

# Price comparison of high-cost medicines 2017

Brief report

---

Commissioned by the Federal Ministry of Labour, Social Affairs, Health and Consumer Protection



# Price comparison of high-cost medicines 2017

Brief report

Authors:

Sabine Vogler  
Peter Schneider  
Nina Zimmermann  
Martin Zuba

English translation:

Manuel Alexander Haasis

Project assistant:

Ingrid Freiburger

The views expressed in the publication are those of the authors and not necessarily those of the commissioning institution.

Vienna, July 2018

Commissioned by the Federal Ministry of Labour, Social Affairs, Health and Consumer Protection

Citation: Vogler, Sabine; Schneider, Peter; Zimmermann, Nina; Zuba, Martin (2018):  
Price comparison of high-cost medicines 2017 – Brief report. Gesundheit Österreich (Austrian  
Public Health Institute), Vienna

Owner, editor und publisher: Gesundheit Österreich GmbH (Austrian Public Health Institute),  
Stubenring 6, 1010 Vienna, tel. +43 1 515 61, Website: [www.goeg.at](http://www.goeg.at)

For the environment:  
This report is produced on recycled paper without optical brighteners.

# Abstract

## Aim

The study aims to analyse Austrian prices of high-cost medicines in comparison to other European Union (EU) Member States.

## Methods

Medicine price data of all 28 EU Member States were collected through the Pharma Price Information (PPI) service maintained by the Austrian Public Health Institute. Data were surveyed as of September 2017. The survey included 100 high-cost medicines in Austria that were selected based on information about top-selling medicines provided by the Main Association of Austrian Social Security Institutions (outpatient sector) and the Board of the Austrian Association of Hospital Pharmacists (inpatient sector). Ex-factory prices were analysed for all 100 selected medicines. In addition, analyses of further price types (pharmacy purchasing price and pharmacy retail price) were performed for the 60 outpatient medicines surveyed.

## Results

At the ex-factory price level, price data were available for 82 percent and 69 percent of all surveyed medicines administered in the outpatient and inpatient sector, respectively, in the 27 analysed countries (Malta was excluded due to insufficient data availability).

Compared to the other EU Member States, 80 percent of Austrian ex-factory prices of surveyed medicines were above the median. Overall, they were 4.4 percent above the average of the EU Member States, however differences between the two sectors were observed (0.5% above the EU average in the outpatient sector and 10.3% above the EU average in the inpatient sector). Austrian ex-factory prices were the lowest for a few of the analysed high-cost medicines in the outpatient sector, whereas they were never the lowest in the inpatient sector. While Austrian pharmacy purchasing prices (wholesale prices) in the outpatient sector ranked in the middle of the EU Member States (similar to the ex-factory prices of outpatient high-cost medicines), Austrian net pharmacy retail prices (i.e. without value-added tax) were among the highest in European comparison.

Price indices (i.e. weighted price data) showed the same pattern: Austrian ex-factory prices in the outpatient sector ranked in the middle whereas the price index of the selected high-cost medicines in the inpatient sector was second highest after Ireland. Austrian net pharmacy retail prices ranked third highest.

## Conclusion

The study confirmed findings of previous price comparisons that unregulated medicine prices in Austria's inpatient sector were high in an EU comparison and that Austrian pharmacy retail prices were among the highest in Europe.

## Keywords

medicine price, pharmaceutical pricing, international price comparison, Austria



# Content

Abstract .....	III
Figures .....	VI
Tables .....	VI
Abbreviations .....	VII
Abbreviations of country names.....	VIII
Foreword.....	IX
1 Objective .....	1
2 Methodology .....	1
3 Results .....	2
3.1 Data availability .....	2
3.2 Prices in country comparison .....	4
3.2.1 Ex-factory prices.....	4
3.2.2 Pharmacy purchasing prices .....	7
3.2.3 Pharmacy retail prices .....	7
4 Conclusions.....	9
5 Annex .....	10

## Figures

Figure 3.1: Results – Availability of ex–factory price data for high–cost medicines in 27 EU Member States, 2017 .....	3
Figure 3.2: Results – Ex–factory prices of high–cost medicines in EU comparison, 2017 (average price of each medicine = 100), illustration for the outpatient sector (left panel) and the inpatient sector (right panel) .....	5
Figure 3.3: Results – Price index at the level of the ex–factory price for high–cost medicines in the outpatient and inpatient sectors in 27 EU Member States, equally weighted (i.e. number of prescriptions per medicine = 1), 2017 .....	6
Figure 3.4: Results – Pharmacy retail prices of high–cost medicines in the outpatient sector in the EU comparison, 2017 (average price of each medicine = 100).....	8

## Tables

Table 5.1: List of the 60 high–cost medicines in the outpatient sector in the period January–April 2017, arranged in alphabetical order by active substance .....	10
Table 5.2: List of the 40 high–cost medicines in the inpatient sector, 2017, arranged in alphabetical order by active substance .....	14



# Abbreviations

ASVG	General Social Security Law [Austria]
ATC	Anatomical Therapeutic Chemical [WHO Classification]
BMASGK	Federal Ministry of Labour, Social Affairs, Health and Consumer Protection [Austria]
BMGF	Federal Ministry of Health and Women's Affairs [Austria]
EMA	European Medicines Agency
EU	European Union
GÖG	Austrian Public Health Institute (Gesundheit Österreich GmbH)
i. e.	that is
mcg	microgram
mg	milligram
ml	millilitre
OECD	Organisation for Economic Cooperation and Development
Par.	paragraph
PHAGO	Austrian Association of Full-Line Pharmaceutical Wholesalers [Austria]
PHARMIG	Association of the Austrian Pharmaceutical Industry [Austria]
PPI	Pharma Price Information (Information about medicine prices in 30 European countries, service of GÖG)
PPP	pharmacy purchasing price
PRP	pharmacy retail price

## Abbreviations of country names

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

# Foreword

Gesundheit Österreich GmbH (GÖG) was commissioned by the section for health affairs of the Federal Ministry of Labor, Social Affairs, Health and Consumer Protection (BMASGK) to survey the Austrian prices for high-cost medicines in comparison to those in other European Union (EU) Member States. GÖG produced a scientific results report in which price data of the selected medicines were prepared and analysed. The full report *Price comparison of high-cost medicines in 2017 – Scientific Results Report* (available in German) contains analyses at the level of the ex-factory price as well as – for outpatient medicines – at the pharmacy purchasing and retail price level for alternative scenarios based on additional model assumptions (e.g. weighting by purchasing power parity).

This brief report summarises the main findings of this study.

The study was conducted for those 100 high-cost medicines, which, from the perspective of Austrian public payers, make up a relatively large share of public pharmaceutical expenditure due to their price and / or volume. The selection of the included medicines was based on information on high-cost medicines in 2017 in the outpatient and inpatient sector in Austria. The authors would like to thank Dr. Robert Saueremann from the Main Association of Austrian Social Security Institutions as well as Mag. Karin Kirchdorfer and her colleagues from the Board of the Austrian Association of Hospital Pharmacists for informing which medicines accounted for high expenditure in the outpatient and inpatient sectors, respectively.

Detailed information on the methodology used in the study can be found in a study protocol published in August 2017, which key Austrian and international stakeholders in the pharmaceutical system were invited to comment. We would like to thank the representatives of the Federal Ministry of Labor, Social Affairs, Health and Consumer Protection; the Main Association of Austrian Social Security Institutions, the Organization for Economic Cooperation and Development (OECD); the Dental and Pharmaceutical Benefits Agency in Sweden, the Austrian Chamber of Pharmacists; the Austrian Association of Hospital Pharmacists, the Association of the Pharmaceutical Industry of Austria (PHARMIG) and the Austrian Association of Full-Line Pharmaceutical Wholesalers (PHAGO) for their feedback on the study protocol.

Furthermore, the authors thank their colleagues who collected the price data by using the PPI service for the present study. Together with co-authors Peter Schneider and Nina Zimmermann, Ingrid Freiberger, Margit Gombocz, Claudia Habl, Bettina Heindl, Valentin Kandler, Klaus Kellner, Marlene Postl and Friederike Windisch collected price data for the present analysis.



# 1 Objective

The Gesundheit Österreich GmbH (GÖG) (Austrian Public Health Institute) was commissioned by the section for health affairs of the Federal Ministry of Labour, Social Affairs, Health and Consumer Protection (BMASGK)<sup>1</sup> to survey and analyse the Austrian prices for high-cost medicines in comparison to those in other European Union (EU) Member States.

## 2 Methodology

The study was conducted for 100 high-cost medicines, which, from the public payer perspective, make up a relatively large share of public pharmaceutical expenditure in Austria due to their price and/or volume. The product selection was based on data from the Main Association of Austrian Social Security Institutions for high-cost medicines for the outpatient reimbursement sector, and from the Austrian Association of Hospital Pharmacists for the inpatient sector. The institutions informed which medicines accounted for high expenditure in the respective sectors. Only originator products were included in the study.

As Austria compares medicine prices of all EU Member States during its price setting, the study protocol aimed to involve all 28 EU Member States at the time of the survey. The prices of the 100 high-cost medicines were collected as of September 2017 with the help of the GÖG-based Service for Pharmaceutical Price Information (PPI). Malta was subsequently excluded from the analysis due to insufficient data.

Prices were compared at the unit price level (i.e., per unit of dispensing, e.g. per tablet, per injection) for identical medicines (i.e., in the same pharmaceutical form, dosage and pack size); in case where data were not available, an alternative but closest pack size was used. Currencies other than euro were converted using the monthly average rates for August 2017 provided by the European Central Bank.

For all 100 medicines, ex-factory prices were analysed, as well as pharmacy purchasing prices (PPP) and pharmacy retail prices (PRP) for the 60 studied medicines in the outpatient sector. The specifications of the price comparison (e.g. consideration of statutory manufacturer discounts, average wholesale margins in the case of countries with unregulated ex-factory price ) complied with the provisions of the "Regulation for the Procedure of the Price Commission for the Determination of the EU Average Price pursuant to §§ 351c par. 6 and par. 9a ASVG". The study was conducted as a single price comparison (i.e. analysis of price data for individual medicines); alternatively, price data were weighted by volume.

---

<sup>1</sup> The study was commissioned in 2017 by the then Federal Ministry of Health and Women's Affairs (BMGF).

Further information on the included medicines, on further methodological details and on the terminology (glossary) used can be found in the full version of the scientific results report (in German) or in the study protocol (in English).

## 3 Results

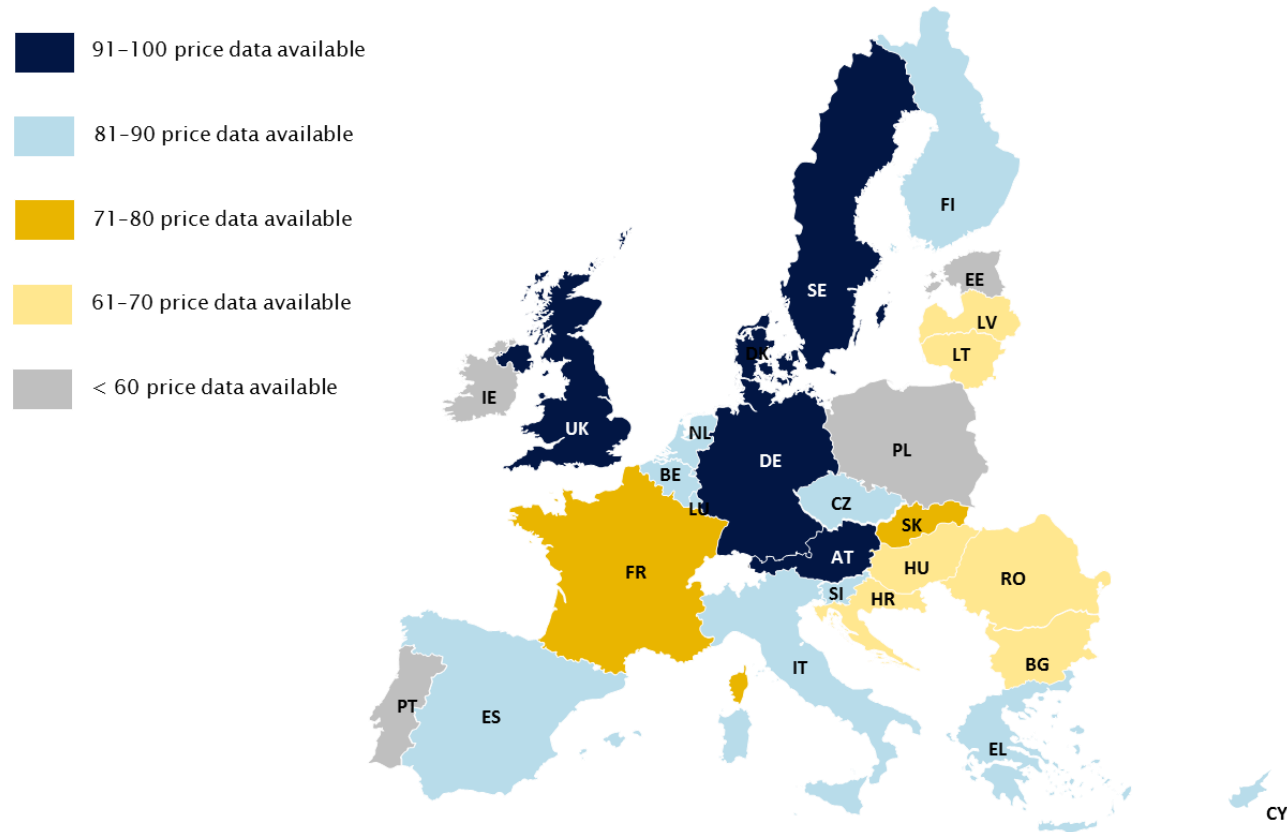
### 3.1 Data availability

In the 27 study countries, ex-factory price data were available for 82 percent and 69 percent of all surveyed medicines administered in the outpatient and inpatient sectors, respectively. In addition to Austria (100% data availability), Sweden (price data for 95 out of 100 medicines), Germany (94), the United Kingdom (93) and Denmark (91) showed high data availability at the ex-factory price level. For nine countries, price data for 81 to 90 medicines and in three other countries price data for 71 to 80 pharmaceutical products were collected. Countries with the lowest data availability were Portugal (missing data for 65 medicines), Estonia (missing data for 55 medicines), Ireland and Poland (47 missing medicines each) (see Figure 3.1).

Notable is the lack of data availability in the inpatient sector in these countries (Portugal – no price data from the inpatient sector, Estonia – price information only for two medicines and Ireland – 7 medicines).

In addition to Austria (60 out of 60 medicines), Italy (55) and Sweden (56) showed high data availability at the PPP level for the 60 medicines in the outpatient sector, while for the Czech Republic (0), Poland (33) and Portugal (35) no data or only a few data were available. In the Czech Republic, the low data availability is due to the joint remuneration of supply chain actors (wholesalers and community pharmacies), who share the statutory maximum margin, which may vary from case to case. In the United Kingdom, the Netherlands and Slovenia, price information is not available at the PRP level as a result of the performance-based remuneration for pharmacies. In Ireland, medicines are categorised into different reimbursement schemes, whereby for some the PRP can not be determined. Therefore, PRP data availability was low for these countries, as well as for Portugal (35) and Poland (33), while for Austria (60 out of 60 medicines), Italy (55) and the Czech Republic (55) most PRP data were available.

Figure 3.1:  
Results – Availability of ex-factory price data for high-cost medicines in 27 EU Member States, 2017



100 high-cost medicines in the outpatient and inpatient sectors.  
Malta was not included in the analysis due to low data availability.

Source and illustration: GÖG 2018

## 3.2 Prices in country comparison

### 3.2.1 Ex-factory prices

The ex-factory price per unit (median) ranges from 17 cents (Trazodon, package price of 60 units: 10.40 euros) to 20,417.00 euros (Treprostinil, unit price corresponds to the pack price). The latter is an infusion solution for the treatment of pulmonary arterial hypertension which was designated as an orphan medicinal product by the European Medicines Agency. In the inpatient sector, the median ex-factory price per unit for the most expensive medicine (ipilimumab) is 14,607.53 euros and for the cheapest (dexmedetomidine) it is 20.00 euros. A substantial price difference between the outpatient sector and the inpatient sector becomes obvious especially for low-priced medicines. While in the outpatient sector three-quarters of all medicines have an ex-factory price of less than 250 euros per unit (median), in the inpatient sector, three-quarters of the selected medicines reach a price of more than 250 euros.

In EU comparison, Austrian ex-factory prices rank higher than the median in almost 80 percent of cases. On average, for high-cost medicines (outpatient and inpatient sector), Austrian prices are 28.4 percent higher than those in the lowest-priced country, 4.4 percent above the EU average and 30.6 percent below the price of medicines in the highest-priced country. The extent of price differences varies between medicines as well as between sectors. In the outpatient sector, Austria has the lowest price for some medicines, whereas this is never the case in the hospital sector. In the outpatient sector, Austrian prices are on average 26.7 per cent higher than those in the lowest-priced country (compared to 30.9 per cent in the inpatient sector). Austria's prices of high-cost medicines in the outpatient sector are 0.5% higher than the EU average (inpatient: on average 10.3%) and are on average 41.7% below the highest-priced country (inpatient: -14.1%).

A weighting of the price data using the "Equal Weights" method (equal weighting of prices of both outpatient and inpatient sectors based on the assumption of an equal volume-weight for the prices of both sectors in all countries) provides a similar picture in terms of the differences between the sectors: While in the inpatient sector the Austrian ex-factory prices rank among the highest in the EU (ranking second to Ireland), they rank 12th<sup>2</sup> among the 27 EU Member States included in the analysis (Figure 3.3).

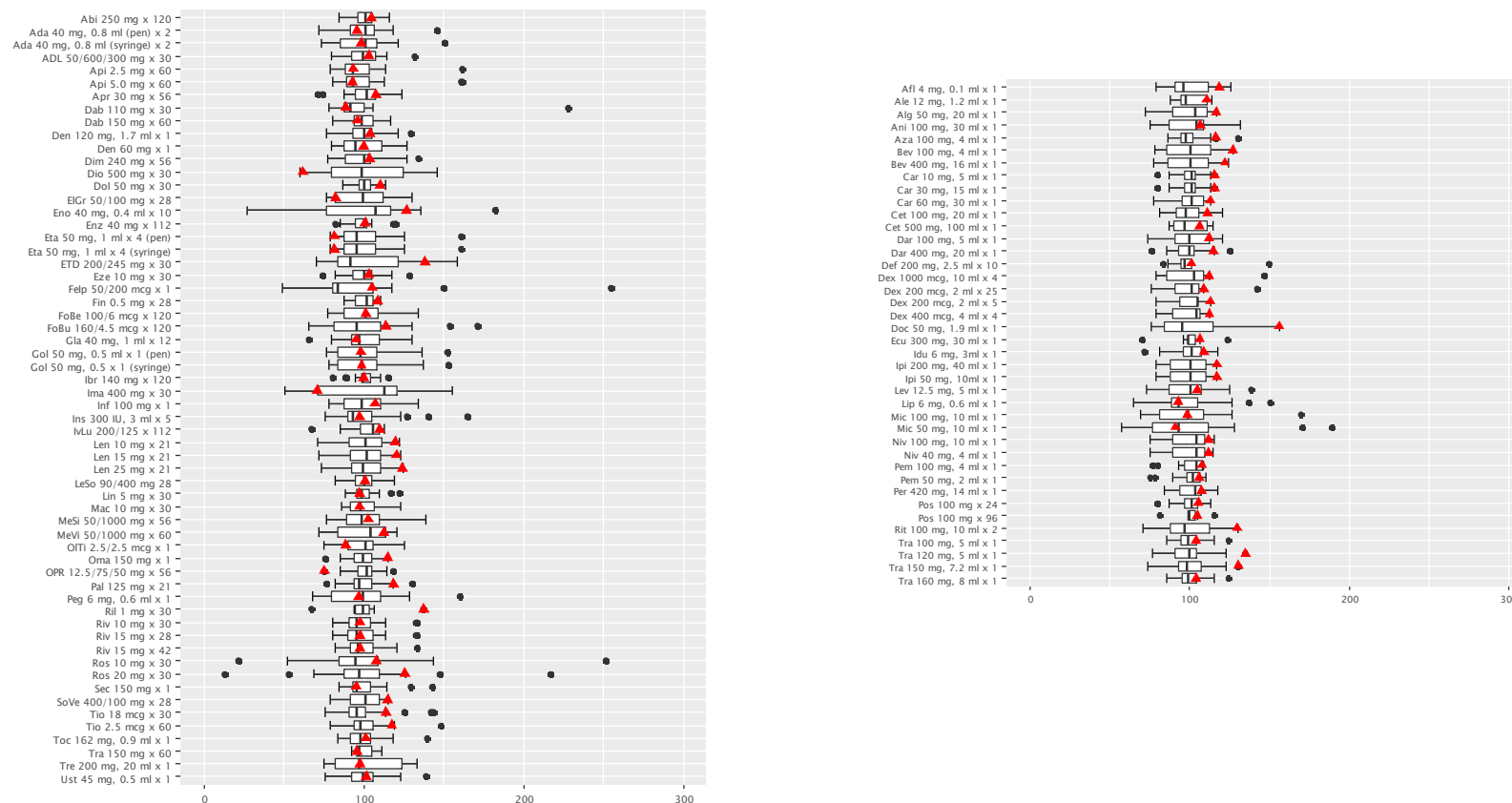
---

<sup>2</sup> Germany, Denmark, Estonia, Latvia, Lithuania, Italy, Ireland, Luxembourg, the Netherlands, Belgium and Sweden ranked higher when using the "Equal Weights" price indices calculation.



Figure 3.2:

Results – Ex-factory prices of high-cost medicines in EU comparison, 2017 (average price of each medicine = 100), illustration for the outpatient sector (left panel) and the inpatient sector (right panel)

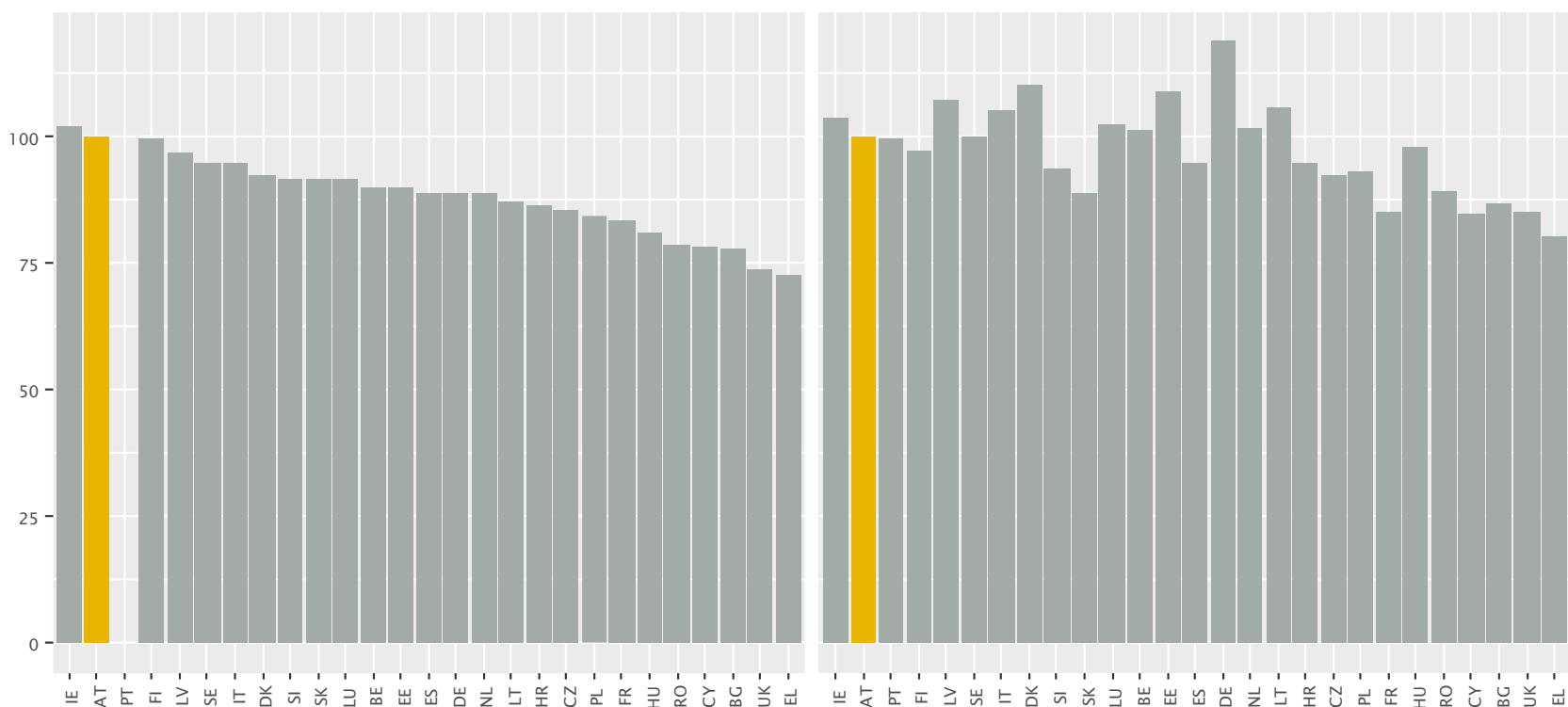


The average price of each medicine is defined as an index (= 100). The box corresponds to the area in which the middle 50% of the data are located (interquartile distance). The black line describes the location of the median and the red triangle the location of prices in Austria in the EU comparison. The dashed whiskers are limited to 1.5 times the length of the interquartile range. The circles stand for statistical outliers. For the abbreviations of the medicines cf. Table 5.1 and Table 5.2 in the Annex.

Source: Pharma Price Information (PPI); analyses und illustration: GÖG

Figure 3.3:

Results – Price index at the level of the ex-factory price for high-cost medicines in the outpatient (right panel) and inpatient (left panel) sectors in 27 EU Member States, equally weighted (i.e. number of prescriptions per medicine = 1), 2017



40 high-cost medicines in the inpatient sector and 60 high-cost medicines in the outpatient sector.

Malta was not included in the analysis due to low data availability.

Price data for the medicines of both sectors were equally weighted for all countries, i.e. each price data was given the weight 1.

Source: Main Association of Austrian Social Security Institutions, Austrian Association of Hospital Pharmacists, Pharma Price Information (PPI);  
Figure: GÖG 2018

Alternative weighting methods based on social health insurance expenditure<sup>3</sup> and the number of prescriptions in the Austrian outpatient reimbursement market confirm that Austria's prices in the outpatient sector ranked in the middle of the price range.<sup>4</sup>

### 3.2.2 Pharmacy purchasing prices

Results for the 60 high-cost medicines in the outpatient sector at the level of the PPP show a similar picture as for the ex-factory price in this sector. The Austrian PPP of high-cost medicines in the outpatient sector also rank in the middle of the price range; compared to other European countries they are slightly lower ranked than the ex-factory prices. The Austrian PPP are on average 23.3 percent above those of the lowest-priced country, 0.3 percent below the average and 42.9 percent below those of the highest-priced country (comparative figures in the outpatient sector at the ex-factory price level: 26.7%, 0.5% and 41.7%). Also in the price index calculations, Austrian PPP are again positioned in the middle of the European price range.

### 3.2.3 Pharmacy retail prices

The picture changes for the PRP. At the level of the PRP net (excluding VAT), Austria is never the lowest-priced country, and for almost a quarter of the high-cost medicines in the outpatient sector, Austrian PRP are the highest in Europe (Figure 3.4). The PRP net in Austria are 40.6 percent higher than those in the lowest-priced country, 18.9 percent above the average value of prices and 22.6 percent below the prices in the highest-priced country. The price indices confirmed Austria's PRP in the upper range: Austria ranked third in European comparison both in terms of prescriptions and social health insurance expenditure, behind Italy and Belgium (weighted by prescriptions) and, Italy and Germany (weighted by expenditure).

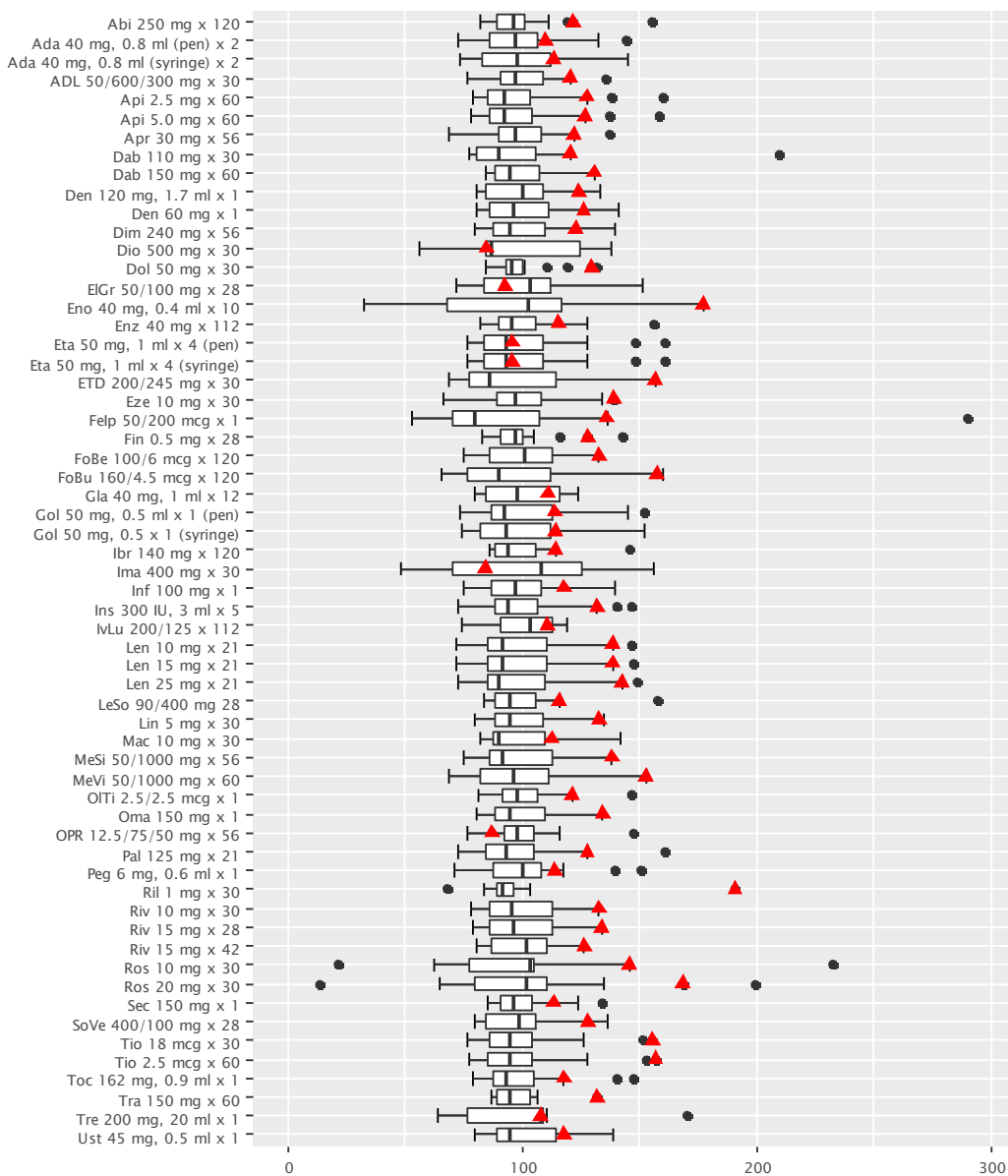
---

<sup>3</sup> In this method, medicines were weighted with their share of the social health expenditure of the 60 high-cost products.

<sup>4</sup> This weighting method could only be applied to the outpatient sector as there are no data in terms of volume or expenditure for the inpatient sector in Austria. In both the weighting of the price data by the Austrian expenditure and by prescriptions, the high-cost medicines of the outpatient sector rank 15<sup>th</sup> among the EU Member States.

Figure 3.4:

Results – Pharmacy retail prices of high-cost medicines in the outpatient sector in the EU comparison, 2017 (average price of each medicine = 100)



The average price of each medicine is set as an index (= 100). The box corresponds to the area in which the middle 50% of the data are located (interquartile distance). The black line describes the location of the median and the red triangle the location of prices in Austria in the EU comparison. The dashed whiskers are limited to 1.5 times the length of the interquartile range. The circles represent statistical outliers.

The abbreviations of the medicines are explained in Table 5.1 in the Annex.

Source: Pharma Price Information (PPI); analyses und illustration: GÖG

## 4 Conclusions

Among high-cost medicines, the Austrian ex-factory prices in the outpatient sector rank in the middle of the price range, whereas the unregulated ex-factory prices in the inpatient sector are among the highest in the EU. These findings indicate a need for action to regulate prices in the inpatient sector, while the current pricing in the outpatient sector appears to achieve its intended target of medicine prices at the level of the average European price.

Shifts between price levels were observed among the high-cost medicines in the outpatient sector. The Austrian PRP rank significantly higher compared to the ex-factory prices and PPP, which can be seen as an indication of higher pharmacy margins for the high-cost medicines in Austria compared to EU Member States. However, these data should be evaluated against the backdrop of possible different pharmacy services and different margins for other product segments that are relevant from the pharmacy perspective.

The present study comes to the same conclusions as the two previous GÖG price studies in 2015 and 2013, albeit the previous studies refer to other medicines, namely the high-cost medicines in the respective study periods. Changes in the identified high-cost medicines in the previous years confirm the need for regular monitoring of medicine prices, as new medicines enter the market, posing a challenge to the sustainability of the healthcare system.

## 5 Annex

Table 5.1:

List of the 60 high-cost medicines in the outpatient sector in the period January–April 2017, arranged in alphabetical order by active substance

Active substance	Abbreviation in Boxplots	Brand name	ATC code	EMA-number/ registration number	Strength / Dosage	Content	Dosage form	Pack size	Form of packaging
Abacavir/Dolutegravir/ Lamivudine	ADL 50/600/300 mg × 30	Triumeq®	J05AR	EU/1/14/940/001	50 mg / 600 mg / 300 mg		Film-coated tablet	30	Bottle
Abiraterone	Abi 250 mg × 120	Zytiga®	L02BX	EU/1/11/714/001	250 mg		Tablet	120	Bottle
Adalimumab	Ada 40 mg, 0.8 ml (syringe) × 2	Humira®	L04AB04	EU/1/03/256/003	40 mg	0.8 ml	Solution for injection	2	Pre-filled syringe
Adalimumab	Ada 40 mg, 0.8 ml (pen) × 2	Humira®	L04AB04	EU/1/03/256/008	40 mg	0.8 ml	Solution for injection	2	Pre-filled pen
Apixaban	Api 2.5 mg × 60	Eliquis®	B01AF02	EU/1/11/691/001	2.5 mg		Film-coated tablet	60	Blister
Apixaban	Api 5.0 mg × 60	Eliquis®	B01AF02	EU/1/11/691/009	5 mg		Film-coated tablet	60	Blister
Apremilast	Apr 30 mg × 56	Otezla®	L04AA32	EU/1/14/981/002	30 mg		Film-coated tablet	56	Blister
Dabigatran etexilate	Dab 110 mg × 30	Pradaxa®	B01AE07	EU/1/08/442/008	110 mg		Hard capsule	30	Blister <sup>1</sup>
Dabigatran etexilate	Dab 150 mg × 60	Pradaxa®	B01AE07	EU/1/08/442/011	150 mg		Hard capsule	60	Blister <sup>1</sup>
Denosumab	Den 60 mg × 1	Prolia®	M05BX04	EU/1/10/618/003	60 mg	1 ml	Solution for injection	1	Pre-filled syringe
Denosumab	Den 120 mg, 1.7 ml × 1	Xgeva®	M05BX04	EU/1/11/703/001	120 mg	1.7 ml	Solution for injection	1	Vial
Dimethyl fumarate	Dim 240 mg × 56	Tecfidera®	N07XX09	EU/1/13/837/002	240 mg		Hard capsule	56	Blister
Diosmin Combinations	Dio 500 mg × 30	Daflon®	C05CA53	1-20685	500 mg		Film-coated tablet	30	Blister
Dolutegravir	Dol 50 mg × 30	Tivicay®	J05AX12	EU/1/13/892/001	50 mg		Film-coated tablet	30	Bottle

Active substance	Abbreviation in Boxplots	Brand name	ATC code	EMA-number/ registration number	Strength / Dosage	Content	Dosage form	Pack size	Form of packaging
Elbasvir/Grazoprevir	ElGr 50/100 mg × 28	Zepatier®	J05A	EU/1/16/1119/001	50 mg / 100 mg		Film-coated tablet	28	Blister
Emtricitabine/ Tenofovir disoproxil	ETD 200/245 mg × 30	Truvada®	J05AR03	EU/1/04/305/001	200 mg / 245 mg		Film-coated tablet	30	Bottle
Enoxaparin	Eno 40 mg, 0.4 ml × 10	Lovenox®	B01AB05	1-18662	40 mg	0.4 ml	Solution for injection	10	Pre-filled syringe
Enzalutamide	Enz 40 mg × 112	Xtandi®	L02BB04	EU/1/13/846/001	40 mg		Soft capsule	112	Blister
Etanercept	Eta 50 mg, 1 ml × 4 (syringe)	Enbrel®	L04AB01	EU/1/99/126/017	50 mg	1 ml	Solution for injection	4	Pre-filled syringe
Etanercept	Eta 50 mg, 1 ml × 4 (pen)	Enbrel®	L04AB01	EU/1/99/126/020	50 mg	1 ml	Solution for injection	4	Pre-filled pen
Ezetimibe	Eze 10 mg × 30	Ezetrol®	C10AX09	1-24902	10 mg		Tablet	30	Blister
Fenoterol/ Ipratropium bromide	Felp 50/200 mcg × 1	Berodual®	R03AL01	1-16995	50 mcg / 20 mcg	200 puffs	Inhalation solution	1	Metered-dose inhaler
Fingolimod	Fin 0.5 mg × 28	Gilenya®	L04AA	EU/1/11/677/005	0.5 mg		Hard capsule	28	Blister <sup>2</sup>
Formoterol/ Beclometasone	FoBe 100/6 mcg × 120	Foster®	R03AK08	1-27002	100 mcg / 6 mcg	120 puffs	Inhalation solution	1	Metered-dose inhaler
Formoterol/Budesonid	FoBu 160/4.5 mcg × 120	Symbicort®	R03AK07	1-23993	160 mcg / 4.5 mcg	120 puffs	Inhalationspulver	1	Inhaler
Glatiramer acetate	Gla 40 mg, 1 ml × 12	Copaxone®	L03AX13	1-35998	40 mg	1 ml	Solution for injection	12	Pre-filled syringe
Golimumab	Gol 50 mg, 0.5 ml × 1 (pen)	Simponi®	L04AB06	EU/1/09/546/001	50 mg	0.5 ml	Solution for injection	1	Pre-filled pen
Golimumab	Gol 50 mg, 0.5 × 1 (syringe)	Simponi®	L04AB06	EU/1/09/546/003	50 mg	0.5 ml	Solution for injection	1	Pre-filled syringe
Ibrutinib	Ibr 140 mg × 120	Imbruvica®	L01XE	EU/1/14/945/002	140 mg		Hard capsule	120	Bottle
Imatinib	Ima 400 mg × 30	Glivec®	L01XE01	EU/1/01/198/010	400 mg		Film-coated tablet	30	Blister
Infliximab	Inf 100 mg × 1	Remicade®	L04AB02	EU/1/99/116/003	100 mg		Powder	3	Vial
Insulin aspart	Ins 300 IU, 3 ml × 5	NovoRapid®	A10AB05	EU/1/99/119/003	100 U/ml	3 ml	Solution for injection	5	Cartridge (glas)

Active substance	Abbreviation in Boxplots	Brand name	ATC code	EMA-number/ registration number	Strength / Dosage	Content	Dosage form	Pack size	Form of packaging
Ivacaftor/Lumacaftor	IvLu 200/125 × 112	Orkambi®	R07AX30	EU/1/15/1059/001	200 mg / 125 mg		Film-coated tablet	112	Blister
Ledispavir/Sofosbuvir	LeSo 90/400 mg 28	Harvoni®		EU/1/14/958/001	90 mg / 400 mg		Film-coated tablet	28	Bottle
Lenalidomide	Len 10 mg × 21	Revlimid®	L04AX04	EU/1/07/391/002	10 mg		Hard capsule	21	Blister
Lenalidomide	Len 15 mg × 21	Revlimid®	L04AX04	EU/1/07/391/004	25 mg		Hard capsule	21	Blister
Lenalidomide	Len 25 mg × 21	Revlimid®	L04AX04	EU/1/07/391/003	15 mg		Hard capsule	21	Blister
Linagliptin	Lin 5 mg × 30	Trajenta®	A10BH05	EU/1/11/707/004	5 mg		Film-coated tablet	30	Blister
Macitentan	Mac 10 mg × 30	Opsumit®	C02KX04	EU/1/13/893/002	10 mg		Film-coated tablet	30	Blister <sup>3</sup>
Metformin/Sitagliptin	MeSi 50/1000 mg × 56	Janumet®	A10BD07	EU/1/08/455/010	50 mg / 1000 mg		Film-coated tablet	56	Blister
Metformin/Vildagliptin	MeVi 50/1000 mg × 60	Eucreas®	A10BD08	EU/1/07/425/009	50 mg / 1000 mg		Film-coated tablet	60	Blister <sup>4</sup>
Olodaterol/ Tiotropium Bromid	OITi 2.5/2.5 mcg × 1	Spiolto®	R03AL06	1-36299	2.5 mcg / 2.5 mcg	60 Hübe	Inhalation solution	1	Metered-dose inhaler
Omalizumab	Oma 150 mg × 1	Xolair®	R03DX05	EU/1/05/319/008	150 mg	1 ml	Solution for injection	1	Pre-filled syringe
Ombitasvir/ Paritaprevir/Ritonavir	OPR 12.5/75/50 mg × 56	Viekirax®	J05AX67	EU/1/14/982/001	12.5 mg / 75 mg / 50 mg		Film-coated tablet	56	Blister
Palbociclib	Pal 125 mg × 21	Ibrance®	L01XE33	EU/1/16/1147/005	125 mg		Hard capsule	21	Blister <sup>3</sup>
Pegfilgrastim	Peg 6 mg, 0.6 ml × 1	Neulasta®	L03AA13	EU/1/02/227/004	6 mg	0.6 ml	Solution for injection	1	Pre-filled syringe
Rilmenidine	Ril 1 mg × 30	Iterium®	C02AC06	1-23813	1 mg		Tablet	30	Blister
Rivaroxaban	Riv 15 mg × 28	Xarelto®	B01AF01	EU/1/08/472/012	15 mg		Film-coated tablet	28	Blister
Rivaroxaban	Riv 15 mg × 42	Xarelto®	B01AF01	EU/1/08/472/013	15 mg		Film-coated tablet	42	Blister
Rivaroxaban	Riv 10 mg × 30	Xarelto®	B01AF01	EU/1/08/472/018	20 mg		Film-coated tablet	28	Blister
Rosuvastatin	Ros 10 mg × 30	Crestor®	C10AA07	1-24883	10 mg		Film-coated tablet	30	Blister



Active substance	Abbreviation in Boxplots	Brand name	ATC code	EMA-number/ registration number	Strength / Dosage	Content	Dosage form	Pack size	Form of packaging
Rosuvastatin	Ros 20 mg × 30	Crestor®	C10AA07	1-24883	20 mg		Film-coated tablet	30	Blister
Secukinumab	Sec 150 mg × 1	Cosentyx®	L04AC10	EU/1/14/980/005	150 mg	1 ml	Solution for injection	2	Pre-filled pen
Sofosbuvir/Velpatasvir	SoVe 400/100 mg × 28	Epclusa®	J05A	EU/1/16/1116/001	400 mg 100 mg		Film-coated tablet	28	Bottle
Tiotropium Bromid	Tio 18 mcg × 30	Spiriva®	R03BB04	1-24507	18 mcg		Inhalation powder	30	Capsules <sup>5</sup>
Tiotropium Bromid	Tio 2.5 mcg × 60	Spiriva®	R03BB04	1-27222	2.5 mcg	60 Hübe	Inhalation solution	1	Inhaler
Tocilizumab	Toc 162 mg, 0.9 ml × 1	RoActemra®	L04AC07	EU/1/08/492/007	162 mg	0.9 ml	Solution for injection	4	Pre-filled syringe
Trazodone	Tra 150 mg × 60	Trittico®	N06AX05	1-23301	150 mg		Retard tablet	60	Blister
Treprostinil	Tre 200 mg, 20 ml × 1	Remodulin®	B01AC21	1-26523	10 mg/ml	20 ml	Solution for infusion	20	Vial
Ustekinumab	Ust 45 mg, 0.5 ml × 1	Stelara®	L04AC05	EU/1/08/494/003	45 mg	0.5 ml	Solution for injection	1	Pre-filled syringe

ATC = Anatomical Therapeutic Chemical, EMA = European Medicines Agency

<sup>1</sup> authorised medicines of this active substance, which can be considered equivalent for the price comparison: (1) Blister (alu/alu), (2) Bottle (PP), (3) White blister (alu/alu)

<sup>2</sup> authorised medicines of this active substance, which can be considered equivalent for the price comparison: (1) Blister-wallet, (2) Blister-folding box

<sup>3</sup> authorised medicines of this active substance, which can be considered equivalent for the price comparison: (1) Capsule/tablet in blister, (2) Capsule/tablet in bottle

<sup>4</sup> authorised medicines of this active substance, which can be considered equivalent for the price comparison: (1) Blister (PA/alu/PVC/Alu), (2) Blister (PCTFE/PVC/alu)

<sup>5</sup> authorised medicines of this active substance, which can be considered equivalent for the price comparison: (1) Capsule, (2) Capsule with inhaler

Apixaban, ezetimib, linagliptin, metformin/sitagliptin and rosuvastatin; authorised medicine with different sizes was considered, if no price information was available for this medicine.

Source: Main Association of Austrian Social Security Institutions, Illustration: Gesundheit Österreich GmbH

Table 5.2:

List of the 40 high-cost medicines in the inpatient sector, 2017, arranged in alphabetical order by active substance

Active substance	Abbreviation in Boxplots	Brand name	ATC-code	EMA-number/ registration number	Strength / Dosage	Content	Dosage form	Pack size	Form of packaging
Aflibercept	Afl 4 mg, 0.1 ml × 1	Eylea®	S01LA	EU/1/12/797/002	40 mg/ml	0.1 ml	Solution for injection	1	Vial <sup>1</sup>
Alemtuzumab	Ale 12 mg, 1.2 ml × 1	Lemtrada®	L04AA	EU/1/13/869/001	12 mg	1.2 ml	Concentrate to produce a solution for infusion	1	Vial
Alglucosidase alfa	Alg 50 mg, 20 ml × 1	Myozyme®	A16AB07	EU/1/06/333/002	50 mg	20 ml	Powder for a concentrate to produce a solution for infusion	1	Vial
Anidulafungin	Ani 100 mg, 30 ml × 1	Ecalta®	J02AX06	EU/1/07/416/002	100 mg	30 ml	Powder for a concentrate to produce a solution for infusion	1	Vial
Azacididine	Aza 100 mg, 4 ml × 1	Vidaza®	L01BC07	EU/1/08/488/001	25 mg/ml	4 ml	Powder to produce a suspension for injection	1	Vial
Bevacizumab	Bev 100 mg, 4 ml × 1	Avastin®	L01XC07	EU/1/04/300/001	25 mg/ml	4 ml	Concentrate to produce a solution for infusion	1	Vial
Bevacizumab	Bev 400 mg, 16 ml × 1	Avastin®	L01XC07	EU/1/04/300/002	25 mg/ml	16 ml	Concentrate to produce a solution for infusion	1	Vial
Carfilzomib	Car 60 mg, 30 ml × 1	Kyprolis®	L01XX45	EU/1/15/1060/001	60 mg	30 ml	Powder for solution for infusion	1	Vial
Carfilzomib	Car 10 mg, 5 ml × 1	Kyprolis®	L01XX45	EU/1/15/1060/002	10 mg	5 ml	Powder for solution for infusion	1	Vial
Carfilzomib	Car 30 mg, 15 ml × 1	Kyprolis®	L01XX45	EU/1/15/1060/003	30 mg	15 ml	Powder for solution for infusion	1	Vial
Cetuximab	Cet 100 mg, 20 ml × 1	Erbix®	L01XC06	EU/1/04/281/003	5 mg/ml	20 ml	Solution for infusion	1	Vial
Cetuximab	Cet 500 mg, 100 ml × 1	Erbix®	L01XC06	EU/1/04/281/005	5 mg/ml	100 ml	Solution for infusion	1	Vial
Daratumumab	Dar 100 mg, 5 ml × 1	Darzalex®	L01XC24	EU/1/16/1101/001	20 mg/ml	5 ml	Concentrate to produce a solution for infusion	1	Vial
Daratumumab	Dar 400 mg, 20 ml × 1	Darzalex®	L01XC24	EU/1/16/1101/002	20 mg/ml	20 ml	Concentrate to produce a solution for infusion	1	Vial
Defibrotide	Def 200 mg, 2.5 ml × 10	Defitelio®	B01AX01	EU/1/13/878/001	80 mg/ml	2.5 ml	Concentrate to produce a solution for infusion	10	Vial

Active substance	Abbreviation in Boxplots	Brand name	ATC-code	EMA-number/ registration number	Strength / Dosage	Content	Dosage form	Pack size	Form of packaging
Dexmedetomidine	Dex 200 mcg, 2 ml × 5	Dexdor®	N05CM18	EU/1/11/718/001	100 mcg/ml	2 ml	Concentrate to produce a solution for infusion	5	Ampoule (Glass) <sup>2</sup>
Dexmedetomidine	Dex 200 mcg, 2 ml × 25	Dexcor®	N05CM18	EU/1/11/718/002	100 mcg/ml	2 ml	Concentrate to produce a solution for infusion	25	Ampoule (Glass)
Dexmedetomidine	Dex 400 mcg, 4 ml × 4	Dexdor®	N05CM18	EU/1/11/718/004	100 mcg/ml	4 ml	Concentrate to produce a solution for infusion	4	Vial
Dexmedetomidine	Dex 1000 mcg, 10 ml × 4	Dexdor®	N05CM18	EU/1/11/718/006	100 mcg/ml	10 ml	Concentrate to produce a solution for infusion	4	Vial
Doxorubicin	Doc 50 mg, 1.9 ml × 1	Myocet®	L01DB01	EU/1/00/141/001	50 mg	50 mg / 1.9 ml / 3 ml	Powder, dispersion and solution for a concentrate to produce a dispersion for infusion	2	Set with 3 vials
Eculizumab	Ecu 300 mg, 30 ml × 1	Soliris®	L04AA25	EU/1/07/393/001	300 mg	30 ml	Concentrate to produce a solution for infusion	1	Vial
Idursulfase	Idu 6 mg, 3ml × 1	Elaprase	A16AB09	EU/1/06/365/001	2 mg/ml	3 ml	Concentrate to produce a solution for infusion	1	Vial
Ipilimumab	Ipi 50 mg, 10ml × 1	Yervoy®	L01XC11	EU/1/11/698/001	5 mg/ml	10 ml	Concentrate to produce a solution for infusion	1	Vial
Ipilimumab	Ipi 200 mg, 40 ml × 1	Yervoy®	L01XC11	EU/1/11/698/002	5 mg/ml	40 ml	Concentrate to produce a solution for infusion	1	Vial
Levosimendan	Lev 12.5 mg, 5 ml × 1	Simdax®	C01CX08	1-24093	2.5 mg/ml	5 ml	Concentrate to produce a solution for infusion	1	Vial
Lipegfilgrastim	Lip 6 mg, 0.6 ml × 1	Lonquex®	L03AA14	EU/1/13/856/002	6 mg	0.6 ml	Solution for injection	1	Pre-filled syringe <sup>3</sup>
Micafungin	Mic 50 mg, 10 ml × 1	Mycamine®	J02AX05	EU/1/08/448/001	50 mg	10 ml	Powder for a concentrate to produce a solution for infusion	1	Vial
Micafungin	Mic 100 mg, 10 ml × 1	Mycamine®	J02AX05	EU/1/08/448/002	100 mg	10 ml	Powder for a concentrate to produce a solution for infusion	1	Vial
Nivolumab	Niv 40 mg, 4 ml × 1	Opdivo®	L01XC17	EU/1/15/1014/001	10 mg/ml	4 ml	Concentrate to produce a solution for infusion	1	Vial
Nivolumab	Niv 100 mg, 10 ml × 1	Opdivo®	L01XC17	EU/1/15/1014/002	10 mg/ml	10 ml	Concentrate to produce a solution for infusion	1	Vial

Active substance	Abbreviation in Boxplots	Brand name	ATC-code	EMA-number/ registration number	Strength / Dosage	Content	Dosage form	Pack size	Form of packaging
Pembrolizumab	Pem 50 mg, 2 ml × 1	Keytruda®	L01XC18	EU/1/15/1024/001	50 mg	2 ml	Powder for a concentrate to produce a solution for infusion	1	Vial
Pembrolizumab	Pem 100 mg, 4 ml × 1	Keytruda®	L01XC18	EU/1/15/1024/002	100 mg	4 ml	Concentrate to produce a solution for infusion	1	Vial
Pertuzumab	Per 420 mg, 14 ml × 1	Perjeta®	L01XC13	EU/1/13/813/001	420 mg	14 ml	Concentrate to produce a solution for infusion	1	Vial
Posaconazole	Pos 100 mg × 24	Noxafil®	J02AC04	EU/1/05/320/002	100 mg		Enteric tablet	24	Blister
Posaconazole	Pos 100 mg × 96	Noxafil®	J02AC04	EU/1/05/320/003	100 mg		Enteric tablet	96	Blister
Rituximab	Rit 100 mg, 10 ml × 2	Mabthera®	L01XC02	EU/1/98/067/001	100 mg	10 ml	Concentrate to produce a solution for infusion	2	Vial
Trastuzumab	Tra 150 mg, 7.2 ml × 1	Herceptin®	L01XC03	EU/1/00/145/001	150 mg	7.2 ml	Powder for a concentrate to produce a solution for infusion	1	Vial
Trastuzumab	Tra 120 mg, 5 ml × 1	Herceptin®	L01XC03	EU/1/00/145/002	120 mg/ml	5 ml	Solution for injection	1	Vial
Trastuzumab Emtansine	TrEm 100 mg, 5 ml × 1	Kadcyla®	L01XC14	EU/1/13/885/001	100 mg	5 ml	Powder for a concentrate to produce a solution for infusion	1	Vial
Trastuzumab Emtansine	TrEm 160 mg, 8 ml × 1	Kadcyla®	L01XC14	EU/1/13/885/002	160 mg	8 ml	Powder for a concentrate to produce a solution for infusion	1	Vial

ATC = Anatomical Therapeutic Chemical, EMA = European Medicines Agency

<sup>1</sup> authorised medicines of this active substance, which can be considered equivalent for the price comparison: (1) Pre-filled syringe (glas), (2) Vial

<sup>2</sup> authorised medicines of this active substance, which can be considered equivalent for the price comparison: (1) Vial, (2) Ampoule (glass)

<sup>3</sup> authorised medicines of this active substance, which can be considered equivalent for the price comparison: (1) Pre-filled syringe with needle guard, (2) Pre-filled syringe

Source: Austrian Association of Hospital Pharmacists, Illustration: Gesundheit Österreich GmbH