



3.5. Polypharmacy among the elderly (QS-6)

3.5.1. Documentation sheet

Description	Proportion of the insured population aged 65 years and older, using 5 or more drugs of >80 DDD per year.
Calculation	Numerator: number of insured people aged 65 years and older, using 5 or more drugs of >80 DDD per year. Denominator: number of insured people aged 65 years and older
Rationale	Chronic diseases are highly prevalent among the older population and often require multiple medications for optimal management. There are however many consequences of polypharmacy. Aside from increased direct medical costs, patients are at higher risk for adverse drug reactions, drug interactions, non-adherence, diminished functional status, and various geriatric syndromes. ¹ Although the use of multiple drugs is widely referred to as polypharmacy, no consensus exists on what number should define the term. In the literature, polypharmacy has often been defined as taking at least five medicines concurrently. Alternately, polypharmacy has also been defined by the consumption of more medicines than clinically indicated or by the consumption of medicines that are not clinically indicated. ² Information on inappropriate medicine use is however not considered here.
Primary data source	Pharmanet Survey of Health, Ageing and Retirement in Europe (SHARE); Midão et al., 2018 ³ Belgian Health Interview Survey, Sciensano (http://his.wiv-isp.be) ⁴
Source of results	RIZIV-INAMI Sciensano, Lifestyle and chronic diseases
Technical definitions	The analyses of the Pharmanet data are performed by the Cell Appropriate Care of the RIZIV-INAMI, in the context of the evaluation of medical practices variations. Standardized ratios are calculated by multiplying the non-standardized ratios by the desired distribution, and summing by location; by location and preference regulation; by location and gender; by location, age group and sex; or by age group and gender.
International comparability	Comparison of national data with other countries is difficult/impossible because of important differences in definitions of polypharmacy, study years, settings, designs, samplings, data collection methods, definitions of medicine and of time period used to count the number of medicines. Recently, the Survey on Health, Ageing and Retirement in Europe (SHARE) included a question on polypharmacy, allowing for unbiased international comparisons. ³
Limitation	Pharmanet includes reimbursed medicines only; Limited periodicity; No international comparisons possible.
Dimensions	Quality (safety)
Related indicators	None



3.5.2. Results

In the HSPA report 2015, data were used from the Belgian Health Interview Survey (HIS) 2013. Since the results of the HIS 2018 will only be available by the end of 2019, two alternative data sources have been explored:

- Pharmanet: RIZIV – INAMI evaluated the consumption of 5 or more drugs of >80 DDD per year among the insured population aged 65 years and older.
- Wave 6 of the Survey of Health, Ageing and Retirement in Europe (SHARE), conducted in 2015 across 17 European countries plus Israel, included, for the first time, a question on polypharmacy.³

Table 13 compares the three available data sources (HIS, Pharmanet, and SHARE). All data sources have specific limitations, such that no single best data source can be identified. Taking into account all strengths and limitations, we have decided to use the Pharmanet data for the national evaluation, and the SHARE data for the international comparisons. For the sake of completeness, however, the information from the HIS is also presented here.

Table 13 – Comparison of three different data sources for polypharmacy among the elderly in Belgium.

Data source	Definition	Most recent year	Time trends	Regional comparisons	International comparisons
HIS	Percentage of the population using at least five different drugs in the past 24 hours (% pop aged 65+)	2013	Yes	Yes	No
Pharmanet	Percentage of the insured population using 5 or more drugs of >80 DDD per year. (% pop aged 65+)	2016	Yes (limited)	Yes	No
SHARE	Percentage of the population using at least five different drugs on a typical day (% pop aged 65+)	2016	No	No	Yes



Pharmanet

In the context of the evaluation of medical practice variations, the RIZIV – INAMI evaluated the consumption of 5 or more drugs of >80 DDD per year among the insured population aged 65 years and older. This indicator is proposed here as a proxy for polypharmacy, since it deviates from the commonly adopted definition of polypharmacy in two distinct ways: 1) it mainly focuses on drugs for chronic diseases (≥ 80 DDD), and 2) it evaluates the use of medicine on an annual basis, instead of on a daily basis.

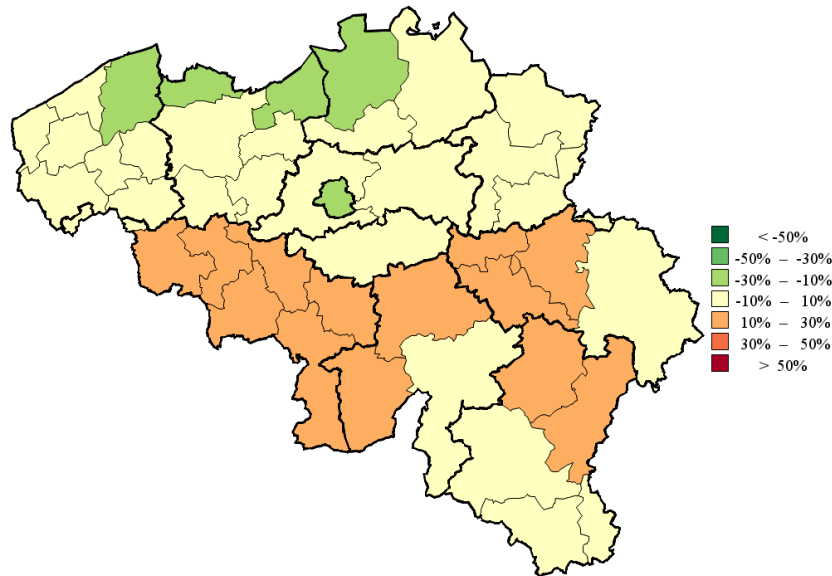
Table 14 summarizes the Pharmanet estimates for the year 2016 and the period 2014-2016. Overall, polypharmacy was higher in women, in the older age groups, in the Walloon Region, and among people with preferential reimbursement entitlement (“verhoogde tegemoetkoming”, “intervention majorée”). Detailed regional differences are shown in Figure 44. Differences between 2016 and the period 2014-2016 are minimal.

Table 14 – Percentage of the insured population aged 65+ using 5 or more drugs of >80 DDD per year.

		2016	2014-2016
TOTAL		39%	39%
Gender	Male	38%	38%
	Female	40%	40%
Age group	65-69	28%	28%
	70-74	36%	36%
	75-79	43%	43%
	80-84	49%	49%
	85-89	52%	52%
	90-94	49%	50%
	95+	40%	42%
Region	Flanders	37%	37%
	Brussels	35%	35%
	Wallonia	44%	44%
Reimbursement entitlement	Preferential	48%	48%
	Non-preferential	35%	35%



Figure 44 – Difference from the national mean of insured population aged 65+ using 5 or more drugs of >80DDD per year, by district, average 2014-2016



HIS—Health Interview Survey

In the Belgian HIS, polypharmacy was defined as taking at least five medicines in the past 24 hours. Respondents were asked during a face-to-face interview whether they had taken any medicines during the last 24 hours. The respondent then had to show the medicines that he/she has taken during the past 24 hours, if possible with the package. The interviewer recorded the brand names and national codes of all medicines. In the definition of polypharmacy, only the official medicines as listed in the Annotated Medicines Registry published by the Belgian Centre for Pharmacotherapeutic Information (BCFI – CBIP) were considered.

In the HIS 2013⁴, the mean age of the study population aged 65 and older (N=2020) was 75.4 years (range: 65-102). The majority were women (57.8%), aged 65-79 years (69.5%). The mean number of medicines used per person was 3.1 (range: 0-20). Almost one seventh (14.6%) did not take any medicines during past 24 hours. 27.4% (591) was in the polypharmacy group (mean number of medicines: 7.1), of which 5.6% (125) was in the excessive polypharmacy group (≥ 9 drugs in the past 24 hours) (mean number of medicines: 10.6).

In the univariate analysis, we observed a gradient in the prevalence of polypharmacy (Table 15) in function of age and a higher prevalence in the lower educational levels and among the “older elderlies” (persons age 85 years and older). Compared to 2004 and 2008, we observed a decrease of polypharmacy in 2013. In 2004 and 2008, polypharmacy was more frequent in the Walloon Region, but this was not the case anymore in 2013.



Table 15 – Proportion of the population aged 65 years and older reporting having taken 5 or more different medicines during the last 24 hours, 2013.

		N	Crude % (95%CI)	OR (crude)
Year of survey	2013	2020	27.4 (24.6-30.2)	0.78 (0.65-0.93)
	2008	2778	32.6 (29.9-35.3)	1.00 (0.85-1.17)
	2004	3446	32.6 (30.3-34.9)	—
Gender	Male	889	25.5 (21.9-29.1)	—
	Female	1131	28.7 (24.9-32.5)	1.18 (0.92-1.51)
Age group	65-69	597	19.1 (15.1-23.2)	—
	70-74	434	28.9 (22.4-35.3)	1.71 (1.15-2.56)
	75-79	401	29.0 (22.8-35.2)	1.73 (1.15-2.56)
	80-84	331	32.3 (25.6-39.1)	2.02 (1.35-3.03)
	85+	257	34.0 (26.5-41.4)	2.18 (1.43-3.33)
Region	Flanders	743	27.2 (23.1-31.2)	—
	Brussels	425	29.2 (24.1-34.4)	1.11 (0.80-1.53)
	Wallonia	852	27.2 (23.2-31.3)	1.00 (0.75-1.34)
Education level	No degree / Primary	519	31.3 (25.6-36.9)	1.50 (1.01-2.21)
	Secondary inferior	398	33.7 (26.6-40.8)	1.67 (1.09-2.56)
	Secondary superior	512	21.9 (17.5-26.3)	0.92 (0.63-1.36)
	Superior education	564	23.3 (18.2-28.5)	—

Source: Health Interview Survey, Sciensano, Belgium⁴



Cardiovascular medications were the most frequently used medicines (40.4% of all medicines used): they were used by 63% of all people age 65 years and older, 94% of the polypharmacy users and 98.7% of the excessive polypharmacy users. When considering the pharmacological classes (ATC level 3), the medicines most frequently used by the polypharmacy users and the excessive polypharmacy users were lipid modifying agents (plain) and antithrombotic agents. They were followed by β -blocking agents and medicines for peptic ulcer and gastro-oesophageal reflux disease. In 2012, a study of medicines reimbursed in Belgium found also that the four most frequently used medicines associated with polypharmacy were lipid modifying agents (plain), antithrombotic agents, medicines for peptic ulcer and gastro-oesophageal reflux disease, and β -blocking agents.⁴

SHARE—Survey of Health, Ageing and Retirement in Europe

Wave 6 of the Survey of Health, Ageing and Retirement in Europe (SHARE), conducted in 2015 across 17 European countries (Austria, Belgium, Croatia, the Czech Republic, Denmark, Estonia, France, Germany, Greece, Italy, Luxembourg, Poland, Portugal, Spain, Sweden, Switzerland and Slovenia) and Israel, included, for the first time, a question on polypharmacy.³ Polypharmacy was defined as the concurrent use of five or more

medications per day. Specifically, respondents were asked the following question: *“Do you take at least five different drugs on a typical day? Please include drugs prescribed by your doctor, drugs you buy without a prescription and dietary supplements such as vitamins and minerals.”*

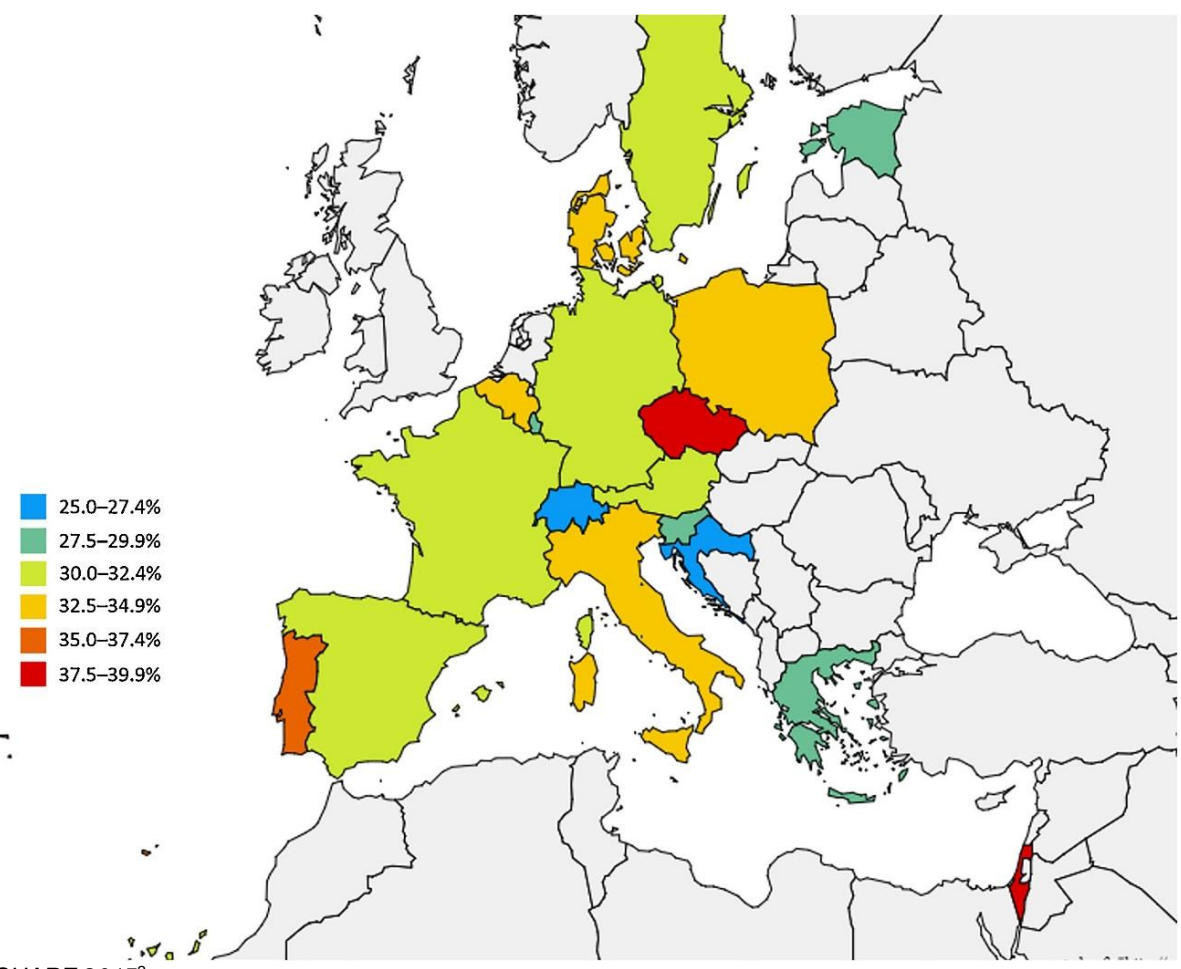
Across all participating countries, information on polypharmacy was available for a total of 34,232 participants aged 65 and older. Of these, the mean age was 75.1 ± 7.2 years, and 19,544 (57.1%) were female.

In Belgium, 807 out of 2303 participants reported using 5 or more drugs on a typical day, corresponding to an adjusted prevalence of 34% (95%CI 33-35%). This result was slightly higher than the European average of 32%. Belgium had the fourth highest polypharmacy prevalence across all 18 participating countries (Figure 45).

Of note, even though the Belgian HIS 2013 and the SHARE 2015 were only two years apart, and even though the questions were relatively similar in both surveys, the overall results of the HIS 2013 and the SHARE 2015 are quite different, i.e., 27% and 34%, respectively. Whether or not this reflects a true increase in polypharmacy over time, needs to be confirmed in the Belgian HIS 2018.



Figure 45 – Prevalence of polypharmacy in elderly (65 years and older) among 17 European countries and Israel.



Source: SHARE 2015³



Key points

- **The percentage of the insured population aged 65 and over that used in the past year 5 or more different drugs of >80 DDD, was 39% in 2016.**
- **Over time, we observe a steady decrease in the prevalence of polypharmacy.**
- **The prevalence of polypharmacy is higher among the ‘older elderlies’. This group deserves particular attention because ‘older elderlies’ have an increased risk of adverse effects of medications, in particular due to impaired kidney and liver functions.**
- **Since more than 90% of persons in the polypharmacy groups use cardiovascular medications, interventions could be focused on patients with cardiovascular diseases.**
- **According to the SHARE 2015 study, Belgium had the fourth highest polypharmacy prevalence across all 18 participating countries.**

References

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