



Child Health Care Services in Austria

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We describe child health care in Austria, a small country in Central Europe with a population of about 9 million inhabitants of whom approximately 1.7 million are children and adolescents under the age of 20 years. For children and adolescents, few health care indicators are available. Pediatric and adolescent health provision, such as overall health provision, follows a complex system with responsibilities shared by the Ministry of Health, 19 social insurance funds, provinces, and other key players. Several institutions are affiliated with or cooperate with the Ministry of Health to assure quality control. The Austrian public health care system is financed through a combination of income-based social insurance payments and taxes. Pediatric primary health care in Austria involves the services of general pediatricians and general practitioners. Secondary care is mostly provided by the 43 children's hospitals; tertiary care is (particularly) provided in 4 state university hospitals and 1 private university hospital. The training program of residents takes 6 years and is completed by a final examination. Every year, this training program is completed by about 60 residents. (*J Pediatr* 2016;177S:S35-47).

Austria is a small landlocked country with a size of 83 855 km² located in Central Europe. It has approximately twice the size of neighboring Switzerland (41 285 km²) and is similar in size to Bavaria (70 533 km²), a neighboring German (federal) state. The western and central part of the country is covered by the Alps, which are surrounded by a hilly to flat landscape in Austria's north, west, and south.¹ The Alps can create specific logistical challenges in primary health care (PHC) and accessibility to stationary health facilities.

Austria is divided into 9 provinces, some of them with a very long tradition of local governance. At present, these provinces have a high degree of independence concerning administrative affairs, which is particularly reflected in hospital care.

In its present geographic and political structure, Austria dates back to 1918 when the Austrian-Hungarian monarchy collapsed in the aftermath of the First World War. At that time, the state of Austria was established as a democratic federal republic encompassing most of the German-speaking areas of the previous monarchy.

Historically, culturally, and economically, the country is closely connected to the other German speaking countries in Central Europe (ie, Germany and German-speaking Switzerland). Thus, many health care institutions in the aforementioned countries developed similarly. Even though Austria also has a long historical connection to its eastern neighbors, medical institutions developed quite differently, mainly because of the communist governments in Eastern Europe during the second half of the last century.

In 2012, 1.7 million children and adolescents under the age of 20 years lived in Austria, representing about 20% of the whole population, with a declining trend. The proportion of children less than 15 years of age is approximately 14%, which is less than in most other European countries. Since 1990, the total population has increased by 0.4% per year, whereas the number of children up to 14 years of age has decreased by 0.4% per year (**Table I**).

About 68% of all children in Austria live in rural areas (ie, communities up to 20 000 inhabitants), 14% live in cities with 20 000-300 000 inhabitants, and 18% live in the capital city of Vienna.

Age dependency percentages (indicated as the sum of children <15 years of age and elderly people >65 years of age vs the "working age group" of 15-64 years of age) remained constant over the past 20 years and were around 48%. This can be explained by the declining population rate of children vs a simultaneous increase in the population rate of the elderly.

In 2012, the fertility rate (average number of children per woman) was 1.44, having experienced an increase from a historically low level of 1.33 in 2001. The Austrian fertility rate is below the average of the European Union (EU) countries. About 80 000 children are born per year, which represents a birth rate of approximately 9.4 children per 1000 inhabitants.

The average age of women at the birth of their first baby is increasing continuously. In 2012, the mean age at birth of her first baby was 28.7 years and the mean age at birth of any baby was 30.3 years.

Furthermore, 2.6% of all children had mothers younger than 20 years of age.

EU	European Union
GP	General practitioner
ÖSG	Austrian Structural Plan for Health
PHC	Primary health care

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The rate of teenage pregnancies has been decreasing (2.6% in 2012, 4.4% in 1995).

Of all households with children under the age of 15 years, 14.2% are single parent households. This rate has remained stable since 1990. This also means that in 2012, 13.7% of all children under the age of 15 years did not live with both parents. At about 1.6 children per family, the average size of families with children under the age of 15 years has been stable over the past 20 years. Economic key indicators are listed in **Table II**.

For almost 100 years, Austria has had a federal democratic government system, which was disrupted during the 1930s and 1940s and was re-established after the Second World War. At present, it is well accepted by its population.

The directly elected president (head of the entire state, Bundespräsident) has representative responsibilities and limited political power. Representatives for the parliament are elected by the population, who votes for a specific party. According to a ranking list within each party and corresponding to population size of provinces, representatives are then “assigned for” the parliament. The parliament and the president appoint the prime minister (Bundeskanzler) and the government (Bundesregierung).

Within the provinces, representatives are elected by the population for the provincial parliament (Landtag). These representatives appoint the province president (Landeshauptmann) and the province government (Landesregierung). In addition to the separation of legislative and executive power between parliament and government, power is also shared between the state and Austria’s 9 provinces according to subsidiary principles. This fact is relevant for child health care because many responsibilities regarding health care and preventive measures (eg, vaccination programs) remain in the hands of the 9 provinces. This structure is frequently considered a possible source for the lack of cooperation in health issues and as a cause for delays in steps to a health reform.

During most of the last 70 years, Austria has been governed by a coalition of 2 political parties (ie, The Social Democratic Party [a social democratic party] and The People’s Party [a Christian conservative party]). Occasionally, these parties have ruled singularly or in coalition with The Freedom Party (a right-wing party). During the last 30 years, The Green Party (an environmental party) has become a stable player in Austrian politics, with some 10% of votes. Presently, The Green Party or The Freedom Party are coalition partners in several province governments.

In 1956, the state of Austria declared its military neutrality and until now holds no membership in any military coalition. Instead, the declared aim of Austria’s foreign policy is to participate in international organizations.¹² In accordance with this intention, Austria is presently a member of 72 such organizations,¹³ and among others, hosts the International Atomic Energy Agency, United Nations Industrial Development Organization, United Nations Office at Vienna, Organization for Security and Cooperation in Europe, and European Monitoring Center on Racism and

Xenophobia. However, membership in the EU (since 1995) is its most important membership. At present, Austria is one of the EU net contributors and one of the wealthiest members of the community with a gross domestic product of 34 000 € per capita in 2013.¹⁴

In the 2013 academic ranking of 500 world universities (Shanghai Ranking), the Medical School of Vienna holds positions between 201 and 300, and the Graz Medical School and the Innsbruck Medical School hold positions between 401 and 500, respectively.¹⁵ These medical schools are the most important providers of tertiary health care.

In the 2012 Corruption Perception Index of Transparency International,¹⁶ Austria scored 69 and ranked 26th of 175 assessed countries worldwide (position 1 = country with least evidence for corruption).

Child Health and Well-Being Status

In 2012, median life expectancy in Austria was 80.2 years (women 83.3 years and men 78.3 years), which corresponds to an increase of about 4 years in comparison with life expectancy in 1990.¹⁷ Life expectancy in Austria is slightly above the EU-27 average.¹⁸ However, healthy life expectancy is only around 60 years of age, depending on the calculation method.

Over the past 20 years infant mortality has fallen considerably (**Table III**). Whereas in the early 1990s when approximately 8 of 1000 newborns died within the first year, only 3.2 died in 2012,²² about one-half of whom died within the first week. Infant mortality in Austria corresponds to the EU-15 average, but is below the EU-27 average. There are, however, problems regarding high preterm birth rates (8.4% in 2012) and a high proportion of infants with low birth weight (around 7% below 2500 g and around 1% below 1500 g). Both indicators are above the EU-15 average.¹⁸ Furthermore, the rate of deliveries by cesarean in Austria is, compared with many other European countries, very high (about 30% of births with an increasing trend).

The maternal mortality rate also has decreased over the past decades.¹⁹ Whereas in 1990 when 6.6 women died per 100 000 births, in 2012 only 1.3 women died per 100 000 births (**Table III**). Since 2002, the maternal mortality has been 1 to 3 women per year countrywide.

The mortality rate for 0- to 14-year-old children also has decreased considerably over recent years. Although 74 deaths per 100 000 were registered in 1990, only 35 deaths per 100 000 were reported in 2012. In 2012, apart from causes of death originating in the perinatal period (33%) and congenital malformations (26%), the main causes of death of children up to the age of 14 years were “external” causes (11%) and cancer (8%).¹⁹

The main reasons for hospital treatment of 0- to 14-year-olds in 2012 were diseases of the respiratory system (18%), injuries (14%), infectious diseases (8%), and diseases originating in the perinatal period (8%).²³

Data related to diseases treated in outpatient settings or outside of hospitals are not systematically documented in

Table I. Sociodemographic key indicators

	1990	1995	2000	2005	2010	2012	Source
Total population*	7 644 818	7 943 489	8 002 186	8 201 359	8 375 290	8 408 121	Eurostat [‡]
Population 0-14 y [†]	1 340 304	1 471 056	1 371 750	1 323 033	1 244 870	1 224 134	Eurostat [‡]
Population 15-24 y	1 169 600	1 016 935	954 651	1 010 270	1 022 230	1 017 852	Eurostat [‡]
Population over 65 y	1 139 841	1 196 874	1 233 667	1 307 945	1 475 921	1 496 357	Eurostat [‡]
Population density 1 [§]	236	245	247	253	258	259	Eurostat, ST.AT [¶]
Population density 2 ^{**}	91	95	95	98	100	100	Eurostat, ST.AT [¶]
Average number of children per family (under age 15 y)	1.61	1.62	1.61	1.60	1.60	1.60	ST.AT ^{††}
Average age of women at first childbirth	25.0	27.7	26.4	27.3	28.2	28.7	Eurostat [‡]
Fertility rate	1.46	1.36	1.41	1.44	1.44	1.44	Eurostat [‡]
Birth rate (births per 1000 inhabitants)	11.8	11.2	9.8	9.5	9.4	9.4	Eurostat [‡]
Death rate (deaths per 1000 inhabitants)	10.9	10.2	9.6	9.2	9.2	9.4	Eurostat [‡]
Age dependency ratios							
Population 0-14 y:15-64 y	26.0	26.6	25.4	23.8	22.0	21.5	Eurostat [‡]
Population (0-14 y +>65 y):15-64 y	48.0	49.0	48.3	47.2	48.1	47.8	Eurostat [‡]
Distribution of population (rural/urban): share of children living in communities up to 20 000 inhabitants				69	68	68	ST.AT ^{††,‡‡}
Proportion of single parent households	19.2	19.6	20.4	21.2	20.9	20.3	ST.AT ^{††}

Proportion (%) of single parent households: single parent households: all households with children.

*Annual growth rate of total population (1990-2012): 0.43% per year.

†Annual growth rate of population aged 0-14 years (1990-2012): -0.41% per year.

‡Eurostat: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.²

§Population density 1: inhabitants per km² area of permanent settlement.

¶ST.AT: http://www.statistik.at/web_de/klassifikationen/regionale_gliederungen/dauersiedlungsraum/index.html.³

**Population density 2: inhabitants per km².

††ST.AT: Statistik Austria (2013): Familien- und Haushaltsstatistik 2012. Ergebnisse der Mikrozensus-Arbeitskräfteerhebung. Wien.⁴

‡‡ST.AT: Statistik Austria (2006): Familien- und Haushaltsstatistik 2005. Ergebnisse der Mikrozensus-Arbeitskräfteerhebung. Wien.⁵

Austria, and therefore are limited. In 2007, the incidence of diabetes for 0- to 14-year-olds was 18 per 100 000 for type 1 and 0.3 per 100 000 for type 2.²⁴ A regional analysis has documented problems relating to the musculoskeletal system for one-third of all school children.²⁵ The prevalence of atopic diseases is increasing, and regional data show that about 20% of the 8- to 22-year-olds suffer from allergies.²⁶

According to the Health Behavior in School-Aged Children Study,²⁷ about 15% of all school-aged children in Austria are overweight; this rate has increased over the

past 20 years. About 19% of 15-year-olds and 33% of 17-year-olds smoke daily (Table III). Smoking rates for 15-year-olds increased between 1994 and 2002, and decreased after 2002. About 25% of 11- to 17-year-olds regularly drink alcohol at least once a week. Both smoking and drinking rates are above the European average.²⁸

In Austria, about 22% of children under the age of 16 years live at risk of poverty or social exclusion (with increasing trend).²⁹ This is clearly below the European average of EU-28 and EU-15 countries.¹⁸ The rate of early dropouts of

Table II. Economic key indicators

	1990	1995	2000	2005	2010	2012	Source
GDP	136 135	176 183	213 196	253 009	294 208	317 213	Statistik Austria*
GDP per capita	17 808	22 180	26 642	30 850	35 086	37 526	Statistik Austria*
Public expenditure (% GDP)	NA	NA	52.13%	NA	52.6% [†]	50.7% [‡]	OECD [§]
Unemployment (number and % of total labor force)	165 795 (5.4%)	215 716 (6.6%)	194 314 (5.8%)	252 654 (7.3%)	250 782 (6.9%)	260 643 (7.0%)	AMS [¶]
Youth unemployment rate (15- to 24-y-olds)			6.3	10.3	8.8	8.7	Eurostat**
Poverty rate ^{††} (total population)				16.8	16.6	18.5	Eurostat**
Poverty rate ^{††} (children less than 16 y)				18.5	19.3	21.7	Eurostat**
Inequality measure: Gini coefficient ^{‡‡}				26.2	26.1	27.6	Eurostat**

GDP, gross domestic product; NA, not available; OECD, Organization for Economic Cooperation and Development.

*Statistik Austria.^{6,7}

†2009.

‡2011.

§OECD http://www.oecd-ilibrary.org/governance/government-at-a-glance-2013/general-government-expenditures-as-a-percentage-of-gdp-2001-2009-and-2011_gov_glance-2013-graph48-en.⁸

¶AMS (Arbeitsmarktservice).⁹

**Eurostat: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.²

††Poverty rate: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_peps01&lang=de.¹⁰

‡‡Gini coefficient: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_di12&lang=de.¹¹

Table III. Key indicators for child health and well-being status

	1990	1995	2000	2005	2010	2012	Source
Life expectancy at birth (y)	75.7	76.7	78.1	79.2	80.0	80.4	ST.AT*
Perinatal mortality rate (per 1000 live births)	6.9	6.9	6.7	5.9	5.9	5.1	ST.AT†
Neonatal mortality rate (per 1000 live births)	4.5	3.4	3.3	2.9	2.7	2.3	ST.AT†
Postneonatal mortality rate (per 1000 live births)	3.3	2.0	1.6	1.2	1.2	0.9	ST.AT†
Maternal mortality rate (per 100 000 live births)	6.6	1.1	2.6	3.8	1.3	1.3	ST.AT†
Infant mortality rate (per 1000 live births)	7.8	5.4	4.8	4.2	3.9	3.2	ST.AT†
0-5 y mortality rate (per 100 000)	191.5	138.1	109.8	99.3	93.4	75.7	ST.AT*
0-14 y mortality rate (per 100 000)	73.8	54.5	43.3	38.3	35.3	31.3	ST.AT*
Main causes of child death (% communicable, noncommunicable, external)	NA	NA	NA	NA	NA	NA	NA
Main causes of DALYs in childhood	NA	NA	NA	NA	NA	NA	NA
Main causes of morbidity (asthma, diabetes, epilepsy, neuropsychiatric, injuries)	NA	NA	NA	NA	NA	NA	NA
Main risk factors for ill health							
Daily smoking 15-y-olds (%)					19.4		HBSC, Ramelow
Daily smoking 17-y-olds (%)					32.6		HBSC, Ramelow
Drinking alcohol at least once a wk 15-y-olds (%)					19.7		HBSC, Ramelow
Drinking alcohol at least once a wk 17-y-olds (%)					38.4		HBSC, Ramelow
Eating fruit and vegetables daily, 11- to 15-y-olds (%)					44.4		HBSC, Ramelow
Number of days with 1 h physical activity per d within the last wk, 11- to 15-y-olds					4.42		HBSC, Ramelow
Early leavers from education and training (18- to 24-y-olds)				9.1	8.3	7.6	Eurostat
Children (less than 16 y) at risk of poverty or social exclusion				18.5	19.3	21.7	Eurostat
Adolescent pregnancy and birth rates (under 20 y)		4.4	4.2	3.9	3.2	2.6	ST.AT†
Immunization rates for measles	60.0	60.0	74.7		76.0	76.0	WHO‡

HBSC, Health Behaviour in School-aged Children Study; NA, data not available; DALY, disability-adjusted life year; WHO, World Health Organization.

*ST.AT Statistik Austria Todesursachenstatistik¹⁹ and calculations from Gesundheit Österreich GmbH/ÖBIG.⁴

†ST.AT Statistik Austria (2013) Jahrbuch der Gesundheitsstatistik (2012).²⁰

‡WHO <http://data.euro.who.int/hfad/b/>.²¹

education and vocational training (7.6% in 2012) is below the European average.

Organization and Governance of Child Health Care Services

Aside from national action plans in 2004³⁰ and 2011³¹ to specifically promote child health, child health care services in Austria are part of the overall health care system and, thus, closely linked to the system as a whole. As shown in

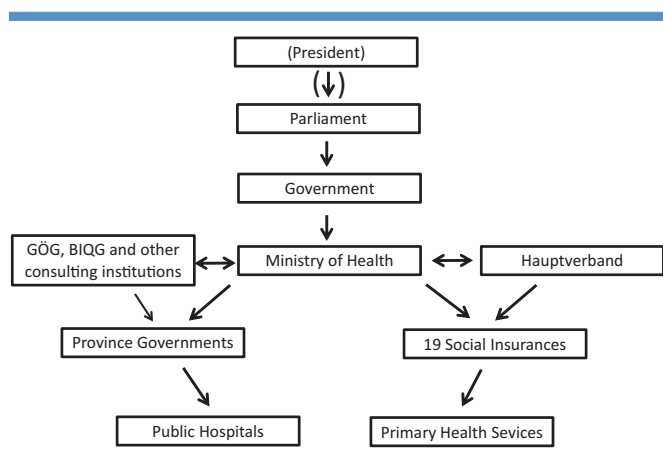


Figure 1. Organization of the Austrian health care system (simplified). GÖG, Gesundheit Österreich GmbH; BIQG, Bundesinstitut für Qualitätssicherung im Gesundheitswesen.

Figure 1, health care services are based on a complex and complicated system of national planning, which is adjusted by regional modifications and provisions.^{32,33} Furthermore, responsibilities for different fields (eg, PHC, hospital care, rehabilitation, preventive measures) are divided among several institutions. Because of the federal system, the 9 provinces have a major influence on all health care system decisions; the same holds true for the (overall) 19 social insurance funds.^{32,33} Currently, a reform process is taking place in Austria with the aim of a better coordination of activities and competencies between the different institutions (Gesundheitsreform)³⁴ and to enroll other socioeconomic government agencies, which are relevant for the health of the population (Health in all Policies).

In Austria, a membership with one of the 19 social insurance funds is mandatory for all employed people. Interestingly, it is not part of the current reform process³⁴ mentioned above to reduce the number of social insurance funds. Children are covered through their parents; the unemployed usually have free-of-charge access to the insurance system. Thus, the coverage of health care cost is provided for almost all of Austrian citizens and legal immigrants.

Planning of the Provision of Health Care

Planning is intended to be on the basis of health care needs. For this purpose, several institutions are affiliated to or in cooperation with the Ministry of Health (eg, Gesundheit Österreich GmbH, Ludwig Boltzmann Institut, Institut für Höhere Studien). Following the principles of health technology assessment, these institutions calculate health

needs (eg, hospital beds, technical equipment per region) on population- (provided by Statistik Austria, Vienna, Austria) and morbidity-based data.^{22,23} For hospital stays, all data are centrally available via the so-called Leistungsorientierte Krankenanstaltenfinanzierung System (LKF), outpatient data are available via the social insurances and their coordinating institution (Hauptverband der Sozialversicherungen).

However, data are not available for all fields of health care. For example, it was not clear for a long time how many patient beds for pediatric rehabilitation are really necessary. Only because of an initiative of the Austrian Society of Pediatrics and Adolescent Medicine, figures were re-evaluated in 2008 and finally resulted in an Austrian Rehabilitation Master Plan for Children and Adolescents.³⁵

Quality assurance is mostly the responsibility of the Ministry of Health, which again is supported by affiliated institutions (eg, Bundesinstitut für Qualitätssicherung im Gesundheitswesen³⁶). However, because of limited resources, quality assurance focuses only on some fields of child health care, and no systematic quality control is provided for many others.

On occasion, the affiliated institutions mentioned above consult medical specialists of the relevant fields or disciplines in order to acquire the best possible results, the selection of these is, however, to some extent arbitrary.

Education and Training of Physicians

Responsibility for the education and training of medical professionals lies in the hands of the Ministry of Health; it is, however, to a wide extent further delegated to the Austrian Medical Chamber.³⁷ The latter again involves the approximately 45 scientific societies of the different disciplines to organize education and training. Recently, the curricula for general medicine and all medical specialties have been reformed, so that new guidelines have existed for all medical training since June 2015. The contents overlap with EU programs or recommendations to some extent but are not identical by far.

All training institutions (for Pediatrics as well as for all other disciplines) have to be certified by the Austrian Ministry of Health based on a mandatory training program for which a recertification has to be issued every 7 years.

With regards to training programs in Pediatrics, an enormous difference between general practitioners (GPs) and pediatricians can be found. While future plans intend to shorten pediatric training for GPs from 42 months of overall education to 3 months, pediatricians complete 6 years of training in pediatrics and adolescent medicine. This big difference is the main reason why the Austrian Society of Pediatrics and Adolescent Medicine and Politische Kindermedizin are requesting a separate PHC provision for children in Austria.

Within Pediatrics, the same specializations as in other European countries are covered, however, only 6 of them are certified by the Ministry (cardiology, diabetology and endocrinology, hemato-oncology, neonatology and pediatric intensive care, neuropsychiatry, pulmonology and

allergy³²). At the moment, it is not clear whether additional specializations will be certified after the reform process of June 2015.

Governance

Governance of the Austrian health care system is very complex and complicated.^{32,33} Although the Ministry of Health is the leading institution for all health care matters, its influence and most of its financial resources are very limited. Financial resources are mostly in the hands of the social insurance funds and the provinces. The so-called §15a agreement of the state and the 9 provinces regulates the flow of money between these partners. The provinces are responsible for financing the hospitals. Provision of health care by public hospitals creates a huge deficit. Per this regulation, provinces are also given the “right” to run hospitals according to their own decision. Thus, the overall Austrian Structural Plan for Health (ÖSG³⁸) is transformed into 9 Regional Structural Plans for Health, giving way to inhomogeneous structures in every province.

Guidance and Counseling of Families

According to the United Nations Convention on the Rights of the Child (which was signed by Austria in 1990, ratified in 1992, and became a partially constitutional law in 2011³⁹) and the European Charter for Children in Hospital,⁴⁰ whenever possible, families are routinely involved in the decision processes, and accompanying parents (especially of infants and toddlers) are the norm in Austrian children’s hospitals.

Parents have, however, limited access to objective data concerning quality indicators. The few informative sources available (eg, Spitalskompass) focus mostly on infrastructural aspects and do not routinely mention treatment results or outcome.⁴¹

As mentioned above, insurance of the parents covers all medical and surgical treatment of their children (usually with a small amount retained for their own account, which means that approximately 15 Euros per day will have to be paid by the parents). State of employment and province of residence will determine which of the 19 social insurance funds is responsible for coverage; a free choice is not possible. Some children have additional private insurance; the proportion of these in contrast to adults is very small (estimated 3%-5%). Provision of medical services is exactly the same for public and patients with additional private insurance; the main difference during a hospital stay is equipment and “comfort” in patient rooms (eg, room size, food selection, television, etc).

Financing

The Austrian health care system is primarily financed through a combination of income-based social insurance contributions, public income generated through taxes, and private payments in the form of direct and indirect copayments. One of the core pillars of the national health

care system is the solidarity-based funding principle, which grants equal access to health care services for all Austrian inhabitants, independent of their income, age, sex, or origin.

In 2012, 10.7% (2011: 10.5%) of the gross domestic product was spent on health care, which corresponds to approximately €34.07 billion (2011: €32.5 billion) or a per capita spending of €4030 (2011: €3872).^{6,7} This amount includes expenditure for long-term care. The largest share of current health care expenditure is inpatient care (32.9%), followed by outpatient care (23.3%), and health care products, including medicine (15.5%).

Around 76% of total health expenditure is generated by public sources. This includes the spending of social health insurance funds as well as the federal, provincial, and local governments. The remaining 24% is private health care expenditure (eg, out-of-pocket payments by households, spending of the private health insurance companies, other private nonprofit organizations, expenditure of companies for services provided by occupational health physicians).^{6,42}

In recent decades, Austria has faced continuous increases in health care expenditure, which was one of the driving forces behind the current health care reform. Between 1990 and 2012, total annual health care expenditure increased by an average of 5.1%, placing Austria below the EU-15 average rate.¹⁸ In the last 5 years, the average annual growth rate was reduced to 3.5% (Figure 2), showing that the increase of public spending was higher than total spending.

Social insurance is the most important source of health care funding, contributing around €15.2 billion in 2012, which corresponds to about 48% of current health care expenditure (ie, without investments). In 2012, almost 99% of the population was covered by health insurance. Whereas outpatient care for adults and children is almost entirely financed by the 19 health insurance funds, expenditure for inpatient care is shared by the public sector and social insurance. Long-term care services are mainly funded through taxes. To finance hospital care, social insurance pays an annually adjusted lump sum (€4.4 billion in 2012 and €4.2 billion in 2011) to regional health care funds, thus, it is not possible to differentiate how much of these funds are spent on hospital care for children and other persons.⁴³ Table IV shows personal expenditure for children by different age groups, amounting to €1.7 billion in total and excluding money spent on collective care.

In 2011, total personal expenditure for all age groups was €28 931 million and represented 89% of total health care expenditure in Austria. In 2011, the share of personal expenditure allocated to children between 0 and 14 years of age amounted to 5.9% (ie, €1.7 billion). This share of expenditure has been decreasing slowly during recent years (in 2006, for instance, it was 6.2%). The main reason for this decrease is demographic development. Still, between 2006 and 2011, the nominal personal health expenditure for children increased by 3.1%. In the 6 years analyzed,

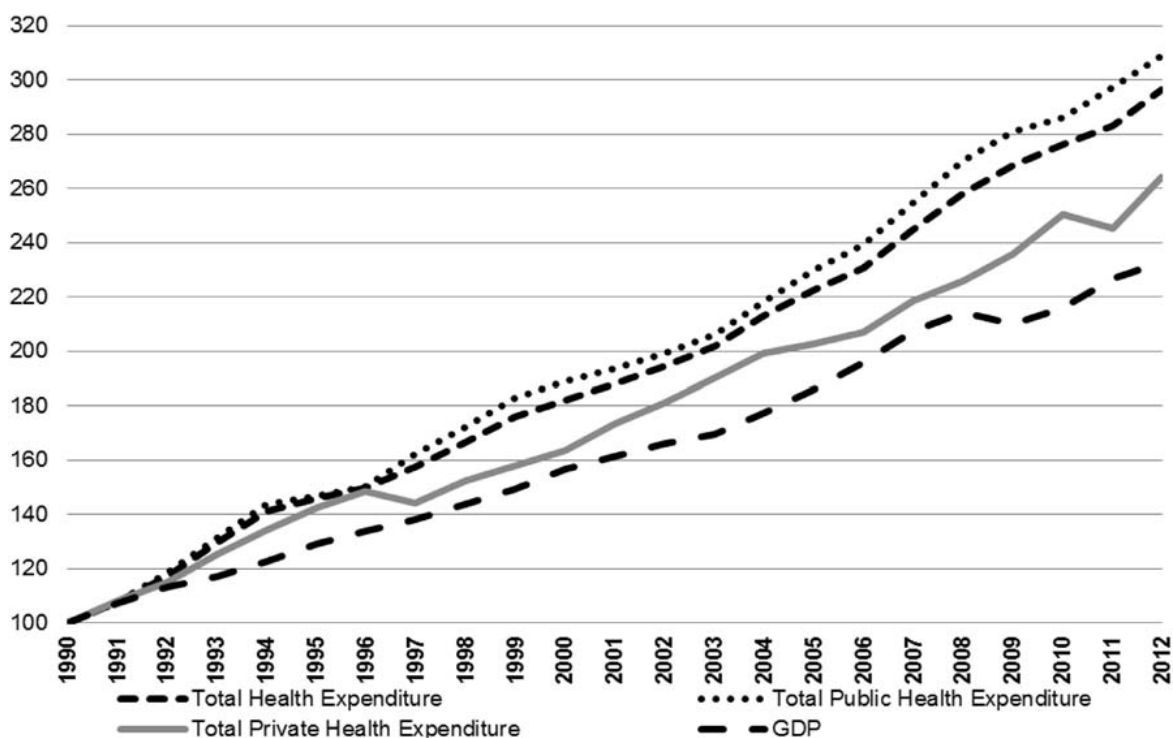


Figure 2. Development of health expenditure and gross domestic product (GDP), 1990-2012, indexed (1990 = 100). Source: Statistik Austria.⁶

health expenditure was 20% higher for boys than for girls.^{6,44}

In the above-mentioned total expenditure of €28 931 million, expenses for the federal children vaccination program, for the so-called Mother and Child Passport, a preventive and screening program for pregnant women and their newborns, as well as further health promotion programs targeted toward young people (eg, at school or a screening program for working youth until the age of 18 years) are not included.⁴⁴

In both 2010 and 2011, social insurance funds and the federal state of Austria together spent €2.5 million for a screening program for 61 677 working youth, mainly apprentices (representing 68% of all persons working in this age group).⁴²

The cost of the children vaccination program (vaccines, distribution, logistics) is shared by the federal state (2/3), social insurance funds (1/6), and the respective Austrian province where the vaccination takes place (1/6). In 2012, the preliminary calculation expenditure for this program was around €22 million.

Another major expenditure for children's health is the cost of the Mother and Child Passport, which is administered by the Familienlastenausgleichsfonds. Two-thirds of Familienlastenausgleichsfonds is financed by the federal state and one-third by the social insurance funds. In 2012, €54.4 million was spent on this prevention program, representing a significant increase from 43.04 million in 2001.^{6,45}

In addition to the above, around €19.3 million was spent on health care provided at schools by doctors and nurses via the so-called Schulärztlicher Dienst, which is funded by the federal state (77%), the provinces (11%),

and the municipalities (12%). Other expenses incurred were for further preventive measures or for health promotion activities (eg, healthy lunch in schools or in kindergarten, Early Family Help Program, Frühe Hilfen). These costs, however, are not recorded systematically, and, therefore, no reliable data are available.

Physical and Human Resources

Number, Location, Size, and Age of Hospitals

In 2012, there were 277 hospitals in Austria. Ninety-nine of these with a total of 40 290 beds provided general health care on 3 levels: 59 hospitals for basic care, 32 for extended care, and 8 for maximum care.⁴⁶ The last group includes 4 university hospitals, 1 each in the cities of Vienna, Graz, Innsbruck, and Salzburg (in near future also in Linz, the third largest city in Austria).

Basic care hospitals rarely have specific facilities for the care of children and adolescents, but they sometimes provide surgical or emergency treatment for this age group. In Austria, there is a total of 43 general hospitals or departments for the care of children and adolescents, usually corresponding to levels 2 or 3 of the hospital health care system.⁴⁷ Table V shows the number of hospitalizations of children and adolescents up to 19 years of age, as well as the percentage for selected departments in 2002 and 2012.⁴⁸

Although the total number of hospitalizations decreased between 2002 and 2012, there was a marked shift to hospitals and departments specializing in the treatment of children and adolescents.

Hospitals with facilities for the treatment of children and adolescents are geographically spread throughout the

Table IV. Personal expenditure on health by age and sex in Austria, 2011 (in millions €). Source: Statistik Austria.⁴⁴

	<1 y	1-4 y	5-14 y	All children
Females				
Personal health care services	133	143	361	636
Inpatient services	110	50	94	254
Day care services	2	1	2	4
Outpatient services	20	88	254	362
Home care	1	4	11	16
Ancillary services to health care	1	4	10	15
Medical goods dispensed to outpatients	5	28	91	124
Pharmaceuticals and other medical nondurables	3	20	56	79
Therapeutic appliances and other medical durables	2	8	35	44
Total personal health care services and goods, females	138	174	462	775
Males				
Personal health care services	162	180	424	766
Inpatient services	139	72	129	340
Day care services	2	1	2	6
Outpatient services	19	100	278	397
Home care	2	6	15	23
Ancillary services to health care	1	6	15	21
Medical goods dispensed to outpatients	6	38	108	152
Pharmaceuticals and other medical nondurables	4	27	71	102
Therapeutic appliances and other medical durables	2	11	37	50
Total personal health care services and goods, males	169	224	547	939
Total personal health care services and goods, all children	307	398	1009	1714

Rounding differences were not settled. Note that expenditure for collective care, ie, prevention and public health services such as health administration (eg, for health insurance administration or public health officers), as well as privately funded occupational health care, is not included in these figures.

country; their distribution, however, is inhomogeneous depending on regional and local conditions and history. The size of hospitals, therefore, varies considerably. **Table VI** shows the total number of pediatric and adolescent beds for the 9 Austrian provinces. The per capita bed rate varies greatly between regions.⁴⁶ Altogether, there is an excessive rate of pediatric beds while there is a simultaneous lack of pediatricians in hospitals.³³

General health care in children's hospitals is considered to be good,³² but there is a lack of coordination and concentration of specialized care for rare and complex diseases.⁴⁹ At present, 355 beds for child and adolescent psychiatry are available, but according to the World Health Organization,⁵⁰ a minimum of 666 beds are needed.

Resources for child and adolescent rehabilitation also are very limited. According to recent calculations, 343-453 places are needed, but only 52 were available in 2010.^{35,51,52} Because of financing disagreements between the health insurance funds and the provinces, an existing expansion plan has so far failed to be implemented. In 2014, these 2 parties came to an agreement to establish further rehabilitation beds for children and adolescents; however, realization is still pending.

Austria has a long history of general and children's hospitals. Thus, the oldest, still existing hospitals date back to the end of the 19th century and have continuously been adapted to meet new requirements. On the other hand, new hospitals are under construction or being planned, resulting in a wide range of hospitals dating back to various years.

Facilities for PHC Services for Children

PHC for children in Austria is provided through a mixed system by GPs and pediatricians. Access to pediatricians as well as to other specialists is freely available, apart from minor restrictions by some health insurances. GPs do not act as gatekeepers in the Austrian system. Therefore, specialists also may be contacted as a first choice.

GPs and pediatricians, at a ratio of 2.5 to 1, respectively, are responsible for about 70% of the services provided under the

statutory health insurances for children and adolescents up to 19 years of age. The remaining 30% of services provided by other specialists are usually not part of PHC.⁵³

In 2013, there were 1211 pediatricians for 1 219 363 children until 15 years of age (ie, 99.3 pediatricians per 100 000 children). Ten years before, the ratio was 950 pediatricians for 1 339 290 children until 15 years of age (ie, corresponding 70.9 pediatricians per 100 000 children).⁵⁴

From 2003 to 2013, the number of pediatricians in hospitals and private practice increased from 35.0-45.7 per 100 000 children (until 15 years of age) with marked regional differences ranging from 32.7 in Upper Austria to 69.1 in Vienna.⁵⁴ In the same period, the density of GPs rose only from 73.6 to 75.2 per 100 000 people of all ages.

Table VII shows the increase of all pediatricians, particularly those practicing in hospitals in the past 10 years. The number of pediatricians in a panel practice remained almost the same, whereas the number of private practices increased considerably during this period.⁵⁴

Eighty-six percent of practicing pediatricians work in their own practice, and this holds true for 91% of doctors in a panel practice.⁵⁵ In 2012, the Austrian government decided to implement a health care reform, which mainly aims at strengthening PHC and promotes multidisciplinary PHC teams to improve PHC services and to reduce the burden on hospitals.

There is a shortage of child and adolescent psychiatrists in Austria; only 29 specialists were registered as of 2013. Nine of these worked in their own private medical practice.⁵³ The number of outpatient wards in this field is also considered to be inadequate.⁵⁰ However, there recently have been some efforts to improve the situation.

Some institutions provide PHC for children and adolescents with neurodevelopment disorders. Availability of these services, nevertheless, differs greatly according to the region. A supply of publicly financed therapies for neurodevelopmental and mental health disorders also varies between regions. It is estimated that, at present, 70 000-150 000 children and adolescents are not receiving an appropriate therapy.^{56,57}

Provision of Services

As in most other countries, child health care services in Austria follow a hierarchical structure consisting of primary, secondary, and tertiary care.

PHC

In Austria, primary care is provided by a mixed system of general pediatricians and GPs. In larger cities, almost all parents contact a pediatrician for medical investigations and treatment of their children, but in rural areas the "family doctor" plays a central role in the care of children and adolescents.⁵⁸ Both general pediatricians and GPs are involved in the national preventive program covering the age of 0-5 years (Mutterkindpass, Mother and Child Passport). This program includes elements of primary (eg, general

Table V. Hospitalizations of children aged 0-19 years in Austria (2002 and 2012, total and as percentage rates in selected departments)

	2002	%	2012	%
Internal medicine	11 287	3.8	8296	3.2
Surgery	28 677	9.7	14 783	5.7
Emergency surgery	20 608	6.8	15 716	6.1
Orthopedics and orthopedic surgery	3372	1.1	3907	1.5
Pediatric surgery	26 523	9	25 470	9.9
Gynecology and obstetrics	7448	2.5	4935	1.9
Gynecology	2610	0.9	2427	0.9
Otorhinolaryngology	25 575	8.7	16 343	6.3
Urology	6575	2.2	5223	2
Pediatrics	135 435	45.8	136 033	52.8
Psychiatry	4832	1.6	2975	1.6
Neurology	1477	0.5	1748	0.7
Child and adolescent psychiatry	4300	1.5	5563	2.2
Total	295 543	100	257 541	100

Table VI. Pediatric beds in Austria (total and provinces in 2012)

	Total	B	C	LA	UA	S	St	T	Vbg	Vie
Pediatrics	2037	80	125	287	418	147	227	191	100	462
Pediatric beds per 100 000 children 0-15 y	166	211	163	122	194	183	139	179	163	188
Pediatric surgery	310	0	25	0	48	36	72	40	0	89
Pediatric surgery beds per 100 000 children 0-15 y	25	0	32	0	22	45	44	38	0	26
Child + adolescent psychiatry	355	0	41	88	92	30	34	0	10	60
Child + adolescent psychiatry beds per 100 000 children 0-15 y	29	0	54	37	43	38	21	0	16	24

B, Burgenland; C, Carinthia; LA, Lower Austria; S, Salzburg; St, Styria; T, Tyrol; UA, Upper Austria; Vbg, Vorarlberg; Vie, Vienna.

counseling, routine vaccination), secondary (eg, hip ultrasound), and tertiary care (eg, screening for inborn metabolic errors), and is free of charge.⁵⁹

General pediatricians as well as GPs usually provide health care in single-physician practices, institutions consisting of more than 1 doctor are rare.⁵⁵

Most families attend physicians who are under contract with their social insurance so that their provision of health care is free of charge. However, because the remuneration paid by insurance funds for care services provided is relatively low, a very limited amount of time is allotted to the individual patient, and patient numbers of 60-90 per day are the norm.⁵⁵

As a consequence, the number of pediatricians providing health care on a private basis and without a contract with a specific insurance has been increasing in recent years. In these cases, parents pay doctors directly and are refunded a certain percentage (80% of the contract-based charge) by their social insurance.

In Austria, parents have a free choice of contacting a pediatrician, a GP, or a children’s hospital for primary treatment (routine vaccinations, however, are not usually offered by hospitals). This choice of access, however, is limited by the fact that PHC pediatricians have limited working hours, so that they usually are not available during the night and on weekends. During nighttime hours and on weekends, parents, therefore, have to contact a GP (“family doctor,” especially in rural areas) or the next children’s hospital (especially in cities⁵⁸).

Referrals from a GP to a general pediatrician are uncommon. Patients needing further investigation or treatment usually are sent to the next children’s hospital. In some cases, they also will be sent directly to a tertiary care center.

Secondary Health Care

In Austria, pediatric secondary care is usually provided by children’s hospitals. According to the ÖSG, a children’s

Table VII. Number of pediatricians in Austria 2003 and 2013

Y	All pediatricians	In hospital*	In practice*	In panel practice	In private practice
2003	950	628	469	303	166
2013	1211	829	557	304	253

*Some are in hospital and in practice.

hospital should be reachable within 45 minutes for pediatric service and within 60 minutes for the services of pediatric and adolescent psychiatry for 90% of the population.³⁸ The density of children’s hospitals is very different in the 9 provinces. Although Vienna, Lower and Upper Austria, and Vorarlberg have a relatively high density of children’s hospitals with a sometimes relatively low number of patients’ beds, the comparatively large area of Styria only has 2 children’s hospitals (1 for the northern and 1 for the southern part) and thus, a higher number of patient beds in both hospitals by comparison.

Children’s hospitals individually provide secondary and tertiary health care to varying degrees. This depends on the qualification of the staff and sometimes the “tradition” of whether or not specialized treatment (eg, hemato-oncology, rheumatology, sleep medicine) is provided. Some regions (mostly Upper Austria) have started to close small children’s hospitals or departments and, thus, have reduced the overall number of beds.

Secondary health care may be provided either in an outpatient or inpatient setting, depending on the kind and severity of disease.⁵⁸ For safety reasons, there is a trend to keep patients in the hospital for observation if no pediatric service is available in the patient’s neighborhood. This results in a relatively short hospital stay, usually ranging from 2.5-3 days.⁴¹ When discharged, patients are often requested to contact their pediatrician or family doctor in case of further complications. Further care for patients who need specialized treatment (eg, diabetes, chronic inflammatory bowel disease, etc) is provided directly in the hospitals.

Tertiary Health Care

Tertiary care is especially provided by children’s hospitals, which are part of a university hospital. At the moment, Austria has 3 state university hospitals (Vienna, Graz, and Innsbruck), and a fourth state university hospital is presently being built (Linz). A private university hospital is located in Salzburg. With minor exceptions (eg, cardiac surgery and hemato-oncology), these centers provide the entire spectrum of specialized pediatric health care. Aside from university hospitals and depending on the expertise of the staff, some of the children’s hospitals providing secondary care also offer tertiary care to a certain extent.

For some highly specialized fields (eg, hemato-oncology, rheumatology, pediatric sleep medicine), a close collaboration takes place between the centers to guarantee the best

treatment available and to collect data for registries of special and rare medical entities.

In neonatology, criteria for tertiary health care are stipulated by the ÖSG, in which quality markers for the treatment of premature infants are defined. The same holds true for pediatric hemato-oncology and pediatric cardiology.³⁸

Major Health System Reforms

Specialists^{60,61} and international organizations⁶²⁻⁶⁵ agree that Austria has a comprehensive health system that provides all necessary services for the majority of its population.⁶⁶ However, the system suffers from an inflated hospital sector and an undersized outpatient and preventive care sectors. The costs for this system are well above the EU-15 average.¹⁸ The reasons for this lie in the high rate of inpatient care and a splintered administration involving too many players active in the federal system and the numerous bodies of self-governance.⁶¹ In addition, the system has some important voids regarding the health care coverage of children.³³

During recent years, the need for reforms has become increasingly clear to specialists, politicians, and the public, and some tentative measures have been undertaken. With the implementation of the Federal Health Agency (Bundesgesundheitsagentur) and the ÖSG in 2005, 2 instruments for nationally-coordinated planning have been forged; however, a strong federal influence has resulted in great resistance to major changes. In addition, some steps were made to reduce the increase of cost for medication and to guarantee a financial basis for the health care system by the allocation of tax revenues to health insurances. In 2008, health insurance protection was expanded to indigent individuals who receive a minimum income from the state. At the same time, individual contribution to the cost of medication was limited to 2% of a net income.⁶¹

At the moment, Austria is on the way to further implement multiprofessional and interdisciplinary outpatient facilities, which are also intended to provide services during weekends and at night, as well as in rural areas. This could be the first step toward downsizing the costly and inflated inpatient sector.

The agenda of the current government also includes the development of integrated care programs for the most common chronic conditions, and cross-regional planning of the provision of highly specialized medicine by funding centers of excellence.⁶⁷ The latter project is of eminent importance for the growing number of children with rare and severe diseases who often require long-term care.

Furthermore, the agenda comprises some plans, which are highly relevant for pediatric care, such as the development of a “children and young people’s psychiatry care concept” and the provision of services for child and adolescent rehabilitation. These plans were initiated after the Federal Ministry of Health announced several steps leading to the improvement of care in these areas in 2011.⁶⁸ However, to date, very little impact of this proclamation is visible in the daily routine of those who provide these health care services.

Health Care System Assessment

Because the results greatly depend on indicators applied, there is little agreement on how to precisely assess health care systems.⁶⁹ While being aware of this limitation, some country rankings are, nevertheless, provided in this report to allow for an overview of the spectrum to be considered.

In 1999, the World Health Organization ranked Austria’s overall health system as 9th of 190 countries evaluated.⁷⁰ By contrast, using a score based on life expectancy and costs of health care, Bloomberg presently ranks Austria as 35th of 55 economically-advanced countries, in 2015.⁷¹

The Health Consumer Powerhouse, a Swedish private organization,⁷² probably uses the most comprehensive data set for its analysis, including indicators of treatment outcome, supply, waiting time, use of drugs, prevention, and even patients’ rights and information. In the classification of 35 economically-developed countries, including all EU members, Austria has ranked between position 1 and 13 in the last 8 years.⁷³

Using indicators considering children and adolescents only, Austria’s health care system is less favorably assessed. In the rankings of 21 economically-developed and wealthy countries, the United Nations Children’s Fund⁷⁴ and the Organization for Economic Cooperation and Development⁷⁵ ranked Austria’s health care system for children and adolescents last and second to last, respectively. Although the results in these studies may be criticized for their use of few and by no means comprehensive indicators for the entire pediatric health care system, they should lead to an in-depth evaluation of the Austrian child health care system.

When assessing mortality of children less than 5 years of age, in accordance with other countries, Austria’s rate dropped significantly during the last 2 decades. Throughout the past few years, however, child mortality (<5 years of age) was approximately 30% higher than that of leading nations, although similar to other German-speaking countries (Figure 3). In absolute figures and compared with Sweden for the period 2006-2010, Wolfe et al⁷⁷ calculated an average of 106 excess annual deaths of Austrian children (0-14 years of age).

Although the Austrian health care system overall covers a high variety of services, there are some important exceptions concerning children and adolescents. Compared with Germany, about 70 000 Austrian children, for example, do not receive adequate physical, occupational, speech, or psychotherapy,⁵⁶ along with a huge deficit of facilities for child psychiatry.^{78,79} Other areas of concern are a dramatic lack of availability of pediatric practitioners to provide primary care at nighttime and on weekends,⁵⁵ and a lack of facilities for pediatric rehabilitation.⁸⁰ At the moment, the process from single pediatric practitioners providing primary care in their private offices to comprehensive PHC centers housing all pediatric primary caregivers is slowly getting started, and the awareness for the need of centers of competence and care networks is slowly increasing.⁴⁹

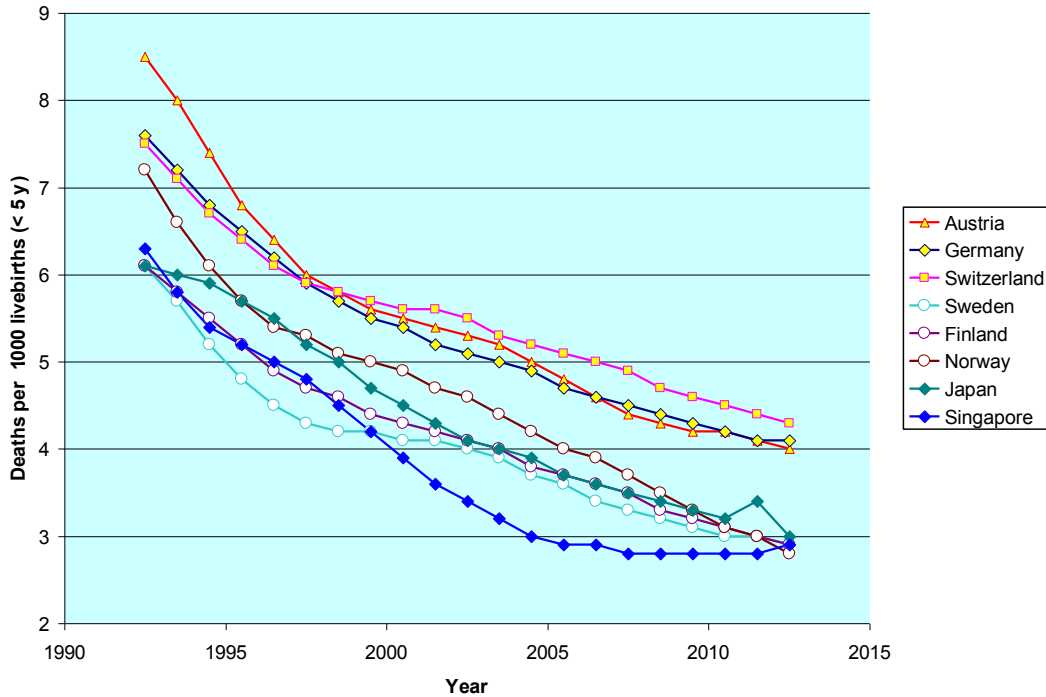


Figure 3. Changes in the mortality rate of children (<5 years of age) during the last 2 decades. Source: UN Interagency Group for Child Mortality Estimation in 2013 <http://www.childmortality.org>.⁷⁶

Whether these shortcomings in pediatric care will be remedied by the good intentions outlined in the above-mentioned governmental “Working Program”⁶⁷ remains to be seen. There is still room for concern because the Austrian government, as in most other European countries, has to run a cost-cutting program. Another limitation is the fact that the 9 provinces still have to agree to each single step of the scheduled health reform. To provide an example, it took 15 years until the Austrian Society of Pediatrics and Adolescent Medicine could finally get the “key players” to establish pediatric rehabilitation facilities in Austria.⁸⁰

Conclusions

Pediatric health care provision in Austria has reached a high standard in recent decades. Several aspects may have contributed to this development, among them the fact that Austria is a relatively wealthy country and has a long tradition of pediatric medicine. The introduction of the Mutterkindpass (Mother and Child Passport) in 1974 was another important step to reduce infant and child mortality. The low rate of infant and child mortality has enabled Austria to gain a place in the higher ranks of European countries, however, not among the top nations.⁷⁶ In comparison with some Scandinavian countries, Austria has an excess death rate of about 100-150 deaths annually for children 0-18 years of age. The reasons for these excess deaths remain to be clarified. A relatively high rate of preterm births, the lack of a regulation for single embryo transfer in case of in vitro

fertilization, and consideration of a birth between gestation weeks 22 and 24 as “live born” may significantly contribute to the fact that Austria does not rank among the top countries. There may, however, be other reasons that should be evaluated by single case analyses.

Aside from infant and children mortality, availability of health indicators is very limited. Data for “risk behavior” are mostly drawn from Health Behaviour in School-aged Children studies and show that Austrian children and adolescents, in comparison with other European countries, tend to smoke and drink more alcohol. This may at least in part be a consequence that Austria, to date, has spent a relatively small amount of the budget on preventive measures. At present, health services for sick children are mostly well organized and based on a multistep system of primary, secondary, and tertiary care. PHC consists of a mixed system of care by both general pediatricians and GPs. Adequate education and training in child health care are a precondition for an adequate provision of a well-functioning PHC system especially for children. In the future, however, GPs will unfortunately receive very limited training in pediatric skills. In addition, more deficits in several fields of child health care provision (eg, therapies for neurodevelopmental disorders, rehabilitation, child and adolescent psychiatry) will soon have to be overcome.

The Austrian system of health care planning and financing is complex and complicated. The state, 9 provinces, and 19 social insurance funds are key players in this system. All of these players have to agree on any changes that are to be implemented. It may, therefore, take a very long time to bring

about necessary changes. The 2012 declaration of the “key players” may be a signal of change toward a much needed reform process (Gesundheitsreform), which aims to strengthen PHC, consolidate resources, and generally simplify certain processes. At the moment, it is not clear whether or to what extent Austria’s youth will benefit from the scheduled changes.

It is important that health authorities (eg, minister of health, regional health authorities, leadership of health insurance companies) consult and work with pediatricians, pediatric surgeons, and pediatric psychiatrists in a European cross-border capacity for the planning and decision making of future pediatric health care. In the resulting process, the interests and the benefit of children and adolescents must always be the focus of all efforts. Nonprofit organizations, such as the Austrian Society of Pediatrics and Adolescent Medicine and the Politische Kindermedizin, are ready to contribute to this challenging task. ■

Author Disclosures

The authors declare no conflicts of interest.

References

1. Wikipedia Encyclopedia, Geography of Austria. http://en.wikipedia.org/wiki/Geography_of_Austria. Accessed March 15, 2015.
2. Eurostat, European Data Statistics. http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database. Accessed March 15, 2015.
3. Statistik Austria, Dauersiedlungsraum. http://www.statistik.at/web_de/klassifikationen/regionale_gliederungen/dauersiedlungsraum/index.html. Accessed March 15, 2015.
4. Statistik Austria. Familien- und Haushaltsstatistik 2012. Ergebnisse der Mikrozensus-Arbeitskräfteerhebung. Wien: Statistik Austria; 2013. [http://www.ecoplus.at/sites/default/files/Demographisches-Jahrbuch-2012\(1\).pdf](http://www.ecoplus.at/sites/default/files/Demographisches-Jahrbuch-2012(1).pdf). Accessed March 15, 2015.
5. Statistik Austria. Familien- und Haushaltsstatistik 2005. Ergebnisse der Mikrozensus-Arbeitskräfteerhebung. Wien: Statistik Austria; 2006.
6. Statistik Austria. Gesundheitsausgaben in Österreich nach System of Health Accounts. http://www.statistik.at/web_de/static/gesundheitsausgaben_in_oesterreich_laut_system_of_health_accounts_oecd_199_019701.xlsx; 2014. Accessed March 15, 2015.
7. Statistik Austria. Statistik des Bevölkerungsstandes gemäß §9 Abs.9 FAG 2008. http://www.statistik.at/web_de/statistiken/bevoelkerung/volkszaehlungen_registerzaehlungen_abgestimmte_erwerbsstatistik/bevoelkerungsstand/index.html; 2014. Accessed March 15, 2015.
8. OECDiLibrary, Government at a Glance 2013. http://www.oecd-ilibrary.org/governance/government-at-a-glance-2013/general-government-expenditures-as-a-percentage-of-gdp-2001-2009-and-2011_gov_glance-2013-graph48-en. Accessed March 15, 2015.
9. AMS. Arbeitsmarktlage seit 1946. http://www.ams.at/_docs/001_aml46-13.xls; 2014. Accessed March 15, 2015.
10. Eurostat, European Data Statistics. http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_peps01&lang=de. Accessed March 15, 2015.
11. Eurostat, European Data Statistics. http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_di12&lang=de. Accessed March 15, 2015.
12. Bundesministerium für Europa, Integration und Äußeres (BMEIA). <http://www.bmeia.gv.at>. Accessed March 15, 2015.
13. Index Mundi, Austria International organization participation. http://www.indexmundi.com/austria/international_organization_participation.html. Accessed March 15, 2015.
14. Eurostat, European Data Statistics. <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tsdec100&plugin=1>. Accessed June 28, 2016.
15. Academic Ranking of World Universities. <http://www.shanghairanking.com/ARWU2013.html>. Accessed March 15, 2015.
16. Transparency International. <http://www.transparency.org/cpi2013/results>. Accessed March 15, 2015.
17. Statistik Austria, Lebenserwartung. http://www.statistik.at/web_de/statistiken/gesundheit/gesundheitszustand/lebenserwartung_in_gesundheit/. Accessed March 15, 2015.
18. Eurostat Statistics Explained. http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:EU_enlargements. Accessed March 15, 2015.
19. Statistik Austria, Todesursachen. http://www.statistik.at/web_de/statistiken/gesundheit/todesursachen/todesursachen_im_ueberblick/. Accessed March 15, 2015.
20. Statistik Austria. Jahrbuch der Gesundheitsstatistik 2012; 2013. [http://www.ecoplus.at/sites/default/files/Demographisches-Jahrbuch-2012\(1\).pdf](http://www.ecoplus.at/sites/default/files/Demographisches-Jahrbuch-2012(1).pdf). Accessed March 15, 2015.
21. World Health Organisation (WHO), Regional Office for Europe. <http://data.euro.who.int/hfad/>. Accessed March 15, 2015.
22. Statistik Austria, Sterbefälle. http://www.statistik.at/web_de/statistiken/bevoelkerung/sterbefaelle/023633.html. Accessed March 15, 2015.
23. Statistik Austria, Spitalsaufenthalte. http://www.statistik.at/web_de/statistiken/gesundheit/stationaere_aufenthalte/spitalsentlassungen_nach_ausgewaehlten_diagnosen/index.html. Accessed March 15, 2015.
24. Griebler R, Geißler W, Winkler P. Zivilisationskrankheit Diabetes: Ausprägungen–Lösungsansätze–Herausforderungen. Österreichischer Diabetesbericht 2013. Wien: Bundesministerium für Gesundheit; 2013. http://www.bmg.gv.at/cms/home/attachments/5/8/2/CH1079/CMS1382427010786/diabetesbericht_20131021.pdf. Accessed March 15, 2015.
25. aks Arbeitskreis für Vorsorge- und Sozialmedizin. Schulstatistik gesamt 2011/2012. <http://www.aks.or.at/>. Accessed March 15, 2015.
26. Podolsky A. Gesundheits- und Fitnessstudie NÖ SchülerInnen. Landes-klinikum Krems: Institut für Präventiv- und Angewandte Sportmedizin; 2011.
27. Health Behaviour in School-aged Children (HBSC). <http://www.hbsc.org/>. Accessed March 15, 2015.
28. Ramelow D, Griebler R, Hofmann F, Unterweger K, Mager U, Felder-Puig R, et al. Gesundheit und Gesundheitsverhalten von österreichischen Schülern und Schülerinnen. Wien: BMG and BMUKK; 2011.
29. Statistik Austria, Soziales. http://www.statistik.at/web_de/statistiken/soziales/armut_und_soziale_eingliederung/. Accessed March 15, 2015.
30. Österreichischer Gesundheitsplan für Kinder. Bundesministerium für Gesundheit und Frauen (BMGF) Wien; 2014.
31. Bundesministerium für Gesundheit, Kinder- und Jugendgesundheitsstrategie. http://www.bmg.gv.at/home/Schwerpunkte/Kinder_und_Jugendgesundheit/Kinder_und_Jugendgesundheitsstrategie/. Accessed March 15, 2015.
32. Kerbl R. Das Gesundheitssystem für Kinder in Österreich - Strukturen und positive Seiten. In: Kerbl R, Thun-Hohenstein L, Damm L, Waldhauser F, eds. Kinder und Jugendliche im besten Gesundheitssystem der Welt, 4.Jahrestagung Politische Kindermedizin. Wien, New York: Springer; 2011. p. 21-37.
33. Waldhauser F. Das Gesundheitssystem für Kinder in Österreich – die Schwächen. In: Kerbl R, Thun-Hohenstein L, Damm L, Waldhauser F, eds. Kinder und Jugendliche im besten Gesundheitssystem der Welt, 4.Jahrestagung Politische Kindermedizin. Wien, New York: Springer; 2011. p. 39-52.
34. Bundesministerium für Gesundheit, Gesundheitsreform. <http://www.bmg.gv.at/home/Gesundheitsreform/>. Accessed March 15, 2015.
35. Gesundheit Österreich GmbH (GÖG), Kinder- und Jugendlichenrehabilitation. <http://www.goeg.at/de/BerichtDetail/Rehabilitation-von-Kindern-und-Jugendlichen-in-Oesterreich.html>. Accessed March 15, 2015.
36. Gesundheit Österreich GmbH (GÖG), BIQG-Aufgaben. <http://www.goeg.at/de/BIQG-Aufgaben.html>. Accessed March 15, 2015.
37. Österreichische Ärztekammer (ÖÄK), Ausbildungskommission. <http://www.aerztekammer.at/ausbildungskommission>. Accessed March 15, 2015.

38. Bundesministerium für Gesundheit, Planung und spezielle Versorgungsbereiche. http://www.bmg.gv.at/home/Schwerpunkte/Gesundheitssystem_Qualitaetsicherung/Planung_und_spezielle_Versorgungsbereiche/Oesterreichischer_Strukturplan_Gesundheit_OeSG_2012. Accessed March 15, 2015.
39. Bundesministerium für Familien und Jugend, Kinderrechte. <http://www.kinderrechte.gv.at/>. Accessed March 15, 2015.
40. European Association for Children in Hospital (EACH). <http://www.each-for-sick-children.org/>. Accessed March 15, 2015.
41. Österreichischer Spitalskompass, ÖBIG. <http://www.spitalskompass.at/>. Accessed March 15, 2015.
42. BMG. The Austrian health care system. Key facts. Updated version 2013. Vienna: Ministry of Health; 2013.
43. Hauptverband der österreichischen Sozialversicherungsträger. Handbuch der österreichischen Sozialversicherung. Vienna: Hauptverband der österreichischen Sozialversicherungsträger; 2013.
44. Statistik Austria. Individual health expenditure according to system of health accounts (Table 7) based on National Accounts and Company Reports; 2014.
45. Habl C, et al. Öffentliche Ausgaben für Prävention und Gesundheitsförderung in Österreich 2001. Vienna, Austria: BMG; 2005.
46. Bundesministerium für Gesundheit (Ministry of Health). Krankenanstalten in Zahlen (hospitals by numbers). <http://www.kaz.bmg.gv.at/ressourcen-inanspruchnahme/krankenanstalten.html>. Accessed March 15, 2015.
47. Österreichische Gesellschaft für Kinder- und Jugendheilkunde (Austrian Society of Pediatrics and Adolescent Medicine). <http://www.docs4you.at/Content.Node/Ambulanzen/>. Accessed March 15, 2015.
48. Diagnosen- und Leistungsdokumentation von österreichischen Krankenanstalten 2001-2012. Provided by GÖG/ÖBIG (Gesundheit Österreich GmbH/Österreichisches Bundesinstitut für Gesundheitswesen) Austrian Institute for Health Care; 2014.
49. Waldhauser F. Kompetenzzentren retten Leben. In: Grünewald K, Maißner G, eds. Kritische Diagnosen. Krankenberichte zum Gesundheitssystem. Wien: Planet Verlag; 2013. p. 12-4.
50. Thun-Hohenstein L. Kinder- und jugendpsychiatrische Versorgung in Österreich - ein Update. In: Kerbl R, Thun-Hohenstein L, Damm L, Waldhauser F, eds. Kinder und Jugendliche im besten Gesundheitssystem der Welt, 4. Jahrestagung Politische Kindermedizin. Wien New York: Springer; 2011. p. 83-9.
51. Kerbl R, Sperl W. Rehabilitation im Kindes- und Jugendalter. Monatsschr Kinderheilkd 2011;159:616-7.
52. Sperl W, Nemeth C, Fülöp G, Koller I, Vavrik K, Bernert G, et al. Rehabilitation für Kinder und Jugendliche in Österreich. Stand der Dinge und ein Blick über die Grenzen. Monatsschr Kinderheilkd 2011;159:618-26.
53. Endel G. Versorgung von Kindern und Jugendlichen. Soziale Sicherheit 2012;3:137-45. <http://www.hauptverband.at/portal27/portal/hvbportal/content/contentWindow?contentid=10008.564283&action=b&cacheability=PAGE&version=1391184550>. Accessed June 27, 2016.
54. Data from Österreichische Ärztekammer (Austrian Medical Chamber). Provided by GÖG/ÖBIG (Gesundheit Österreich GmbH/Österreichisches Bundesinstitut für Gesundheitswesen). Austrian Institute for Health Care; 2014.
55. Püspök R, Tatzler E, Waldhauser C. Primärversorgung durch niedergelassene Kinder- und Jugendärzte in Österreich - Angebot und Probleme aus pädiatrischer Sicht. In: Waldhauser F, Püspök R, Tatzler E, Thun-Hohenstein L, eds. Das Kind zuerst - Probleme der Kinder- und jugendmedizinischen Primärversorgung in Österreich. Pädiatrie Pädologie 2013;48(Suppl):106-18.
56. Püspök R, Waldhauser F. 70.000 Kinder und Jugendliche ohne Therapie. Pädiatrie Pädologie 2012;47:8-11.
57. Streiszler A. Ausgewählte Fragen zur Versorgung von Kindern und Jugendlichen durch die österreichische Krankenversicherung. Erstellt für Hauptverband der Österreichischen Sozialversicherungsträger; 2013. <http://www.hauptverband.at/portal27/portal/hvbportal/content/contentWindow?contentid=10008.564472&action=b&cacheability=PAGE&version=1391184564>. Accessed June 27, 2016.
58. Kerbl R. Die pädiatrische Spitalsambulanz im Netzwerk kindermedizinischer Primärversorgung. Pädiatr Pädol 2013;48(Suppl 1):66-70.
59. Kerbl R. 37 Jahre Österreichischer Mutterkindpass. Zeit für die "Eltern-Kind-Vorsorge neu" ? Pädiatr Pädol 2011;46:14-6.
60. Gönenç R, Hofmarcher M, Wörgötter A. Reforming Austria's highly regarded but costly health system. OECD Publishing. OECD Economics Department Working Papers; 2011. <http://dx.doi.org/10.1787/5kg51mbntk7j-en>. Accessed March 15, 2015.
61. Hofmarcher MM, Quentin W. Austria: health system review. Health Syst Transit 2013;15:1-292.
62. Organization for Economic Cooperation and Development (OECD), Austria: health care indicators. <http://www.oecd.org/austria/46505973.pdf>. Accessed March 15, 2015.
63. Organization for Economic Cooperation and Development (OECD), Health at a Glance 2013. <http://www.oecd.org/els/health-systems/Health-at-a-Glance-2013.pdf>. Accessed March 15, 2015.
64. Health Consumer Powerhouse, European Health Consumer Index (EHCI). <http://www.healthpowerhouse.com/files/ehci-2013/ehci-2013-at.pdf>. Accessed March 15, 2015.
65. Bundesministerium für Gesundheit, Tasks of the Federal Ministry of Health. http://www.bmg.gv.at/home/EN/Topics/Health_reform. Accessed March 15, 2015.
66. Austrian Health Care System. Gesundheit Österreich GmbH. 1. Vienna, Austria: Federal Ministry of Health; 2013.
67. Austrian Federal Chancellery. Working program of the Austrian Federal Government 2013-2018. Vienna: Austrian Federal Chancellery; 2013. <http://www.bka.gv.at/DocView.axd?CobId=53588>. Accessed March 15, 2015.
68. Child Health Strategy. Vienna: Federal Ministry of Health; 2011. p. 1-37.
69. Cypionka T, Röhring G, Kalmar M. Performance von Gesundheitssystemen. Health System Watch 2010;1-16.
70. WHO. Improving health system performance. The World Health Report. Geneva: World Health Organization; 2000. http://www.who.int/whr/2000/en/whr00_en.pdf. Accessed March 15, 2015.
71. Bloomberg, Europe. <http://www.bloombergbriefs.com/content/uploads/sites/2/2015/11/health-care.pdf>. Accessed June 28, 2016.
72. Health Consumer Powerhouse. http://www.healthpowerhouse.com/index.php?option=com_content&view=article&id=5&Itemid=2. Accessed March 15, 2015.
73. Health Consumer Powerhouse, Euro Health Consumer Index 2015. <http://www.healthpowerhouse.com/index.php?Itemid=55>. Accessed March 15, 2015.
74. UNICEF. An overview of child well-being in rich countries; 2007. http://www.unicef-irc.org/publications/pdf/rc7_eng.pdf. Accessed March 15, 2015.
75. Doing better for children; 2009. <http://www.oecd.org/dataoecd/21/22/43590132.pdf>. Accessed March 15, 2015.
76. Child Mortality Estimates. <http://www.childmortality.org>. Accessed March 15, 2015.
77. Wolfe I, Thompson M, Gill P, Tamburlini G, Blair M, van den Bruel A, et al. Health services for children in western Europe. Lancet 2013;381:1224-34.
78. Fliedl R. Probleme der Primärversorgung in der Kinder- und Jugendpsychiatrie. Pädiatrie Pädologie 2013;48(Suppl 1):85-90.
79. Thun-Hohenstein L. Psychisch kranke Kinder und Jugendliche werden allein gelassen. In: Grünewald K, Maißner G, eds. Kritische Diagnosen. Wien: Planet Verlag; 2013. p. 21-2.
80. Kerbl R. Reha für Kinder und Jugendliche. In: Grünewald K, Maißner G, eds. Kritische Diagnosen. Wien: Planet Verlag; 2013. p. 18-20.