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Partnership for Health System  
Sustainability and Resilience

Founded by the World Economic Forum,  
London School of Economics and AstraZeneca

# Sustainability and Resilience in the Spanish Health System

Guillem López Casasnovas, Francesc López Seguí, and Alex Arasanz Goset ■ March 2021



**Authors:**

Guillem López Casasnovas, Francesc López Seguí, and Alex Arasanz Goset\*

Universitat Pompeu Fabra (UPF), Barcelona

\*The authors are grateful to Jesús María Fernández Díaz for his helpful comments and suggestions in the development of this report.

The Partnership for Health System Sustainability and Resilience (PHSSR). PHSSR was initiated by the London School of Economics and Political Science (LSE), the World Economic Forum (WEF) and AstraZeneca, motivated by a shared commitment to improving population health, through and beyond the COVID-19 pandemic. The initial phase of the partnership, of which this report is a product, was funded solely by AstraZeneca.

This report was produced on behalf of PHSSR as part of its pilot phase, in order to apply and test a framework for the analysis of health system sustainability and resilience. The positions and arguments presented herein are the authors' own, and do not represent the views of AstraZeneca, the World Economic Forum or the London School of Economics and Political Science.

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**LSE Consulting**

LSE Enterprise Ltd  
London School of Economics and Political Science  
Houghton Street  
London, WC2A 2AE

**(T)** +44 (0)20 7106 1198

**(E)** [consulting@lse.ac.uk](mailto:consulting@lse.ac.uk)

**(W)** [lse.ac.uk/consultancy](http://lse.ac.uk/consultancy)

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# 1. Executive Summary

## Introduction

The COVID-19 pandemic has been the biggest stress test to the Spanish national health system (Sistema Nacional de Salud, SNS) since its inception in 1986. Spain experienced one of the highest death rates attributable to COVID-19, and understanding the factors that led to this and learning the lessons from the policy failures will be crucial for the future sustainability and resilience of the Spanish health system.

This report forms part of the global Partnership for Health System Sustainability and Resilience (PHSSR) research into key determinants of sustainability and resilience across the following five health system domains:

- Governance
- Health System Financing
- Workforce
- Medicines and Technology
- Service Delivery

This report constitutes a summary of the research undertaken by the Spanish research team. The recommendations in each domain are preliminary and are subject to consultation with local stakeholders.

Our working definitions of the terms “sustainability” and “resilience” are summarised in the table below.

**Table 1: Definitions of Sustainability and Resilience**

Term	Definition
<b>Health system sustainability</b>	A health system’s ability to continually deliver the key health system functions of providing services, generating resources, financing, and stewardship, incorporating principles of fair financing, equity in access, and efficiency of care, in pursuit of its goals of improving population health, and responsiveness to the needs of the populations it serves, and to learn and improve in doing so.
<b>Health system resilience</b>	A health system’s ability to absorb, adapt to, learn, and recover in the wake of crises born of short-term shocks and accumulated stresses, in order to minimise their negative impact on population health and disruption caused to health services.

## Summary of findings

The following table summarises the key findings relating to health system sustainability and resilience across the five domains in Spain.

**Table 2: Key findings**

Domains	Sustainability	Resilience
<b>Governance</b>	The 17 autonomous regions have gained significant scope in terms of the planning, financing, purchasing and evaluation of health services. Central government retains control over certain aspects of the system including public health, pharmaceutical products, health professions and the top-level co-ordination of the local implementation of central government health policy.	Co-ordination and communication between central government and the regions broke down during the first wave of COVID-19 which led to unnecessary delays and misalignment of the policy response. Throughout the first wave there were systematic disagreements between central government and the regions about the intensity, timing and method of applying lockdown measures.
	Regional health authorities negotiate with and pay health providers despite having a minor role in raising revenue (the lion share of health financing comes from general taxation levied by central government)	The pandemic highlighted deficiencies in the system's ability to prepare for and manage public health threats. Spain does not have a national public agency.
	Planning is not properly delinked from the political cycle, since long-term targets are not enforceable in annual budgets.	Delayed action and a lack of workable contingency plans led to a failure to contain the virus early on, and brought the health system close to being overwhelmed.
	Some regions have health technology agencies, but their recommendations are not binding. Many actors in Spain are demanding a stronger approach to HTA in Spain by creating a centralised HTA agency similar to NICE in England.	The COVID-19 crisis, particularly during its first wave, when the Ministry of Health (MoH) took central control of power, laid bare the weak capacity of the MOH to carry out critical functions like centralising COVID-19 infection surveillance information, procuring needed goods, and operating a technically robust management of public health threats.
<b>Financing</b>	The Spanish National Health System (SNHS) is financed through general taxes. This centrally collected money is distributed to the regions on a weighted capitation basis. Revenues raised locally represent less than 15% of total funding. A mismatch between centrally transferred funds and local needs has the potential to undermine sustainability. A degree of political discretionality in determining how funds are allocated and distributed to the regions and the overdue Regional	Spending can be adjusted in a flexible manner in response to changes in short-term priorities. For example, regional health care budgets for 2021 have increased by up to 22% year-on-year (depending on the region).

	<p>Financing System undermine financing sustainability.</p>	
	<p>There is a lack of systematic fiscal monitoring and evaluation of healthcare expenditure and economic evaluation to determine how to maximise the effectiveness of scarce resources. Notwithstanding this, the Independent Fiscal Responsibility Authority (AIReF) is playing an increasing role with its Spending Reviews of Health Budgets and Health System efficiency.</p>	
	<p>There is a lack of financial incentives to increase productivity, health professionals are salaried civil servants and hospitals are paid using global budgets.</p>	
<b>Workforce</b>	<p>Staffing levels are on a par with the OECD-36 level. Spain has relatively more doctors per 1,000 inhabitants but relatively fewer nurses.</p>	<p>The workforce was increased rapidly to deal with the surge in demand caused by the pandemic. Recent retirees as well as last-year medical students were incorporated into the workforce.</p>
	<p>Significant numbers of doctors (particularly family doctors, anaesthetists and paediatricians) emigrate abroad (mainly to the UK and France). Foreign nationals (particularly from Latin America) come to practice medicine in Spain.</p>	<p>The physical and emotional strain on health workers has been unprecedented, with a notable increase in staff reporting an adverse mental and emotional impact of the pandemic.</p>
	<p>Medical professional roles are highly institutionalised and there are cultural barriers to task shifting and cross-professional co-operation.</p>	<p>There is a challenge in the way the Spanish NHS recruits and contracts workforce. Too much bureaucracy and rigidity leads to too many short-term contracts, lack of incentives and weak capacity of health managers to adapt recruitment processes to service needs.</p>
		<p>Productivity in terms of workload and arising from increased collaboration among medical specialties has temporarily increased during the pandemic.</p>
<b>Medicines and Technology</b>	<p>The process for novel drugs and medical technologies to be adopted is relatively lengthy taking on average between 3 to 4 years with a large variety of actors involved.</p>	<p>The COVID-19 pandemic has renewed calls for Spain to stockpile both medicines and other medical equipment following significant shortages in personal protective equipment (PPE) and ventilators at the onset of the pandemic.</p>
	<p>Regional health authorities play minor roles in committees on economic appraisals and pricing decisions of drugs despite paying the bill.</p>	<p>Several of the autonomous regions have health technology assessment agencies, but are not able to make binding policy recommendations.</p>

	<p>The multiplicity of government agencies dedicated to the management and control of drug policies shows a high degree of state involvement and suggests concern for a trend of increasing pharmaceutical spending.</p>	<p>There is a need for an institutionally independent assessment agency to assess relative clinical effectiveness and cost-effectiveness.</p>
	<p>A lack of capital investment over the past decade has left Spain with a relatively outdated medical equipment infrastructure.</p>	
<p><b>Service Delivery</b></p>	<p>The Spanish national health system is organised around the central role of the primary care doctor as “gatekeeper”.</p>	<p>Healthcare delivery adapted in a resilient manner to the challenges posed by the pandemic with remote consultations (especially via phone and video) growing exponentially to make up for the drop in face-to-face consultations to safeguard the safety of both patients and clinicians. The impact on quality of care as well as patient outcome of the shift to remote care needs to be evaluated.</p>
	<p>Despite the gatekeeping role of GPs the link between primary care and specialised care is weak undermining continuity and co-ordination of care. To strengthen continuity of care some regions, such as Catalonia, have experimented with novel integrated care programmes.</p>	<p>Service delivery capacity was increased rapidly at the beginning of the pandemic to meet surges in demand from COVID-19 patients as well as to continue to deliver non-COVID emergency and non-emergency care. An in-depth review needs to be undertaken to determine to what extent routine services were disrupted by COVID-19 and the size of the backlog of patients unable or unwilling to seek treatment during the pandemic and the impact on future waiting times.</p>
	<p>There is an incompatibility of information systems across autonomous regions creating disconnected silos reducing the ability to optimise inputs between regions as well as hampering the delivery of consistent care pathways across regions.</p>	<p>Telemedicine networks which emerged during the pandemic response have started to break down some of these data silos.</p>
	<p>Incipient public private partnerships in the delivery of healthcare established in some regions lack monitoring and public scrutiny raising concerns regarding their competitive advantage compared to direct management of health services.</p>	<p>The Spanish NHS does not have a robust system for evaluating quality and outcomes. Only some regions have developed a kind of Outcomes and Quality Measurement process open to public scrutiny.</p>
	<p>Regional agencies tasked with the evaluation of the quality of care, lack decision-making powers and are not able to make binding recommendations. This</p>	<p>COVID-19 has laid bare the poor capacity of public health services in Spain, both at the central and regional levels. There is a lack of interoperability of laboratory,</p>

undermines the opportunity for efficiency gains to be achieved through quality benchmarking.

microbiological, clinical and epidemiological information systems, shortage of disease outbreak control teams, difficulties to develop and operate ICT-based apps to support contact tracing of COVID-19 cases. These are all challenges that require urgent solutions.

## Overarching themes impacting sustainability and resilience in Spain

There are a number of cross-cutting themes that have emerged from the Spanish country research that have particular impact on the system's resilience and sustainability. These are highlighted in the following section.

### Resilient response to demand surges

The Spanish National Health System adapted in a resilient manner to the surge in demand caused by the COVID-19 pandemic by reincorporating recently retired healthcare professionals as well as allowing last year medical students to join the front lines. Hospital spaces were redesigned to increase intensive care capacity and to keep COVID-19 patients separate from other patients. The focus on caring for coronavirus patients has carried the cost of delaying elective surgery which has created a backlog of care that will be challenging to work off during the coming months and years. Healthcare staff has been stretched to its limits with a concurrent rise in physical and emotional fatigue. Spain has recorded one of the worst economic contractions in Europe accompanied by one of the highest number of deaths attributable to COVID-19, which highlights the struggles the system has faced in responding effectively to the pandemic. There are a number of cross-cutting themes that may help explain why the system was not able to respond more effectively to the challenges posed by the pandemic:

### Tensions between the centre and the regions

The research has shed light on the fact that tensions between central government and the autonomous regions was a key factor in hampering Spain's effective response to the pandemic, especially at its onset. When central government declared a state of emergency in March 2020, the Ministry of Health took over most of the public health responsibilities that were previously in the hands of the regions. Early policy-making was characterised by an absence of communication and coordination between the central and regional government. Throughout the first wave of the pandemic there were systematic and strong disagreements regarding the intensity, timing and method of applying lockdown measures between the regions and central government. For example, before the declaration of the national state of emergency on March 14<sup>th</sup> 2020, some regions were urging for the implementation of strict lockdown measures. After 3<sup>rd</sup> May 2020, decisions regarding the strengthening or easing of lockdown measures were based on information provided by the regions to the national Health System Response Monitor. However, some regions were blamed for delaying the relaying of information to the national system causing public quarrels between both sides and further eroding public confidence. This illustrates the degree to which tensions between the centre and the regions – with both shifting the blame of mismanagement on to the other – diminished the system's ability to effectively respond to the challenges posed by the pandemic. The approach taken by the regions appears to have been based on trial and error rather than a consistent strategy.

### Politicisation of funding decisions

Central government funds, which make up 90% of available funds for regional health spending, are distributed to the autonomous regions on a weighted capitation basis. However, the report's authors find that there is a

regional mismatch between funding needs and allocated funds and that there is a degree of political discretion as to who gets allocated what, undermining sustainability. The authors recommend a move away from political capture of funding decisions and towards a more fiscal responsibility-based approach.

### **Fragmentation across regions**

Spain's devolved health system has led to autonomous regions operating as mini-NHS, with little or no collaboration or co-ordination among themselves. Whereas in countries such as France, patients and medical equipment were moved around to relieve regions particularly badly hit by the pandemic, in Spain, particularly at the beginning of the crisis, each region largely acted independently to protect its own citizens. Fragmentation of the system and the power struggle between regions and the central government hampered a concerted effort to respond optimally to the challenges posed by the pandemic. Not all regions are equally capable to manage the pandemic given their size and available human capital. Therefore, the one-size fits all approach in terms of central intervention for regions was inefficient, as smaller regions would have benefited more from central guidance than larger regions.

### **Funding crisis**

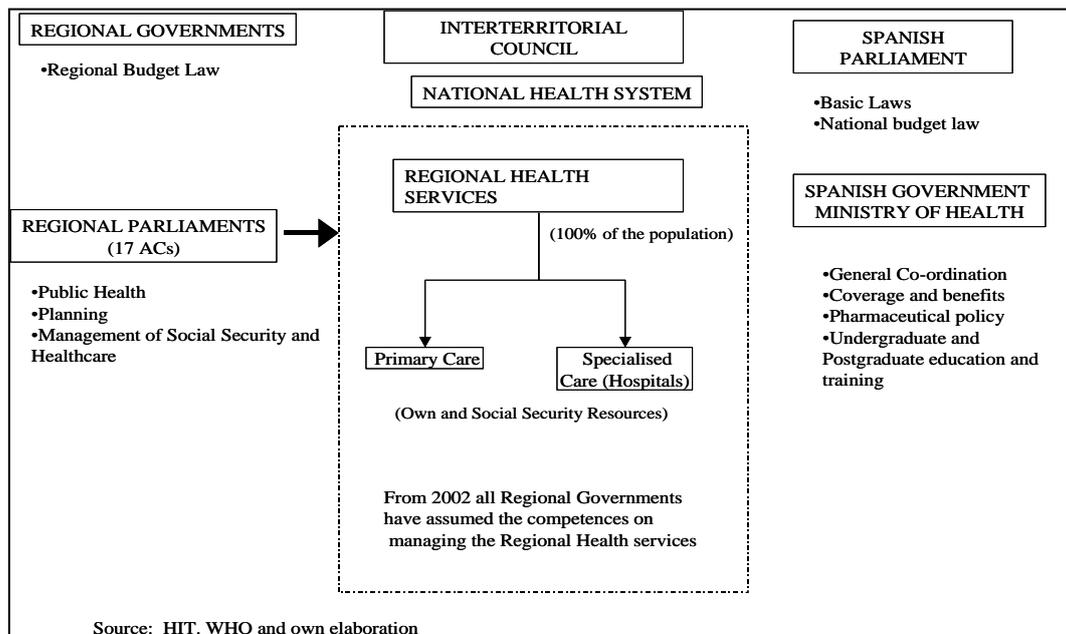
Austerity measures implemented in the wake of the 2008 global financial crisis have led to long-term underinvestment in healthcare services which may have contributed towards diminishing Spain's ability to respond to the surges in demand posed by the pandemic. Government expenditure on health decreased by 0.8 percentage points of GDP between 2009 and 2018, accompanied by a rise in private expenditure in health – particularly in the form of out-of-pocket payments. Spain's public healthcare spending is below the EU average.

## 2. Domain 1: Health System Governance

### 2.1 Governance Sustainability

Many of Spain's public services – including healthcare – were decentralised as per its post-Franco constitution of 1978. Healthcare responsibilities have been successively transferred to the 17 regional governments (*Comunidades Autónomas*) over the past two decades. Today the healthcare services provided by the regions are harmonised by the Interterritorial Council of the Spanish National Health Service (*Consejo Interterritorial del Servicio Nacional de Salud de España*; CISNS) for the purpose of cohesion and to guarantee the rights of citizens throughout Spain (Figure 1). The highest authority in the system is the Ministry of Health (MoH). However, its responsibilities are limited to the oversight of public health, pharmaceutical products, health professions and top-level coordination of the local implementation of central government health policy. Consequently, the Health Ministry of each of the regions holds significant scope over the planning, financing, purchasing and evaluation of health services at the care delivery level.

Figure 1. The structure of the Spanish health system



On a structural basis, planning is not properly delinked from the political cycle since long-term targets are not enforceable in annual budgets. On the evaluation side, the work of the regional public agencies for health technology assessment (HTA) lacks central coordination and recently the Independent Fiscal Agency (*Autoridad Independiente de Responsabilidad Fiscal*; AIREF) started carrying out regional spending reviews of the use of some medical technologies and hospital pharmaceutical expenditure in order to better support policies. Regional authorities negotiate with and pay health providers despite their relatively minor role in raising revenue. Regional contributions to the healthcare budget are limited to a surcharge on personal income tax. Funds for building up stocks and equipment capacity are not ring-fenced and come out of general central government funding.

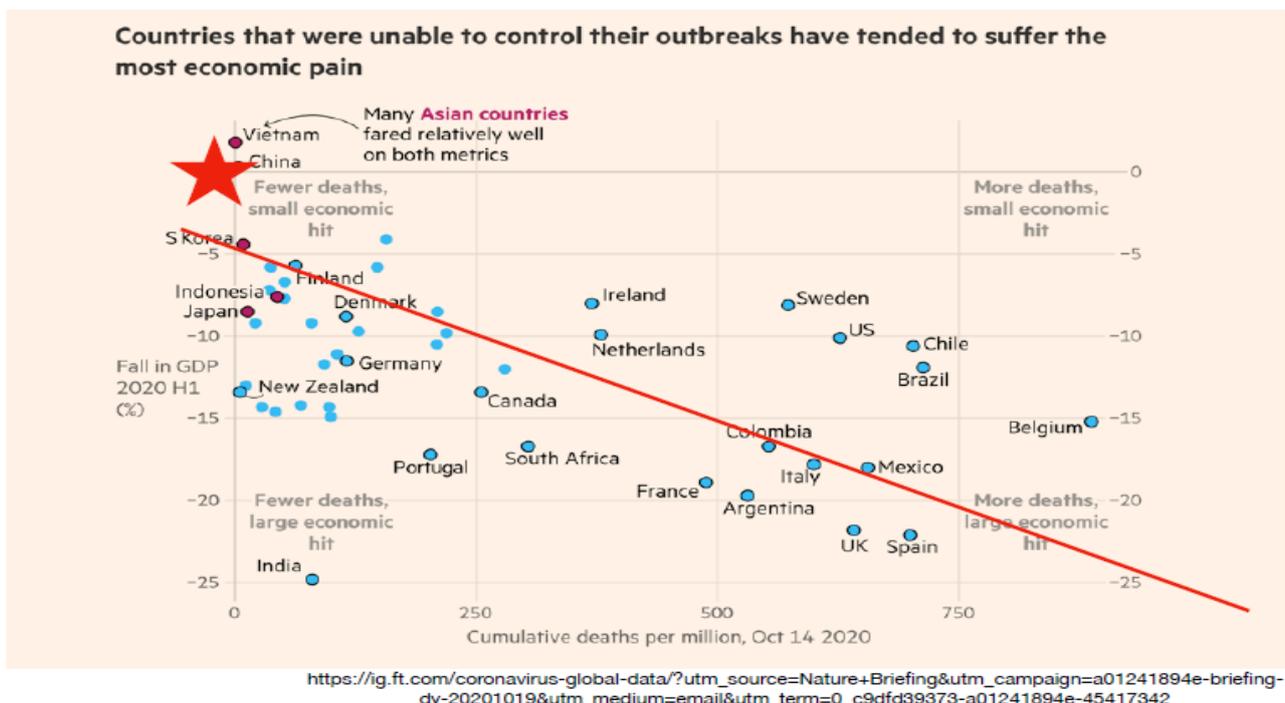
### 2.2 Governance Resilience

The pandemic has been a shock that has put the resilience of the entire health system to the test. Since the onset of the crisis, it became apparent that the system was insufficiently prepared and had a deficient chain of command. The epidemiological control system (*Red Nacional de Vigilancia Epidemiológica*; RENAVE), under

heavy initial governmental pressures, failed to identify the risks posed by the virus and raise the alarm in a timely manner. The contingency plans, when elaborated were late: once the first restrictions were imposed, the situation was already very difficult to manage. Recent evidence has highlighted the pivotal role that policies such as social distancing measures or travel bans have had on the evolution of the pandemic from its onset, underlining the importance of timely interventions [2,3]. Moreover, current work along these lines suggests that specific public events (so called ‘super-spreader events’ such as football matches or demonstrations) may have contributed to the early spread of infections [4]. Despite having the case of Italy as a close reference, the system and the government failed to contain the spread of the virus early on. As can be seen from the figures of COVID-19 cases and deaths, the management of the pandemic has been deficient – in particular during the early stages - there were many problems to mobilise resources and there was a notable lack of medical equipment. It was only when strict lockdown measures were imposed that the spread of the virus slowed.

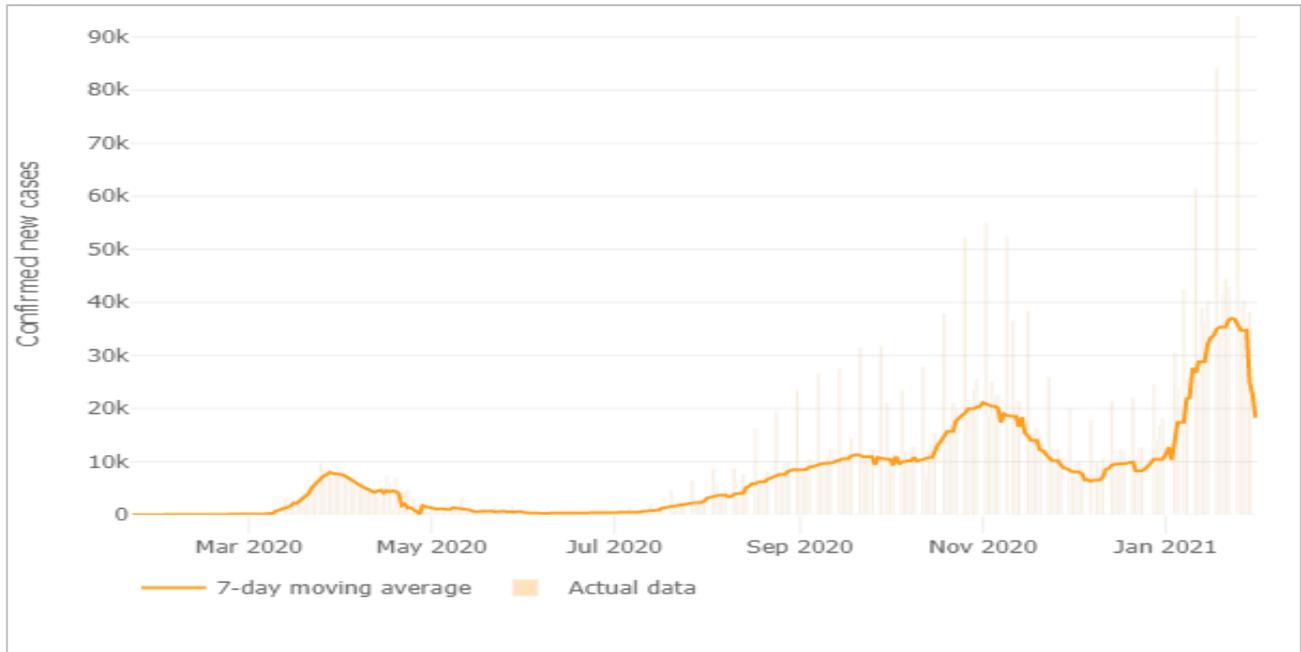
Overall, Spain suffered both relatively high numbers of COVID-19 deaths and experienced a strong contraction in its economic activity (see lower right quadrant of Figure 2).

**Figure 2. GDP loss and deaths due to COVID-19**



The Spanish response to COVID-19 has highlighted tensions between the centre and the autonomous regions. When central government declared a national state of emergency, the Ministry of Health took over most of the public health responsibilities that were previously in the hands of the regions and in some other parts of central government. Early decision-making was characterised by communication and coordination disputes between the central and the regional governments and appeared to be taken without being back up by strong scientific evidence. Throughout the first wave of the pandemic there were systematic and strong disagreements about the intensity, timing and method of applying lockdown measures [1]. For example, in the earlier months of the onset of the pandemic, some regions urged for the implementation of strict lockdown measures, prior to the central government’s decision to declare a state of emergency on March 14th, 2020. Since May 3, decisions on the severity of measures were based on information provided by regional governments to the COVID-19 Health System Response Monitor (HSRM). However, some regions were accused of delaying the relaying of information to central government, thereby jeopardising prompt decision-making. The ongoing tensions between the centre and the regions has been a key factor in undermining the effective mitigation of the COVID-19 crisis (Figure 3).

**Figure 3. Confirmed new COVID-19 cases in Spain**

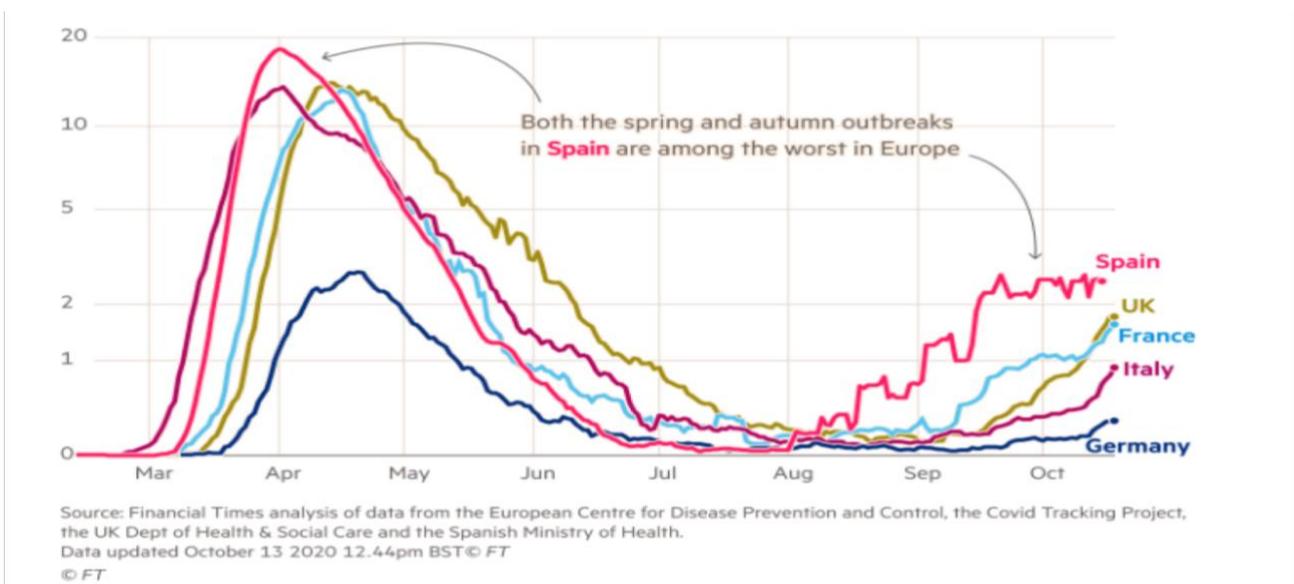


Source *Our world in Data Johns Hopkins University.*

Central government undermined the credibility of its decision-making process by not making public the members of an independent expert committee which it said was guiding its policy decisions. This lack of transparency may have diminished the population’s trust in central government decisions and provided an opportunity for regional governments to develop alternative policies which in turn further eroded credibility.

Furthermore, it appears that lessons from the first wave of the pandemic have not been learnt, as Spain has suffered among the highest death rates in Europe in both waves of the pandemic (see Figure 4).

**Figure 4. New deaths attributed to COVID-19 in the UK, Italy, Spain, France and Germany. Seven-day rolling average of new deaths (per million).**



Source: Financial Times analysis of data from the European Centre for Disease Prevention and Control, the Covid Tracking Project, the UK Dept of Health & Social Care and the Spanish Ministry of Health.  
 Data updated October 13 2020 12.44pm BST © FT  
 © FT

There is consensus among a group of public health experts, that a full-scale inquiry is needed to evaluate the government's COVID-19 response [6]. These experts call for a more science-based decision-making process and the urgent strengthening of the national public health network to tackle the pandemic. Furthermore, a cooperative form of federalism, characterised by good communication and co-ordination between the centre and the regions would strengthen Spain's governance resilience.

## 2.3 Governance Recommendations

*\*Recommendations are preliminary and are subject to consultation with and validation from local stakeholders\**

- Recommendation 1A: Spanish Health System needs to have a long-term strategy to be able to deal with current and future challenges such as those that will be posed by innovations in health technologies.
- Recommendation 1B: A move away from old-fashioned public administration regulation.

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## 3. Domain 2: Health System Financing

### 3.1 Financing Sustainability and Resilience

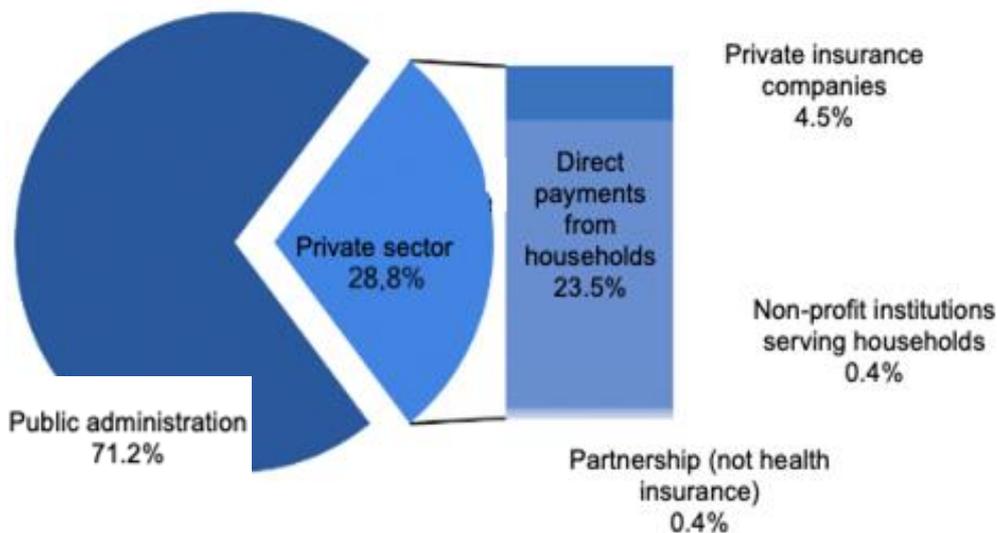
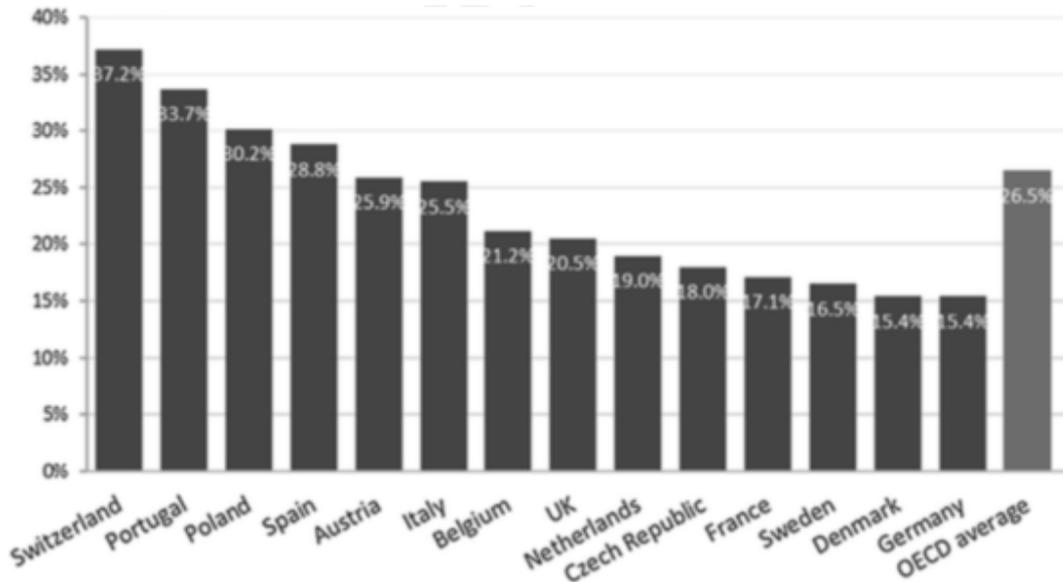
The Spanish National Health Service (SNHS) is a single fund model, which means that it is financed through general taxation. There are no earmarked taxes for healthcare. As noted in the previous domain, the SNHS is highly decentralised and a significant proportion (90%) of total expenditure is spent by the autonomous governments. Regions obtain their healthcare funds through transfers from central government based on an adjusted capitation basis. Revenues raised directly by the regions represent less than 15% of overall funding.

**Table 1: The Spanish health system financing. Evolution of the main figures.**

Spain (%)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Healthcare spending as a share of GDP	9.6	9.6	9.3	9.2	9.1	9.1	9.2	9.1	9.1	9.1	9.0
Public healthcare spending as a share of GDP	7.2	7.1	6.8	6.7	6.5	6.4	6.6	6.5	6.4	6.4	6.3
Proportion of people over the age of 65	16.6	16.8	17.1	17.4	17.7	18.2	18.5	18.7	19	19.2	19.4
Government debt as a proportion of GDP	53.3	60.5	69.9	86.3	95.8	100.7	99.3	99.2	98.6	97.4	95.5
Out-of-pocket finance as a proportion of total.	18.8	20.1	20.7	22.4	23.6	24.4	23.9	23.5	29.1	29.6	-
General rate of participation in the labour force	60.3	60.3	60.2	59.9	59.8	59.4	59	58.8	58.6	58.7	58.2

Spanish private spending as a proportion of total health spending is slightly above the OECD average (28.8% vs. 26.5%) (Figure 1). The relatively high share of private spending in overall health-care spending in Spain is mostly due to out-of-pocket spending on drug co-payments and private health insurance premiums.

**Figure 1. Top: Proportion of private spending as a percentage total health-care spending. Bottom: Total health expenditure according to financing agent. Percentage distribution.**



Sources: Top: OECD 2019; Bottom: Ministry of Health, Consumption and Welfare. Health account system, 2016. \* "Partnership" only includes capital expenditure.

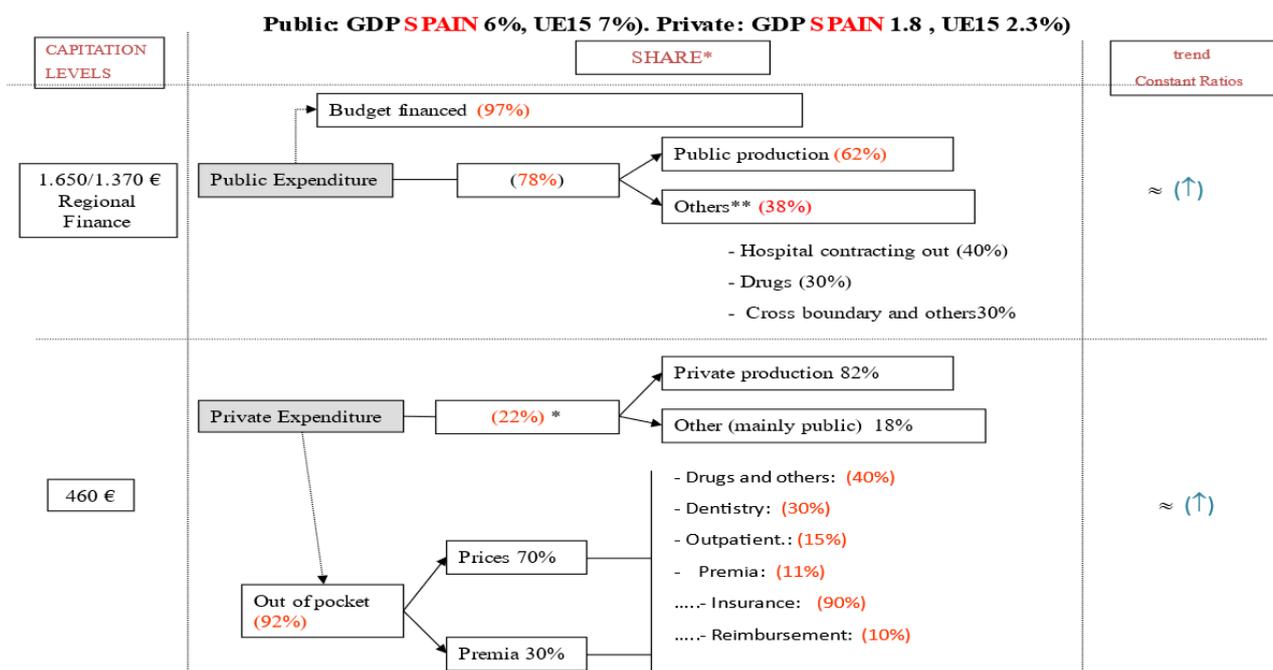
This financing scheme has some clear implications for the sustainability and resilience of the healthcare system. On the one hand it could be beneficial for financing resilience by allowing central government to adjust public expenditure on health in response to changing circumstances. For example, regional health care budgets for 2021 have increased by up to 22% year-on-year (depending on the region) in addition to the equivalent of 5% of GDP in economic support. On the other hand, the Spanish model of regional decentralisation could generate imbalances in the sustainability and the stability of the system due to the imperfect match between regional health care expenditure needs, as estimated by the autonomous governments, and the financial capacity of the centre to raise those revenues. There is evidence that the financial design is susceptible to the influence of political cycles and subject to a certain degree of political discretion.

The demographics of an ageing population will be a further challenge to financing sustainability. According to the World Health Organisation (WHO) Study on Global Ageing and Adult Health [3], by 2050 Spain will be one of countries with the highest percentage of elderly population worldwide.

Apart from the Ministry of Health, the Independent Fiscal Agency (*Autoridad Independiente de Responsabilidad Fiscal*; AIREF) assesses the financial health of the Spanish NHS. However, there is a need for an independent institution (similar to the UK’s National Institute for Health Care Excellence, NICE) to perform cost-effectiveness analyses on new treatments, technologies, and pharmaceutical drugs to ensure limited resources are used to maximum effect.

Sustainability in health financing is limited by the absence of tools to measure and incentivise efficiency and productivity in the health sector. For example, there is currently no formal reporting, publication and evaluation of health system performance and outcome measures. Few of the regions have outcomes and evaluation observatories. The National Institute of Health Information - a small unit inside the Ministry of Finance - is limited to consolidating rough and descriptive data provided by the regions with several years of delay. Quality is not measured and evaluated systematically across the Spanish health system. Health professionals are salaried civil servants not subject to pay-for-performance incentives. Hospitals are under global budget constraints and lack quality and other performance incentives.

Figure 2. The Spanish health care system



Source: G Lopez Casanovas, 2019. 1.5% additional at the State level once considered Public “Mutualidades” as private production under public finance.

## 3.2 Financing Recommendations

*\*Recommendations are preliminary and are subject to consultation with and validation from local stakeholders\**

- Recommendation 2A: Explore a larger degree of financial autonomy in terms of reallocating, complementing and injecting extra funds into the system at the regional and at the institutional level and improve efficiency in health care expenditure by creating a closer link between spending and fiscal responsibilities.
- Recommendation 2B: Establish an organisation, similar to NICE, to ensure limited resources are spent in the most cost-effective manner.
- Recommendation 2C: Reduce political influence in the day-to-day management of public health expenditure and link forecasted needs from public health perspectives to focus on supporting the most vulnerable social groups.

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## 4. Domain 3: Workforce

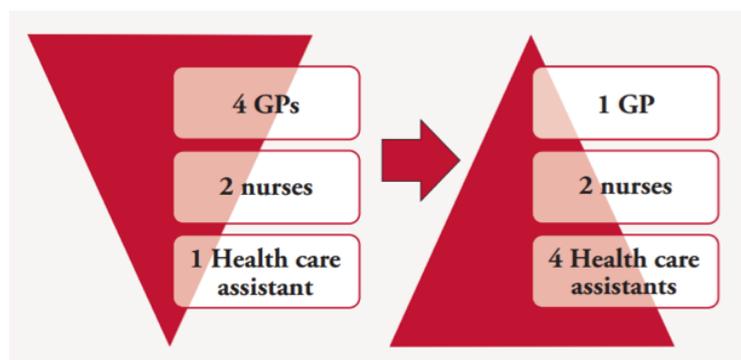
### 4.1 Workforce sustainability

In comparative terms, the global figures for health professional staffing levels in Spain are similar to the OECD-36 countries' average [2], with the number of doctors slightly above this average (3.9 per 1,000 inhabitants compared to 3.5) and that of nursing professionals below (5.7 compared to 8.8), although the latter may be due to discrepancies in the reporting of nursing professionals such as clinical assistants. In both cases, figures have increased over the past 20 years. Salary conditions are not always competitive (2,1 times the average wage, for general practitioners, below the average of other EU-15 countries) and are often based on temporary contracts, given the reluctance to fill positions with civil servants. These conditions may be related to very low job satisfaction levels observed even before the onset of the COVID-19 pandemic and incentives for local professionals to migrate to other European countries. Between 2018 and 2019, a notable increase (16%) was observed in doctors (mainly GPs, anaesthetists, and paediatricians) requesting “certificates of suitability” from the Spanish Royal College of Physicians which enables them to practice abroad [3] Not all professionals who request these certificates actually emigrate, but it provides a rough indicator for “intention to emigrate”. The main destinations for these professionals are the UK and France [4]. Foreign professionals (often Latin Americans) are taking up the opportunity to practice in Spain. This situation means that the returns on medical education are partly exported, potentially undermining workforce sustainability.

Sustainability in the workforce domain is further hindered by an overall mismatch between the types of medical graduates emerging from universities and placements needed (there is a particular shortage of family doctors); the high degree of compatibility between public and private practice (creating incentives to go into private practice); relatively low pay in the public sector (creating incentives to moonlight in the private sector to increase take-home salaries), and finally, low ‘productivity’ in terms of health care activity [5]. Doctors are paid a fixed salary, not commensurate with performance (i.e. quality of care).

The Spanish health system, which provides publicly financed universal health coverage that is free at the point of access, is characterised by the leading role of primary care and the central role of the GP as “gatekeeper”. There is an incipient movement in the healthcare management sector that advocates making the most of the potential value-added of each type of professional (seeking their “top of the license” productivity) [6,7]. For example, the Toblerone Model, popularised by the British think tank The Nuffield Trust, proposes inverting professional ratios giving prominence to health care assistants, a role already extended in countries like the United Kingdom (Figure 1). However, professional corporatism in the Spanish health care system is very pervasive across professions: doctors are reluctant to delegate functions to nurses (for example pharmaceutical prescriptions); and nurses in turn do not want community pharmacists to take on vaccination, and other simple health maintenance activities. There is a need for a fundamental review of professional roles.

**Figure 1. The Toblerone model. Inverting the professionals’ ratios.**



The low recognition of work in primary care is leading to a growing number of annual vacancies for doctor's residency training places (*Médico Interno Residente* MIR) for the specialty of family practice as well as geriatrics and public health. Mirroring this, there are rural areas that are underserved by family doctors. This highlights the need for more effective long-term workforce planning [8]. There may also be scope for fast-tracking the validation process of foreign-trained medical professionals to speed up their incorporation into the Spanish workforce (there is currently a four-to-five-year lag for non-EU medical doctors to get approval to practice in Spain). Spain also suffers the consequences of an obsolete and bureaucratic model of staff recruitment and contracting processes [4] and the absence of clear career paths. Viewed together, the current workforce regulation and management practices together with relatively low remuneration has led to low job satisfaction levels and insufficient productivity.

## 4.2 Workforce resilience

The COVID-19 pandemic has put into sharp relief many of the underlying weaknesses of the health system and the decisive action of a majority of health professionals has been key to weathering the crisis. Workforce in intensive care units (ICU) increased by 50%, as did the number of ICU beds (from seven to 11% of the existing bed facilities) [9]. Workforce in the public sector was increased through the early incorporation of last-year medical students and the reincorporation of recent retirees. Despite this resilient capacity building, the impact of the pandemic on human resources, has been very significant, affecting the physical and mental well-being of healthcare professionals. 35.3% of Spanish doctors declared themselves dissatisfied with their working conditions with weekly hours having increased by an average of 6.4 hours [9] during the first wave. As of December 2020, 118,000 health professionals had caught the virus whilst exercising their job, and the number of frontline staff reporting mental health issues has increased notably. During the first wave of the pandemic society's appreciation of the heroic work done by frontline staff was shown by daily "clapping for carers" and health professionals were awarded a one-off financial bonus in some regions.

## 4.3 Workforce Recommendations

*\*Recommendations are preliminary and are subject to consultation with and validation from local stakeholders\**

- Recommendation 3A: It is essential to make public health and primary care roles financially more attractive to attract the best professionals.

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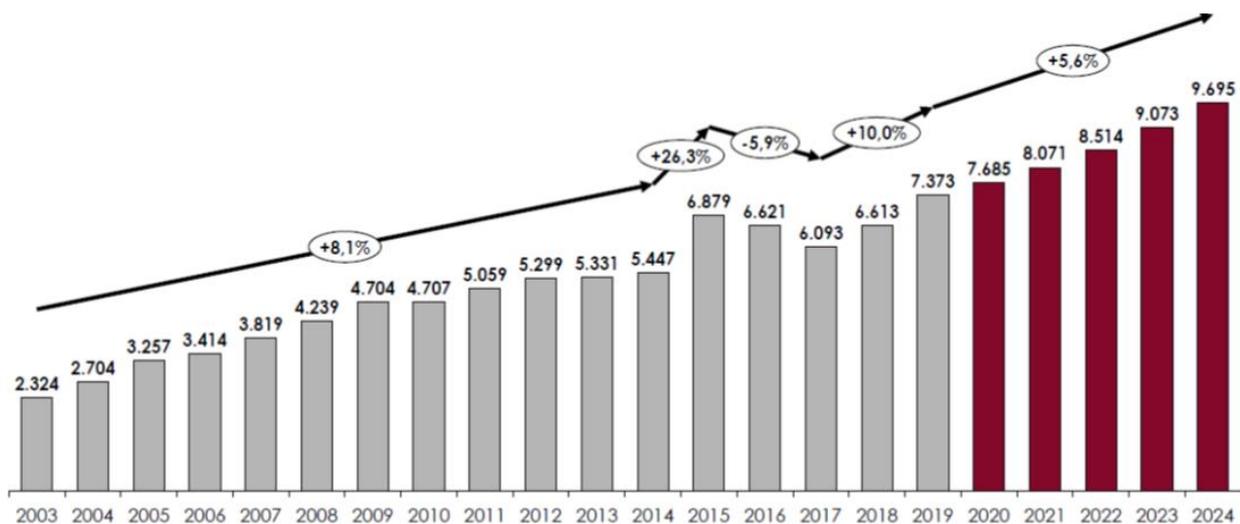
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## 5. Domain 4: Medicines and Technology

### 5.1 Medicines and Technology Sustainability

There are significant delays in the adoption of new drugs in Spain, which may undermine sustainability. Evidence shows that it takes between three and four years between a novel drug being approved by the European Medicines Agency (EMA) and it being prescribed by a Spanish doctor. The process involves multiple actors from the supranational to the regional level [10]. In general, the European Medicines Agency (EMA) oversees the drug authorisation. The Spanish Agency of Medicines and Medical Devices (*Agencia Española de Medicamentos y Productos Sanitarios*, AEMPS) is responsible for the evaluation of medicines including issuing therapeutic position reports (*informes de posicionamiento terapéutico*, IPTs). IPT were introduced in 2013 and are essentially “clinical HTAs” produced by AEMPS that aim to position the novel drug in relation to what constitutes current standard care for the same indication to inform pricing and reimbursement decisions [14]. IPTs include little consideration of costs [15]. Thirdly, the Interministerial Commission on Drug Prices (*Comisión Interministerial de Precios de los Medicamentos*, CIMP) is responsible for making final pricing and reimbursement decisions. The CIMP includes representatives from the Ministry of Health, Industry, Economic and Finance, plus members from three of the regions on a rotating basis [15]. Lastly, regional agencies are responsible for defining policies on purchasing, prescriptions, recommendations given potential impacts on budgets, and evaluating and monitoring health outcomes for risk sharing agreements. Regional administrations play minor roles on committees tasked with the economic evaluation of drugs and pricing decisions despite paying the bill. Hospital pharmaceutical committees, in isolation or as part of a network, have a major role in hospital pharmacy dispensing drugs. These are the most expensive drugs, which are automatically reimbursed unless specifically excluded from reimbursement (in primary care the opposite rule applies: what is not explicitly white-listed is not reimbursed). Prices for these drugs are not transparent since at the hospital level they benefit from rebates and cross subsidization among drugs and even across technical equipment. Hospital pharmaceutical expenditure has been on the rise (see Figure 1). Regional authorities and hospitals have the discretion to conduct further HTAs.

Figure 1. Hospital prescribed drugs: expenditure evolution



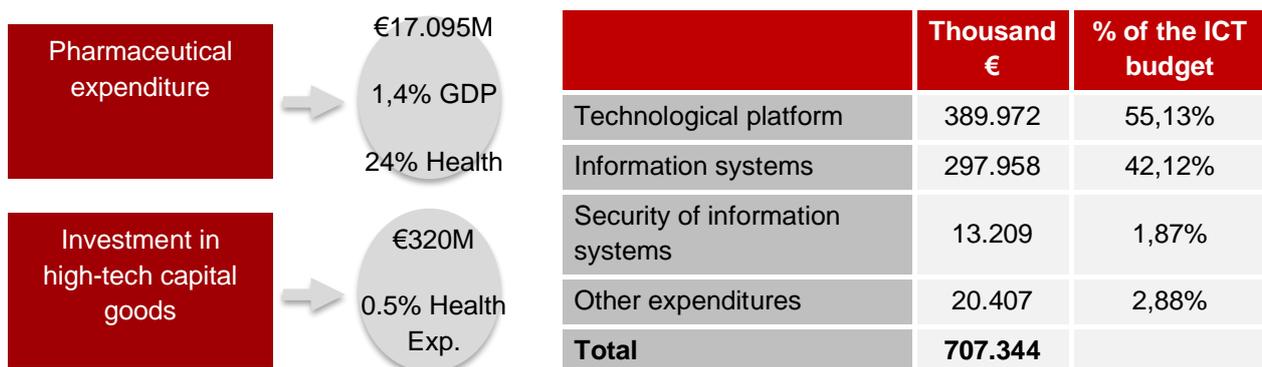
Source: AIReF Spending Review: Expenditure of the National Health System in Hospital Pharmacy and investments in high-tech equipment. Continuous increase in the period 2003-2019. Growth forecast for the years 2020-2024

The Spanish Network of Agencies for Assessing National Health System Technologies (*Red Española de Agencias de Evaluación de Tecnologías Sanitarias y Prestaciones del Sistema Nacional de Salud, REDETS*), which includes all regional health technology assessment agencies, has the mission to inform policy decisions and making recommendations for the de-adoption of low-value or obsolete medicines and technologies. However, this organisation lacks enforceable decision-making power.

Due to its regional approach to undertaking HTAs, Spain has been found to generate a greater number of HTA reports than the UK's centralised NICE, but that there was duplication of effort in Spain, which may reduce efficiency and speed of adoption. [11] Moreover, evaluations in Spain only address clinical effectiveness as opposed to cost-effectiveness, or just provide a summary of the resulting costs but decision criteria are not explicit and transparent. The HTA recommendations were not found to impact on drug usage in a systematic way. Other factors probably include physicians' own views on the effectiveness and cost-effectiveness of the various medicines and the availability of other medicines for the same patient group. [11] Some authors have estimated an implicit cut-off per QALY threshold in Spain of around €25,000 with a range between €10,000 and €30,000 [12].

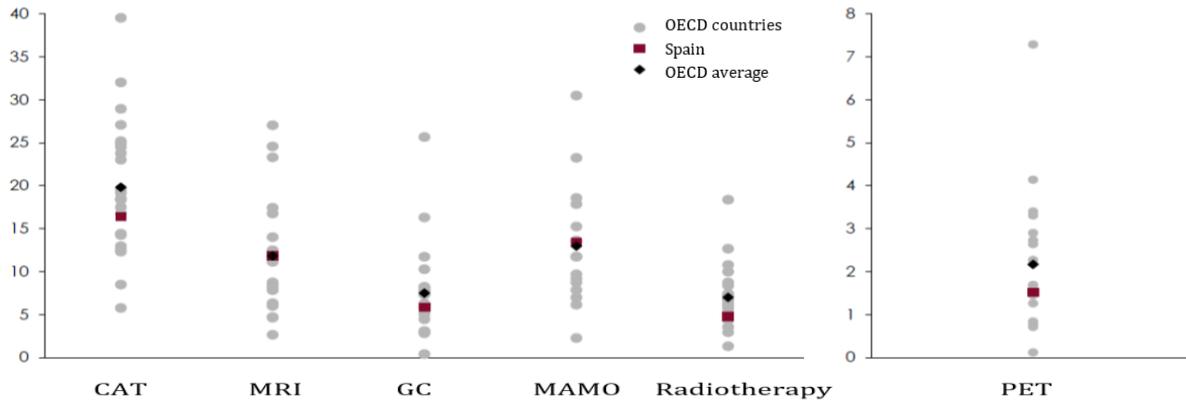
By comparing the case of Spain and England in examining the consumption in both countries before a positive recommendation being released, the authors find that there was almost three times more consumption in Spain than in England, which on the one hand shows that recommendations have more effect in England, but, on the other hand, implies that patients in England were more likely to be denied early access to therapies that were eventually shown to be cost-effective. It is not clear which situation is 'better' than the other. If one believes that the utilisation of drugs should be driven by the evidence of clinical and cost-effectiveness, the situation in England is to be preferred. If, on the other hand, one believes that patients should have access to promising new therapies unless these are shown not to be clinical or cost effective, the situation in Spain is to be preferred. The reverse situation is observed for the consumption of medicines before negative recommendations. Although in both countries, there is usage of drugs that are eventually shown not to be cost-effective, the usage prior to negative recommendations was lower in Spain. The impact of negative recommendations in England, where they are mandatory for the NHS, appeared to be stronger than that in Spain [11].

**Figure 2. Medicines and technology. Breakdown of ICT health expenditure, 2019. Basic figures for Spain, 2019.**



Source: SEIS 2019 Report. The health expenditure is calculated independently, it does not add to the other expenses. It is included in the above expenses.

**Figure 3. Capital equipment for some selected technologies number of high-tech hospital equipment per million inhabitants in OECD countries, 2017**



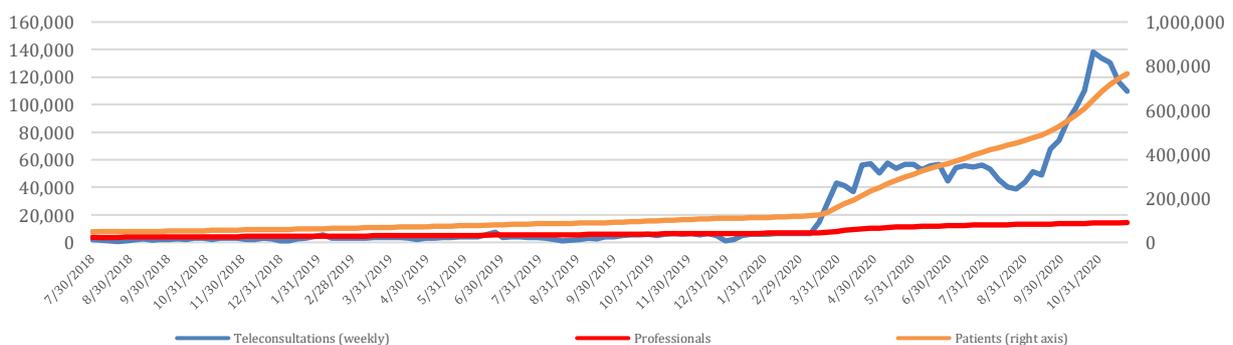
Source: Idem. CAT: Computed Axial Tomography, MRI: Magnetic Resonance Imaging, GC: Gamma Cameras, MAMO: Mammograph, PET: Positron Emission Tomography

Spain's sustainability in this domain is undermined by the relative age of its medical equipment stock. A lack of capital investment over the last decade has translated into Spain having one of the oldest medical equipment stocks in Europe.

### Digital health and sustainability in Spain

To understand the mechanisms for the adoption of digital technologies in Spain, it is necessary to take into account their payment scheme. The Spanish healthcare system has regional-specific and complex purchase and payment models which do not depend on whether the provision is carried out with or without digital health tools: the contractor offers an implicit incentive to providers to deliver a service in the way each considers appropriate. Furthermore, autonomous regions' health ministries have made large systemic investments with high fixed costs that providers could not have borne individually such as the shared medical record, the interoperability infrastructure, the personal health folder and other clinical management systems. In this context, the use of digital health tools has increased steadily, but accelerated exponentially since the onset of the COVID-19 pandemic (Figure 4). Notwithstanding this, overall usage remains low [7,8].

**Figure 4. Weekly telemedicine usage. July 2018 – October 2020, Catalonia**



Source: SISAP (Catalan Ministry of Health). Type of telemedicine: Bidirectional citizen to primary care teleconsultation.

So-called "digital health" tools or telemedicine have been shown to be effective, for example, in avoiding face-to-face visits and to save users and professionals traveling to access treatment [8,9] and have been particularly effective during the pandemic. On the other hand, the evaluation of public policies relies on the existence of timely information derived from digitalisation. Such information allows for the systematic analysis of how resources are used in order to maximise efficiency, effectiveness and the quality of care provided by the system. Spain currently lacks a clear national strategy to develop and capture the opportunities provided by big data and manage its risks (such as issues related to data ownership, privacy and ethics). Insights derived from these analyses would then need to be taken up by policy-makers to translate into changes in real practice.

## 5.2 Medicines and Technology Resilience

In 2003, a working group created by the General Directorate of Public Health of the Ministry of Health drew up an "action plan against a possible influenza pandemic". New World Health Organisation (WHO) guidelines, as well as epidemiological events that took place at the beginning of 2004 including the spread of Avian influenza and Severe Acute Respiratory Syndrome (SARS), motivated the revision of this existing plan and resulted in the "National Plan for Preparedness and Response to a Flu Pandemic" published in 2005 [13]. At the time, those responsible for Public Health facilitated the stocking of essential medications (corticosteroids, antipyretics) and materials (masks) in a warehouse at the disposal of the Ministry of Health, a measure later criticised for excessive prudence, as none of these stocks were ever used. After more than a decade of generous stockpiles that were never used, Spain faced significant shortages of COVID-related drugs and equipment, as well as severe shortages of personal protective equipment (PPE) and ventilators during the first two months of the pandemic (March and April 2020). A centralised national plan to purchase this equipment failed and regions and individual hospitals resorted to buying this equipment directly on the international market. Following initial shortages of essential drugs to treat COVID-19 patients including drugs used for sedation and for airway dilation (midazolam, propofol), rapid efforts from the pharmaceutical manufacturing industry solved these shortfalls.

In mid-2020, in the context of the ongoing COVID-19 pandemic, the National Institute of Health Management (*Instituto Nacional de Gestión Sanitaria*, INGESA) promoted a strategic reserve of material worth €3 billion including medicines and medical equipment such as ventilators. This large-scale contract demonstrates the high societal concern about the continued impact of COVID-19 on the health of the Spanish population and attempts to make the system more resilient against future respiratory pandemics.

## 5.3 Recommendations

*\*Recommendations are preliminary and are subject to consultation with and validation from local stakeholders\**

- Recommendation 4A: A strengthened central Health Technology Agency able to make binding economic evaluations should be established to increase sustainability.
- Recommendation 4B: The impact of the sharp increase in the use of telemedicine on patient outcome and satisfaction should be analysed.

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## 6. Domain 5: Service Delivery

### 6.1 Service delivery sustainability

Service delivery sustainability is underpinned by clear clinical pathways providing individual patients with the care they need in a coordinated and integrated manner. The evolution of the Spanish healthcare system has been marked by a profound universalist vocation which was formally enshrined in law in the 1986 General Law of Health (*Ley General de Sanidad*) [1]. Existing empirical evidence suggests that the Spanish healthcare system has since then maintained relatively high levels of efficiency and acceptable levels of regional equity compared to other European countries [2]. Such attributes are based in principle on the effective organisation of resources such as the central role of general practitioners as gatekeepers, among others. However, the link between primary care physicians and specialised care is still weak, negatively impacting the continuity and co-ordination of care. Most reputational gains, even for trained doctors, are to be had in hospital settings and hospital care has attracted the lion share of health budgets making the system overly hospital-centric. Coordination between primary and tertiary care is not well developed, except in some minor innovative pilots –such as territorially integrated care pilots in Catalonia. Integration with long term social care is extremely limited. Disparate information systems reflect this lack of integration.

### 6.2 Service Delivery Resilience

The lack of interoperability of information systems within and between autonomous regions hampers the efficient delivery of longitudinal and preventive care even in times of relative calm. This incompatibility exacerbated the effects of the pandemic on the health system as it prevented quick decisions to be taken to respond to the unprecedented challenges posed by COVID-19. For example, the lack of integrated information systems prevented unified decisions to be made regarding medical supply stocks, budget transfers, covering shortages among different regions of the country and adjusting the skill mix in line with rapidly changing needs.

The extent to which the pandemic has led to significant disruption to routine care in terms of deferred diagnostic services, delayed or cancelled surgery or other interventions remains to be pinned down by future research. Remote consultations and telemedicine were able to make up for reduced face-to-face consultations, however the effect on patients – particularly the elderly – is unclear. The rescheduling of elective care will have a direct impact on future waiting times.

### 6.3 Recommendations

*\*Recommendations are preliminary and are subject to consultation with and validation from local stakeholders\**

- Recommendation 5A: Robust information systems are needed to harness the potential for evidence-based yardstick competition between providers.
- Recommendation 5B: Improving service delivery and increasing epidemiological intelligence will need to rely on the better availability of data to construct evidence-based strategies.
- Recommendation 5C: The Spanish Health Systems needs to provide a better link between targets coming from public health, population based and on health outcomes, and the outputs of the health care industry (mostly activity based).

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