order to develop and implement new remote outpatient care pathways in a traditional bricks and mortar hospital setting. These are mostly oriented around finding the time for service improvement and developing new pathways, which are addressed by Recommendations 1 to 3 in Section 4.2.1.

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[182] Ibid.
[183] Ibid.
[184] NHS England, 'Hospital Outpatient Activity 2023-24: National Statistics, Accredited Official Statistics'.
[185] NHS England, *Appointments in General Practice, December 2024*, 2025.
[186] NHS England, 'Hospital Outpatient Activity 2023-24: National Statistics, Accredited Official Statistics'.
[187] Richard Lewis et al., *Learning from the Pandemic Shift of Outpatient Services to a Remote Footing: A Rapid Evaluation Study* (Birmingham Health Partners, 2023). Ibid.

In a Remote General Hospital setting, a variety of clinical specialisms, depending on case complexity, could be suitable for remote pathways, including image-based specialisms such as dermatology or ophthalmology. There are also some specialisms which can be assessed via test result reviews and medication adjustments, such as endocrinology (the management of diabetes and thyroid disorders), or rheumatology, which may require symptom discussion and test monitoring, rather than physical examination. Many specialisms are suitable for follow up consultations, but initial consultations may often need to be held face-to-face.

Figure 11: Appropriateness for remote consulting

	High propensity for remote consulting	Low propensity for remote consulting
Patient factors	• Known to clinical team • Strong technological capability and access • Travel to hospital would be significant • Would benefit from minimised loss of education or work opportunities • Patient desire for remote consultation	• Vulnerable patient or family • Evidence of digital exclusion • Consultation involves confidential discussion not possible in patient's home environment • Physiological obstacles, such as a hearing impairment • Patient desire for face-to-face consultation
Clinical factors	• No requirement for physical examination • Stable disease and/or high confidence in patient self-management • Clinical preference for digital consulting	• Requirement for physical assessment • First or a particularly significant appointment • Unstable disease and/or patient unable to self-manage their condition • Clinical resistance to digital consulting

Source: Birmingham Health Partners Centre for Regulatory Science & Innovation, 'Learning from the pandemic shift of outpatient services to a remote footing: a rapid evaluation study', 16 March 2023.

Complex long-term condition management of high intensity patients

The final purpose of a virtual hospital model could be in designing specific virtual hospital schemes for high intensity patients. This inevitably includes remote monitoring, but it can also include frequent contact with healthcare specialists for patients with multiple conditions who experience daily symptoms. Where this has been rolled out in the US, it successfully diverted significant demand from attending the hospital.

While a model of more proactive long-term condition management with clinician involvement would be a novel service in the UK, clinician time spent communicating with complex patients would indisputably be more cost-efficient and clinically effective than waiting for them to present at A&E.

Mercy Virtual Care

Mercy Health is a US based healthcare provider with a network of hospitals, clinics and specialty care centres. In 2015, Mercy set up their Virtual Care Center, a combination of remote monitoring and emergency long-term condition management.[188]

The premise of Mercy's approach was to target the sickest of their patients – the sickest 5 per cent are responsible for 50 to 60 per cent of expenditure – who were frequently moving in and out of inpatient and outpatient settings. The traditional healthcare system was not equipped to deliver the high-intensity care needed for this group of complex patients.

This approach differs from just remote monitoring in that it is also includes regular communication with clinicians, especially when there is a flare up of symptoms. While, as detailed in chapter 2 and sections 4.2 and 4.3.1, most long-term conditions should be managed at a primary care level through multidisciplinary teams, the sickest 5 per cent will likely be of a level of severity that pushes them beyond primary care.

Patients with chronic diseases often deal with a daily symptom burden and do not want to be a burden to family members.[189] Because of this, many patients wait until symptoms are so bad they have no choice but to call emergency services. Before the rollout of this model, the system was not set up to offer on-demand daily symptom triage and management.

Mercy's model takes remote monitoring further in that it enables the patients to communicate on a daily basis with clinicians and navigate their conditions. It was explicitly designed to be a high-intensity service, enabled by remote communication. This included home biometric monitoring, daily surveys and real-time access to providers. This enabled comprehensive, high intensity, individualised care that was previously not possible. It is staffed by internal medicine consultants (a generalist clinician whose work encompasses a wide range of medical conditions across multiple organs).

Within a few months, they began to see decreases in hospital utilisation, patient days in hospital decreased, and patient satisfaction scores at 98 per cent favourable. Patients increasingly started to enrol and it quickly expanded to other communities in Missouri, Arkansas and Oklahoma.

This model was then augmented with patient segmentation, AI, and machine learning. This enabled staff to prioritise their patients, automate tasks and notify staff when patients are not responding to them.

Moving to a new model

The main delivery considerations for a remote general hospital are scale, software, technology infrastructure, staffing, and designing new pathways. Both technology infrastructure and new pathways have specific recommendations outlined in previous sections.

Scale

Since a Remote General Hospital would provide less services than a traditional bricks and mortar hospital, could move through appointments faster, and have lower fixed costs than a

[188] Bill Siwicki, *Mercy Virtual Care Center: A Deep Dive into a Virtual Hospital* (Healthcare IT News, 2023).
[189] Bill Siwicki, *Mercy Virtual Care Center: A Deep Dive into a Virtual Hospital* (Healthcare IT News, 2023).

hospital, it could serve a much larger group of people at less cost. This would preferably be at a regional level, but could begin at an ICS level.

ICSs should embrace the fact that a remote hospital would not be bound by physical capacity and local geography and try and maximise its use as far as possible with the staff available. Typically, a DGH serves around 300,000 patients, while the population coverage of an ICS is 500,000 to 3 million people. Depending on the size of the ICS, it could also merge with neighbouring ICSs (which would enable sharing of the capital investment).

Crucially, software has lower marginal costs and so once digital systems are built, adding more patients does not increase costs significantly. Traditional hospitals need more space, equipment, and staff as they scale, whereas a remote setup may just need more bandwidth and digital infrastructure.

Software, scalability, and capital

The rapid scalability of technology is what has made it such a transformational innovation in society. Services can reach unprecedented volumes of people almost instantaneously. Scaling a Remote General Hospital would naturally involve procurement of the relevant software, of which there are numerous options off-the-shelf.

Getting the software running is the major operational enabler (rather than having to build an entirely new building) and is not comparatively resource or labour intensive, especially in comparison to a traditional District General Hospital. As outlined previously, in its first month, Moorfields virtual A&E managed to create 32 different waiting areas, onboarded 131 clinicians with 35 participating in video consultations in the first five days, with A&E seeing 40 to 50 patients each day.

This contrasts to the time it takes to provide exactly the same services in a physical setting: construction of a hospital alone takes 3.5 to 7 years, but from inception to delivery, it can take as long as 11 years, when design, business case and approvals are taken into account (and these are considered an underestimation).[190]

While the operational delivery of the software is less problematic, securing funding for capital investment can be. The NHS capital regime is widely considered to be flawed, particularly in how it inhibits investment by trusts. It often requires trusts to obtain approval from DHSC in order to spend their capital allocation, particularly if it is a larger sum. DHSC also often holds back allocations to avoid overspend, meaning that trusts might receive some of their capital allocation half-way through the year and so rush to spend it so as to avoid losing the allocation.[191]

With these flaws acknowledged, in this model, trusts would ideally not be the organisations investing in the Remote General Hospital as it should sit at a much higher population scale than a traditional hospital. £4.1 billion out of £7 billion in Capital Departmental Expenditure Limits (CDEL) was allocated directly to ICBs in 2024-25. [192] This means, even in the current model, ICBs would have the autonomy to make the capital investment themselves.

[190] '20 Years to Build a Hospital? How to Save up to £7.5m by Speeding up Design and Approvals for New Hospitals & What This Could Mean for the New Hospital Programme', *The PSC*, 6 February 2024.
[191] Debbie Paterson, *Review of the NHS Capital Financing Regime* (HFMA, 2025).
[192] Ibid.

There is a further question as to whether the money to sustain the software should be revenue or capital spending. As most digital technology uses off-the-shelf components which have subscription-based models, more digital products will be maintained from revenue budgets.[193] For example, Microsoft licenses are paid on a subscription basis and the software is continually updated by the provider, rather than through one-off investments by the customer for a particular version of the software. As spending patterns change to favour software spending on revenue rather than capital, this will need to be considered by rebalancing budgets for digital transformation in favour of revenue.

Staffing and training

Since virtual outpatient appointments already take place, as does emergency triage over the phone via 111, transitioning to this model for particular pathways should not be a major technical shift for clinicians.

Moorfields also found that onboarding can happen quickly and clinicians acclimatise quickly, evidenced by the fact that time spent training was quickly outstripped by consultation time within five days of the full platform launch. This was during the pandemic, since which remote working has been more normalised and it is likely that less onboarding will be necessary.

In terms of staffing a Remote General Hospital, evidence strongly indicates that clinicians want less traditional medical careers, that home working is desired, and that more flexibility helps retention.

The General Medical Council (GMC) found in their 2023 workforce report that rising numbers of doctors are moving away from the traditional postgraduate training model and instead choosing increased flexibility and less linear career pathways.[194] These can include training breaks, working part-time or as locums. The Royal College of Physicians also found that doctors want to work more flexibly, in a survey of 1,523 of their fellows, 76 per cent want to do more working from home.[195]

The number of doctors that are not associated with a specialty has also increased significantly, suggesting doctors want less linear career pathways. Specialty and associate specialist (SAS) doctors (senior experienced doctors not in formal training programmes, but who can still play important roles in delivering patient care across specialties) and locally employed (LE) doctors (doctors not in training, and not wedded to a speciality, hired by a local NHS trust usually on fixed term contracts) have increased substantially. Doctors working in these roles now make up almost a quarter (24 per cent) of the total workforce, and LE doctors increased by 75 per cent between 2019 to 2023.[196]

Many of these individuals will go on to specialise. A large portion of these doctors originate from a growing proportion of UK graduates taking a longer time away from training after completing their foundation years or who are migrant doctors who do not initially meet the

[193] *Performance Review of Digital Spend: Enabling Strategic Investment and Innovation* (HM Treasury; Department for Science, Innovation and Technology; Government Digital Service, 2025).
[194] *The State of Medical Education and Practice in the UK, Workforce Report 2023* (General Medical Council, 2023).
[195] Dr Sarah Logan, Dr Rifca Le Dieu, and Dr Harriet Gordon, *Doctors Want to Work More Flexibly – and We Need to Make It a Reality* (Royal College of Physicians, 2021).
[196] *The State of Medical Education and Practice in the UK, Workforce Report 2023*.

criteria to take consultant roles. Nevertheless, it provides a substantial workforce with which to staff am RGH.

The GMC also emphasise that this desire for, and ability to accommodate, flexibility should be viewed positively, as it helps with retention.[197] It can help to reduce burnout and dissatisfaction, improve work-life balance, support informed career decisions and ultimately increase the likelihood of doctors remaining in UK practice.

Working in a Remote General Hospital does not need to be a full-time role, though it could be. The workforce could also come from doctors, nurses and specialists anywhere in the country, allowing them to tap into a larger talent pool. One interviewee involved in the rollout of a virtual secondary care model, emphasised that "it's not one size fits all", some doctors love virtual work, and others hate it, and that having a preference for virtual work is very similar to having a preference for a particular clinical specialism.

Training the workforce in the delivery of remote consultations should also be a consideration. The Government can only exercise soft power in this regard: it is the responsibility of the Royal Colleges to deliver this training. The Chief Medical Officer can bring the Colleges together to forge a consensus, and then the specialty training curricula and exams would be conducted by the Colleges.

Recommendation 15: At least three ICSs – potentially merged – should pilot a Remote General Hospital supported by seed funding from DHSC. After two years, it should be evaluated for cost-effectiveness, clinical outcomes, and patient experience. If successful, it should be scaled nationally. This Remote General Hospital should cover an appropriate population scale for the ICS population, and could involve the participation of another ICS.

Recommendation 16: DHSC should define a core set of emergency and elective services that every Remote General Hospital must provide, including a virtual A&E for emergency care. The minimum elective services should include clinical specialisms suited to remote delivery, such as dermatology and ophthalmology. In participating areas, these services should be delivered exclusively through the Remote General Hospital, which can then refer patients to a District General Hospital if clinically needed. The elective services/specialisms allocated to the Remote General Hospital should then be expanded as appropriate.

Recommendation 17: The Chief Medical Officer in DHSC/NHS England should work with the Royal Colleges to develop a consensus on training clinical staff to deliver remote secondary care across specialties. This should determine how best to integrate remote consultation skills into existing medical education and provide upskilling.

4.4.2 Funding virtual wards

For the reasons outlined in the previous Chapter, virtual wards should be considered a foundational element of a modern hospital.

While the Remote General Hospital may seem like the optimal vehicle for a virtual ward, virtual wards should in fact still fall under the remit of a physical hospital or groups of hospitals, not by Remote General Hospitals. This is because virtual ward patients may need to be admitted inpatient to hospital, may need to receive treatment or undergo diagnostics in

[197] General Medical Council, *The State of Medical Education and Practice in the UK: The Workforce Report 2022*, 2023.

hospital, and will need to be set up by clinicians in their homes with the remote monitoring tools and technology needed for virtual ward care when they are admitted to the virtual ward.

Despite virtual wards being a core component of a modern hospital, the funding model consistently undermines their rollout. There are three major problems with the current funding model for virtual wards: the funding settlement is inconsistent and short-term; it does not adequately incentivise virtual wards; and it does not incentivise collaboration between trusts and social care.

Context

In 2022, NHS England set a goal to deliver 24,000 virtual ward 'beds' (0.04 per 1,000 population, compared to 2.4 of normal hospital beds per 1,000 population, a multiplier of 60).[198] As of February 2025, there were 12,724 virtual ward beds and an average occupancy of 73.4 per cent.[199] Aside from this target being considerably lower than it should be, the funding for this comes from a variety of sources, including an initial £450 million over two years to cover the costs of workforce (90 per cent) and technology (10 per cent).[200] This was then supplemented by an additional £150 million allocated to NHS operational capital budgets for 2025-26.[201]

Ad hoc funding announcements work against long-term planning of a virtual ward. An allocation of funding is typically granted for a set period of time, perhaps six or 12 months, which is allocated at the discretion of the NHS trust running the programme or the ICS the trust is part of. This short-term funding drives cost inefficiencies – including in hiring arrangements, procurement and infrastructure.

For example, the unconfirmed funding for the Virtual Ward programme run by Cambridge University Hospitals NHS Foundation Trust – with the programme's budget coming from ICS funding, some of which is recurrent and some of which is non-recurrent one off amounts – means the Virtual Ward programme has previously had to hire a substantial portion of their staff as locum staff, hugely increasing the programme's running costs.[202] Additionally, some clinicians who were interested and invested in the programme were unable to be part of it due to a lack of flexibility in their hospital work schedules.[203]

Designing the incentives for virtual wards is complex. Theoretically, the incentives to invest in virtual wards are already strong – as discussed in Section 3.2. The fact this does not organically lead to at scale virtual wards is down to a variety of different reasons that vary depending on the trust.

The business case process is particularly lengthy and burdensome. Delivery of virtual wards relies on uniquely motivated individuals in the trust to push them through. There is also insufficient sharing of best practice (outlined below) which means that many hospitals

[198] UK Authority, 'NHS England Sets Target for Virtual Wards in Integrated Care Systems'.
[199] NHS England, 'Virtual Ward (Monthly Virtual Ward Data)'.
[200] *Supplementary Written Evidence Submitted by the Department of Health and Social Care*, DHS0056, 2022.
[201] 'NHSE to Incentivise and Increase Virtual Ward Use and Support Front Door Services and Flow through Emergency Departments', *Health Tech Newspaper*, 16 May 2024.
[202] Information kindly shared by the Cambridge University Hospitals NHS Foundation Trust's Virtual Ward team
[203] Information kindly shared by the Cambridge University Hospitals NHS Foundation Trust's Virtual Ward team

actually do not garner many of the potential benefits of virtual wards as they are not implemented properly.

Financial incentives

There are a number of well-established incentives that can be introduced to not only encourage the development of more virtual wards, but also to discourage potential perverse incentives.

First, it is vital that incentives are designed in a way that enables the longer term shift of care out of hospitals – i.e. virtual ward should displace physical ward capacity wherever possible and appropriate. As outlined previously, a benefit of virtual wards is that they do enable repurposing of physical capacity for elective procedures at least in the short term to combat the backlog. But there is a risk this capacity instead goes to emergency care, particularly since there is already so much unmet demand.

In an interview for this paper, one senior figure in an NHS trust recommended a taper-based funding model which winds down wards over a number of years, to avoid destabilising the hospital while providing additional income for innovation at a rate that is still cheaper for the commissioner. For example:

- Hypothetically, a 20-bed acute ward costs £3.5 – 4 million to run.
- The commissioner agrees with the hospital that they close the ward and to replace the income, they give the hospital, say, £1.5 million in year 1, £1 million in year 2, £0.5 million in year 3, and so on.
- This means the commissioner saves money while the hospital still receives some income that it can spend how it likes.

Second, there is a risk that virtual wards are used where a patient would otherwise have been discharged from inpatient care. Similarly, virtual wards are less efficient if patients are not discharged from virtual ward care when they are ready to be. Sometimes there are perverse incentives to keep patients under virtual ward care longer to push up occupancy statistics.

With this said, there are variations and flexibilities that can be introduced into a virtual ward payment system that can reward or penalise particular types of activity, in turn counteracting some of these incentives. These incentives have always been agreed at a local level between commissioner and provider and would be dependent on the model the ICS identified as most appropriate, and are outlined in Figure 9.

The final limitation of the current funding model for home secondary care is that it does not incentivise collaboration between health and care providers. Funding for virtual wards typically comes from trusts which run hospitals, or ICSs, but with the cashable savings coming back to the host trust. This incentivises trusts to organise and run programmes strictly within their hospital. If a trust has put the funding or other resources into the programme, they want to keep the revenue, which disincentivises collaboration between different health and care providers in an area, even when there are financial or efficiency benefits to collaboration. If a trust or care provider has not put funding into the programme or does not see any of the benefits of the programme, they often will not want their staff's time being taken up by that service.

There are also significant missed opportunities if virtual ward roll out is not delivered in conjunction with residential social care. Those in residential social care are likely to be

elderly, living with frailty or medically complex. These patient groups are at a higher risk of adverse outcomes from an inpatient hospital admission, hence there are significant clinical benefits to treating them, if they need acute care, in a virtual ward with them remaining in residential social care.

The staff of residential social care facilities would not themselves provide hospital-level care to their residents. This would be delivered by the virtual ward team. The care staff would provide the type of care they normally do for all their residents, including: assisting with personal needs such as hygiene, dressing and eating; ensuring prescription medications are taken correctly; and providing emotional support.

Residents who are also virtual ward patients are likely to require substantially more such care from care staff, despite their hospital-level care being provided by the virtual ward team. Recognising this, financial incentives should be provided to residential social care facilities to incentivise them to continue caring for residents eligible to be virtual ward patients, rather than admitting such patients to inpatient hospital care instead.

A potential concern about this sort of financial incentive may be that it incentivises residential care facilities to inappropriately avoid hospital admissions for residents, resulting in patients who need inpatient hospital care not receiving it. However, the financial incentive would only be linked to residents who are virtual ward patients. It would not be tied to hospital admission avoidance more broadly, avoiding any such perverse incentive.

A patient would become a virtual ward patient following a referral to the virtual ward team, either after receiving in-person or virtual care from another health or care provider. It would then be the decision of the virtual ward team whether the patient is suitable for virtual ward care, requires inpatient hospital care or is not severe enough to require virtual ward care. A care facility would be unable to ensure a patient that is too acute or severe for virtual ward care would be accepted as a suitable virtual ward patient.

Once a resident is a virtual ward patient, it would then be the decision of the virtual ward team whether the patient's care requires escalation to inpatient hospital care. Again, this means a care facility would not be part of this decision-making process, meaning they would be unable to inappropriately avoid hospital admission for their residents. This potential concern is therefore not actually a risk.

Recommendation 18: DHSC should commit to a five-year ringfenced funding settlement for virtual wards, distributed to ICSs, alongside a revised national virtual ward bed target. Given the length of the funding settlement, DHSC should implement an incentive to reach the target within five years. When allocating the funding to trusts, the funding should be contingent on a reward/penalise incentive to protect overall hospital beds numbers from increasing in perpetuity.

Recommendation 19: ICSs should allocate a portion of virtual ward funding to residential care providers and introduce a financial incentive or tariff that pays care homes for each virtual ward patient they support. This will encourage greater participation and integration of residential care into virtual ward delivery.

Implementing virtual wards

A further issue for home hospital workforce design is an absence of best practice, meaning it is not known what the ideal workforce design would be for the provision of various home secondary care services.

Across virtual wards and telemedicine services, with the exception of 111, the model for the service varies in almost every case. With a lack of uniformity in both process and outcomes, the effectiveness and efficiency of services is hard to analyse and comparisons hard to make. As a result, it is unclear what the ideal long-term workforce or infrastructure requirements would be for the provision of various home secondary care services.

NHS England have released operational guidance on the development of virtual wards. The Get It Right First Time programme also released detailed guidance on virtual wards in 2024, including a draft business case template.[204] However, it's not clear that trusts follow this guidance and it is not be specific enough.

Other evidence of change management in the NHS (see below with care pathway reform) suggest that simply distributing information is a necessary but not sufficient condition for change implementation, particularly in a system as diverse and varied as the NHS where generalised guidance may not always be applicable.

Virtual wards are also a form of 'adaptive change' in that implementing them requires transforming long-standing habits and deeply held assumptions and values.[205] They radically change the care pathway and the delivery of care. As outlined above, the delivery of virtual wards relies too heavily on motivated individuals within a hospital who actively seek advice from other successful virtual ward programmes. They then have to translate this insight into a trust which may have a different population needs.

Given the overall shift to a more disparate model of secondary care – supported by technology – investment in change support will be needed. Specialist virtual ward support at the ICS level would enable expertise and assistance to be deployed across trusts and residential care, drawing on knowledge of how other trusts implement virtual wards.

Recommendation 20: DHSC's long-term funding settlement should include provisions for recruiting change and implementation staff with a specialisation in virtual wards, who can assist with their delivery across the ICS population, learning from different approaches in trusts and residential care. DHSC should also establish a national information repository to document successes and failures in virtual ward implementations across different settings.

Scaling remote monitoring

Remote monitoring technology is a well-established and burgeoning market. This brings great positives; a dynamic, fast-evolving and competitive market allows providers to procure remote monitoring technology tailored to local needs, at a good price. However, this technological boom may also bring a challenge: interoperability. The varying tech solutions from different providers may not seamlessly integrate with existing and future patient record systems, potentially hindering data sharing across providers, in turn creating operational difficulties and undermining continuity of care.

[204] NHS England et al., 'Making the Most of Virtual Wards, Including Hospital at Home: Practical Guidance for Clinicians to Maximise Use of Virtual Wards for the Benefit of Patients'.
[205] Nigel Edwards, *Contradiction, Change and Diagnosis* (Nuffield Trust, 2016).

Overcoming this is relatively poorly understood in public policy. Two scoping reviews have revealed a scarcity of technical recommendations in this area, indicating a significant gap on how to address the specific interoperability challenges of remote monitoring. This is compounded by the heterogeneity of the remote monitoring landscape: the systems, the devices, the workforce and data standards will all vary with one tool to the next.

One consistent theme among research is standardisation of data. For example, in Europe, some alignment in the use of ISO/IEEE 11073 standards has enabled some devices from varied manufacturers to communicate effectively with each other and with healthcare provider's EPR systems. These standards include protocols for real-time data exchange, plug-and-play interoperability and standardised data formats. It is not clear that equivalent data standards for remote monitoring in England exist.

Recommendation 21: NHS England/DHSC should develop data standards specifically for remote monitoring. This should include data standards to enable interoperability between devices in remote monitoring systems *and* with Electronic Patient Records. This should include protocols for real-time data exchange.

5. Conclusion

Technology has redefined the landscape of healthcare, now bringing the medical expertise of the hospital into the comfort of people's homes. What once seemed futuristic is now a growing reality, fuelled by a demand for more efficient healthcare solutions. Indeed this shift comes at a time when overcrowding, staff shortages, and rising operational costs continue to plague conventional hospitals.

As such, shifting to a hospital as a service, rather than a building, is an essential precondition for the hospital of the future. Demand will continue to increase and resource will not always be available to match the scale of this growing demand. The hospital as a service provides a model with which that can be done.

The steps needed to get to the hospital of the future are not insignificant. They require challenging well-established conventions and organisational barriers that have defined the NHS for its entire existence. Breaking down the barriers with primary care, fundamentally revising the NHS's technology infrastructure and redefining care pathways will all require changing cultural and operational norms.

Deeply entrenched systems, differing funding structures, and distinct professional cultures create silos that are hard to dismantle. Bridging these worlds requires not only technological solutions but also a cultural shift toward more collaborative, interdisciplinary approaches.

The challenges facing the health system in both the short and the long-term are overwhelming. As healthcare continues to evolve and demographic demands grow, the pressure to overhaul hospitals will become more acute.

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