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# The Austrian healthcare system: Space-related issues and future challenges

This article analyses the Austrian healthcare system with respect to both current and future challenges. It specifically takes into account the consequences of geography (the Alpine region, and remote and rural regions) for healthcare planning. We find that a patient-oriented approach to healthcare provision, rather than an institution-oriented approach, combined with inclusive healthcare and a more integrated view instead of looking at single issues, will allow forward-looking adaptations of the Austrian healthcare system. This allows the healthcare system to deal with future challenges, such as cost increases, a

potential lack of physicians, maintaining good healthcare provision throughout the country and good accessibility to the healthcare system for everyone.

**Keywords:** Austria, healthcare provision, healthcare planning, healthcare financing, lack of physicians, Alpine region, waiting times, inpatient and outpatient care, future challenges

## 1 Introduction

The Austrian healthcare system is frequently claimed to be one of the best in the world in terms of quality, coverage and accessibility. Indeed, almost everybody living in Austria – every payer of social security contributions and legally defined recipient of social security benefits (corresponding to 99.9% of the Austrian population in 2013; see Hauptverband, 2014) – has access to a broad variety of medical services, in terms of both inpatient and outpatient healthcare (e.g., 18.3 million hospital days in 2013; 4.9 practicing physicians per 1,000 inhabitants, the highest physician density in the OECD after Greece, 29.2 CT scanners per 1 million inhabitants, etc.; see Internet 1, Bundesministerium für Gesundheit, BMG, 2012, Statistik Austria, 2014, Hauptverband, 2014). Of course, this rather intense supply of healthcare comes at some cost, about 10.7% of Austria's GDP was spent in the healthcare sector in 2013 (see Statistik Austria, 2014), according to the OECD's System of Health Accounts (SHA). This was above the OECD average of 9.3% in 2013. In recent years, the ratio of healthcare expenditures to GDP has been increasing again, after remaining more or less constant between 1998 and 2007, and it was at 10.7% of GDP in 2012 (see Statistik Austria,

2014). Out of all healthcare expenditures, about 75% are public, and the rest are private expenditures. Since 1990, the average annual growth rate of healthcare expenditures has been at 5.1%, and GDP increased on average by 3.9% (see Statistik Austria, 2014). This difference is becoming greater in recent years due to the general economic and financial crisis and the associated economic downturn, while medical progress and the demand for healthcare services continue to increase. As a consequence, it is more difficult to finance increasing healthcare expenditures out of public authorities' budgets.

For many years, there has been a continuing debate about making the Austrian healthcare system more efficient in terms of using the available resources and slowing down increases in costs. In order to achieve the goal of greater (cost-)effectiveness in providing (public) healthcare services, better knowledge of the current situation – not only in the medical sense, but also in a geographical and economic sense – seems important, which may subsequently lead to better structural planning. Of course, one might argue that the current approaches of the Austrian Structural Plan for Healthcare (Österreichischer

*Strukturplan Gesundheit*, ÖSG; see BMG, 2012) already have this goal. However, a frequent criticism is that there is a lack of progress in the desired direction so far for political reasons (i.e., federalism).

This article examines the most important current and future challenges to the Austrian healthcare system. It tries to identify areas where steps will be necessary in the near future to master these challenges and to maintain the high standards of healthcare provision for the Austrian people. Furthermore, the article accounts for the special features of the Austrian healthcare system that arise from geographic facts. The remainder of the article is organised as follows. Section 2 briefly introduces the Austrian healthcare system and its specific features regarding both the inpatient and outpatient sectors. Section 3 discusses and analyses current challenges to the healthcare system, and Section 4 analyses how those challenges might develop in the future and how space-related issues affect such developments. Section 5 summarises and concludes the article. It is beyond the scope of this article to provide a comprehensive and in-depth discussion about the Austrian healthcare system. Therefore, we focus on the major issues that are relevant in terms of their relation to space and future importance. Even for these aspects, this article does not offer an exhaustive analysis and discussion.

## 2 The Austrian healthcare system

The Austrian healthcare system is a two-tiered system, with respect to both financing and service provision. There are public and private hospitals, constituting the inpatient sector, and contracted and non-contracted physicians, constituting the outpatient sector. Unlike in other countries in the Alpine region (e.g., Italy), there is no gatekeeper to access the healthcare system for patients, and so everybody is free to choose to consult a physician in a practice or a hospital.

The organisation of the Austrian healthcare system has its roots in the mid-nineteenth century. For this historical reason, there is still a split in responsibilities between the federal and regional levels, a strong delegation of responsibilities to self-governing bodies (social security institutions) and mixed financing (see Hofmarcher, 2013). As Figure 1 shows, the organisation is complicated and is therefore frequently characterised as a severe obstacle to real healthcare reforms.

### 2.1 Financing

The Austrian healthcare system is predominantly financed through mandatory social security and healthcare contributions by employers, employees, self-employed people and farm-

ers (the first tier). The contributions are based on income and have an upper bound (maximum assessment base), meaning that, after exceeding a certain (annually adapted) gross income, social security contributions do not increase any further (for 2015, these values are EUR 4,650 monthly for employees and EUR 5,425 monthly for self-employed people). In addition, government authorities contribute to financing by at least partly covering investment expenditures by publicly financed hospitals. Private healthcare financing (the second tier) is made up of private health insurance payments (about one-third of the Austrian population has private health insurance of some kind), as well as out-of-pocket spending and deductibles for services covered by the mandatory health insurance. This out-of-pocket spending is particularly important in dentistry, for instance, where mandatory insurance coverage is comparatively low. Contracts with private health insurance typically increase the coverage of first-tier services and/or allow for increased provider choice within the healthcare system in both the inpatient and outpatient sectors.

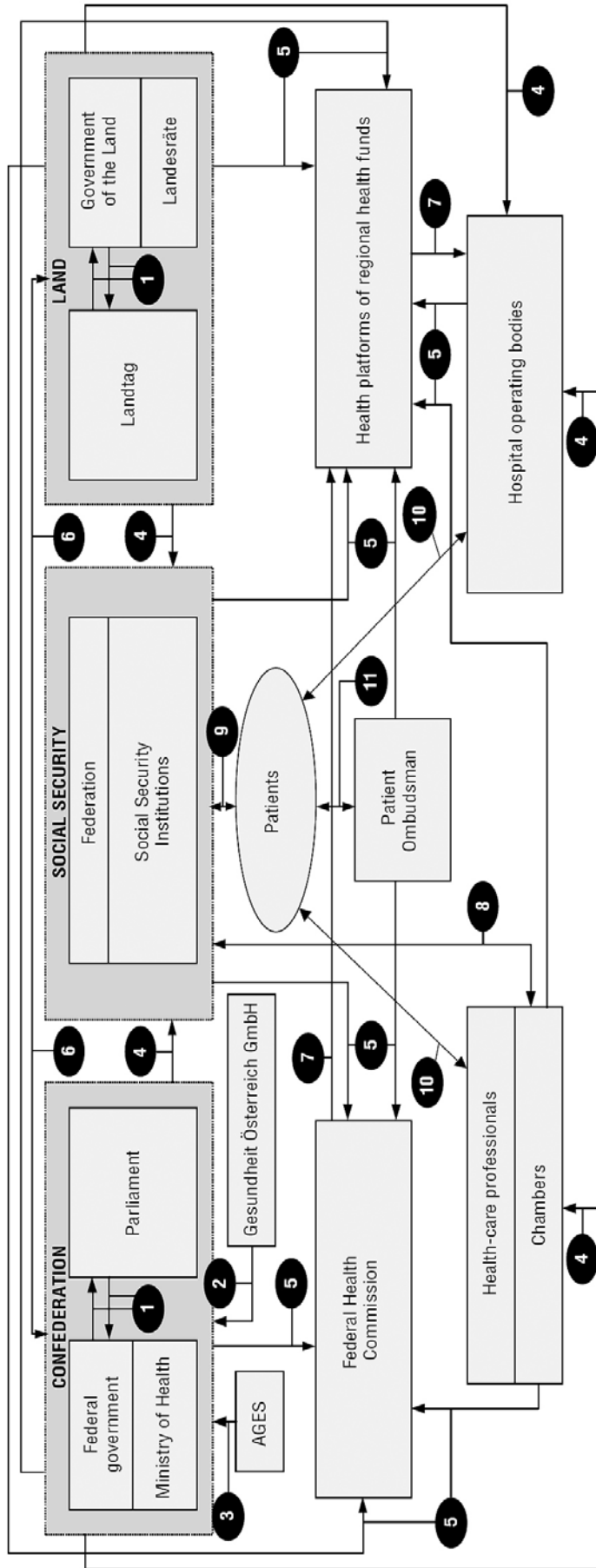
### 2.2 The inpatient sector

The inpatient sector in Austria consists of public and private hospitals, where public and private refers to financing rather than ownership. There are, for instance, some public (publicly financed) hospitals under private (non-profit) ownership or an organising institution. The inpatient sector is the major building block of the Austrian healthcare system; more than 40% of total healthcare expenditures in 2013 (or 4.4% of GDP) are found in this sector. Over 130,000 employees work in 277 hospitals, and so hospitals are the largest provider of healthcare services in Austria (see Statistik Austria, 2014). Out of the 277 hospitals (see Table 1), there are 127 publicly financed ones. The public hospitals have the major share of beds (over 80%) and thus cover the major share of inpatient treatment (see Hofmarcher, 2013).

In 2012, there were 7.7 hospital beds per 1,000 inhabitants, which is far above the OECD-average of 4.8. Like almost everywhere in the OECD, bed-density has decreased in recent years, along with the average length-of-stay (–10.7% between 2002 and 2012; 6.5 days on average). However, the number of hospital stays in Austria has increased far above the OECD-average (270 hospital releases per 1,000 inhabitants in Austria, the highest in the OECD, vs. 156 in the OECD-average; see Statistik Austria, 2014).

### 2.3 The outpatient sector

In Austria, there are two types of physicians in the outpatient sector, contracted and non-contracted ones, whereby “contracted” means having a contract with the Austrian public



- (1) (a) Draft legislation by the federal government (minister responsible) to Parliament, or by the Land government (minister responsible at Land level) to the Landtag.  
(b) Agreement of federal law by Parliament, or Land law by the Landtag.
  - (2) Support to the Federal Ministry of Health.
  - (3) Support to the Federal Ministry of Health, particularly in the context of licensing medication (AGES = Agency for Food and Health Safety).
  - (4) Health administration:  
(a) at federal level (e.g. health-care policing, sanitary supervision of hospitals, monitoring of social security institutions and legal bodies representing interest groups);  
(b) at Land level (e.g. concerning permits to build and run hospitals, licensing processes for outpatient clinics and group practices, implementation of planning in the region, investment finance).
  - (5) Appointment of members of the Federal Health Commission or regional health platforms.
  - (6) Consultation mechanism between the federal level and local and regional authorities with regard to legislative measures (laws and regulations) which require additional expenditure.
  - (7) (a) Sanction mechanism: the Federal Health Agency (Federal Health Commission) can withhold financial resources from a regional health fund (health platform) if it contravenes compulsory plans and guidelines regarding quality and documentation.  
(b) Regional health funds (health platforms) can designate a corresponding sanction mechanism for hospitals.
  - (8) Negotiations on market entry, services and tariff charges (collective and individual contracts).
  - (9) Legal membership of social security institutions (compulsory insurance).
  - (10) (a) Fundamental freedom of choice for patients over hospitals and independently practising members of the health-care professions.  
(b) Obligation to treat, which exists for public and private non-profit-making hospitals and contracted independently practising members health-care professionals.
  - (11) Legal representation of patients in every Land.
- Source: Ministry of health.

Figure 1: Organisation of the Austrian healthcare system (source: Hofmaiercher, 2013).

**Table 1:** Inpatient hospital care.

	2002	2012*	Change 2002–2012 (%)
<b>Hospitals</b>			
Number of hospitals	267	277	3.7
Of which: acute hospitals	186	175	–5.9
<b>Beds</b>			
Number of beds	63,092	64,691	2.5
Beds per 1,000 inhabitants	7.8	7.7	–1.0
<b>Hospital releases</b>			
<b>All hospitals**</b>			
Releases	2,480,127	2,813,756	13.5
Releases per 1,000 inhabitants	306.9	333.9	8.8
Of which: zero-day-stays	347,058	535,164	54.2
<b>Acute hospitals***</b>			
Releases	2,011,788	2,098,227	4.3
Releases per 1,000 inhabitants	248.9	249.0	0.0
Days of stay	14,719,289	13,703,925	–6.9
Average days of stay (per person)	1.8	1.6	–10.7
Average days of stay (per stay)	7.3	6.5	–10.7

Notes: \*Eleven months of reporting year; \*\*Related to all hospitals and inhabitants (residents of Austria and foreign countries); \*\*\*Related to acute hospitals and inhabitants (Austrian residents); zero-day-stays are excluded.

Source: Statistik Austria (2014)

(mandatory) social security system. Therefore, in some sense, contracted physicians may be considered public physicians, and non-contracted physicians could be seen as private ones. There are two major differences between these two groups.

First, visiting a contracted physician usually does not involve an additional out-of-pocket payment for patients when using a service covered by public health insurance. Only some minor cost-sharing exists. Non-contracted physicians, on the other hand, are free to choose their fees. However, there are recommendations by the Chambers of Physicians regarding those fees. Patients visiting these physicians can submit their bill to their health insurance, from which they receive a refund of 80% of the regular fee of a contracted physician – hence, those patients have to incur an out-of-pocket payment of at least 20%. Furthermore, private health insurance covers those costs. For non-contracted physicians, Martin Gächter et al. (2012) estimate the cost-sharing percentage at 40 to 70% of the fee, depending on specialty, and indicate that this share might be much higher because only 50% of the patients of non-contracted physician submit their bills for reimbursement. Second, contracted physicians are not free in market entry, location decision and service provision. Market entry is strongly regulated by the public social insurance institutions through issuing contracts and a planning system to decide where which type of physician is necessary. The Austrian Structural Plan for Healthcare (see BMG, 2012) accounts for the geographical distribution of physicians based on the basic healthcare provision planning for the population and has

to ensure accessibility to medical services for the population according to existing medical standards. Consequently, these regulations determine the location decision to a large extent. Oftentimes, a “new” contracted physician simply takes over the practice of a retiring predecessor. Non-contracted physicians are completely free in market access and location decision (hence, their concentration in agglomerations) and are less restricted in service provision.

### 3 Current issues

#### 3.1 Lack of and distribution of physicians

One frequently discussed problem is the lack of and distribution of physician in the outpatient sector. For instance, in Tyrol there are 1,621 physicians with a private practice, 785 of whom are contracted (as of 2011). About 30% of them are general practitioners (see *Gesundheit Österreich Forschungs- und Planungs GmbH, GÖ FP, 2013*). This is about 2.25 outpatient-physicians per 1,000 inhabitants, and about 1.08 contracted physicians per 1,000 inhabitants. Overall, in Austria there are 17,310 physicians in outpatient care, or about two outpatient-physicians per 1,000 inhabitants (see Statistik Austria, 2014).

Given the free location choice of non-contracted physicians, a somewhat uneven distribution of physicians has emerged over time. In general, physicians tend to be located in agglomerations. In particular, physician density increases in state capitals, in district centres, in proximity to hospitals, and in proximity



**Table 2:** Share of international inpatients by Austrian state.

	2001	2002	2003	2004	2005	2006	2007
Austria	1.6	1.7	1.7	1.6	1.6	1.7	1.7
Burgenland (B)	0.8	0.8	0.7	0.8	0.9	0.8	1.0
Carinthia (C)	1.4	1.5	1.3	1.3	1.4	1.3	1.3
Lower Austria (L)	0.4	0.4	0.4	0.4	0.4	0.4	0.5
Upper Austria (U)	0.5	0.6	0.6	0.6	0.7	0.7	0.6
Salzburg (S)	5.1	5.5	5.5	5.2	5.2	5.5	5.4
Styria (St)	0.7	0.8	0.8	0.7	0.8	0.8	0.8
Tyrol (T)	7.0	6.9	7.0	6.3	6.1	6.1	6.2
Vorarlberg (V)	2.9	3.1	3.1	3.0	3.2	2.9	3.0
Vienna (Vi)	0.6	0.6	0.6	0.6	0.6	0.7	0.7

Source: Beratungsgesellschaft für angewandte Systemforschung mbH, BASYS & Institut für Management und Ökonomie im Gesundheitswesen, IMÖG (2010)

**Table 3:** National and international inpatient mobility by region, 2007.

Location of hospital* / Residence of patients**	B	C	L	U	S	St	T	V	Vi	Total
B	57,407	122	9,599	305	74	6,493	100	17	10,213	84,330
C	67	159,351	190	415	692	2,782	5,648	63	1,027	170,235
L	5,859	520	361,382	18,718	706	1,791	767	106	83,803	473,652
U	105	323	5,922	345,536	12,069	1,053	1,752	104	2,028	458,892
S	74	610	218	3,311	142,660	969	3,806	126	677	152,451
St	3,807	5,290	2,360	4,177	4,387	293,418	757	100	1,988	316,284
T	41	656	172	326	1,324	273	215,448	774	232	219,246
V	26	82	81	123	166	162	3,429	95,768	202	100,039
Vi	2,003	1,028	16,893	1,862	965	1,885	822	188	431,902	457,548
Abroad	670	2,240	1,813	2,978	9,253	2,604	15,377	3,034	3,938	41,907
Sum	70,059	170,222	398,630	467,751	172,296	311,430	247,906	100,280	536,010	2,474,584

Notes: \*, \*\* For explanation of abbreviations see Table 2.

Source: BASYS, IMÖG (2010)

Many efforts have been made to reduce the problem of waiting times, but so far they have hardly been successful. In fact, it is frequently claimed that patients with private insurance visiting prospective surgeons in private practices can reduce their waiting times (e.g., *Kurier*, 2014). One way to start tackling this problem is to introduce transparency for patients regarding waiting times. This transparency has to be guaranteed by law; however, this apparently does not mean that each hospital publishes waiting lists on the internet, for instance. Currently, there are easily accessible public waiting lists only for public hospitals in Upper and Lower Austria. For almost all the others, a prospective patient will have to call each hospital separately (e.g., *Der Standard*, 2014).

Apart from those inconveniences for patients, long waiting times for surgeries create substantial economic costs for society. They arise from long periods of pain or otherwise restricted health, leading to reduced performance at work or longer pe-

riods of sick leave for employees (see Stokes & Somerville, 2006; Czypionka, 2007a, 2007b; Gruber, 2013). A Canadian study has shown that avoiding excessively long waiting times had the potential to reduce costs by CAD 1.8 billion in 2006 (about EUR 1.2 billion in 2006; see Stokes & Somerville, 2006). Because these costs negatively affect society, political decision-makers in particular are responsible for implementing measures to reduce waiting times in order to reduce these economic costs.

### 3.4 International and national patient mobility

The mobility of patients is an increasingly important issue, especially since the EU directive regarding patient mobility within the EU came into effect (EU directive 2011/24 on patients' rights in cross-border healthcare). For Austria, this means a potential increase in the currently experienced share of international patients, especially for inpatient care. So far, only

about 1.7% of all patients in public hospitals are international patients (see Table 2). Thus, this does not cause significant capacity problems. The division of international patients among Austrian states does differ, however. This is mainly due to tourism and to various healthcare provision levels across the states.

The largest share of international inpatients is hosted by Tyrol (35%), which is predominantly due to patients from the Italian provinces of Trento and Bolzano, as well as to tourists, particularly during the winter season (see Table 3). Tyrol is the only region clearly exceeding the national average of international inpatients. Within Tyrol, the university hospital in Innsbruck has the largest share of international inpatients.

Although international patient mobility has so far not created capacity constraints, it creates financial problems for the hospitals hosting those patients. Financial settlement is a lengthy and bureaucratic process that lasts up to 1.5 years for an individual treatment.<sup>[1]</sup> Furthermore, international patient mobility increases inpatient final costs because higher infrastructure investments might become necessary over time. In addition to international patient mobility, national patient mobility also causes problems regarding financial settlement and the services covered by public health insurers. National patient mobility refers to patients (inpatients and outpatients) requiring treatment in an Austrian state different from that of their residence. There are similar procedures for financial settlement as for international patients; however, they are less time consuming. In addition, across the Austrian states the medical services covered by public health insurances might differ, as might also the costs for one and the same treatment. The problem of intra-national financial settlement is still not resolved because there is no common (i.e., national) settlement price for the services provided. For the inpatient sector, this is mainly a consequence of state-specific adaptations and/or bypassing the Austrian DRG-system (see, e.g., BASYS, IMÖG, 2010).

### 3.5 Restricted mobility of patients

Austrian patients usually prefer to be treated “at home” when they require inpatient services and have to stay in hospital for some time. “At home” means going to a hospital close to where they live and being reluctant to visit a hospital further away – even though a more distant hospital might be better suited to a patient’s specific needs. Restricted patient mobility also refers to the problem of an ageing population. This means that older people, on average, tend to become less mobile, due to physical infirmity, but also because of mental and/or social reasons. Physical immobility arises from infirmities of older people on the one hand, and hospitals being located far away from where older patients live on the other. Mental immobility

is due to the fact that older people tend to be mentally strongly tied to the place or region where they live and so they do not want to leave. Social immobility arises if people do not have the opportunity to be mobile, due to financial reasons, a lack of assistance before or after hospital treatment, or a lack of sufficient transport infrastructure. These restrictions on patient mobility require a new approach for healthcare provision in the future. This will be of particular importance in Alpine regions, especially if further out-migration from remote areas is to be avoided. Simultaneously, restricted patient mobility because of these reasons hinders and complicates the increase in medical treatments in outpatient hospitals.

### 3.6 Outpatient hospitals

Over the last seven years, there has been a significant increase of healthcare provision in outpatient hospitals (e.g., more than two-thirds of all cataract surgeries in public hospitals; see BMG, 2014). This process started in 2007, when the Austrian DRG-system was adapted to provide monetary incentives for hospitals to do so, and disincentives for continuing the previously standard procedure. Monetary incentives are set up such that a hospital receives the costs for providing the treatment itself plus one daily allowance (even though a patient in an outpatient hospital does not stay overnight). As a consequence, the total costs of providing such treatments for public health insurance decreased and the length-of-stay could be reduced. As already indicated previously, treatments in outpatient hospitals require sufficiently mobile patients (that are able to go to the hospital and return home after the surgery), which might cause problems for elderly people or for people living alone.

## 4 Future challenges

### 4.1 Healthcare reform

The major challenge for the Austrian healthcare system, and in particular for politics, is to design and implement a real healthcare reform. Such reforms have been discussed over the decades, and have often been claimed to be reached, but in reality nothing substantial has changed so far. Any healthcare reform aims to keep an eye on cost increases while maintaining the high standards of healthcare provision for the people of Austria. Costs in the healthcare system are increasing faster than GDP (see, e.g., Statistik Austria, 2014) because of the growing population and increasing ageing, combined with increasing morbidity, increased medical progress and more expensive treatments. The political goal has been to at least tie cost increases in healthcare to long-run GDP growth. A second important point of a real healthcare reform in Austria would mean concentrating financing, decision-making and execution of decisions with a single authority. Currently, these three matters are split among different authorities. This

**Table 4:** Demographic change in Austria.

	1990	2011	2030	Change 2011–2030 (%)
Population (annual average)	7,677,850	8,420,900	9,000,007	6.88
Share 0–19 years in %	24.2	20.4	19.1	–6.37
Share 20–64 years in %	60.8	61.9	56.9	–8.08
Share 65+ in %	14.9	17.7	24.0	35.60
Life expectancy at birth, males	72.2	78.1	82.2	5.25
Life expectancy at birth, females	78.9	83.4	86.7	3.96
Life expectancy at age 65, males		17.7	20.6	16.38
Life expectancy at age 65, females		21.0	23.6	12.38
Single households, in 1,000	814	1,324	1,560	17.82
Families, in 1,000	2,114	2,342	2,362	0.85
Families with children, in 1,000	1,423	1,405	1,298	–7.62

Source: Own calculations based on Internet 1.

is inefficient because different authorities (i.e., stakeholders) have different interests and follow different goals. Given the current Austrian federal structure, with the extensive power of Austrian state governments vis-à-vis the federal government, this goal seems politically unrealistic. However, by concentrating financing, decision-making and execution of decisions at the federal level, it seems quite likely that a significant leap in the efficiency of spending money in the Austrian healthcare system could be made – most likely without cutting service provision levels for people. Issue three for a real healthcare reform is to change the focus of the healthcare system. To date it has always been institution-oriented; that is, all of the institutions within healthcare play the central role, and the system is built around the institutions involved. It would be more useful – and also more (cost-)effective – to change this approach towards a patient-oriented and demand-oriented design and structure of the healthcare system. Most likely, by combining a centralisation of responsibilities and a patient- and demand-oriented design of the healthcare system, the goal of reducing cost would almost automatically be reached without restricting the services provided or the services covered by mandatory health insurance.

## 4.2 Brain drain, education and working conditions

Another important non-space-related challenge is brain drain. This problem is closely connected to the education and working conditions for physicians. Many students leave Austria after graduating from medical school. This is due to comparatively low incomes and long and dissatisfying working conditions during post-promotional education. At the same time, many foreign students, especially Germans, seek access to Austrian medical schools because there are no admission restrictions like a *numerus clausus*. This, in turn, causes capacity problems at medical schools. Austria has imposed restricted admission

using an entrance exam and reserved 75% of the available capacity for Austrian citizens.

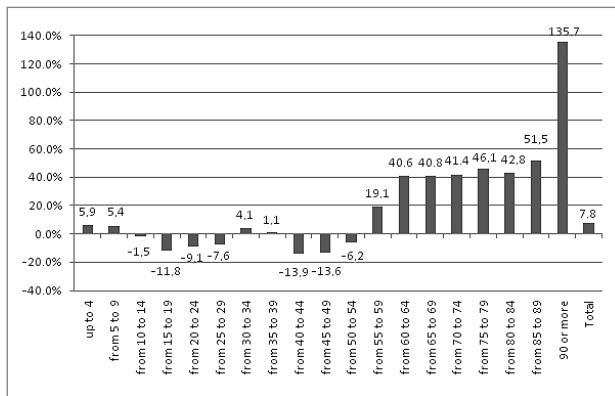
The working conditions for young physicians in (public) hospitals are the main reason for brain drain. Many hospitals, especially German ones, offer higher wages and better, shorter and more attractive specialist education. This leads to countermeasures by individual hospitals or federal states; for instance, through offering higher salaries or improved opportunities to connect family and professional life (see *Tiroler Tageszeitung*, 2014, for the most recent headline and discussion). In other words, it will be necessary to adapt the general conditions such that they are better able to meet young physicians' needs in order to avoid both brain drain and a lack of physicians with certain specialisations and in certain geographic areas.

## 4.3 Demographic change

For Austria, demographic change includes two major developments. Apart from general population growth, Austria faces increased ageing of its population and most likely also a further concentration of the population in agglomerations, and hence a gradual depopulation of peripheral regions.

As Table 4 shows, the population will grow by about 7% until 2030. However, the distribution of growth by age groups is very uneven. Whereas the population below sixty-five will shrink, the share of people over sixty-five is expected to rise by over one-third. This, of course, has major consequences for the healthcare system because the largest share of demand for healthcare services comes from the elderly. Furthermore, life expectancy is substantially increasing, which also creates a demand for healthcare services. Table 4 also shows that the number of single households is expected to increase substantially. Single households include not only young people, but also especially older people. Older singles also pose challenges





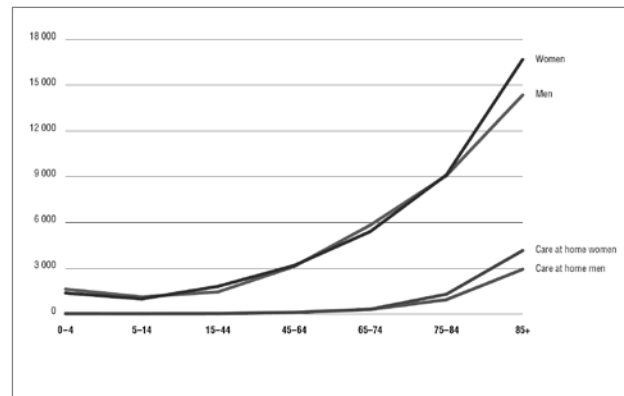
**Figure 3:** Population change 2010–2030 in % (source: Czasny et al., 2012).

to the healthcare system because these people often live in peripheral areas (and have to be sufficiently mobile to access healthcare services), or are not mobile enough and/or require assistance or nursing. Looking at the growth in the number of elderly people in greater detail, Ines Czasny et al. (2012) show that it is especially the very elderly segment that is experiencing the highest growth rate; this is also the group that creates the relatively highest costs for the healthcare system.

Hofmarcher (2013) supports the finding that the elderly have the highest per capita healthcare costs, and also includes the cost for care at home.

#### 4.4 Lack of physicians

As of 2014, there are about 320 contracted general practitioners in Tyrol, 180 of them in remote regions. Within the next ten years, over 50% of them, about one hundred general practitioners, will be retired (see *Tiroler Tageszeitung*, 2014). Since 2013, fifteen retired contracted general practitioners could not be replaced by new, young ones; this rather small but current example very clearly hints at the problem of ensuring adequate healthcare provision in remote regions in the Alpine region. A more general view of the problem reveals that by 2030 about 75% of all currently existing physicians in outpatient care will be retired, with a retirement peak estimated to occur in 2025 (see Czasny et al., 2012). Apart from this, the demographic development indicates that there will be a) significant population growth until 2030, and b) significant ageing of the population in Austria (see Czasny et al., 2012). Population growth as such hints at an increasing demand for healthcare services even without taking ageing into account, and so there is a pure volume effect. Furthermore, the expected ageing of the population shows another component of increasing demand because the largest share of demand for healthcare services comes from the elderly. People over sixty have higher rates of many diseases in general, the prevalence of many diseases increases significantly with age and the highest costs for



**Figure 4:** Healthcare expenditures in € per capita per adult, by sex and age bracket, 2007 (source: Hofmarcher, 2013).

Note: Expenditure for personal healthcare services according to the OECD SHA standards includes inpatient healthcare provision (including long-term care), outpatient clinic services, ambulatory care provision, homecare, auxiliary care, pharmaceuticals, and therapeutic and auxiliary aids.

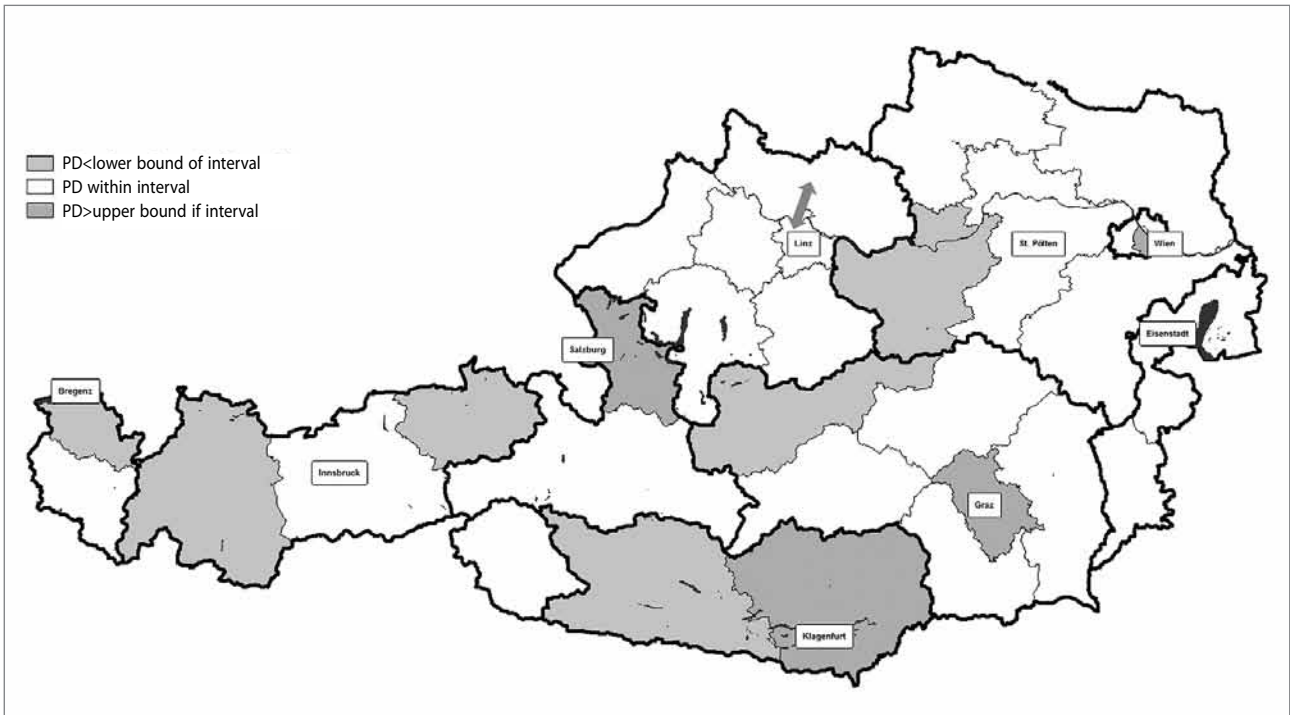
the healthcare system for a single person occur within the last three years of an individual's life.

Combining all of these facts, it becomes very clear that the demand for healthcare services, and hence physicians, will be very large over the next twenty years, and will continue to remain quite high after that. Czasny et al. (2012) predict an increase in the need for physicians of 21% overall (general practitioners and specialists) by 2030. Furthermore, the education of young physicians complicates the problem of obtaining enough medical personnel, especially general practitioners with private practices. The problem occurs in the way general practitioners are educated during their residency. As Ernest Pichlbauer (2013) points out, internship becomes longer over time because training positions in “small” specialties are quite rare (such as ear, nose and throat) and hospitals have incentives to keep interns in the “large” specialties (e.g., surgery and internal medicine) where they require personnel. In Austria it is even possible to become a general practitioner without having experienced private practice during training (see Pichlbauer, 2013).

#### 4.5 Relations between healthcare provision, geography and economics

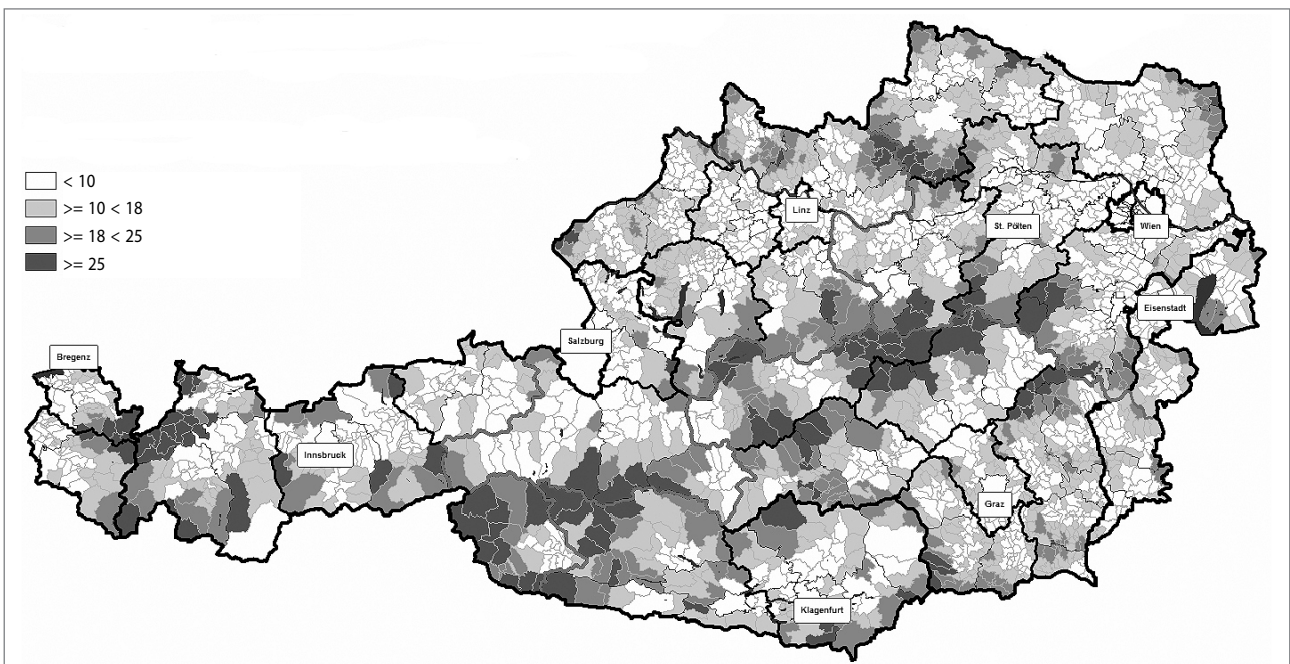
##### 4.5.1 Healthcare provision and planning

Using ophthalmology as an example, we illustrate the challenges to healthcare provision in Austria because of topographic conditions and how healthcare planning tries to address them. Figures 5 and 6 show the density and accessibility of healthcare provision in ophthalmology as of 2008. As can be seen, accessibility is good and healthcare provision density is high in agglomerations (along main lateral valleys) and is rather low



**Figure 5:** Healthcare provision density, ophthalmology, 2008 (per 100,000 inhabitants; source: Fülöp, 2010).

Note: Provision density (PD) in comparison with planning value-interval ( $\pm 30\%$ ).



**Figure 6:** Accessibility, ophthalmology, outpatient care, 2008; Accessibility to nearest outpatient sector provider (source: Fülöp, 2010).

Note: Accessibility in minutes to the nearest outpatient provider.

in peripheral regions (in remote Alpine regions and along the former Iron Curtain). Depending on the specialty and based on planning criteria, an excess supply in central regions and insufficient supply in remote regions can sometimes be observed.

In the future, the agglomeration density will increase and fewer people are expected to be living in the periphery. As outlined

previously, the Austrian Structural Plan for Healthcare tries to address these problems based on the combination of inpatient and outpatient facilities. However, maintaining healthcare provision in peripheral regions at a certain level for a decreasing population increases costs. Similar observations are true for the density of outpatient healthcare in general, as well as for mobile care (see BMG, 2012).

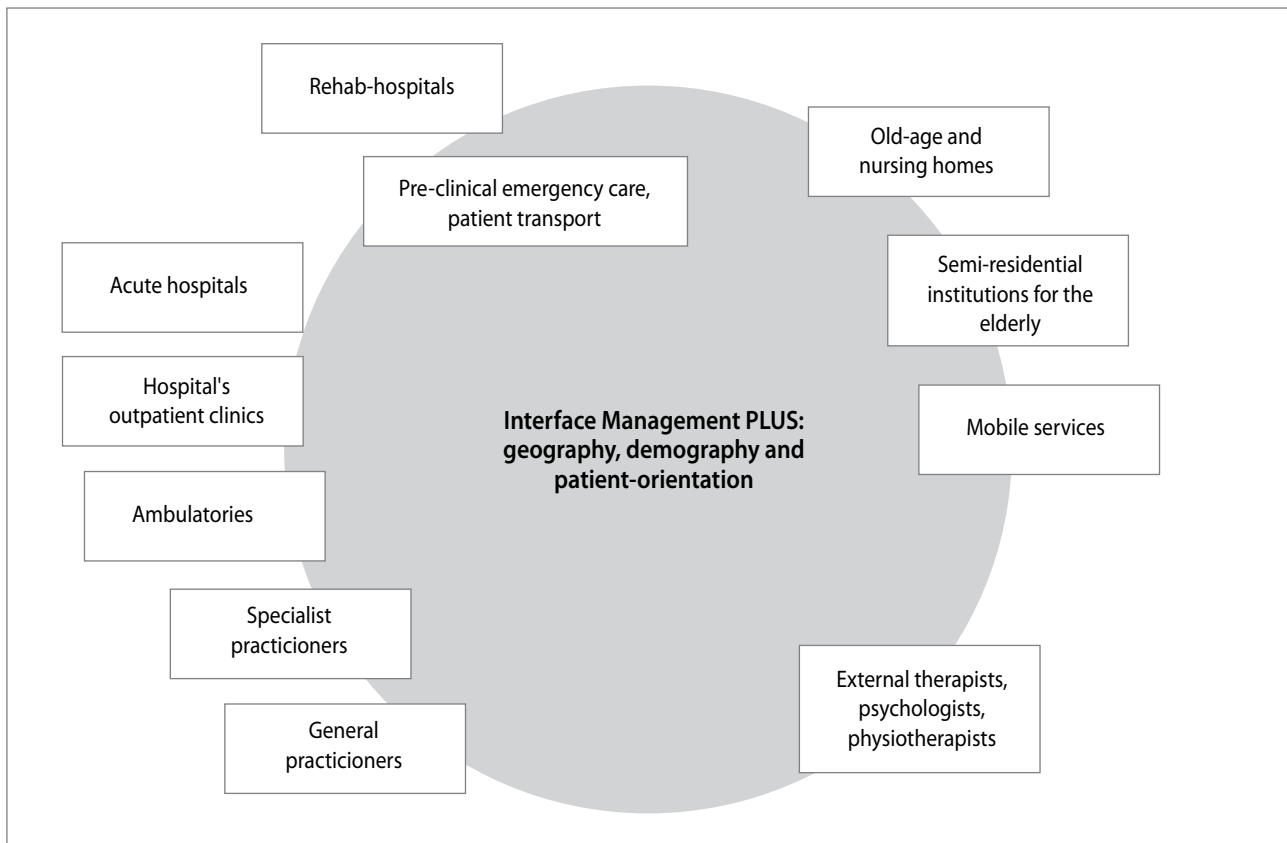


Figure 7: New inclusive healthcare planning (source: own design, based on Fülöp, 2010).

#### 4.5.2 Strengthening the economic periphery

The problem of a potential lack of physicians, in particular in peripheral regions, cannot be solely viewed as the result of too small a number of physicians, the long education process or the healthcare system as such. All of these issues contribute to the problem, but one should take a more integrated approach to addressing this problem. The important point will be to provide incentives so that a potential “country doctor” is willing to locate in the countryside. Such incentives can be of a monetary nature, as frequently demanded, but monetary incentives alone might not be sufficient or decisive. In fact, rural/remote regions require a strengthening of their economic base in general. If it is possible to establish more economic activities in remote regions and to curtail rural depopulation, more people will be willing to live in the countryside (not only the elderly that “have always lived there” or long-term residents with property there). More people living in the countryside also create additional demand for goods and services, for craftsmen, leisure activities, schools, and so on, and also demand for medical services. Hence, the increased demand for medical services might generate incentives for physicians to locate rather remotely, and the increased economic activities there would also offer better living in the countryside. Thus, apart from better opportunities for earning money and more

diversified work (due to increased demand) for a potential country doctor, there are also more opportunities in terms of family life, leisure, school or infrastructure.

If policymakers succeed in making rural areas more attractive, this will also contribute to resolving the current healthcare provision problem. Less-mobile people, and also those currently living remotely, will benefit from this. We take this kind of reasoning a step further, in the sense of Paul Krugman and the (new) economic geographers (see, e.g., Krugman, 1991) and conclude the following: If more physicians locate in a particular (remote) place, other industries will also benefit. For instance, after seeing a physician, a patient goes shopping, has coffee or similar things. Hence, more physicians at a particular location might increase customer frequency for other businesses, which consequently also have incentives to locate at this place. Consequently, this will lead regional policymakers to improve the infrastructure, which will increase the accessibility of a peripheral location or region. Finally, the (remote) region can benefit macroeconomically because all of this together strengthens the economic potential of the region, creating more jobs and income within the region.

To summarise, measures that are frequently discussed in Austria – such as a change in the post-promotional education of

physicians, healthcare reform or the group practices of physicians – will certainly contribute to achieving the number of physicians required by 2030. However, one might legitimately doubt that such measures alone will be sufficient to sustainably improve healthcare provision in the periphery, in the countryside or in small secondary valleys in the Alps.

#### 4.5.3 E-health and telemedicine

Connected to the previous issue of dealing with peripheral regions, another feature can be brought into play: e-health as a means to improve healthcare provision in remote regions. For instance, telemedical applications can be used to improve communication between physicians and patients in general, but particularly in remote areas, where physician density is lower. However, for e-health applications and telemedicine it is crucial that it be generally accepted by physicians and patients. Acceptance by patients can be fostered and successful if the technology is easily manageable. In general, telemedicine will be successful if it is integrated in existing (and well-known) processes and if the technology applied is really being used to serve a certain purpose.

## 5 Conclusion

As the analysis in this article shows, the Austrian healthcare system faces many different challenges and also strongly interdependent, current and future challenges. For many of these, spatial issues as well as the specifics of Austrian geography play important roles. As a consequence, we would like to suggest improving the well-known inclusive healthcare planning approach, which means an all-in-one planning approach for all parts of the healthcare provision system including interface management with three components: geography, demography and patient-orientation.

Figure 7 shows the various institutions providing healthcare services. However, planning, coordination and interface management between them are lacking. The Austrian Structural Plan for Healthcare (see BMG, 2012) predominantly focuses on the left-hand side of the figure, whereas the “rest” currently seems to be neglected. Hence, for Austria, this means the challenge(s) of really aiming at inclusive healthcare and integrated healthcare provision, refraining from a strong institution-oriented healthcare system and introducing a real patient-orientation into the system, while taking into account the special geographical features of both Alpine and remote rural areas and their socioeconomic consequences. This becomes even more important when considering everything related to care-giving and nursing. This has been neglected in this article due to its limited scope. In the long run, all of this will be necessary to be able to maintain the high standards, quality

and accessibility of the Austrian healthcare system, and to be able to adequately address future developments.

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## Notes

[1] Financial settlement for international inpatients (see BASYS, IMÖG, 2010): the hospital charges the regional healthcare fund, and this is passed on to the regional public health insurer, to the national public health insurer and to the foreign insurer. Distribution of foreign payments flows from the national health insurer, to the regional health insurer, to the regional healthcare fund and finally payment to the hospital. Hence, hospitals' organising institutions have to advance the costs for hospitals.

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