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systems: evidence from Spain**

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Abstract

Increasing health care expenditures is a matter of concern in many countries, particularly in relation to the underlying drivers of such escalation which include ageing, medical innovation, and changes in the burden of disease e.g. prevalence of chronic diseases. Most health care systems in developed countries have been designed to ‘cure’ acute episodes, rather than to ‘manage’ chronic conditions, and thereby they are not adequately and efficiently organized to respond to the changing needs and preferences of consumers. New models of chronic care provision have been developed to respond to the changing burden of disease and there are already practical experiences in different countries showing their advantages but also the difficulties in their implementation. In this paper, we focus on the Spanish experience in terms of policy changes and pilot studies directed at testing the viability of transiting towards chronic care models. In particular, we utilize a framework that identifies and analyses the 10 key pre-conditions of high performing chronic-care based healthcare systems and apply it to the current Spanish NHS. We find that the design of the Spanish National Health System already meets some of those pre-conditions. However, other features are still in their early stages of development or being applied in restricted geographical and clinical contexts. We propose a pathway to walk the crucial challenge of the transition towards an optimal health system focused on chronic care. Given the current evidence and trends, we expect that the pathway for developing a chronicity strategy for the Spanish NHS will significantly transform its current healthcare delivery model in the next few years.

Keywords: health system, Spain, integrated care, health management, chronic care

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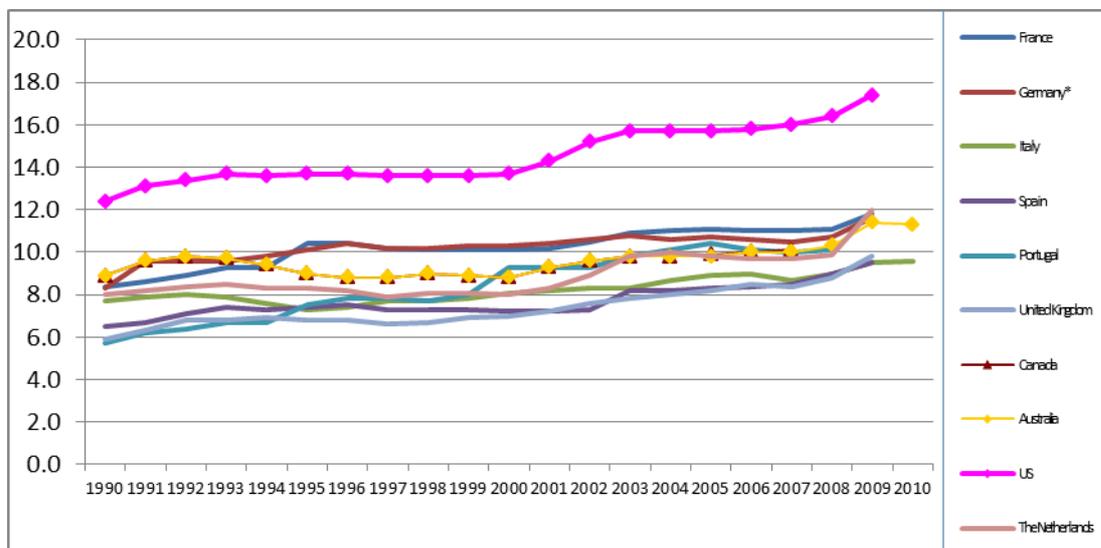
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1 Introduction

Increasing healthcare expenditures is a matter of concern in many countries, as in the last two decades, the proportion of GDP devoted to health has increased to about 40% (from 6.5% in 1990 to 9.5% in 2009 in Spain or from 12.4% to 17.4% in the US, for example) (see Figure 1). This increasing trend is expected to continue in the following decades because of the underlying drivers of such escalation (Newhouse, 1992) which include the rising cost of medical innovation (Barbash and Glied, 2010), the ageing of the world population, and specifically, changes in the burden of disease evidenced by the prevalence of chronic diseases (Mathers and Loncar, 2006; Samb et al., 2010).

Figure 1. Trends in health expenditure as a share (%) of GDP in country and selected countries, 1990 to latest available year



Source: OECD Health Data, 2011; *WHO Health for All database, 2011

In this context, it is notable that the majority of health systems in the world continue to be mainly organized around an acute, reactive and episodic model of care that no longer meets the needs and preferences of patients with chronic conditions and multiple pathologies, or

individuals at risk of developing these (Jadad et al., 2010). The traditional approach to healthcare is based on a concept of illnesses with abrupt onset and limited duration, which can be usually cured by health professionals. Chronic conditions however do not fit with this concept. Among other characteristics, their appearance is usually gradual, their development progressive and their management is complex. As a consequence, chronic patients have to cope with their condition and its effects, which often have a significant impact on their quality of life over a long period of time. Such patients therefore have experience and knowledge on their condition complementary to that of health professionals, a factor which current health systems often neglect. Therefore, a redesign of health care systems towards an integrated care model with a focus on chronic-disease management seems to be a promising direction to increase the responsiveness to consumers' needs and preferences and thereby increase efficiency (Margolius and Bodenheimer, 2010). This challenge is emphasized by the fact that under the suboptimal model of provision, there is a significant cost associated with the provision of healthcare to chronic patients: 78% of health expenditures in the US (Vogeli et al., 2007) and 70% in Spain (Bengoa, 2008).

New models of chronic care provision have been developed to respond to the changing burden of disease. The more outstanding examples are the Chronic Care Model (Wagner et al., 1996) and the Kaiser Permanente's Pyramid model, which are aimed at the reduction in exponential increase in costs associated with chronic diseases, by shifting health services towards coordinated and proactive community-based interventions (Jadad et al, 2010). Besides those practical applications, the literature has devoted efforts to develop an optimal model of healthcare provision oriented to chronic patients. Thus, Ham (2010) presents a framework that identifies and analyses the 10 key pre-conditions for a population-based model of healthcare system. In this set up, primary care is the cornerstone to the provision of high performing integrated chronic-care based healthcare systems. We adopt Ham's framework and apply it to the current decentralized Spanish NHS, specifying in which stage of development it is.

As with other countries, Spain has undertaken different practical experiences to respond to the changing burden of disease. We detail what we have learned from those experiences consisting of policy change through new regulation and pilot studies, in terms of the advantages but also the difficulties shown in their implementation transiting towards chronic care models and in order to hold the 10 key pre-conditions in the model. Given the current

situation of the Spanish NHS, we analyze an optimal pathway to walk the crucial challenge of the transition towards an optimal health system based on chronic care.

The paper is organized as follows. Section 2 outlines the challenges of chronicity and polypathology with the change in the burden of disease, focusing on Spain, and also presents the chronic care models pinpointed by the literature. Section 3 describes the optimal framework proposed by Ham (2010). Section 4 introduces the Spanish National Health System. Section 5 presents the different experiences in Spain in managing chronic diseases in terms of the model, and proposes the pathways towards the implementation of the optimal healthcare system for the population suffering chronic illnesses. Finally, Section 6 concludes.

2 The challenges of chronicity and polypathology and chronic care models

2.1 Chronicity and polypathology

Chronic conditions have a multiple impact on individuals, health systems and societies as a whole. They represent a restraint on quality of life, functional status and productivity of people who suffer from them (Canadian Ministry of Health and Long-Term Care, 2007). They are the main burden of disease and mortality in most countries of the world and they compromise the sustainability of health systems.

The prevalence of chronic conditions increases with age, along with the prevalence of polypathology (Boyd and Fortin, 2010). The increasing numbers of people living with multiple chronic conditions or polypathological patients, many of them complex, represent another additional challenge for health systems.

It has been estimated (Mathers and Loncar, 2006; Samb et al., 2010) that before 2030 chronic diseases will account for 70% of the global disease burden and will be responsible for 80% of deaths across the world. Even in developing countries, noncommunicable diseases (NCDs), in particular, will represent 65% of the disease burden, with 80% of global deaths due to this type of disease occurring in low- and middle-income countries. The typical patient has changed, and now it is very common that a patient suffering from two or three chronic conditions will live longer (Jadad et al., 2010). On the one hand, better technology allows for earlier diagnosis of different conditions. Evidence of this is the evolution of new cases

(estimated) of cancer found in the US, which increased from 2005 to 2011 (American Cancer Society, 2005; 2011). On the other hand, better treatments improve quality of life and reduce mortality related to cancer, evidenced by a constant number of estimated deaths even with a higher number of patients, which has also occurred in the US between 2005 and 2011 (see American Cancer Society, 2005; 2011). As a consequence, every year there is an increasing number of patients with cancer.

A similar evolution is observed if we look at two of the other most common chronic conditions - diabetes mellitus and the categorized pandemic of obesity (WHO 2000, 2003, 2006) – which are related. In particular, the World Health Organization estimates that the number of patients with diabetes will double from 2005 to 2030. Thus, for example in the US, the prevalence of diabetes is expected to almost double from 2005 to 2030 (WHO, 2006). The same trend is observed in Europe, Canada or Australia (see Table 1). Thorpe and Howard (2006) also show evidence on the increase of prevalence of different chronic conditions in the US from 1987 to 2002 such as cancer, mental disorders, diabetes and pulmonary disorders and Anderson and Horvath (2002) predict that the number of individuals with poly pathology will increase dramatically in the coming years.

Table 1: Prevalence of diabetes in the WHO European Region (in thousands)

Country	2000	2030
Austria	239	366
Belgium	317	461
Denmark	157	232
Finland	157	239
France	1,71	2,645
Germany	2,627	3,771
Greece	853	1,077
Ireland	86	157
Italy	4,252	5,374
Netherlands	426	720
Norway	130	207
Portugal	662	882

Spain	2,717	3,752
Sweden	292	404
Switzerland	219	336
United Kingdom	1,765	2,668
Canada	2,006	3,543
United States of America	17,702	30,312
Australia	941	1,673

Source: World Health Organization. Diabetes Program. Available at:
http://www.who.int/diabetes/facts/world_figures/en/index.html.

With an ageing population, Spain follows the international trend on the increase of chronic patients. 15 million people suffer chronic illnesses in Spain, representing 70% of healthcare expenditure. As seen in Table 1, Spain presented a higher prevalence in diabetes compared to other European countries in 2005 and predictions show that in 2030, this figure will increase substantially. Table 2 shows the importance of some indicators related to chronic conditions in Spain. This is the case for CHF admission rates compared to COPD admission rates in Spain. If these rates are compared to the OECD average, it is possible to see that Spain is below the average, except for the case of colorectal cancer mortality rate, diabetes lower extremity amputation rates, in-hospital fatality rates of acute myocardial infarction and ischaemic stroke.

Table 2: Chronic conditions rates in Spain compared to OECD average

	SNS	OECD*
Colorectal cancer mortality rate	19.2	19.0
Breast cancer mortality rate	16.7	20.8
Asthma admission rates aged 15 and over	44.0	51.0
COPD admission rates	139.0	201.0
Diabetes lower extremity amputation rates	26.0	15.0
Diabetes acute complications admission rates	18.0	21.0
CHF admission rates aged 15 and over	234.0	234.0

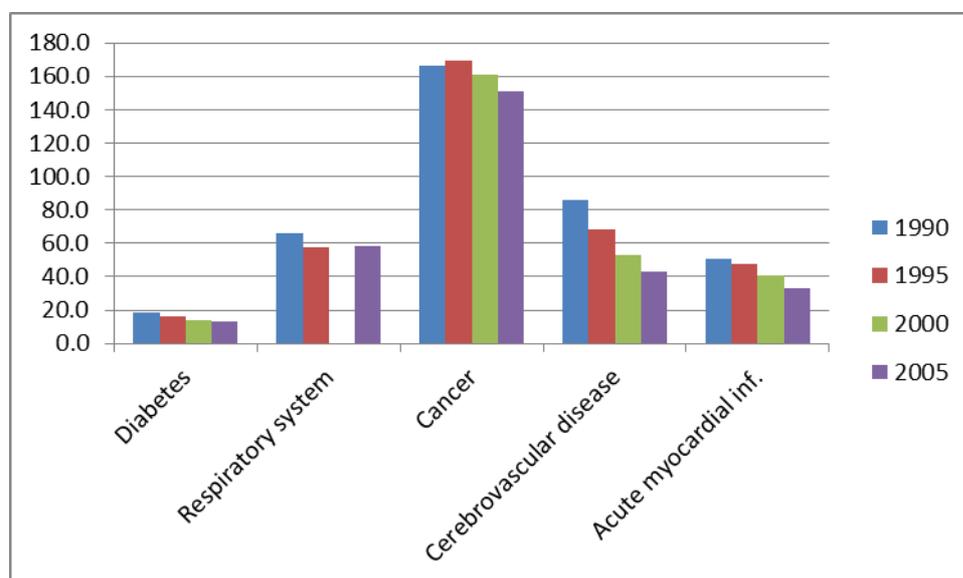
Hypertension admission rates aged 15 and over	13.0	84.0
In-hospital fatality rates acute myocardial infarction	6.1	4.9
In-hospital fatality rates ischaemic stroke	6.5	5.0
In-hospital fatality rates haemorrhagic stroke	24.2	19.8
Mental health Unplanned schizophrenia readmissions	10.9	18.1
Unplanned bipolar disorder re-admissions	11.1	16.8

Source: based on García-Armesto et al (2010)

Note: *OECD Health Data, 2009

However, mortality rates across time, as shown in Figure 2, reveal a decrease in mortality rates related with chronic illnesses in Spain, such as diabetes, respiratory chronic illnesses, cancer, cerebrovascular diseases and acute myocardial infarction (OECD Health Data, 2009).

Figure 2: Causes of mortality in Spain. Deaths per 100000 population (standardized rates)



Source: OECD Health Data, 2009

Chronicity is emerging as a new concept that provides a better framework for understanding the implications of chronic health conditions and polypathology for the affected persons, their

families and caregivers, and for health systems and societies (Allotey et al., 2011). At the micro level, this concept represents a focus on persons living with chronic conditions and their health and social needs encouraging person-centered care in which self-management responsibilities cannot be avoided. At the macro level, and in a context of health systems mainly organized around an acute, reactive and episodic model of care, chronicity urges the need to redesign healthcare delivery.

As most provision of healthcare and most healthcare expenditures nowadays is oriented to chronic patients and more specifically to polypathological chronic patients, it is needed to orientate and integrate health systems in such a way that provision to this type of patient is efficient.

As noted above, most chronic patients suffer from more than one chronic condition, which implies a progressive decline in the patient's health status, and a gradual reduction of his/her autonomy and functional capacity. As a consequence, these patients increase their demand for attention from different health services (primary healthcare, specialized care or welfare) making it difficult to predict their needs and schedule of treatment without taking into account their conditions (Spanish Ministry of Health, Social Policy and Equality, 2009).

2.2. The Chronic Care models

There are two outstanding international reference models for care of chronic patients. The first one is the Chronic Care Model developed by Ed Wagner and associates at the MacColl Institute for Healthcare Innovation in Seattle, USA (Wagner et al., 1996). The second is the Kaiser Permanente's Pyramid model, USA. They both share a common objective: reducing the exponential increase in costs associated with chronic diseases by shifting health services towards coordinated and proactive community-based interventions (Jadad et al, 2010).

The Chronic Care Model (CCM) is aimed to obtain high quality care, high levels of satisfaction and improved outcomes through productive interactions between active and informed patients and prepared and proactive practice teams. All of these belong in a context characterized by the interaction of three overlapping areas: the community, the health system and clinical practice.

The model identifies six essential elements that interact among themselves and are key to achieving optimum care for chronic patients and for guiding evidence-based change. These are: delivery system redesign, patient self-management support, decision support, clinical information systems, community linkages, and health system organization. The Chronic Care Model (CCM) emphasizes the importance of rethinking and redesigning clinical practice at the primary level. One of the most important features of the suggested implementation of this model is the integration of care under the six essential elements, in opposition to the traditional fragmented care with clear separation between primary care and specialist care that we observe in current health systems. The second is the need to intervene under a structured and simultaneous action in the six elements. Unfortunately, it is usually the case that the transition to chronic care models bears the different essential elements in an isolated manner (Bengoa, 2008). Subsequent expansions or adaptations of the CCM like WHO's Innovative Care for Chronic Conditions (ICCC) (WHO, 2002) and the Expanded Chronic Care Model (Barr et al., 2003) stressed the role of health policy, the importance of community engagement, prevention and health promotion activities in their frameworks. In fact, these expansions have focused on the integrated care for chronic patients with an optimal mix of interventions regarding preventive care and treatments with some success. Thus, there is some evidence about the efficiency of the CCM in terms of reducing health expenditures and improving the quality of health care provision especially in the prevention of complex procedures (Bodenheimer et al., 2002). However, its implementation is not free of difficulties; Nuño-Solinís (2008) points out some of the problems found. One problem is the experimental evaluation of the results of integrated programs in care management. Another problem is the lack of health institutions working in the implementation of the model as a global strategy.

The population health management approach represented by the Kaiser Permanente's Pyramid model allows us to understand the different needs of different strata of population and to target accordingly the health intervention from health promotion to end-of-life care across the whole spectrum of interventions. In this family of models, healthier patients are the first providers of health services through health promotion, prevention and self-management. Moreover, these frameworks identify core building blocks to redesign health systems, refreshing the primary health care agenda and the role of community interventions and, indirectly, suggest the pathway for optimizing the contribution of hospitals to the health system. The main goal is to identify patients belonging to different groups of risks and

classifying individuals into categories in accordance with their level of complexity. At the lowest level of risk, generally healthy populations should prevent chronic conditions through adequate lifestyle and public policy actions. Differently, at the highest level of the pyramid, the fourth strata consists of highly complex chronic patients (about 3 to 5% of total chronic patients), which consume the highest share of resources. In between, there are different care management approaches. Health care provision for those patients has to be carefully managed by formal health providers, to reduce unnecessary use of specialist resources and to avoid hospital admissions. The important issue in the context of this family of models is how to identify the level of the pyramid for each chronic patient.

3. The need for healthcare transformation

Ham (2010) provides an analysis of the key elements for a population-based model of care with primary care as the cornerstone of the provision of integrated chronic care. His analysis is a roadmap for transformation where, arguably, National Health Systems models like the Spanish NHS are in a better starting position for a quick transition given that some of the steps are already guaranteed. Ham (2010) identifies the ten characteristics of high performing chronic care systems, which are the following:

1. The health system has to ensure *universal coverage*, which is provided by equal access to basic healthcare services according to need. This is crucial as there is evidence of better health outcomes for the insured population (McWilliams et al., 2007), when analyzing the change in health status of previously uninsured individuals once insured. The improvement in health status is especially significant for those patients with cardiovascular disease and diabetes.
2. The health system should provide care for *free at the point of use*. The reason is that if healthcare provision is costly at the point of use, sick patients might avoid provision even when needed because of economic or income reasons. Evidence of the importance of demand side cost sharing is provided by Manning et al. (1986) through the RAND Experiment and different countries present different levels of co-payment at the point of use.
3. The health system has to be *focused on the prevention* of illnesses, and not only in the

treatment of sickness. Given that in developed countries the burden of chronic diseases is increasing as it is also increasing societal expectations in terms of quality of life and longevity, preventive care is becoming more important (Sassi and Hurst, 2008) and has to be addressed in accordance with improving lifestyles. Different actions have been implemented in different countries. These measures have addressed mostly issues such as the use of tobacco in terms of use or places where smoking is allowed.

4. The health systems should reinforce the role of *chronic patients to self-manage their conditions* with support from carers and families. This is related to the idea of prevention, given that the first step in the provision of healthcare is the prevention by the patient himself. Evidence of the importance of self-management support is provided by Sobel (1995), who shows how a small reduction in the propensity of patients to self-manage their conditions results in a significant increase in the demand of formal healthcare.
5. The health system has to *focus its priority on primary healthcare*. The importance of these characteristics is based on the positive evidence of the contribution of primary care to the performance of health systems. Also, this is due to the fact that most health care provision for chronic patients is delivered at primary care centres (Starfield et al., 2005). Willison et al. (2007) argue that health care systems historically have devoted more resources to hospital inpatient care, whereas investing more in primary care would reduce the tension and demand on hospital care.
6. *Population management should be emphasized* by the stratification of patients by risk and providing the support accordingly. This is important due to the necessary prediction of the type of health service needed by each type of patient. The Kaiser Permanente Risk Pyramid is an example of risk stratification approach, already applied in European countries such as England, with patients receiving support according to their position in the pyramid (see more details of this model in Section 2.2).
7. The seventh explains how *health care provision has to become integrated, and with interactions between primary care teams and specialists*. This is especially important

in the case of polypathological chronic patients, who require advice from multiple specialists and continue to be in contact with the primary care team. Kaiser Permanente, for example, has been considered one of the best integrated systems (Lohr, 2004).

8. *Improving information technology for chronic care* is fundamental for improving chronic care. This would ease the stratification process, the communication between patients and health care professionals as well as the performance review of providers. In this regard, telecare, the use of Information and Communication Technology (ICT) is seen as a useful support for chronic patients. This has been implemented in UK NHS; however, until now it has only benefitted those individuals participating in pilot studies.
9. Ensuring that *healthcare is effectively coordinated*. This is closely related to the integration of health services, especially in the case of chronic patients with different conditions where it is very important that primary care is coordinated to specialist care (Starfield et al., 2003). Given the need of chronic patients to access a wide range of services of support, there is a relationship between the role of public policy in favoring coordination between access to the health system and to social care.
10. *The link of all of the earlier nine characteristics* as a coherent whole is required. Hence, a strategy has to be designed to address at the same time all the characteristics listed previously, which would link health financing reforms (e.g., universal coverage), priority for prevention activities, self-management and primary health care, a commitment to achieve an integrated model of care and more effective care coordination, and the greater use of tools such as population management and IT achievements.

4 Spanish National Health System

The Spanish National Health System (SNS) is publicly funded through general taxes (excluding civil servants' mutual funds) and has a regional organizational structure resulting from a process of devolution. The SNS provides universal coverage, providing a benefits package to all inhabitants independently of their ability to pay. Health care delivery operates

mainly within the public sector. At the point of delivery, provision is free of charge, with the exception of pharmaceuticals prescribed to people under the age of 65, which require a 40% co-payment with some exceptions. In particular, patients with certain chronic diseases are exempt from this co-payment (see García-Armesto et al., 2010 for more details); moreover, there is a range of drugs for chronic diseases, for which the co-payment is reduced to 10% of the price, with an annually updated ceiling. From December 1995 this reduced contribution was also extended to AIDS patients.

At the regional level, the seventeen Autonomous Communities (ACs) have the power to establish their own health plans and to organize their own health services. According to the 1986 *Health Care General Act* and the 2003 *SNS Cohesion and Quality Act*, which establish the basic regulation for the SNS, the 17 regional health ministries have primary control over the funding, organization, and delivery of health services within their territory. These competencies were transferred over the past twenty years, although this process did not take place simultaneously. While several regions obtained responsibility for health many years ago (Catalonia in 1981, Andalusia in 1984, Basque Country and Valencia in 1988, Galicia and Navarra in 1991 and the Canaries in 1994), health responsibilities were totally devolved to the regional level (17 Autonomous Communities – ACs) as of the end of 2002. Within ACs, functions are usually split between the regional health ministry (*Consejería de Salud*) and the regional health service (see more information in García-Armesto et al., 2010). The basic tool mediating the relationship between the health department and the regional health service is the *contract-programme*, which sets the objectives (derived from the regional health plan and the regional strategic plan), the budget, and the evaluation system.

The Spanish Ministry of Health, Social Policy and Equality (MSPSI) has therefore limited jurisdiction, with the main aim of allowing national coordination and cohesion, but with no authority over the ACs. In particular, the MSPSI assumes responsibility over legislation on pharmaceuticals as well as guaranteeing the equitable functioning of health services across the country, including the definition of the basic benefits package, the setting of minimum thresholds for services regarding expenditure and quality, and high inspection activities.

The Inter-territorial Council of the National Health System (CISNS) promotes the cohesion of the NHS, which comprises the 17 regional ministers of health, chaired by the national minister. It is defined as an institution facilitating the permanent coordination, cooperation,

communication and exchange of information on health care services across the ACs and with the state administration, thus helping to guarantee the rights of citizens across all of Spain. In Spain, approximately 72.8% of total health expenditure belongs to public health sources (WHO Regional Office for Europe, 2011).

As in countries such as UK, the SNS is financed by block-grants from the central government to the regions. These funds are complemented with decentralized taxes, fees, and public prices and a solidarity fund. The ACs' financing scheme favours regional autonomy both in expenditure and in revenue raising. The ACs' financing scheme is based on estimated expenditure needs in each AC for fundamental services (education, health, and social protection) and also includes funds compensating for uneven investment needs and leveraging inequalities across regions. The allocation formula is based on a per capita criterion, weighted by population structure, dispersion, extension, and insularity of the territory. Some funds earmarked for health complete the scheme: transfers from the national government to cover certain expenses in order to foster the implementation of policies aimed to increase efficiency and to reduce inequalities across the SNS. It applies, for instance, to compensating regions exposed to cross-border health care issues (García-Armesto et al, 2010).

5 Experiences and pathways for the transition in Spain

5.1 Experiences and current actions in managing chronic diseases

The current status of the transition towards a model to tackle the challenges of chronicity and poly pathology in Spain is a good example of the complexity of the sector. Most in-field success stories ("islands of excellence") are the result of emergent innovation coming from frontline clinician leaders. Although these best practices are more frequent in small primary care providers or integrated care providers, the visibility of hospital-led innovative approaches for managing poly pathological frail elders in hospitals like Virgen del Rocío in Andalusia, Doce de Octubre in Madrid and Donostia in the Basque Country, has been a key factor in influencing policymakers.

Although the Basque Country has already launched in 2010 an ambitious strategy for tackling the challenge of chronicity (Nuño and Piñera, 2010; Department of Health and Consumer

Affairs of the Basque Government, 2010) and other ACs, most notably Andalusia, Comunidad Valenciana and Catalonia, have advanced initiatives in this field, it has been the *Declaración de Sevilla* (Seville Declaration) in January 2011, the point where a critical mass has been achieved and where the MSPSI committed to launch a “Strategy for dealing with chronicity for the whole Spanish NHS” under central leadership. It is interesting to note that the NHS Cohesion and Quality Act includes national health strategies which are aimed at improving care for patients with prevalent diseases, which entail a high social burden. Nine national strategies are already in place, approved by the CISNS; they cover chronic diseases such as cancer, ischaemic disease, diabetes, COPD, together with rare diseases, stroke, or specific services such as palliative care and mental health services. These strategies tend to be disease-oriented; the Chronicity Strategy provides a paradigm shift to tackle an issue that requires organizational and technological innovations that will benefit all chronic patients and at the end, the whole users of the system. A common feature of all these strategies is that they have to be assessed periodically and contain a set of indicators of both good practice and implementation against which they will be evaluated.

The initial promoters of this Declaration were two medical societies: internal medicine (SEMI) and family physicians (SEMFYC), backed by the top managers of three regional health services (Andalusia, Basque Country and Comunidad Valenciana). Recently, the MSPSI, the 17 Regional Health Services of Spain, 17 professional societies and the Spanish Patients’ Forum (a lobby group which is increasingly becoming the national reference for political interlocution) adhered to the proposal.

The key messages of the Declaration are that the transition to a model of care to tackle chronicity requires new partnerships between patients, professionals, managers and policymakers and that no longer can the 17 ACs act in isolation. If this problem is not addressed properly, it may endanger the sustainability of our current health system.

As a consensus document, the Declaration aims to promote and stimulate the development of initiatives and regional strategies in all Autonomous Communities coordinated under the umbrella of the National Strategy lead by the MSPSI. Moreover, the Declaration identifies some key areas for guiding the transformation of the model as follows:

- Regarding primary and community care, the Declaration assumed that primary care in Spain is one of the strengths of our healthcare system, but it can be reinvigorated if

strong emphasis on prevention and health promotion is established. Additionally, it is acknowledged that patients can no longer be passive recipients of care and that they can play an active role supported by self-management educational programmes. Another essential issue is that population health management with the use of stratification and predictive models is possible in the Spanish NHS as it has been demonstrated in pioneer initiatives in the Basque Country and Catalonia. Finally, the role of primary and community care nurses can be enhanced with careful targeting of vulnerable collectives that can benefit from case management approaches.

- Regarding the connectivity across all levels of care, the need to progress towards integrated processes of care is recognized. These advances are more successful when they emerge from bottom-up approaches lead by frontline clinicians. The examples of several shared care models between primary and hospital care show that a specific figure of “specialist of reference” was created. This specialist assumes responsibility for the complex cases of the population at the corresponding health center and visits the health center every 15 days to analyze the situation of these patients and act as a link between the hospital and the center. Patients are always assisted in the hospital by the same specialist, who takes the role of coordinator with other specializations.
- Regarding clinical information systems and decision support tools, the Declaration urged the Health Administration to invest in a shared EHR across levels of care that enhanced the current existing EHR in primary care all over Spain. Other technological innovations in the field of e-health and telecare are encouraged if their development is the result of a joint work between clinicians and managers.

To sum up and put into consideration the aforementioned key characteristics of high performing chronic care systems, the proposals included in the Declaration fulfill these characteristics and in particular, the emerging National Chronicity Strategy will close the existing gap regarding the tenth factor, which links all the earlier nine characteristics as a coherent whole by means of a strategy designed to address all the characteristics at the same time.

5.2 Pathways towards the optimal model

Following the ten characteristics of a high-performing chronic care system identified by Ham

(2010), it is possible to assess the readiness of the Spanish health system to provide appropriate care for chronic patients.

Universal coverage is guaranteed in health systems for most developed economies including the Spanish NHS, aiming to provide equal access to basic healthcare services according to need. At the point of use, under the Spanish NHS there is no co-payment in primary care (except for pharmaceutical prescriptions), specialist care, or hospital inpatient care.

Regarding the focus on the prevention of illness, in Spain the recent Law 42/2010 on December 30th, regulates, for example, the use of tobacco in public places. There is also an increasing concern regarding the prevalence of obesity, and specifically, infant obesity. As a reaction, the recent Law 17/2011 on July 5th on Food Safety and Nutrition, implements new regulation on marketing and sell points for different products at schools. Therefore, we consider that regulation in Spain is moving in the right direction. However more steps have to be implemented in order to provide the right level of prevention of chronic conditions. The application of the chronic care model would be beneficial in this respect with a greater control of patients, a greater role of nurses in primary care, and more resources devoted to provide information on the conditions identified in chronic patients (Glasgow et al., 2001).

There is a growing number of initiatives similar to the Expert Patient Program and Schools for Patients reinforcing the role of chronic patients to self-manage their conditions with support from carers and families in different Spanish ACs (Fernández-Cano, et al., 2010). Also, regarding support towards the care provided by informal caregivers and families, Spain approved a law in December 2006 (Law 39/2006, on December 14th) with the aim of providing support for informal caregivers to dependents. Spain is therefore walking the path of holding this characteristic. However, there is still room to apply the law on dependency and to improve the economic and health support to chronic patients and their families and caregivers.

Primary care is recognized internationally as one of the strengths of the Spanish NHS (Borkan et al., 2010). Primary care teams are assigned defined population groups, and work with established electronic health information systems, putting them in a good starting position for the development of active population management strategies. However, a reorganization of primary care is needed towards better integration of care, increasing the roles and

responsibilities of community nurses and case managers, improving team-work at this level, and effectively integrating health promotion and community care within routine primary care (Nuño-Solinís, 2010; Grumbach and Bodenheimer, 2004).

Stratification of patients by risk has been piloted in Spain, but there is relevant experience at regional level, the stratification of the population of the Basque Country (near 2.2 million inhabitants) and designing interventions accordingly (Orueta-Mandia et al., 2011). However, this knowledge area requires further development in terms of research and implementation.

Spain has been improving its health IT for the last 10 years. By 2007, 97% of all consultations in primary care centers were supported by electronic health records, and 64% of centers had tools to support online patient referrals. In the next phase, an integrated electronic health record system is being developed throughout Spain using both centralized and decentralized platforms, to promote the exchange of information across levels of care and regional boundaries (Borkan et al, 2010). New regulation is supporting this effort (Royal Decree 9/2011 of 19th August), which is fundamental for improving chronic care.

Integrated care, whether in its organizational or clinical approaches, is an area of huge current interest in Spain with several initiatives like Integrated Care Organizations (in some places called *Gerencias Únicas*), and the development of local integrated care pathways for several chronic diseases. However, these experiences lack rigorous evaluation and their impact is still unknown; the common reality is that the coordination of care, although facilitated by the gatekeeper function of the GP in Spain, needs to be seriously improved, especially in the case of patients with complex clinical and social needs (SEDAP report, 2010).

The Spanish experience is showing that it is possible to transform healthcare delivery focusing on chronic care for NHS-like health systems if they based this transformation on primary care, widespread innovation, investment in information technologies and a systemwide transformation strategy. This case study may be helpful for health systems involved in their own plans for health care transformation towards optimal chronic care. Table 3 presents the expected evolution in the transition to the high performing chronic care in 3 to 5 years.

Table 3. Expected pathway in the transition to an integrated chronic care model in Spain

Characteristics	Current	Expected Medium Term (3 to 5 years)
1. Universal coverage	*****	*****
2. Free at the point of use	*****	*****
3. Focused on prevention	**	****
4. Emphasizing self-manage of conditions	*	***
5. Priority in primary healthcare	****	*****
6. Population management	**	****
7. Integrated healthcare provision	*	***
8. Use of Information Technologies	****	*****
9. Effectively coordinated healthcare	*	***
10. All characteristics as a coherent whole	*	*****

Source: authors' elaboration

Note:

- * Not developed
- ** Poorly developed
- *** Fairly developed
- **** Moderately developed
- ***** Fully developed

6 Conclusions

Increasing health care expenditures is a matter of concern in many countries. This trend is expected to continue in the next decades because of the underlying drivers of such escalation, which include ageing, medical innovation, and changes in the burden of disease, e.g. prevalence of chronic diseases.

Health systems are bearing a crucial challenge in the last years. They were designed to cure acute episodes and provide health services to acute patients, but not to manage chronic conditions. Thus, they are not adequately and efficiently organized to respond to needs and preferences of chronic patients. However, most provision is now derived to chronic patients, who usually have more than one condition. Therefore, there exists the need to walk a transition in health systems. Nevertheless, the challenge is even more difficult and interesting to implement as chronic care concentrates most on health expenditures and we are going through a very deep economic crisis in which there exists the need to be efficient with public expenditures including healthcare.

New models of chronic care provision have been developed to respond to the changing burden of disease. The two more important are the Chronic Care Model and the Kaiser Permanente's Pyramid model, and there are already practical experiences in different countries showing their advantages but also the difficulties in their implementation. In this paper, we have focused on the Spanish experience in terms of policy changes and pilot studies directed at testing the viability of transiting towards chronic care models.

We followed the framework proposed by Ham (2010) and discussed it in relation to the current Spanish NHS. The readiness of the decentralized Spanish health system to provide appropriate care for chronic patients is assessed using the ten characteristics of a high-performing chronic care system identified by Ham (2010). The following features of the Spanish health system can be considered as strengths. It ensures universal access to health care, which is free at the point of use, with co-payments being limited to pharmaceutical products. In addition, primary care is well developed and has a complete geographical coverage. Primary care teams are assigned according to population groups, and count with

established electronic health information systems, which places them at a good starting point for the development of active population management strategies. Such strategies are however in their early stages of development or being applied in restricted geographical and clinical contexts.

Other aspects also need further development in the Spanish health system. Namely, a change in the delivery model that emphasizes the priority given to prevention, and self-management by patients of their conditions, is necessary. The coordination of care, although facilitated by the gatekeeper function of the GP, needs to be seriously improved, especially in the case of patients with complex clinical and social needs. Functions such as case management, for example, only have a limited use. Finally, a strategic approach to help achieve better chronic care at national level is still lacking, although pioneer regions like the Basque Country have already designed and are currently implementing their own regional strategies.

Given the current evidence and trends, we expect that the pathway for developing a chronicity strategy for the Spanish NHS will significantly transform its current healthcare delivery model in the next few years. Finally, we consider that the Spanish experience is useful to other healthcare systems as a model to evolve into high performing chronic care systems.

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