Medication use in public pharmacies

Antibiotics

Analysis of the distribution and evolution of medication consumption in Belgium, in terms of volume and expenditure per insured (analysis and trends by region, province and district), for the year **2021**

INAMI-RIZIV

NIHDI – Healthcare Service – Directorate for Research, Development and Quality promotion
Appropriate care unit
Pascal Meeus, Lies Grypdonck, Delphine Beauport, Virginie Dalcq, Marc De Falleur, Katrien Declercq
Contact : appropriatecare@riziv-inami.fgov.be

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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[1]. 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[2]. 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.

"Medication use" 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[3] of antibiotic use, 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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[1] (Institut national d'assurance maladie-invalidité, 2016)
[2] (Institut national d'assurance maladie-invalidité, 2016)
[3] Readers interested in the methodology used in these quantitative analyses should consult the document entitled 'Variations in practice – Methodology'.

2. METHODOLOGY

A. ATC codes (Anatomical Therapeutic Chemical Classification System) selected for this analysis

The ATC codes selected for the analysis are listed below:

Code_atc	Atc_FR	Code_atc_5	Atc_5_FR	Code_atc_4	Atc_4_FR	Cheap	CodeGroup1	CodeGroup2
J01AA01	DEMECLOCYCLINE	J01AA	TETRACYCLINES	J01A	TETRACYCLINES	non	2_AB_seconde_intention	2e_Autre_AB
J01AA02	DOXYCYCLINE	J01AA	TETRACYCLINES	J01A	TETRACYCLINES	oui	2_AB_seconde_intention	2e_Autre_AB
J01AA04	LYMECYCLINE	J01AA	TETRACYCLINES	J01A	TETRACYCLINES	non	2_AB_seconde_intention	2e_Autre_AB
J01AA06	OXYTETRACYCLINE	J01AA	TETRACYCLINES	J01A	TETRACYCLINES	non	2_AB_seconde_intention	2e_Autre_AB
J01AA07	TETRACYCLINE	J01AA	TETRACYCLINES	J01A	TETRACYCLINES	non	2_AB_seconde_intention	2e_Autre_AB
J01AA08	MINOCYCLINE	J01AA	TETRACYCLINES	J01A	TETRACYCLINES	oui	2_AB_seconde_intention	2e_Autre_AB
J01AA12	TIGECYCLINE	J01AA	TETRACYCLINES	J01A	TETRACYCLINES	non	2_AB_seconde_intention	2e_Autre_AB
J01BA02	THIAMPHENICOL	J01BA	AMPHENICOLES	J01B	AMPHENICOLES	non	2_AB_seconde_intention	2e_Autre_AB
J01BA52	THIAMPHENICOL, AS	J01BA	AMPHENICOLES	J01B	AMPHENICOLES	non	2_AB_seconde_intention	2e_Autre_AB
J01CA04	AMOXICILLINE	J01CA	PENICILLINES A LARGE SPECTRE	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	oui	1_AB_première_intention	1a_Amoxicill
J01CE01	BENZYLPENICILLINE	J01CE	PENICILLINES SENSIBLES AUX BETA-LACTAM	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	non	1_AB_première_intention	1e_Autre_AB
J01CE02	PHENOXYMETHYLPEN	J01CE	PENICILLINES SENSIBLES AUX BETA-LACTAM	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	non	1_AB_première_intention	1e_Autre_AB
J01CE07	CLOMETOCILLINE	J01CE	PENICILLINES SENSIBLES AUX BETA-LACTAM	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	non	1_AB_première_intention	1e_Autre_AB
J01CE08	BENZYLPENICILLINE E	J01CE	PENICILLINES SENSIBLES AUX BETA-LACTAM	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	non	1_AB_première_intention	1e_Autre_AB
J01CE10	PHENOXYMETHYLPEN	J01CE	PENICILLINES SENSIBLES AUX BETA-LACTAM	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	non	1_AB_première_intention	1e_Autre_AB
J01CE19	ciclacilline	J01CE	PENICILLINES SENSIBLES AUX BETA-LACTAM	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	non	1_AB_première_intention	1e_Autre_AB
J01CF01	DICLOXACILLINE	J01CF	PENICILLINES RESISTANTES AUX BETA-LACT/	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	non	1_AB_première_intention	1e_Autre_AB
J01CF02	CLOXACILLINE	J01CF	PENICILLINES RESISTANTES AUX BETA-LACT/	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	non	1_AB_première_intention	1e_Autre_AB
J01CF04	OXACILLINE	J01CF	PENICILLINES RESISTANTES AUX BETA-LACT/	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	non	1_AB_première_intention	1e_Autre_AB
J01CF05	FLUCLOXACILLINE	J01CF	PENICILLINES RESISTANTES AUX BETA-LACT/	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	oui	1_AB_première_intention	1e_Autre_AB
J01CR02	AMOXICILLINE ET INF	J01CR	ASSOCIATIONS DE PENICILLINES, INHIB. DE	J01C	ANTIBIOTIQUES BETA-LACTAMES, PENICILLINES	oui	2_AB_seconde_intention	2a_Amoxi._+
J01DB01	CEFALEXINE	J01DB	CEPHALOSPORINES DE LA PREMIERE GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	1_AB_première_intention	1b_Céphalos
J01DB04	CEFAZOLINE	J01DB	CEPHALOSPORINES DE LA PREMIERE GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	oui	1_AB_première_intention	1b_Céphalos
J01DB05	CEFADROXIL	J01DB	CEPHALOSPORINES DE LA PREMIERE GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	oui	1_AB_première_intention	1b_Céphalos
J01DB07	CEFATRIZINE	J01DB	CEPHALOSPORINES DE LA PREMIERE GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	1_AB_première_intention	1b_Céphalos
J01DB09	CEFRADINE	J01DB	CEPHALOSPORINES DE LA PREMIERE GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	1_AB_première_intention	1b_Céphalos
J01DC01	CEFOXITINE	J01DC	CEPHALOSPORINES DE LA DEUXIEME GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2c_Céphalos
J01DC02	CEFUROXIME	J01DC	CEPHALOSPORINES DE LA DEUXIEME GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	oui	2_AB_seconde_intention	2c_Céphalos
J01DC03	CEFAMANDOLE	J01DC	CEPHALOSPORINES DE LA DEUXIEME GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2c_Céphalos
J01DC04	CEFACLOR	J01DC	CEPHALOSPORINES DE LA DEUXIEME GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2c_Céphalos
J01DC05	CEFOTETAN	J01DC	CEPHALOSPORINES DE LA DEUXIEME GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2c_Céphalos
J01DC06	CEFONICIDE	J01DC	CEPHALOSPORINES DE LA DEUXIEME GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2c_Céphalos
J01DC07	CEFOTIAM	J01DC	CEPHALOSPORINES DE LA DEUXIEME GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2c_Céphalos
J01DC11	CEFORANIDE	J01DC	CEPHALOSPORINES DE LA DEUXIEME GENER	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2c_Céphalos
J01DD01	CEFOTAXIME	J01DD	CEPHALOSPORINES DE LA TROISIEME GENEF	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	oui	2_AB_seconde_intention	2c_Céphalos
J01DD02	CEFTAZIDIME	J01DD	CEPHALOSPORINES DE LA TROISIEME GENEF	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	oui	2_AB_seconde_intention	2c_Céphalos
J01DD04	CEFTRIAXONE	J01DD	CEPHALOSPORINES DE LA TROISIEME GENEF	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	oui	2_AB_seconde_intention	2c_Céphalos
J01DD52		J01DD	CEPHALOSPORINES DE LA TROISIEME GENEF	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2c_Céphalos
J01DH02	MEROPENEM	J01DH	CARBAPENEMES	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	oui	2_AB_seconde_intention	2e_Autre_AB
J01DH04	DORIPENEM	J01DH	CARBAPENEMES	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2e_Autre_AB
J01DH51	IMIPENEM ET INHIBIT	J01DH	CARBAPENEMES	J01D	AUTRES ANTIBIOTIQUES BETA-LACTAMES	non	2_AB_seconde_intention	2e_Autre_AB
J01EE01	SULFAMETHOXAZOLE	J01EE	ASSOCIATIONS DE SULFAMIDES ET DE TRIMI	J01E	SULFAMIDES ET TRIMETHOPRIME	oui	2_AB_seconde_intention	2e_Autre_AB
J01EE02	SULFADIAZINE ET TRI	J01EE	ASSOCIATIONS DE SULFAMIDES ET DE TRIMI	J01E	SULFAMIDES ET TRIMETHOPRIME	non	2_AB_seconde_intention	2e_Autre_AB
J01FA01	ERYTHROMYCINE	J01FA	MACROLIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	non	2_AB_seconde_intention	2b_Macrolid
J01FA02	SPIRAMYCINE	J01FA	MACROLIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	non	2_AB_seconde_intention	2b_Macrolid
J01FA06	ROXITHROMYCINE	J01FA	MACROLIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	oui	2_AB_seconde_intention	2b_Macrolid
J01FA08	TROLEANDOMYCINE	J01FA	MACROLIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	non	2_AB_seconde_intention	2b_Macrolid
J01FA09	CLARITHROMYCINE	J01FA	MACROLIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	oui	2_AB_seconde_intention	2b_Macrolid
J01FA10	AZITHROMYCINE	J01FA	MACROLIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	oui	2_AB_seconde_intention	2b_Macrolid
J01FA11	MIOCAMYCINE	J01FA	MACROLIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	non	2_AB_seconde_intention	2b_Macrolid
J01FA13	DIRITHROMYCINE	J01FA	MACROLIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	non	2_AB_seconde_intention	2b_Macrolid
J01FA15	TELITHROMYCINE	J01FA	MACROLIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	non	2_AB_seconde_intention	2b_Macrolid
J01FF01	CLINDAMYCINE	J01FF	LINCOSANIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	non	1_AB_première_intention	1e_Autre_AB
J01FF02	LINCOMYCINE	J01FF	LINCOSANIDES	J01F	MACROLIDES, LINCOSANIDES ET STREPTOGRAMIN	non	2_AB_seconde_intention	2e_Autre_AB
J01GB01	TOBRAMYCINE	J01GB	AUTRES AMINOGLYCOSIDES	J01G	AMINOGLYCOSIDES	oui	2_AB_seconde_intention	2e_Autre_AB
J01GB03	GENTAMICINE	J01GB	AUTRES AMINOGLYCOSIDES	J01G	AMINOGLYCOSIDES	non	2_AB_seconde_intention	2e_Autre_AB
J01GB04	KANAMYCINE	J01GB	AUTRES AMINOGLYCOSIDES	J01G	AMINOGLYCOSIDES	non	2_AB_seconde_intention	2e_Autre_AB
J01GB06	AMIKACINE	J01GB	AUTRES AMINOGLYCOSIDES	J01G	AMINOGLYCOSIDES	non	2_AB_seconde_intention	2e_Autre_AB
J01GB07	NETILMICINE	J01GB	AUTRES AMINOGLYCOSIDES	J01G	AMINOGLYCOSIDES	non	2_AB_seconde_intention	2e_Autre_AB
J01GB09	DIBEKACINE	J01GB	AUTRES AMINOGLYCOSIDES	J01G	AMINOGLYCOSIDES	non	2_AB_seconde_intention	2e_Autre_AB
J01GB11	ISEPAMICINE	J01GB	AUTRES AMINOGLYCOSIDES	J01G	AMINOGLYCOSIDES	non	2_AB_seconde_intention	2e_Autre_AB
J01MA01	OFLOXACINE	J01MA	FLUOROQUINOLONES	J01M	QUINOLONES	oui	2_AB_seconde_intention	2d_Fluoroqu
J01MA02	CIPROFLOXACINE	J01MA	FLUOROQUINOLONES	J01M	QUINOLONES	oui	2_AB_seconde_intention	2d_Fluoroqu
J01MA03	PEFLOXACINE	J01MA	FLUOROQUINOLONES	J01M	QUINOLONES	non	2_AB_seconde_intention	2d_Fluoroqu
J01MA06	NORFLOXACINE	J01MA	FLUOROQUINOLONES	J01M	QUINOLONES	oui	2_AB_seconde_intention	2d_Fluoroqu
J01MA08	FLEROXACINE	J01MA	FLUOROQUINOLONES	J01M	QUINOLONES	non	2_AB_seconde_intention	2d_Fluoroqu
J01MA10	RUFLOXACINE	J01MA	FLUOROQUINOLONES	J01M	QUINOLONES	non	2_AB_seconde_intention	2d_Fluoroqu
J01MA12	LEVOFLOXACINE	J01MA	FLUOROQUINOLONES	J01M	QUINOLONES	oui	2_AB_seconde_intention	2d_Fluoroqu
J01MA14	MOXIFLOXACINE	J01MA	FLUOROQUINOLONES	J01M	QUINOLONES	oui	2_AB_seconde_intention	2d_Fluoroqu
J01XA01	VANCOMYCINE	J01XA	GLYCOPEPTIDES	J01X	AUTRES ANTIBACTERIENS	oui	2_AB_seconde_intention	2e_Autre_AB
J01XA02	TEICOPLANINE	J01XA	GLYCOPEPTIDES	J01X	AUTRES ANTIBACTERIENS	non	2_AB_seconde_intention	2e_Autre_AB
J01XB01	COLISTINE	J01XB	POLYMYXINES	J01X	AUTRES ANTIBACTERIENS	non	2_AB_seconde_intention	2e_Autre_AB
J01XB02	POLYMYXINE B	J01XB	POLYMYXINES	J01X	AUTRES ANTIBACTERIENS	non	2_AB_seconde_intention	2e_Autre_AB
J01XE01	NITROFURANTOINE	J01XE	DERIVES DU NITROFURANE	J01X	AUTRES ANTIBACTERIENS	non	1_AB_première_intention	1c_Dérivés_N
J01XE02	NIFURTOINOL	J01XE	DERIVES DU NITROFURANE	J01X	AUTRES ANTIBACTERIENS	non	1_AB_première_intention	1c_Dérivés_N
J01XX01	FOSFOMYCINE	J01XX	AUTRES ANTIBACTERIENS	J01X	AUTRES ANTIBACTERIENS	non	1_AB_première_intention	1d_Fosfomyc

This table shows the ATC codes selected for this analysis, stating whether or not they were included in the analyses of prescriptions 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.

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B. Source of data and analysis period

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

Pharmanet document	For the utilisation rate (medication use in DDD per 100,000 insured) and amount of expenses of insured persons (who meet the selection criteria) whose age, sex, preferential regime and district are known in 2011-2021. The data are collected per accounting period.

Analysis period	2011-2021

Pharmanet documents: Pharmanet documents are data from public pharmacies communicated by the invoice offices within the framework of the health care insurance. These data show the information of the prescriptions issued, namely the identifier of the substance issued, the number of packages, the date of sale, an encrypted patient code and the prescriber code. These data mainly concern medicines reimbursed under the health insurance scheme
Packaging is converted into DDD (Defined Daily Dose) according to the references of the World Health Organization.
Cheap drugs are identified on the basis of their CNK code (The CNK code is a unique identification number per package, assigned to all drugs and para-pharmaceuticals (medical devices, food supplements, cosmetics ...) delivered in pharmacies.
Pharmanet also provides the following information on patients: can be retrieved: age, gender, social category and district of residence.
Cross-referencing the prescriber code with NIHDI data allows the prescriber's specialty to be retrieved.
Finally, the comparison of Pharmanet with IQVIA data (which are the sales of wholesalers to public pharmacies) converted into DDD allows to estimate the approximate share of medicines delivered outside insurance.
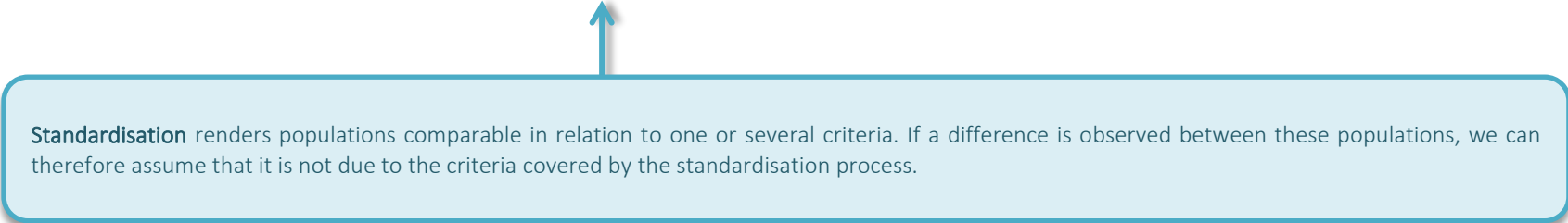
C. Specific selection criteria

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	all
Age	all
-	-

D. Standardisation

The data are standardised before analysis per year, based on age, sex and preferential regime per district, province and region (standardization based on population in 2021).

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 (2021)

	TOTAL
Consumption of medicines per year (DDD)	65.148.604
Standardised rate of use per 100 000 insured persons (consumption of medicines delivered converted into DDD)	568.230

B. Distribution of ATC codes delivered in terms of volume (DDD)
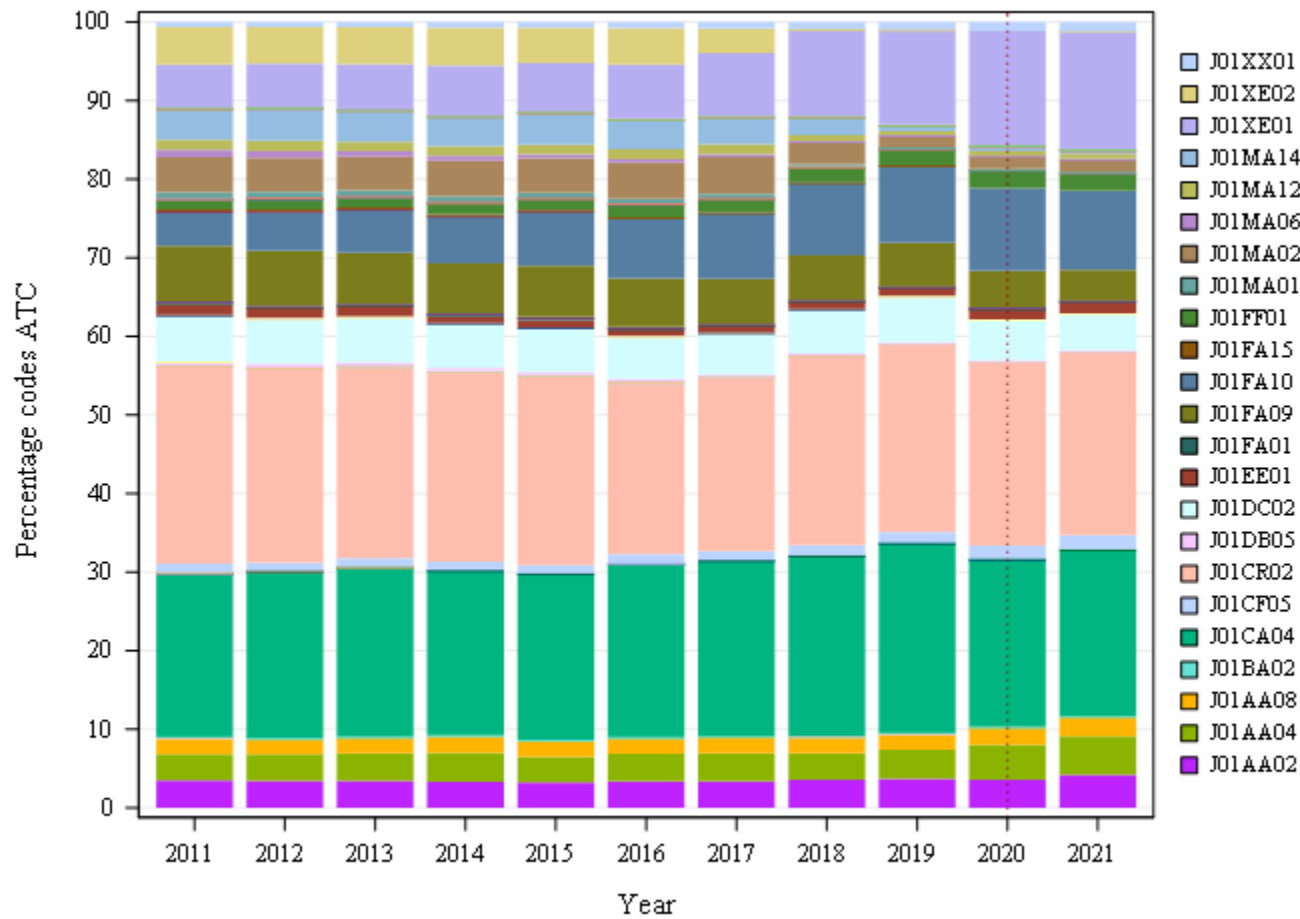
See the ATC codes (Anatomical Therapeutic Chemical **Classification System) selected for this analysis** on page 4 for further information.
Note : The year 2020 was highlighted by a vertical dashed line, in order to draw the attention on the impact of the COVID-19

C. Specialisation of prescribers

Specialisation of the prescriber	Total prescribers	Concerned prescribers	% Prescribers	Median of prescribed DDD	Q3 of prescribed DDD	P90 of prescribed DDD	Volume of prescribed DDD	% DDD	% DDD cheap
General practitioners	19.139	16.474	86%	1.737,00	3.657,65	6.033,85	41.863.960,00	64,27%	75,62%
Dentists	8.607	7.773	90%	342,00	709,18	1.309,31	4.418.282,00	6,78%	98,99%
General practitioners in training	6.206	4.081	66%	516,00	1.482,19	2.284,93	3.721.417,00	5,71%	73,83%
Dermatology-venereology	1.009	868	86%	2.272,00	4.645,95	7.823,83	2.913.986,00	4,47%	21,46%
Specialists in training	11.311	7.093	63%	165,00	483,57	882,33	2.578.748,00	3,96%	78,65%
Paediatrics	2.171	1.760	81%	248,00	787,88	1.532,36	1.111.400,00	1,71%	91,98%
Pneumology	731	649	89%	697,00	1.597,72	3.232,46	994.554,00	1,53%	62,08%
Urology	592	516	87%	1.082,00	2.262,98	4.272,22	904.795,00	1,39%	47,60%
Stomatologists	569	486	85%	1.222,00	2.860,48	4.446,35	866.916,00	1,33%	99,19%
Otorhinolaryngology	876	751	86%	575,00	1.230,86	2.239,27	692.279,00	1,06%	96,71%
Gynaecology and midwifery	2.025	1.713	85%	281,00	520,32	899,35	683.687,00	1,05%	59,70%
Other specialities	35.135	22.372	64%	115,00	241,34	435,42	4.391.211,00	6,74%	85,64%
Total	88.371	64.536	73%	210,00	1.015,84	3.039,01	65.141.235,00	100,00%	75,53%

This table shows, in order, the following non-standardised data per specialities (figures for the year 2021):

- The number of prescribers who prescribed at least one medicine delivered;
- The number of prescribers who prescribe the ATC codes selected for this analysis;
- The percentage of prescribers prescribing these codes out of the number of providers who prescribed at least one medicine delivered;
- The median number, third quartile (= 75th percentile) and 90th percentile of services per prescriber (prescribing codes);
- The percentage of medicines prescribed, i.e. the number of medicines prescribed for this specialisation as a percentage of total medicines prescribed;
- The percentage of low-cost drugs, i.e. the number of medicines identified as "cheap" per CNK code as a percentage of total medicines delivered;
- Expenditure refers to the total costs borne by insurance (excluding patient share and non-insurance sales);
- The percentage of expenditure is the share of this expenditure delivered by each prescriber group aggregated by specialty.

D. Standardised rate of use by sex and age group (consumption of medicines delivered converted into DDD per 100,000 insured)

|	TOTAL
Consumption of medicines per year (DDD)	65.148.604
Median age (years)	51
Mean age (years)	49,5
Max/Min Ratio of the median age (by district)	1,41
Percentage of women	59,9%

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').
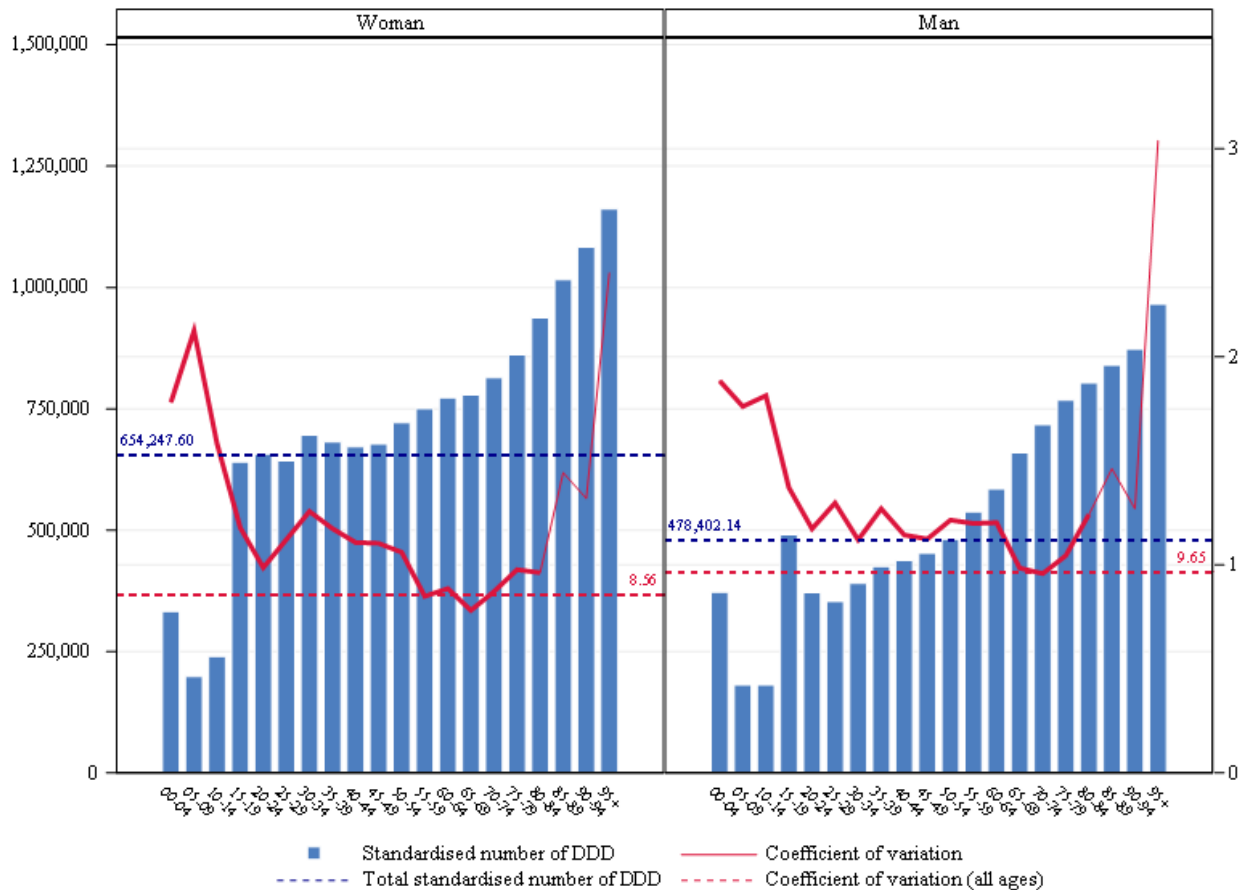
This figure is made up of bar charts for each sex. The **coefficient of variation**, shown by the red line, measures the relative dispersion of the standardised rates of use observed for each district, by age group and sex (standard deviation divided by the mean). This line is shown in bold for age groups 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 2021
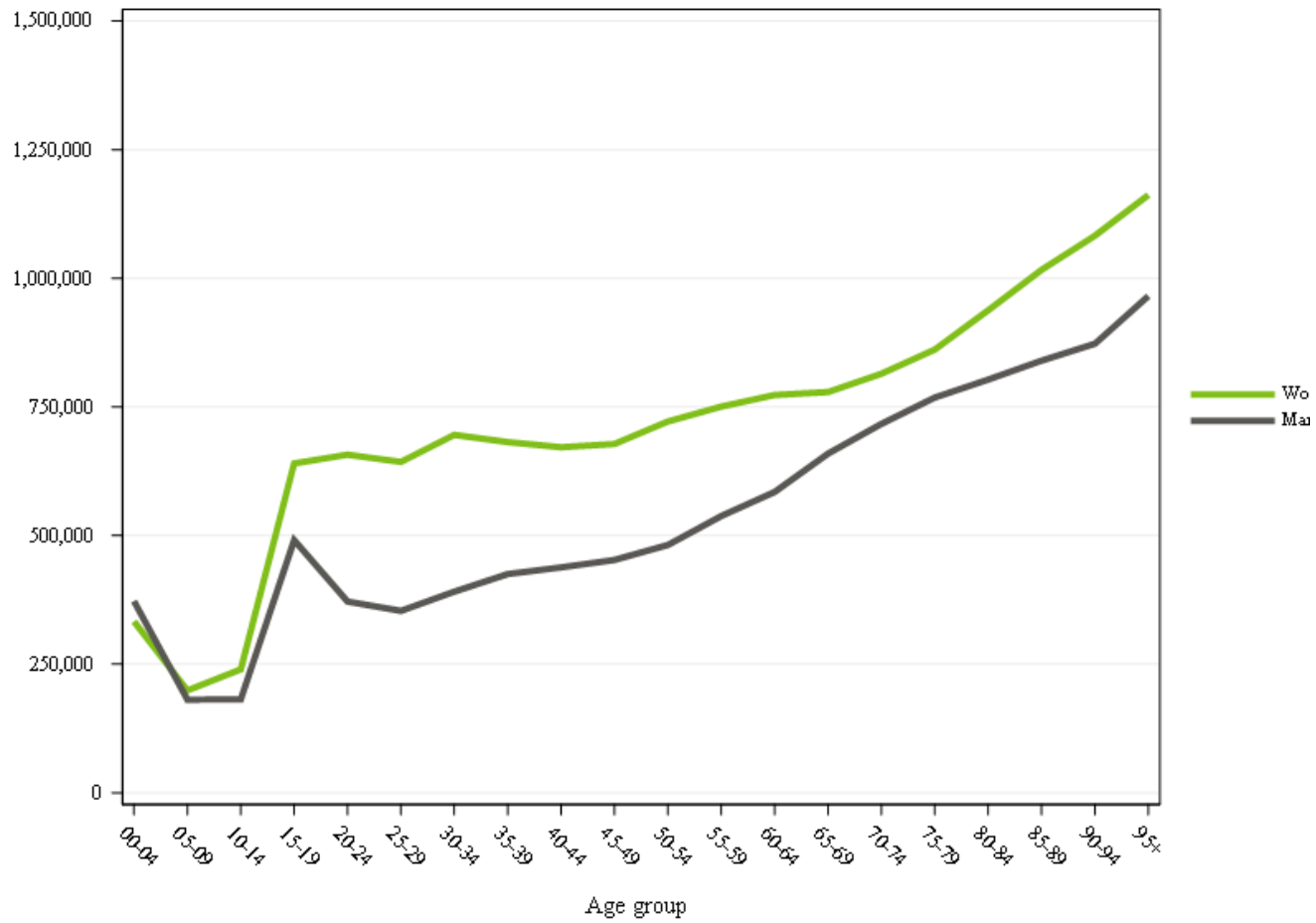
Comparison of the standardised rates of use by sex (per 100 000) in 2021

Standardised rate of use per 100 000 insured persons, by sex and by province for the year 2021
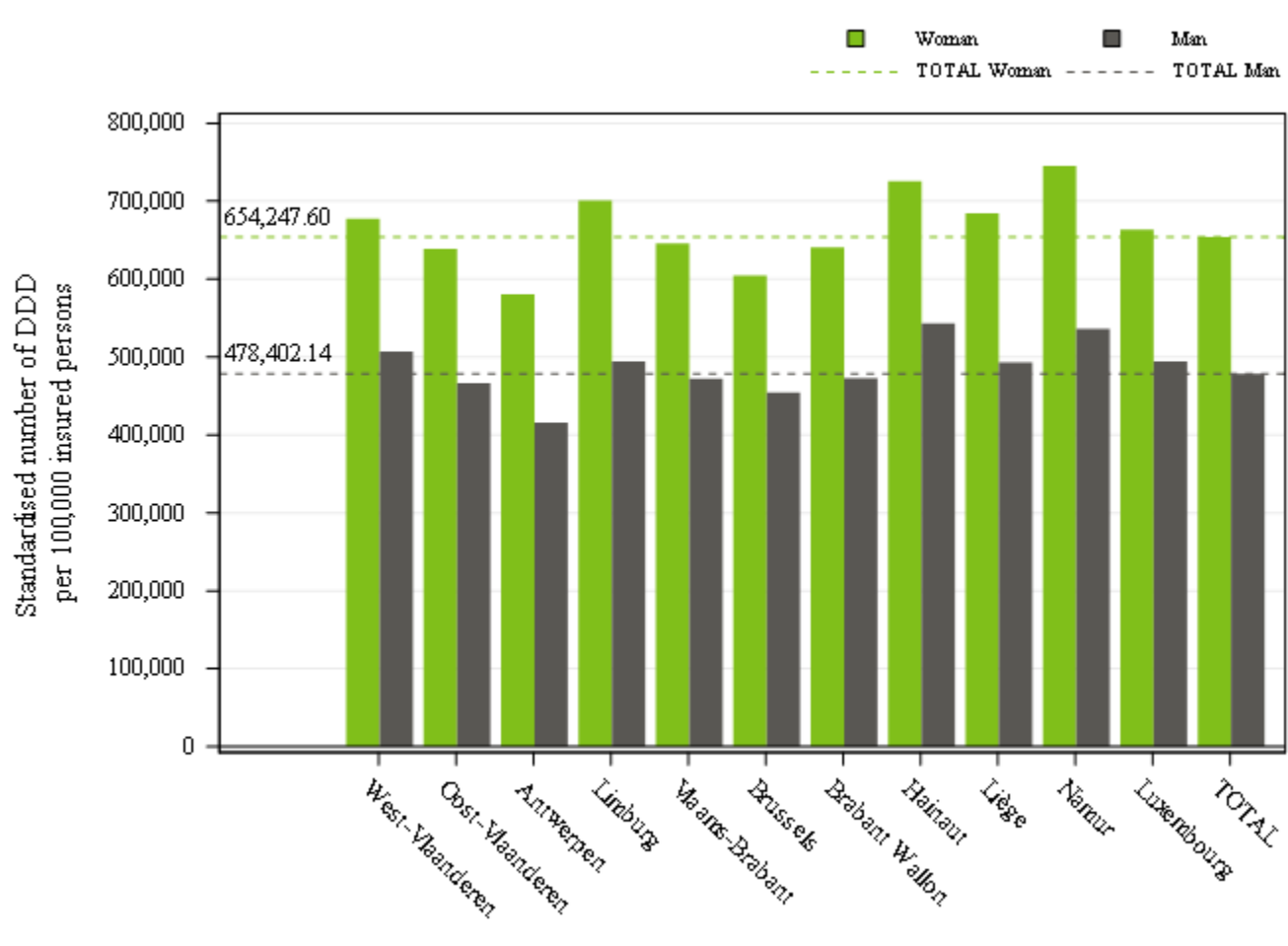
This histogram shows standardised rates of use by province and by sex. The grey bars show the rates for men, while the green bars show the rates for women, for each province. The grey and green broken lines show the total standardised rates of use, again grey for men, green for women.

E. **Standardised rate of use by reimbursement scheme**

	TOTAL
Annual consumption (DDD)	65.148.604
Percentage provided under the preferential reimbursement scheme	25,9%
Standardised rate of use with preferential reimbursement scheme (per 100 000)	755.670
Standardised rate of use without preferential reimbursement scheme (per 100 000)	525.890
Ratio Preferential scheme /General scheme	1,44

**Standardised rate of use by reimbursement scheme and by region**
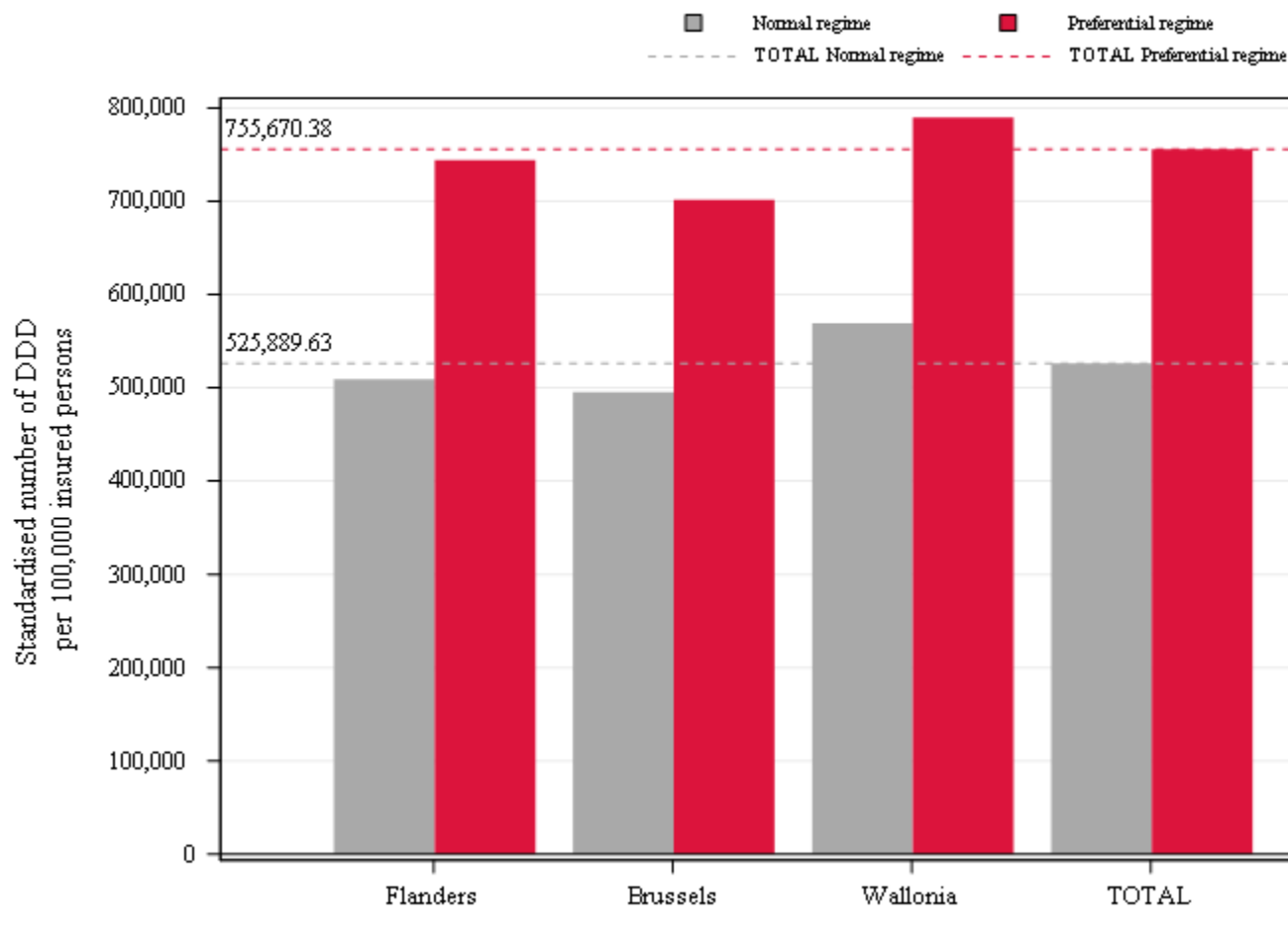
This graph shows the stand-ardised rates of use with (in red) and without (in grey) the preferential reimbursement scheme, by region and in total. The red and grey dotted lines show the overall standardised rates of use, with and without the preferential reimburse-ment scheme, respectively.

F. Trends in standardised rates of use

	TOTAL
Annual consumption (DDD)	**65.148.604**
Trend (2011-2021)	**-4,03%**
Trend (2011-2019)	-2,13%
Trend (2019-2021)	-11,29%

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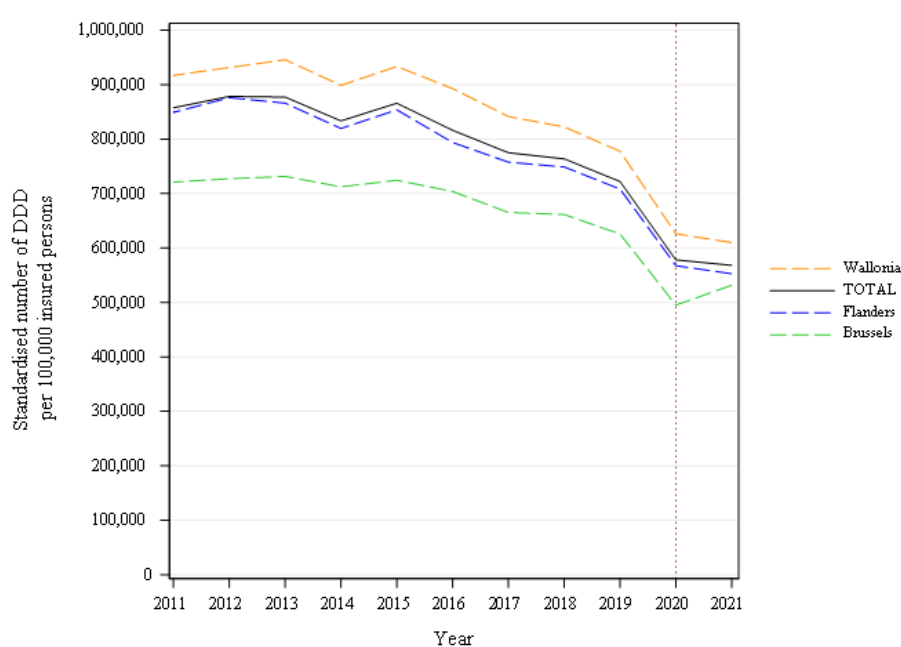
This graph shows a coloured curve for each region and a black curve for the entire Belgian population. The x-axis shows the years, and the y-axis shows the standardised rate of use per 100 000 insured persons.

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

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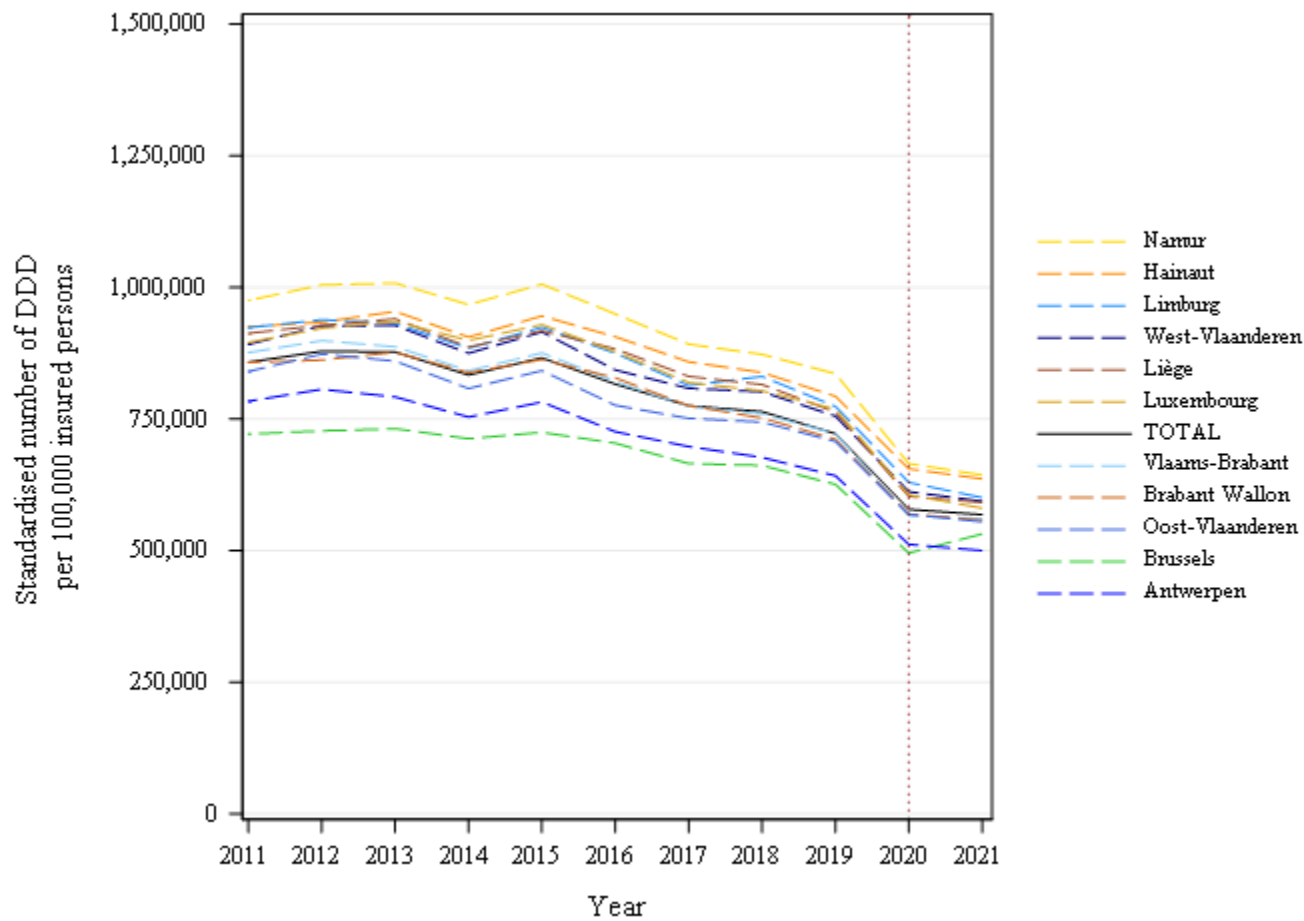
This graph shows a colored line for each province and a black line for the entire Belgian population. The x-axis shows the years, and the y-axis shows the standardised rate of use per 100 000 insured persons.

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.

|		Rate of use	Annual increase			
		2021 (per 10^5 insured)	**2011-2021**	**2011-2019**	**2019-2021**	**Structural break**
Provinces	West Flanders	593.645	-3,99%	-2,05%	-11,35%	NA
	East Flanders	554.674	-4,07%	-2,13%	-11,44%	NA
	Antwerp	499.815	-4,40%	-2,46%	-11,77%	NA
	Limburg	600.452	-4,21%	-2,18%	-11,92%	NA
	Flemish Brabant	560.507	-4,37%	-2,39%	-11,90%	NA
	Brussels	531.567	-3,00%	-1,76%	-7,83%	NA
	Walloon Brabant	557.809	-4,21%	-2,31%	-11,45%	NA
	Hainaut	636.097	-3,67%	-1,91%	-10,44%	NA
	Liège	591.208	-4,25%	-2,21%	-11,98%	NA
	Namur	643.460	-4,07%	-1,91%	-12,26%	NA
	Luxembourg	580.454	-4,24%	-1,89%	-13,10%	NA
Regions	Flanders	552.697	-4,20%	-2,24%	-11,66%	NA
	Brussels	531.567	-3,00%	-1,76%	-7,83%	NA
	Wallonia	609.842	-4,00%	-2,04%	-11,44%	NA
	TOTAL	568.230	**-4,03%**	**-2,13%**	**-11,29%**	**NA**

Trends in the rates of use, by province and region

This table reports the standardised **rates of use** (or consumption) for the last year analysed (2021), as well as the average **rates of increase**, by province, by region and in total, for the entire period (2011-2021), for the last three years (2019-2021) and for the period preceding the last three years (2011-2019).

In order to find out whether the trend in the last three 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 ATC codes selected for the analysis have been used for the first time after the last three-year period considered or when the statistical tests cannot be carried out.
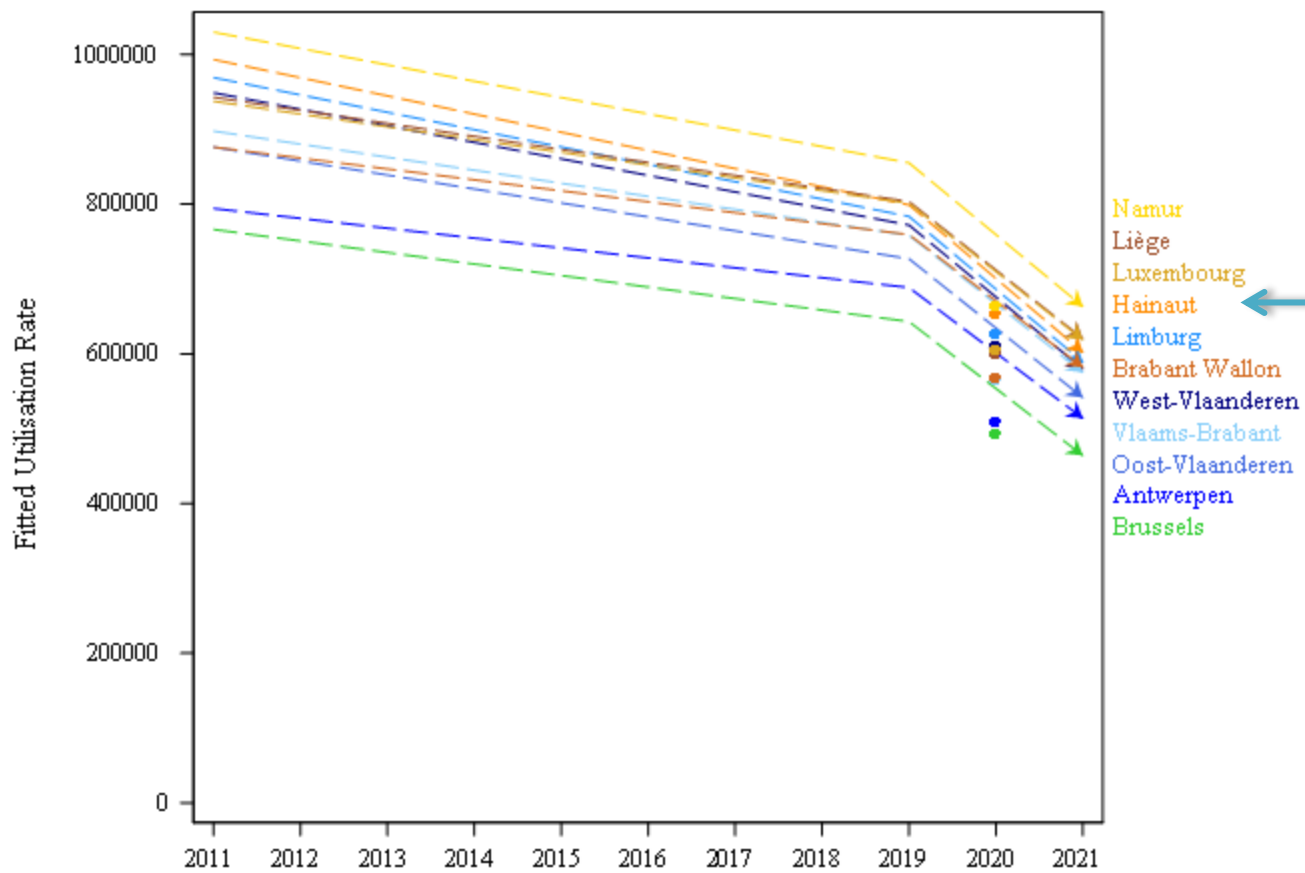
Regression lines per province showing a possibly different slope for the last three years (2019-2021) compared to the years before (2011-2019).

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

Namur
Liège
Luxembourg
Hainaut
Limburg
Brabant Wallon
West-Vlaanderen
Vlaams-Brabant
Oost-Vlaanderen
Antwerpen
Brussels

Trend break assessment model by province – Regression lines

G. Geographical variations in standardised rates of use

	TOTAL
Annual consumption (DDD)	65.148.604
Coefficient of Variation (2021)	8,9
Max/Min Ratio* of the standardised rates of use (by region)	1,15
Max/Min Ratio* of the standardised rates of use (by district)	1,47

Coefficient of Variation (2019-2021)	8,9
Coefficient of Variation (2011-2013)	9,0
Statistically significant difference? (p ≤ 0.05)	*No*

* An 'NA' result indicates a ratio which cannot be calculated, i.e. the minimum value = zero (cf. D. Standardised rate of use by sex and age group)
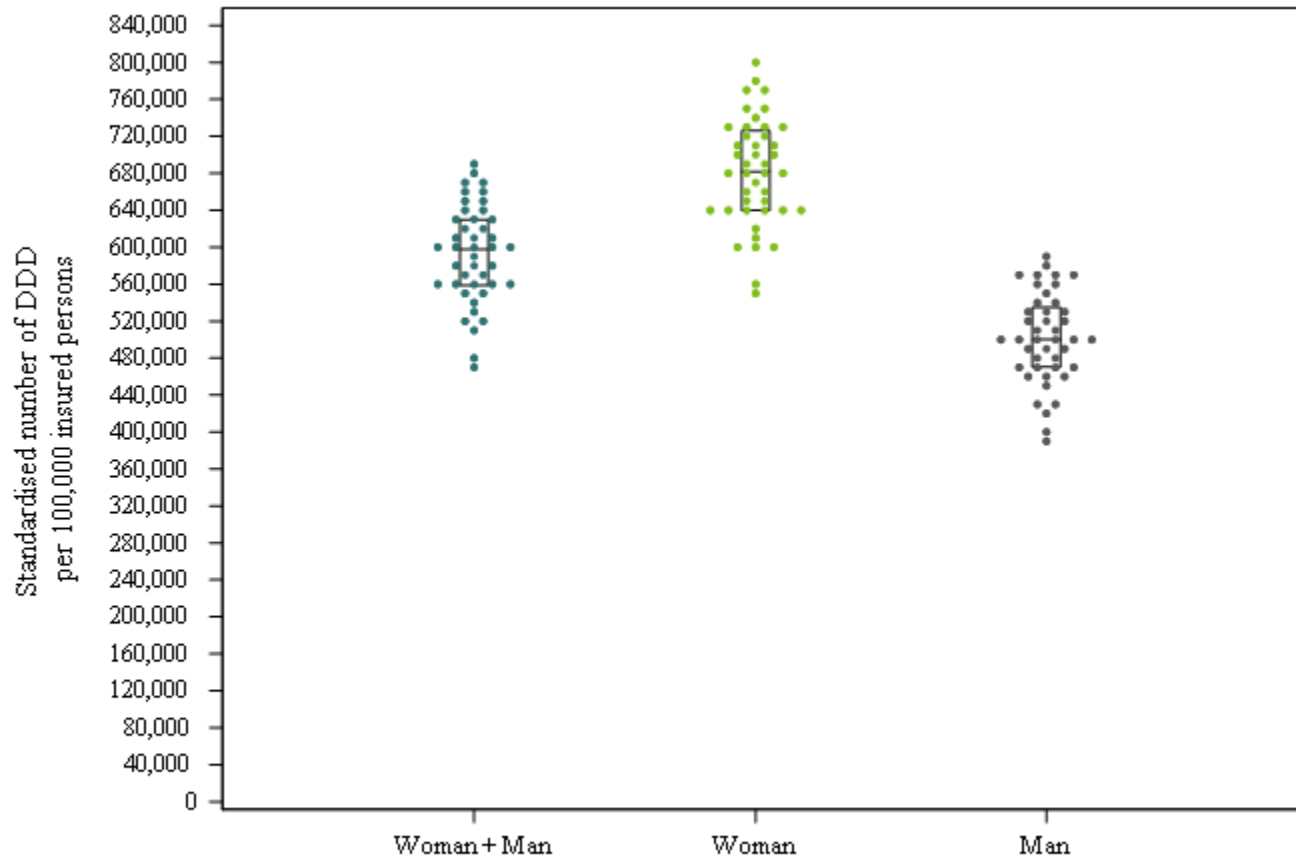
A **dot plot** is a distribution chart, which is useful for highlighting groups in the data, gaps in the distribution and outliers. Here, each dot represents the rate of use of a district, for its entire population or broken down by sex.

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 25th, 50th and 75th percentiles of the non-rounded standardised rates of use for all patients. The bottom line of the box represents the 25th percentile, while the upper line represents the 75th percentile. The line inside the box represents the 50th percentile.

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

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
	More than 50%
	Between 30% and 50%
	Between 10% and 30%
	Between - 10% and 10%
	Between -30% and -10%
	Between -50% and - 30%
	Less than -50%
	Not used

N.B.: The interpretation of this map is to be done in parallel with the graph in funnel plot (p.24)

Map showing distribution of standardised rates of use, by district
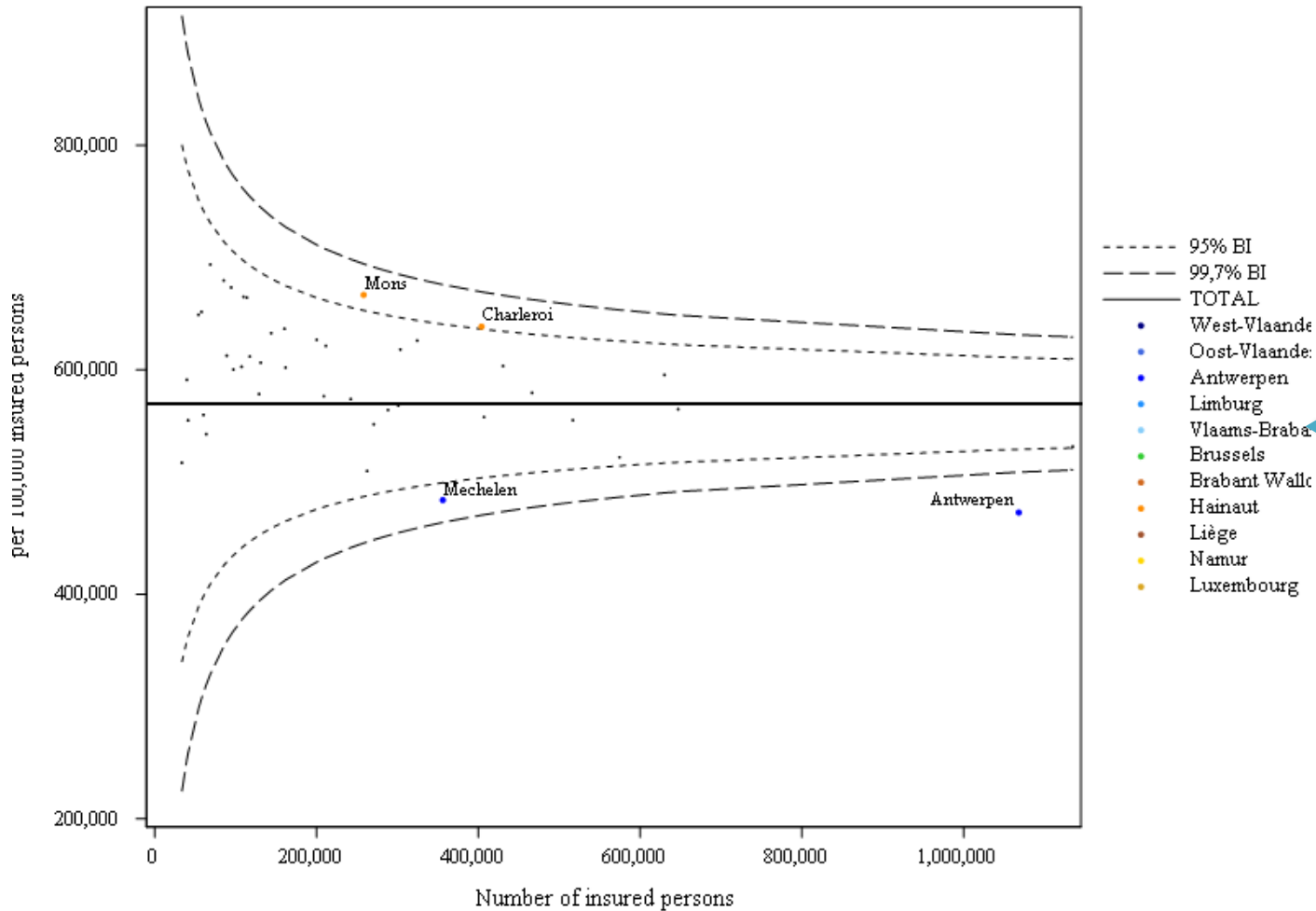
In this graph, the standardised rate of use in a district is positioned versus the size of its population. Besides the dots representing the districts, 95% and 99.7% confidence intervals are also shown on the graph. These are dependent of the size of the districts. The thicker horizontal line shows the 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.23)

'Funnel plot' showing the standardised rates of use by district, by the number of insured persons

H. Standardised expenditure on medicines borne by the insurance

	TOTAL
Annual consumption (DDD)	65.148.604
Annual expenditure (€)	50.041.501€
Average cost per DDD (€)	0,77€
Average annual expenditure per insured (€)	4,36€
Max/Min Ratio* of expenditure per insured (by region)	1,23
Max/Min Ratio* of expenditure per insured (by district)	1,61

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

		Standardised expenditure (per insured)
Provinces	West Flanders	4,55
	East Flanders	4,10
	Antwerp	3,85
	Limburg	4,59
	Flemish Brabant	4,42
	Brussels	3,90
	Walloon Brabant	4,80
	Hainaut	4,99
	Liège	4,64
	Namur	5,09
	Luxembourg	4,56
Regions	Flanders	4,22
	Brussels	3,90
	Wallonia	4,82
	TOTAL	**4,36 €**

Regional and provincial distribution of standardised expenditure (2021)

I. Evolution of standardised expenditure per insured

	TOTAL
Annual expenditure	**50.041.501€**
Average annual expenditure per insured	**€ 4,36**
Trend (2011-2021)	**-8,92%**
Trend (2011-2019)	**-8,54%**
Trend (2019-2021)	**-10,41%**

These trends correspond to the average annual growth rate.
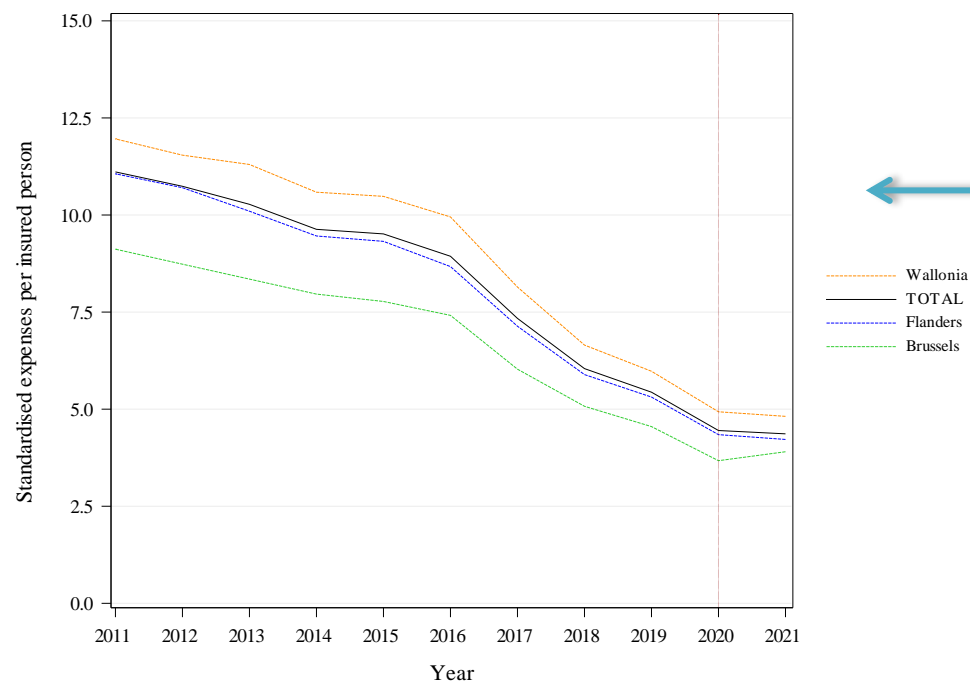
This graph shows a coloured curve for each region and a black curve for the entire Belgian population. The x-axis shows the years, and the y-axis shows the standardised expenditure based on 2021 population data

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.

Evolution of standardised expenditure per insured, by region

Expenses

■	> 50%
■	30% – 50%
■	10% – 30%
■	-10% – 10%
■	-30% – -10%
■	-50% – -30%
■	< -50%
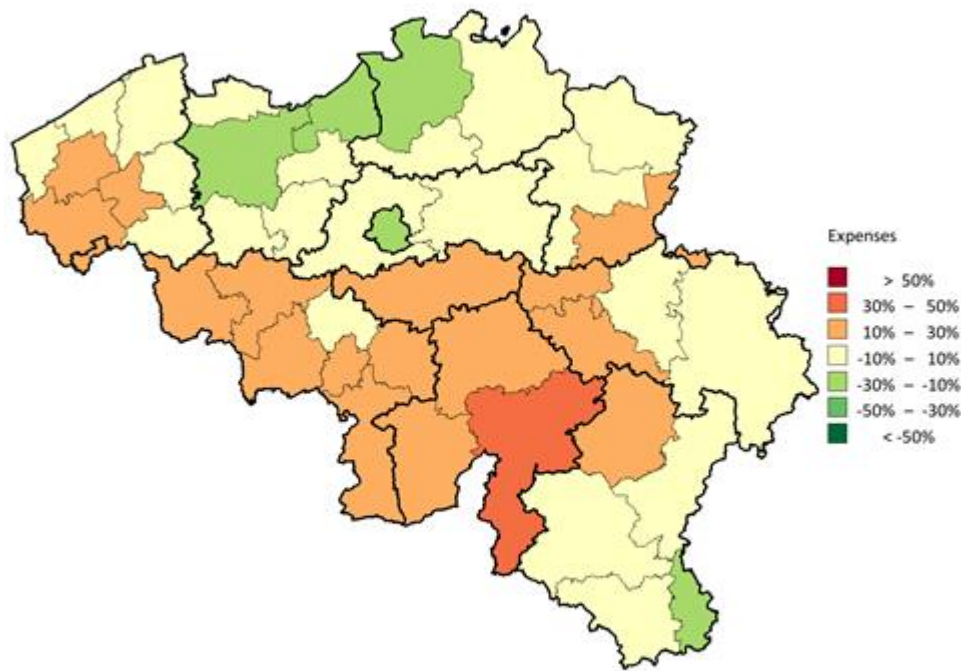
Map showing distribution of standardised expenditure, by district

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
	More than 50%
	Between 30% and 50%
	Between 10% and 30%
	Between - 10% and 10%
	Between -30% and -10%
	Between -50% and - 30%
	Less than -50%
	No expenditure

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Code ATC	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average annual growth rate
J01AA02	0,58	0,54	0,50	0,50	0,50	0,49	0,45	0,41	0,40	0,40	0,40	-3,58%
J01AA04	0,79	0,78	0,77	0,77	0,78	0,76	0,63	0,52	0,50	0,49	0,48	-4,92%
J01AA08	0,97	0,95	0,90	0,88	0,84	0,82	0,68	0,57	0,55	0,55	0,55	-5,61%
J01BA02	3,07	3,07	3,06	3,09	3,14	4,41	5,09	5,11	5,10	5,11	5,10	5,20%
J01BA52	1,61	0,00	0,00	0,00	0,00	0,00	0,00	-1,51	5,32	0,00	0,00	NA
J01CA04	1,14	1,06	1,00	0,99	0,97	0,96	0,84	0,71	0,66	0,67	0,68	-4,95%
J01CE01	28,89	29,53	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	NA
J01CE02	1,72	1,73	1,73	1,74	1,75	1,75	1,58	1,34	1,34	0,85	0,00	NA
J01CE07	1,00	1,00	1,04	0,98	0,00	0,00	0,00	0,00	0,00	0,00	0,00	NA
J01CE08	35,55	35,55	36,03	36,09	36,25	35,98	35,61	19,40	20,14	20,01	19,99	-5,59%
J01CF02	1,97	1,47	0,00	1,47	0,00	-4,25	0,00	0,00	0,00	0,00	0,00	NA
J01CF04	40,23	0,00	6,64	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	NA
J01CF05	2,86	2,86	2,85	2,82	2,85	2,86	2,33	1,97	1,96	1,90	1,73	-4,91%
J01CR02	1,14	1,09	1,04	1,03	1,00	1,09	0,91	0,71	0,70	0,73	0,73	-4,41%
J01DB01	2,45	2,45	2,46	2,47	2,48	2,50	2,12	1,77	1,71	1,53	1,54	-4,54%
J01DB04	8,69	8,71	8,80	8,81	8,96	9,03	8,95	8,48	8,67	8,50	10,40	1,82%
J01DB05	2,05	2,04	2,02	2,01	1,97	1,88	1,60	1,57	1,68	1,47	1,43	-3,52%
J01DB09	4,86	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	NA
J01DC02	0,71	0,70	0,70	0,69	0,67	0,66	0,56	0,45	0,43	0,44	0,44	-4,69%
J01DC04	1,52	1,55	2,29	0,00	1,77	0,00	0,00	0,00	0,00	0,00	0,00	NA
J01DD01	27,89	34,87	30,61	33,86	21,94	34,08	30,63	29,48	31,17	29,04	31,24	1,14%
J01DD02	53,65	46,84	40,63	40,20	38,57	34,46	31,21	33,14	32,57	30,37	34,27	-4,38%
J01DD04	15,43	15,98	14,84	14,59	14,62	13,29	12,89	12,41	12,57	13,31	12,68	-1,95%
J01DH02	80,84	48,77	47,37	39,59	42,68	40,30	42,12	38,86	38,02	37,20	25,08	-11,04%
J01DH51	45,24	0,00	0,00	38,56	37,44	0,00	36,24	36,72	0,00	0,00	0,00	NA
J01EE01	0,89	0,97	0,95	1,28	1,22	1,13	1,08	1,03	1,02	1,03	1,04	1,66%
J01FA01	1,44	1,25	1,33	1,35	1,39	1,83	1,80	1,57	1,56	1,63	1,56	0,79%
J01FA02	2,88	2,91	2,94	2,97	2,98	2,97	2,60	2,30	2,30	2,31	2,33	-2,10%
J01FA06	1,69	1,61	1,54	1,54	1,51	1,49	1,36	1,24	1,14	1,14	1,14	-3,86%
J01FA09	1,03	0,99	0,95	0,94	0,91	0,90	0,76	0,59	0,57	0,56	0,55	-6,05%
J01FA10	1,59	1,52	1,47	1,44	1,37	1,33	1,14	0,95	0,88	0,84	0,84	-6,19%
J01FA11	1,17	1,14	1,23	1,23	1,31	0,00	0,00	0,00	0,00	0,00	0,00	NA
J01FA15	2,37	2,23	2,11	2,12	2,13	2,10	1,62	1,18	1,13	0,00	0,00	NA
J01FF01	3,49	2,62	2,36	2,32	2,29	2,15	1,77	1,46	1,38	1,37	1,33	-9,23%
J01FF02	6,49	6,50	6,49	6,56	6,48	6,62	6,51	6,32	6,15	6,14	5,77	-1,17%
J01GB01	15,74	14,25	16,29	26,03	23,24	21,14	23,09	21,94	19,66	22,38	24,47	4,51%
J01GB03	13,30	0,00	6,63	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	NA
J01GB06	25,48	25,60	24,76	19,07	18,98	16,80	15,77	15,61	15,53	0,00	0,00	NA
J01MA01	1,41	1,29	1,19	1,18	1,14	1,11	0,92	0,76	0,69	0,90	0,73	-6,36%
J01MA02	1,89	1,67	1,47	1,45	1,41	1,38	1,13	0,93	0,86	0,86	0,85	-7,72%
J01MA06	0,83	0,84	0,86	0,88	0,88	0,87	0,84	0,80	0,69	0,60	0,54	-4,25%
J01MA12	3,15	1,88	1,67	1,57	1,56	1,44	1,20	1,02	1,01	1,01	1,00	-10,86%
J01MA14	3,37	3,34	3,27	2,88	2,04	1,86	1,53	1,18	1,12	1,10	1,09	-10,68%
J01XA01	52,46	44,76	42,85	38,71	36,90	37,50	34,54	33,98	35,75	34,73	33,10	-4,50%
J01XA02	25,60	27,41	26,28	28,66	26,77	28,35	26,56	27,54	25,71	24,86	25,25	-0,13%
J01XB01	49,67	49,35	46,75	44,64	45,00	45,36	45,22	44,91	44,96	44,10	43,46	-1,33%
J01XE01	0,34	0,34	0,34	0,34	0,34	0,33	0,28	0,25	0,25	0,25	0,25	-2,94%
J01XE02	0,28	0,28	0,28	0,28	0,28	0,28	0,24	0,18	0,15	0,00	0,00	NA
J01XX01	7,84	7,85	7,86	7,89	7,80	7,48	6,49	5,79	5,85	5,90	5,92	-2,77%

Evolution of expenditure per DDD and per ATC code

J. Expenditure on medication charged to the patient (patient share)

	TOTAL
Annual consumption (DDD)	65.148.604
Annual expenditure (€)	50.041.501 €
Total share of patients	31.648.825 €
Average annual share per patient (€)[4]	9,7 €
% charged to the patient [5]	38,74%

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

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[4] The average financial contribution paid per year per patient consuming the medicine is calculated by dividing the total contribution by the number of patients consuming the medicine.

[5] This is the patient's share of the annual expenditure plus the patient's share of the cost of medicines supplied under the insurance scheme.

4. KEY DATA SUMMARY

RATE OF USE		
Main prescribers: *General medicine*	69%	
Annual consumption (DDD)	65.148.604	
Standardised rate of use (per 100 000 insured persons)	568.230	
Average annual consumption per patient (DDD)[6]	19,97	
% Insured concerned	28,46%	
Approximate %DDD issued other than NIHDI[7]	10,7%	
% Patients with more than 3 times the average consumption[8]	4%	
POPULATION		
Median age	51 years	
Max/min ratio [9] of the median age (by district)	1,41	
Percentage of women	59,88%	
Ratio Preferential rate/General rate	1,44	
TRENDS (DDD)		
Trend (2011-2021)	-4,03%	
Trend [10] (2011-2019)	-2,13%	NS
Trend[10] (2019-2021)	-11,29%	
GEOGRAPHICAL VARIATIONS		
Coefficient of variation [10] (2011-2013)	9,0	NS
Coefficient of variation [10] (2019-2021)	8,9	
Max/min ratio of consumption (DDD) [9] (per 100 000 insured persons, by district)	1,47	
DIRECT EXPENDITURE		
Average annual expenditure	50.041.501€	
Average annual expenditure per insured	4,36 €	
Average patient share	38,7 %	
Max/Min Ratio of expenditure per insured [9] (by district)	1,61	
% Low-cost medication	75,5%	
Trend (2011-2021)	-8,92%	
Trend (2019-2021)	-10,41%	
VARIATIONS IN TERMS OF MOLECULES DELIVERED		
Variations between molecules delivered[11] (by province)	Yes	***

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[6] This is the total number of DDD dispensed divided by the number of patients who received the drug. More detailed results are shown in a document enclosed to this report.

[7] This is the difference between the declarations of sales by wholesalers to pharmacies (IQVIA database) and what is paid by the NIHDI converted into DDD and related to the total declarations of sales to public pharmacies by wholesalers. This is a contextual indicator with an approximate value.

[8] More detailed results are shown in a document enclosed to this report.

[9] An 'NA' result indicates a ratio, which cannot be calculated, i.e. the minimum value equals zero.

[10] Si 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.

[11] This is the difference between the declarations of the public pharmacies (DB IQVIA) and what is invoiced within the context of the NIHDI, converted into DDD and related to the total declarations of sales in public pharmacies.

5. APPENDICES

A. Analysis of variance (ANOVA), except Brussels

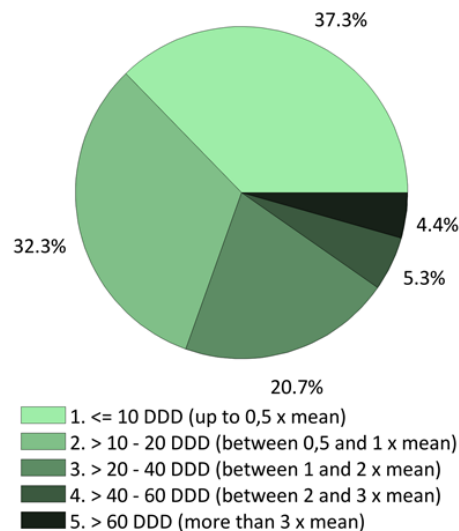| Statistical significance of the differences observed in 2021		
By region?	No	NS
By sex?	Yes	***
By reimbursement scheme?	Yes	***
By sex and per region?	No	NS
By reimbursement scheme and per region?	Yes	**
By sex and per reimbursement scheme?	Yes	***
By sex and reimbursement scheme and per region?	No	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 ≤ 0,05 / ** P-value ≤ 0,01 / *** P-value ≤ 0,001 or NS for a non-significant result.

B. Distribution of patients according to the annual dose delivered

Frequency	Per year
≤ to ½ average annual consumption	37 %
>0,5 and ≤1 times the average annual consumption	32 %
>1 and ≤2 times the average consumption	21 %
>2 and ≤ 3 times the average consumption	5 %
>3 times the average annual consumption	4 %

37.3%

32.3%

4.4%

5.3%

20.7%

- 1. <= 10 DDD (up to 0,5 x mean)
- 2. > 10 - 20 DDD (between 0,5 and 1 x mean)
- 3. > 20 - 40 DDD (between 1 and 2 x mean)
- 4. > 40 - 60 DDD (between 2 and 3 x mean)
- 5. > 60 DDD (more than 3 x mean)

Distribution of patients by annual delivered dose

Patients (insured persons to whom the pharmacist has dispensed the medication) are divided according to the total dose dispensed annually compared to the total average annual dose.

Interpretation may vary between acute and chronic treatments.

There are several reasons why treatment may be too short:

- Doses suitable for children
- Trial treatment
- General condition of the patient (renal failure, etc.)
- Compliance
- A reduced number of episodes compared to the average (acute treatment)
- Duration of treatment may vary depending on the drug (e.g. urinary tract infection versus respiratory infection).

Reasons are reversed for higher than average durations (e.g. number of episodes of illness). But also when the prescription is renewed without taking into account the stock that the patient has at his disposal.
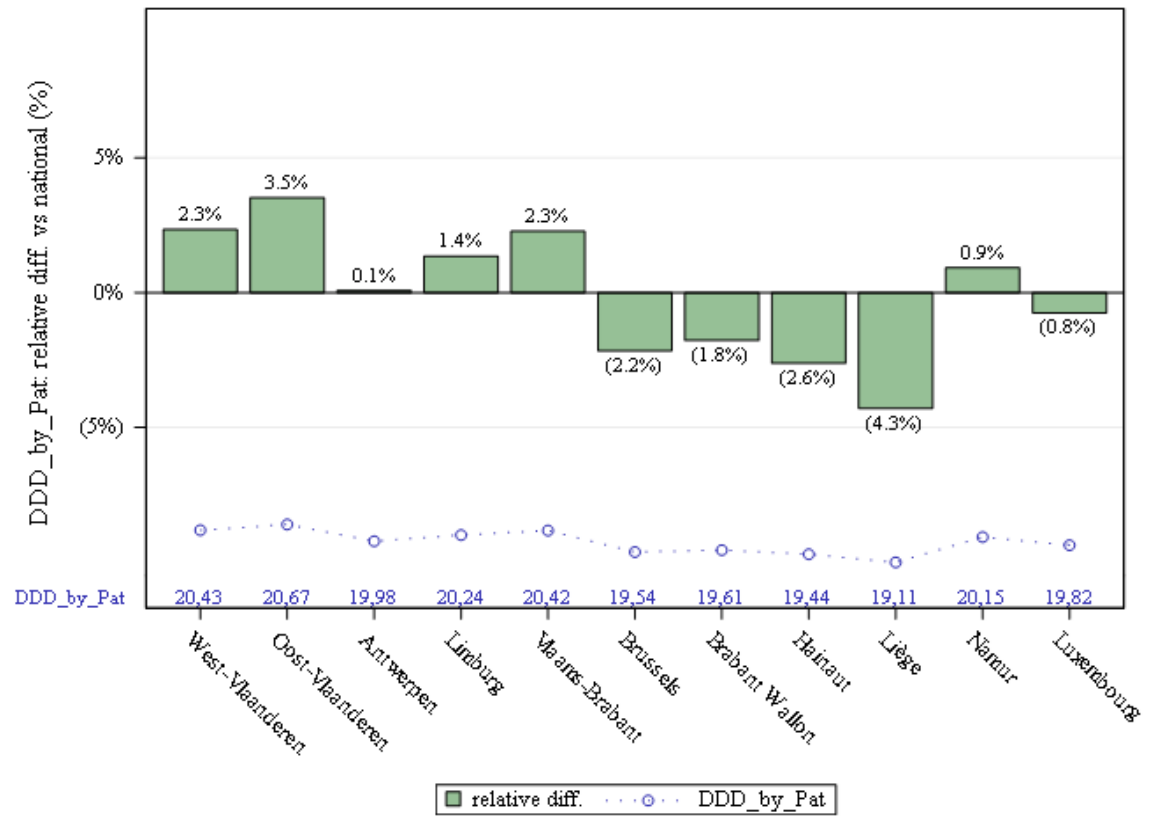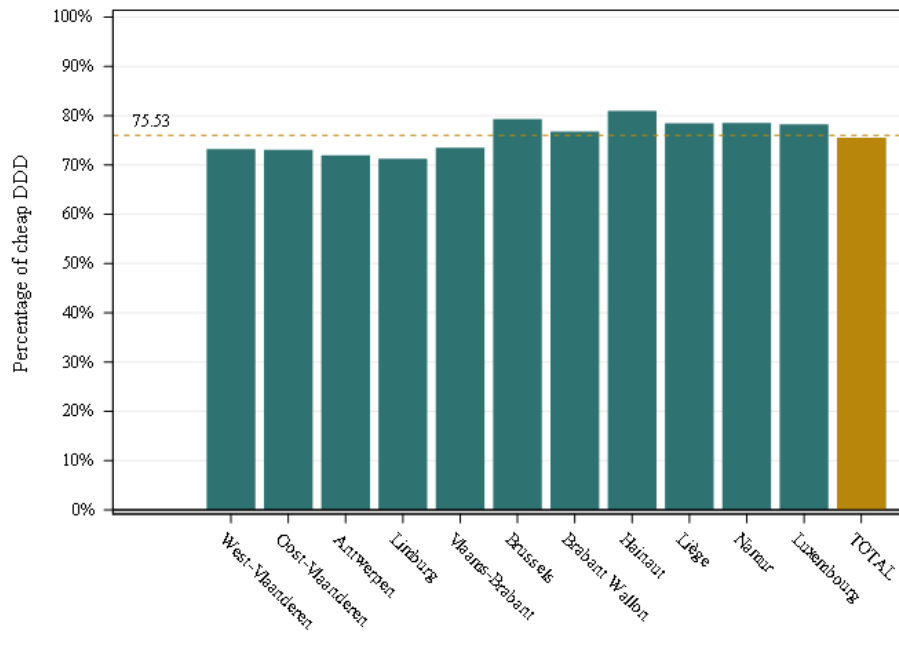
The dotted line shows the average DDD consumption per patient. The indicator is calculated by dividing the total DDD consumption by the number of insured to whom the drugs selected have been administered in the year.

The histograms by province show the difference in DDD consumption per patient compared to the national average.

Consumption per patient (DDD) by province and variation vs average national value

C. Standardised rate of use of low-cost medication

	TOTAL
Annual consumption (DDD)	65.148.604
Percentage of low-cost medication	75,53%
Max/min ratio of low-cost drug percentages (by district)	1,16

> This graph shows the percentage of low-cost DDD vs the total number of DDD delivered. Besides one bar per region, an additional bar is displayed for the Belgian population. The dotted line also depicts this total ratio.

Percentage of low-cost medication delivered, in total and by province

D. Percentage of low-cost medication by category

76.2%

23.8%
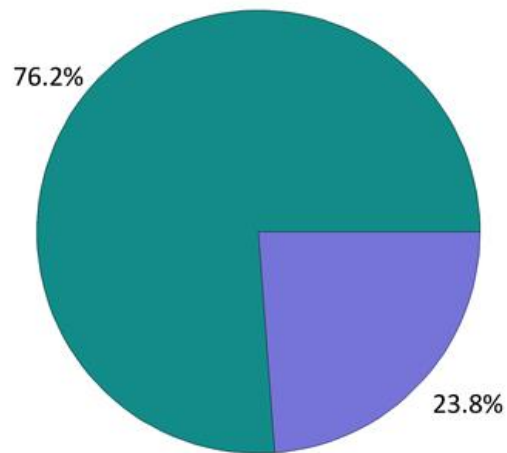
G   R

Distribution of DDD by low-cost drug class

Percentage of low-cost medication	
G	76,2%
R	23,8%

The percentage of low-cost medication is calculated per CNK code (The CNK code is a unique identification number per package, assigned to all drugs and parapharma-ceuticals (medical devices, food supplements, cosmetics …) delivered in pharmacies.
The "low-cost" status is given based on the situation in August 2022.
The letter G refers to (low-cost) generic medicines, while Gr stands for (low-cost) reference generic medicines, R = reference drugs (with the exclusion of the cheaper ones), BIOSIM stands for biosimilar medicines and BIO for biological medicines,
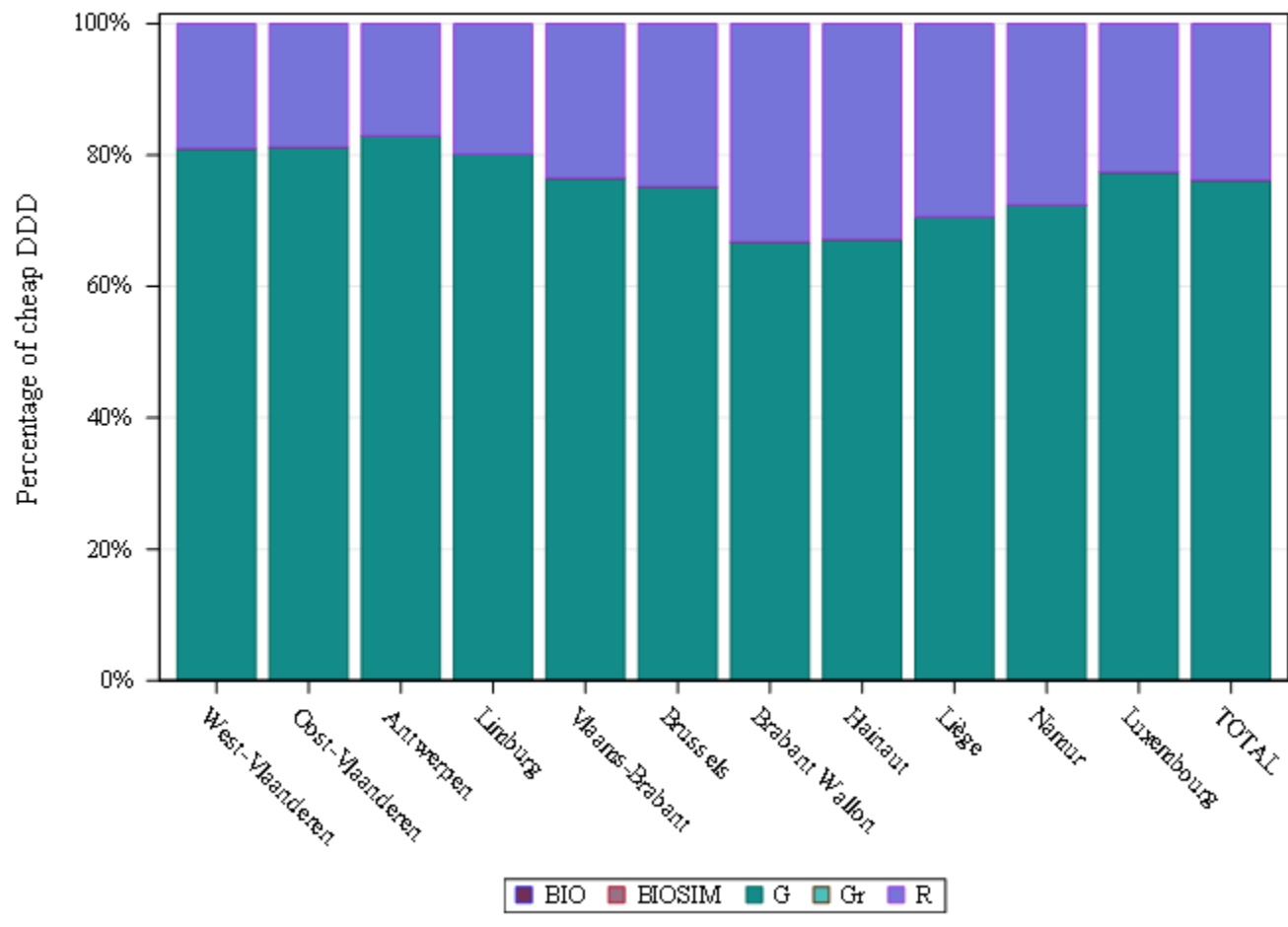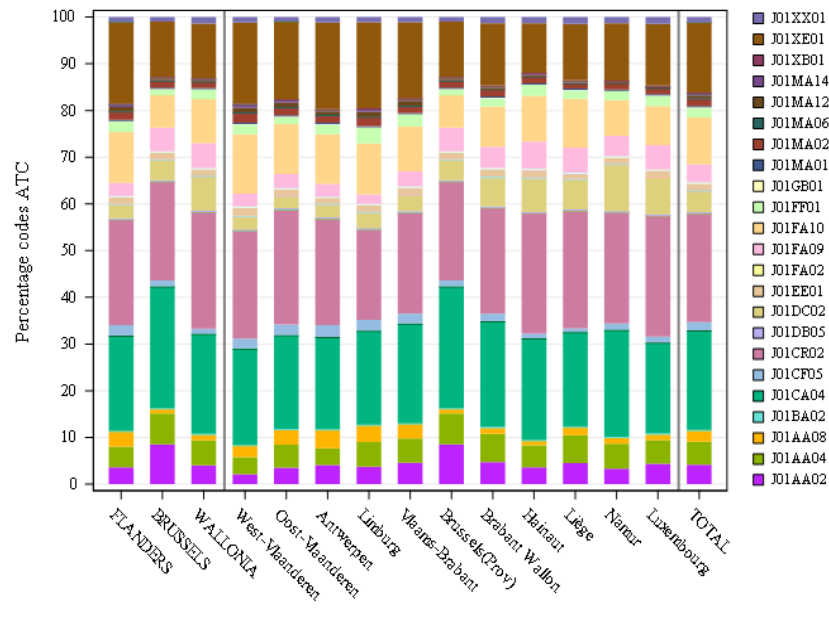
Type of low-cost drug (DDD) by province (2019)

G and Gr: low-cost generic (r= reference),
R: reference medicine not classified as low-cost,
BIO(SIM) stands for biological and biosimilar drugs.

E. Variations in medicines delivered per ATC code

➔ **Variations in prescription :**

Volume breakdown of nomenclature codes

[Given the high number of ATC codes selected for this analysis, we cannot include them in the graph legend. We therefore invite you to go to page 4 for more details.]
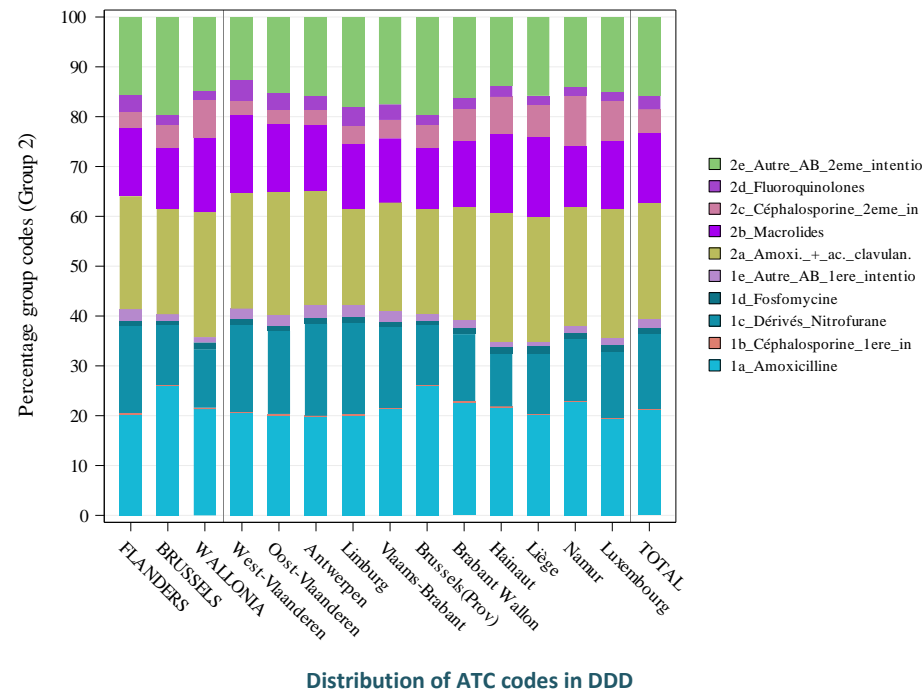
Significance	By region	By province
Use of **ATC codes**[12]	***	***

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[12] 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.

## F. Variations in medicines per drug group

➔ **Variations in prescription :**

Distribution of ATC codes in DDD

Significance	By region	By province
Use of **ATC codes**[13]	***	***

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.

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[13] 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.

➔ **Variations in prescription :**

Distribution of ATC codes in DDD
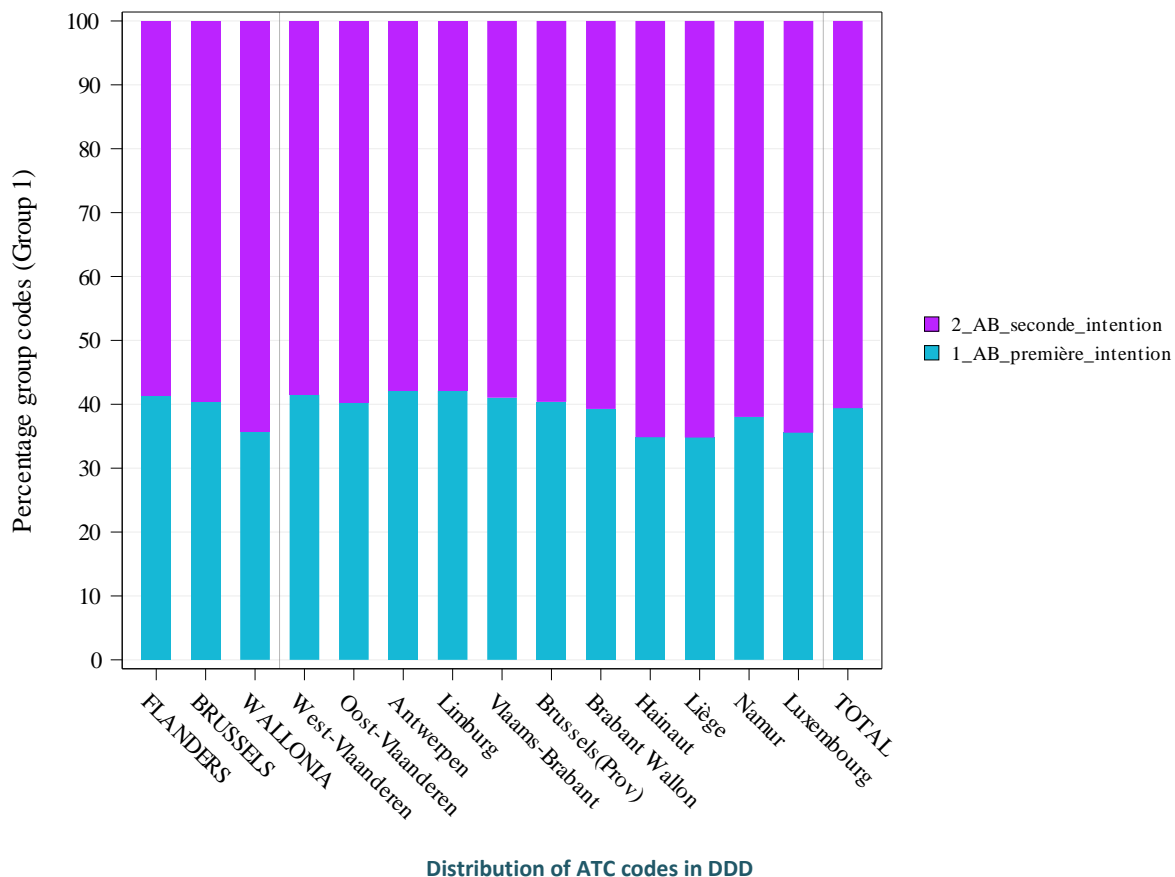
Significance	By region	By province
Use of **ATC codes**[14]	***	***

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.

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[14] 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.

G. Consumption sold outside the insurance

	2020
Annual consumption NIHDI (DDD)	**62.864.905**
Annual consumption outside insurance (DDD)	**7.526.007**
% Annual consumption outside insurance	**10,7 %**

ATC	fr	Volume total (IQVIA + rajout)	Volume remboursé (pharmanet)	% hors assurance
J01AA	TETRACYCLINES	7.355.032	6.764.744	8%
J01BA	AMPHENICOLES	515.809	42.682	92%
J01CA	PENICILLINES A LARGE SPECTRE	13.557.618	12.964.315	4%
J01CE	PENICILLINES SENSIBLES AUX BETA-LACTAMASES	7.211	6.356	12%
J01CF	PENICILLINES RESISTANTES AUX BETA-LACTAMASES	1.153.660	1.093.826	5%
J01CR	ASSOCIATIONS DE PENICILLINES, INHIB. DE LA BETALACTAMASE INCLUS	15.334.899	14.825.096	3%
J01DB	CEPHALOSPORINES DE LA PREMIERE GENERATION	143.661	102.917	28%
J01DC	CEPHALOSPORINES DE LA DEUXIEME GENERATION	3.402.541	3.176.807	7%
J01DD	CEPHALOSPORINES DE LA TROISIEME GENERATION	15.625	4.669	70%
J01DH	CARBAPENEMES	972	606	38%
J01EE	ASSOCIATIONS DE SULFAMIDES ET DE TRIMETHOPRIME, DERIVES INCLUS	1.060.235	910.224	14%
J01FA	MACROLIDES	10.589.548	9.426.679	11%
J01FF	LINCOSANIDES	1.658.054	1.552.912	6%
J01GB	AUTRES AMINOGLYCOSIDES	51.509	49.321	4%
J01MA	FLUOROQUINOLONES	5.255.917	1.894.073	64%
J01XA	GLYCOPEPTIDES	3.293	1.437	56%
J01XB	POLYMYXINES	52.015	47.654	8%
J01XE	DERIVES DU NITROFURANE	9.410.325	9.281.593	1%
J01XX	AUTRES ANTIBACTERIENS	822.988	718.993	13%
J01	ANTIBACTERIENS	70.390.912	62.864.905	10,7%

Share sold outside NIHDI per ATC group