

## Medical practice variations

### Removable denture (Adjusted)

Analysis of the distribution and evolution of medical practice in Belgium, in terms of volume and expenditure per insured (analysis and trends by region, province and district), for the year **2022**



NIHDI – Healthcare Service – Directorate for Research, Development and Quality promotion

#### **Appropriate care unit**

Pascal Meeus, Virginie Dalcq, Delphine Beauport, Katrien Declercq, Benjamin Swine

Contact: [appropriatecare@riziv-inami.fgov.be](mailto:appropriatecare@riziv-inami.fgov.be)

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## CONTENTS

<b>CONTENTS</b> .....	<b>2</b>
<b>1. INTRODUCTION</b> .....	<b>3</b>
<b>2. SPECIFIC METHOD OF ANALYSIS</b> .....	<b>4</b>
A. NIHDI NOMENCLATURE CODES SELECTED FOR ANALYSIS.....	4
B. PAST HISTORY OF NOMENCLATURE CODES .....	5
C. SOURCE OF DATA AND ANALYSIS PERIOD.....	6
D. SPECIFIC SELECTION CRITERIA .....	7
E. STANDARDISATION.....	7
<b>3. RESULTS</b> .....	<b>8</b>
A. NATIONAL STANDARDISED RATE OF USE.....	8
B. BREAKDOWN OF NOMENCLATURE CODES PROVIDED, BY VOLUME.....	9
C. SPECIALISATION OF HEALTHCARE PROVIDERS .....	10
D. SPECIALISATION OF PRESCRIBERS.....	11
E. STANDARDISED RATE OF USE BY SEX AND AGE GROUP.....	12
F. STANDARDISED RATE OF USE: HOSPITAL AND OUTPATIENT CARE .....	16
G. STANDARDISED RATE OF USE BY REIMBURSEMENT SCHEME .....	18
H. TRENDS IN STANDARDISED RATES OF USE .....	20
I. GEOGRAPHICAL VARIATIONS IN STANDARDISED RATES OF USE .....	24
J. STANDARDISED HEALTHCARE EXPENDITURE BORNE BY THE INSURANCE .....	29
<b>4. KEY DATA SUMMARY</b> .....	<b>32</b>
<b>5. APPENDICES</b> .....	<b>33</b>
A. ANALYSIS OF VARIANCE (ANOVA), EXCEPT BRUSSELS .....	33
B. FREQUENCY OF PRACTICE OCCURRENCES.....	34
C. PATIENT CARE SETTINGS.....	36
D. CODING VARIATIONS AND PRACTICE ALTERNATIVES.....	38

### 1. INTRODUCTION

The Appropriate Care Unit was set up within the NIHDI's Directorate for Research, Development and Quality under NIHDI's Administration Contract for 2016-2018<sup>1</sup>. Article 35 of this contract refers to 'the setting up of an Appropriate Care Unit, aiming specifically to promote an integrated approach to the rational use of resources'. The Appropriate Care Unit has been up and running since the second quarter of 2017.

The tasks of the Unit were set out formally in the '2016-2017 Healthcare monitoring Action plan', published by NIHDI on 18 July 2016<sup>2</sup>. This plan lists around thirty measures designed to make healthcare provision more efficient, by encouraging appropriate practice and tackling unnecessary or inappropriate care.

The plan states that one of the tasks of the Appropriate Care Unit is to analyse the 'appropriateness of care', in order to identify unexplained variations in consumption patterns, identified after standardisation. Such variations can potentially point to non-optimal use of resources.

'Variations in medical practice' documents report on the analyses carried out in this framework. Each report focuses on a particular topic.

In this document, we present the figures and graphs relating to analyses<sup>3</sup> of practice in the area of Removable denture (Adjusted), and give the explanations necessary to understand these.

We have deliberately chosen not to attempt to interpret the figures, preferring to present the results to experts who are in a better position to do so. This document has nevertheless been made available to the public in order to provide objective, open input to discussions on this issue.

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<sup>1</sup> (Institut national d'assurance maladie-invalidité, 2016)

<sup>2</sup> (Institut national d'assurance maladie-invalidité, 2016)

<sup>3</sup> Readers interested in the methodology used in these quantitative analyses should consult the document entitled 'Variations in practice – Methodology'.

## 2. SPECIFIC METHOD OF ANALYSIS

### A. NIHDI nomenclature codes selected for analysis

The NIHDI nomenclature codes selected for the analysis are listed below:

Outpatient	Inpatient	Rates	Expenses	Label	Creation	Deletion	Group N	Value
306832	306843	yes	yes	* Prothèse amovible supérieure douze dents	15-01-1993		N04	L600
306854	306865	yes	yes	* Prothèse amovible inférieure douze dents	15-01-1993		N04	L600
306876	306880	yes	yes	* Prothèse amovible supérieure treize dents	15-01-1993		N04	L600
306891	306902	yes	yes	* Prothèse amovible inférieure treize dents	15-01-1993		N04	L600
306913	306924	yes	yes	* Prothèse amovible totale supérieure	01-01-1992		N04	L600
306935	306946	yes	yes	* Prothèse amovible totale inférieure	01-01-1992		N04	L600
307731	307742	yes	yes	* Prothèse amovible supérieure d'une dent	01-08-1996		N04	L376
307753	307764	yes	yes	* Prothèse amovible inférieure d'une dent	01-08-1996		N04	L376
307775	307786	yes	yes	* Prothèse amovible supérieure de deux dents	01-08-1996		N04	L376
307790	307801	yes	yes	* Prothèse amovible inférieure de deux dents	01-08-1996		N04	L376
307812	307823	yes	yes	* Prothèse amovible supérieure de trois dents	01-08-1996		N04	L376
307834	307845	yes	yes	* Prothèse amovible inférieure de trois dents	01-08-1996		N04	L376
307856	307860	yes	yes	* Prothèse amovible supérieure de quatre dents	01-08-1996		N04	L376
307871	307882	yes	yes	* Prothèse amovible inférieure de quatre dents	01-08-1996		N04	L376
307893	307904	yes	yes	* Prothèse amovible supérieure de cinq dents	01-08-1996		N04	L376
307915	307926	yes	yes	* Prothèse amovible inférieure de cinq dents	01-08-1996		N04	L376
307930	307941	yes	yes	* Prothèse amovible supérieure de six dents	01-08-1996		N04	L412
307952	307963	yes	yes	* Prothèse amovible inférieure de six dents	01-08-1996		N04	L412
307974	307985	yes	yes	* Prothèse amovible supérieure de sept dents	01-08-1996		N04	L412
307996	308000	yes	yes	* Prothèse amovible inférieure de sept dents	01-08-1996		N04	L412
308011	308022	yes	yes	* Prothèse amovible supérieure de huit dents	01-05-1995		N04	L453
308033	308044	yes	yes	* Prothèse amovible inférieure de huit dents	01-05-1995		N04	L453
308055	308066	yes	yes	* Prothèse amovible supérieure de neuf dents	01-05-1995		N04	L453
308070	308081	yes	yes	* Prothèse amovible inférieure de neuf dents	01-05-1995		N04	L453
308092	308103	yes	yes	* Prothèse amovible supérieure de dix dents	01-05-1995		N04	L526
308114	308125	yes	yes	* Prothèse amovible inférieure de dix dents	01-05-1995		N04	L526
308136	308140	yes	yes	* Prothèse amovible supérieure de onze dents	01-05-1995		N04	L526
308151	308162	yes	yes	* Prothèse amovible inférieure de onze dents	01-05-1995		N04	L526
308335	308346	yes	yes	* Renouvellement anticipé en cas de modification anatomique sévère au niveau des structures porteuses, d'une prothèse amovible partielle ou totale qui a fait l'objet d'une intervention de l'assurance obligatoire soins de santé. Les honoraires pour le renouvellement anticipé des prothèses sont égaux aux honoraires fixés pour les prothèses identiques comme prévus à la rubrique A de ce même paragraphe	01-08-1998		N04	L600
378335	378346	yes	yes	* Renouvellement anticipé en cas de modification anatomique sévère au niveau des structures porteuses, d'une prothèse amovible partielle ou totale qui a fait l'objet d'une intervention de l'assurance obligatoire soins de santé. Les honoraires pour le renouvellement anticipé des prothèses sont égaux aux honoraires fixés pour des prothèses identiques comme prévus à l'article 5, § 2.	01-09-2005		N04	L600
378954	378965	yes	yes	* Prothèse amovible supérieure : maximum	01-09-2005		N04	L600
378976	378980	yes	yes	* Prothèse amovible inférieure : maximum	01-09-2005		N04	L600

This table shows the NIHDI nomenclature codes selected for this analysis, stating whether or not they were included in the analyses of services and expenditure, and giving, for each one, a description, dates of creation and deletion, where appropriate, their N group (in the NIHDI nomenclature) and their value.

B. Past history of nomenclature codes

Outpatient	Inpatient	Date	Label
NA	NA	NA	NA



This table displays the historic evolution of the definitions of the NIHDI-nomenclature codes taken into account for this analysis, if modifications were implemented during the period 2012-2022.

## C. Source of data and analysis period

The data used in the analyses have been taken from the following databases:

<b>Document N</b>	for the utilisation rate and amount of expenses of insured persons (who meet the selection criteria) whose age, sex, preferential regime and residence are known 2012-2022
<b>Document P</b>	for the utilisation rate and amount of expenses of insured persons (who meet the selection criteria) by type of medical specialities in 2022
<b>Document P, SHA, ADH</b>	for the practice occurrences and analysis of patient care settings in 2021
-	-

<b>Analysis period</b>	2012-2022
------------------------	-----------



'N Documents' are monthly data sent by the sickness funds to NIHDI, within three months. These data show the number of services provided, dates and the fees involved. Every six months, these data are compiled by the insurers, which also add data on patients: age, gender, social category and district of residence. N Documents, however, cannot be used to analyse the combinations of services received by individual patients.

'P Documents' are six-monthly data sent by the sickness funds to NIHDI, within four months. These data show the services provided, the service-provider, the prescriber, the place of provision of service, and the hospital where patients were treated. P Documents can be used to monitor medical consumption and pricing, but not (yet) to analyse services per patient.

'Documents SHA, ADH' are sent annually and within six months by the insurer-organisations to the NIHDI. They include all the services provided respectively in day admission and standard hospitalisation, in general hospitals per hospital stay.

**D. Specific selection criteria**

Several filters may have been applied to the data, so that only one section of the population is considered in the analyses. If so, the filters used are shown in the table below:

FILTERS APPLIED TO DATA	
Sex	women and men
Age	all
-	-

**E. Standardisation**

The data are standardised before analysis per year, based on age, sex and preferential regime per arrondissement, province and region (standardization based on population in 2022).



**Standardisation** renders populations comparable in relation to one or several criteria. If a difference is observed between these populations, we can therefore assume that it is not due to the criteria covered by the standardisation process.

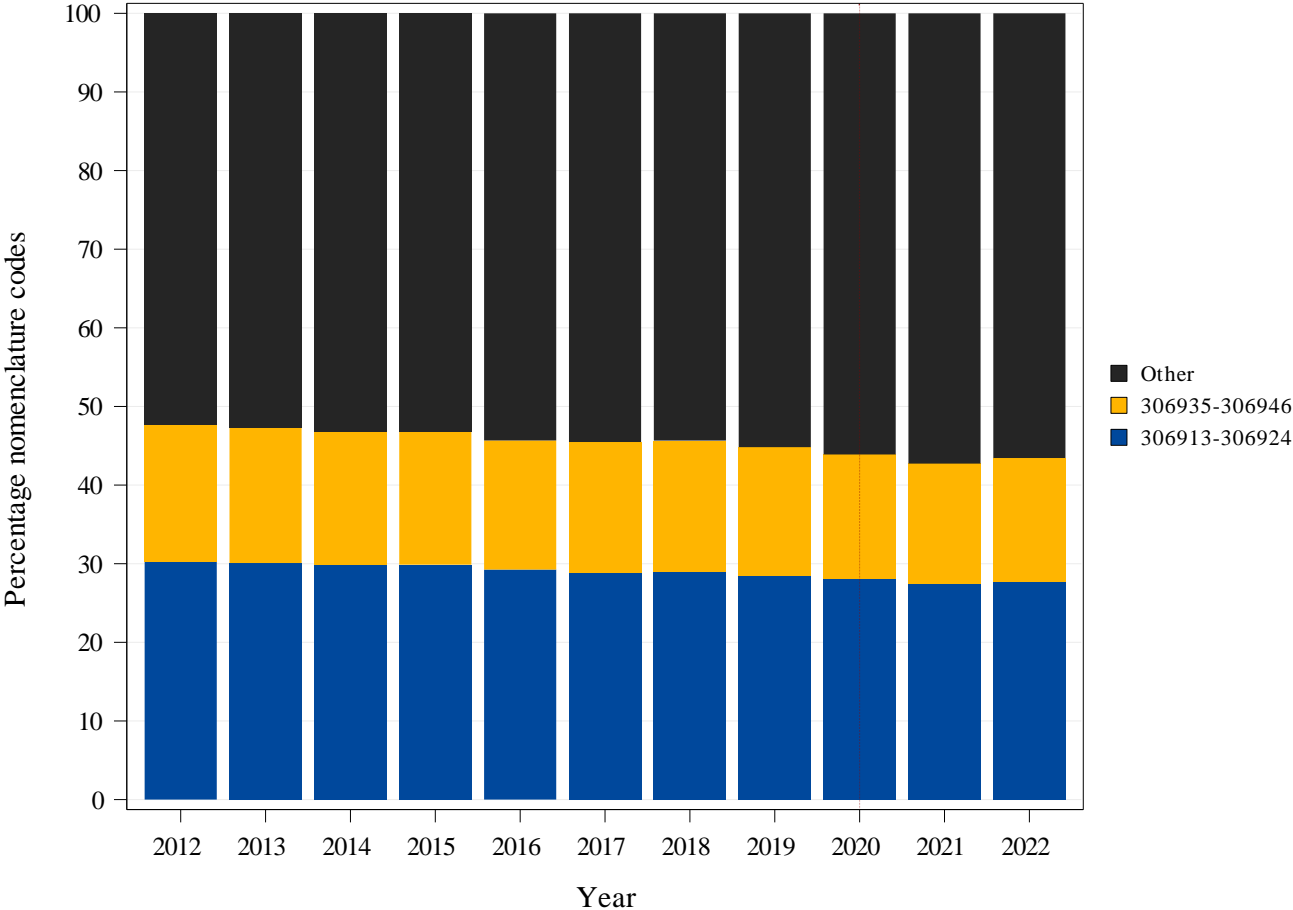
3. RESULTS

A. National standardised rate of use

	TOTAL
Average number of interventions per year	145.044
Standardised rate of use per 100 000 insured persons	1.252



B. Breakdown of nomenclature codes provided, by volume



See page 4 for details about the NIHDI nomenclature codes selected for analysis.  
Note : The year 2020 was highlighted by a vertical dashed line, in order to draw the attention on the impact of the COVID-19 crisis.

### C. Specialisation of healthcare providers

Specialisation of the provider	Total providers	Concerned providers	% Providers	Median of H.C. services	Q3 of H.C. services	% Total H.C. services
Dentists	8024	6486	81%	16	29	97,31%
Dentists in training	1192	454	38%	5	11	2,52%
Other specialities	1041	49	5%	11	13	0,17%
<b>Total</b>	<b>10257</b>	<b>6989</b>	<b>68%</b>	<b>15</b>	<b>28</b>	<b>100,00%</b>



This table shows the following non-standardised data, by medical specialities (figures for the year 2022):

- The number of service-providers per specialisation who have recorded at least one service (the figures are exceptionally extrapolated from a single semester if an \* is indicated in the header, otherwise the full year is taken into account);
- The number of service-providers recording services under the nomenclature codes selected for this analysis;
- The service-providers for these codes as a percentage of the total number of service-providers recording provision of at least one service;
- The median number and third quartile of services per service-provider (recording provision under these codes);
- The service percentage, i.e. the number of services recorded for this specialisation as a percentage of total services provided.

## D. Specialisation of prescribers

Specialisation of the prescriber	Total prescribers	Concerned prescribers	% Prescribers	Median of prescriptions	Q3 of prescriptions	% Prescriptions
Not applicable	0	0	0%	0	0	100,00%



This table shows, in order, the following non-standardised data per specialities (figures for the year 2022):

- The number of prescribers who have prescribed at least one service (the figures are exceptionally extrapolated from a single semester if an \* is indicated in the header, otherwise the full year is taken into account);
- The number of prescribers prescribing the nomenclature codes selected for this analysis;
- The prescribers prescribing these codes as a percentage of the number of prescribers prescribing at least one service;
- The median number and third quartile of services per prescriber (prescribing these codes);
- The percentage of services prescribed, i.e. the number of prescriptions issued for this specialisation as a percentage of total services prescribed.

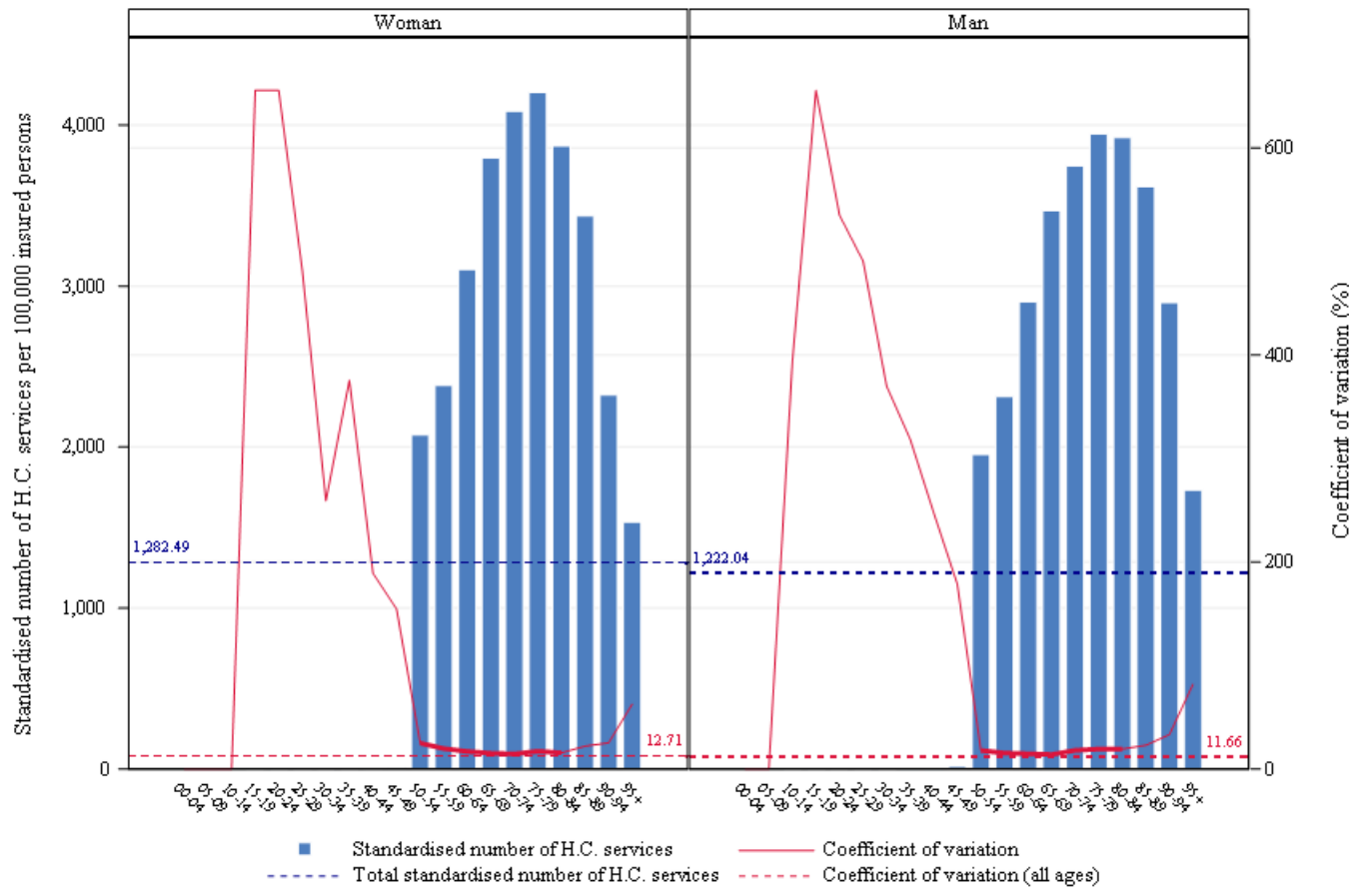
## E. Standardised rate of use by sex and age group

	TOTAL
<i>Average number of interventions per year</i>	<b>145.044</b>
Median age (years)	<b>68</b>
Mean age (years)	<b>68,53</b>
Max/Min Ratio of the median age (by district)	<b>1,08</b>
Percentage of women	<b>54,89%</b>

**Max/Min Ratio:**

The max/min ratio measures the dispersion of values. It is calculated as the ratio of the maximum value found for the variable, in all districts, to the minimum value. If this minimum value is equal to zero, the max/min ratio cannot be calculated, and is reported as 'NA' ('not applicable').

## Dentists - Removable denture (Adjusted)

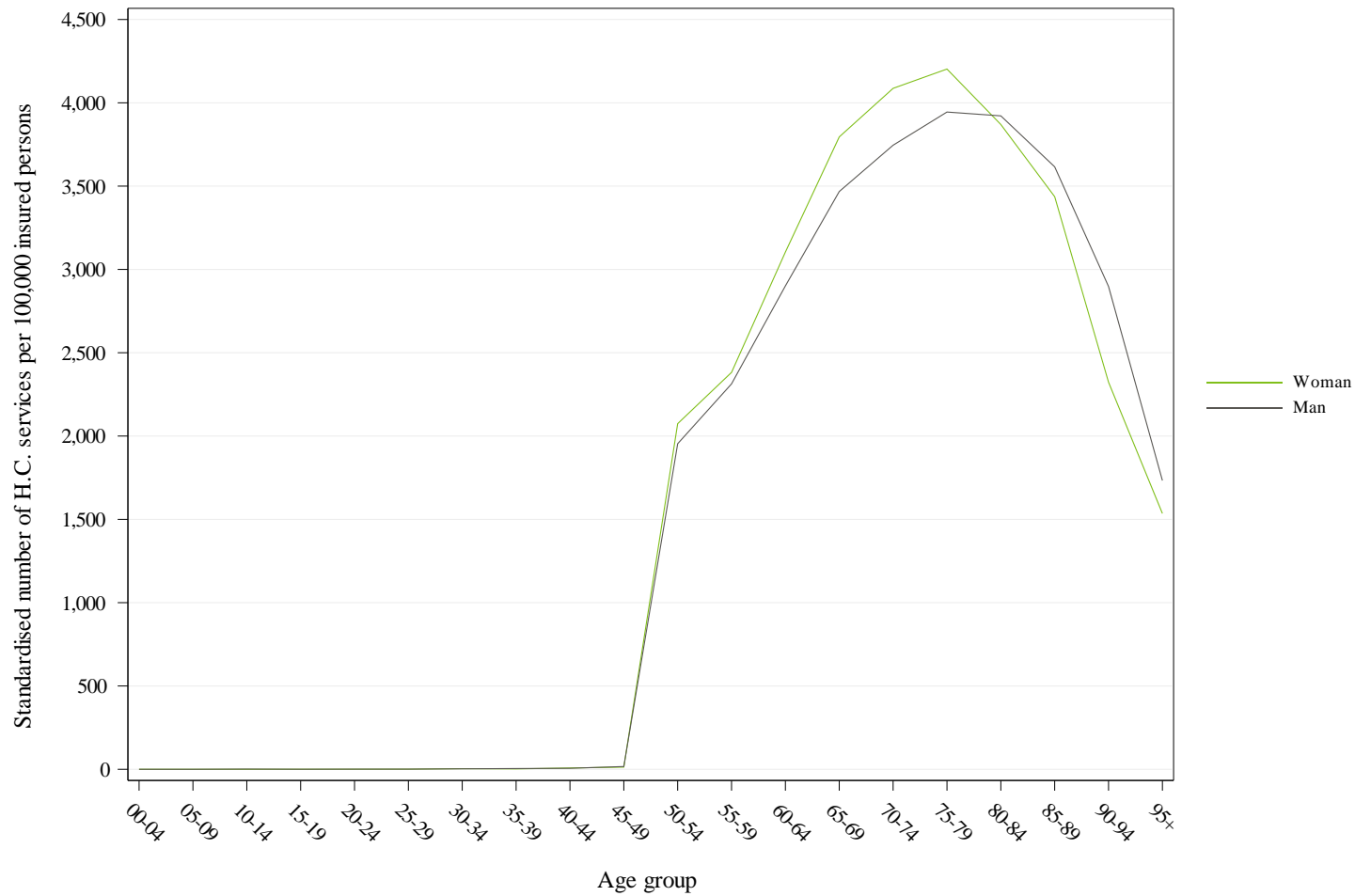


This figure is made up of bar charts for each sex. The **coefficient of variation**, shown by the red line, measures the relative dispersion of the standardised rates of use observed for each district, by age group and sex (standard deviation divided by the mean). This line is shown in bold for age groups where the coefficient of variation can be validly interpreted (i.e. for age groups in which there are sufficient insured persons per district to allow for a proper comparison).

The left-hand vertical axis of the graph represents the standardised rate of use, and the right-hand axis the coefficient of variation. The horizontal axis shows the age groups. The horizontal dotted lines show the total values of the standardised rates of use (in blue) and of the coefficient of variation (in red).

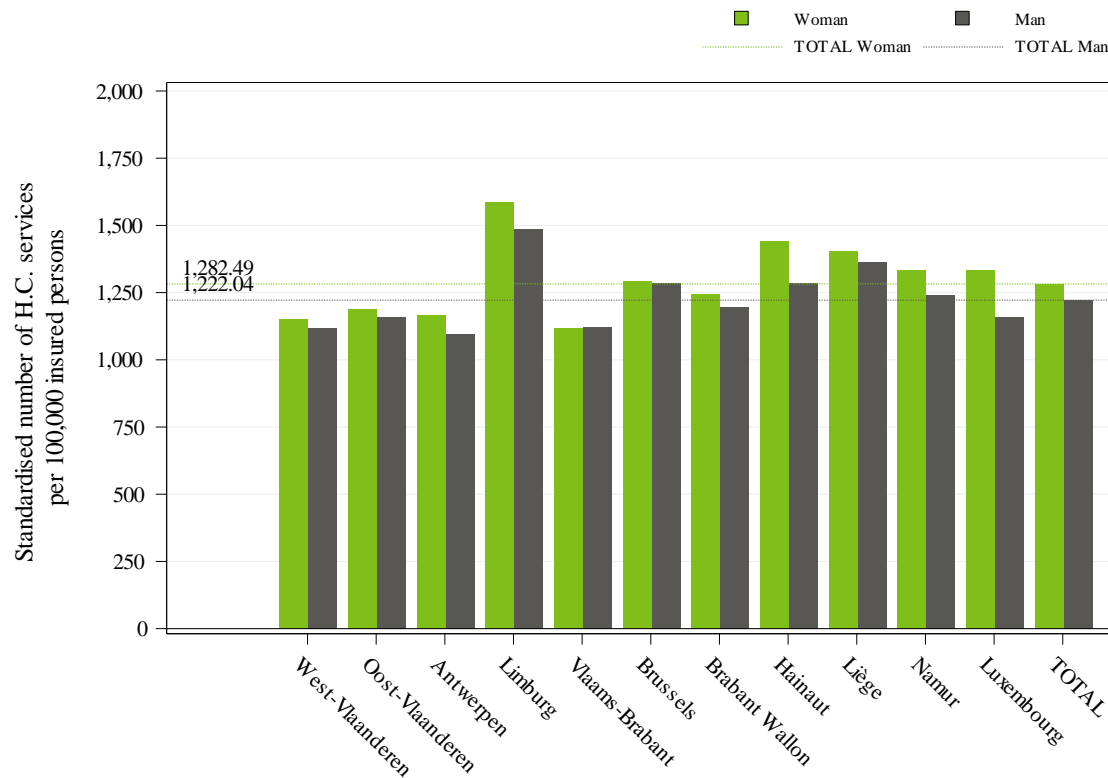
Standardised rate of use per 100 000 insured persons, and coefficient of variation for the districts, by age group and sex, for the year 2022

# Dentists - Removable denture (Adjusted)



Comparison of the standardised rates of use by sex (per 100 000) in 2022

# Dentists - Removable denture (Adjusted)

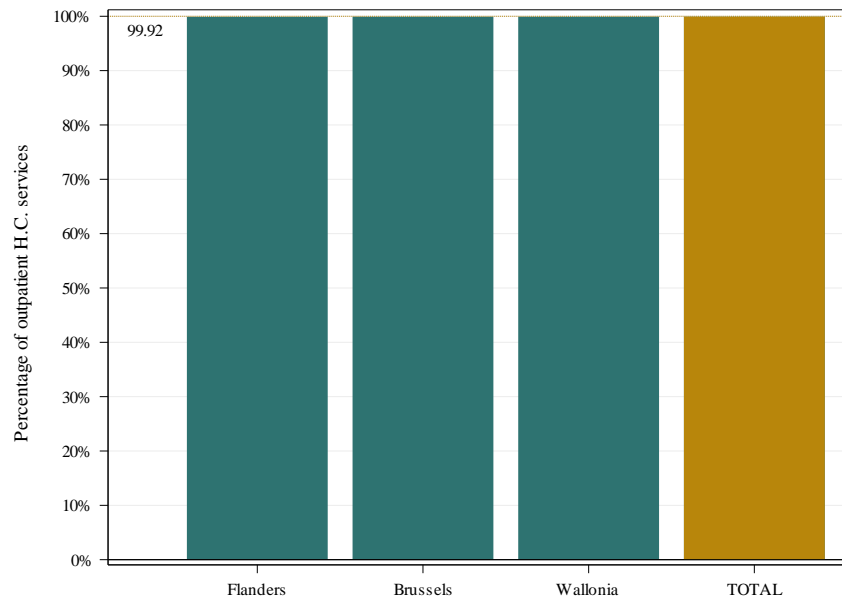


This histogram shows standardised rates of use by province and by sex. The grey bars show the rates for men, while the green bars show the rates for women, for each province. The grey and green broken lines show the total standardised rates of use, again grey for men, green for women.

Standardised rate of use per 100 000 insured persons, by sex and by province for the year 2022

## F. Standardised rate of use: hospital and outpatient care

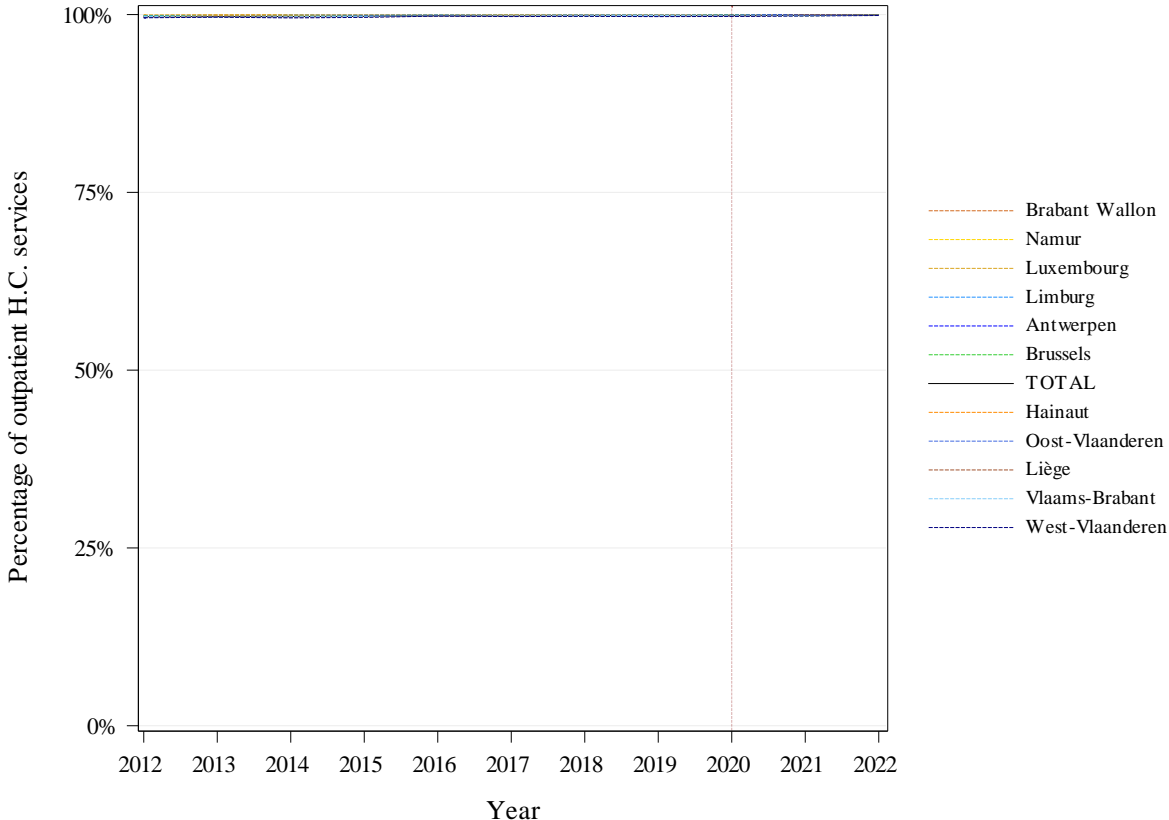
	TOTAL
<i>Average number of interventions per year</i>	<b>145.044</b>
Percentage of out-patient care	<b>99,92%</b>
Max/min ratio of out-patient care percentage (by district)	<b>1,01</b>



Percentage of outpatient care, total and by region

This graph shows the percentage of outpatient services (including hospital day admissions), i.e. the number of outpatient services provided as a percentage of total services (outpatient and hospital stays). Besides the bar per region, there is a bar for the entire Belgian population. A dotted line also shows this overall ratio.





Change over time in the percentage of outpatient care, by province

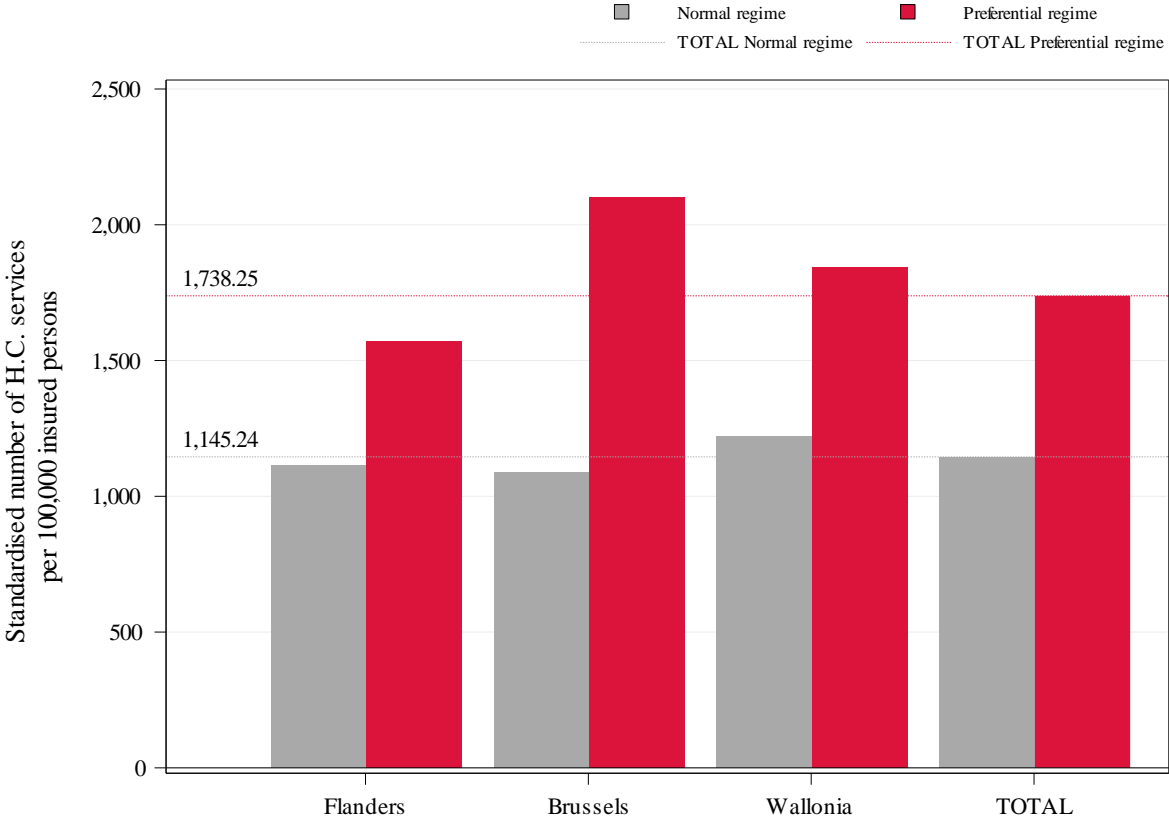
N.B.:

- The year 2020 was highlighted by a vertical dashed line, in order to draw the attention on the impact of the COVID-19 crisis
- A complementary document to this chapter, about the handling of patients per health care sector, is [enclosed in this report](#) (cf. p.36)

## G. Standardised rate of use by reimbursement scheme

	TOTAL
<i>Average number of interventions per year</i>	<b>145.044</b>
Percentage provided under the preferential reimbursement scheme	<b>29,26%</b>
Standardised rate of use with preferential reimbursement scheme (per 100 000)	<b>1.738</b>
Standardised rate of use without preferential reimbursement scheme (per 100 000)	<b>1.145</b>
Ratio Preferential scheme /General scheme	<b>1,52</b>

# Dentists - Removable denture (Adjusted)



This graph shows the standardised rates of use with (in red) and without (in grey) the preferential reimbursement scheme, by region and in total. The red and grey dotted lines show the overall standardised rates of use, with and without the preferential reimbursement scheme, respectively.

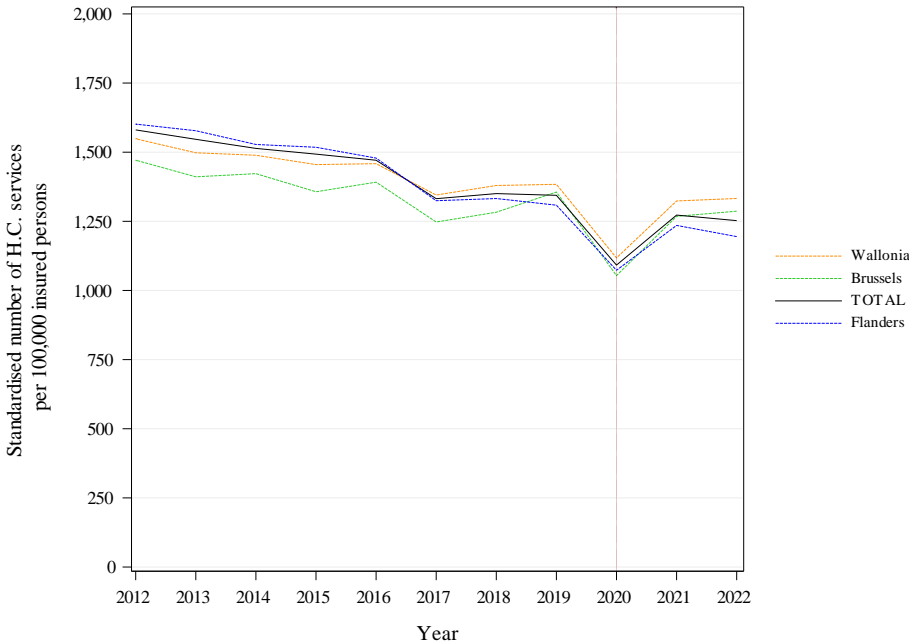
Standardised rate of use by reimbursement scheme and by region

H. Trends in standardised rates of use

<i>Average number of interventions per year</i>	<b>TOTAL</b>	<b>Statistical significance</b>
	<b>145.044</b>	
<b>Trend (2012-2022)</b>	<b>-2,30%</b>	<b>*** (-2,21%)</b>
Trend (2012-2019)	-2,29%	*
Trend (2019-2022)	-2,32%	

These trends correspond to the average annual growth rate.

A non-significant statistical test indicates that the trend estimated by the model (in brackets) is stable, or that there is no break in the trend

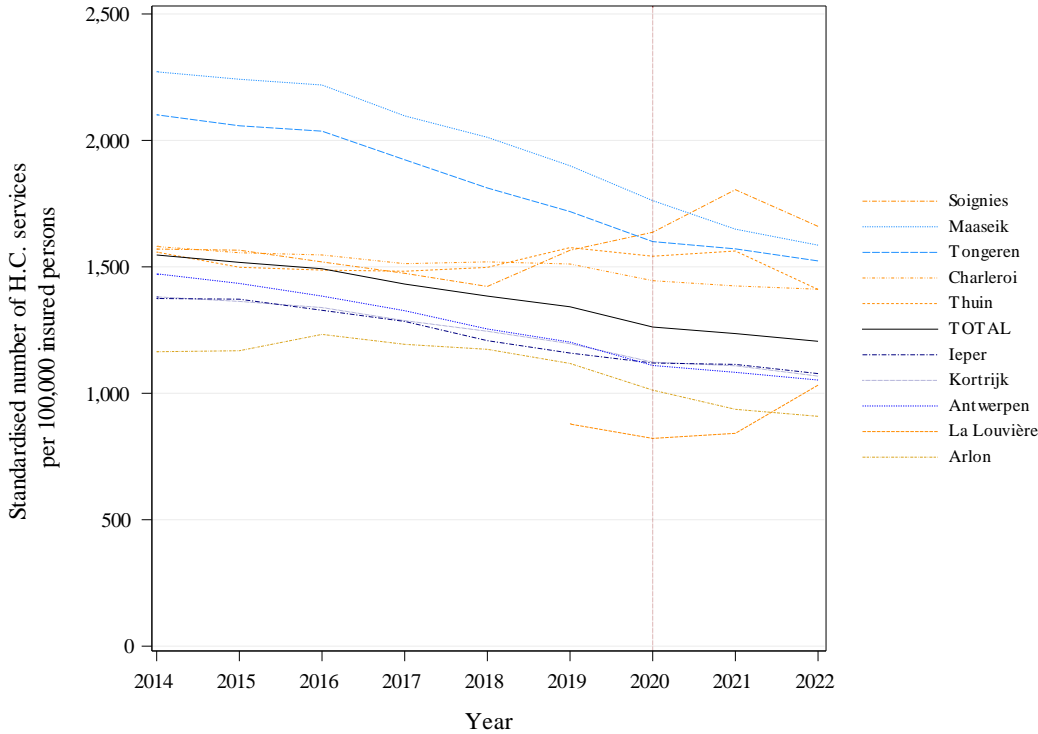


This graph shows a coloured curve for each region and a black curve for the entire Belgian population. The x-axis shows the years, and the y-axis shows the standardised rate of use per 100 000 insured persons.

Note : The year 2020 was highlighted by a vertical dashed line, in order to draw the attention on the impact of the COVID-19 crisis.

Trends in the standardised rate of use per 100 000 insured persons, by region

# Dentists - Removable denture (Adjusted)



Trends in the standardised rate of use per 100 000 insured persons, by district

This graph shows a colored line for each district and a black line for the entire Belgian population. The x-axis shows the years, and the y-axis shows the standardised rate of use per 100 000 insured persons.

To better highlight changes over time, the rates shown are **rolling averages** of the rates for the three years preceding the year in question (including the year itself).

The graph only shows the five districts with the highest average rates and the five districts with the lowest average rates over the last 3 years studied.

Note : The year 2020 was highlighted by a vertical dashed line, in order to draw the attention on the impact of the COVID-19 crisis.

## Dentists - Removable denture (Adjusted)

		Rate of use	Annual increase			Structural break
		2022 (per 10 <sup>5</sup> insured)	2012- 2022	2012- 2019	2019- 2022	
Provinces	West Flanders	1136,8	-2,36%	-2,39%	-2,30%	NA
	East Flanders	1175,38	-2,45%	-2,26%	-2,89%	NA
	Antwerp	1133,03	-3,31%	-3,33%	-3,27%	NA
	Limburg	1534,33	-3,31%	-3,24%	-3,48%	NA
	Flemish Brabant	1120,42	-3,00%	-2,97%	-3,08%	NA
	Brussels	1286,65	-1,33%	-1,16%	-1,73%	NA
	Walloon Brabant	1213,76	-1,32%	-1,76%	-0,29%	NA
	Hainaut	1365,53	-1,21%	-1,47%	-0,60%	NA
	Liège	1380,56	-1,88%	-1,93%	-1,76%	NA
	Namur	1287,24	-1,52%	-1,21%	-2,23%	NA
	Luxembourg	1248,39	-1,46%	-1,48%	-1,41%	NA
Regions	Flanders	1194,79	-2,89%	-2,85%	-2,98%	NA
	Brussels	1286,65	-1,33%	-1,16%	-1,73%	NA
	Wallonia	1332,68	-1,49%	-1,59%	-1,25%	NA
<b>TOTAL</b>		<b>1252,49</b>	<b>-2,30%</b>	<b>-2,29%</b>	<b>-2,32%</b>	<b>*</b>

Trends in the rates of use, by province and region

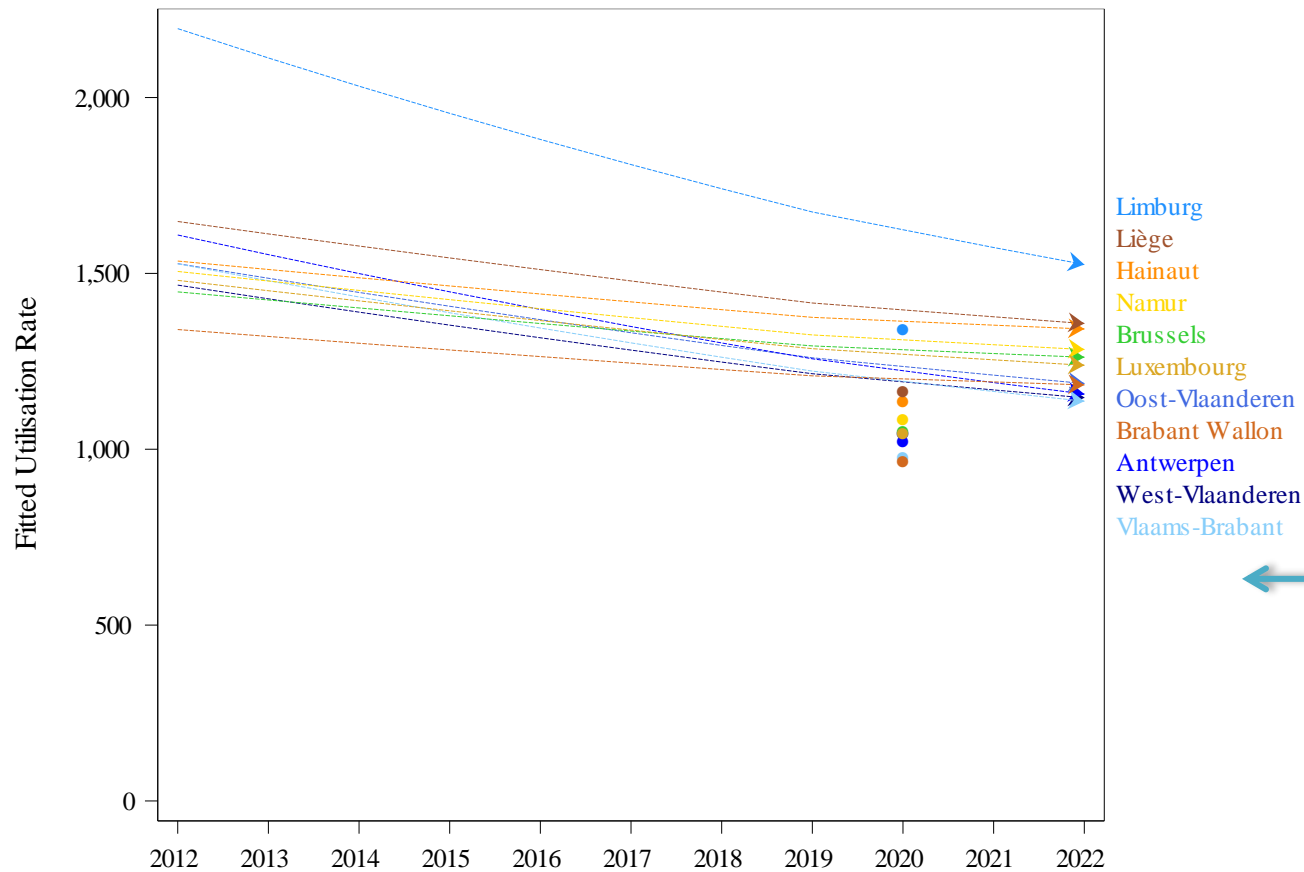
This table reports the standardised **rates of use** for the last year analysed (2022), as well as the average **rates of increase**, by province, by region and in total, for the entire period (2012-2022), for the last years (2019-2022) and for the period preceding the last years (2012-2019)

In order to find out whether the trend in the last years differs from that in the years before, a linear mixed model was fitted in two steps. In the first step a change in trend on the national level is tested. If this test is significant, in a second step, the model tests whether the difference in trend is significant for each province, region and at the national level. The data of 2020 are excluded from the models.

The significance of the test for a change in trend is reported in the Structural break column : \* P-value ≤ 0.05 / \*\* P-value ≤ 0.01 / \*\*\* P-value ≤ 0.001 and NS for a non-significant result.

'NA' is shown where the nomenclature codes selected for the analysis have not been used for the entire last period or when the statistical tests cannot be evaluated.

# Dentists - Removable denture (Adjusted)



Regression lines per province showing a possibly different slope for the last years (2019-2022) compared to the years before (2012-2019).

Data of 2020 was excluded from this analysis, but is indicated on the graph for information.

Trend break assessment model by province – Regression lines

## I. Geographical variations in standardised rates of use

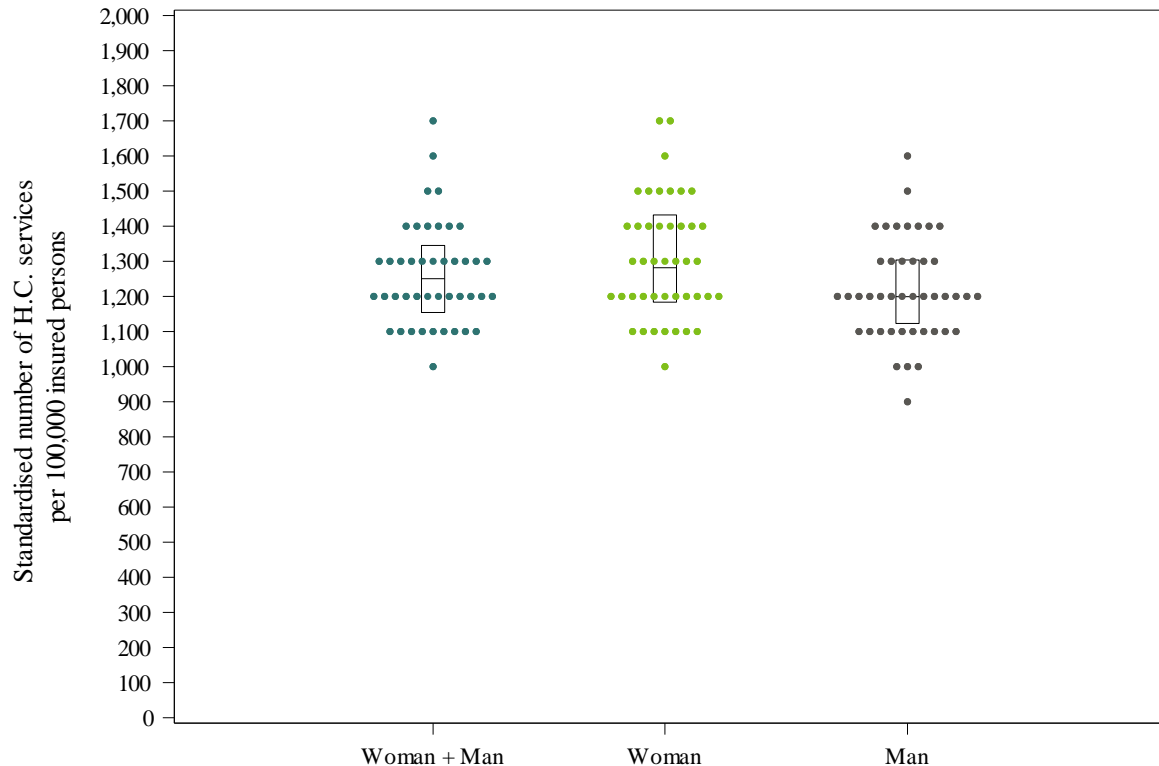
	TOTAL
<i>Average number of interventions per year</i>	<b>145.044</b>
<b>Coefficient of Variation (2022)</b>	<b>11,63</b>
<b>Max/Min Ratio* of the standardised rates of use (by region)</b>	<b>1,12</b>
<b>Max/Min Ratio* of the standardised rates of use (by district)</b>	<b>1,67</b>

<b>Coefficient of Variation (2020-2022)</b>	<b>12,35</b>
<b>Coefficient of Variation (2012-2014)</b>	<b>13,22</b>
<i>Statistically significant difference? (<math>p \leq 0.05</math>)</i>	<i>No</i>

\* An 'NA' result indicates a ratio which cannot be calculated, i.e. the minimum value = zero (cf. E. Standardised rate of use by sex and age group)



## Dentists - Removable denture (Adjusted)



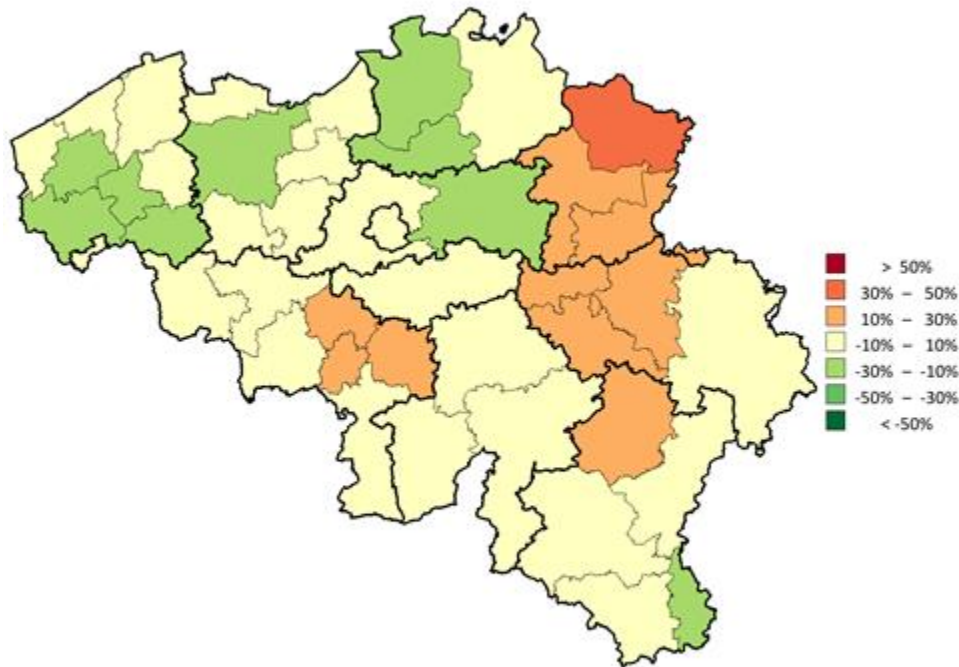
'Dot plot' showing standardised rates of use by district, by sex

A **dot plot** is a distribution chart, which is useful for highlighting groups in the data, gaps in the distribution and outliers. Here, each dot represents the rate of use of a district, for its entire population or broken down by sex.

The rates are rounded to the nearest unit, ten, hundred, etc., depending on the value of the maximum rate, in order to better group the values.

The graph also shows a box with the 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> percentiles of the non-rounded standardised rates of use for all patients. The bottom line of the box represents the 25<sup>th</sup> percentile, while the upper line represents the 75<sup>th</sup> percentile. The line inside the box represents the 50<sup>th</sup> percentile.

## Dentists - Removable denture (Adjusted)



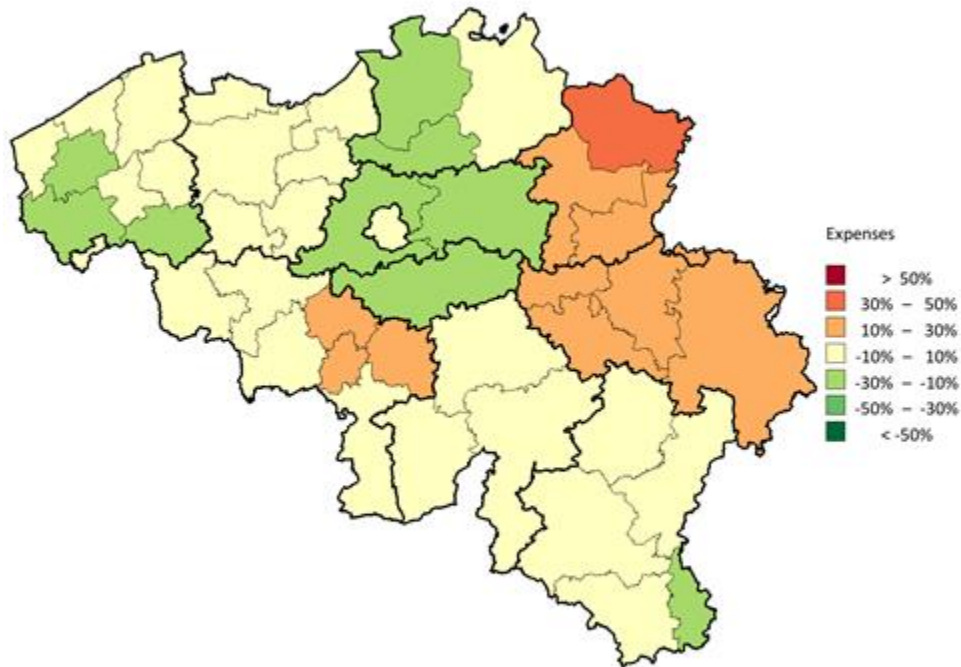
Map showing distribution of standardised rates of use, by district

On this map of Belgium, thin lines show the boundaries of the districts, while thick lines show the provincial borders. The districts are coloured using a colour scale based on the level of rate of use in the district compared to the Belgian national rate (overall rate). This ratio is expressed as a percentage: e.g. 0% if the district rate is equal to the overall rate, 20% if the rate is 20% above the overall rate, and -20% if the rate is 20% below the overall rate. The percentages are calculated using the standardised rates of the last year analysed, and are displayed in bands of 20%. The following colour coding applies:

Colour	Category
Dark Red	More than 50%
Red	Between 30% and 50%
Orange	Between 10% and 30%
Yellow	Between -10% and 10%
Light Green	Between -30% and -10%
Green	Between -50% and -30%
Dark Green	Less than -50%
White	Not used

N.B.: The interpretation of this map is to be done in parallel with [the graph in funnel plot](#) (p.28)

## Dentists - Removable denture (Adjusted)

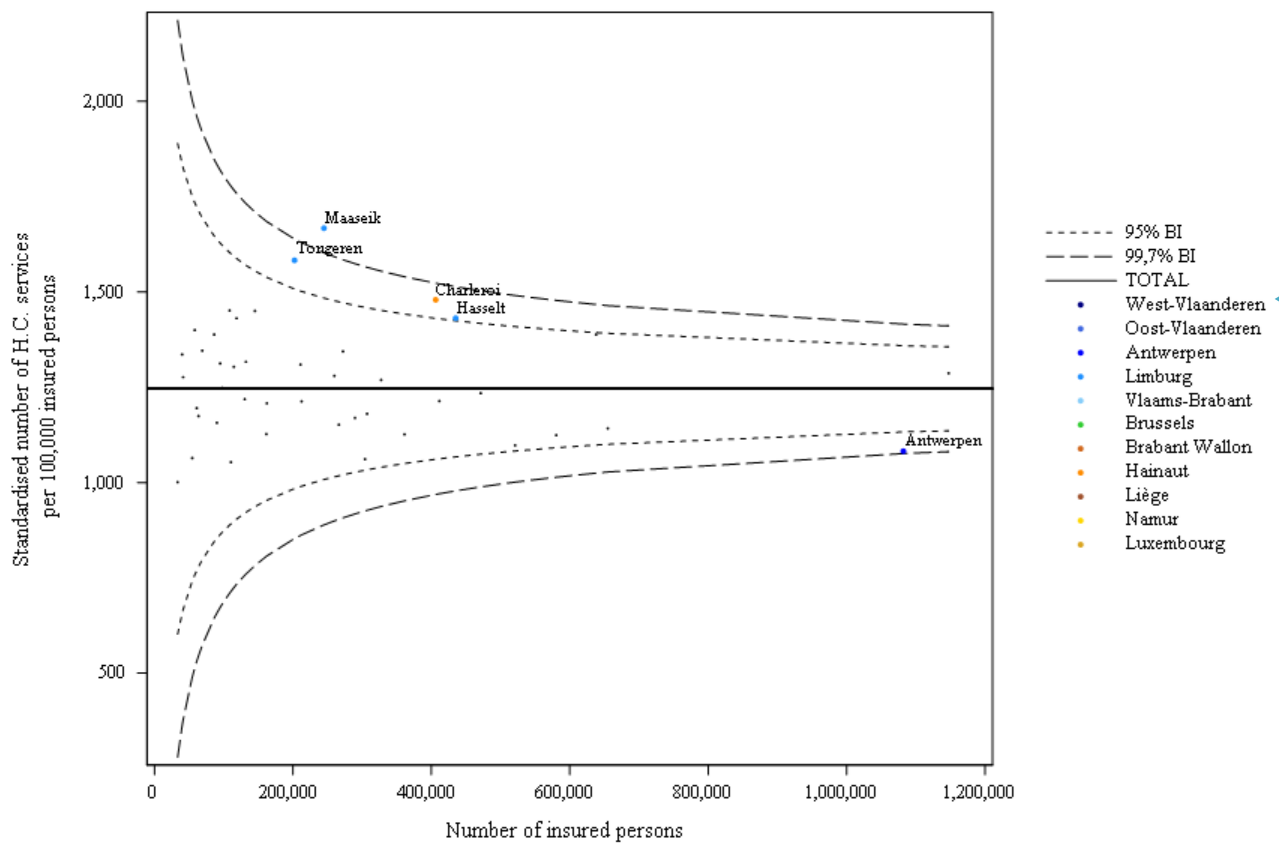


Map showing distribution of standardised expenditure, by district

On this map of Belgium, thin lines show the boundaries of the districts, while thick lines show the provincial borders. The districts are coloured using a colour scale based on the level of expenditure in the district compared to Belgian national (overall) expenditure. This ratio is expressed as a percentage: e.g. 0% if expenditure in the district is equal to the overall expenditure, 20% if it is 20% higher, and -20% if it is 20% lower. The percentages are calculated using the standardised expenditure of the last year analysed and are displayed in bands of 20%. The following colour coding applies:

Colour	Category
Dark Red	More than 50%
Red-Orange	Between 30% and 50%
Orange	Between 10% and 30%
Yellow	Between -10% and 10%
Light Green	Between -30% and -10%
Green	Between -50% and -30%
Dark Green	Less than -50%
White	No expenditure

## Dentists - Removable denture (Adjusted)



In this graph, the standardised rate of use in a district is positioned versus the size of its population. Besides the dots representing the districts, 95% and 99.7% **confidence intervals** are also shown on the graph. These are dependent of the size of the districts. The thicker horizontal line shows the national standardised rate of use. The outlier districts are identified as those districts that fall outside the 99.7% confidence intervals, the zone between the 95% and 99.7% confidence intervals being considered as “warning zone”.

N.B.: The interpretation of this graph is to be done in parallel with the [map of the distribution of rates of use](#) (p.26)

**‘Funnel plot’ showing the standardised rates of use by district, by the number of insured persons**

## J. Standardised healthcare expenditure borne by the insurance

	<b>TOTAL</b>
<i>Average number of interventions per year</i>	<b>145.044</b>
<b>Average annual expenditure (€)</b>	<b>80.026.536</b>
<b>Average cost per intervention (€)</b>	<b>551,74</b>
<b>Average annual expenditure per insured (€)</b>	<b>6,91</b>
<b>Max/Min Ratio* of expenditure per insured (by region)</b>	<b>1,12</b>
<b>Max/Min Ratio* of expenditure per insured (by district)</b>	<b>1,85</b>

\* An 'NA' result indicates a ratio which cannot be calculated, i.e. the minimum value = zero (cf. E. Standardised rate of use by sex and age group)

		Standardised expenditure (per insured)	
Provinces	West Flanders	6,26 €	
	East Flanders	6,51 €	
	Antwerp	6,24 €	
	Limburg	8,77 €	
	Flemish Brabant	5,93 €	
	Brussels	7,02 €	
	Walloon Brabant	6,12 €	
	Hainaut	7,62 €	
	Liège	7,76 €	
	Namur	7,07 €	
	Luxembourg	6,74 €	
	Regions	Flanders	6,59 €
		Brussels	7,02 €
Wallonia		7,36 €	
<b>TOTAL</b>		<b>*** €</b>	

Regional and provincial distribution of standardised expenditure (2022)

## Dentists - Removable denture (Adjusted)

Nomenclature	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average annual growth rate
306832-306843	509,39	525,76	533,80	532,71	479,08	532,43	546,70	557,11	565,31	572,63	596,47	1,59%
306854-306865	515,69	530,24	540,50	538,21	534,21	535,86	552,74	558,74	568,08	576,45	597,23	1,48%
306876-306880	512,93	528,50	537,59	538,06	536,80	537,06	552,02	561,36	573,05	580,90	603,10	1,63%
306891-306902	518,54	532,82	542,38	546,99	537,69	538,63	555,35	568,00	575,34	578,72	605,09	1,56%
306913-306924	610,16	629,73	639,16	639,46	632,48	634,64	653,60	665,25	675,52	682,39	709,69	1,52%
306935-306946	617,32	636,98	647,12	647,45	640,13	640,10	659,82	670,35	679,89	687,43	713,54	1,46%
307731-307742	312,02	322,43	326,73	326,21	323,33	325,55	336,61	341,79	346,88	353,33	369,23	1,70%
307753-307764	320,62	333,01	339,46	342,39	334,83	340,76	347,70	358,51	364,91	370,32	385,02	1,85%
307775-307786	314,85	326,88	330,96	331,37	327,97	331,79	340,51	348,84	354,68	360,49	371,82	1,68%
307790-307801	320,55	331,54	338,92	339,19	336,07	336,83	350,86	353,46	361,00	368,59	382,06	1,77%
307812-307823	315,45	323,96	331,50	330,76	328,47	331,49	340,34	346,69	354,19	359,08	373,07	1,69%
307834-307845	318,70	330,57	335,54	335,84	333,29	334,32	346,18	353,84	358,43	362,62	377,53	1,71%
307856-307860	314,58	325,45	330,83	330,84	327,92	329,25	340,70	345,98	351,06	358,15	372,50	1,70%
307871-307882	317,81	328,52	334,02	334,32	330,81	331,63	343,12	349,51	356,05	361,01	375,36	1,68%
307893-307904	314,82	325,27	329,87	331,18	327,47	331,01	339,55	347,54	352,85	356,78	371,62	1,67%
307915-307926	316,98	328,60	333,01	334,23	317,73	331,40	341,95	348,52	355,77	359,99	373,30	1,65%
307930-307941	345,74	357,29	362,36	362,42	354,79	351,86	360,86	369,47	374,87	382,18	396,47	1,38%
307952-307963	349,09	359,19	365,06	365,61	357,62	351,80	364,37	371,99	378,84	383,02	400,44	1,38%
307974-307985	346,26	357,84	363,12	363,09	356,24	351,51	362,45	368,45	374,90	381,91	395,92	1,35%
307996-308000	349,54	360,70	365,77	365,84	358,13	353,45	364,06	370,51	379,03	381,36	398,76	1,33%
308011-308022	381,02	392,92	399,04	399,61	395,18	397,23	410,09	414,55	423,99	430,71	447,97	1,63%
308033-308044	384,15	396,35	403,48	403,58	398,30	400,99	410,86	415,57	424,31	429,66	447,71	1,54%
308055-308066	381,43	393,98	398,76	400,96	398,31	397,21	408,75	416,18	424,55	428,52	450,15	1,67%
308070-308081	384,66	399,92	404,38	403,68	399,88	399,64	409,02	416,08	422,79	431,26	447,54	1,53%
308092-308103	442,74	456,10	465,43	464,98	456,69	446,84	459,55	461,53	470,74	477,17	498,98	1,20%
308114-308125	446,23	462,45	469,59	469,38	459,40	449,56	463,26	462,47	471,45	474,57	500,36	1,15%
308136-308140	443,70	459,46	467,32	465,59	455,76	446,09	460,37	463,55	471,28	476,48	501,15	1,23%
308151-308162	448,87	466,38	471,61	471,03	462,11	452,41	464,86	463,56	477,30	479,23	504,14	1,17%
308335-308346	474,23	485,05	510,97	495,73	491,57	480,47	521,19	540,89	529,01	490,23	583,62	2,10%
378335-378346	0,00	0,00	0,00	682,13	0,00	406,10	0,00	0,00	0,00	0,00	0,00	NA
378954-378965	519,12	447,70	566,22	523,67	631,01	595,39	609,38	537,27	663,45	587,82	693,30	2,94%
378976-378980	639,44	379,59	543,12	514,97	638,48	542,15	642,38	644,44	670,26	0,00	676,09	0,56%

### Change over time in expenditure, by service and by nomenclature code

## 4. KEY DATA SUMMARY

		TOTAL
<b>PROVIDERS &amp; PRESCRIBERS</b>		
Main healthcare providers:	<i>Dentists</i>	97,31%
Main prescribers:	<i>Not applicable</i>	-
<b>RATE OF USE</b>		
Number of interventions (per year)		145.044
Standardised rate of use (per 100 000 insured persons)		1252,49
≥ 2 occurrences per patient (2021) <sup>4</sup>		37,8%
Percentage of outpatient care		99,92%
<b>POPULATION</b>		
Median age		68 years
Max/min ratio <sup>5</sup> of the median age (by district)		1,08
Percentage of women		54,89%
Ratio Preferential rate/General rate		1,52
<b>TRENDS</b>		
Trend <sup>6</sup> (2012-2022)	-2,30%	***
Trend <sup>6</sup> (2012-2019)	-2,29%	*
Trend <sup>6</sup> (2019-2022)	-2,32%	*
<b>GEOGRAPHICAL VARIATIONS</b>		
Coefficient of variation <sup>6</sup> (2012-2014)	13,22	NS
Coefficient of variation <sup>6</sup> (2020-2022)	12,35	
Max/min <sup>5</sup> Ratio of number of interventions <sup>6</sup> (per 100 000 insured persons, by region)	1,12	
Max/min Ratio <sup>5</sup> of number of interventions (per 100 000 insured persons, by district)	1,67	
<b>DIRECT EXPENDITURE</b>		
Average annual expenditure		80.026.536 €
Average annual expenditure per insured		6,91 €
Max/Min Ratio <sup>5</sup> of expenditure per insured (by region)		1,12
Max/Min Ratio <sup>5</sup> of expenditure per insured (by district)		1,85
Average cost of interventions		551,74 €
<b>CODING VARIATIONS &amp; PRACTICE ALTERNATIVES<sup>4</sup></b>		
Variations in practice coding <sup>6</sup> (by province)	Yes	***
Variations in the choice of practice alternatives <sup>6</sup> (by province)	Yes	***

<sup>4</sup> More detailed results are shown in a document enclosed to this report.

<sup>5</sup> An 'NA' result indicates a ratio, which cannot be calculated, i.e. the minimum value equals zero.

<sup>6</sup> If the result(s) show(s) a significant difference, the level of statistical significance is symbolized by one to three asterisks (increasingly significant). Otherwise, NS is displayed (not significant). 'NA' indicates the test is not applicable.



## 5. APPENDICES

### A. Analysis of variance (ANOVA), except Brussels

Statistical significance of the differences observed in 2022		
<i>By region?</i>	Yes	**
<i>By sex?</i>	Yes	***
<i>By reimbursement scheme?</i>	Yes	***
<i>By sex and per region?</i>	Yes	***
<i>By reimbursement scheme and per region?</i>	Yes	*
<i>By sex and per reimbursement scheme?</i>	Yes	**
<i>By sex and reimbursement scheme and per region?</i>	No	NS

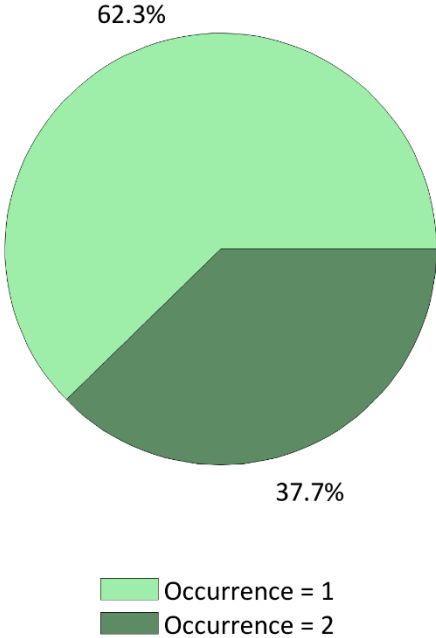
In order to be able to assess the significance of the observed differences, a linear mixed ANOVA model was fitted to the data of all districts of the Walloon and Flemish regions, after standardising for age. The model has region, sex and reimbursement scheme as fixed effects and also contains all two-way and three-way interactions between these effects.

In order to interpret the model correctly, first the three-way interaction should be evaluated, followed by the two-way interactions and finally by the main effects. If the three-way interaction is significant, the interpretation of the model should be done at this level only and the two-way interactions and main effects should not be interpreted. If the three-way interaction is not significant, the two-way interactions are evaluated. Every main effects that appears in a significant interaction should be interpreted at the level of the interaction and not at the level of that main effect. Main effects can only be interpreted directly if they don't appear in a significant interaction.

The **asterisks** represent the level of statistical significance of the tests: \* P-value  $\leq 0,05$  / \*\* P-value  $\leq 0,01$  / \*\*\* P-value  $\leq 0,001$  or NS for a non-significant result.

B. Frequency of practice occurrences

Frequency	Per year	Per day
2 occurrences	37,7%	35,5%
≥ 3 occurrences	0,1%	0,1%
≥ 2 occurrences	37,8%	35,5%



Distribution of practice recurrences per year (2021)

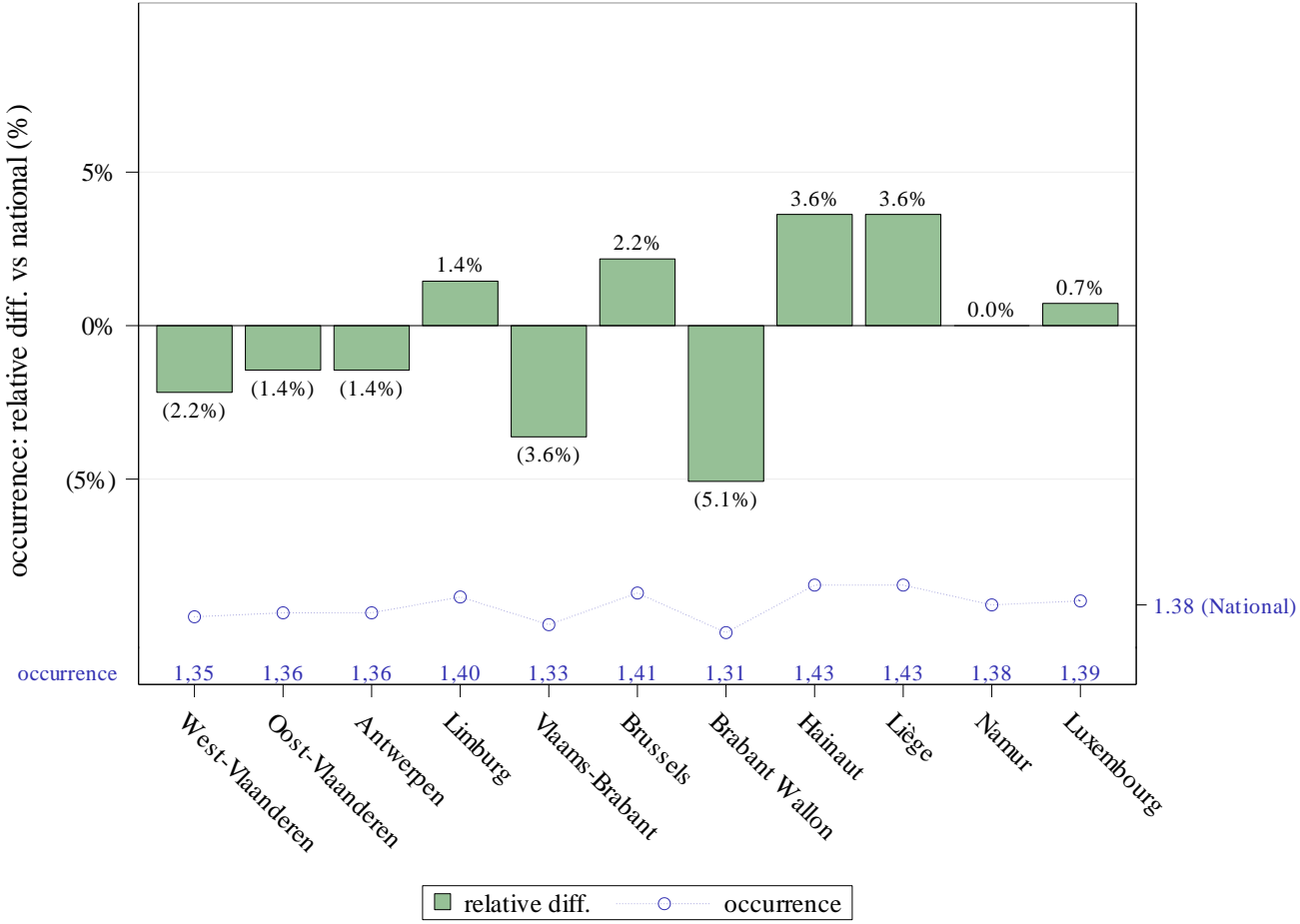
Some practices may be billed several times for the same patient in the same year or even on the same day. This may be due to a **repetition of the practice**, but also to an anatomical effect, which may lead, depending on the organ concerned, to performing the same practice **bilaterally**, which may therefore cause a double occurrence on the same day.

In order to interpret the results per day validly, it is useful to note that the same patient may be counted several times if, for example, he or she has received two identical services simultaneously, twice a year.

These frequency analyses of occurrences are carried out over the year **2021** using the following databases: Documents P, ADH and SHA.

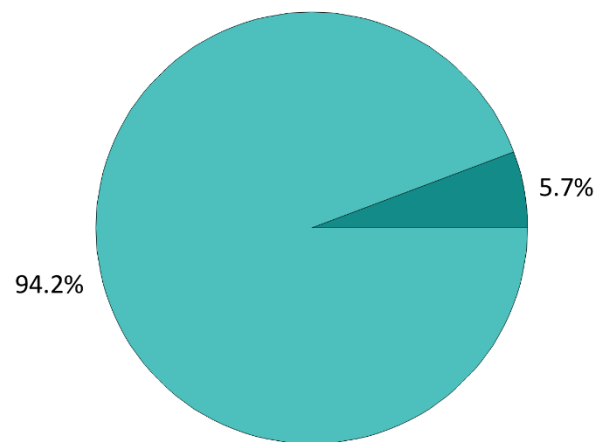
Values « **n.a.** » are indicated if the data were not available at the time of this report.

# Dentists - Removable denture (Adjusted)



Frequency of practice occurrences by province and variation vs national value (2021)

C. Patient care settings



Outpatient (clinic)
  Outpatient (private)

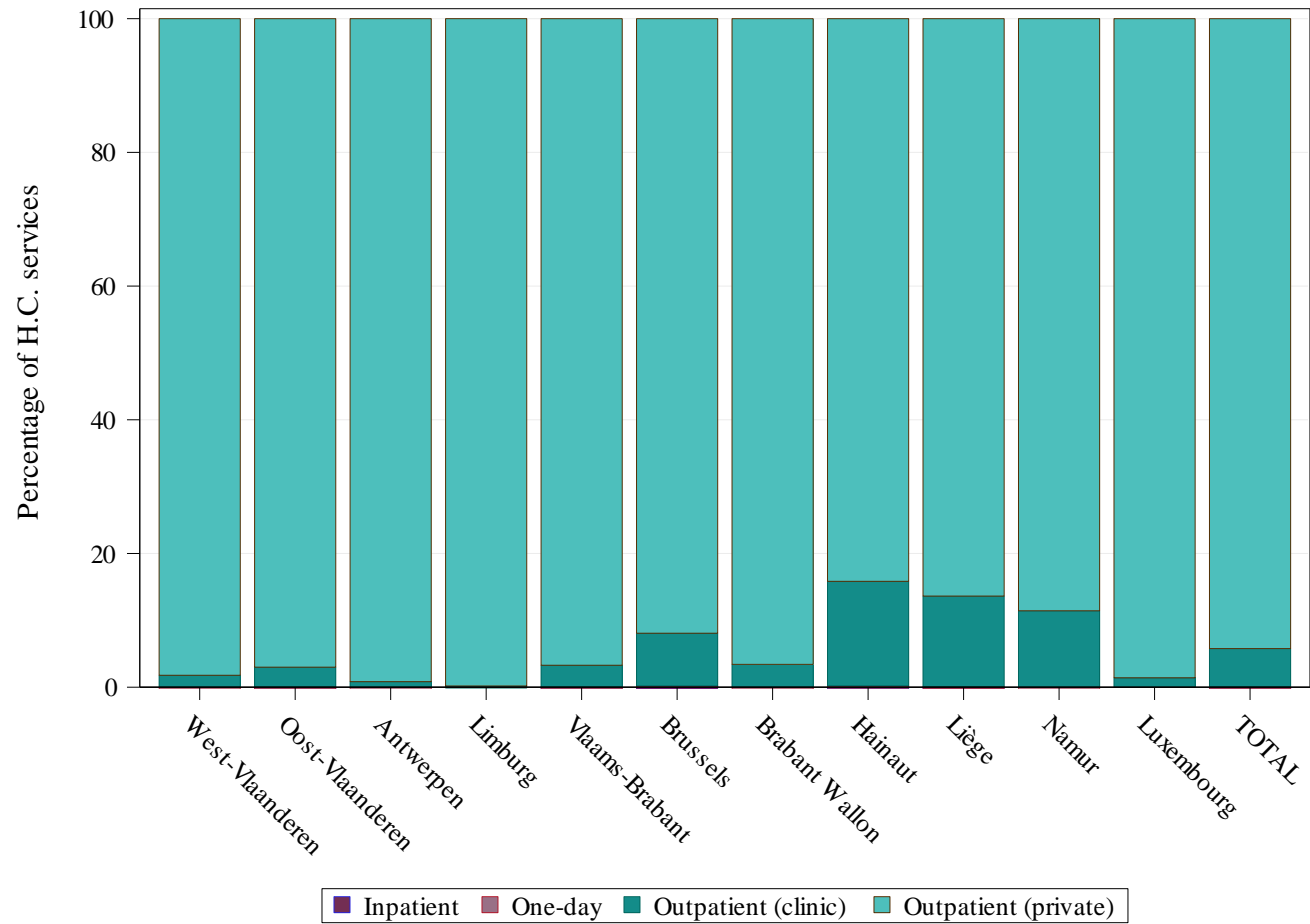
**Distribution of patient care settings in 2021**

Care Settings	
<b>Outpatient (private)</b>	94,2%
<b>Outpatient (polyclinic)</b>	5,7%
<b>(Day) Hospital</b>	0,0%
<b>Hospital (stay)</b>	0,0%

In addition to the chapter on [standardised inpatient and outpatient use rates](#) (see p.16), the analysis of patient care settings can be refined by identifying the outpatient (private and polyclinic) and inpatient (day or standard hospitalisation) sub-sectors.

These analyses are carried out over the year **2021** using the following databases: Documents P, ADH and SHA.

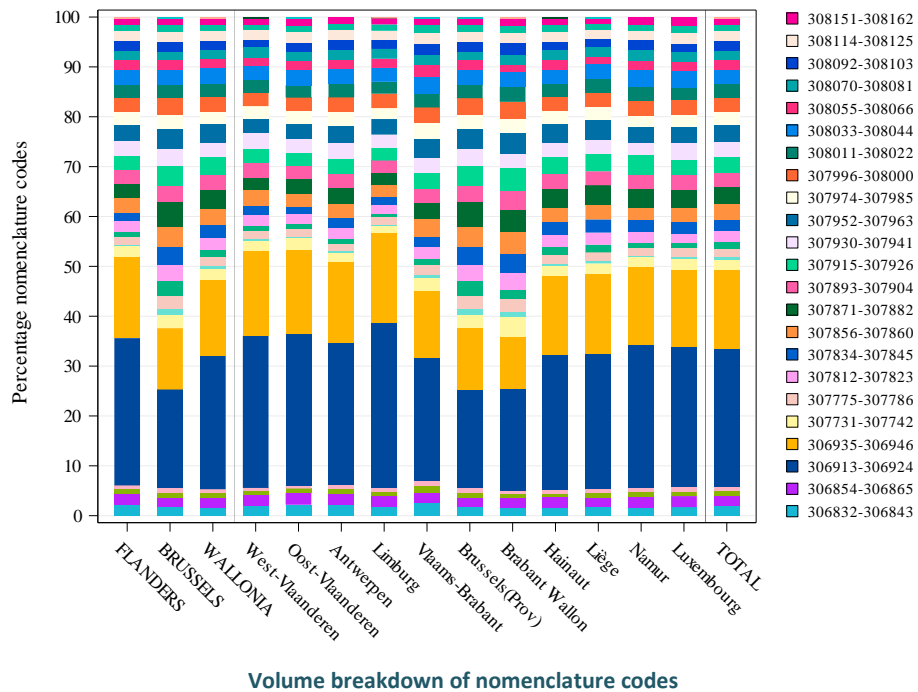
Values « **n.a.** » are indicated if the data were not available at the time of this report.



Distribution of patient care settings by province (2021)

## D. Coding variations and practice alternatives

➔ Variations in coding:



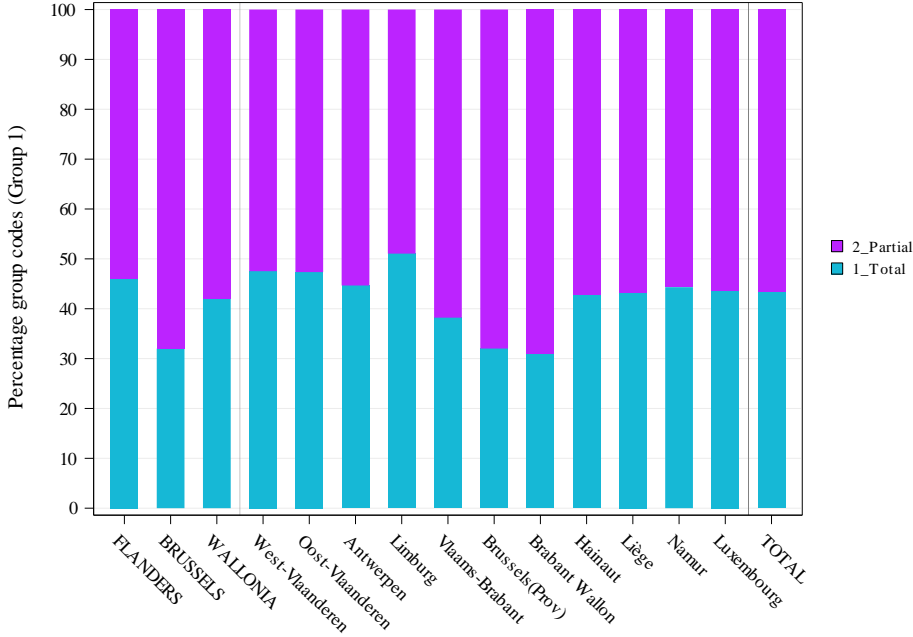
[Due to the large number of nomenclature codes selected for this analysis, we cannot include them in the legend here. We therefore invite you to read the details concerning them on page 4 of this report.]

Significance	By region	By province
Use of Nomenclature codes <sup>7</sup>	***	***

<sup>7</sup>The calculation of significance is carried out here by comparing the geographical differences in the use of the different nomenclature codes to code the practice.

The asterisks represent the level of statistical significance of Chi-square test: \* P-value ≤ 0,05 / \*\* P-value ≤ 0,01 / \*\*\* P-value ≤ 0,001. NS and NA respectively indicate that the variations are not significant or not applicable.

➔ Variations in practice alternatives:



Breakdown of choice for practice alternatives

Significance	By region	By province
Choice of Practice alternatives	***	***

Combined codes	Groupings
306832-306843	2_Partial
306854-306865	2_Partial
306876-306880	2_Partial
306891-306902	2_Partial
306913-306924	1_Total
306935-306946	1_Total
307731-307742	2_Partial
307753-307764	2_Partial
307775-307786	2_Partial
307790-307801	2_Partial
307812-307823	2_Partial
307834-307845	2_Partial
307856-307860	2_Partial
307871-307882	2_Partial
307893-307904	2_Partial
307915-307926	2_Partial
307930-307941	2_Partial
307952-307963	2_Partial
307974-307985	2_Partial
307996-308000	2_Partial
308011-308022	2_Partial
308033-308044	2_Partial
308055-308066	2_Partial
308070-308081	2_Partial
308092-308103	2_Partial
308114-308125	2_Partial
308136-308140	2_Partial
308151-308162	2_Partial
308335-308346	2_Partial
378954-378965	2_Partial
378976-378980	2_Partial



According to the nature of the practice and the analytical tools available, it may be possible to identify and define alternatives for carrying out the practice. In this case, the nomenclature codes defined for the analysis of the practice are grouped together with the aim of analysing whether or not the choices of these alternatives are homogeneous across the territory. The calculation of significance displayed in the table is carried out by comparing these groups of codes with each other.

