1.1 EQ-4 and EQ-5

1.1.1 Documentation sheet

Description	Proportion of households with (further) impoverishing (EQ-4) and catastrophic (EQ-5) out of pocket payments.
Calculation	See technical definitions section below.
Rationale	There is a near consensus that the financial burden of healthcare payments should not disproportionately rest on those who seek healthcare. The idea to decouple payments from health risks or the receipt of healthcare does not provide guidance on how payments should be allocated. However, it is generally presumed that payments should be determined by ability or capacity to pay (vertical equity principle). A rationale to relate payments for healthcare to capacity to pay is that one does not want that these payments hinder people's ability to seek healthcare when ill. Another rationale is that one wants to avoid that payments for healthcare reduce households' potential to consume other necessary goods and services such as food, housing and utilities. The incidence of catastrophic and impoverishing out-of-pocket payments have been used to evaluate the relation between healthcare spending and ability or capacity to pay.[1] For reasons of international comparability, we follow the methodology proposed by the WHO European Region in its latest series on financial hardship (see technical definition).[2] This is a capacity-to-pay approach that assumes that households need to spend part of their resources to meet basic needs, such as food, housing and utilities. The underlying idea to implement a correction for basic needs is that poor households devote relatively more of their resources to meeting basic needs and may face a trade-off between consuming basic needs and healthcare. Only after meeting basic needs, resources are available to spend on healthcare. The household's capacity-to-pay (for healthcare) is defined as the total household expenses minus a standard amount to cover basic needs. The standard amount is calculated as the average amount spent on food, housing (rent) and utilities (electricity, water, fuel etc.) by households between the 25th and 35th percentiles of total household expenses distribution, adjusted for household composition by the OECD equivalence scale. The amount of basic need expenses is also used as poverty line or basic needs line. If the total household expenses fall below the poverty line, the household is considered poor and its capacity-to-pay is negative. **Out-of-pocket payments are considered impoverishing** when the household is not poor, but has out-of-pocket payments that exceed the household's capacity-to-pay. In that case, total household expenses net of healthcare consumption are below the poverty line. Out-of-pocket payments of poor households are considered further impoverishing. **Out-of-pocket payments are considered catastrophic when they exceed 40% of the household's capacity-to-pay**. Poor households with [without] out-of-pocket payments and a negative capacity to pay are

	considered [not] to incur catastrophic payments. Hence out-of-pocket payments that are (further) impoverishing are always catastrophic, but catastrophic out-of-pocket payments are not necessarily impoverishing.
Data source	The Household Budget Survey (HBS). The HBS data contain individual and household information for a representative sample of the population residing in Belgium. They include very detailed information on consumption expenditures (using the Classification of Individual Consumption According to Purpose (COICOP), next to basic sociodemographic (e.g. age, sex, household size, region of residence) and socioeconomic information (e.g. income, educational attainment). Generally, all consumption expenditures are registered during a period of 1 month in 2012, 2014 and 2016 and during a period of 15 days in 2018 (with the exception of dental care costs and inpatient care costs which are registered on an annual basis in 2018). Information on specific expenditures, e.g. for durables or insurance premiums, are gathered through interview questions and refer to annual amounts.
Technical definitions	For details on the selected variables from the HBS database see section 3.2.1 of the Supplement of KCE report 334.[3] Overall two types of data are collected: 1) Information on **consumption:** consumption is registered at the household level at a very detailed level. We use information on total household expenses, as well as expenses for basic necessities (food, utilities and rent). This information is used to compute the household's capacity to pay. 2) Information on **out-of-pocket payments (OOP)**: In the HBS out-of-pocket payments are defined as all expenses related to COICOP category 06. They can be further subdivided in categories: (1) medicines with and without prescription (COICOP 0611 + 06129D), (2) medical products and equipment, such as glasses, hearing aids, wheelchair (COICOP 0612 + 0613), (3) outpatient care (COICOP 0621), (4) dental care (COICOP 0622), (5) diagnostic tests and paramedical services (COICOP 0623), (6) inpatient care (COICOP 063). The out-of-pocket payments reflect the amount paid at the point of use and is not corrected for potential reimbursements through the sickness fund or private insurers. Information on the receipt of sickness fund reimbursements over the past 4 months is classified as an income variable (variable r14) and is unrelated to healthcare used in the registration period. In addition, information is available on the premiums paid for private hospital insurance (in case they are (partly) paid by the household and not in full by the employer) and on contributions to the sickness fund. Also, information on accommodation expenses for long-term care (e.g. nursing homes) and expenses for home care are registered under a separate category (COICOP 1240). In line with the WHO methodology, we do not classify these expenses as out-of-pocket payments. Three definitions are used to capture out-of-pocket payments (OOP). The first (baseline) definition 'OOP' adds up all expenses registered in COICOP category 06 "Healthcare". A second definition 'OOP**' corrects 'OOP' by extracting sickness fund reimbursements. A third definition 'OOP***' starts from 'OOP**' and introduces a second adjustment. Expenses related to inpatient care are put to zero for patients with a hospital insurance.

Individuals are assumed to have a hospital insurance if premiums for such an insurance are paid. See also section 3.2.3 of the Supplement of KCE report 334 for further information on OOP definitions that were used.[3]

To estimate the catastrophic and impoverishing health expenditures, we followed four main steps of the methodology proposed by the WHO European Region in its latest series on financial protection: [4] i.e. estimate of 1) the basic needs lines, 2) the basic needs expenditure levels, 3) the capacity to pay and, 4) the incidence of impoverishing and catastrophic OOPs. The methodology of the WHO European Region was chosen as it allows for a comparison with other countries. A detailed description of the methodology can be found in WHO (2016).[2]

Step 1: basic needs lines.

Four basic needs lines or poverty lines corresponding to the four types of household-specific basic needs expenses (food, food and utility, food and rent and food, utility and rent) are estimated by household. Households that did not report any utilities or rent expenses have a basic need line that includes food only. To calculate basic needs lines, the OECD household equivalence scale is used to account for economies of scale in household consumption based on the number of adults and children included in the household. The equivalence scale is calculated as follows:

$$eqsize_h = 1 + 0.7 * (number\ of\ adults - 1) + 0.5 * (number\ of\ children\ under\ 13\ years\ of\ age)$$

Next, each household's total expenses (minus imputed rent) and expenses for food, utilities and rent were divided by the equivalent household size to get the equivalised total household expenses ($eqexp_h$), the equivalised food expenses ($eqfood_h$), the equivalised utilities expenses ($equtil_h$) and the equivalised rent ($eqrent_h$). The households whose equivalised total household expenses ($eqexp_h$) are situated between the sample weighted 25th and 35th percentile are selected to calculate the four basic needs lines. Then using the survey weights, we calculate the weighted average of food, utilities and rent expenses among households within the 25th and 35th range that reported positive values for food, utilities and rent expenses, respectively. For households that did not report any rent or utilities expenses, the basic need line is equal to the food expenditure. For households that reported utilities expenses but did not report any rent expenses, the basic need line is calculated as the sum of the weighted averages for food and utilities. For households that reported rent but did not report any utilities expenses, the basic need line is calculated as the sum of the weighted averages for food and rent. For households that did report both rent and utilities, the basic need line is calculated as the sum of the weighted averages for food, utilities and rent

Step 2: expenses for basic needs.

The household expenses for basic needs (se_h) are calculated by multiplying the basic needs lines with the equivalised household size.

	Step 3: capacity to pay. Capacity to pay (ctp_h), i.e. the remaining resources once basic needs expenses are accounted for, is estimated by taking the difference between the total household expenses (exp_h) and the basic needs expenses (se_h). When total household expenses are lower than the estimated basic needs expenses, the consumption level of the household is not enough to meet basic needs and the household is considered poor. **Step 4: incidence of impoverishing and catastrophic OOPs.** To calculate the **incidence of (further) impoverishing out-of-pocket payments**, the households are divided into 5 mutually exclusive categories based on their level of out-of-pocket payments in relation to the poverty line. 1. Households without out-of-pocket payments, irrespective of the household financial resources. 2. Households not at risk of impoverishment: non-poor households with out-of-pocket payments. When OOPs are deducted from the total household expenses, the remaining financial resources are above 120% of the poverty line, implying that the household has enough means to cover basic needs. 3. Households at risk of impoverishment: non-poor households with out-of-pocket payments. When OOPs are deducted from the total household expenses, the remaining financial resources are between the poverty line and 120% of the poverty line, implying that the household has enough means to cover basic needs, but with (very) limited financial leeway. 4. Impoverished households: non-poor households with out-of-pocket payments. When OOPs are deducted from the total household expenses, the remaining financial resources are below the poverty line, implying that the household has not enough means to cover basic needs. 5. Further impoverished households: poor households with out-of-pocket payments. OOPs make it more difficult to pay for basic needs. The **incidence of catastrophic payments** can be calculated using the household's OOPs in relation to its capacity to pay (oop_h/ctp_h). Out-of-pocket payments are considered catastrophic when they exceed 40% of the household's capacity to pay. Hence, households that are (further) impoverished always experience catastrophic out-of-pocket payments.
Limitations	Registered out-of-pocket payments reflect payments made at the point of use, not corrected for reimbursements by sickness funds or private insurers. A distinction between covered and non-covered expenses cannot be made.

	The analyses and hence results are based on self-reported data over 1 month (in waves 2012, 2014, 2016) or 15 days (wave 2018), not necessarily representative for average consumption pattern at the micro level. [5] As is often the case in large-scale surveys, some population groups are not or insufficiently represented. Some vulnerable population groups are, however, excluded: people residing in collective facilities such as the elderly and prisoners, the homeless or refugees. We know from other studies that these groups experience higher than average healthcare needs or difficulties in accessing healthcare. [6-9]
International comparability	Household budget surveys are conducted in all EU Member States, and despite efforts towards harmonisation within the EU, each Member State decides the objectives, methodology and frequency of conduction of the survey which means that international comparisons of these indicators should be interpreted with caution.
Dimension	Equity
Related performance indicators	/
Keywords	Health Services Accessibility, Health expenditures

1.1.2 Results

Households with (further) impoverishing OOPs (EQ-4)

Figure 1 and Table 2 indicate that the share of households that are further impoverished and at risk of impoverishment after OOPs, decreased between 2012 and 2018 (further impoverished: 2012: 1.5%; 2018: 0.6%; impoverished: 2012: 0.6%; 2018: 0.2%). The same conclusion is observed when using OOP** and OOP*** adjustments (see technical definitions of OOP** and OOP*** above).

In 2018, significantly more households reported no OOPs (32.8%) compared to other years (2016: 19.7%; 2014: 16.4%; 2012: 17.1%). Among poor households, the conclusion is the same, i.e. more households reported no OOPs (62.2%) in 2018 compared to other years (2016: 42.8%; 2014: 44.4%; 2012: 43.4%). This is explained by the fact that in the HBS 2018, consumption data were collected over a 15-day registration period whereas in previous HBSs, data were collected during 1 month.

Table 1 shows that households in the 1st quintile reported more frequently no OOPs than the other quintiles.

The share of households without OOP has an important effect on the incidence of catastrophic and impoverishing OOPs as households without OOPs cannot be (further) impoverished and cannot have catastrophic payments. This does not necessarily reflect a positive results as it might be related to increased postponement of care.

Figure 1 - Proportion of households at risk of impoverishment, further impoverished and impoverished, 2012-2018

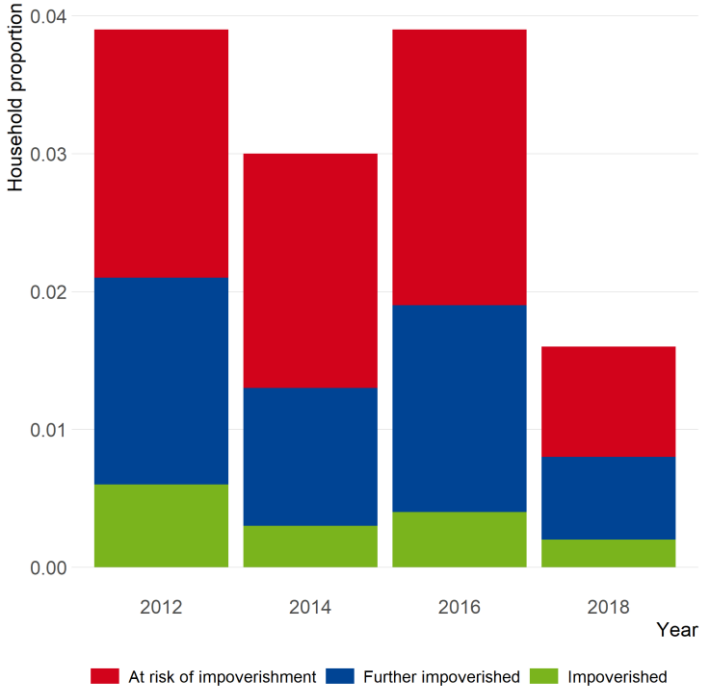


Table 1 - Proportion of households without OOPs, by quintile of total household expenses, 2012-2018

	2012	2014	2016	2018
1st	27.3%	28.1%	30.1%	48.8%
2nd	20.4%	17.3%	22.9%	36.0%
3rd	12.3%	14.6%	19.0%	27.9%
4th	13.7%	10.9%	13.6%	24.6%

5th	11.6%	11.0%	12.7%	26.9%
Total	17.1%	16.4%	19.7%	32.8%

Data source: HBS 2012, 2014, 2016, 2018

Table 2 - Share of households by impoverishment group, by OOP definition, 2012-2018

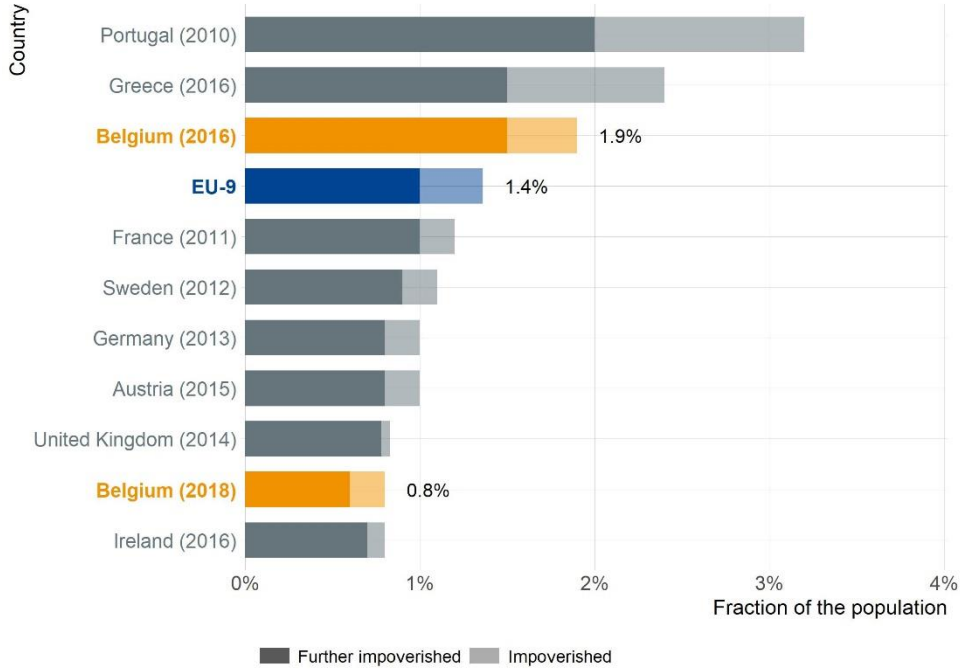
	2012	2014	2016	2018
OOP, share of households				
Further impoverished	0.015 [0.012-0.018]	0.010 [0.008-0.013]	0.015 [0.011-0.02]	0.006 [0.004-0.011]
Impoverished	0.006 [0.004-0.008]	0.003 [0.002-0.005]	0.004 [0.002-0.007]	0.002 [0.001-0.004]
At-risk of impoverishment	0.018 [0.014-0.021]	0.017 [0.014-0.021]	0.020 [0.015-0.025]	0.008 [0.005-0.011]
Not at-risk of impoverishment	0.791 [0.779-0.803]	0.805 [0.794-0.817]	0.765 [0.749-0.78]	0.655 [0.638-0.672]
No OOPs	0.171 [0.160-0.182]	0.164 [0.154-0.175]	0.197 [0.182-0.212]	0.328 [0.312-0.345]
OOP, share of households**				
Further impoverished	NA	0.008 [0.007-0.011]	0.013 [0.01-0.018]	0.004 [0.002-0.007]
Impoverished	NA	0.003 [0.002-0.005]	0.003 [0.002-0.006]	0.002 [0.001-0.004]
At-risk of impoverishment	NA	0.016 [0.013-0.019]	0.018 [0.014-0.023]	0.005 [0.003-0.008]
Not at-risk of impoverishment	NA	0.746 [0.733-0.758]	0.693 [0.676-0.71]	0.469 [0.451-0.486]
No OOPs	NA	0.227 [0.215-0.239]	0.272 [0.256-0.289]	0.520 [0.502-0.538]
OOP*, share of households**				
Further impoverished	NA	0.008 [0.007-0.011]	0.013 [0.01-0.018]	0.004 [0.002-0.007]
Impoverished	NA	0.003 [0.002-0.005]	0.003 [0.002-0.006]	0.002 [0.001-0.004]
At-risk of impoverishment	NA	0.015 [0.012-0.018]	0.017 [0.013-0.023]	0.005 [0.003-0.008]
Not at-risk of impoverishment	NA	0.740 [0.727-0.752]	0.686 [0.669-0.702]	0.460 [0.442-0.478]
No OOPs	NA	0.234 [0.222-0.246]	0.280 [0.264-0.297]	0.529 [0.511-0.547]

*Data source: HBS 2012, 2014, 2016, 2018. NA= Not Available, OOP**: OOPs minus sickness fund reimbursements, OOP***: OOP** and IF Hospital insurance contributions >0 THEN inpatient expenses = 0.*

The incidence of impoverishing out-of-pocket payments in a selection of European countries which applied the WHO methodology ranges from 0.8% to 3.2% (see 10, 11

Figure 2). The share of households impoverished after out-of-pocket payments ranges from less than 0.1% in the United Kingdom to 1.2% in Portugal, while the share of further impoverished households ranges from 0.6% in Belgium (2018) to 2.0% in Portugal. Using the HBS result for 2018, Belgium has, together with Ireland, the lowest share of households with (further) impoverishing OOP. However, when using the HBS result for 2016, Belgium has one of the higher incidence rates. In cross-country comparisons, not only real differences between countries matter, but also differences in survey design, as illustrated by the difference for Belgium between 2016 and 2018. Most European countries apply a 14-day registration period, in line with the 2018 results.[10, 11]

Figure 2 - Share of households with impoverishing health spending, latest year available, EU-9



Households with catastrophic OOPs (EQ-5)

Table 3 - Share of households with catastrophic out-of-pocket payments by OOP definition, 2012-2018

2012	2014	2016	2018
Share of households (value [95% confidence interval]), OOP			
0.047 [0.042-0.054][14,18]	0.039 [0.034-0.045][12,16]	0.053 [0.046-0.063][14,18]	0.038 [0.032-0.045][12,16]
Share of households (value [95% confidence interval]), OOP**			
NA	0.035 [0.030-0.041]	0.044 [0.037-0.053]	0.027 [0.022-0.033]
Share of households (value [95% confidence interval]), OOP***			
NA	0.030 [0.026-0.035]	0.041 [0.034-0.050]	0.024 [0.019-0.030]

*Data source: HBS 2012, 2014, 2016, 2018, OOP**: OOPs minus sickness fund reimbursements, OOP***: OOP** and IF Hospital insurance contributions >0 THEN inpatient expenses = 0; significant differences (p<0.05): [12] – significantly different from results in 2012; [14] – significantly different from results in 2014; [16] – significantly different from results in 2016; [18] – significantly different from results in 2018.*

Figure 3 – Proportion of households experiencing catastrophic (threshold 40%) out-of-pocket payments, by quintile of total household expenses, 2012-2018

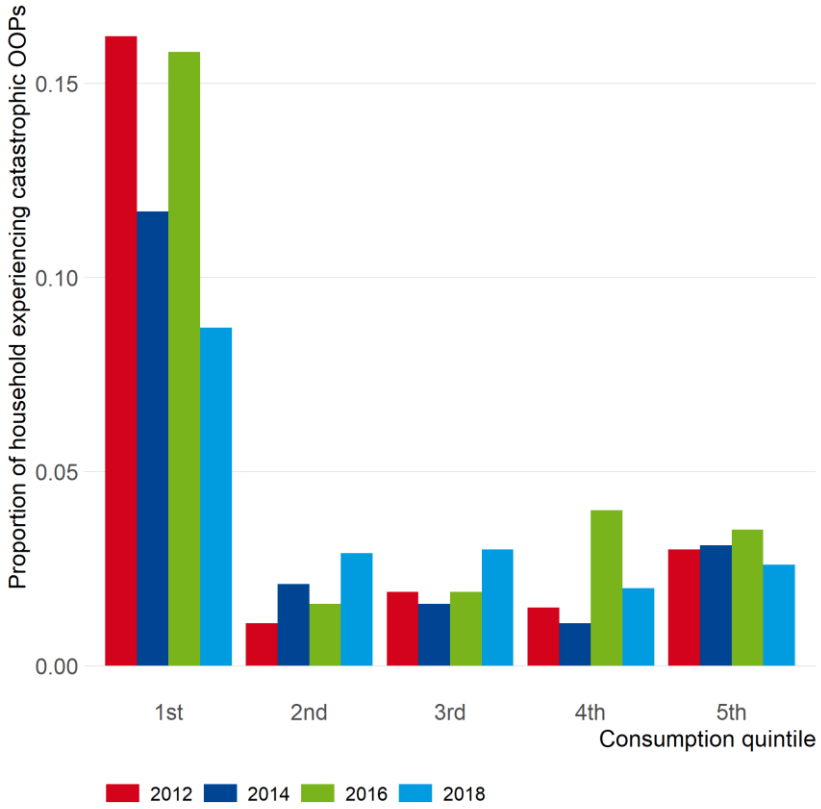


Table 3 indicates that 4.7%, 3.9%, 5.3% and 3.8% of the households experienced catastrophic OOPs in 2012, 2014, 2016 and 2018, respectively. The share of households with catastrophic OOPs decreased slightly between 2012 and 2018. Figure 3 indicates that the incidence of catastrophic OOPs is much higher in the 1st quintile relative to all other quintiles. Over time, catastrophic spending increased in the 2nd and 3rd quintiles.

There was a significant difference in the proportion of households with catastrophic OOPs between 2012 and 2014 (p=0.05), 2012 and 2018 (p=0.045), 2014 and 2016 (p=0.005) and 2016 and 2018 (p=0.005) (Table 3).

The expenditures of households faced with catastrophic out of pocket payments differ significantly from those of the general population. In 2018, the majority of OOPs were related to expenses for medicines (27.0%), outpatient care (25.2%) and medical products and equipment (13.8%). The share of OOPs by type of healthcare did not vary much between 2012 and 2018. Among households with catastrophic OOP, we find that most of the OOPs in 2018 were related to medical products and equipment (23%) – in particular to glasses –, hospital care (20%) and paramedical services (17%) – in particular physiotherapy, remedial gymnastics, and medical massages –, and outpatient care (17%) and dental care (16%). Out of pocket payments for medicines are a smaller share (10%) (Figure 4).

Figure 5 demonstrates that the share of households with catastrophic OOPs in Belgium for 2016 (5.3%) and 2018 (3.8%) is situated around the average of the selected European countries which applied the WHO methodology. The Belgian rate is higher relative to neighbouring countries such as Germany (2013: 2.4%) or France (2011: 1.9%).

Figure 4 - Distribution of out of pocket payments by health service among the population and households facing catastrophic out of pocket payments

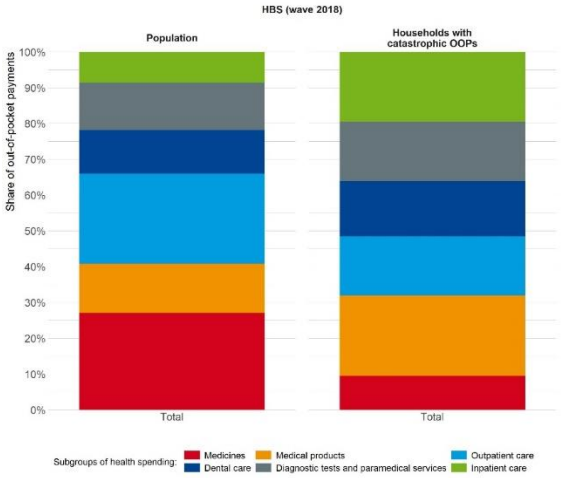
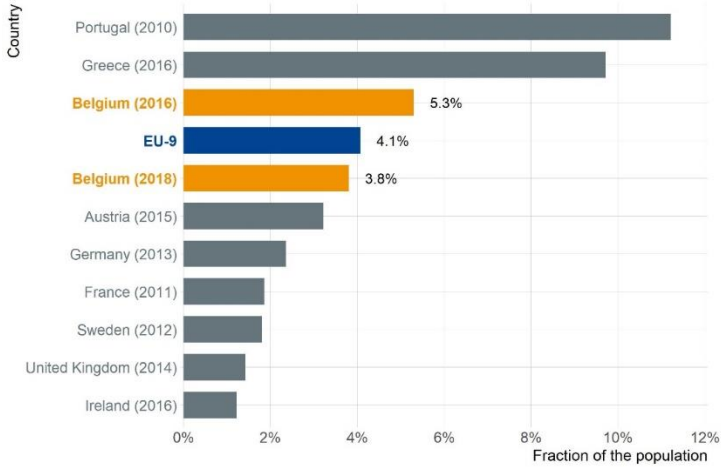


Figure 5 - Proportion of households facing catastrophic out of pocket payments, latest year available, EU-9



Key points

- **In 2018, 0.8% of households had to cope with (further) impoverishing out-of-pocket payments, which is an improvement compared to 2016 and a better result than France (2011: 1.2%) and Germany (2013: 1.2%) for example.**
- **In 2018, 3.8% of households faced catastrophic out-of-pocket payments. This result is in line with the European average, but it is worse than that of Germany (2013: 2.4%) or France (2011: 1.9%). Catastrophic out-of-pocket payments are concentrated in the 1st quintile.**
- **The expenditures of households faced with catastrophic out-of-pocket payments differ significantly from those of the general population. In 2018, the majority of OOPs were related to expenses for medicines (27.0%), outpatient care (25.2%) and medical products and equipment (13.8%). Among households with catastrophic OOP, most OOPs were related to medical products and equipment (23%) and hospital care (20%)**

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