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Health systems after COVID-19

A perspective on the future of European health systems

July 2021

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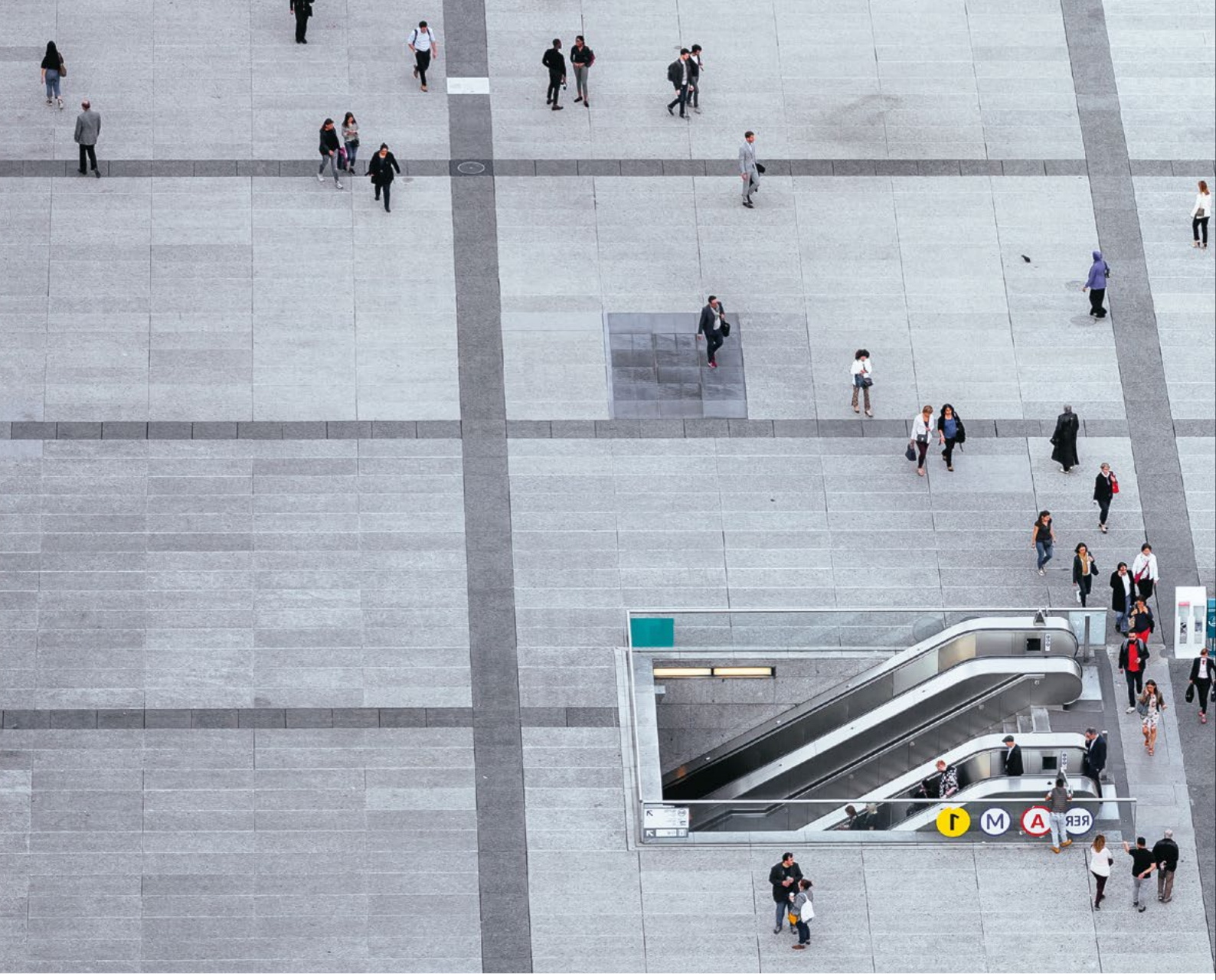
European Federation of Pharmaceutical Industries and Associations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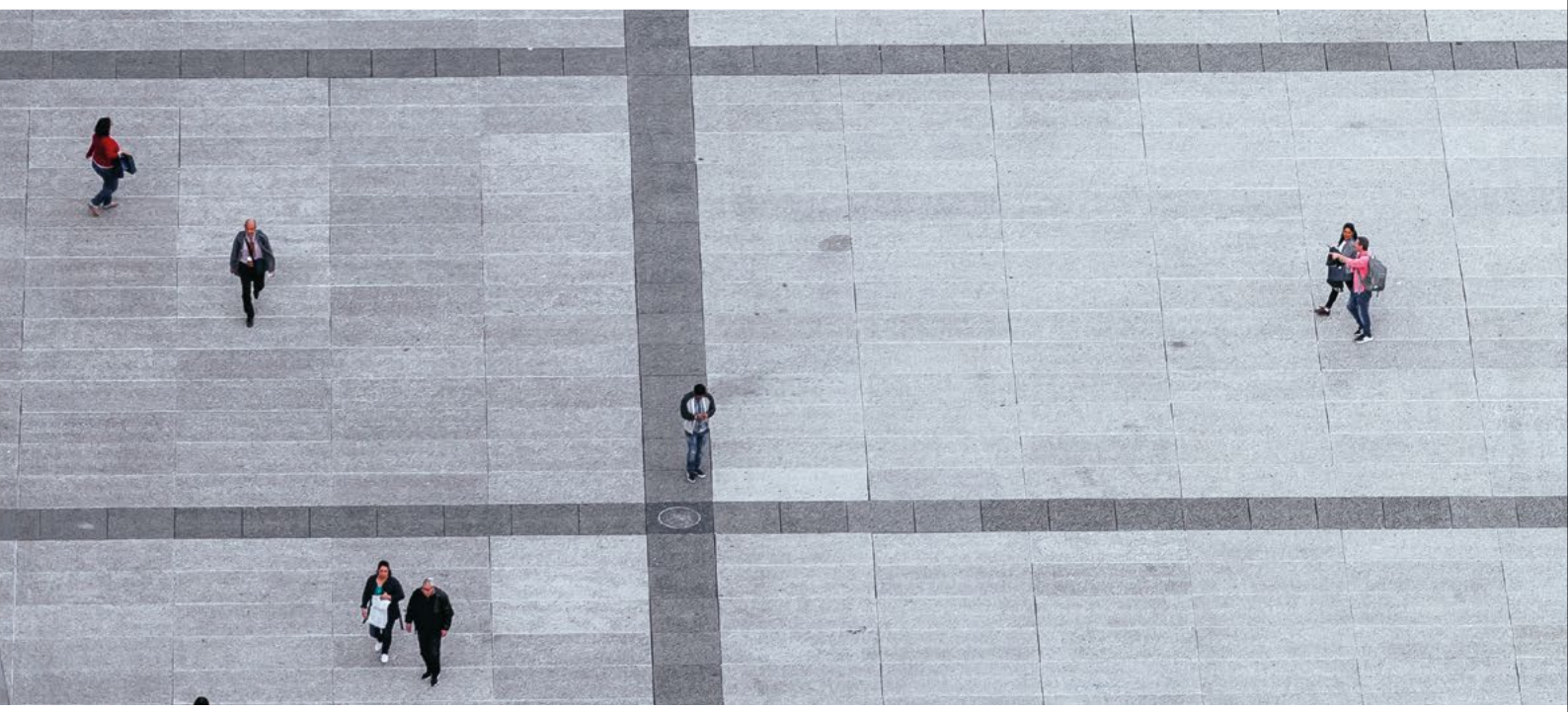

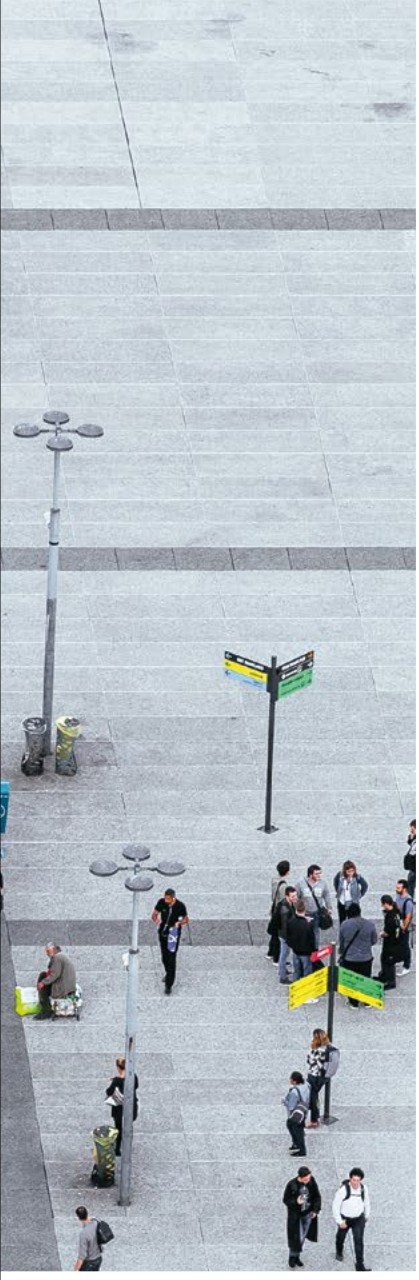

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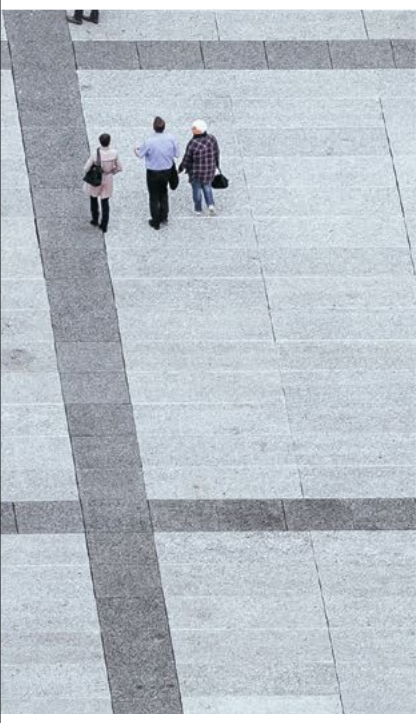
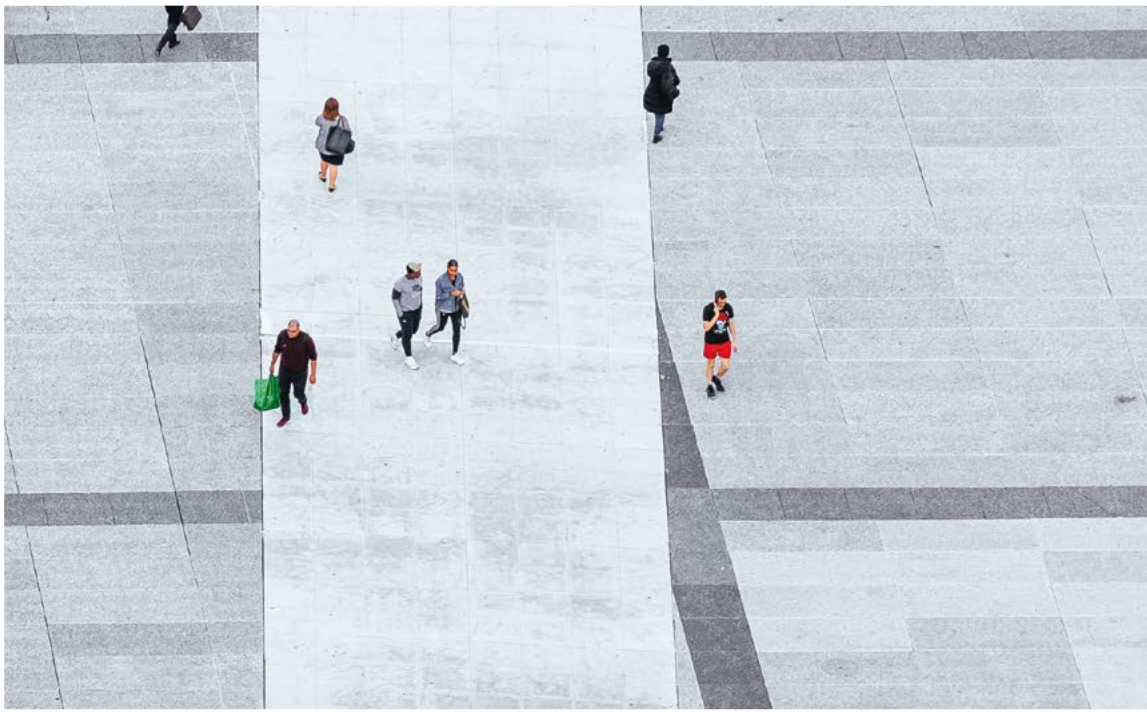




1. Foreword (EFPIA)

The COVID-19 crisis has tested resilience and agility of European health systems in an unprecedented way. The crisis has cast light on their strengths as well as weaknesses, in several cases a lack of preparedness, equipment and infrastructure to deal with an event of these proportions. But the pandemic has also highlighted great solidarity, inventiveness and resilience, not least on the part of the health workforce which has led the way in fighting the pandemic on the ground. Ultimately, the crisis has reminded us about the crucial importance of health and wellbeing for our societies, that health threats know no borders, and that these challenges can only be faced if we work together, across borders and across sectors.

As we move into the next phase of the fight against COVID-19, with the roll-out of vaccines gaining pace in many countries, we have the opportunity for more concerted reflection about the future beyond the pandemic. We need to start considering what this crisis has taught us so far, the state of European health systems and European health collaboration, and what could be done better or differently in the future. EFPIA believes that once we emerge from this crisis, we should not only rebuild our economies and get our societies back on their feet, but also take the opportunity to implement an ambitious reform agenda for European health systems. Going back to the pre-pandemic status quo would not be an appropriate or realistic option.

To frame this important debate, EFPIA has developed this report together with PwC as a result of extensive interviews and discussions with actors and stakeholders across health systems. The report identifies a number of areas in which European health systems and stakeholders need to strengthen or develop new ways of working to improve their resilience to future crises and better serve their populations.

The pharmaceutical industry has had a paramount role in combatting the pandemic, through leveraging years of investment in vaccine and therapeutic technology platforms, immediate initiation of clinical development programs building on our long experience and established networks, and rapid investments in scaling up manufacturing capacity in Europe and across the world. We also believe that we can play an important role in rebuilding and improving our health systems to better address tomorrow's challenges. The industry believes in health systems that are people- and patient-centred as well as inclusive, sustainable and resilient.

Through closer partnerships with other health system actors, we can more effectively prevent ill-health, improve disease management through data and technology, and successfully bring forth new innovation that can improve health both at a population level and through targeted treatments for individual patients. Finding these partnerships and making them happen at all levels is our commitment to a healthier Europe.

Nathalie Moll
Director General EFPIA

2. Foreword (PwC)

While COVID-19 is probably the most discussed disease of all time, the consequences of the public health crisis it has caused are still unfolding. There is, therefore, still limited congregated data and ability to draw evidence-based lessons. Writing in 1979, Professor Ackoff – a pioneer in operational research and systems thinking – said that "managers are confronted with "messes", i.e. "dynamic situations that consist of complex systems of changing problems that interact with each other". And following this description, COVID-19 is indeed a 'mess' for healthcare systems to solve.

That's because the pandemic created multiple challenges all at once. Issues related to service delivery, workforce, products, financing, and so on arose at the same time – and all require a response. They cannot be solved in isolation or in a convenient sequence. Instead, the problems emerging – and their potential solutions – interact with one another, affecting other components of healthcare systems.

European decision-makers are therefore required to address how healthcare systems should respond to the shocks of COVID-19. To do that, they need to decide on priorities. And while reliable evidence is being generated, along with the clamour of opinions and voices, this study aims to bring clarity to the future strategic directions that EU systems should explore and prioritise going forward.

Working with key opinion leaders from the public/non-governmental sector, we assessed and described the impact of COVID-19 on European health systems. By reviewing relevant literature, we were also able to substantiate the relevance of key problems (see **Section 7**, About this research).

Then, together with EFPIA and industry representatives, we discussed and prioritised the most prominent problems, until aligning on key goals that Europe has to pursue going forward (see **Section 4**, The context). An iterative process of discussion, review and validation followed, which also involved public experts and patient organisations.

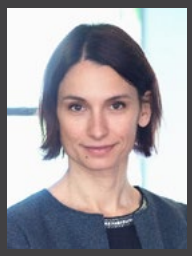
The output of this work is four strategic areas and eight practical recommendations that we believe will be key for European stakeholders to pursue going forward, in partnership.

In a nutshell, our recommendations focus on preserving population health sustainably via a shift towards prevention and early care, which can be achieved by e.g. upgrading care practice and healthcare professional training, leveraging technology, and using data to improve outcomes. And because the population is made up of individuals, we recommend identifying and reaching out to those individuals that are today most marginalised, and listening to their needs – so that services can be built equitably around them. We have also taken lessons from the pandemic and sought to apply those to identifying choices and strategies to minimise the likelihood of service disruption in the future, whether owing to another pandemic, or any other health or socioeconomic emergency.

Solving the COVID-19 'mess' requires significant untangling of events that are still taking place. So it is our hope that this study can serve as a framework to support strategic decision making concerning European health systems going forward.

Our passion for public health matters was the main driver of this study, and we hope this effort will inspire new thinking and methods that will enable European patients to get the quality care they deserve at all times.

Ömer Saka, MD
Partner, PwC Switzerland



Claudia Vittori, PhD
Manager, PwC Switzerland

3. Executive summary

The COVID-19 pandemic has shone a harsh light on the gaps and inefficiencies in health systems worldwide. As health systems became overwhelmed, with many operating at or above capacity, addressing the immediate needs of a crisis was the short-term focus.

However, that unprecedented pressure is likely to have consequences for the general population that will continue long after the pandemic has subsided, and particularly in relation to foregone care during the pandemic, the impact on mental health, and the health implications of a prolonged economic downturn. And not to forget, some long-term pandemic-related challenges remain to be dealt with in the near future. These include the Long COVID-19 syndrome, the roll-out of mass vaccinations, and the ever-evolving epidemic control and preventative measures that need to be put in place.

All of these and more will create health demands that systems must prepare for. But in such a complex environment, the challenge is knowing where to focus and the strategic priorities that should guide health system transformation.

To help answer those questions, this study aims to create a vision for how European health systems might approach transformation in order to meet current and future demands. Shaping that vision involved extensive research and discussion with leading professionals and organisations. Those in-depth consultations surfaced four key strategic directions for healthcare systems in Europe to pursue: focusing on early and preventative care; planning ahead; reaping the benefits of digitalisation, and focusing on people and outcomes.

For each of these areas, we have also developed specific, evidence-supported, actionable recommendations.

- **Enable prevention and early care:** A real focus on prevention and early care could address the challenges that pre-existed COVID-19 but have been exacerbated by the pandemic. To achieve that requires innovative strategies that strengthen and update the available tools, products and interventions for early care. Just as important is the ability to integrate today's fragmented patient pathways with approaches built around the patient, and payment models that incentivise the creation of efficient patient journeys.
- **Plan ahead:** Moving from reactive and short-term approaches to assessing and planning for longer-term health outcomes will be essential to address patients' unmet needs. Stimulating relevant research and investment, coupled with an attractive ecosystem allowing flexible partnerships, will be key, as will using real-world data to understand trends in future healthcare needs. New approaches to clinical trials – such as remote patient interactions – will be vital to ensure that these vital drivers of new scientific knowledge are not derailed by future crises (as was the case during COVID-19).
- **Reap the benefits of digitalisation:** One of the few positives to emerge from COVID-19 has been the accelerated adoption of digital healthcare delivery. It will be essential not to lose that momentum. Maintaining it will require investments in the digital infrastructure and, in particular, a focus on data governance to ensure maximum system interoperability, both within and between national health systems. Healthcare professionals (HCPs) also need to have the incentives to drive greater digital health participation. That means reviewing the reimbursement models for digital health and how they are integrated into HCPs day-to-day activities.
- **Focus on people and outcomes:** Rebuilding trust in healthcare is an essential task for all healthcare systems as they emerge from the pandemic. Building them back better means designing services around people and their needs. HCPs need to be equipped with new skills, especially around digital health, to best respond to patients' needs. And patients themselves need the tools and information that will empower them to understand their own health status better and therefore behave in ways that improves it.

4. The context

COVID-19 has provided an unprecedented shock to European healthcare systems, leaving no aspects unaffected. Initial calculations of the pandemic's impact (likely to be underestimates) show that from January 2020 to December 2020, premature mortality related to COVID-19 was between two and nine times higher than from common influenza, two and eight times higher than road accidents and up to a half of the rates from cardiovascular conditions, and even higher in the European countries most impacted by the pandemic.[1]

Following extensive consultation and research, we identified three areas of healthcare systems that were hit particularly hard, and which European stakeholders should address in the near future to recover from the crisis (see Section 7 About this research).

This section summarises the situation pre-COVID-19 and COVID-19's impact.

Service delivery: delayed and foregone care

Pre-crisis context

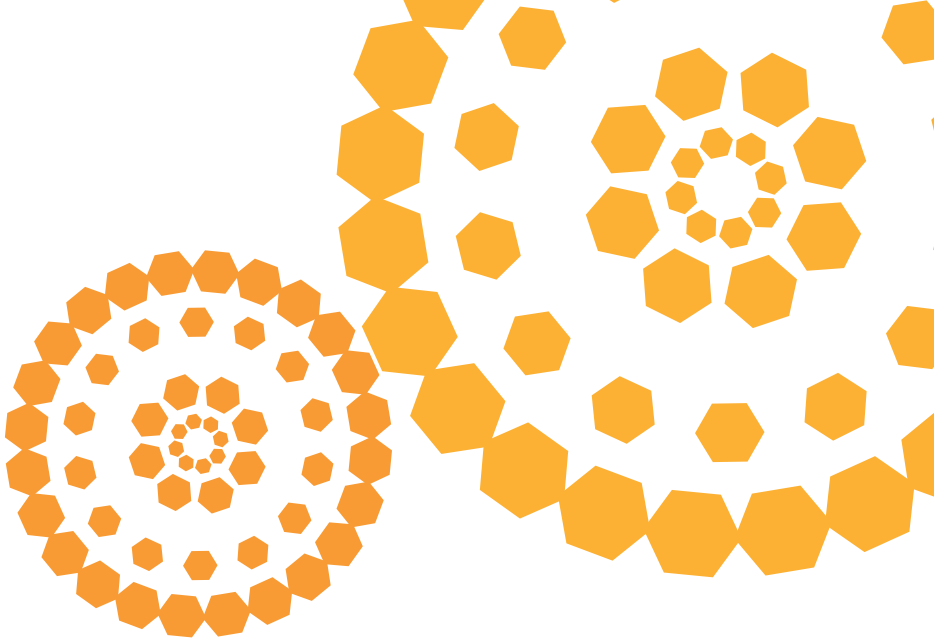
In many healthcare systems, service provision has been, and still is, largely built around hospitals and specialty care. That trend, continuous over the last few decades, has been driven by a number of factors including, for example, demographic changes – particularly an ageing population – and epidemiologic trends such as the rise of non-communicable diseases (NCDs).[2] The need to adopt emerging innovation and new technologies has also driven specialist and hospital-based care, as has deepening knowledge in specific areas of specialisation. The entry of private players into the system ("new public management"), from the 1980s onwards, has also contributed to the focus on hospital-based care.[3]

Before the pandemic, many in healthcare systems were aware of the challenges and deficiencies of community and primary care. These most notably crystallised around the insufficient number of HCPs, ineffective or insufficiently developed care/referral networks, and the relatively limited spectrum of tasks assigned to general practitioners (GPs) and nurses. Consequently, there has been considerable discussion and debate about the need for – and mechanisms to strengthen – primary care.

Despite growing interest in, and discussion of, value-based healthcare and integrated services, these approaches have been much less often implemented in practice. Lack of progress on the ground has largely been due to the challenges of changing and/or adapting governance mechanisms, funding, and developing new ways of working. The result remains persistently poor integration between primary and secondary care, and generally fragmented and activity-based care at all levels along the patient pathway: the so-called "triple divide" (i.e. the segregation of mental vs physical care, primary vs specialist care, and health vs social care).[4]

The system of incentives in place in most health systems today, i.e. payments made for a single medical intervention rather than a more holistic view of patient outcomes, further entrenches the lack of integration along the patient journey. Integration is also hampered by the uneven use of digital tools and systems, along with a lack of data interoperability and little harmonisation of processes between providers. There are frequently local and regional variations in countries that prevent data from flowing outside a local infrastructure. Localised ways of working and clinical practice can also create further barriers to greater care harmonisation.

Before the pandemic, many in healthcare systems were aware of the challenges and deficiencies of community and primary care. Consequently, there has been considerable discussion and debate about the need for – and mechanisms to strengthen – primary care.



COVID-19's impact

The pandemic has severely disrupted hospital services. Systems were overwhelmed and safety concerns drove the need to create clean pathways to handle COVID-19 patients. During the pandemic's first wave, many hospitals and related services were required to work at or above capacity, with peaks in demand subsequently also seen in different regions and at different times.

Virtually all EU countries saw healthcare services disrupted during the pandemic. The most disrupted services in 2020 included dental services (91%); NCD diagnosis and treatment (76%); family planning and contraception (74%); and outreach services for routine immunisations (63%).[5]

There have also been documented instances of dramatic gaps in urgent services. These have included the inability to treat COVID-19 patients at the required standard for appropriate palliative care.[6]

Overall, system saturation caused by the COVID-19 crisis has had an adverse impact on both COVID-19 and other patients' ability to receive quality and timely care:

- COVID-19 patients (particularly in community settings) had to endure uncertain care pathways, unclear and/or inconsistent information, a lack of HCP preparedness as well as an inability to receive family support.
- Non-COVID-19 patients suffered from delayed or foregone care. This included the inability to access routine visits, testing/screening, diagnoses, and elective procedures. Additionally, some patients refrained from seeking care owing to their concerns about COVID-19 infection.

Initial recovery from these strains on the system has been slow, with local variability. For example, in the UK, GP referrals to hospitals in July 2020 were still only at 80% of the previous year's levels.[7] As a result of the strains and limitations imposed on health systems and the challenges of recovering from the pandemic, we expect a worsening of health indicators such as avoidable deaths and mental health issues, as well as socioeconomic indicators such as inequality and loss of productivity.

Globally, provision of healthcare services has declined by 37% overall during the pandemic. That means many services and interactions have been subject to dramatic reduction including a 42% decline in visits, 28% in admissions, 31% in diagnostics, and 30% in therapeutics.[8]

In the UK, for example, it's estimated that there will be 3,500 avoidable deaths (or 60,000 years of life lost) as a direct result of delayed cancer diagnosis during the first wave of COVID, with an increase of 15%-16% in lives lost expected over the next five years. Transplant patients have seen their procedures cancelled or postponed. For example, in Spain there was an 87% reduction in transplants between March – April 2020. Other elective procedures have suffered a similar fate, with estimates suggesting that worldwide 28.4 million procedures were cancelled in the first wave of the pandemic, with the UK alone seeing more than 500,000 cancellations.

The impacts of the COVID-19 pandemic have also exacerbated existing health inequalities. Wealthier patients have been able to seek alternative care, either through private providers or by seeking services further from home. The most deprived patients are also likely to be among the least health literate, and during the pandemic it's likely that they have neglected their care needs.

Financing: coping with increased demand

Pre-crisis context

Across European health systems there has been a generalised upward trend in spending. This is driven especially in relation and response to growing demands arising from e.g. age-related and chronic diseases, new technology and innovation, and rising patient expectations.

Much of this increased spending has been on hospitals. Efforts to contain costs in response have, for some, included initiatives such as reducing wages in public hospitals, postponing staff replacements as vacancies arise, and/or delaying investment in hospital infrastructure. Steps have also been taken to contain pharmaceutical expenditure through measures such as price referencing, rebates, clawbacks, and stricter health technology assessment (HTA) requirements.[9]

For most countries, siloed budgets lead to fragmentation of care, inefficient processes for patient referrals and treatment, and slow decision making across the health system. These are compounded by short-term budget management (often associated with a time-limited political mandate) that leads to a focus on 'spending a budget' rather than making longer-term, and more carefully planned, investments.

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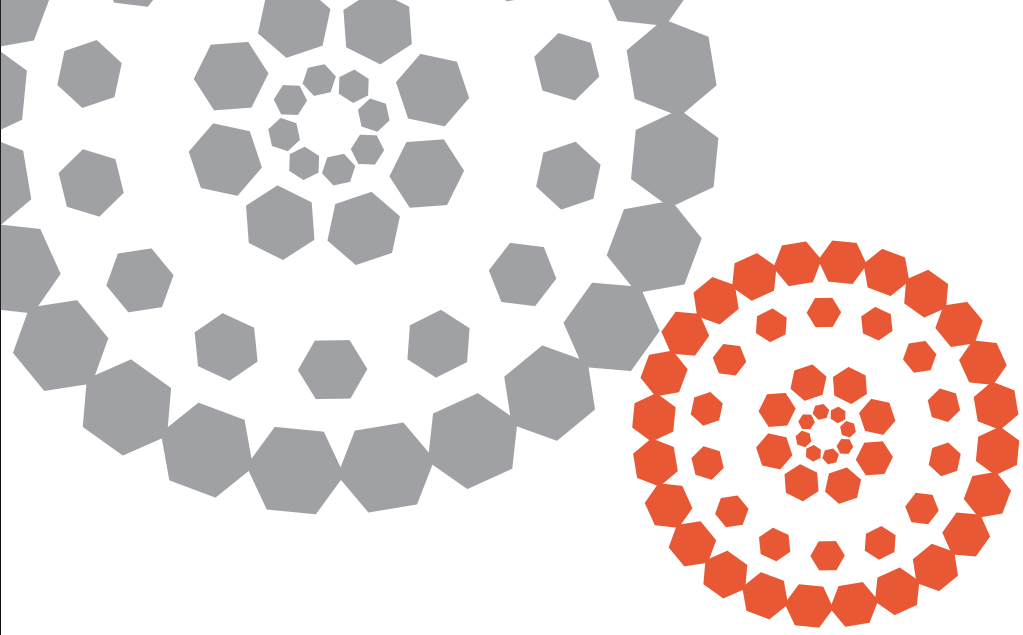


COVID-19's impact

The pandemic required a significant increase of funding, with the emphasis firmly on hospital financing in order to increase the availability of services, infrastructure, and workforce. This was required to reorganise care pathways and expand capacity needed to manage the sudden and dramatic increase in demand.

The treatment of COVID-19 patients has been particularly resource-intensive. Pressure on hospitals has been extreme, as successive waves have demanded the availability of ICU beds, lengthy stays in hospital, additional personal protective equipment and extra payments to HCPs as they have worked longer to address the crisis.

In parallel with the acute pressures created by COVID-19, spend in other areas of care has declined as a result of service disruption and patients having to forego treatments. Several countries have responded with mechanisms to compensate for revenue shortfalls, signalling, at least in the short term, the willingness to support hospital systems under pressure.

Contrasting forces are acting on healthcare budgets. On the one hand, resources are required to respond to COVID-19, roll-out vaccination plans, maintain services, deal with the consequences of foregone care, and prepare for future developments and/or crises. On the other hand, the disruption of services and patients' (voluntary or involuntary) withdrawal from anticipated treatments has dampened demand. In addition, the significant increase in telemedicine across Europe has helped contain the costs that would normally be associated with in-person consultations.

The economic outlook post-pandemic remains uncertain, despite the consensus across many financial institutions that economic recovery will be relatively swift.[10] It is likely, however, that most health systems will face some consequential effects of economic contraction over the medium to long term, which triggers the need to rapidly invest recovery funds to strengthen systems, and increase their resilience.

Other factors are in play, too, that add to uncertainty. The impacts on employment and growth arising from the withdrawal of financial support mechanisms that have kept many small and medium-sized enterprises going throughout the pandemic are clear concerns. Geopolitical dynamics may also weigh on economic recovery. These include the extent and duration of travel bans and the ability to procure and distribute sufficient quantities of vaccines rapidly and at scale.

The treatment of COVID-19 patients has been particularly resource-intensive. Pressure on hospitals has been extreme, as successive waves have demanded the availability of ICU beds, lengthy stays in hospital, additional personal protective equipment and extra payments to HCPs as they have worked longer to address the crisis.

Innovation: re-focus on patient needs

Pre-crisis context

The timetable for the development of medicines from discovery to manufacturing is typically in the range of 10 to 15 years. While more accelerated drug developments have of course been seen, these have tended to be in specialty and niche areas. The focus of priority applications to the European Medicines Agency (EMA) so far has largely been on novel products for oncology, neurology and cardiovascular treatments.

Far less innovation has been seen in the areas of public health, such as the development of new antibiotics or vaccines, with fewer clear incentives for developments that focus on public health issues. Little emphasis has been placed on incentives to encourage the development of preventative and early-care treatments.

Payment models typically remain based on the volume of drugs, services or individual activities (i.e. services), with value-based and integrated care approaches still relatively rare. Consequently, payer-provider agreements that are based on performance and/or individual patient outcomes are also far from established practice.

COVID-19's impact

The urgent, global and serious threats created by COVID-19 gave rise to a near-unprecedented convergence of multiple stakeholders from across governments, industry, academia and healthcare to pursue the discovery and development of COVID-19 vaccines and new therapeutics. The success of the vaccine programme seen in a number of countries is a direct result of these multi-stakeholder initiatives **(Figure 1)**.

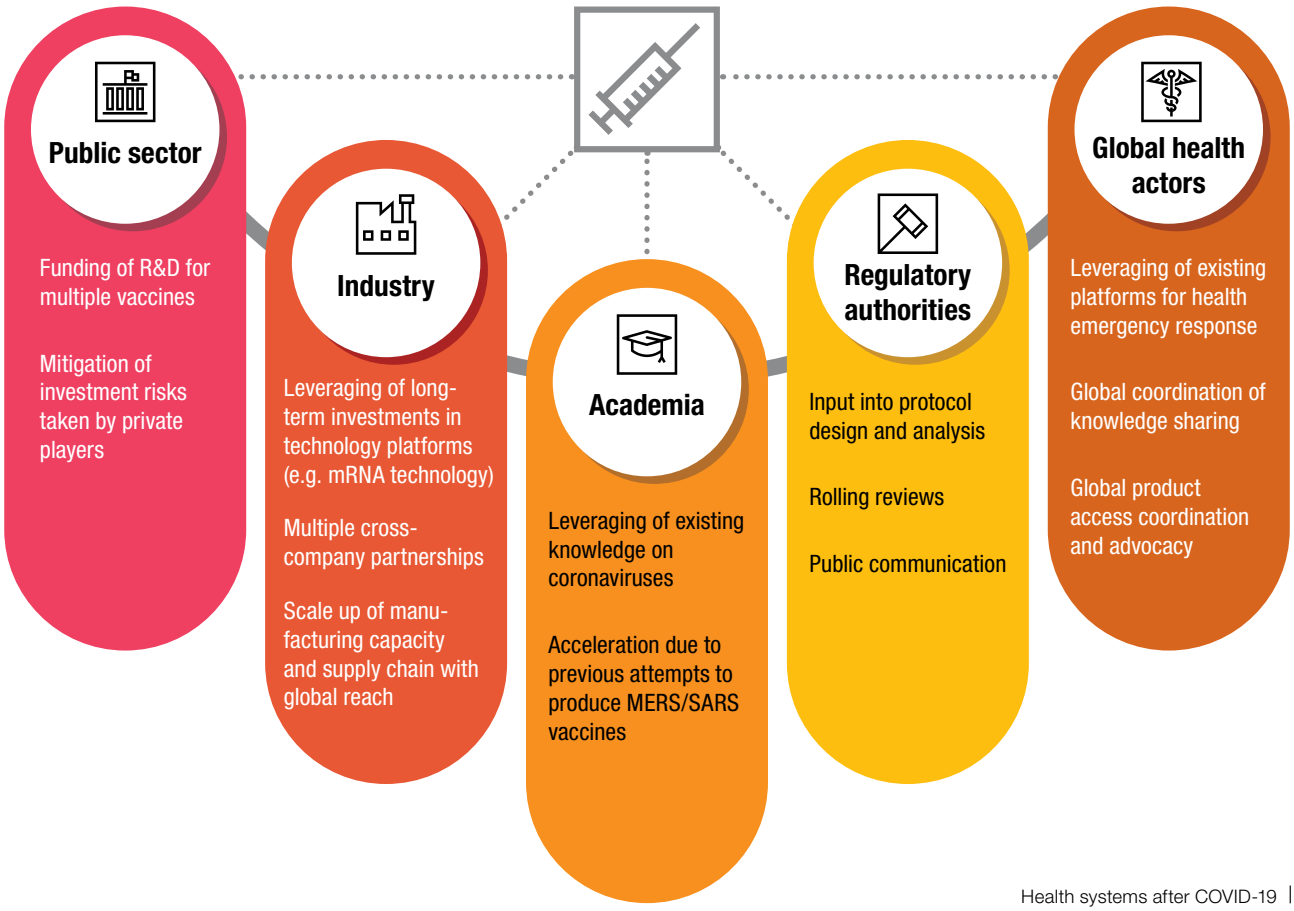
Public institutions and pharmaceutical businesses committed vast amounts of money and resources to support product development. Academic and private researchers were able to harness cutting-edge technology and their existing body of knowledge to develop a varied portfolio of products targeting the novel coronavirus. International organisations and global health actors further contributed to fundraising, research coordination and knowledge sharing. Regulatory agencies adapted their processes to rapidly review incoming evidence.

Now the key question is what it will take to create similar momentum behind other novel product development in the future.

The COVID-19 crisis brutally highlighted the importance of early disease control and prevention. As well as securing better health outcomes overall, the benefits of addressing gaps in preventive care and disease control include relieving acute pressure on hospitals and limiting the need for the most expensive procedures that would typically be required for treatment of late-stage disease. Naturally, there is now greater interest in pursuing innovations that address public health and population-wide health threats (e.g. prevention and early care), as well as preparing for other future health crises.

There are multiple likely public health benefits of pursuing such an approach. These include tackling high-prevalence and communicable diseases. COVID-19 has also highlighted the impact of diseases that affect vulnerable or socially disadvantaged segments of the population. There could be considerable gains too from developing technology that can be deployed more equitably for wider benefits across society. And developing innovative products that screen for health conditions before they manifest could equally generate significant improvements to overall population health.

Figure 1: Innovation ecosystem underlying COVID-19 vaccine development. The success of COVID-19 mRNA vaccines is primarily based on multi-stakeholder contribution, leveraging previous knowledge and investments, shared understanding of public health goals, and improved coordination. Source: PwC analysis.



5. Strategic directions

Having carefully assessed the three focus areas that together encapsulate the challenges and opportunities for health systems pre- and post-COVID 19 **(Section 4)**, we were able to identify four key strategic themes for health-care systems to pursue going forward: a focus on prevention and early care; planning ahead; reaping the benefits of digitalisation; and focusing on people and outcomes.

These have the potential to bring about the developments required to achieve significant improvements in health systems by increasing system efficiency and focusing innovation on people's and broader social needs. Here following, we set out the four themes, and how addressing them will create positive outcomes for patients, providers and society overall.

01 Enable prevention and early care

As COVID-19 case numbers soared, health systems were overwhelmed, and large parts of economies were forced to lockdown. Therefore, the pandemic brutally highlighted the importance of early disease control and the criticality of preventive measures. Prevention and early care are relevant not only for infectious disease control, but apply widely, and especially to chronic diseases and conditions where earlier intervention could help to alleviate the long-term burden of care. NCDs, and particularly obesity, diabetes and cardiovascular conditions, are a known risk factor for severe COVID-19,[11] to the extent that COVID-19 has been described as an "acute-on-chronic health emergency".[12] Therefore, prevention and early treatment of chronic diseases will also help contain COVID-19 mortality.

A real focus on prevention and early care could address some of the challenges that already beset healthcare systems, and which have been exacerbated by the COVID-19 crisis.

Preventing cases from requiring hospitalisation and treating them in the community instead would relieve the pressure on hospitals. Preventative and early care also means that the resources required for the most costly and intensive procedures are spared and applied only to the most severe cases.

Patients that can avoid the need for hospitalisation and burdensome therapies are able to maintain an acceptable quality of life. They live as normally as possible with their health condition rather than being constrained by their illness.

Impact on

Service delivery
Foregone care

Relieve hospital system

Financing
Increase efficiency

Deliver value for money

Innovation
Re-focus on patients and society

Preserve individual and population wellbeing

1

Specific recommendations

Enable innovation around interception, screening, prevention, and early-stage care

Today, healthcare offerings often revolve around hospitals and specialty care. The COVID-19 crisis showed the importance of focusing on preventive and early care as well to improve systems' resilience. The shift from treatment to prevention requires the strengthening and upgrading of tools and skills. To achieve better outcomes, European healthcare systems and stakeholders should work jointly to shape and enable the delivery of relevant innovation to patients.

Shifting from treatment to prevention requires strengthening and upgrading the tools, products and interventions available in early care settings. Adapting and expanding the use of some skills and technologies that are today mostly used in specialty care offers the opportunity to raise the standards of preventive and early care, so to offer both cutting-edge and personalised care.

There is a need to focus on innovative strategies that address:

- Prevention (e.g. medical products such as vaccines, but also smart health promotion strategies
- Screening and diagnostics
- Products that target early disease phases, and/or can stop or delay the course of a disease
- Remote patient-monitoring technologies
- AI and machine learning to identify risk groups.

Over the next two decades, diagnostics will move significantly towards predictive and digital biomarkers that will realise the promise of personalised medicine. (see **Box 1**). Enabling innovation that supports the delivery of tailored care before patient health deteriorates will achieve two critical goals: better health outcomes at the population level, and secondary and tertiary care services focused on acute/specialty care.

Innovation should also aim to address the areas of greatest need, for example high-prevalence chronic diseases. Achieving that will require multi-stakeholder collaboration:

- The public sector and payers should point out the highest-priority needs (see also **Recommendation 3**), maintain an open dialogue during product development, and consider reward impactful innovation
- Manufacturers should consider the public impact of their innovation, and – working with payers – co-design efficient models to deliver it
- Patient organisations and civil society should raise awareness of, identify, assess and communicate patient needs.

Manufacturers and providers could also systematically measure the impact of different strategies, products and interventions on, for example, service utilisation (e.g. decrease in hospitalisation/ emergency admissions or number of procedures) and health outcomes. This would help generate knowledge, prioritise interventions, and potentially strengthen value-based healthcare delivery when such measurements are embedded into pricing agreements (see **Recommendation 2)**.

The COVID-19 vaccine clearly shows how a healthy innovation ecosystem and close multi-stakeholder collaboration can drive the achievement of shared goals (**Figure 1**).

Box 1

Interceptive medicine: innovation meets prevention

The growing fields of single-cell and machine-learning research are creating opportunities to design the personalised interventions of the future. We expect the output of this research to revolutionise healthcare in the next 20 years,[13] as the focus of care will shift towards disease interception and screening of healthy individuals to manage health issues early on. In addition, the delivery of truly personalised care will require molecular/cell laboratories and clinics/providers to collaborate and work in close proximity throughout the patient journey.

In Europe, this field of research is led by the LifeTime initiative.[14] Their network encompasses several capabilities, including basic and applied biomedical research, biotechnology, diagnostics, data and analytics, and imaging. LifeTime's goal is to revolutionise healthcare by characterising how individual cells change over time, and applying this knowledge into clinical practice, primarily by intercepting diseases before their clinical appearance, but also by improving diagnosis, disease course prediction and response to treatment for each individual patient, based on their unique cellular profile - the next generation of precision medicine.[15]

According to Nikolaus Rajewsky, Scientific Director of the Berlin Institute for Medical Systems Biology and a LifeTime coordinator, "LifeTime differs from the classic consortia in the fact that [their] science revolves around European patients, and not a specific branch of research". Indeed, LifeTime brought together scientists and clinicians along the whole R&D chain to build the knowledge required to fight diseases that represent the highest burden for patients across Europe, including cancer, neurodegenerative diseases, and COVID-19.[16]

Other important research consortia are active in single-cell multi-omic research worldwide.[17] To gain ground in this field, Europe will need to invest in several key areas.

This includes training and upskilling along with the computational power needed to manage the amount of data generated. New infrastructure will be required to bring different disciplines together and reach the "critical mass" to generate innovative ideas. Capital investment to build appropriate facilities and equipment is also essential. Finally, the regulation of personal data must at the same time protect individuals, and be conducive to innovation and commercialisation.

LifeTime scientists firmly believe that Europe can occupy a unique position with regards to next-generation precision medicine and the big data revolution. That position, as the European cultural heritage suggests, will be built around a humanistic, patient-centred approach to biomedical innovation. Europe could also act as an innovation role model for low-/middle-income countries, building an ecosystem in which small, highly innovative players find the space to thrive and expand.

2 Specific recommendations

Enable the development and uptake of integrated services in primary care settings

Today's healthcare services are often based on siloed offerings and cumbersome patient pathways. Uncertainty and fragmentation of care were amplified during COVID-19 pandemic, also due to service disruption, thus preventing patients from getting the care they needed. In the future, care models should be built around patients (especially chronic ones), which will require a better integration of different disciplines and services, but also innovative payment models to reward efficient care pathways.

During the COVID-19 crisis, a large proportion of patients across Europe experienced fragmented and uncertain care. Further challenges have included hospitals operating at or above capacity, and infection risks from potentially contaminated facilities and/or infected HCPs. Strengthening early care in community settings is key to serving patients safely and efficiently, while focusing hospitals' function on providing specialised healthcare.

This "switch from hospital-centred towards primary care based and community-oriented systems" has been highlighted as a priority need in the EU4Health programme.[18] This requires a greater focus on health promotion and disease prevention delivered at the community level, and a strong commitment to improve primary care and homecare in order to achieve an appropriate balance and secure continuity of care, as well containing the overall burden of disease hitting the population (see **Recommendations 1 and 3**).

With social, mental and physical care integrated, people who are unwell, and particularly chronic patients, can be treated effectively in primary settings through disease-specific and chronic care models. For example, chronically ill people, such as diabetes patients, are at higher risk of developing health complications if they suffer from mental ill health too. In the UK alone, the increased costs arising are GBP 1.8 billion. Pilots show that costs can be cut by 25% when patients receive appropriate all-round support.[19]

Integrated care organises the processes necessary to provide care in a patient-centric pathway. Specifically, integrated – or beyond-the-pill – health services coordinate different components of care, are delivered by a multidisciplinary team, and are (ideally) tailored for each patient. Key components include e.g. therapy delivery and administration, disease monitoring, and various forms of patient support.

The maturity of integrated care models in Europe largely depends on local healthcare system architecture and predominant models of care delivery. While the journey to integrated care is long, some components appear to be key drivers of change, such as multi-disciplinarity[20] and, in contrast to today's frequently siloed budgets, holistic financing,[21] as discussed below.

When it comes to a multi-disciplinary approach, the development of cutting-edge solutions requires expertise across science, technology, analytics, commercial, supply and communications to shape a renewed healthcare offering. Different stakeholders – including industry/manufacturers, pharmacies, distributors, and non-healthcare companies (IT, shipping, etc.) – should collaborate and partner to develop integrated services. In much the same way, collaboration between multiple HCP teams will also be needed.

Financially, integrated care is an effective way to optimise resource utilisation, without degrading the patient experience. This is especially so when broad payment models – including a mix of global budget, risk sharing and quality indicators – are used to reward service delivery[22] (see **Box 2**). In Europe, service payment models rarely reward the integration of care in terms of patient experience and/or quality of care. However, in the US, various pilots and implemented models have shown encouraging results, with lower healthcare utilisation and/or better quality of care achieved compared to traditional payment models[23] (see **Table 1** for an overview).

In the future, including indicators of patient experience/satisfaction, or more generally, rewarding best practice implementation and/or outcomes into payment agreements for integrated services, may help deliver optimised care pathways, successful (patient-centric) integration of care, and ultimately better outcomes.

Box 2

A European model of patient-centred integrated care in primary settings

For the past seven years, Menzis, a Dutch health insurer, has been implementing a "shared savings payment model" contracted with a national chain of primary care centres.[24] Dr Arthur Hayen, Senior Intelligence Analyst at Menzis and Assistant Professor, Population Health, Leiden University Medical Centre, contributed to the creation of the model from its inception, and shared his views around key requirements for successful implementation of integrated care services in primary care settings.

Dr Hayen, what is the underlying concept for your shared savings contract with GP service providers?

In the Netherlands, GPs have a crucial role as gatekeepers to specialty care. They have a strong say on the type of secondary care that each patient needs, and it is among their tasks to provide long-term care for chronic patients. But, practically, the existing financial incentives are not always aligned to the healthcare system goals of improving health outcomes and efficiency of the system, and this is why we designed a new model to reward desired behaviours.

Let's speak about that. What does your shared savings model achieve?

Our model's goal is to contain healthcare spend, and particularly specialty care spend, without compromising on the patient experience. Indeed, in its first year, our model allowed us to lower total medical spending by 2%, and this was mostly attributable to smaller volumes of hospital care. Almost all GPs displayed cost-conscious behaviours, and – importantly – patient satisfaction did not drop. In fact, our model requires that quality indicators never drop by more than 5% annually, otherwise no savings will be shared.

And how is your model achieving these important results?

Our model includes two reward components. The first is about the global spend attributable to each GP, which gets compared to a contractual benchmarking that we negotiate with the GP service provider. The second component includes a set of quality indicators measuring patient satisfaction, disease management and clinical guideline adherence. So practically, if GPs beat the benchmark group and their spending, they get a share of the savings achieved, conditionally on achieving quality targets.

This seems very promising. Why are these models not implemented more widely across Europe?

First, there is a lack of awareness. Stakeholders are not necessarily aware about the existence of shared savings models, despite the fact that they have been used in the United States for 10-15 years already. Second, such an agreement requires large GP service providers as a counterparty, as negotiating with- and effectively training individual GPs would not be feasible; in addition, we need a contractor that is able to take on the financial risk (or reward), and that actually provides integrated, multidisciplinary services.

Does digitalisation play a role as well?

Yes, data are the key driver. The model requires the ability to access spend data across the whole spectrum of care. Also, from a data management perspective, local regulation should allow the sharing of relevant information between insurer and provider, such as spend data. For example, in the Netherlands, we can communicate to GPs only pooled data about their prescription fillings. These requirements may impair to some extent the results that the model can achieve. Also, data analytics is key, so that providers can identify areas for improvement in their ways of operating. For this reason, providers will increasingly need advanced data capabilities to get the most value out of shared savings agreements.

Table 1: Examples of service payment models used in the US and Europe. Courtesy of Dr D. Cattel, Dpt Health Economics, Erasmus School of Health Policy & Management

a. Prevalent (traditional) payment models		Encourages...					
Payment model	**Description**	**Containment of activity volume**	**Cost-con-sciousness**	**Equitable access to care**	**Quality**	**Coordination**	**Prevention**
Per period (salary or budget)	• Fixed periodical lump for a set of predefined care services	Yes, but in connection to low productivity	No	No	No	No	To some extent (manage long term effort)
Per item-of-service/ fee-for-service (FFS)	• Predetermined amount for a discrete service	No	No	Yes	To some extent (recurring patients)	No	No
Per case (case rate)	• Single payment for all services needed during one episode of care (e.g. heart attack, pregnancy) • Broader than FFS	No	Only for specific case	No	No	Only for specific case	No
Per condition (DRG)	• Single payment for a coherent set of care activities (usually hospital services) associated with a specific condition • Broader than a payment per case	No	Only for specific condition	No	No	Only for specific condition	To some extent
Per person (global-, capitation-, or population-based payment)	• Fixed amount for a specific care package per person enrolled, over defined period • Broader than DRG	Yes	Yes	No	To some extent (no explicit incentive)	Only for specific care package	Yes, for full care cycle

b. Alternative (value-based) payment models		Encourages...					
Payment model	**Description**	**Containment of activity volume**	**Cost-con-sciousness**	**Equitable access to care**	**Quality**	**Coordination**	**Prevention**
Pay-for-performance	• Payment based on measurement of e.g. process, structure or clinical-/ patient-reported outcomes	Can be incentivised	Can be incentivised	Can be incentivised	Yes	Can be incentivized	Variable
Bundled payment	• Fixed amount for services related to condition/ procedure over a defined period • Includes shared savings at condition/ treatment level • Broader than DRG	Yes, low volume is rewarded	Yes, but not in combination with quality targets	Can be incentivised	Yes, related to specific bundle	Yes, also across different organisations	Yes, related to specific bundle
Global, incl. shared savings at person level	• Applies to multidisciplinary providers • Based on overall services provided, incl. fixed and variable components • Frequently, global payment with risk sharing: the provider shares realised savings (or losses) with payer, conditional on reaching quality targets	Yes, low volume across continuum of care is rewarded	Yes, in combination with quality targets	Can be incentivised	Yes	Yes, also across different organisa-tions/ continuum of care	Yes

Strong focus on patient experience Partial focus on patient experience No focus on patient experience

02 Plan ahead

One of the key limitations of European healthcare systems – and systems worldwide – highlighted by COVID-19 has been their inability to adapt rapidly to a sudden increase in demand. In many countries, the pandemic caught plans, processes, skills, equipment and protocols all equally unprepared.

It's clear that systems need to be better prepared in advance. But the key question is what they should be prepared for. Infectious epidemics are far from being the only health threat to systems and society. Sudden demand can arise for many different reasons, including natural catastrophes, accidents and acts of terrorism. Changes in demand also take place at a slower pace over longer periods of time, as is the case for the increasing prevalence of neurodegenerative diseases suffered by the ageing population, the obesity crisis triggered primarily by a shift in lifestyles, or the growing problem of antimicrobial resistance. So, whether sudden or gradual, all of these developments require systems, services and business models to adapt.

The rise of chronic diseases is a case in point. The latest Global Burden of Disease study showed the burden of NCDs growing faster over the last decade. Noted in particular was a transition from premature mortality to the loss of functional health.[25] As the authors of the study discussed, high-income systems are poorly prepared for this shift in terms of their supporting policies, infrastructure and the innovation pipeline required to deal long term with the most disabling conditions.

The ability to plan ahead could address some of the known issues in existing healthcare systems, which were exacerbated by the COVID-19 pandemic.

Effective forward planning should aim to provide the best possible care in anticipation of evolving needs rather than reacting to developments as they occur. In emergency situations, forward planning should make it possible to respond with flexibility, rapidly activating provisions for surge capacity.

Making plans around evolving needs means that investments can be targeted to build up the required infrastructure, skillsets and processes with reference to tomorrow's as well as today's requirements. And looking to the future optimises the chances of being able to provide more equitable access to care, with patients getting the treatment they need as and when they require it.

Impact on

Service delivery
Foregone care

Ensure quality services based on actual needs

Financing
Increase efficiency

Shape budgets and investments

Innovation
Re-focus on patients and society

Address population needs

The ability to plan ahead could address some of the known issues in existing healthcare systems, which were exacerbated by the COVID-19 pandemic.

3

Specific recommendations
Assess future healthcare needs

Today's healthcare spend is often reactive and linked to short-term goals, so that money is simply "allocated" rather than "invested" to improve population outcomes. While healthcare needs may rise unexpectedly, long-term trends can be studied and addressed in advance – as it is the case for non-communicable diseases. By monitoring and modelling epidemiological trends, risk factors, socioeconomic context, as well as "scanning" for emerging technologies, forward-looking decisions can be taken around investments and resource needed to improve population outcomes.

It's generally agreed that unmet patient needs should be prioritised in terms of investments and dedicated resources. Accordingly, there is considerable interest in finding the best ways to stimulate research and innovation for such unmet needs. And that is particularly the case for diseases requiring more complex scientific research, or in which there might be less commercial interest due to insufficient incentives to invest.[26]

In parallel, science and technology trends should be monitored with the goal of making the best use of emerging knowledge to address evolving population needs. For example, the delivery of advanced therapies and precision medicine will require both targeted infrastructural investments and upskilling of HCPs. Similarly, the rise in disabling chronic diseases, and especially musculoskeletal and neurological conditions, will benefit from the design of appropriate facilities for patients and families in need of long-term care.

Therefore, a push towards relevant research and innovation should be accompanied by long-term planning and end-to-end investments.

Finally, along with ongoing discussions about the future surveillance and monitoring role of European agencies (EMA, ECDC) for infectious diseases, epidemiological monitoring and modelling should be strengthened at the national level to include NCDs. Each system should be able to use real-world data to generate insights around future healthcare needs, and have the best chance of improving population outcomes (**see Box 3**).

By monitoring and modelling epidemiological trends, risk factors, socioeconomic context, as well as "scanning" for emerging technologies, forward-looking decisions can be taken around investments and resource needed to improve population outcomes.

Box 3

Predicting future health outcomes and behaviours

Behaviour Predictor is a virtual laboratory of social determinants of health and individual motivators. It aims to predict consumer behaviours that drive health outcomes. The virtual laboratory uses machine learning to identify, quantify, and address multi-dimensional drivers of health outcomes, and has been developed by PwC in the United States.[27]

Sierra Hawthorne, Director at PwC Health Industries Advisory summarises how the tool works, and how it has been used to plan service capacity during COVID-19 pandemic.

"Behaviour Predictor gives us a look at the entirety of the population that resides within a certain area, like a ZIP code. We combine multiple data sources to create a synthetic population with the intent of giving insight into each person's demographics, socio-economic context, social connections, health conditions and personal health behaviours, such as smoking or diet and exercise. These are the factors you want to understand about the people that could be using a facility at specific times during a pandemic. And it's not limited to past information; it also gives us insight into what may happen in the future, which is especially useful for health systems, payers, policymakers and community organisations as they plan for capacity needs.

Most health systems can only look at existing data […] [of] patients that already go to their hospitals and clinics […]. But in a pandemic scenario, many patients getting routed to facilities may not have been seen there before […]. That means that these clinical severity predictions are useful in triaging in the moment, but not as useful in proactive planning for organisations looking to act – at scale – over a period of several weeks.

That's why we used simulation on synthetic data at the person level to look at a combination of likely person-level case severity (before people are sick in real life), alongside different transmission scenarios for COVID-19 to help health systems and governments plan. It's like a virtual laboratory for us to study the future spread and severity of the pandemic at a localised level.

[…] We are [also] still learning about the spillover effects the COVID-19 pandemic is having on people's everyday behaviours that will also affect ER load and ICU admissions. For example, with less traffic on the roads […], we likely can expect fewer traffic accidents and potentially fewer traumas as a result. Less outdoor pollution from less traffic might also mean fewer heart attacks and asthma attacks for some groups.

On the flip side, we may see more people going without prescription refills to manage chronic diseases, and we could see an increase in alcohol consumption and depression as people feel more isolated, which could influence patterns of self-harm. We just don't know how a lot of this will play out yet, but what we do know is there will be a lot of feedback loops that impact available supply".

Sierra highlights that the tool has already shown huge differences of disease severity risk based on ZIP codes – data that dramatically confirm how underlying socio-economic factors have been driving emerging inequalities in health outcomes.

Predictive models like the Behaviour Predictor allow to create synthetic populations that resemble the underlying population demographics, neighbourhood characteristics, individual motivators and behaviours – and will be increasingly used to plan future services and inform evidence-based decision making. Synthetic populations can be used to assess actual patterns in preferences, behaviours and health drivers, or also to predict health behaviour in response to interventions, or assess their cost-effectiveness in the long run.

4

Specific recommendations

Enable the continuity of clinical trials

Clinical research is essential to bring new treatments to patients, and should be considered a public health priority. During the COVID-19 crisis, clinical trials have been heavily disrupted, therefore potentially impairing and delaying patient access to treatment. To mitigate potential future disruptions, a set of measures around data access and collection should be taken proactively so that clinical trials can be executed remotely.

During the COVID-19 crisis, more than 1,200 studies globally reported protocol disruption and delays, and the number of studies affected remained high up until Spring 2021.[28] When studies are disrupted, patients' access to new treatments is delayed. Severe patients receiving innovative treatments in investigational settings may have their access curtailed. For example, in 2020, 55% of clinical trials in oncology were paused and delayed, with some delays exceeding three months.[29]

Unforeseen delays and a lack of resources (e.g. a skilled workforce, access to facilities, etc.) can jeopardise the rigour of clinical trials. Ensuring that ideal experimental conditions are met requires painstaking assembly of processes and meticulous stakeholder coordination. Clinical research to develop new scientific knowledge is fundamental to meet patient needs, and should therefore be rightfully considered a public health priority. It follows that actions to mitigate the risks that threaten research activities must be put in place. One response to this imperative is likely to be finding new, remote ways to conduct clinical studies or engage with patients. One study found that investigators expect that more than half of their interactions with trial patients will happen remotely in the future, a three-fold growth compared with pre-crisis rates.[30]

The most important actions to facilitate remote working and mitigate potential disruption to clinical research include:

- Ensuring that the technology infrastructure is able to make clinical trial data securely available outside the hospital environment so that researchers can continue working remotely if necessary; and working for alignment between data systems used by all stakeholders in the clinical research process, including through public-private collaboration.
- Enabling decentralised and home-based trials as an alternative to (or in combination with) traditional models requiring visits to a hospital or other clinical trial sites. This would require new capacities and work methods, including HCPs performing home visits and home drug deliveries. This approach should be adapted by factors such as disease area, data collection methods and patient preference.
- Harmonising the interpretation of the General Data Protection Regulation (GDPR) in national jurisdictions to ensure that Remote Source Data Verification (rSDV)[31] can take place throughout the EU. At present, different local interpretations of GDPR and national legislations have created barriers for conducting Source Data Verification remotely in some countries, leading to a divergent environment across Europe for continuing clinical trials during the crisis. In order to fully unlock the value of innovative trial methods and maintain resilience during a health crisis, it is important to develop clear definitions, guidelines and/or codes of conduct so that patients' data for investigational purposes across Europe are equally and fairly treated.[32]

03 Reap the benefits of digitalisation

The COVID-19 crisis has generated few positives. One bright light, has been the rapid shift towards digital healthcare. Digital tools range in sophistication and complexity from simple prescriptions by phone or text to real-time remote monitoring, passive data collection via connected devices and AI-powered use of real-world evidence.

The European Observatory on Health Systems and Policies has collected insightful data on the extent of this forced transition. For example, in France, 5.5 million teleconsultations were provided by up to 56,000 physicians in March-April 2020 alone. At its peak, teleconsultations accounted for up to 27% of all consultations, of which one fifth were with patients over 70 years old. Germany's largest doctor-patient portal saw more than ten-times increased demand for video consultations in March 2020 compared with February 2020.The number of doctors and psychotherapists using the portal grew by four times.[33]

Looking outside Europe, the use of video appointments with patients in their homes by the Mayo Clinic in the United States increased by a staggering 10,880% between March and April 2020. Remote appointments represented almost 70% of all outpatient consultations.[34]

The deployments of new or digitally enhanced services took place despite existing infrastructural, procedural and cultural gaps. There is now considerable interest in and momentum behind making the transition to digital delivery of healthcare organic and sustainable.

The ability to advance digitalisation could address some of the known issues in existing healthcare systems, which were exacerbated by the COVID-19 pandemic.

For hospitals, digitalisation offers the ability to optimise the service offer and patient flows through local data infrastructure, therefore relieving hospital service capacity. Remote consultations could shift some of hospitals' workload to other channels and provide greater surge capacity.

Digital channels also afford easier, more flexible and cost-effective interactions with HCPs, saving time and money. According to systematic reviews, telemedicine is cost-effective in 73.3% of cases and neutral in 21.3%.[35] And remote clinical studies to generate evidence could accelerate the innovation of new products and services. Advanced solutions such as connected devices, patient apps and e-registries offer the possibility of collecting real-world evidence that could support new insights and further advance medical practice.

Impact on

Service delivery
Foregone care

Deliver care flexibly and equitably

Financing
Increase efficiency

Increase cost-effectiveness

Innovation
Re-focus on patients and society

Generate insights

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5 Specific recommendations

Strengthen the digital infrastructure, with a focus on data governance harmonisation

Europe ranks high in terms of digital competitiveness; however individual countries sit at different stages of the digitalisation journey. Despite the overarching regulatory framework, infrastructural deficiencies and fragmented governance impaired COVID-19 responses at several levels. Going forward, European countries need to strengthen infrastructural investments, and harmonise processes and standards to drive efficiency and bring to life the future European Health Data Space.

As a result of in-person channels largely shutting down, the COVID-19 crisis focused interest on telemedicine. But digital health interventions span across a far wider range of capabilities and can achieve numerous goals. These range from communication to new ways of recording medical information, and from process planning and optimisation to diagnosis and remote care.[36]

In general, European countries rank high in terms of their digital competitiveness. In particular, Western Europe performs well when compared with others around the world in terms of technology and future readiness.[37] However, a comprehensive assessment by the European Commission highlighted variations in the interpretation of GDPR within and across countries, which results in fragmented data sharing, processes and governance, despite the overarching regulatory framework.[38] Different European states are also at varying stages of readiness in terms of their strategic investments, e-data generation, financing and reimbursement of e-services, as well as the extent to which their citizens possess or are acquiring digital skills.

Understandably, during the pandemic, poor data standardisation and interoperability impaired the ability to share data not only across institutions, local healthcare units, but also internationally. These issues affected healthcare across the entire value chain, from R&D collaboration to disease monitoring and control, and to policymaking. Smaller European countries reported that small local data sets, along with the inability to access data from other European countries, made it challenging to design COVID-19-related preventative measures.[39]

In order to fully unlock the value of digitalisation in healthcare, a number of foundational elements around infrastructure, governance, and standards must be in place. Primarily, Member States should implement and finalise the digitalisation of electronic medical records (EMRs) – a key infrastructural requirement, as Europe sets out to create the European Health Data Space.[40] It is also essential to note that the challenge is not the creation of EMRs per se, but rather the linkages to different sets of data. Systems using unique patient identifiers, enabling data linkage across databases, or using national data hubs to enable such linkage, are well positioned towards a real integration of primary, secondary and tertiary care (**Box 4**).

Investments in this area will enable optimal case management and patient pathways/referrals across different institutions. Such a system will also allow individual citizens to access their own data (so-called 'data portability' of, for example, clinical history, tests, reports, prescriptions) for personal usage and consultation.

Finally, systems should support the collection of real-life data in routine care settings. Doing so will enable the use of data to generate insights that are relevant for individuals as well as addressing population health management.

The theme of digitalisation is central to the 2021-2027 European recovery plan, which includes conspicuous funding for digital transition. As part of this, adequate funds must be specifically directed to strengthening healthcare infrastructure.[41] That's especially important for state-of-the-art tools and infrastructure to store and process health data, as well as data pooling required to achieve public health goals at the EU level, as highlighted in the recent European Data strategy.[42]

Overall, we expect healthcare digitalisation to drive efficiency in a number or ways. It will optimise patient pathways and avoid the duplication of care. Making full use of existing data will support faster and more efficient diagnoses and decision making, in both routine and emergency settings, and will generate new insights and foster research.

Box 4

Integrated electronic health records in Israel

By the third week of February 2021, more than half of the Israeli population had got one COVID-19 vaccination shot – as compared to 25% in the UK, 13% in the US and 4% in Germany.[43] One of the factors behind Israel's high rate of vaccination has been the information technology and logistic capabilities developed in the country's health sector. From 2003, the Israeli medical workforce has been implementing EMRs for their patients.[44]

Israeli EMRs initially included demographic information, medical history, diagnostic reports and prescribed treatments, and at later stages included information about drug monitoring, side effects and other clinically relevant data, as well as payer data. In 2018 the government decided to integrate EMRs into a central unified system, investing significantly to achieve this.

As a result, Israel was able to launch the TIMNA big data research platform. This enables scientists to develop evidence-based clinical decision-making tools, and also expanded research horizons in the area of genotyping, phenotyping and microbiomic sciences.

Digitalisation and integration of EMRs not only empowered physicians to quickly review patients, and transfer data between various secondary and tertiary medical centres, but also saved valuable resources involved in continuing medical care especially by avoiding unnecessary repetition of diagnostic tests and paper documentation.

In effect, Israel now has a "data gold mine" which contains integrated and linked EMRs shared among the major health centres, constituting a platform to launch the next generation of personalised medicine.

Israel's advanced digital healthcare infrastructure enabled it to enter an agreement with Pfizer for vaccines, under which Israel agreed to constantly monitor the population undergoing vaccination for possible side effects, complications, epidemiological data and share the information with Pfizer to further aid in research and development.

The Israeli case shows that integrated EMRs are one of the key paths to gain the most benefit from health system digitalisation, and quite literally shows what "unlocking the value of data" means. Integration of data across settings of care is vital to build up a resilient health system and respond more effectively to future health emergencies.

6

Specific recommendations

Develop financial incentives to foster the delivery of e-health services

Before COVID-19 pandemic, only some European countries had reimbursement measures in place for remote care delivery, and often not attractive enough to promote the use of e-services. More recently, virtually all countries had to implement financial incentives to support telemedicine and remote care. Such incentives should be reviewed and refined to support e-care delivery in a sustainable fashion.

During the pandemic, some countries initially reimbursed remote consultations at fee levels that were 20-50 times smaller than those for in-person care.[45] In effect, HCPs were required to assist patients almost on a goodwill basis.

How telemedicine consultations and services are reimbursed across Europe varies significantly. Even before the pandemic, some countries were already reimbursing telemedicine services at rates equivalent to, or in some cases above, those for in-person consultations.[46] However, the majority did not have relevant reimbursement policies in place, and had to improvise temporary measures that would both compensate HCPs and incentivise alternative models of care delivery. These temporary measures included updated fees for remote consultations, looser restrictions on service terms and reimbursement for digital equipment and software.[47]

Crucially, adequate incentives will be required to support the paradigm shift from traditional to remote service delivery. Consultations should be reimbursed at rates that are comparable to those offered for traditional consultations.

Doing so will motivate HCPs to adapt their behaviour, and shift part of their regular workload to remote settings. For most if not all countries, a review of measures for reimbursement will be required as well as how to institutionalise these in day-to-day operations.

In addition, looking at ways to incentivise the shift to remote medicine delivery, pharmaceutical and medtech companies will have an important role in terms of building user-centred and commercially attractive offers. These may include patient/companion apps, digital therapeutics and connected devices, as well as healthcare services delivered remotely, all of which will require the development of new partnerships and commercial models.

Crucially, adequate incentives will be required to support the paradigm shift from traditional to remote service delivery. Consultations should be reimbursed at rates that are comparable to those offered for traditional consultations.

04 Focus on people and outcomes

During COVID-19, patients and HCPs worldwide have experienced fragmented and inconsistent information. They have suffered uncertainty, along with a fear of being unable to cope with the impact of the pandemic. In some cases, patients had insufficient access to care, and therefore had to resort to their own knowledge and resources to overcome health challenges, for example by identifying alternative ways to get the care they needed. Emerging evidence shows that the pandemic has the potential to widen inequalities across society.[48] All of these factors may have contributed to an erosion of trust in healthcare systems. But it is essential for patients to regain that trust so that they seek the care they missed or postponed because of the pandemic. At the same time, it is key that HCPs are equipped to address people's needs and concerns in the post-COVID-19 environment.

Focusing on people and health outcomes is vital to address some known healthcare system issues, which were exacerbated by the COVID-19 crisis. A health system that is easier to access can encourage positive health behaviours and make care more timely. A more patient-centric health system will help optimise the use of resources. And this will be particularly important to address the consequences of care that patients have chosen not to take or have been unable to access during the COVID-19 pandemic. Improving patients' experience through a system that works better for them will increase their satisfaction and, crucially, rebuild trust.

Impact on

Service delivery
Foregone care

Improve health behaviours

Financing
Increase efficiency

Address consequences of foregone care

Innovation
Re-focus on patients and society

Improve patient experience and trust

7

Specific recommendations
Support HCP upskilling

HCPs are the trusted interface of healthcare systems for the general population. During the COVID-19 crisis – and even before - they had to deal with staff shortages and new needs. Going forward, HCP training should be expanded to include skills around e-health and patient data management, but also crisis preparedness and communication to support system response and transformation.

The resilience of future healthcare systems will depend on equipping HCPs with the best skills to assist patients and keep pace with the pressures they will face to respond adequately to population needs. This holds true for both future epidemiologic trends, but also for the well-known issue of skilled worker shortage. For example, a field workforce may benefit enormously from relevant and structured knowledge around infection control, emergency preparedness, care pathway reorganisation, and programme roll-out.

Going forward, and beyond the pandemic phase, supporting efforts around digitalisation and e-health by encouraging technology uptake will be key. Therefore, HCPs should be trained in core digital skills, and particularly data management (data collection, usage, sharing, etc.) according to their own settings of care and the professional tasks they need to perform. Notably, the ability to collect meaningful patient-reported outcomes and experience is set to become a key skill not only to measure the real-life effectiveness of interventions, but also to shape services around patient needs.

Experts and decision makers should not overlook the importance of a well-thought-out communication strategy, and how this can drive effective policy implementation. COVID-19 showed how news and information can be easily twisted, and opinions shaped based on inaccurate understanding of scientific data. A spectrum of skills and experts should be available to support decision making, and particularly to communicate decisions to the public. Depending on the issue, this may include public health- and specific scientific/clinical expertise.

Going forward, and beyond the pandemic phase, supporting efforts around digitalisation and e-health by encouraging technology uptake will be key.

8

Specific recommendations

Invest in people's health literacy, especially for high-risk populations

Population health depends on the ability of individuals to critically assess their own health status, behaviours and the medical information they receive. Socially disadvantaged groups are traditionally characterised by lower health literacy, which translates into higher risk of developing health issues – as observed during COVID-19. Healthcare systems and communities should invest in establishing trusted communication channels for such vulnerable individuals, and listen to their experience to shape services for better outcomes.

Initiatives around disease prevention and early care (see **Recommendations 1 and 2**) work best if people adopt positive health behaviours, are able to recognise relevant symptoms, and seek early care. This requires individuals to be able to critically process health-relevant information to make the best decisions.

People that are socio-economically disadvantaged are often characterised by low health literacy, i.e. a reduced ability to recognise early signs of disease and seek help – which makes them more vulnerable to diseases. For example, data collected recently in the United States show that the rate of individuals foregoing medical care is higher among the unemployed, whose main motivation not to seek for care was the fear of COVID-19 transmission.[49]

An additional aspect enlightened by the COVID-19 pandemic, is the frequent lack of two-way communication and decision-making between HCPs and patients. Recent data from the European Federation of Neurological Associations show that almost 60% of patients felt their needs were not taken into account during the first wave of the pandemic, and almost 90% felt their needs were not considered in the discussions on post-COVID-19 recovering planning - despite the majority of them having major concerns.[50]

The entire population should be given tools to strengthen their interest and understanding of health promotion and disease prevention strategies, rather than waiting for health problems to progress and get more severe. People should be equipped to recognise worrying symptoms, seek care when needed, be aware of different treatment options, and improve adherence to prescriptions and recommendations. Therefore, each healthcare system and community should identify subgroups – by studying socio-economic and behavioural patterns – characterised by poor health literacy. HCPs, especially in primary care settings, should then establish tailored, two-way, trusted communication with the most vulnerable individuals.

Healthcare and social systems play a critical role in attracting people in need (back) to the system. Understanding the patient experience better will help deliver more effective care, which translates into increased satisfaction, better system utilisation, and better outcomes (see **Box 5**).

Each healthcare system and community should identify subgroups – by studying socio-economic and behavioural patterns – characterised by poor health literacy

Box 5

Social determinants and health choices in the pandemic context

Thomas Abel is professor of Public Health at the Institute of Social and Preventive Medicine in Bern, Switzerland. Over his longstanding career, he has focused his research work on social determinants of health and risk behaviours.

Professor Abel, in the past months, you looked at COVID-19 spread from an unusual angle. What did you learn about the disease manifestation?
You may have read a lot about medical risk factors for severe COVID-19, such as the presence of pre-existing chronic diseases. But another important risk factor – that plays a role in all diseases and societies – is social disadvantage. In chronic illness, health and social components are tightly linked, and when you look at the matter through the eyes of the patient, the most important aspect is "continuity of care", whether on the physical, social or mental side.

This makes a lot of sense. What are we missing today when we design services and interventions?
Ask the patient, listen to their experience. Chronic patients are the "experts" for their own living conditions, which are highly correlated with the course of an illness. Sometimes the medical system considers patients as consumers, or receivers of care. But, in order to understand and meet patient needs, and therefore meet health systems goals, we need active patients, and to co-design solutions with them. This is no longer the time of the medical doctor telling people how to behave. Healthcare professionals should tailor their communication in a way that matters to people, so that they can critically reflect on such information, and take good decisions for their own health.

I think this is what is referred to in the literature as "critical health literacy".
Yes, people need to be able to critically appraise information, and then apply their understanding in daily life. This is how we fight a global pandemic, and any other disease, really. People need to feel like they are part of the solution, and that their behaviours are the key for better health. If you think about COVID-19, only people's reasonable behaviour will drive us out of the crisis.

Why is this problematic for socially disadvantaged people?
We know that people from the lower socioeconomic groups have a harder time enacting health-seeking behaviours, due to objective challenges related to their living conditions, but also distorted role models, lack of trust towards authorities, hopelessness, and – last but not least – increased exposure to environmental and medical risk factors. Indeed, in the current crisis, people from lower socio-economic groups turn out to be disadvantaged at all disease stages – i.e. exposure to the virus, disease contraction, access to testing, risk of severe symptoms, intensive care need, and death. Most likely, we will see higher prevalence rates of "long COVID-19" as well.[51]

What did you learn from patients in your MIWOCA study[52], where you gave immigrant women a chance to discuss the care they received with service providers and HCPs?
The study allowed several stakeholders, including patients, to sit at the same table and discuss challenges based on patient-reported experience. Sometimes, practical roadblocks are overlooked by the system, while they would be easy to fix. I was surprised to see how strongly people that are not often heard are willing to express their needs and preferences.

The pandemic also affected non-COVID-19 patients. Many have foregone planned care. Do you think that we can bring those patients rapidly back to the system?
This is an open question. The first word that comes to my mind is "trust". Most of those that disregarded their healthcare needs in 2020 need to regain trust in the system, and I think that this can more easily happen in the community, for example via family doctors. The second word is, once more, "co-creation". We barely have feedback processes integrated in our service delivery, but we could learn so much if only we would ask the patients about their experiences – including the perceived barriers to medical care, and adjust services and interventions based on patient feedback. This could help "make healthy choices the easy choices" for all people.

6. What's next?

This report is the product of detailed research into the reflections recorded by experts since the acute challenge of COVID-19 pandemic has taken hold of healthcare service delivery. In order to ensure the understanding and correct interpretation of different aspects of varied publications, we chose to carry out several rounds of interviews with experts across the healthcare continuum in Europe, and exposed our ideas to industry experts during three lively workshops.

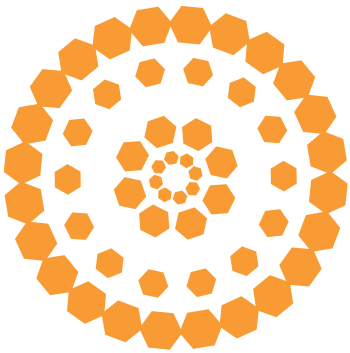
As you have read, the prominent value we have attempted to generate for public consumption has been through presenting the most crucial categories of strategic response that would need to be considered not only to address COVID-19 pandemic, but also to address other potential future healthcare calamities that populations could face in the future.

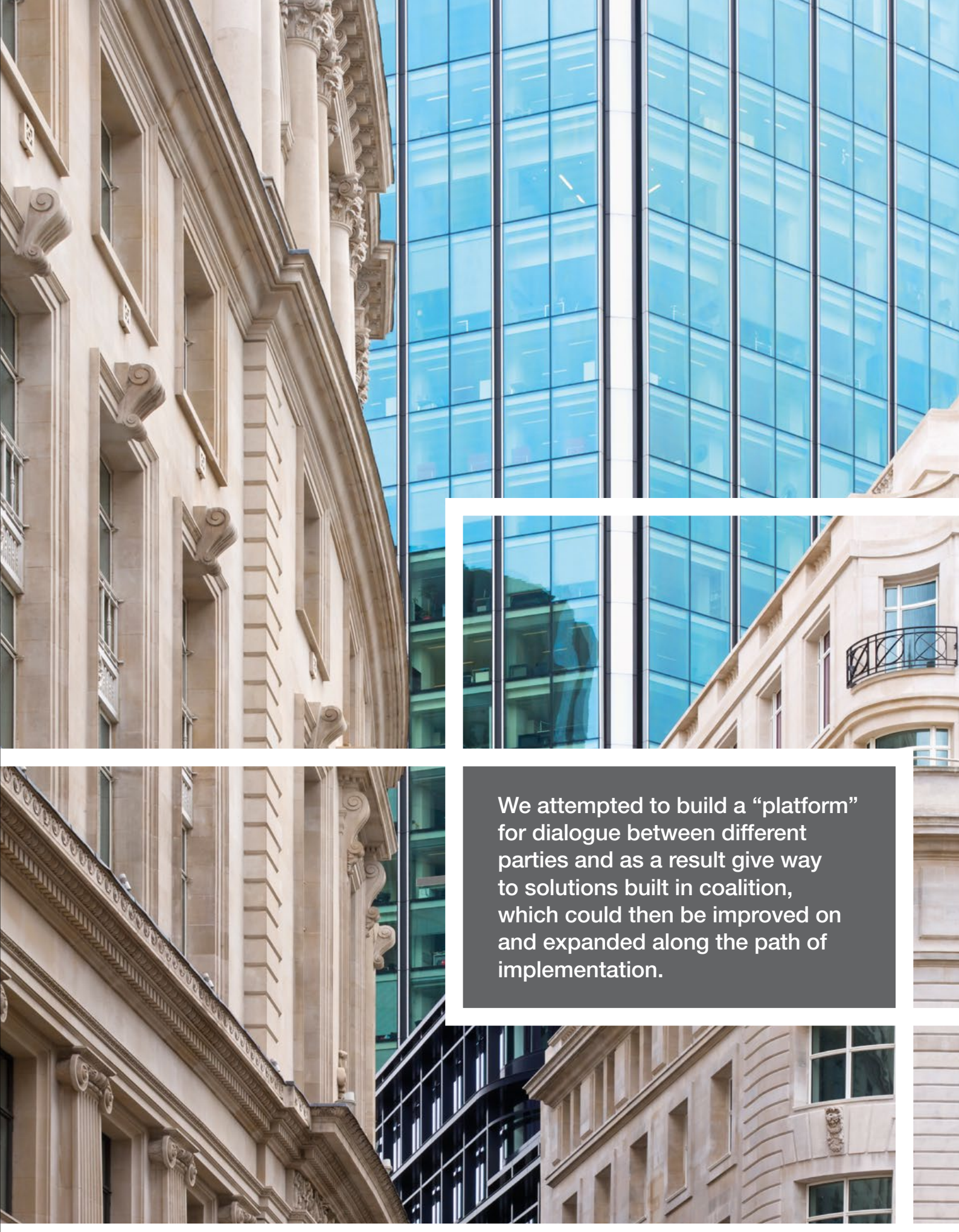
While summarising these strategic directions, we have shied away from being prescriptive. Instead, we have aimed to provide inspiration for current and future leaders/influencers of healthcare systems. Primarily this is because a thorough scientific/factual assessment of the evidence emanating from the crisis is still underway and concrete conclusions will only start taking shape in the coming months and years. In addition we believe that the methods of responding to such crises in the future will be generated not only by scientific assessment of what has happened, but also by different parties and stakeholders demonstrating initiative and getting together around some of the themes we have outlined.

By breaking down each strategic direction into a few actionable elements, our idea was to enable tactical plans and projects to emerge in those discrete areas, which would then have a measurable impact overall. To use the fashionable term from biosciences and technology, we attempted to build a "platform" for dialogue between different parties and, as a result, encourage the development of solutions built in coalition, which could then be improved and expanded along the path of implementation.

We would take it as our primary task to facilitate such synergies for the audiences of this report, from any sector, background and position.

Ömer Saka
Partner, Advisory Health Industries, PwC Switzerland





We attempted to build a “platform” for dialogue between different parties and as a result give way to solutions built in coalition, which could then be improved on and expanded along the path of implementation.

7. About this research

Our impact assessment leverages the WHO health system building block framework,[53] which identifies six core components characterising healthcare systems: service delivery, workforce, information and data, innovation and technology, financing, and leadership and governance.

Briefly, PwC team conducted an independent landscape assessment based on secondary (peer-reviewed literature, grey literature, quantitative datasets) and primary sources (in-depth interviews with public health experts, PwC internal knowledge). The literature review was based on a targeted search (by building block) to identify the main impact themes, which were then evaluated through in-depth expert discussions.

Experts validated our findings and provided initial insights about their future vision of European healthcare systems. To the extent possible, and where relevant, we collected pertinent sources and evidence to support expert statements. For internal reference and prioritisation, we classified the quality evidence supporting the impact statements (i.e. good quality/peer-reviewed, moderate quality, assumption/hypothesis, controversial). Further phases of the work generally focused on findings supported by good quality evidence.

Emerging themes were discussed, reviewed and prioritised during a series of workshops with EFPIA and industry representatives taking place in February-March 2021. For each emerging strategic theme, potential recommendations have been collected and prioritised during multiple workshops, group discussions and surveys taking place over April-May 2021 with public health experts, EFPIA, industry representatives, patient organisations and PwC leadership.

About PwC

At PwC, our purpose is to build trust in society and solve important problems. We're a network of firms in 155 countries with over 276,000 people who are committed to delivering quality in assurance, advisory and tax services. PwC Switzerland has over 3,250 employees and partners in 14 locations in Switzerland and one in the Principality of Liechtenstein. Find out more and tell us what matters to you by visiting us at www.pwc.ch.

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