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Health system recovery from Covid-19

International lessons for the NHS

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nuffieldtrust

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Key findings

- **The Covid-19 pandemic has created challenges for health systems of an unprecedented scale**: not a single health system studied was sufficiently prepared to avoid disruptions to care that Covid-19 has caused. The pandemic has created an important opportunity to reflect and learn from long-standing health system challenges that the crisis has magnified and are impacting health systems' ability to recover from its consequences.

- **Health systems are pursuing a range of common strategies to quickly catch up on care backlogs and reform services to better prepare for future shocks**. These include outsourcing care to private hospitals, extending clinical hours of care, scaling up remote and home-based services, separating planned and unplanned care, and implementing new staffing models to make best use of the available workforce. To enhance future resilience, countries are making significant investments in the workforce in order to recruit and retain staff in key areas, as well as in health care infrastructure to modernise facilities and expand capacity in acute and ambulatory care.

- **The Covid-19 pandemic has typically reinforced health system priorities and ambitions rather than changed them, and has created a narrow window of opportunity to build broader system capacity**. In many of the countries studied, the pandemic has served as a catalyst to advance system reforms to address long-standing structural weaknesses and priorities, but which have previously lacked political will or funding. We see this in the large-scale shifts to virtual care delivery and more flexible staffing models that are being sustained in many systems. It is also apparent in the way many systems are prioritising primary, community and long-term care capacity as part of recovery and resilience plans – a persistent but undelivered aim in many countries to better serve patients outside of hospitals. The focus on non-acute health services reflects the interconnected nature of health system recovery, and how efforts to catch up on elective care will be futile if primary care, community care and long-term care are not also strengthened.

- **The extent of the recovery challenge varies between and within countries and is a product of multiple factors, many of which are outside the health system's direct control**. These include public health measures, policy actions, and population behaviour, which have all influenced each country's response to Covid-19 and the health and economic consequences that now must be addressed. The waiting lists that countries had going into the pandemic, how effectively countries have been able to contain Covid-19 cases, and how well systems protected access to routine and planned activity, will all inform how quickly countries are able to catch up on care backlogs and what is required to rebuild and strengthen future resilience. And even within countries, the effects of the pandemic have not been felt evenly, which will contribute to the different challenges health systems face in recovery, and will be a key consideration for countries as they seek to reduce backlogs or they risk entrenching inequities further.

- **While the National Health Service (NHS) is implementing similar strategies to other countries to clear care backlogs, its path to recovery may be longer than many other systems**. The United Kingdom (UK) entered the crisis with higher bed occupancy rates and fewer doctors, nurses, beds and capital assets than most other high-income health systems, while experiencing higher rates of excess deaths during the pandemic relative to many countries. Waiting lists were rising in the NHS before the pandemic started, indicative of the challenges health services already faced in keeping pace with the demands placed on them. Countries with greater pre-existing capacity and that have more effectively contained coronavirus are likely to be in a better position to cope with care backlogs arising from the pandemic and recover from its consequences.

- **Despite these different starting points, health systems face common challenges in rebuilding from the pandemic**. In all countries studied, health systems are grappling with several unknowns and risks that may undermine recovery and future resilience. These include lagging rates of referrals and lower volumes of diagnostic and screening tests, which make the true nature of care backlogs unknown and risk patients presenting later with more advanced forms of illness. Workforce shortages are one of the most intractable challenges to recovery across countries – a constraint that is shared even in countries with higher numbers of staff per population

than the UK. Many countries must balance the need for measures that reduce waiting times and backlogs in the short term with those which build workforce future resilience in the longer term, and avoid actions which could increase burn out or lead to more staff leaving the profession.

1 Introduction

Now in the third year of the Covid-19 pandemic, the challenges confronting the NHS in recovering from its consequences are considerable.

Elective and routine health services have been scaled down during peaks of the crisis to meet the needs of acute and Covid-19-related care. The result has been growing care backlogs, with the number of patients waiting for treatment reaching close to 6.1 million in December 2021 – a nearly 37% increase since the start of the pandemic.[1] This is on top of the patients who may not yet be accounted for as they have been unable to access primary, community or mental health services to have their health concerns addressed – and whose conditions may have worsened as a result.

The government has recognised elective recovery as a key national priority and it has recently announced new targets to reduce the waiting list by March 2024 and eliminate the number of patients waiting more than a year for elective treatment by March 2025.[2] To meet these aims, NHS England and NHS Improvement have set the ambitious goal of delivering around 30% more elective activity by 2024/25[3] than before the pandemic, but must do so with persistent staffing shortages and when many parts of the workforce are still coping with the cumulative stress from the pandemic. And the challenge for policy-makers and system leaders is not only to clear backlogs as quickly as possible, but also how to get through the difficult period ahead while at the same time strengthening services so that they are more prepared and resilient for the future.

The NHS is far from the only health system that finds itself in a difficult position. The pandemic has left even the most well-equipped health systems vulnerable, and has often required trade-offs to balance both Covid-19 and non-Covid-19 health services. At the same time, the pandemic has resulted in an acceleration of innovation and positive changes to the way health care is delivered, some of which are likely to stay. Across the globe, countries are confronting the challenge of how to recover from the legacies of the pandemic, providing an important opportunity to learn from other countries grappling with common challenges and asking similar questions about what a disaster-proof health system would look like.

In this report, we aim to set out key learning and emerging lessons from how other countries are approaching health system recovery and resilience, which can be applied to the NHS as it delivers its own elective recovery strategy, as well as inform wider international learning.

In the remainder of this chapter we set out our approach, a note on terminology and the scope of this report. We then describe the context of recovery in different countries, focusing primarily on the common challenges and priorities for recovery and reform shared across systems (Chapter 2). Following this we identify lessons and practical learning about how health systems are dealing with care backlogs from the pandemic and working to enhance future resilience, and how these can be applied to the NHS (Chapter 3). We close this report by offering our concluding remarks and considerations for the NHS (Chapter 4).

Our approach

This report focuses on 16 countries of the Organisation for Economic Co-operation and Development (OECD) or member countries of the European Union (EU) with different approaches to health system planning and delivery to capture a range of insights: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Malta, the Netherlands, Portugal, Spain and Sweden. We took a pragmatic approach to country selection, focusing on countries with available data and which had experienced some degree of disruption to elective and planned health services and/or high numbers of Covid-19 cases, to provide a more comparable experience to the UK in terms of elective recovery.

We conducted semi-structured interviews with 23 medical directors, academics and policy-makers across countries between July and October 2021, to explore experiences and priorities and identify practical lessons relevant to the NHS. In addition, we tested findings and filled gaps in our analysis in two online stakeholder workshops in September 2021 with 34 country experts from the countries studied. We also interviewed experts from New Zealand to learn from their experiences of recovery and resilience from previous disasters.

We supplemented interviews and workshops with a pragmatic review of both academic and grey literature, as well as a structured analysis of key policy documents and monitoring reports in each country, to determine the current state of elective care backlogs, key priorities for recovery and learning to date. In addition, we undertook a thematic analysis of the European Commission recovery and resilience plans in the studied countries to identify priorities for recovery and future investments to support post-pandemic resilience in health and care.* As the primary data collection and interviews took place between the summer and autumn of 2021, they will not capture international experience of the latest wave of the pandemic – although learning from the strategies and solutions to quickly restore catch-up on activity and support future preparedness still applies.

We are mindful of the complexities of international comparisons and the pitfalls of transferring ideas from one context to another. We have not attempted to make direct comparisons between countries but rather we draw out learning from other systems that could either inform recovery strategies or offer cautionary tales.

A note on terminology and the scope of this report

Building on earlier research to understand how health systems protected access to essential health services during the early waves of the crisis,[4] the focus of this report is on how countries are now supporting recovery from the pandemic's consequences and building resilience for the future.

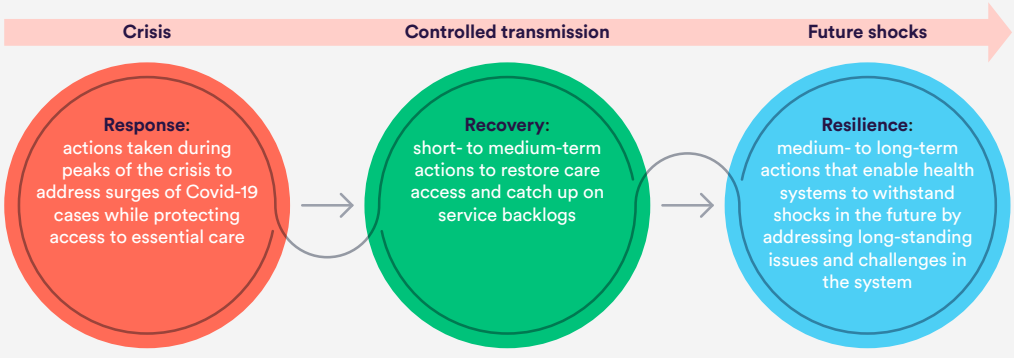
* To mitigate the economic and social impact of the pandemic and make Europe more sustainable and resilient, the EU made available a €723.8 billion fund to support reforms and investments that member states made. To access the fund, EU countries developed national recovery and resilience plans, which address challenges identified in country-specific recommendations and set out reforms and investments to be implemented by the end of 2026. Reforms are inclusive of, but not limited to, health sector investments.

Health system recovery, resilience and response are terms often used interchangeably or with overlapping definitions in research and policy. We would therefore like to clarify what we mean by each of these terms, to put the rest of the report and our findings into context.

For this report, we consider *recovery* to mean the short- to medium-term actions that health systems take to restore care access and catch up on service backlogs while Covid-19 transmission is controlled but still present in the community. When discussing *resilience*, we are referring to the medium- to long-term actions that health systems take to strengthen services to be able to better withstand future shocks. We see these as distinct from the Covid-19 *response*, which we consider to mean the actions that health systems took during peaks of the crisis to address surges of Covid-19 cases while protecting access to essential health care – and which are outside the scope of this report.

There can be an overlap between interventions and strategies that support recovery and resilience. For instance, some approaches that are applied to help restore access to care in the immediate term can be sustained to enhance future preparedness and build system capacity over the longer term. Moreover, recovery and resilience do not necessarily happen linearly – for example, health systems have moved between periods of response and recovery or experienced these simultaneously, depending on the nature and pattern of Covid-19 outbreaks in different contexts. Figure 1 illustrates this typology and how the findings of this report are oriented.

Figure 1: Dynamics of recovery and resilience



2 The recovery challenge across countries

The Covid-19 pandemic has disrupted the provision of routine and elective health services across countries – the full consequences of which are still unfolding.

All health systems studied took the decision to delay planned health services at different points in the crisis, out of precaution, to reduce transmission and/or because the virus was straining or overwhelming health system capacity. This has contributed to care backlogs that health systems have had to balance alongside ongoing health care demands and Covid-19 resurgences.

In this chapter we discuss how the pandemic has impacted health systems in different countries, to give a sense of the scale of the challenge and help put the learning on solutions into greater context. We also discuss common barriers that health systems are facing as part of their recovery from the pandemic, which inform system priorities and strategies.

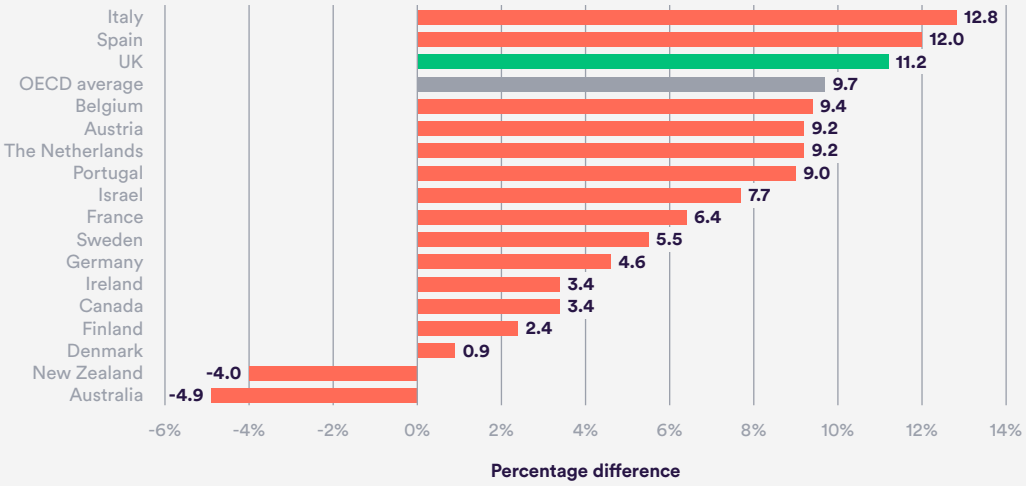
Covid-19 has affected health systems to different degrees

How health systems approach recovery will depend in part on the severity and scale of the Covid-19 outbreak in different countries, and the capacity of health systems to deal with the challenges that the pandemic has posed.

Figure 2 below illustrates how the countries studied compare in terms of excess mortality, to give a picture of the burden Covid-19 has posed to different health systems. Excess mortality is an important indicator because it measures the total number of deaths over and above what would normally be expected over a certain timeframe. This gets around differences in how countries might record, register and code Covid-19 deaths, which could

underestimate the true figures.[5] It also gives an indication of deaths from other causes that could be attributed to the crisis but are not caused by Covid-19 directly (that is, health systems being overwhelmed and resources being diverted away from non-Covid-19 conditions).

Figure 2: Excess deaths from January 2020 to December 2021 as a proportion of expected deaths



Notes: Excess mortality is calculated as the percentage difference between the cumulative number of reported deaths from all causes between Week 1, 2020 and Week 52, 2021 and the cumulative projected deaths for the same period based on previous years. Time periods vary for Canada (up to Week 39, 2021), Australia (up to Week 43, 2021), Italy (up to Week 47, 2021), Ireland (up to Week 48, 2021) and Finland (up to Week 51, 2021). Excess mortality for Ireland is based on monthly figures. Costa Rica and Turkey are excluded from the OECD average due to incomplete or missing data. The reported figures might not count all deaths that occurred due to incomplete coverage and delays in reporting.

Source: Our World in Data based on the Human Mortality Database and World Mortality Dataset. Data were downloaded from OWID on 10 February 2022.

On a country level, excess mortality was positive in all countries studied except New Zealand and Australia. The UK is among the countries in our sample with the highest level of excess mortality since the pandemic began, experiencing 11.2% more deaths than would otherwise be anticipated in the 24 months between January 2020 and December 2021 (but closer to the OECD average of 9.7% when including all OECD countries).

The level of excess mortality and the extent to which health systems have been affected by the pandemic will be influenced by factors outside of health systems' direct control, including the timing and effectiveness of public health measures, wider policy actions and population behaviour. Countries that have been better able to curb transmission and reduce hospitalisations through effective vaccine deployment will have lessened the burden on their health system, which makes an ongoing containment and vaccine strategy an important variable in recovery and the relative size of care backlogs that countries will ultimately face. That the UK had higher excess mortality than other countries studied suggests that the NHS has had more strain placed on its health system, from which it must now recover.

It is also important to recognise that, within countries, the health and social consequences of Covid-19 have been uneven. Black, Asian and minority ethnic groups and/or socioeconomically disadvantaged communities have experienced higher rates of death and infection from the virus in several OECD countries, including the UK.[6] The reasons for this are structural and interact in complex ways, but working in low-paid or unstable employment, living in crowded accommodation or having underlying health issues increases risk of transmission and mortality. These inequalities may grow further given that the care disruptions that the crisis has caused may also be felt differently across populations. Many countries entered the pandemic with pre-existing socioeconomic inequities in access to health care and health status, which meant lower-income and/or minority ethnic populations experienced longer waits for care. We see this trend in England, as well as other publicly funded health systems such as Australia, Denmark, France, the Netherlands and Sweden.[7] This too will contribute to the different challenges health systems face in recovery, and will be a key consideration for countries as they seek to reduce care backlogs or risk entrenching inequities further.

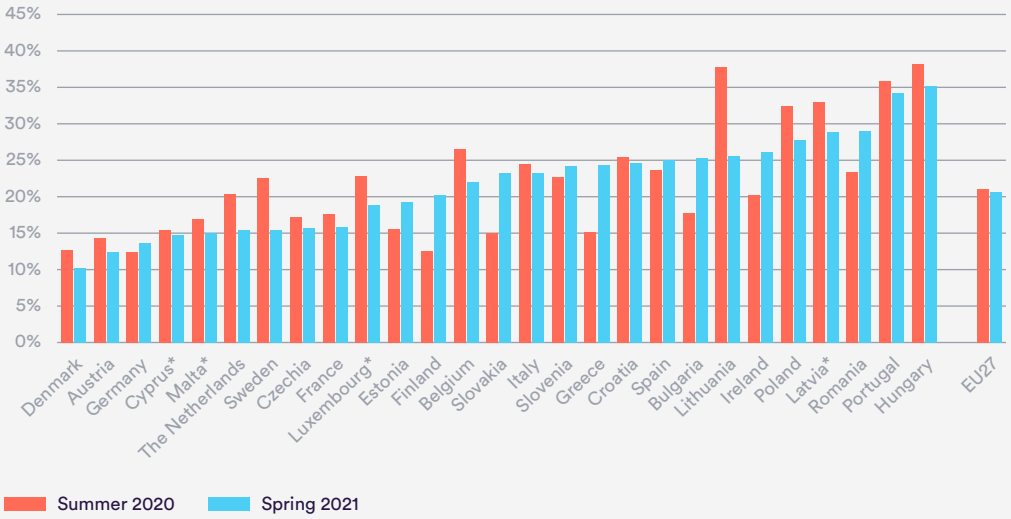
The scale of the Covid-19 backlog across countries: what we know so far

The effect of the pandemic of course cannot be understood by mortality alone; the extent to which non-Covid-19 health services have been disrupted will also have significant implications for people's health and wellbeing, and what is required in different countries to rebuild from the pandemic.

The many methodological differences in how and what health systems measure to record waiting times make it difficult to meaningfully compare care backlogs across countries. Health systems differ in terms of whether they measure the 'ongoing' or 'completed' waiting period, what kind of care the patient is waiting for, and where, in an episode of care, measurement starts and stops.[8] Also, waiting lists and activity levels are not always recorded at the national level (for example, in Austria, Belgium, France and Germany) or reported on routine timescales, further obscuring how much we can understand about the pace of recovery in different systems. Health systems also entered the pandemic with different targets or waiting-time standards for health care services, which can also reflect contextual differences in resources and constraints across countries (see Appendix A).[7]

However, some indicative data are available at the national level to help build a picture of the recovery challenge in different countries (see Appendix B for an overview), even if not fully comparable. Most health systems report experiencing some form of care backlog, with more patients waiting and waiting longer for care than before the pandemic, although countries vary in terms of the size of their waiting lists and how effectively they have been able to restore activity to pre-pandemic levels of care.[9] A large-scale survey of EU countries similarly found wide variation in reported levels of unmet health care need throughout the crisis, with more than a fifth (21%) of citizens having missed a medical examination or treatment in the previous year – but this ranged from 10% in Denmark to 35% in Hungary (see Figure 3).[10]

Figure 3: Unmet need for health care during the pandemic by country, EU27 (%)



Note: The data show the percentage of respondents who said 'Yes' when asked: 'Since the pandemic began, have you needed a medical examination or treatment that you have not received?'. Low reliability (*): Cyprus, Latvia and Malta in summer 2020; Luxembourg in summer 2020 and spring 2021.

Source: Eurofound (2020) 'Living, working and Covid-19 data'. www.eurofound.europa.eu/data/covid-19

Unsurprisingly, it appears that countries with a relatively lower prevalence of Covid-19 have been better able to maintain access to elective care during the pandemic, although disruptions to services still occurred. We see this in Australia where public hospitals report being able to catch up on backlogs between waves of the virus, and median waiting times for elective surgery remaining fairly constant in 2020 compared to the previous year.[11] In Finland, the number of patients waiting more than six months to receive elective hospital care grew from 2% to 12.9% following the first wave in 2020, but improved to 4.6% by April 2021.[12] And in Denmark, average waiting times for most services recovered to pre-pandemic levels by autumn 2020, although still lagged in some surgical areas.[13] In March 2021, the Danish government reinstated the care guarantee that all patients would access diagnosis and treatment within one month of referral, which had been temporarily suspended during the pandemic.[14] However, the latest Omicron wave resulted

in a higher incidence of Covid-19 in several countries studied that had previously maintained lower rates of transmission, so may impact activity levels and cause waiting times to build up further.

Our waves haven't been as severe, so we've been able to maintain normal activity for the most part. Intensive care and patients in hospital haven't been in crisis. Elective activity has mostly been possible. Part of the lags in activity are due to fewer patients coming forward.
(Ministry of Health, Finland)

Across countries, the first months of the pandemic appear to have had the greatest impact in terms of increased waiting times and a reduction in completed treatment pathways. This is true even in countries with relatively low overall case rates as governments took executive decisions to cancel or defer all elective care during the first wave.[6,15] Subsequent surges in Covid-19 hospitalisations also had an impact, but to a lesser degree, as countries adopted more localised approaches and understood more about how to manage the virus. This is the same pattern observed in the UK, with treatment activity dropping dramatically between March and May 2020, before falling again between November 2020 and January 2021 – although far less than during the initial drop.[16]

One paradoxical situation for our state health system was the fact that we had managed to keep Covid-19 to extremely low levels but had to manage, like in many countries, [a] backlog in elective activity. Being Covid-19-free for many months during the pandemic enabled us to get the system back to normal activity and significantly reduce this backlog.
(Agency for Clinical Innovation, Australia)

Some systems that entered the pandemic with long waiting times have seen those challenges worsen. For instance, in Sweden, the proportion of patients waiting longer than 90 days for specialist treatment or surgery grew from 29% in March 2020 to 56% in July 2020.[17] Volumes of elective activity have since recovered, but the share of patients waiting longer than 90 days remains above pre-pandemic levels, with 40% of patients waiting 90 days or more for specialist treatment in December 2021.[18] Likewise, in Ireland, the proportion of patients waiting more than a year for an inpatient or day case procedure grew from 15% in September 2019 to 25% in September 2021.[19] In England, the number of patients enduring long waits for care has also deteriorated: in February 2020, there were only 1,613 patients waiting more than a year to start elective treatment,[20] which had ballooned to 306,996 patients by November 2021[21] – nearly a 200-fold increase.

We didn't start the pandemic in a good place in terms of access. A lot of existing challenges with long waits that have been [the] focus of government policy over [the] past 10 years are now being accelerated.
(Tallaght University Hospital, Ireland)

Where waiting times in countries have increased, they have tended to be concentrated among less urgent elective hospital procedures (for example, cataract surgery or hip and knee replacements), while other more time-sensitive operations have been better protected.[10,22] However, elective does not mean unimportant or not serious, and these delays can have enormous implications for patients and lead to worsened health outcomes and unnecessary suffering as a result. And even conditions that many health systems took steps to prioritise, such as cancer, have been affected – with countries reporting lags in referrals, diagnostics and screening volumes, which may result in fewer cases being detected and worsened health outcomes and prognosis for patients over time.

For example, in France, breast cancer screening fell by 14% in 2020 compared to 2019 and colorectal cancer screening fell by 11.8% in 2020 compared to 2018 (although screening activity exceeded historical levels in 2021).[23,24] Elective cancer surgery as a whole fell by 6.2% in 2020 compared to 2019.[23]

In Italy, screening rates for breast, cervical and colorectal cancer dropped by approximately 40% to 45% in 2020 relative to 2019, with estimates that it will take at least four months of standard capacity to clear the cancer screening backlog.[6] In Belgium, new cancer diagnoses fell by 44% following the first wave of the pandemic, recovered slowly but declined again following the second wave – although to a lesser extent.[25] Cancer services have also been impacted in England: between April and June 2020, only 73% of patients started cancer treatment within two months of an urgent referral from a general practitioner (GP), which is 27% lower than in the same period in the previous year.[26] By November 2021, performance had declined further, with a third of patients waiting longer than two months to start cancer treatment following an urgent referral. Between March and May 2020, the total number of cancers diagnosed fell by 47% but has increased thereafter and new cancers diagnosed in December 2020 were only 4% lower than in December 2019.[27]

The known unknowns

This speaks to a larger problem, where several health systems are still reporting 'missing' patients as fewer patients join waiting lists than would normally be expected. While some patients may not be coming forward as they are able to manage their care effectively on their own, it could mask unmet need and store up challenges for the future if patients present later and in a more serious condition.

In some countries, such as Italy, Portugal and Spain, waiting lists appear to be stabilising or even decreasing in certain areas, as treatment activity reaches or exceeds historical levels. Data suggest that, in part, this may be due to fewer referrals being received from primary care as patients avoid accessing services out of concerns about the virus, or patients have difficulty accessing appointments. Similarly, in the Netherlands, waiting lists have reached pre-pandemic levels in several key areas, but experts have warned this might bring false hope as there were 1.48 million fewer referrals between March 2020 and August 2021.[28] These concerns are shared in the NHS, where between 7.6 million and 9.1 million referrals for elective care could be missing in England from March and September 2021, according to estimates from the National Audit Office.[29]

Our waiting lists have reduced, but this is because there have been fewer new referrals for things like cataract, hip and knee and other elective surgeries... people are now arriving in a worse situation because of delays.
(Catalonia Health Board, Spain)

A challenge has been capacity in primary care – which is still unable to be as responsive to [the] non-Covid needs of patients because so many responsibilities have shifted onto them during the pandemic. They were tasked with calling and updating [the] status of patients at home being remotely monitored with Covid-19, and now are managing vaccine rollouts – so access is a problem. And it creates a problem in hospitals, because patients are coming with later diagnoses, where screening hasn't been done, and presenting with more advanced pathologies.
(Portuguese Association of Hospital Managers)

There is also a high degree of unpredictability in terms of how patient needs will evolve and what future capacity requirements will be required to address them. The full range of the long-term health effects of the pandemic is still unknown, with many countries reporting increased numbers of patients with mental illness and/or 'long Covid' symptoms that need to be managed within existing constraints.[6] Experts from New Zealand cautioned that the health consequences of disasters can take years to understand, remarking how cardiac events and the risk of cardiovascular disease in Canterbury on the South Island increased significantly in the year following the major 2010 earthquake there, but only became visible many years later.[30] Health systems must therefore grapple with unknowns about not only how many patients will return to waiting lists, but also at what timescale, and with what degree of complexity. This makes ascertaining the true size and nature of backlogs and the scale of recovery needed a significant challenge.

We can see that while the Covid-19 pandemic has affected countries to different degrees and countries are entering recovery from different starting points, health systems must confront common challenges with how to address rising waiting lists.

The next chapter draws out lessons and reflections from international experience that may help the NHS as it develops and implements its own plans for recovery, to not only restore access to care as quickly as possible, but also to plan differently for the future to be better prepared for the next crisis.

3 Ten lessons for recovery and resilience from international experience

This chapter presents 10 key lessons that England could learn from international experience on how to recover from the pandemic and strengthen services for the future. It examines the core questions and challenges that health systems have been left with, and the solutions being adopted to resolve them. While the context for health system recovery continuously evolves, the chapter distils the main insights that have surfaced so far to help inform the delivery of England's own elective recovery strategy, and the limitations policy-makers and system leaders may wish to avoid.

Lesson 1: The pandemic has raised important questions about the risks of underinvestment for health system resilience and the appropriate balance between efficiency and preparedness.

Countries entered the pandemic from different starting points in terms of the resources and capacity they had to respond to the crisis, and now deal with its consequences. This has sparked debates about how much countries should spend on health, and what will be needed to fully rebuild from the economic and health shocks of the crisis.

Looking across other OECD countries, the UK entered the pandemic with fewer hospital beds, lower numbers of key staff and lower levels of capital investment and spend than other high-income countries studied (see Table 1 below). The NHS also has higher occupancy rates and was already operating close to full capacity before the crisis hit, meaning that any disruption to services that Covid-19 caused would invariably lead to an increase in backlogs. Indeed, the problem of long waits in the NHS was getting worse before the pandemic began, reflecting a structural inability to keep pace with the demands placed on it.[31]

It is true that international indicators of this kind offer only a limited understanding of how capacity varies across countries, given differences in how data are counted and the contextual factors in health system delivery. And while a number of variables will influence the pace of recovery across health systems, all things held equal, countries that had more headroom to balance Covid-19 and non-Covid-19 services throughout the pandemic – and keep up with routine pressures before it – are likely to be better placed to recover from its consequences.

So I think one advantage we've had is the historical investment we've made to capital and infrastructure in our system. We've been fortunate now to build 17 out of 21 brand new hospitals. ... It's helped that money isn't scarce...
(Aarhus University Hospital, Denmark)

Table 1: International comparisons of baseline capacity

	Practising physicians per 1,000, 2019	Practising nurses per 1,000, 2019	Hospital beds per 1,000, 2019	Occupancy rate of curative (acute) care beds, 2019	Total health spending, US dollars per capita, current purchasing power parities, 2019	Average length of stay in hospital, 2019	Capital expenditure on health as share of GDP, average over 2015–19 (or nearest year)
UK	3.0	8.2	2.5	88.3[iv]	4,500.1	6.9	0.4
Australia	3.8	12.2	3.8		4,919.2	5.2	0.8
Austria	5.3	10.4	7.2	72.9	5,705.1	8.3	0.9
Belgium	3.2	11.1	5.6	81.0	5,458.4	7.0	1.0
Canada	2.7	10.0	2.5	91.6	5,370.4	7.7[v]	0.5
Denmark	4.2	10.1	2.6		5,477.6	5.7	0.8
Finland	3.2i	14.3[i]	3.4		4,558.5	7.4	0.7
France	3.2	11.1[iii]	5.8	78.9	5,274.3	8.8	0.6
Germany	4.4	13.9	7.9	79.1	6,518.0	8.9	1.1
Ireland	3.3	12.9[iii]	2.9	89.9	5,083.2	6.2	0.4
Israel	3.3	5.0	3.0	90.7	2,903.4	6.0	0.6
Italy	4.1	6.2	3.2	78.1	3,653.4	8.0	0.4
The Netherlands	3.7	10.7	3.1	63.4	5,739.2	5.0[v]	0.9
Portugal	5.3[ii]	7.1[iii]	3.5	81.4	3,347.4	9.4	0.7
Spain	4.4	5.9	3.0	75.9	3,600.3	7.2	0.6
Sweden	4.3	10.9	2.1		5,551.9	5.6	0.6

Notes and sources: All data for the year indicated or nearest year available. Red indicates health systems performing in the bottom third of included countries, yellow the middle third, and green the top third. Sources and definitions of data comparability: OECD (2021) *Health at a Glance 2020: OECD indicators*; OECD (2021) 'Health statistics: nurses, doctors, hospital beds, length of stay'; and The World Bank's World Development Indicators. i Latest data are from 2014. ii Data refer to all doctors licensed to practice, resulting in a large over-estimation of the number of practising doctors (of around 30%). iii Data include nurses working in the health sector as managers, educators, researchers or similar. iv UK bed occupancy is calculated separately due to outdated figures in the OECD dataset, and is based on total available and occupied beds overnight: www.england.nhs.uk/statistics/statistical-work-areas/bed-availability-and-occupancy/bed-data-overnight. v Refers to average length of stay for curative (acute) care (resulting in an under-estimation).

Even with this context, the UK is far from the only country to experience capacity constraints in dealing with Covid-19. All health systems studied, however well resourced, also had to inject emergency funding to quickly mobilise extra staff, equipment and beds to deal with the rise in the number of Covid-19 patients, albeit to varying degrees.[32] The ability to increase spending as a matter of urgency and rapidly redirect resources to respond to shocks is a positive action and a core component of health system resilience.[33] But there is a distinction to be made between the capacity needed to avoid routine overload versus that needed to deal with unexpected shocks – and the pandemic has highlighted the importance of both.

Some experts reflected that a historical focus on cost containment and short-term financial planning has stretched services too thinly during the pandemic and now threatens recovery.[34,35] For example, in Finland, policies to improve efficiency have led to a reduction in the number of specialist care beds and intensive care nurses over time. While this has helped more people be treated on an outpatient basis in normal periods, it has also meant that there have been insufficient acute care resources to deal with a prolonged health emergency like the pandemic. This is also true in countries that spend more on health care, such as Germany. Here experts noted that despite having more nurses per person than most countries, given the high number of hospital beds, the nurse-to-bed ratio in Germany is one of the lowest in Europe.[36] Low numbers of intensive care nurses in particular contribute to high workloads in the intensive care unit and meant that Germany had insufficient numbers of staff to fully operate intensive care beds at different points in the crisis.

It would therefore be overly simplistic to suggest that merely matching the health resources available in countries with higher spend would have allowed the NHS to cope with the effects of an unprecedented crisis like the pandemic. It is not merely about the overall level of resources, but how those resources are distributed and the ability to flex them as needed. It would be grossly inefficient to plan health care spend to be able to cope with a pandemic the size and scale of Covid-19 every day – but it is equally ineffective to plan spending so that services are unable to keep pace with routine demand and have no headroom to deal with an unanticipated shock of any kind. The answer will lie somewhere between these two extremes, and the pandemic has surfaced important questions about how governments can better balance efficiency with preparedness and which resources should be fixed versus flexible within a health system.

The pandemic was a catalyst in realising how essential hospital beds are and that we should be cautious when reducing public hospital capacities. It's helped public hospital staff be heard, as they have been calling for more funding and better work conditions for many years...
(France Statutory Health Insurance Fund)

These concerns about capacity have prompted some countries such as France to make ambitious investments to upgrade infrastructure and retain and recruit more staff, and also enhance 'on-demand' capacity to be better able to scale up and down staff and bed capacity during shocks (see below). Other governments are making similar investments to enhance resilience, in part aided by the large-scale financial support available through the European Commission's Recovery and Resilience Facility (see Appendix C for a summary of system plans and key priority areas for funding). The UK too has made significant investments to strengthen system capacity, including £36 billion for health and social care over the next three years, funded by a new Health and Social Care Levy to be introduced from April 2022,[37] and a real-terms increase in capital spending for the English NHS of just over £1 billion (around 3.8% a year) by 2024/25.[38] The question for future resilience is whether these investments will be sufficient to not only meet ongoing demands, but also to flexibly surge capacity when needed – in terms of both acute and intensive care beds and the health workforce to staff them.

Box 1: Country example: system investments in France

In France, the government has acknowledged how a lack of funding and investment in health and prevention has led to underinvestment in public hospital infrastructure, and has made a €19 billion/£16.0 billion investment over five years to fund building renovations and modernise infrastructure in health and social care services. A large share of this funding comes from absorbing debt from public hospitals to give back the financial margins needed to make infrastructural investments and improve working conditions for staff. This is alongside an €8.3 billion/£6.9 billion recurrent investment to upgrade the pay and compensation of professionals working in the hospital and social care sectors.

Source: Ministère des Solidarités et de la Santé (Ministry of Solidarity and Health) (2020) Ségur de la Santé. Ministère des Solidarités et de la Santé. https://solidarites-sante.gouv.fr/IMG/pdf/dossier_de_presse_-_conclusions_segur_de_la_sante.pdf.

Lesson 2: Workforce shortages are an overriding priority for recovery in all health systems studied – meaning that the NHS will need to recruit more people from a global market where everyone is competing for staff. This speaks to the intractable nature of the challenge and why short- and long-term strategies will be needed to address them.

All capacity challenges in recovery are compounded by broader workforce challenges. Every health system in our study reported insufficient numbers of staff as the most significant threat to tackling the backlog and the future sustainability of health services.

The long-standing issue of global health care workforce shortages is well documented.[39] Even though the numbers of doctors and nurses have increased over the past 10 years in nearly all OECD countries studied, high numbers of vacancies persist in many countries.[40] Workforce pressures have been exacerbated during the pandemic as more staff are experiencing burnout, mental illness and trauma as a result of the crisis, with many systems experiencing higher numbers of staff turnover and health workers leaving the profession.[41] In some countries, health care workers have gone on strike

over working conditions and compensation during the pandemic, including in Denmark, France and Germany, further disrupting services and worsening morale and labour relations between municipalities and staff. Rates of absenteeism have also been a challenge, as more health and care staff have to isolate or miss work due to Covid-19.[42] And here too, the impact of the pandemic has not been distributed equally. Emerging evidence suggests that women and Black and minority ethnic workers have been most vulnerable to missed work due to caring responsibilities, mental illness and other downstream effects of the crisis in many countries.[43,44,45]

These staffing pressures are also felt acutely in England, which currently has 99,460 vacancies for NHS positions and shortages in nearly every specialty.[46] While the overall number of full-time clinical staff grew by just over 8% between October 2019 and October 2021,[47] issues of retention are a concern, with the proportion of staff leaving the NHS and social care now on the rise after falling at the start of the pandemic.[48] Even with this growth, there will be challenges to ensure the numbers of acute staff needed to meet the aim of delivering around 30% more operations and elective procedures by 2024/25, and place the NHS on a more sustainable footing over the long term.[49] There are also pressure points in other areas, with the overall growth in the number of fully qualified, full-time GPs stagnating, and the total adult social care workforce falling by between 3% and 4% between April and October 2021.[50,51] The ability of elective services to recover will depend on staffing and capacity not only in hospitals, but also in the broader system, to support timely and effective diagnosis, discharge and management in the community (see Lesson 7).

We are facing [a] high degree of burnout among staff, especially the ICU [intensive care unit], nurses and doctors. And this has to be dealt with internationally, not only nationally and organisationally... because I think everybody is facing this really big problem. We can already see trauma in our staff, and [a] lot of doctors and nurses will leave their jobs. So absolutely, this is something that has to be dealt with really, really quickly.
(Ministry of Health, Israel)

Health systems have been implementing a range of measures to quickly mobilise staff and surge capacity during peaks of the crisis, which countries are now seeking to sustain. Table 2 provides examples of some of the key strategies that countries are adopting over the near and long term to increase the supply of staff and make the best use of existing skills.

A main area of focus across countries studied has been on improving working conditions to make the health care profession more attractive. This has often taken the form of non-financial incentives, such as more flexible working hours, more permanent contracts, better support for child care and mental health, rights to take consecutive annual leave and workplace perks such as free parking. In some countries this has also involved debates about compensation, although where pay increases have happened (beyond standard uplifts) they have tended to be in the form of bonuses for working overtime or one-off payments to recognise working during peaks of the pandemic.[52]

Some countries have enacted longer-term pay deals, such as France, where hospital and long-term care worker salaries have increased by an average of €183/£152 a month, or between 15% and 30% (although, for context, France had lower levels of remuneration for nurses than most other OECD countries before the pandemic).[53] The measures in France also include increases to salary and basic allowances for medical students and interns and the introduction of a flat-rate accommodation allowance for students who train in underserved areas.

The English NHS has also made investing in the workforce a key feature in the latest operational planning guidance, reinforcing ambitions to support an inclusive culture, accelerate the introduction of new roles and grow numbers of staff through various channels – including international recruitment, temporary staffing and broader recruitment and retention initiatives.[54]

Given that the global market for key roles such as nurses is affected by changes in competition, and various other high-income countries will be actively seeking to increase numbers of staff, it is worth the UK government carefully considering how to make itself more competitive in the post-Covid-19 landscape. This includes a consideration of factors that might 'push'

or 'pull' the workforce to/from the NHS (for example, pay, opportunities for progression and long-term financial stability) as well as broader immigration policy.[55]

Yet even with the efforts highlighted in Table 2, experts are concerned that there are limits to what measures can achieve in addressing care backlogs, given insufficient numbers of qualified individuals in the pipeline and global competition for limited numbers of staff. Some experts remarked that elective recovery and resilience plans often come with one-off or time-limited funding that may have limited effectiveness if it makes it more difficult to recruit workforce. Experts also noted that strategies to boost elective capacity in the short term, such as surgical hubs and standalone elective facilities (see below), have come with unrealistic assumptions about the workforce available to staff them, which will undermine their effectiveness in the short to medium term.

This raises a broader problem of inadequate workforce planning or cross-government coordination on immigration rules to alleviate the staffing pressures confronting many systems. This is a deficiency that has continuously been raised in the UK; a recent parliamentary inquiry examining ways to clear the care backlog that the pandemic has caused cited the lack of a funded long-term workforce strategy as one of the greatest limiting factors.[56] Many health systems lack prognostic assessments of future staffing needs to be able to develop informed workforce strategies, and vary in the level and granularity of data they have available to do so.[57] It should be noted that even health systems with more robust workforce planning mechanisms, such as the Netherlands and Norway (which use established models to forecast and monitor health and care staffing needs and develop national workforce strategies), have expressed limitations of their approach, as implementation to deliver stated intentions has often been left to local initiatives and priorities.[58,59] This highlights the importance of coordinated work at both national and regional levels to prioritise action, and the futility of planning without meaningful implementation support and resources.

Table 2: Measures to increase recruitment, support retention and optimise skill mix

	Immediate actions	Longer-term actions
Targeted recruitment strategies	• Conducting situation analysis and modelling to better predict labour needs in the sector (for example, Finland) • Targeted campaigns to retain health care staff who re-enlisted to support or administer testing and vaccinations (for example, Denmark) • Increasing international recruitment (for example, Belgium, Denmark, Germany)	• Funding additional training posts in areas with the longest waits or greatest pressure, including nurse anaesthetists, urologists and intensive care nurses (for example, Canada, Denmark, Ireland, Israel, Portugal, Sweden) • Developing and maintaining staff reserve lists to surge intensive care support during peaks of demand or pressure in the future (for example, the Netherlands)
Financial compensation and incentives	• Salary increases for staff (for example, Belgium, France) • One-off bonuses for health and care staff working long hours during the pandemic (for example, Belgium, Denmark, France, Germany) • Raising ceilings for overtime pay to tackle waiting lists (for example, Denmark, France)	• Financial incentives to retain staff in public hospitals (for example, France, Ireland)
Optimising skill mix	• Expanding the use of advanced nurse practitioners, intermediate- or associate-level nursing roles and community nurses (for example, Austria, Canada, France, Ireland, Italy, Sweden) • Expanding the scope of existing health care staff and introducing new roles (for example, Israel, Spain) • Increasing the involvement of students in patient care (for example, Australia, Israel)	• Upskilling/maintaining specialist competencies in staff to expand intensive care capacity (for example, Finland, Israel) • Improving professional mobility and reducing barriers for staff to work across specialties (for example, Denmark, Finland, Israel, Spain)
Working conditions	• Expanding counselling and support offers, including helplines, wellbeing sessions and training, and mental health support (for example, Austria, Canada) • Offering vouchers and other non-financial 'perks' (free parking, training opportunities, vouchers, full-time and permanent posts, child care on site and so on) to improve the attractiveness of employment (for example, Belgium, Canada, Finland, Ireland, Israel, Spain) • Temporarily reducing activity to allow for greater levels of sickness absence to enable staff to recover (for example, Germany)	

Notes: Interventions described in this table may have existed in countries before the pandemic, but have been reinforced, accelerated or scaled as a result of growing backlogs. The exclusion of a country does not mean that an intervention is not happening there, nor is this list intended to be exhaustive. In several countries, measures are implemented at the state or local level, so interventions will vary in how they are applied across systems.

Sources: All sources are via the European Observatory on Health Systems and Policies' Covid-19 Health System Response Monitor (see https://eurohealthobservatory.who.int/monitors/hsrm/overview) and supplemented by country-level resources.

Funding is flowing to help get caught up – but mostly in the form of one-time funds that makes recruiting staff even harder.
(Ontario Health Board, Canada)

Even with more students now applying to be nurses and doctors, there's still a limited capacity in the number of people we can train each year – and my fear is that we need to recruit 300 more people and some of our colleagues from hospitals have to recruit double that. So where are these people going to come from? ... if we can't recruit, it puts pressures on the staff we do have, i.e. asking people to do more when they are already overworked.
(Tallaght University Hospital, Ireland)

Where health systems have had success in growing numbers of staff, they have often done so through longer-term efforts to attract more clinical students and diversify the number of roles and skills in different sectors – such as establishing more 'practical' nursing roles that do not require as many qualifications (for example, associate nurses).[60] While there is hope that some of the plans that systems are implementing will increase the number of staff in pressurised areas over the longer term, none of these options provide a quick fix. In the interim, decision-makers will have to balance difficult trade-offs between stretching the capacity of the existing workforce while avoiding accelerating staff burnout and illness – both of which threaten future resilience.

Lesson 3: Systems have rapidly implemented strategies to jumpstart elective recovery, but interventions used in the short term to clear backlogs could store up problems for the future.

Health systems are adopting a range of interventions to catch up on care backlogs, including a mix of operational changes to quickly add capacity, maximise productivity and redesign care pathways to help keep more patients out of hospital. Common approaches are summarised at the end of this section in Table 3 (pg 35). Many of the interventions described are also being applied within the NHS and have been the focus of central initiatives, for example purchasing capacity from private hospitals, sustaining 'digital first' models of care, greater clinical validation and assurance of waiting lists, and creating diagnostic and surgical hubs.

Many of the strategies appear to be more of an acceleration of long-held system objectives than a fundamental shift in the vision of how services should be designed or delivered. Across countries studied, the pandemic has advanced progress towards greater system integration and flexible models of service delivery that previously lacked political will or funding to enact, but are now seen as central to building back from the pandemic – for example, the shift towards remote monitoring and digital models of care (see Lessons 8 and 9). The pandemic has also helped unlock cultural shifts that have long been recognised as important but slower to progress in normal times, including a greater focus on localised solutions, placing staff and patients at the heart of decisions, and removing barriers to collaboration. Stakeholders in the English NHS context have observed similar progress, which is recognised as key to sustain as part of recovery.[61]

Experts also noted how many of the innovations being drawn on to clear backlogs involve a tightening of approaches that already existed but had been applied to varying degrees. For example, most countries entered the pandemic with prioritisation policies already in place to manage demand for elective surgery, which typically selected patients on the basis of clinical need and time waiting. Rather than broaden criteria to account for the increased numbers of patients waiting, experts reflected that the principles of how patients are prioritised remained unchanged, but are being applied more stringently to optimise resources. Likewise, before the pandemic, many countries used strategies such as the clinical validation of waiting lists or

quality assurance of referrals to manage demand, but these are now being more tightly enforced to ensure that patients with greatest need are prioritised. In this way, the pandemic has reinforced rather than disrupted traditional approaches to managing waiting times.

Interviewees cautioned, however, that the mechanisms being deployed need to be carefully thought through and balanced against longer-term implications. For instance, strategies to clear backlogs quickly that require staff to work extended hours place further strain on an already exhausted workforce and will undermine recovery and resilience if rates of absenteeism and staff burnout deteriorate further and more people leave the health and care workforce. Some health systems are trying to avoid this by carefully targeting overtime at specific staff groups or times of year to be more sustainable in the longer term, as some hospitals are doing in Germany.

> **Funding isn't the limiting factor at the moment – it's just capacity within the public and private system to try and actually get the procedures done. So I think for us, certainly, it's been a question of how to increase overall capacity in the system – by using private services, but also running evening and weekend lists where staff are willing to do that. But staff are also quite tired, and we risk making the problem worse by asking too much.** (Children's Hospital of Eastern Ontario, Canada)

Nor have interventions intended to help quickly clear backlogs always resulted in sustained wins. For instance, research on earlier efforts in other health systems has shown that short-term bursts of transformation funding to bring down waiting lists have only had temporary effects. The reasons for this vary, but one key factor has been that funding levels have been insufficient to fundamentally address imbalances between supply and demand and maintain the levels of capacity needed on an ongoing basis.[62] Many countries have also relied on waiting-time guarantees or targets to bring down waiting lists, but they have tended to be most effective at reducing waiting times when sufficiently enforced by holding providers to account or ensuring patient choice – which can be unpopular with staff or difficult to sustain.[63]

Many countries are also relying on partnerships with the private sector to expand capacity as much as possible and make the best use of all available resources. While these arrangements are seen as important in many countries with mixed provision to clear backlogs – at least in the short to medium term – international experience shows the need to carefully design agreements. For example, in Ireland, some hospital systems reflected that outsourcing surgeries to the private sector did not add as much capacity as anticipated because those same patients returned back to the public sector for follow-up. Hospital systems resolved this by commissioning entire packages of care rather than specific procedures from the independent sector – which, while more expensive, helps avoid this problem.

Moreover, private and public hospitals also often draw on the same pool of staff, which some country experts noted has created perverse incentives and has risked draining staff out of public hospitals. Providers in the English NHS have also raised this as an issue given the finite supply of staff and existing workforce pressures within hospital trusts.[64] Some health systems have tried to counteract this by implementing specific measures to better retain staff in public hospitals and narrow the pay gap with private work, including in France and Ireland where consultants have been offered increased pay for working exclusively in public hospitals.[65,66]

More fundamentally, interviewees voiced concern that in failing to balance these tensions and relying on pre-existing structures and assumptions, health systems risk recovering to past practices and care models, missing opportunities to develop services for a more sustainable future. It would be a mistake to develop solutions that answer today's challenges and work for a Covid-19-specific context but are inflexible to future problems. For example, the significant investments health systems are making to upgrade and modernise physical infrastructure and boost capacity need to meet the challenges of recovery while keeping flexibility and future needs in mind. Experts warned of losing progress made during the pandemic that enabled greater collaboration, as traditional rules, barriers, funding, contracts and siloed solutions re-emerge as pressures subside.

I'm afraid we're going to make the mistake of building solutions for today's problems. For example, we're investing in capital and infrastructure to rebuild from the crisis, but we're guilty of building hospitals that work now, but won't work in the future. We can't design something that only works for Covid, but has to be able to deal with multiple different scenarios and have the flexibility to change the way buildings work in the shortest space of time...
(Portuguese Association of Hospital Managers)

So often we get caught with managing the here [and] now, as opposed to setting the frameworks going forward that will support sustainable change. And we've got to be really careful that we don't do a lot of knee-jerk reactions, and create bandaids, and call them solutions for things that are gaps in the current system. It's easy to create alternative workforces in the short term, but actually, you need to be looking at what does the 'future' system look like and what will be needed to sustain that system over a long period of time...
(Canterbury Health Board, New Zealand)

Box 2: Country example: access guarantees and incentives in Sweden

Reducing excessive waits for care has been a longstanding priority in Sweden. Waiting times have deteriorated since 2014 and have got worse during the pandemic. The Health Guarantee Act 2010 introduced new care guarantees for different types of services, which include targets that patients will be able to: contact primary care on the same day, receive a medical assessment in primary care within three days, access a first appointment with a specialist within 90 days and receive specialist treatment or a procedure within 90 days.

The government temporarily suspended performance targets during the peaks of the pandemic, but has since reached new financial agreements with regional health authorities to increase efforts to reduce waiting times. To support progress, SEK 251 million/£19.8 million is being made available to regional authorities each month to improve waiting times in each target area. Each authority is entitled to a share of the funding by either: (a) reducing waiting times compared to the previous year; or (b) having a high compliance rate with the targets relative to other areas. Regions can receive funding for high levels of compliance or improvement – but not both. A separate pot of money is also distributed to each regional authority based on population size and demographics to help authorities deliver local action plans to tackle waiting times.

At the national level, these initiatives are being supported through the ongoing development of a national waiting-time database to increase transparency to support patient choice and comparability across regions.

Source: Regeringskansliet (2022) *Ökad tillgänglighet i hälso- och sjukvården* 2022. Regeringskansliet. https://skr.se/download/18.5627773817e39e979efc64f7/1643380073131/Overenskommelse-Okad-tillganglighen-i-halso-och-sjukvarden_2022.pdf.

Table 3: International measures and strategies to clear elective backlogs

Strategy area	International solutions	Comparable national initiatives and programmes in England
Adding capacity and increasing productivity		
Outsourcing/private partnerships	• Purchasing private capacity to help work through waiting lists (for example, Australia, Denmark, Finland, Ireland, the Netherlands, Portugal, Sweden)	• Introduction of a new procurement framework to add additional independent sector activity to help cut waiting lists • A three-month agreement from January 2022 with the independent sector to provide additional capacity for elective treatment should hospitals face a surge in hospitalisation or staff absences from Covid-19
Extending hours of care/ insourcing	• Extending hours of care to nights and weekends, and paying staff overtime (for example, Australia, Austria, Canada, Denmark, Ireland, Malta, the Netherlands, Portugal, Spain, Sweden) • Increased flexibility for hospitals to negotiate working hours for staff and remove limits on overtime (for example, France)	• Local initiatives to extend hours of care and clinic hours and running high-intensity clinics for low-complexity patients
Payment design and incentives	• Extending activity-based funding to incentivise an increase in volume and/or complexity (for example, Denmark, Ireland)	• Various funds and schemes to incentivise increased elective activity, including: – Elective Recovery Fund (£2 billion revenue) – offering additional funding to integrated care systems that deliver elective care at a level greater than 95% (from July 2021) of their 2019–20 activity level – Elective Accelerators Programme – funding for select integrated care systems to implement and evaluate ways of increasing elective activity by 120% of their 2019–20 baseline • Uplifts to physician overtime rates to incentivise the catch-up of services

Strategy area	International solutions	Comparable national initiatives and programmes in England
Upgrading infrastructure and adding bed capacity	• Adding acute and critical care bed capacity (for example, Canada) • Digital upgrades and modernising health facilities and infrastructure (in hospitals, primary care and community services) (for example, Australia, Canada) • Expanding diagnostic capacity by upgrading equipment and facilities in hospitals and establishing community diagnostic centres (for example, Canada) • Adding overflow/'on-demand' beds to flexibly scale staffing and bed capacity up or down according to demand (for example, Australia, France, Germany, Israel) (See full details on levels of investment in Appendix C.)	• £5.9 billion investment in capital between 2022/23 and 2024/25, including: – £1.5 billion towards elective recovery services, such as surgical hubs – £2.1 billion to modernise digital technology and data security – £2.3 billion to increase diagnostic capacity, including developing 100 community diagnostic centres • £700 million targeted investment fund scheme for integrated care systems and individual providers to support investments in elective recovery reforms (such as use of technology)
System coordination	• Centralised waiting list coordination to make better use of resources across the system and redirect resources/patients (for example, Canada, the Netherlands) • Hospital or regional collaboration to share capacity/reallocate patients (for example, Australia, Denmark, Finland, Germany, the Netherlands, Sweden) • Centralised data hub with real-time capacity updates across hospitals to predict demand and best redistribute capacity (for example, Ireland, Israel, the Netherlands)	• Efforts happening locally to consolidate and manage waiting lists at integrated care system level
Waiting-list management	• Clinical validation and quality assurance of waiting lists (for example, Ireland, Sweden) • Pre-triage clinics for long-waiters – identifying other forms of support and removing people on waiting lists who can be seen elsewhere (for example, Australia, Ireland)	• Introduction of a requirement that integrated care systems must conduct a clinically led review of their waiting lists on an ongoing basis to ensure the effective prioritisation and management of clinical risk

Strategy area	International solutions	Comparable national initiatives and programmes in England
Waiting-time targets/ guarantees	• Extending the patient choice policy, which allows patients to go to a private hospital or receive care in other regions if care guarantees cannot be met locally (for example, Canada, Denmark) • Implementing new care guarantees or waiting-time targets (for example, Finland, Ireland, Sweden) * Many countries have pre-existing targets or care guarantees to help manage waiting times (see Appendix A).	• Setting of new target ambitions in the elective recovery strategy, including so that: – waits longer than a year are eliminated by March 2025, and two-year waits by July 2022 – this will be supported by greater choice for long-waiters – 95% of patients receive a diagnostic test within six weeks of referral by March 2025 – 75% of patients with an urgent referral from their GP for suspected cancer are diagnosed or have cancer ruled out within 28 days by March 2024
Demand/capacity management and flow	• Smoothing the elective surgical schedule to optimise the flow of patients and use of operating rooms (for example, Canada) • Creating elective 'hubs' and having better separation of acute and planned health services (for example, Ireland, Spain) • Shifting more services to day-case procedures and implementing 'early recovery from surgery' programmes/rehabilitation and step-down care (for example, Australia, Belgium)	• A range of initiatives aimed at reducing demand for elective care (for example, referral optimisation, improved self-management and surgical hubs)

Strategy area	International solutions	Comparable national initiatives and programmes in England
Redesigning service provision and implementing new models of care and pathways		
Developing primary and community alternatives to hospital care and integrated ways of working	• Expanding home-based services and home monitoring (for example, Denmark, France, Ireland, Israel, Italy, Sweden) • Integrated referral pathways and improved communication between acute and community care (for example, Ireland, Israel, Portugal, Spain) • Shifting more surgical activity into day clinics (for example, Australia, Belgium) • Providing innovation funding and grants to regions/localities to develop new care models (for example, Canada, Finland) • Investing in community diagnostic hubs/equipment (for example, Canada, Ireland, Italy) • Improving the quality of referrals and supporting the better management of patients in primary care and community care through advice and guidance (for example, Canada, Ireland)	• Increased funding for the Getting It Right First Time programme to support elective recovery by developing standardised patient pathways based on best practice and increasing productivity and throughput through surgical hubs
Sustaining digital models	• Sustaining teleconsultations, remote monitoring/bedside consultations and 'digital first' models where appropriate (for example, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands) • Digital tools to aid self-management and provide on-demand support for patients needing unscheduled care to avoid unnecessary visits (for example, Denmark, France) • Digital fast-track pathways for cancer patients (for example, Portugal)	• A range of support and schemes to sustain remote video consultations and expand remote diagnostics and so on

Notes: The interventions described in this table may have existed in countries before the pandemic, but have been reinforced, accelerated or scaled as a result of growing backlogs. The exclusion of a country does not mean that an intervention is not happening there, nor is this list intended to be exhaustive. In several countries, measures are implemented at the state or local level, so interventions will vary in how they are applied across systems.

Sources: All sources are via the European Observatory on Health Systems and Policies' Covid-19 Health System Response Monitor (see https://eurohealthobservatory.who.int/monitors/hsrm/overview) and supplemented by country-level resources.

Lesson 4: Better separation of scheduled and unscheduled care has been an asset in recovery, which has been made easier in countries with more flexible estates.

Health systems that are able to segregate planned and unplanned work expressed this as an advantage during their pandemic response and early experiences with recovery.

The theory behind splitting hospitals into 'cold' (elective) and 'hot' (acute and urgent) care is to prevent future outbreaks of Covid-19 and seasonal surges in demand from spilling over into elective capacity – leading to delays or cancellations of care. This tends to happen in hospitals that host emergency departments, acute inpatient care and outpatient care at the same site, given that the same staff and facilities (for example, investigation suites, radiology services, operating theatres and laboratories) are used across workstreams.[67] Evidence suggests that separating elective and emergency surgical workloads (either by geographic location or through the provision of dedicated units and staff) can improve efficiency and reduce cancellations,[68] although might be limited by more complicated patient case mix.[69]

Country experts noted that maintaining 'hot' and 'cold' sites had been an asset in responding to Covid-19, as it helped to minimise risk for hospital-acquired transmission of the virus and meant that more elective care could be maintained throughout the pandemic, and restarted quickly following Covid-19 waves.

For example, one health system in Catalonia, Spain accelerated the building and construction of speciality ophthalmology centres outside of hospital to free up more acute capacity and better segregate patients, which meant that 20% of surgeries and all ambulatory activity could be separated to avoid major backlogs. Similarly, in the Netherlands, hospitals are relying on a system of independent outpatient clinics to clear backlogs for day-case procedures, joint replacements and other planned surgeries – there are about 300 in the country, many formally aligned with hospitals but paid separately on fee-for-service contracts.

The Irish government also passed system reforms to develop elective capacity by reconfiguring facilities to separate out scheduled and non-scheduled care

(see below). While these plans have yet to be fully implemented, one hospital system interviewed has already made use of some of these funds and had constructed a day-case elective health centre on site before the pandemic. This helped avoid day ward beds being used for inpatients and elective day cases being cancelled during peaks of the pandemic – as a result, day-case waiting lists are dropping now for the first time.

Box 3: Country example: elective care hubs in Ireland

The Irish government adopted a 10-year health reform programme called Sláintecare in 2017, designed to strengthen community care and address capacity issues in hospitals, with record funding in the 2021 budget committed to support this reform agenda. A key component of the strategy is reducing waiting lists for scheduled care, with specific initiatives to better protect elective capacity. This includes funding to develop three separate ambulatory elective facilities that are site-adjacent to major hospitals across regions, where activity volumes are sufficient to merit them (Dublin, Cork and Galway). The aim is to allow clinicians working in these centres to split their time between elective and general hospitals. Additional capacity is also intended to be created by better streamlining ambulatory, day-case and elective workloads and better separation of the management of emergency activity and the management of critical care within hospitals. In doing so, the strategy seeks to reduce elective cancellations, drive down waiting lists and reduce and ultimately eliminate the need for overflow boarding (trolleys), while providing quicker and higher-quality care for selected elective patients. The initial focus will be on high-volume/low-complexity cases.

The separation of planned and acute activity is not a new idea, and one that has also been pursued within the NHS to manage capacity. The Royal College of Surgeons recommended separating emergency and elective surgical care in 2007[70] and has since called for the expansion of this model through 'surgical hubs' to accelerate recovery from the pandemic.[71] International experience presents positive examples of how protecting elective beds from urgent care can work. But implementing these models has staffing implications, and also requires investment in facilities and equipment, both of which will require careful consideration in the NHS context.

Lesson 5: Recovery can be aided by empowering staff and facilitating bottom-up approaches.

Several experts noted the importance of staff autonomy in recovery, aligning staff around a shared purpose and aiding those closest to the problems to identify and implement solutions. In addition to increasing staff morale, motivation and retention, bottom-up approaches may allow recovery efforts to be better targeted to specific contexts and achieve greater commitment.[72,73] This is especially important given the staffing pressures highlighted in this report and the challenge of sustaining staff engagement over such a protracted crisis.

To achieve this, interviewees discussed establishing environments that enable staff at all levels to propose new ideas and create recovery plans together. This involves frequent and clear communication, setting realistic and specific targets and objectives, and giving staff choice and control over the extent of their involvement above and beyond their contracted hours.

> **We developed a recovery plan together with staff, not a top-down approach to managing. We're very specific on the timing and the targets [for extending hours of care] and that this should only be a three- to six-month plan, making sure we succeeded in order to maintain staff morale... Communication was also very important – so staff knew where we stand, what we're trying to do, and we could hear their ideas and concerns. They knew exactly what was happening and had the opportunity to weigh in.** (Eastern Health, Newfoundland and Labrador, Canada)

Country experts also discussed how supporting more autonomy in decision-making had enabled some teams to develop new staffing models that made the most of existing skills within limited resources. For example, one health system in Catalonia, Spain had insufficient numbers of anaesthesiologists to keep up with surgical waiting lists. There the team developed a new staffing model to manage sedation whereby one consultant anaesthesiologist oversees three nurses with appropriate competencies to administer sedative medications and monitor patients' vital parameters, and support

post-sedation care. This has allowed for the flexible use of skills and optimised staff resources while fostering a sense of ownership over the recovery process.

We have implemented [a] new team model of working with nurses for surgery that has been very effective, and where clinical staff are complete owners of [the] process… It's been like a microenterprise in the organisation to develop these solutions.
(Foundation Hospital Mollet, Spain)

Box 4: Country examples: staff engagement in Canada and Spain

In Ontario, Canada, one health system is seeking to improve staff retention by protecting more of their staff time for quality improvement projects and enabling them to be away from the patient's bedside to do other work they are engaged with, but rarely have time to do. This is helping to reduce burnout for senior clinicians who deal with the most complex cases and are also supervising new staff and training. Under this model, clinicians are only at the patient's bedside for four days a week and have a day protected for training or quality improvement work. While this is more expensive, it has helped improve staff engagement and retention during recovery when staff are otherwise overworked and tired and at risk of leaving the profession.

In Spain, one hospital network has developed three staff-led strategic teams to help oversee recovery: infection control; ethics and prioritisation; and health worker support. These teams work together daily to develop bottom-up approaches, and it has led to staff making more autonomous decisions, feeling more engaged and having ownership over recovery planning.

Lesson 6: Rehabilitation and community-based care/step-down care capacity proved essential in jumpstarting recovery and strengthening system resilience.

Health systems that entered the pandemic with more rehabilitative beds and home care capacity emphasised these as an asset in resuming and maintaining access to planned care throughout the pandemic.

For instance, in the Netherlands, historic investment in rehabilitation has made it possible to move patients with lower-intensity needs more quickly through the system and reduce the volume of patients in hospital. This capacity has been attributed to the Dutch system's relatively lower length of hospital stay compared to other OECD countries, and helps serve patients who receive elective surgery (for example, a hip replacement) but might not be able to recover safely at home. Similarly, in Denmark, the development of home-based care options and significant investments to health-related long-term care services have helped reduce waiting times and the average length of stay in hospital, which is among the lowest in the OECD (see the country example below).[74] Health systems in Canada also noted the advantage of having integrated long-term and community care beds as part of their network to optimise flow and serve more patients with acute care needs.

As we're bringing back services that should be managed in acute care, we looked at how we maximise the use of long-term care and community care beds, in order to really ensure that the people in hospital were those that needed to be there. So, I mean, it's a daily discussion around patient flow. We've been prioritising acute care patients with low-intensity needs for vacancies in long-term care, because otherwise, people are not going to get acute care services.
(Eastern Health, Newfoundland and Labrador, Canada)

Lack of rehabilitation capacity has been a recognised barrier to effective discharge in the NHS, which has consistently been under-resourced and fragmented.[75] Existing rehabilitation services are often small and with a

limited number of staff, making it difficult to work across boundaries or serve patients with multiple complex needs.[76] The NHS has made efforts to improve the planning, commissioning and delivery of community rehabilitation through national programmes, but limited staff and bed capacity remain an issue.[77]

Like rehabilitation services, the pandemic has also highlighted the advantages that remote and home care capacity can offer in freeing up limited acute resources. While many countries – including Ireland, Israel and the UK – rapidly pivoted towards remote monitoring and home care as a response to Covid-19, some health systems have been able to capitalise on this embedded capacity from the start to reduce pressure on hospitals.[78] For instance, hospital-at-home units in Spain have been shown to be a safe and efficient alternative to the hospitalisation of Covid-19 patients, thereby avoiding hospital admissions and facilitating early discharge.[79] Similarly, Sweden was able to use its well-developed hospital-at-home programmes to increase the number of home visits provided, including to patients from higher-risk groups. According to country reports, delayed discharge from hospital has not been a significant problem since reforms to expand home-based models of delivery began in the 1990s.[80]

One of the biggest advantages that has come out of the pandemic for us has been better facilitation of home hospitalisation… Now we know that a lot of patients that are hospitalised today in Covid departments – if they have the right infrastructure of health workers and digital support, lab facilities – can be managed in their homes or in the community. And there are a lot of conditions now that in the past would have been hospitalised, but are now managed in the home, some of which are even really complicated. We have implemented better monitoring… and the Ministry of Health is really promoting these models of care. We wrote new standards for how to make cooperation between hospital and community care staff work effectively together – this is one of the most effective solutions from the pandemic.
(Ministry of Health, Israel)

Many countries studied have made expanding home care and rehabilitative capacity an explicit part of their recovery strategies. This is the case in Portugal, where the government is investing €205 million/£172 million to develop a network of integrated care providers with rehabilitation and home care units to better enable continuity of care within the patient's home. Likewise, the Irish government is adding 1,250 additional community beds, including more than 600 rehabilitation beds, as part of broader system reforms to build capacity.[81] France is also investing €10 million/£8.4 million to develop 'hospital hotels', which are non-medical facilities that provide accommodation for people who do not require continuous monitoring but who want or need to be accommodated near the hospital.[82]

Rehabilitative and home care capacity is not only essential in helping to discharge patients safely from hospital, but may also be pivotal in managing rising demand on health care as a result of long-term conditions. Looking to the future, evidence has pointed to the need for greater rehabilitation and community-based long-term care support to effectively manage the rise in the number of patients predicted to experience symptoms of 'long Covid'[83] and those whose health conditions have deteriorated as a result of lockdowns and limited access to care.[84]

To prevent hospital admissions and support discharge, the NHS has recognised rehabilitation as a core essential service and the need to increase capacity in community rehabilitation.[77] This should be supported by greater partnership working with services outside of health, the use of digital approaches and group rehabilitation, and be guided by the vision and principles set out by the sector.[84,85] It will also require thinking more holistically about the elective recovery challenge and how capacity needs to be expanded outside of acute care if the problem of backlogs is ever going to be meaningfully addressed.

Box 5: Country example: overcoming delayed discharges in Denmark

There has been a long-term policy objective in Denmark to contain spending on inpatient care and redistribute more resources and capacity to ambulatory and home-care settings. This has resulted in a steady decline in the number of hospital beds, which in 2019 equalled 2.6 beds per 1,000 population – similar to that in the UK but about half the EU average.[86] The average length of hospital stay has also dropped, in part due to policies and investments that have promoted earlier discharges. This has helped the health system free up capacity in limited acute resources without any discernible reduction in quality. Evidence suggests that delayed discharges are now a less prominent issue than in other comparable countries, including England.[87]

To enable early discharge, municipalities in Denmark have increased the amount of acute services that are delivered at home, alongside general home nursing. Delivery relies on community-based acute care teams, with expanded roles for nurses and care assistants. Home-based care is required to be available 24 hours a day, seven days a week, and work closely with hospital and primary care clinicians.

Sources: European Commission, OECD and European Observatory on Health Systems and Policies (2019) *Denmark: Country health profile 2019: State of the health in the EU,* OECD Publishing; European Commission, OECD and European Observatory on Health Systems and Policies (2021) *Denmark: Country health profile 2021: State of the health in the EU,* OECD Publishing.

Lesson 7: Other health systems are focusing on broader system capacity as part of their recovery strategy, rather than viewing elective waiting times in isolation. This recognises care backlogs as a whole-system problem, and efforts to reduce them will be undermined if primary care, emergency care, mental health and community services do not also recover.

The importance of rehabilitation and step-down care speaks to the interconnectedness of recovery, and the need to think beyond hospital capacity in tackling elective backlogs and better preparing services for the future.

While many health systems had a strong focus on mobilising acute and intensive care resources during peaks of the crisis, many recovery plans are foregrounded in strengthening capacity outside of hospital and better integrating services. There was consensus among experts that freeing up staff resources in acute care relied on being able to deliver as much care as possible to patients in primary care, community services, mental health and social care. Across countries, the pandemic has reinforced how essential these local services are in enabling people to access the level of care they need at the right time to stay well and lead a healthy life.

There has long been [an] emphasis on shifting more care out of hospital and Covid-19 has really accelerated those efforts. Money is going directly into the community and this level of funding has never been seen before – it's seen as the only long-term solution to addressing hospital pressures and access problems. Covid-19 has been a catalyst to drive forward the things we should have been doing all along.
(Saolta University Health Care Group, Ireland)

Several countries studied are making significant investments in public health, social care and ambulatory care services as part of recovery strategies. For example, Austria, France and Sweden have invested in additional training places for care home staff and upgrades to community nursing facilities. Italy is investing in community hospitals and establishing nearly 1,300 one-stop 'health homes' by mid-2026 to strengthen local delivery of health services, supported by a structural increase in overall staffing levels. Germany is upgrading its public health infrastructure and adding 5,000 new roles to these services (further details on different country plans are described in Box 6 below and Appendix C). Likewise, in Finland the pandemic has accelerated long-standing reforms to integrate planning for health, social care and broader welfare services into single unified regional bodies – a move that previously lacked political consensus and resources, but has now been agreed to support more joined-up delivery of services around recovery.

We've been trying for 15 years to enact health care and social welfare reform that would bring the organisation and financing of health, social services and rescue services into one organisation. In June 2021, parliament finally agreed to these reforms in part because they may help systems recover better from the pandemic.
(Ministry of Health, Finland)

Here the UK government may learn a difficult lesson, as the bulk of recent funding increases go directly to frontline NHS services, but leaves out important budgets such as public health and social care – both of which are core to enhancing recovery and reducing backlogs but have experienced real-terms cuts over the past decade and received, and saw their budgets maintained at levels that will be insufficient to meet demand. And within the English NHS, the elective recovery resources, strategies and targets announced have so far been more narrowly focused on adding capacity in acute trusts to reduce specialist waiting lists. This may be sensible given the scale of the challenge and how failing to make progress on elective backlogs could increase pressures on other parts of the service – including emergency care, mental health and primary care as more patients wait longer with uncertainty and their needs progress.[87] The NHS of course has a pre-existing strategy

through the NHS Long-Term Plan[88] to support greater prevention and better manage care out of hospital. But it is also true that what gets measured tends to get prioritised, and in the NHS, we have a much clearer view of capacity constraints in hospitals than we do in primary, community, social care or mental health services, given where system targets and the latest elective recovery targets are focused.

International experience has made clear the importance of viewing the causes of and solutions to recovering elective care backlogs comprehensively, and how capacity constraints felt in one part of the system impact all. There is a risk that without a more holistic approach to recovery, more resources and staff will go into acute services at the expense of developing stronger out-of-hospital care that is equally important to recover and future-proof the health system. We see this play out in the current challenge the sector is facing with delayed transfers of care, in part due to inadequate investment and capacity in social and community services.[89] Investing more resources and energy into the acute end of the challenge will do little if the system is unable to discharge people from hospital to appropriate settings with the right support. Likewise, it will be difficult to support the management of more patients outside of hospital and develop primary and community care alternatives to care if capacity is already oversubscribed and cannot keep pace with demand in those areas.

Many experts noted how the investments countries are now making in ambulatory capacity are in recognition of structural weaknesses exposed by the pandemic, and which have been playing out in recovery as they seek to recover waiting lists. Primary care in particular has come under heightened pressure across countries, as more treatment has shifted to protect acute care capacity, and normal workflows have been disrupted to manage large-scale vaccination campaigns and manage Covid-19 patients. While some experts described how a well-functioning and integrated primary care system has cushioned the effects of the pandemic, others have seen care disruptions in general practice – contributing to service pressures as patients present later and in a more serious condition, or require avoidable specialist and emergency care.[90,91]

Likewise, in the UK, demand for primary care has grown substantially during the pandemic, with concerns that workload and workforce pressures having

reached a tipping point.[56,92] Part of this comes down to funding and staffing – experts reflected how historical efforts to shift more care out of hospital have not come with commensurate increases in capacity for general practice, and building resilience will require shifting this balance of resources. It should be noted for context, however, that the UK spent slightly more on primary care as a share of its overall health expenditure going into the pandemic (14%) compared to the OECD average (13%) and several other countries included in our study, including Germany (13%), Sweden (12%), Denmark (11%), Austria (11%) and the Netherlands (10%).[93]

There's also a kind of a problem in that we have all kinds of innovations focused on doing less in hospital. So then you see less volume in the hospital... but then we also measure much more activity in primary care... And the primary care sector is overloaded with struggling primary care doctors who are dealing with burnout and who say it's over, we cannot do anymore, and when we actually measure it, we see that they are very, very busy... They easily hit 60 hours a week and all of these quality improvement projects are placing more care in their sector without increasing baseline capacity. It's really tough. Insurance companies need to shift money from the hospitals to primary care, but they only do a bit. So that means actually that primary care centres are increasingly getting underpaid and underfunded.
(Ministry of Health, Welfare and Sports, the Netherlands)

Alongside increasing investment, this is why some countries are also introducing explicit recovery targets for primary care to help focus efforts beyond elective backlogs. For example, in Finland the government has introduced a new seven-day access guarantee for non-urgent general practice appointments, supported by €230 million/£194 million for regions to develop services to reduce access barriers. While the NHS has not introduced a specific recovery plan for primary care, expanding access to general practice has been a focus, with investments made to boost capacity for urgent same-day care through additional funding and a new £250 million Winter Access Fund.[94] The

Long-Term Plan also committed to increasing investment in out-of-hospital capacity through a £4.5 billion real-terms investment growth by 2023/24, which NHS England has recognised is key to expanding the primary care workforce to support recovery.[95]

A broader focus on whole-system capacity has also been seen in many countries as a way of addressing health inequities that the crisis has magnified. For instance, France's recovery strategy includes a new comprehensive care guarantee for medical, psychological and social support, expansion of health centres and community facilities in the most deprived areas, and dedicated mobile outreach services for people without housing. Austria and Ireland's recovery plans also include dedicated investments to expand access to preventative care and early years support in the community for socioeconomically disadvantaged populations. The NHS in England is also prioritising health inequities as part of recovery, with plans focusing on evaluating waiting lists by ethnicity and deprivation, and accelerating preventative programmes that proactively engage those at greatest risk of poor health outcomes.[96] Changes to the way care has been delivered since the start of the pandemic have also raised concerns about potential inequities and exclusion, including the implementation of digital care models, which will be discussed in the next section.

Box 6: Country examples: broader system investments to support recovery in Italy, Ireland and Austria

Italy has made expanding community capacity a central part of its recovery and resilience strategy, which includes €2 billion/£1.67 billion to develop new facilities called 'community health houses'. These will provide a single point of access for health and social care needs assessments and care, and will become a hub from which health and social welfare services are coordinated. In addition, the volume of services provided in the home will be expanded through telemedicine (see Lesson 8) and the establishment of local operation centres in each district to coordinate home services with other health services, and the interface with hospitals and emergency care providers. In total, €1 billion/£840 million is being invested to create 381 community hospitals to support step-down care for patients who require short stays with medium-to-low clinical intensity (see Lesson 6). All plans are underpinned by designated funding to recruit 9,600 new 'family and community nurses', a new type of advanced practice nurse to support home-based care and care continuity within the community, with the aim of taking more pressure off primary care and hospital personnel.

In Ireland, plans to rebuild primary and community care capacity have been accelerated as a result of the pandemic, where funding has primarily gone towards shifting more skills and staff out of hospital to better manage chronic conditions in the community. This includes establishing community-based pathways in three main areas: cardiology, diabetes and chronic respiratory illness. Moreover, investments in home care and community capacity include the recruitment of 7,000 additional staff and the creation of 1,250 more community beds.

Austria is investing €100 million/£85 million to strengthen primary care, and establish 70 new primary care centres to increase access to care, and improve the attractiveness of the profession by expanding more flexible working-time models. The pandemic highlighted the need for more accessible primary care, and opportunities to shift more care out of hospital for conditions that can be managed more effectively in the community. An investment of €54.2 million/£45.3 million has also been made to expand community nursing pilots to help relieve the burden on informal carers and make it easier for them to participate in the labour market. In addition, €25 million/£21 million has been invested to underpin community support offers for disadvantaged populations, especially pregnant women, parents and children.

Lesson 8: The pandemic has unlocked the potential for digital health, but it is not a panacea, and more needs to be understood about its effects on different patient groups and staff.

In virtually all countries studied, the pandemic has accelerated the implementation and use of remote consultations, telemedicine, and digital tools and services such as e-prescribing. Survey data show that the share of EU citizens who had a remote or telephone consultation with a GP grew steadily throughout the pandemic, rising from 28.7% in June/July 2020 to 38.6% in February/March 2021.[90] In the UK we see a similar trend – the number of appointments carried out virtually rose from 15% in February 2020 to 36% in October 2020 in general practice, and from 4% in February 2020 to 25% in September 2020 for outpatient attendances.[97]

We have seen a quick implementation of intensive e-health services. We have had the equipment for 15 years, and just never used it. Now it is fully embedded and being sustained. We're still realising the huge potential for digital services. No other effect but the pandemic could have been as fast as an accelerator.
(Ministry of Health, Finland)

Experts agreed that while digital models of care and solutions should be sustained wherever appropriate, there is a need for wider strategy that accounts for the infrastructure, training and reimbursement structures needed to scale and sustain digital ways of working. This is the case in Belgium where hospitals quickly rolled out teleconsultations during the first wave of the pandemic, but without an overarching strategy or infrastructure it meant that individual hospitals had to establish their own systems and technical solutions rather than capitalise on a broader plan or system support.[98] Some health systems also had to introduce new regulatory and reimbursement frameworks to offset any potential losses of physician income and to incentivise the uptake of virtual models of care. This typically involved relaxing limits to the number/duration of teleconsultations, increasing the reimbursement rates applied to remote consultations in line with face-to-face appointments, or creating Covid-19-specific tariffs.[99] This has been less of an issue in the NHS, which already had a national digital strategy in place and made shifts away from activity-based payments in acute care during the pandemic.[100,101]

To support the expansion of virtual ways of working, many systems are making large-scale investments in digital infrastructure as part of their recovery plans, which has been aided by financial support from the European Commission's Recovery and Resilience funding programme in many countries (see Appendix C for analysis of country plans).[90] For example, France allocated €2 billion/£1.68 billion to develop and implement interoperable, secure software in all health care facilities, and upgrade the national information technology (IT) systems running the national digital health infrastructure. Italy is investing €7.4 billion/£6 billion over five years to upgrade digital technology across health care facilities, including plans to strengthen data and electronic health record infrastructure. Similarly, in the UK, an additional £2.1 billion of capital funding for digital technology was announced in the October 2021 budget.[38]

But as health systems move from pandemic response to recovery, and the context and dynamics of the virus change, experts remarked that the implementation of digital solutions would have to be recalibrated if they are to become an embedded and routine part of care delivery. Some experts reflected how patient acceptance of remote consultations has been waning over time, particularly as the incidence of Covid-19 declines and patient risks and preferences shift.

The pace of change has also meant that evidence is still emerging about for whom digital consultations work best, and under which conditions. While early findings indicate that some virtual models are seen favourably by many patients, further evidence is needed to understand the full implications of these shifts for different populations.[90] For instance, some operational leads interviewed noted how teleconsultations seem most effective when relationships between the clinicians and patient are already established, but could lead to increased workloads and referrals for new patients if GPs feel they are less able to make a determination without an in-person assessment. Experts also cautioned that while access has been improved for a great number of patients – particularly those living in rural areas – careful evaluation will be needed to understand the full implications for equity and any unintended consequences. [90,102] This speaks to the need for policy to allow for a range of options and flexibility in approach to best meet the needs of different patients and staff.

Another key learning from international experience is that digital transformation requires sustainable investment plans if new ways of working are to become business as usual.[103] Many of the investments health systems are making as part of recovery plans involve one-off investments and time-limited resources. This will be a common challenge for governments to avoid cyclical funding that undermines the implementation and long-term maintenance of IT infrastructure and equipment. In parallel, it is essential that investments in capital infrastructure happen alongside investments in personnel to deliver the specific training needs of the health workforce (see Lesson 3), or else the potential to build on transformations made during the pandemic will be significantly minimised.

Lesson 9: Systems have reached new levels of data sharing and coordination during the pandemic, but will need adequate incentives, support and governance structures to sustain them.

In many health systems, competitive and disjointed ways of working have given way to far greater collaboration and trust across local and regional providers throughout the pandemic. This has been enabled by far more advanced, and the rapid availability of, data to make coordinated decisions across providers. For instance, in the Netherlands, hospitals established a centralised data registry with real-time information on bed capacity and waiting times during the crisis to be able to redistribute patients and staff and avoid any one hospital from being overburdened with Covid-19 cases. The registry has been maintained and is now being used to ensure that capacity is protected and distributed across providers for urgent surgeries. The system also links to long-term care and rehabilitation capacity in real time, to be able to allocate resources and schedule surgeries with far greater precision, which has helped protect more elective activity, even during waves of the crisis.

Similar developments also occurred in Germany and Denmark, where hospitals cooperated to a larger extent across regions to transfer Covid-19 or non-Covid-19 cases from areas struggling to cope with patient numbers. Some countries such as Canada, Denmark and Sweden have also used centralised waiting-time data to expand patient choice and transparency, allowing patients to see where they are in the queue and offer the option to receive treatment in another region if care guarantees cannot be met locally. However, how effectively data can be used to offer patient choice or redistribute capacity

will rely on public attitudes and preferences, and policy-makers should be sensitive to what is and is not likely to be acceptable in different contexts.

The demand for data that is immediately accessible is so much greater now. Decision-makers want to know what occupation rates of intensive care are in real time... people realise when you go to an ATM machine, what good is it to see your bank data from two years ago? And this is the same case for health care. I'm a bit worried whether this will continue – or if we'll lose some of this again and we'll go back to normal.
(Technical University, Berlin, Germany)

Health systems are seeking to sustain this level of data coordination and collection by investing in digital and data infrastructure. This includes expanding the interoperability of patient data and information across different sectors of care and developing digital infrastructure and security. Many of these investments are being supported through the European Commission's Recovery and Resilience funding programme (see Appendix C for a summary of key capital investments by country). Experts cautioned, however, that here too, progress is fragile, and could only be sustained with adequate leadership and governance frameworks in place.

For instance, in the Netherlands, agreements to share data and capacity across hospitals have been made through voluntary arrangements. Some experts feared competitive behaviour would return if broader incentives and governance arrangements did not also change. This is especially true in more federalised health systems and where providers are paid by volumes of service and financially incentivised to retain as many of their own elective patients as possible. Here, the NHS may have a comparative advantage, given that it entered the pandemic with more developed health data and information systems than many countries, and a centralised planning structure with mechanisms and processes already in place for collecting and sharing data across decision-makers.

We have never had a whole of society or whole of government as strong as during this pandemic, but I suspect it will quickly evaporate as soon as things ease. We are already seeing it. At least the personal contacts remain… but I am quite concerned that unless we actively institutionalise these collaborations, they will be lost immediately the pressure is lifted – because need drives collaboration…
(Ministry of Health, Malta)

[I]f the same mechanisms (funding and contracts) stay in place, collaboration is almost impossible to sustain. In the months of crisis, you'll get collaboration, but it's frightening how quickly people or organisations revert back to what they were doing, because actually, that's what they're incentivised to do…
(Canterbury Health Board, New Zealand)

And as with broader digital transformation, experts reinforced the need for adequate workforce planning and training that accounts for the roles and skills necessary to collect, report, analyse and share data in real time.

With capital investments, we are concerned that while it's great to be expanding new models and tools, it has to be done in tandem with workforce planning, and with due consideration for the skills needed. There is a recognition among clinicians why data is important, but there is a fear that this is going to add more work onto their shoulders. So this is something we need to be careful about – and it's not just that we now want health professionals (who are responsible for all the day-to-day caring of patients) to now also be data analysts. So we need to be really careful there.
(Health System Performance Unit, European Commission)

Lesson 10: Countries reliant on fee-for-service payment models and social insurance systems face greater uncertainty about how providers will be sustained throughout recovery.

Providers have incurred extra expenses during the pandemic, for example because of infection control protocols that required reconfiguring clinics and purchasing additional personal protective equipment. They have also faced income losses due to drops in elective activity, and continue to face financial risk as services resume at a slower pace than the rate at which they initially fell. This tends to be a larger concern in systems where providers are reimbursed by volume of activity rather than capitated or population-based payments.[99]

Many governments adopted quick measures in the first year of the pandemic to compensate providers for these extra expenditures and revenue shortfalls in order to maintain services and pay staff. For example, Germany guaranteed that hospitals would receive per diem payments (adjusted for case mix and type of hospital) for unused beds through November 2020 to offset the costs of deferring and delaying elective procedures. Belgium, France and Italy similarly introduced new budgets to cover revenue losses in hospitals compared to the previous year's turnover.[104] In England, the government resolved this by replacing activity and performance-based payments with block contracts during the pandemic.[105] Some fee-for-service payments have been introduced to cover the extra costs of managing Covid-19 and vaccinations, as well as extra incentive payments for physicians working overtime to help clear backlogs.

In several countries studied, there is uncertainty about whether these mechanisms will be sustained, and how the financial shortfall will be made up if procedures are cancelled again and elective services take longer to fully catch up.

And with the number of infections rising at the moment... at least yesterday, there was once again a hospital which stopped for the first time in quite a while their regular operation theatre programme. But the question now is, of course, who's going to pay for this? In the 2022 budget there isn't a big amount to make up for these shortfalls

in activity. In the first phases of the pandemic, the government and insurance companies basically bailed everybody out... And now, there will be a discussion about whether hospitals have any additional money... but there's no plan at the moment on how to solve this backlog financially. I mean, it will be solved. It has to be, but they're still negotiating and, you know, it's uncertain.
(Ministry of Health, Welfare and Sports, the Netherlands)

Some countries had a build-up of reserves going into the pandemic and were able to finance unforeseen gaps in revenue as the crisis extended and elective services were disrupted further. But with reserves gone, there is some uncertainty about how these shortfalls may be met in the future.

This is where the UK might have a comparative advantage, given the recent shift to capitated forms of payment, its tax-based system, which allows for quick reallocation of resources, and built-in mechanisms for ensuring hospital solvency.

How payment mechanisms should be designed in the future is an open question in several systems, with policy-makers having to balance the trade-offs between incentivising activity to catch up on elective backlogs with inefficiencies inherent in activity-based reimbursement. Some interviewees reflected that the pre-pandemic trend towards more population-based and capitated forms of payments feels less sensible in the interim as health systems confront growing waiting lists and need to catch up on services as quickly as possible. Similarly, in England, while the long-term trajectory has been towards more blended payment models, there have been suggestions that the strong volume-based component for elective care will be needed to meet the goals that have been set for recovery.[106]

4 Concluding remarks and considerations for the NHS

This report has captured the experiences and emerging lessons from other health systems seeking to recover and rebuild from the pandemic. Every health system entered the crisis from a different starting point, and the legacies it leaves behind will depend on each country's response to its challenges – many of which are still unfolding. But common lessons have surfaced that provide the NHS with important learning as the system works to catch up on care backlogs while ensuring services are stronger and better prepared for the future.

These include the need to think holistically about the elective recovery challenge – to develop a plan that accounts for the ways acute care, primary care, community services, social care, emergency services and mental health all interact. Efforts to reduce waiting lists will otherwise be considerably undermined. Equally important is the need to take swift action on workforce pressures and develop adequately funded short- and long-term plans that make the health and care sectors more attractive places to work in. At the centre of this is the need to balance the immediate pressures of clearing backlogs with long-term measures that place services on a more sustainable footing. International experience shows how these can be at odds, for instance if actions taken in the short term exhaust an already depleted workforce, or resolve Covid-19-specific problems but leave services less prepared for tomorrow's challenges.

Many of these insights are not new – in other words, it would not have taken the Covid-19 pandemic to know and appreciate them. But the events over the past two years have heightened their significance and the urgency with which they must now be considered.

In every country, the pandemic has illuminated different strengths and structural weaknesses that will impact health system recovery. For highly efficient systems like the NHS, it has shown how it is not possible to run services at more than 90% capacity and expect them to cope whenever there is a surge in demand. Even though the NHS is making every effort to clear backlogs and pursuing many of the same strategies as other systems included in our study, recovery may take longer than in countries with greater historical spend and headroom to deal with a crisis. But while overall funding is important, it is not the full story, and can mask differences in how and where resources are allocated that also influence capacity. Countries that had more flexible infrastructure to separate acute and planned care and greater embedded rehabilitation and community capacity also had an advantage in jumpstarting elective activity between waves. Policy-makers should heed these lessons when thinking of how to strengthen the NHS for the future.

But the NHS has also demonstrated other significant strengths that are foundational to system resilience. These include the ability to rapidly collect and share information across the systems, centralised mechanisms for coordinating services and redistributing capacity, and the ability to inject funds where needed and ensure financial solvency during periods of great uncertainty. All of these will be important assets to the NHS as it seeks to recover elective backlogs and deal with unforeseen shocks.

The lessons from Covid-19 are still unfolding, and it will be important for research and policy to spend adequate time distinguishing between what happened during the pandemic because of the pandemic, versus what happened due to systemic issues in health systems that must now be addressed. But it is clear from international experience so far that the pandemic has raised important considerations and learning for how the NHS might recover and strengthen services over the long term.

Appendix A

Selected waiting-time targets and care guarantees in countries studied

Country	Maximum waiting times or targets
Australia	Maximum waiting times defined by clinical urgency: • category 1: 30 days/~4 weeks (patient's health has the potential to deteriorate quickly) • category 2: 90 days/~13 weeks (patient's health is unlikely to deteriorate quickly) • category 3: 365 days/~52 weeks (patient's health is unlikely to deteriorate quickly)
Canada	Maximum waiting times (from referral): • hip and knee replacement: 182 days/26 weeks/6 months • cataract surgery: 112 days/16 weeks/3.5 months • cancer care – radiation therapy: 28 days/4 weeks • cardiac care – bypass surgery: range from 14 to 182 days/2 to 26 weeks (depending on urgency)
Denmark	Maximum waiting time: • extended free hospital choice means patients have the right to receive an examination or treatment in a private hospital or in another region if they have to wait more than 30 days/4 weeks
Finland	Maximum waiting times: • non-urgent treatment in primary care: 21 days/3 weeks (introduced new measure in 2022 to reduce maximum wait to 7 days/1 week) • specialist assessment: within 21 days/3 weeks of referral • specialist treatment: within 182 days/26 weeks/6 months of assessment (3 months for children and young people)
Ireland	Sláintecare reforms have introduced new waiting-time targets that are to be implemented between 2021 and 2023: • 84 days/12 weeks/~3 months for an inpatient procedure • 70 days/10 weeks for an outpatient appointment • 10 days for a diagnostics test
Italy	• In 2019, the Ministry of Health established a three-year national plan that requires regions to set maximum waiting-time guarantees for selected outpatient visits, diagnostics and elective surgeries, and to collect and publish monitoring data • Standards and targets vary by region
The Netherlands	Waiting-time targets: • specialist visit and diagnostic assessment: 30 days/4 weeks • inpatient treatment: 42 days/6 weeks

Country	Maximum waiting times or targets
Portugal	Waiting-time targets: • visit (normal priority level): 120 days/17 weeks/4 months • treatment (normal priority level): 180 days/25 weeks/6 months
Spain (varies by region)	Baleares and Pais Vasco: • specialist visits: 30 days • elective treatment: 180 days/26 weeks/6 months Cantabria: • specialist visit: 60 days/8.5 weeks Madrid: • specialist visit: 60 days/8.5 weeks • elective treatment: 180 days/26 weeks/6 months Murcia: • specialist visit: 50 days/7 weeks Navarra: • specialist visit: ordinarily fewer than 30 days, preferred fewer than 10 days • elective treatment (depends on the procedure): 30 days (cancer surgery), 60 days (cardiac surgery), 120–180 days/4–6 months (for conditions where the wait does not contribute to the worsening of health)
Sweden	Waiting-time guarantees: • primary care contact: same day • primary care assessment: within 3 days of contact • first specialist appointment: within 90 days • speciality treatment or intervention: within 90 days of first appointment
England	Maximum waiting times and targets: • diagnostic tests: 42 days/6 weeks from referral, 28 days from urgent GP referral (cancer) • treatment: 126 days/18 weeks/4 months from referral (non-urgent conditions), 62 days for first treatment from urgent referral (cancer), choice of alternate provider at 26 weeks/6 months The elective recovery plan reinforced a maximum 52-week wait for elective care, committing to eliminate one-year waits for elective care by March 2025, waits of longer than two years by July 2022, waits of over 18 months by April 2023 and waits of over 65 weeks/15 months by March 2024.

Sources: OECD (2020) *Waiting Times for Health Services: Next in line,* OECD Health Policy Studies, OECD Publishing, https://doi.org/10.1787/242e3c8c-en; and Nuffield Trust analysis of country-level resources.

Appendix B

Care disruptions and backlogs in studied health systems – a summary overview

Health systems with <50 recorded Covid-19 deaths per 100,000 population	
Australia	**Finland**
Note: data are only available for public hospitals (two-thirds of elective admissions involving surgery take place in private hospitals). **Elective care**: Elective admissions involving surgery in public hospitals decreased by 9.3% in 2019/20 from the previous year. Specialist visits were mostly maintained at pre-pandemic levels, but some specialities experienced reductions (for example, optometry saw a 8.1% drop in 2020 compared to 2019). **Primary care/diagnostics/screening**: There was a small increase (3.4%) in the total number of Medicare-subsidised GP appointments in 2019/20 compared to 2018/19. Some cancer screening experienced large declines during periods of tighter restrictions, but mostly caught up or exceeded historical levels by September 2020. **Waiting times**: Australia caught up on backlogs between waves, and median waiting times for elective surgery, and the percentage of people waiting more than a year for treatment, have remained fairly constant. **Source**: Australian Institute of Health and Welfare.	**Elective care**: The number of hip or knee replacements fell by 7.5% in 2020 compared to 2019. **Primary care/diagnostics/screening**: The number of ambulatory health care visits decreased significantly during the first wave of Covid-19 but increased steadily from August 2020 – and reached pre-pandemic levels at the beginning of 2021 partly due to increased levels of digital and remote visits. **Waiting times**: In August 2021, 6.8% of patients waited more than six months for non-urgent, specialist care – before the pandemic it was around 2%. The proportion of patients with long waits increased in most districts between April and August 2021 but was lower than levels in August 2020. **Source**: Finnish Institute for Health and Welfare.

Health systems with 50–100 recorded Covid-19 deaths per 100,000	
Canada	**Denmark**
Elective care: Daily surgical volumes fell by about 80% in early April 2020, but by the end of July 2020 had recovered to pre-pandemic levels and remained there until wave 3 (February 2021) when surgical volumes slowed again to 20–40% below pre-pandemic levels through June 2021. **Primary care/diagnostics/screening**: Between March 2020 and March 2021, family physician activity fell below pre-pandemic levels, although it varied by region and age group. The biggest decrease occurred for children and youth aged 0 to 17, which fell by 24–26%. A much smaller decrease occurred for adults (and even increased in some regions). **Waiting times**: Cancelled and delayed procedures during the Covid-19 pandemic led to longer waiting times for non-urgent elective surgeries in 2020. Around a half of Canadians did not receive their procedures within recommended timeframes, compared to around a third in 2019. For urgent procedures (for example, radiation therapy and hip fracture repair), most patients continued to receive treatment within the target timeframe in 2020. Median waiting times improved by two or three days for breast, bladder, colorectal and lung cancer surgery, although the number of cancer surgeries decreased by about a fifth in 2020 compared to 2019. **Source**: Canadian Institute for Health Information.	**Elective care**: Activity levels resumed to pre-pandemic levels around June 2020 for ambulatory care services and in mid-September 2020 for hospital services following the first wave. While non-essential care also had to be delayed during the second wave, smaller reductions in activity levels were observed. Planned surgeries and outpatient visits remained at normal levels between waves and throughout 2021, but dipped in June 2021 due to a nurses' strike. **Primary care/diagnostics/screening**: Cancer screening reached pre-pandemic levels in February 2021, but did experience prolonged periods of lower activity during peaks. In 2020, the number of patients referred to cancer pathways was comparable to previous years, and 80% of enrolled patients completed their care within the recommended timeframes – a rate similar to before the pandemic. **Waiting times**: Most waiting times recovered to normal standards by August 2021. The one-month waiting-time guarantee for accessing diagnosis and treatment was reinstated in September 2020 for psychiatric care and March 2021 for all other care. **Sources**: Danish Health Authority; OECD and European Observatory on Health Systems and Policies.

Health systems with 120–200 recorded Covid-19 deaths per 100,000 population		
Sweden	**Ireland**	**The Netherlands**
Elective care: Planned operations and treatments in 2020 fell by 16% compared to 2019. **Primary care/diagnostics/ screening**: Primary care contacts were mostly maintained throughout the pandemic, with slight decreases and regional differences. During 2020, the share of people getting same-day contact with primary care declined from 93% to 87%. The number of cancers detected fell by 6% in 2020 compared to 2019. **Waiting times**: In March 2020, 80% of patients met the target of having their first visit to a specialist appointment within 90 days, and 71% received treatment or intervention within 90 days. These proportions dropped significantly following the first wave, to 67% for the first visit in June 2020 and 44% for the first intervention in July 2020. While elective activity recovered and was mostly maintained through later waves, volumes were still below pre-pandemic levels in December 2020 (77% for the first visit and 60% for the first intervention). **Sources**: Swedish Association of Local Authorities and Regions; OECD and European Observatory on Health Systems and Policies	**Elective care**: Volumes of elective activity remained below pre-pandemic levels in some hospitals in 2021, due to Covid-19 and a major ransomware attack in May 2021 that caused serious disruption to services. Between April and December 2020, there were 42.8% fewer elective care episodes than would have been expected in a pre-pandemic year. **Primary care/diagnostics/ screening**: From January to September 2020, there were 9.5% fewer lung, breast and prostate cancer detections compared to the same period in 2019. By the end of August 2020, cancer treatment activity had still only recovered to 85% of normal levels. **Waiting times**: The number of patients waiting for an outpatient specialist appointment or inpatient or day-case appointment grew by 11.6% and 14.5%, respectively, between January 2020 and January 2022. Among patients waiting, the proportion waiting more than six months grew by 16% for outpatients and 30% for inpatient/day-case procedures. **Sources**: Health Service Executive; the National Treatment Purchase Fund.	**Elective care**: There were 23% fewer operations between March 2020 and August 2021 than in the pre-pandemic period, of which between 170,000 and 210,000 need to be made up (which represents 11–14% of surgeries performed annually). **Primary care/diagnostics/ screening**: There were 1.4 million fewer referrals between March 2020 and August 2021, with most of the decrease occurring in the first wave. By May 2021, referrals had rebounded to 2019 levels. **Waiting times**: Nationally, waiting times have been reasonably stable. By August 2021, only three treatments (hip and knee replacements and stress incontinence) had waiting times above the target thresholds in all regions and 87% of hospitals reported being able to provide all critical elective care within the standard of six weeks. Following the latest wave, this number dropped to 66% in February 2022, which may mean waiting times have deteriorated. **Sources**: Dutch Health Authority.

Health systems with > 200 Covid-19 deaths per 100,000 population		
UK	**Spain**	**France**
Elective care: Elective admissions were 14.3% lower in May 2021 compared to pre-pandemic levels. **Primary care/diagnostics/ screening**: The number of routine GP referrals fell by 18% between February 2020 and August 2021. Between March and May 2020, the total number of cancers diagnosed fell by 47% but has increased thereafter and new cancers diagnosed in December 2020 were only 4% lower than in December 2019. **Waiting times**: The total number of people waiting to start consultant-led elective treatment grew to 6.1 million in December 2021– nearly a 37% increase compared to March 2020. As well as more people waiting, those people are waiting longer than prior to Covid-19. In December 2021, 36% of people had been waiting over 18 weeks to start treatment, compared with 16% in December 2019, and a target of only 8%. 33% of patients waited longer than 2 months to start cancer treatment following an urgent referral in December 2021, compared to 22% in December 2019. **Source**: QualityWatch and Nuffield Trust.	**Elective care**: In 2021, nearly 95% of activity levels in elective care were reached compared to 2019. **Primary care/diagnostics/ screening**: 21% fewer cancer diagnoses were reported between March and June 2020 compared with the same period in the previous year (although some regions reported catching up on missed diagnoses by December 2021). **Waiting times**: The number of patients on the surgical waiting list remained fairly constant between 2019 and 2020, with a slight (3%) decrease. The proportion of patients waiting more than six months has increased, rising from 20% in December 2019 to 27% in December 2020. **Source**: Spanish NHS Waiting List Information System; Spanish Society of Oncology and Medicine.	**Elective care**: Surgical removal of cancers decreased by 6.2% in 2020 compared to 2019. Acute hospital treatment for ischemic heart disease fell by 7.8% in 2020 compared to 2019. **Primary care/diagnostics/ screening**: Cancer screening was significantly disrupted during lockdowns, but increased to above pre-pandemic levels by September 2020. Still, in the whole of 2020, mammograms and cervical cancer screening decreased by 14.5% and 9% respectively compared to 2019. No national waiting times data are available. **Source**: Assurance Maladie (2021), Améliorer la qualité du système de santé et maîtriser les dépenses, Propositions de l'assurance maladie pour 2022.

Notes: Data are based on national reporting and cover different time periods and indicators across countries so are not directly comparable. We include the latest data available for each country, but in most cases, this does not cover the latest wave of Covid-19. Only countries studied with national-level data on activity levels and waiting times are included.

Sources: European Commission, OECD and European Observatory on Health Systems and Policies, State of the EU Country Health Profiles, European Observatory Covid-19 Health System Response Monitor, and country level-resources where available.

Appendix C

Key investments and reforms to enhance future resilience in the countries studied

Country	Strategic area		
	Workforce and service redesign	Digitalisation and data	Facilities and estates
Austria	Making the primary care profession more attractive with more flexible working models Expanding the number of community nurses in regions with poor access to long-term care support (€54 million/£46 million)	Introducing a digital 'passport' for socially vulnerable families to provide direct access to social support and services (€10 million/£8.5 million)	Expanding the number of primary care centres (€100 million/£85 million)
Belgium	€1 billion/£83 million reform to improve pay and conditions for health care workers – includes a new pay system that will better harmonise pay in the private and public sectors, with pay increases between 5% and 6%	€40 million/£34 million to support data sharing and develop standardised datasets that focus on specific themes (for example, allergies or vaccination) and that can be shared between all health workers (nurses, physicians, physiotherapists) Creation of an integrated tracking system for the consumption of medicines Investing in digital tools to expand telemedicine, e-prescribing and referral capabilities	

Country	Strategic area		
	Workforce and service redesign	Digitalisation and data	Facilities and estates
Denmark		14 million DKK/£1.5 million to support digital solutions, expand video consultations and increase patient engagement in and use of telemedicine	
Finland	Increasing the number of training places in the applied sciences, of which 57.3% will be allocated to the health and wellbeing sector Adding 665 training places for nursing education at polytechnics A new sustainable growth funding programme (€230 million/£195 million) for regional projects that promote access to care, streamline services and introduce more efficient and multidisciplinary care delivery €120 million/£102 million to support better integration of health and social services	Developing digital system infrastructure and knowledge management processes that support better coordination across providers and cost-effectiveness, including integrated patient records and care plans, and digital and mobile service solutions that help expand care access, promote self-management, expand digital peer support and support multi-professional working (€100 million/£85 million)	

Country	Strategic area		
	Workforce and service redesign	Digitalisation and data	Facilities and estates
France	€8.2 billion/£6.9 billion a year to improve the working conditions and remuneration of health professionals, which includes: 15,000 new posts in public hospitals, wage uplifts for consultants working in public hospitals €183/£155 net per month pay increase for non-medical professionals in public and private non-profit health establishments (additional uplifts and pay upgrade for staff in patient-facing roles also introduced) Increased allowance and reduction of fees for medical interns (with extra financial incentives for students who train in underserved areas) A 5–10% increase in training places in nursing institutions, and an increase in the number of places for advanced nurse practitioners €450 million to incentivise clinical staff to work in public hospitals	€2 billion over three years to support digital transition and wider implementation of technological health and eHealth systems	Taking over debt from public hospital establishments to give them back the financial margins necessary to invest in renovation and improvement projects (€13 billion/£10.84 billion over 10 years) €6 billion/£5 billion investment to upgrade and modernise equipment and hospital buildings and other medical establishments €1.5 billion/£1.3 billion to renovate elderly care facilities/care homes, including improving private facilities (for example, sensory stimulation rooms) Financing 4,000 ‘on-demand’ beds to allow systems to adapt better to periods of increased demand (€50 million/£41.7 million) Developing ‘hospital hotels’/post-discharge accommodation

Country	Strategic area		
	Workforce and service redesign	Digitalisation and data	Facilities and estates
Germany	A salary increase (8.7%–10%) for nurses working in public hospitals, including social care staff (although only a third of nurses work in public hospitals) A minimum wage uplift for nursing assistants and a minimum wage introduced for nurses in long-term care Creating 5,000 additional positions in the public health service	€4.3 billion/£3.6 billion to modernise and 'future-proof' hospitals, including developing emergency capacities, IT securities, patient portals, digital medication management and telemedical network structures	
Ireland	The 2021 budget committed new funding to support the recruitment of up to 16,000 new staff across the health sector A new physician contract (under consultation) that would increase consultant pay but require consultants employed in public hospitals to dedicate 100% of their time to public patients to increase the number of staff working in public hospitals An additional €250 million/£208 million in the 2022 budget to support acute and community hospital waiting-list initiatives, including extending the use of private sector capacity and staff	€75 million/£63.4 million for digitalisation, including community eHealth solutions, ePharmacy and an integrated financial management system, and improved interoperability of e-prescribing and health care data	Adding acute and critical care bed capacity to allow hospitals to work towards an 85% occupancy rate Investments in home care and community-based capacity, including 1,250 more community beds (of which 600 are rehabilitation beds) Expanding community diagnostics and specialist hubs and elective-only centres

Country	Strategic area		
	Workforce and service redesign	Digitalisation and data	Facilities and estates
Italy	€105 million for training and scholarships in primary care and specialised medicine €480 million/£401 million to recruit 9,600 new 'family and community' nurses over the course of 2021, a new type of advanced practice nurse designed to strengthen home-based care	€7.4 billion/£6.19 billion to upgrade digital infrastructure, including developing telemedicine capabilities, supporting greater automation in home care, digitalising Accident & Emergency (A&E) departments and strengthening technological infrastructure and tools for data collection, including electronic health records	€2 billion/£1.67 billion to establish 800 one-stop-shop community 'health houses' that will provide social and health services €1 billion/£0.84 billion to strengthen intermediate/step-down care by establishing 400 community hospitals €1.83 billion/£1.5 billion to increase intensive care and semi-intensive care bed capacity and modernise hospital facilities
Portugal	Expanded community mental health teams and home-care continuity teams	€300 million/£251 million to upgrade data networks and health information systems, digitalising patient communications and establishing national registries	€466 million/£391 million to modernise primary health centres, expanding the number of primary health care units (including mobile units in rural areas) €205 million/£172 million to increase inpatient beds, and community-based rehabilitation and palliative care units €88 million/£73.4 million to expand community-based mental health capacity and psychiatric inpatient clinics, and €180 million/£150 million for facility upgrades

Country	Strategic area		
	Workforce and service redesign	Digitalisation and data	Facilities and estates
Spain	Legislation to improve the working conditions of health workers, including reducing the use of temporary contracts Implementing a new strategic framework to strengthen primary and community care, targeting early prevention, diagnosis and improved disease control, and reduce inequalities across territories and regions	€1 billion/£83 million to establish a health data centre to allow for greater analytical capacity	Investment plan for high-tech equipment, including CT (computerised tomography) scans, MRI (magnetic resonance imaging) machines, PET (positron emission tomography) scans and so on
Sweden	€458 million/£383 million to increase places in regional vocational nurse training and the introduction of an elderly care grant, which gives new and existing staff the opportunity to train as elderly care nursing assistants or nurses while being paid – aims to upskill existing care personnel to cope with both short- and long-term skill requirements Strengthening the nursing profession through the introduction of a protected professional title for assistant nurses in both health and elderly care settings, which will help standardise the level of competence and qualification of the profession and improve attractiveness		

Sources: Nuffield Trust thematic analysis of available European Commission national recovery and resilience plans, and national-level resources where accessible.

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