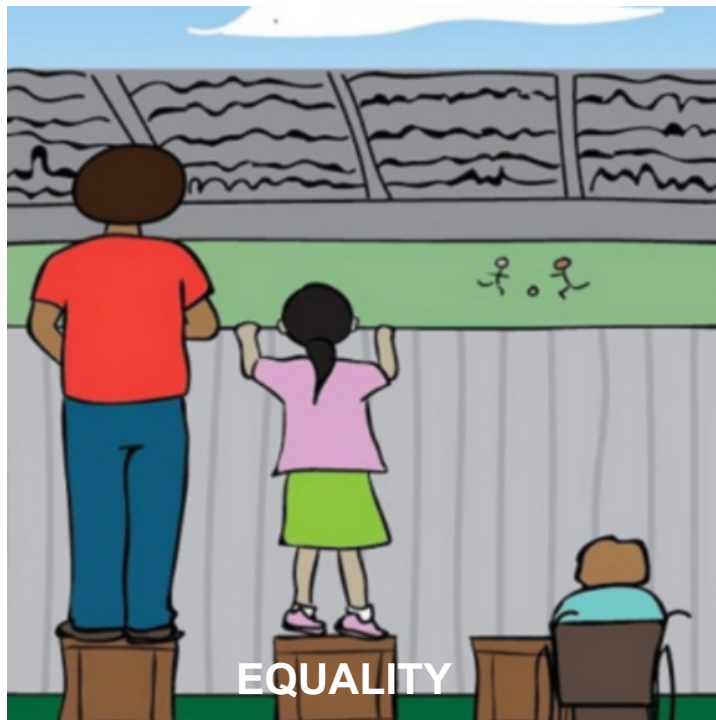


HEALTH SYSTEM PERFORMANCE ASSESSMENT: HOW EQUITABLE IS THE BELGIAN HEALTH SYSTEM?



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NICOLAS BOUCKAERT, CHARLINE MAERTENS DE NOORDHOUT, CARINE VAN DE VOORDE



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Reported interests: All experts and stakeholders consulted within this report were selected because of their involvement in equity in the Belgian health system. Therefore, by definition, each of them might have a certain degree of conflict of interest to the main topic of this report.

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- The external experts were consulted about a (preliminary) version of the scientific report. Their comments were discussed during meetings. They did not co-author the scientific report and did not necessarily agree with its content.
- Subsequently, a (final) version was submitted to the validators. The validation of the report results from a consensus or a voting process between the validators. The validators did not co-author the scientific report and did not necessarily all three agree with its content.
- Finally, this report has been approved by a majority of votes by the Executive Board.
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LIST OF ABBREVIATIONS

| ABBREVIATION | DEFINITION |
|--------------------|--|
| ATC | Anatomical Therapeutic Chemical |
| COICOP | Classification of Individual Consumption According to Purpose |
| CPAS | Centre Public d'Action Sociale |
| DDD | Defined Daily Dose |
| EU | European Union |
| EU-SILC | European Union Statistics on Income and Living Conditions |
| GMR | Global Medical Record |
| GP | General Practitioner |
| HBS | Household Budget Survey |
| HIS | Health Interview Survey |
| HSPA | Health System Performance Assessment |
| MAB | Maximum Billing ("maximumfactuur"/"maximum à facturer") |
| IMA-AIM | InterMutualistic Agency ("InterMutualistisch Agentschap"/"Agence InterMutualiste") |
| KCE | Belgian Healthcare Knowledge Centre ("Federaal Kenniscentrum voor de Gezondheidszorg"/"Centre Fédéral d'Expertise des Soins de Santé") |
| KSZ-BCSS | Crossroads Bank for Social Security ("Kruispuntbank van de Sociale Zekerheid"/"Banque Carrefour de la Sécurité Sociale") |
| MEqIN | Measuring Equivalent Incomes |
| OCMW | Openbaar Centrum voor Maatschappelijk Welzijn |
| OECD | Organisation for Economic Co-operation and Development |
| OOP | Out-of-pocket payment |
| Q1, Q2, Q3, Q4, Q5 | Quintile 1, Quintile 2, Quintile 3, Quintile 4, Quintile 5 |
| RE | Redistributive effect |



| | |
|-------------|---|
| RIZIV-INAMI | National Institute for Health and Disability Insurance (“Rijksinstituut voor ziekte- en invaliditeitsverzekering”/”Institut national d'assurance maladie-invalidité”) |
| SDG | Sustainable Development Goals |
| SHA | System of Health Accounts |
| SHARE | Survey of Health, Ageing and Retirement in Europe |
| VAT | Value Added Tax |
| WHO | World Health Organization |



■ SCIENTIFIC REPORT

1 INTRODUCTION

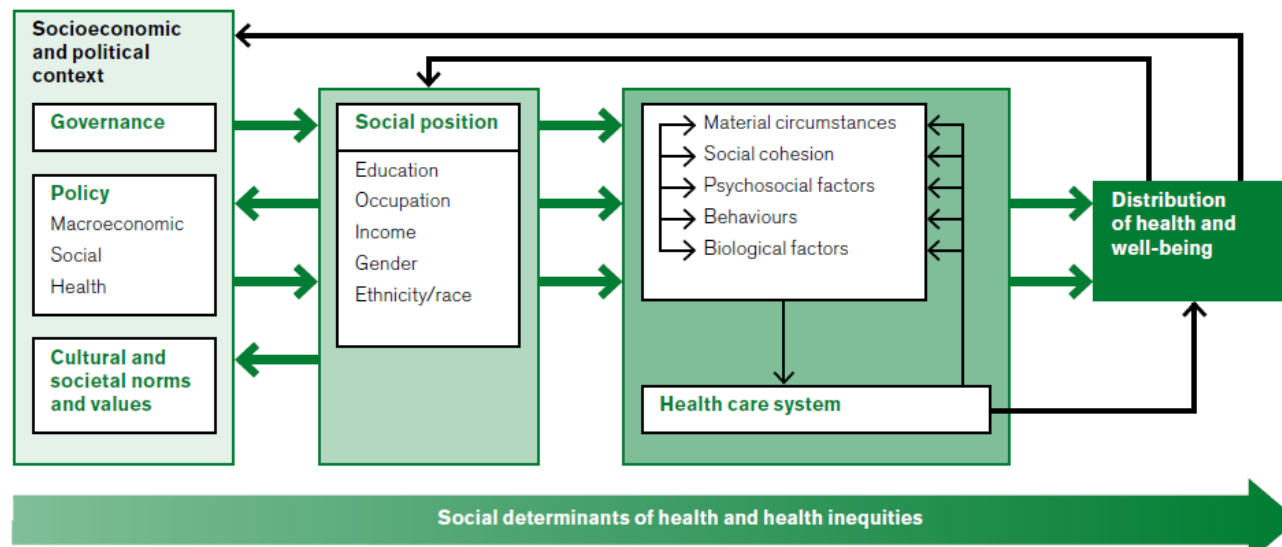
1.1 Equity versus equality in health and healthcare

Which inequalities are unfair?

Health is not only an important aspect of individual well-being, it is also integral to an individual's opportunities in life.¹⁻⁶ Health is, however, not evenly distributed across the population. Even though these health differences or *inequalities in health* might not be entirely unavoidable and are the result of multiple factors such as living conditions, employment and working conditions, education, physical endowments, etc., they can be mitigated amongst others by social policy and the health system.^{1, 2, 4, 7-9} This is emphasized in the conceptual framework for action on the social determinants of health developed by the World Health Organization (WHO) (see Figure 1).¹⁰ Inequalities in health are often analysed across socioeconomic characteristics, because they are considered to be a major source of injustice in our society.^{1, 6}



Figure 1 – Conceptual framework for action on the social determinants of health



Source: Marmot et al. (2014, p.5)¹⁰

Also *inequalities in healthcare* have been identified in many countries. Policy statements and objectives addressing disparities generally refer to healthcare access and accessibility. In reality, inequalities in *access* are often practically measured and evaluated as inequalities in *healthcare use*. However, access and use are different concepts, and scholars disagree on whether one must strive for equal access to or equal use of healthcare.¹ Proponents of equality of access state that a welfare state should assure that individuals have access to healthcare, but can make their own choice whether to use it or not. Hence preferences to use healthcare are considered

a fair source of inequalities. Those advocating equality of healthcare use take the opposite position and consider preferences and (informed) choices of individuals as an unfair source of differences that might hinder the uptake of care and limit individuals' opportunities in life.^a

An important question is which inequalities in health or healthcare are unfair or unjust and should be dealt with by policymakers. An equitable access to and delivery of effective, affordable and qualitative healthcare are pursued in many countries. But what would be an equitable distribution of healthcare

^a Equality of informed access is an intermediate position which holds individuals responsible for their personal choices, on the condition that they are based on good information.¹



among individuals in society? What we observe is that some individuals use more healthcare services than others, consult more frequently a medical specialist, have a higher consumption of medicines, have a higher number of physiotherapy sessions, etc. These are observations and the question is: are the observed inequalities fair or unfair? This question shifts the perspective from inequality to inequity and can be rephrased as “*Which inequalities in health or healthcare constitute inequities?*”. The answer is that it depends. Inequalities as such or the absence thereof are not by definition bad or good. It depends on what is driving the disparities and on a normative judgement of fairness. For example: Are the inequalities the result of a difference in resources and lack of affordability? Or is a chronic health condition the underlying cause? Are the different levels of received care appropriate to each person’s health condition or not?

Clearly, it is important to distinguish between (in)equality and (in)equity in health or healthcare. As the example above indicates, these are related but different concepts.

- **Inequality** is the generic term used to designate differences, variations, and disparities in health or healthcare observed across individuals or population groups. It is a descriptive term that does not necessarily imply value judgement.¹¹ Inequalities can occur for a variety of reasons, including the unequal distribution of socioeconomic factors such as income, wealth, education, or employment; biological differences; individual choices and preferences; supply effects; differences in health and healthcare needs; supplementary insurance; bad luck; etc.
- **Inequity** in health or healthcare refers to those inequalities that are deemed to be unfair or stemming from some form of social injustice. One tries to distinguish between fair and unfair sources of inequalities and assess inequalities related to the latter.^{1, 12} A concept of (in)equity therefore essentially embodies a normative judgement of what is equality and fairness.^{2, 5} Different perspectives exist on what constitutes social justice and on the role that should be played by the welfare state to remedy unfairness (see Box 1 for more information on the concept of social justice and the welfare state).^{2, 11, 13}

Box 1 – Definition of the concepts social justice and welfare state

Social justice is a political and philosophical concept of what constitutes fair and just relations between the individual and society. It provides a set of principles which guide people in judging what is just and unjust, in organising human interactions through social institutions of society, in assigning rights and duties related to the social institutions and in defining the appropriate distribution of the benefits and burdens of social cooperation.¹⁴ Different perspectives exist on what constitutes social justice.

The **welfare state** is a form of government in which the state (or a well-established network of social institutions) aims to enhance the welfare of its citizens. In particular it seeks to protect and promote the economic and social well-being of people who (a) are weak and vulnerable, by providing social care, (b) are poor, by providing redistributive income transfers and social assistance, or (c) are neither vulnerable nor poor, by providing social insurance and consumption smoothing, medical insurance and school education.^{13, 15}

In addition to inequity in access or use, also inequity in *healthcare financing* is a concern for policymakers. Protecting people from the financial consequences of healthcare payments can be realised by taking measures directly aimed at limiting out-of-pocket payments, or by increasing pooling and pre-payment mechanisms. Pre-payments are used to finance public or voluntary health insurance and consist amongst other of social contributions, taxes and insurance premiums.



Health and healthcare equity is a national and international policy priority

An equitable access to and delivery of effective and affordable healthcare is one of the fundamental objectives of social policy in Western European countries.^{6, 16, 17} These objectives are subscribed in national and international policy documents. The EU's 2009 Communication on "Solidarity in Health: Reducing health inequalities in the EU", the WHO-sponsored Conference on "Social Determinants of Health" in 2011, the "Health 2020" strategy approved in 2012, the "2030 Agenda for Sustainable Development" adopted in 2015 and the 2018 "EU Joint action on Health inequalities" are only some of the initiatives in which heads of governments renew their determination to achieve health equity, through promotion of accessibility and affordability by means of universal healthcare coverage, and health financing that prevents impoverishment.^{10, 18-20}

The equity principles are also endorsed in Belgian health policy and have shaped policies aimed to guarantee (financial) accessibility of healthcare (see also Chapter 3). Equitable access to care is considered a right in Belgium and a means to reduce health inequalities. In her policy declaration (2014), the Minister of Social Affairs and Public Health stated that *"one of the central goals of the government is to provide all citizens of this country with quality, affordable and accessible healthcare."*²¹

The reduction of health inequalities is also one of the long-term objectives of the federal sustainable development strategy in Belgium.²² Objective 4 states that *"the difference between life expectancy in good health according to education level and gender will be reduced by an average of 50%."* A working group of the Interdepartmental Committee on Sustainable Development (2013) was set up to put health inequalities on the political agenda, to bring together stakeholders from different sectors to achieve sustainable solutions, and to work out a national action plan to realise the above-mentioned objective on reducing health inequalities. Although the

national action plan was not officially adopted by the Minister of Public Health, the reduction of health inequalities was taken up in the management agreement of the Federal Public Service Public Health (2016-2018) and the measures of the national plan were included in the "White Book" (2014) of the National Institute for Health and Disability Insurance (RIZIV-INAMI), published in collaboration with Doctors of the World, arguing for a more inclusive health system.²²⁻²⁴

Horizontal and vertical equity

While equality describes the situation in which something is distributed in the same quantity for each individual across society, equity concerns the fair distribution of it. This requires a moral judgement concerning the principles of distribution. Modern theories of political philosophy and social justice give meaning to the concepts of equality and fairness^b.

Countries that commit to universal health coverage, generally share two egalitarian equity principles, based on Rawls's distributive justice as moral foundation. Applied to healthcare access or use, these are: the **horizontal equity principle** defined as equal treatment of people with the same health needs, irrespective of other characteristics such as income, race, place of residence, etc.; and the **vertical equity principle** denoting appropriate unequal treatment of people with different needs. Note that with respect to preventive care, one could argue that differences in health needs are irrelevant, as prevention is important and valuable irrespective of needs in order to preserve one's health status. That is partly true, but certain types of prevention are particularly recommended for individuals with specific health conditions or for individuals of high age, e.g. influenza vaccination.

^b More background on the ideas of individual thinkers can be found amongst others in supplement 2 of the third KCE Health System Performance Assessment report.²⁵



1.2 Scope and objective of the report

1.2.1 Health System Performance Assessment (HSPA) in Belgium

The study of health equity generally encompasses three domains: health outcomes, healthcare access or use, and healthcare financing. An extensive analysis of socioeconomic inequalities in a large range of health outcomes in Belgium can be found in the reports of the Belgian Health Interview Survey and the “Health Status Report” (2019), developed by Sciensano, which is the Belgian Institute for Health.^{26, 27} Other publications have also documented socioeconomic inequalities in Belgium for a wide range of health outcomes.^{10, 25, 28-35} In section 2.4.1, we illustrate socioeconomic inequalities in health status in the data used throughout this report.

The focus in this report is on equity in healthcare access, use and financing. The current report complements the [KCE Health System Performance Assessment \(HSPA\) report](#) that was published in 2019 (see Box 2). Although equity was one of the dimensions of the health system to be evaluated in the KCE HSPA report of 2019, only socioeconomic inequalities in healthcare use were documented due to a lack of relevant data. However, monitoring equity within the health system – an equitable distribution of healthcare use and of payments for healthcare – is a core component of a HSPA.^{16, 17}

Box 2 – The Health System Performance Assessment report for Belgium (2019)

“HSPA is a country-owned process to assess holistically the health system (‘health check’). It is based on indicators, which provide ‘signals’, aiming to contribute to the strategic planning of the health system by policymakers.”³⁶

The first HSPA report for Belgium was published in 2007. The most recent and fourth report, published in 2019, contains 121 indicators representing five dimensions of the health system: quality, accessibility, efficiency, sustainability and equity, with quality of care further subdivided into five

sub-dimensions (effectiveness, appropriateness, safety, patient-centeredness, continuity). The evaluation is applied to five domains: preventive care, mother and newborn care, mental healthcare, care for the elderly, and end of life care.

The value of the indicator at national level (level and trend) is compared to targets, to results from EU-15 countries or to standards of care. In the absence of these, the evaluation is based on expert opinion. Also regional differences are analysed.

1.2.2 Research questions and study approach

The general aim of the report, which is the analysis of equity in healthcare access, use and financing, can be detailed into the following **research questions**:

- Is there inequity in healthcare access and use and how has it evolved over time?
- Is there inequity in healthcare financing and how has it evolved over time?

Equity in healthcare use

For the evaluation of equity in healthcare use, differences in use must be corrected for needs. This correction entails two crucial steps: first, the definition of needs, and second, the method to correct for needs. Both elements are elaborated in detail in this report. Especially the method to correct healthcare use for healthcare needs and the corresponding results are the main contribution of this report to the existing literature on inequity in healthcare use in Belgium.

In the current report, the evaluation of equity in healthcare use is limited to a subset of indicators defined in the KCE HSPA report of 2019. The selection of indicators was made based on the availability of data. We will focus on the horizontal equity principle and assume that, on average, the vertical equity principle is satisfied, as without diagnostic information in our data (see sections 1.3.1 and 2.3), it is difficult to verify the appropriateness of received



care at the individual level. In Chapter 3 of the KCE HSPA report, macro level indicators for appropriateness of care are evaluated.³⁶

Equity in healthcare access

As mentioned before, healthcare use is often used as a proxy for access. However, it is only a partial interpretation of healthcare access as it can hide unmet needs for financial or other reasons. Therefore, self-reported unmet needs for medical and dental care due to financial reasons will be assessed as it is a critical indicator of access to healthcare services.

Equity in healthcare financing

For the evaluation of equity in healthcare financing in terms of out-of-pocket payments, we follow the methodology proposed by the WHO European Region in its series on financial protection.³⁷ Protection from financial hardship is measured by two indicators: the incidence of catastrophic and impoverishing out-of-pocket payments. These are the first results for Belgium applying the WHO-methodology.

A second approach to evaluate equity in healthcare financing is based on an assessment of the redistributive effect of the different financing sources of public health insurance as well as of overall payments for public health insurance.

1.3 Data sources

The KCE Health System Performance Assessment has a tradition of studying indicators making maximal use of routine data. No new data collection is undertaken, but existing data sources are exploited, which preferably are collected in a similar format in the future. This allows for a revaluation of the same indicators when an update of the HSPA is undertaken.

For this report, we assessed the different datasets used in the HSPA reports on the following prerequisites:

1. The data are recorded at the household or individual level. In order to assess inequity in healthcare use or financing, micro-level data are required. This is necessary to get an understanding of the association between for example healthcare use, healthcare needs and socioeconomic status. Information on these complex associations is necessarily lost when using aggregate information at the level of an income or education group.
2. The data allow to compute a range of indicators in the KCE HSPA report that capture important aspects of healthcare use and healthcare out-of-pocket payments.
3. The data contain information on healthcare needs, sociodemographic and socioeconomic characteristics.
4. The data contain information on healthcare supply factors (i.e. density of medical doctors, availability of hospital services).
5. The data contain information on social contributions, taxes and other sources to finance healthcare.
6. The data are representative for and generalizable to the Belgian population.

There is no standalone dataset that satisfies all conditions. The Health Interview Survey (HIS)²⁷ is a potentially interesting data source because it satisfies most of the above requirements. However, at the time the current study started, the HIS of 2013 was the most recently available year which was considered too outdated. Therefore, the HIS is not further considered in this report.

A coupling between multiple datasets was necessary. Data from the European Union Statistics on Income and Living Conditions (EU-SILC) form the backbone of the coupled database. These data are annually collected and made available by Statistics Belgium. For every respondent in the EU-SILC, the available information is enriched with additional data from the InterMutualistic Agency (IMA-AIM – “*InterMutualistisch Agentschap*”/ “*Agence InterMutualiste*”), the Crossroads Bank for Social Security (KSZ-BCSS – “*Kruispuntbank van de Sociale Zekerheid*”/ “*Banque Carrefour de la*



Sécurité Sociale) and the National Institute for Health and Disability Insurance (RIZIV-INAMI – “*Rijksinstituut voor ziekte- en invaliditeitsverzekering*”/“*Institut national d'assurance maladie-invalidité*”). The coupled dataset satisfies all prerequisites listed above and is denoted in what follows the EU-SILC/IMA-AIM data.

In addition, micro-data from the Household Budget Survey (HBS) are used to compute the indicator on catastrophic and impoverishing out-of-pocket payments. This indicator can also be calculated from the EU-SILC/IMA-AIM data, but internationally the HBS is the primary data source to calculate this indicator.

1.3.1 EU-SILC/IMA-AIM data

The EU-SILC/IMA-AIM dataset combines four datasets. Three waves of the EU-SILC – 2008, 2012, and 2016 – are the core of the new dataset. Information from the period 2007-2016 of the three other datasets are coupled to the EU-SILC survey data.

EU-SILC data

The EU-SILC microdata are the reference source for measuring socioeconomic disparities in Belgium (and Europe). The Belgian data are collected by Statistics Belgium. The survey format is harmonized across the EU with small national differences. The sample consists of about 11 000 to 12 000 individuals in about 6 000 households. The EU-SILC data apply a four-year rolling panel structure. This means that every year about three quarters of the sample is recycled and one quarter is renewed. After four years every individual is replaced. To avoid that the healthcare use of some individuals is measured multiple times, we analyse the EU-SILC in four year intervals, i.e. 2008, 2012 and 2016 (most recent wave at the date of

application).^c For more information on the survey design, we refer the interested reader to the Belgian annual quality reports.³⁹

The EU-SILC data contain rich individual and household information for a representative sample of the population residing in Belgium. Detailed, self-reported information is recorded amongst others on education level, activity status, various income sources, housing, possession of goods, wealth, age, sex, municipality of residence, family situation, neighbourhood characteristics, and health status. The data allow to draw up a socioeconomic profile and infer healthcare needs from health status and sociodemographic characteristics.

An additional advantage is that the EUROMOD microsimulation model runs on EU-SILC microdata.⁴⁰ This model is widely used in Belgium and by the European Commission for policy analysis of taxes and social benefits. Using detailed information on the Belgian tax system, EUROMOD simulates personal income taxes and indirect taxes paid by the household for a chosen year.^{41, 42} The EUROMOD model adds consumption profiles to the EU-SILC through an imputation procedure using data from the Household Budget Survey. For more detail on the imputation procedure, we refer the interested reader to De Agostino et al. (2017)⁴³ and Decoster et al. (2014)⁴⁴. Consumption expenditures in different categories (e.g. food, utilities, rent, etc.) are imputed for each household. Researchers at the Research Centre of Public Economics at the KU Leuven, who are part of the developing team behind the imputation procedure, were consulted in running the microsimulation model.

EU-SILC data, however, have their limits. They lack information on healthcare use, out-of-pocket payments, social security contributions – the main source of healthcare financing – and healthcare supply. Therefore, the EU-SILC data were coupled to other data sources.

^c In 2011, a revision of several important questions took place, amongst others the question on unmet needs for medical and dental care, severe material deprivation and activity status. The question on educational attainment was also revised multiple times in the period 2008-2016.³⁸



IMA-AIM data

The InterMutualistic Agency is a partnership of the seven sickness funds. The IMA-AIM brings together data of the different sickness funds in a common format. The IMA-AIM micro-level data are the main information source used to calculate indicators in the KCE HSPA report. An advantage is that the data are not self-reported or limited to a certain registration period, but are continuously collected for administrative use and hence less prone to recall bias. There is no registration of healthcare that is not covered by the public health insurance or used by residents not insured in the public health insurance.

The available information includes detailed individual-level data on the use and expenditures – further subdivided in co-payments, supplements and expenditures chargeable to the public health insurance – of all care covered by the public health insurance (procedures, services, admissions, prescribed medication, etc.). The available sociodemographic and socioeconomic information partly overlaps with the information in the EU-SILC, e.g. age, sex, place of residence; and partly complements it, e.g. specific information on the receipt of a disability or invalidity allowance, and the take-up and use of protection measures in healthcare insurance, such as increased reimbursement status or the system of maximum billing.

Although healthcare consumption is registered in detail, diagnostic information is not recorded. As a proxy for diagnostic information, the presence of a number of health conditions (e.g. cardiovascular disorder, diabetes, asthma, epilepsy, chronic obstructive pulmonary disease, etc.) are derived based on the chronic consumption of specific medication, the billed nomenclature codes, the specialisation of the prescribing doctor or the age of the patient.

IMA-AIM data covering the period 2007 to 2016 are coupled at the individual level to all respondents surveyed in one of the selected waves of the EU-SILC.

KSZ-BCSS data

The KSZ-BCSS routinely collects administrative information from the different branches of the Belgian social security system that can all be linked at the individual level. In order to assess the redistributive effect of healthcare financing (see section 3.2), information on social security contributions from employer and employees is essential as these contributions remain the main source of financing. This information is obtained from the KSZ-BCSS data. The KSZ-BCSS has developed a methodology to calculate gross and gross taxable income in a standardized way combining multiple administrative databases. The difference between both income concepts equals the social security contributions of the employees or retired individuals.

KSZ-BCSS data covering the period 2007 to 2016 at the individual level are linked to all respondents surveyed in one of the selected waves of the EU-SILC.

RIZIV-INAMI data

A precondition for healthcare access and use is service availability. It has been repeatedly shown that differences in the distribution of providers and facilities and differences in medical practices impact on healthcare consumption.^{45, 46} RIZIV-INAMI provides information on the supply of healthcare services. A first source of service availability is annual information on the number of practicing doctors – i.e. doctors who perform more than 1 procedure per year – per 1 000 residents in the Belgian municipalities subdivided in a number of categories (GP, specialists, dentists). For each respondent in the EU-SILC and each category of doctors, we added information on the density of medical supply in the municipality of residence and the average density in the neighbouring municipalities. Second, for each respondent in the EU-SILC, we calculated the distance (as the crow flies) from the geographic centre of the municipality of residence to the nearest hospital site with an emergency department.

RIZIV-INAMI data covering the period 2007 to 2016 are coupled at the level of the municipality of residence to all respondents surveyed in one of the selected waves of the EU-SILC.



1.3.2 Household Budget Survey data

Since 2010, the Belgian Household Budget Survey (HBS) is conducted every two years with the primary aim to track (changes in) consumer behaviour and calculate weights for the Consumer Price Index and national accounts. Micro-data are collected through a combination of interview questions and detailed consumption logs maintained by households on a daily basis.⁴⁷ 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. The Belgian HBS data are collected by Statistics Belgium. Hence, differences remain, which means that international comparisons should be interpreted with caution. HBS data for the year 2012, 2014, 2016 and 2018 were analysed. The sample consists of about 6 000 households. Data from 2010 or earlier were not considered because of interpretational issues, given an important break in methodology, both in survey design and consumption classification between the surveys in 2010 and 2012. For more information on the survey design, we refer the interested reader to the methodological note.^{48, 49}

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) (see Box 3), 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.

All healthcare expenses (COICOP 06) in this period are registered, including expenses that are not covered by the public health insurance, such as certain medicines, glasses, etc. and valued at the amount paid at

consumption (prior to reimbursement if applicable). Despite this extensive registration of healthcare consumption, a number of expenses related to healthcare (e.g. own transport costs to a healthcare provider), which are known to be important for financially vulnerable households, are not registered as a separate category and hence cannot be identified.⁵⁰

Box 3 – The Classification of Individual Consumption According to Purpose (COICOP)

The Classification of Individual Consumption According to Purpose (COICOP) is an international nomenclature developed by the United Nations Statistics Division to classify and analyse individual consumption expenditures incurred by households. This nomenclature is divided into several categories and sub-categories according to the level of aggregation of expenditure. Healthcare expenditures are, for instance, included in the COICOP 06 category.⁵¹ Multiple versions of the COICOP exist, adapted to a region (e.g. the EU), country (e.g. Belgium), or purpose (e.g. use in household budget surveys).

1.4 Limitations

The findings from this study need to be considered in light of its limitations. The analyses and hence results are based on self-reported data which are, for some parts of the study, complemented with administrative data. As is often the case in large-scale surveys, some population groups are not or insufficiently represented. In both surveys used in this study, the survey participants are a representative sample of the population residing in Belgium. 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.⁵²⁻⁵⁵



1.5 Outline of report

The report consists of two main parts. In Chapter 2 inequity in healthcare use is discussed, evaluating selected indicators on healthcare use from the KCE HSPA report (2019).³⁶ This chapter also contains an analysis of unmet needs for medical and dental care. In Chapter 3, inequity in healthcare financing is discussed, evaluating catastrophic and impoverishing healthcare payments as well as the redistributive impact of healthcare financing. The [Supplement](#) to this report contains detailed information on the data, data analyses and results. The overall discussion of the results, the conclusions and policy recommendations are to be found in the Synthesis of this study. The Synthesis and Supplement are published as separate documents on our website. They can be accessed from the same referral page as the current document.

2 (IN)EQUITY IN THE DISTRIBUTION OF HEALTHCARE

Equity in health and healthcare is a national and international policy priority. However, to tackle inequities in health or healthcare, policymakers need a sound understanding of the concept of inequity and its determinants. As we mentioned before (section 1.1) a variety of perspectives on (in)equity exist in the literature. In this report, we define equity in healthcare as equity in healthcare access and define the horizontal equity principle – equal access for equal need – as policy goal. This definition respects justified differences in healthcare use.

However, there is no generally accepted definition or measurement of access and need. Numerous demand- and supply-side factors determine whether access to healthcare is guaranteed, which makes a direct observation of it difficult. Supply-side factors include waiting times, the availability of human resources and healthcare facilities; demand-side factors include socioeconomic and sociodemographic factors, health literacy, insurance coverage, etc. Therefore, because of difficulties in defining and measuring access, equal use for equal need is often measured and analysed as a proxy for access.¹⁶ This is also the approach taken in this report. The available quantitative data (EU-SILC/IMA-AIM) provide information on healthcare use rather than access. The evaluation of equity in healthcare use is done for a subset of indicators defined in the KCE HSPA report of 2019 (see section 2.2 for the indicators and section 2.3 for the data sources).

A second point that requires clarification is what is meant by needs. After all, to go from inequality to inequity, fair inequalities have to be distinguished from unfair ones, and to do so, variables representing healthcare needs have to be defined. The definition of needs and the method to correct differences in healthcare use for needs, are elaborated in section 2.4. We define different scenarios to categorize sources of inequality as fair or unfair, including a scenario where preferences are categorized as fair, which is more closely related to the perspective of equality of access instead of use. The method to correct healthcare use for needs and the corresponding



results (section 2.5) are the core elements of this chapter and constitute the main difference with the approach in previous research on inequity in healthcare in Belgium (section 2.1).

We complement the discussion on inequity in the use of healthcare with a descriptive analysis of unmet needs for medical or dental care for financial reasons (also denoted as postponement of care for financial reasons) in section 2.6. This is a frequently used indicator to assess (financial) accessibility of care. Healthcare is generally considered financially inaccessible when people limit or postpone the use of necessary care because of (excessively) high costs, or when they have to relinquish other basic necessities because they need care. Lower rates of unmet needs for financial reasons are therefore considered indicative for the financial accessibility of healthcare. One limitation is that unmet needs are self-assessed; hence it is impossible to assess whether or not the postponed care is related to an objective need for care (was it necessary or acute?), for how long care was postponed (forgone care or delayed until the receipt of income in the next month?), and whether the postponement is the result of spending money on basic necessities (e.g. food, utilities, rent)^d or on other (non-necessary) consumption.

2.1 What do we know about inequality and inequity in healthcare use for Belgium? Some lessons from previous research

Inequalities in the use of healthcare in Belgium have been documented in previous research. In the following sections we summarize the main results, without being exhaustive. No systematic search of the literature was undertaken to identify all relevant studies. Instead, studies were identified from the authors' knowledge of the topic, from the reference list of each study and through grey literature searching. Studies were included if inequalities in healthcare use in Belgium was the main topic. Studies in

which Belgium was one of many countries to be analysed, were not included. Only studies published in 2008 (first year of data used in this report) or later were selected. The results are structured along type of healthcare.

2.1.1 General practitioner and specialist services

Inequalities in the use of general practitioner (GP) and specialist services have been illustrated for various population groups and by means of different methods.

Hoeck et al. (2013) explored the existence of socioeconomic differences in the use of GP and specialist services among older persons in Belgium and compared the patterns of use with results for the younger population, using pooled data from two waves (2001 and 2004) of the Belgian Health Interview Survey (HIS).⁵⁶ Healthcare use was measured by the number of contacts with a GP or specialist within the last 2 months prior to the interview. A two-part regression model was applied (see [Supplement](#) section 1.1.3.1 for more information on two-part models), making a distinction between probability of use (contact or not) in a first step, and intensity of use (number of contacts) in a second step. GP and specialist contacts were analysed with adjustment for age, sex, education level, living situation, equivalent household income, housing tenure and region. The following indicators were included as need factors: self-assessed health, functional restrictions, and comorbidity (occurrence of 13 chronic diseases). Both in the younger and older population groups, the probability and intensity of use of GP and specialist services were mainly determined by socioeconomic and health status variables. Among the older population, the intermediate income group was more likely to contact a GP and tenants reported more GP contacts. Educational level exerts a strong influence on the probability of contacting a specialist in both population groups, not on the intensity of these contacts. Household income seemed to play a role in the intensity of specialist contacts in the elderly population, but not in the probability of such contacts.

^d In this report, basic necessities are generally referred to as food, utilities and rent. This is in line with the definition of basic necessities when calculating

catastrophic OOPs (see section 3.1). It is clear that this definition is quite narrow and that different normative judgements exist on what basic necessities are and which expenditures they may include.



Hence, the socioeconomic gradient differs between the probability and intensity of use of GP and specialist services. In an earlier study, the same authors found no evidence of socioeconomic gradients in the use of GP and specialist services for the older population when only the probability of use and not the number of contacts was analysed.⁵⁷

Vandenbosch et al. (2016) investigated the relationship between health literacy^e and healthcare use and costs.⁵⁸ For 9 617 members of the Christian Sickness Funds, data from an online questionnaire were linked to their sickness fund records, containing detailed information on healthcare use and costs (for the period 2001-2012). The linked data were analysed by a two-part regression model, making a distinction between probability of use in a first step, and intensity of use or costs in a second step. Healthcare use and costs were predicted as a function of health literacy, while controlling for age, sex, education level, body mass index (BMI) and health behaviours. Healthcare use was measured by the number of inpatient days in general and psychiatric hospitals, the number of one-day stays, the number of doctor consultations (GP and specialists), GP home visits, the number of transports by ambulance, emergency room (ER) visits, and medicine consumption. In general, the study found that low health literacy is related to larger healthcare use and costs. More specifically, low health literacy was associated with more one-day stays, GP home visits, psychiatrist consultations and ambulance transports, and with longer stays in general hospitals. In contrast, health literacy was not significantly related to the number of GP consultations, specialist consultations, psychiatric hospital stays, admissions to one-day surgical clinics or ER visits. The relationship between health literacy and medication use was inconsistent.

^e Health literacy was assessed with the 16-item version of the European Health Literacy Survey Questionnaire, with the items formulated as questions such as “How easy would you say it is to understand your doctor’s or pharmacist’s instruction on how to take a prescribed medicine?” Health literacy scores were computed by coding the responses to the questions and summing the answers. A score of 0 to 8 was considered as indicating insufficient health

Avalosse et al. (2019) analysed inequalities in the use of healthcare services, for a broad range of services, including GP and specialist care.⁵⁹ Their analysis is based on administrative data from all Belgian sickness funds at the individual level (2016), covering the entire population residing in Belgium, linked to fiscal data (median net taxable income in 2016) at the level of the statistical sector^f. The population was divided into five groups, based on the median net taxable income of the statistical sector in which each individual in the IMA-AIM dataset lives. The five groups were defined at the national level as well as at the regional level (Flanders, Wallonia and Brussels). Next, standardised health(care) indicators were defined. A standardized index is calculated for each of the five groups as the ratio of the number of observed events (for example GP consultations) and the number of expected events (based on the size of the population, the specific profile (age, sex and region of residence) of the income group and by applying the corresponding percentages of the reference population). The same methodology has been applied before to the subset of individuals of the Christian sickness fund.^{60, 61}

When applying this indirect standardisation method, the difference in healthcare use between the lowest and highest income groups amounted to 5% in Belgium for GP consultations. GP home visits show an inverse social gradient, with a 15% higher use than expected in the lowest income group and a 17% lower use than expected in the highest income group. This leads to a 38% higher use of GP home services in the lowest income groups compared to the highest income group. The results for specialist consultations show a small inverse social gradient (6% more consultations in the highest income group compares to the lowest income group).

literacy, a score between 9 and 12 as limited health literacy, and a score of 13 or more (up to 16) as sufficient health literacy.

^f Statistical sectors divide municipalities into homogeneous entities (about 20 000) according to several criteria making them reflect similar “neighbourhoods” in terms of socioeconomic, urban and morphological characteristics.



2.1.2 Dental care services

Avalosse et al. (2019) also analysed dental care services.⁵⁹ Children from the lowest income group have a 24% lower use of orthodontic treatment than expected while the use in the highest income group is 17% above expected use. Hence, children in the lowest income group have a 35% lower use than those in the highest income group.

A second indicator related to dental care services is the number of persons without any contact with the dentist in the past three years. The number of persons without any contact is 18% above what is expected for the lowest income groups and 20% below what is expected for the highest income group. Hence, the difference between both groups amounts to 47%.

In Kengne Talla et al. (2013) the 2004 wave of the HIS was used to analyse barriers to dental consultations in Belgium.⁶² The analysis included respondents aged 15 years and older with complete information on dental consultations and the explanatory variables (5 940 respondents). A multivariable logistic regression analysis was applied to assess the association between the self-reported lack of dental consultations during the 12 months preceding the survey and covariates of interest, such as sociodemographic variables (age group, gender, household size), education level, household income, health behaviours, and the presence of a chronic illness. Results were stratified by age group. Almost half of the respondents did not visit a dentist in the past 12 months. The characteristics associated with having no dental visit differ across age categories. For example, in the age category of 15-34 years old, males and two-person households are significantly less likely to visit a dentist while for the age category of 35-54 years old, living in Wallonia and having a low level of education are significant characteristics for lower use of dental care.

2.1.3 Mental care services

In Avalosse et al. (2019) it was found that the number of psychiatric hospital stays was 58% higher than expected for the lowest income group while it was 37% lower than expected for the highest income group.⁵⁹ The difference in use between both groups amounts to 149%.

2.2 Selection of indicators

As mentioned before, this report complements the KCE HSPA report of 2019. To assess the degree and evolution of (in)equity in healthcare use, we selected a number of indicators defined in the HSPA report (see Table 1). The selection of indicators is based on the following conditions:

1. Data availability. The analysis of equity necessitates extensive data at the individual and/or household level (see section 1.3).
2. Relevance. The indicator is relevant to evaluate healthcare use.
3. Small population subgroups. The analysis is conducted using survey data. Indicators that evaluate (appropriate) healthcare use of specific population subgroups, such as pregnant women, newborns or diabetics, cannot be reliably assessed.

In addition to these indicators, we also analysed (the number of) contacts within the healthcare system subdivided by provider (general practitioner (GP), specialist, emergency care, hospital inpatient care, hospital day care). Contacts with healthcare providers is the most widely used indicator in the academic literature on equity in healthcare.

Table 1 presents the selected indicators. Indicator A-4 on self-reported unmet needs for medical or dental care due to financial reasons is analysed separately from the other indicators (see section 2.6).

**Table 1 – Indicators on (in)equity in healthcare use to be analysed in the current study (Indicators from KCE HSPA report)**

| ID | Indicator | Definition |
|-----------------|---|--|
| | Belgian insured residents with contact in the healthcare system in past year (population aged 18 or over) | For 5 types of care providers/settings (general practitioner (GP) ^g , specialist, emergency department, hospital day care, hospital inpatient care): <ul style="list-style-type: none">- at least one contact in the past year- number of contacts in the past year |
| P-4 | Influenza vaccination (population aged 65 or over) ^h | Individuals with influenza vaccination in the past year |
| P-6, P-7 | Breast cancer screening (women aged 50-69) | Women who received at least one mammogram within the last 2 years <ul style="list-style-type: none">- within or outside organised screening programme (all mammograms)- within organised screening programme (mammogram with billing code for screening)- opportunistic screening (mammogram without billing code for screening) |
| P-11 | Regular contacts with dentist (population aged 18 or over) | Individuals with dentist visits in at least 2 of the past 3 years <ul style="list-style-type: none">- all visits- restricted to preventive dental care (billing codes of preventive dental care) |
| QA-4 | Use of antibiotics at least once in the year (population aged 18 or over) | Individuals with at least one antibiotic prescribed in the past year |
| QS-6 | Polymedication (5 or more different medicines) (population aged 65 or over) ^h | Individuals using 5 or more medicines of >80 DDD (Defined Daily Dose) per year. |
| QC-1 | Coverage of global medical record (population aged 18 or over) | Individuals having a global medical record (GMR) with a GP |
| MH-7 | Use of antidepressants (population aged 18 or over) | Individuals with antidepressants prescribed in the past year |

^g Individuals registered in a community health centre are excluded from the analysis of GP care. They use GP services in the community centre, which are not recorded and hence cannot be analysed.

^h Residents of nursing homes are excluded from the analysis as they are not included in the EU-SILC/IMA-AIM sample.



2.3 Data sources and sample

Data sources

The analysis in this chapter relies on the coupled EU-SILC/IMA-AIM data (see section 1.3). The combination of administrative and survey data is considered best practice in the literature as it benefits from the accuracy and detail of the information on healthcare use (from administrative sources) and the comprehensiveness of information on self-reported socioeconomic status and health status (from survey data).¹⁶ In Box 4 the main strengths and weaknesses of the EU-SILC/IMA-AIM data to analyse (in)equity in healthcare use are discussed.

Box 4 – Strengths and weaknesses of EU-SILC/IMA-AIM data to analyse (in)equity in healthcare use

Strengths

- The combination of administrative and survey data provides accurate and detailed information on medical care use, medicine use and entitlements to welfare benefits (from IMA-AIM), municipality-level information on healthcare supply (from RIZIV-INAMI) and extensive self-reported information on socioeconomic status, sociodemographic characteristics and health status (EU-SILC). The combination of this information is considered essential to analyse inequity in healthcare use, but is rarely available in one dataset.

Weaknesses

- Certain population groups are not included, e.g. elderly in nursing homes, homeless individuals, individuals in prison. Information for children aged below 16 years is limited.
- The small sample size (11 000 to 12 000 respondents) impedes analysis of small subpopulations (diabetics, newborns, pregnant women), which excludes certain indicators from the analysis.

- Changes in survey questions over time (especially between 2008 and 2012), e.g. on activity status, educational attainment or unmet needs make it more difficult to interpret trends over time.
- Limited information on health status.

Opportunities & threats

- Coupling of datasets can be repeated in the future, but is a time consuming procedure.
- Given the ad hoc nature of the coupled data, an international comparison is difficult.

Sample

The sample consists of all individuals in the EU-SILC waves 2008, 2012 and 2016 (each year is analysed separately), with three main exclusions:

1. Individuals for which no national insurance number could be retrieved are excluded as no coupling is possible between EU-SILC and IMA-AIM data.
2. Individuals that are not registered in the IMA-AIM data are excluded. These are mainly residents with EU citizenship, so likely working or having worked for an international organisation and not insured through the Belgian public health insurance.
3. Individuals below 18 years. Important variables on health status are only recorded for respondents aged 16 or older. We have applied an age limit at 18 years, an age at which one is considered to be responsible for one's choices and behaviour.

In order to assess inequity in healthcare use of the selected indicators (see Table 1), they need to be replicated on the EU-SILC/IMA-AIM sample. To have confidence in the representativeness of the survey sample and generalizability of the results, we performed a validation by checking whether the population (macro) values calculated on the entire IMA-AIM database could be reproduced using the much smaller EU-SILC/IMA-AIM



sample. The population values were obtained from the KCE HSPA report or the IMA-AIM atlas.^{36, 63}

There is a close match between the population values from the IMA-AIM data and their reproductions calculated on the EU-SILC/IMA-AIM sample, both in the absolute level as in the trend over time (see [Supplement section 1](#)). The results from the EU-SILC/IMA-AIM differ only a few percentage points from the available population values for the indicators on GP consultations, coverage by a global medical record (GMR), regular dentist visits, use of antibiotics, use of antidepressants, influenza vaccination (population 65+), and polymedication (population 65+). For breast cancer screening among women aged 50-69, the screening rate calculated in the EU-SILC/IMA-AIM subset diverges from the population rate. The rate in the EU-SILC/IMA-AIM data is 4 to 8 percentage points higher and shows a downward trend over time, while the population rate is more or less stable in the period 2008-2016. For the other indicators, no population figures are available.

Main selected variables

Descriptive statistics and more explanation on the variables used in the analysis can be found in the [Supplement](#) (section 1.1.1). In this section we list the main variables. They can be classified in different groups:

1. Information on **healthcare use** to calculate the indicators in Table 1. The information includes amongst others billing codes of procedures, treatments and consultations; the Anatomical Therapeutic Chemical (ATC) Classification and consumed quantity of prescribed medication; professional title of prescribing/consulting doctor; classification of hospital stay in day care or inpatient stay.
2. Information on **health status**. The notion of healthcare needs is a debated issue and different interpretations exist.^{4, 16, 64} Existing empirical research, generally defines healthcare needs in terms of an individual's current health status (or proxies thereof),^{18, 65-69} It is clear that there is no perfect link between current health status and healthcare use, as certain illnesses are incurable and do not lead to increased care use or high levels of care use may have improved the current health status. In section 2.4.3, we discuss different scenarios to define healthcare needs in a narrow or a broad sense. The information on health status includes amongst others age, sex, self-assessed health status (very good / good / fair / poor / very poor), self-reported presence of a chronic disorder (yes / no), self-reported limitations to daily activities (no / minor / major), presence of specific health condition (e.g. diabetes, cardiovascular disease, asthma, etc.) derived from prescribed medication useⁱ, and administrative information on the receipt of an allowance for incapacity to work (for a period less than 1 year), an invalidity allowance (incapacitated from work for a period exceeding 1 year), or a disability allowance (due to physical, mental or other impairment). Information on health conditions derived from medication use is only available for individuals seeking care. Self-reported health variables are subjective in nature, and might depend on perceptions of health, which can differ between population groups. Certain population subgroups appear to use systematically different thresholds to report health status, despite equal levels of true health.^{16, 17} Nonetheless, research has repeatedly shown that self-assessed health is a reliable, valid and comprehensive measure of health. It has for example strong predictive power in explaining mortality.¹⁶ The interpretation between minor and major limitation to daily activities is prone to interpretation, therefore we decided to combine the information on presence of a chronic disorder and limitations to daily activities in one new variable (no disorder, no

ⁱ These are the so-called pseudo pathology groups calculated by IMA-AIM. For more information, we refer to the documentation of the Permanent Sample of IMA-AIM.⁷⁰



limitations / disorder, no limitations / no disorder, limitations / disorder and limitations).

3. Information on **socioeconomic status**. The information includes amongst others highest obtained educational degree (no degree or primary / lower secondary / upper secondary / tertiary), current activity status (student / part-time employee / full-time employee / self-employed / unemployed / inactive / retired), income, material deprivation, receipt of welfare support ("*leefloon*", "*inkomensgarantie voor ouderen*", "*gewaarborgd inkomen*", "*hulp van OCMW*" / "*revenu d'intégration sociale*", "*revenu garanti pour les personnes âgées*", "*revenue garanti*", "*assistance d'un CPAS*").

The *income* information in the EU-SILC is very detailed. Unless otherwise specified, we use the equivalized^j net disposable household income in this chapter, i.e. the income after direct taxation, social security and welfare transfers that a household has available for spending and saving. In addition, income groups are derived: at risk of poverty, lower middle class, core middle class, upper middle class, top middle class.^k

Material deprivation refers to a state of economic strain. It reflects the enforced inability (rather than the choice not to do so) to afford one or more of the following nine items: (1) to pay rent or utility bills; (2) to keep the home adequately warm; (3) to face unexpected expenses; (4) to eat meat, fish or a protein equivalent every second day; (5) a week's holiday away from home; (6) a car; (7) a washing machine; (8) a colour TV; (9) a telephone.²⁹ We use the terms moderate and severe material deprivation to indicate the inability to afford, respectively, at least 2 and 4 out of the 9 items.

4. Information on **sociodemographic characteristics**: household composition (single / single parent / couple without children / couple with children / other), country of birth, region of residence, level of urbanization (dense / medium / thin).
5. Information on **insurance status and protective measures**. Protective measures have been created in the public health insurance system to reduce financial barriers in healthcare use (for more background on these measures see also section 3.1.1). The information includes amongst others eligibility to increased reimbursement status, receipt of reimbursements in the maximum billing system, entitlement to the status chronic illness.
Increased reimbursement status is frequently used as an indicator of the socioeconomic position (also in the KCE HSPA reports) as it is based on a mixture of income and other socioeconomic (e.g. receipt of welfare support) and sociodemographic (e.g. being widow or single parent) characteristics. An important limitation of this indicator is the non-take-up of the status. The status is not automatically granted and KCE report 309 showed that not everybody eligible to the status actually applies for it and is a registered beneficiary.⁷³
6. Information on **healthcare supply**. The information includes amongst others the density of healthcare providers (GPs, specialists, dentists) per 10 000 population in a municipality, distance to a hospital site with an emergency department.

^j The modified OECD equivalence scale is used (1 for the first adult, 0.5 for individuals aged 14 or more, 0.3 for individuals aged 13 or less). This scale is the default choice for the analysis of the EU-SILC by Eurostat.

^k Households are subdivided in five income groups relative to the median^{71, 72}: at risk of poverty when income is below 60% of the median, in the lower

middle class when income is between 60% and 80% of the median, in the core middle class when income is between 80% and 120% of the median, in the upper middle class when income is between 120% and 200% of the median, in the top middle class when income is above 200% of the median.



2.4 Methodology – from (in)equality to (in)equity

Inequalities are difficult to interpret. What does it mean that a higher proportion of individuals in the lower middle class have consulted a GP in the past year relative to individuals in the upper or top middle class? Are they more likely to be in ill-health? Do individuals in the upper or top middle class substitute GP care for specialist care? Do individuals in the lower middle class consult a GP frequently enough given their health needs?

2.4.1 *Poverty makes sick, sickness makes poor*

Not much can be deduced without information on health status. Abundant research exists on the association between socioeconomic status – i.e. income level, educational attainment, activity status – and health status. This association is demonstrated amongst others by the results of the Belgian Health Interview Survey.²⁷ On the one hand, an individual's income, educational attainment and activity status might influence one's health status (and healthcare use), through e.g. capacity to pay for care, health literacy, physically demanding labour, or employer-sponsored hospital insurance. On the other hand, one's health status affects the potential to generate income, the ability to be active on the labour market. Hence, individuals in ill-health are overrepresented in population groups with lower income or inactive in the labour market. In addition, the interpretation of the relation between education and health status might be complicated by intergenerational differences in educational attainment.^{74, 75} The share of individuals obtaining a degree in tertiary education has increased significantly over time, implying that older persons whose health is on average worse compared to younger persons, are also on average less educated than their younger counterparts.

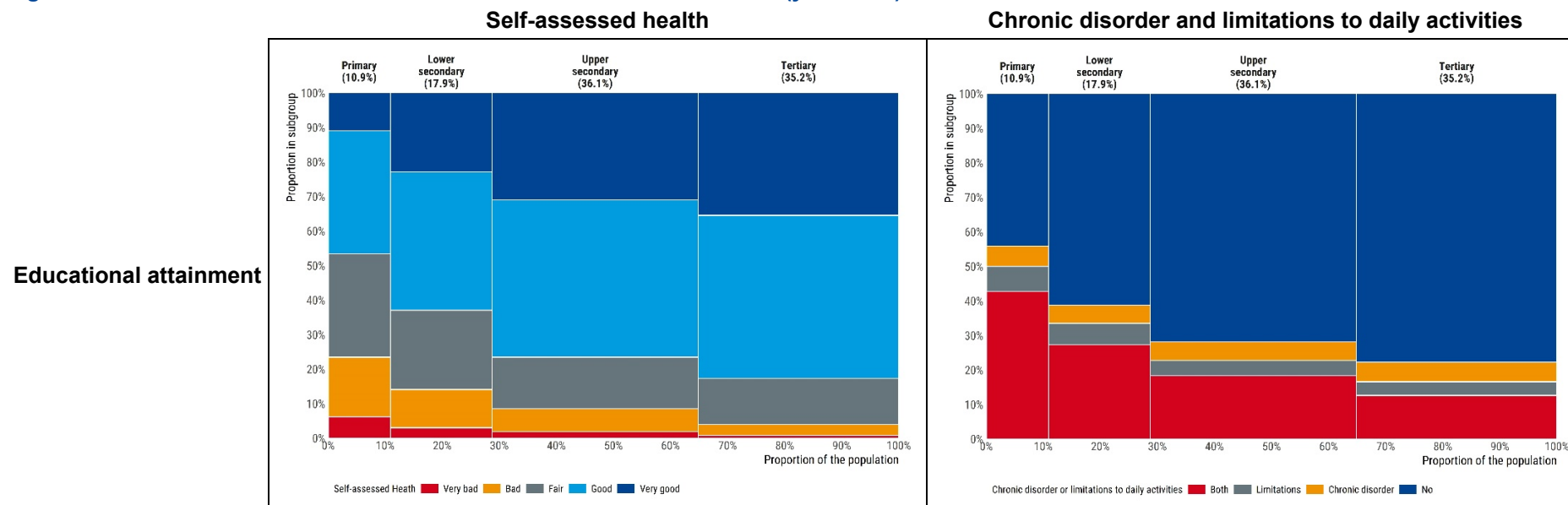
Figure 2 illustrates the association between socioeconomic status and health status with EU-SILC/IMA-AIM data from 2016. Four indicators for socioeconomic status – i.e. highest obtained education degree, income group, material deprivation and activity status – are crossed with two indicators for health status – self-assessed health and presence of a chronic disorder and limitation to daily activities. The horizontal axis shows the cumulative proportion of the population. The width of each socioeconomic

subgroup is in proportion with its population share. The vertical axis shows for each socioeconomic subgroup the distribution of individuals by health status. For example, when looking at the association between educational attainment and self-assessed health, we find that 10.9% of the population has a degree of primary education in 2016, while 35.2% has a degree of tertiary education. In the subgroup with primary education about 25% of the individuals reports bad or very bad self-assessed health and 45% perceives their health to be good or very good health. In the subgroup with tertiary education 5% of the individuals has bad or very bad health and over 80% has good or very good health.

The general picture for the two indicators of health status is clear: individuals who are better educated, have higher incomes, do not experience material deprivation or are at work are in better health relative to individuals who are less educated, have lower incomes, experience material deprivation, are inactive or unemployed. A similar picture emerges in other years. Three additional remarks can be made. First, the health status among individuals at risk of poverty and in the lower middle class appears to be relatively similar. The main difference between both groups is therefore not related to health status, but capacity to pay, i.e. individuals at risk of poverty have lower income and a higher risk of material deprivation. Second, the health status of individuals receiving an invalidity allowance (i.e. allowance that one receives after being unable to work for more than 1 year) is particularly bad. Third, the health status of individuals in unemployment has improved over time, while those for individuals in invalidity has worsened (results not visible in Figure 2); in addition the population share of individuals in invalidity has increased.

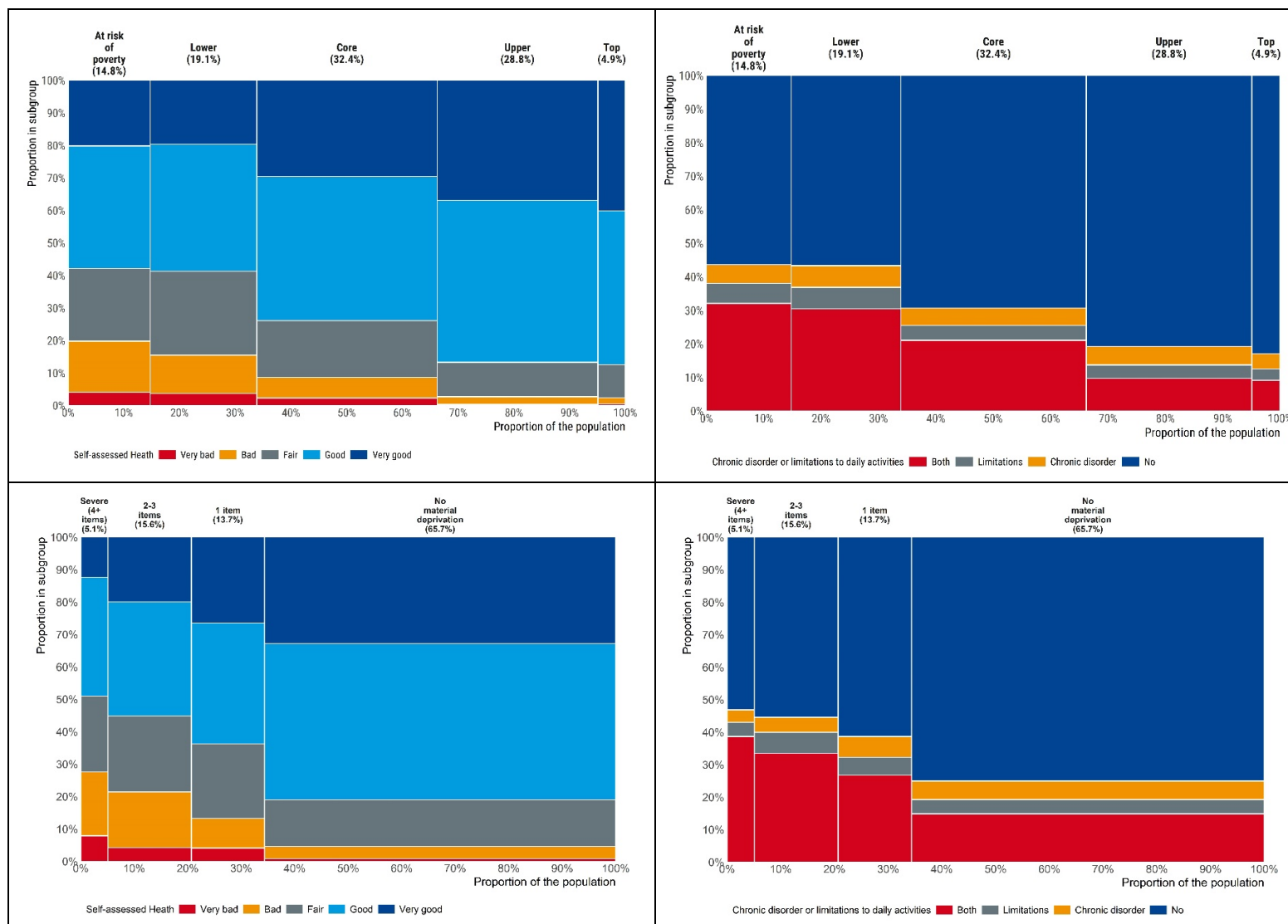


Figure 2 – Association between socioeconomic status and health status (year 2016)



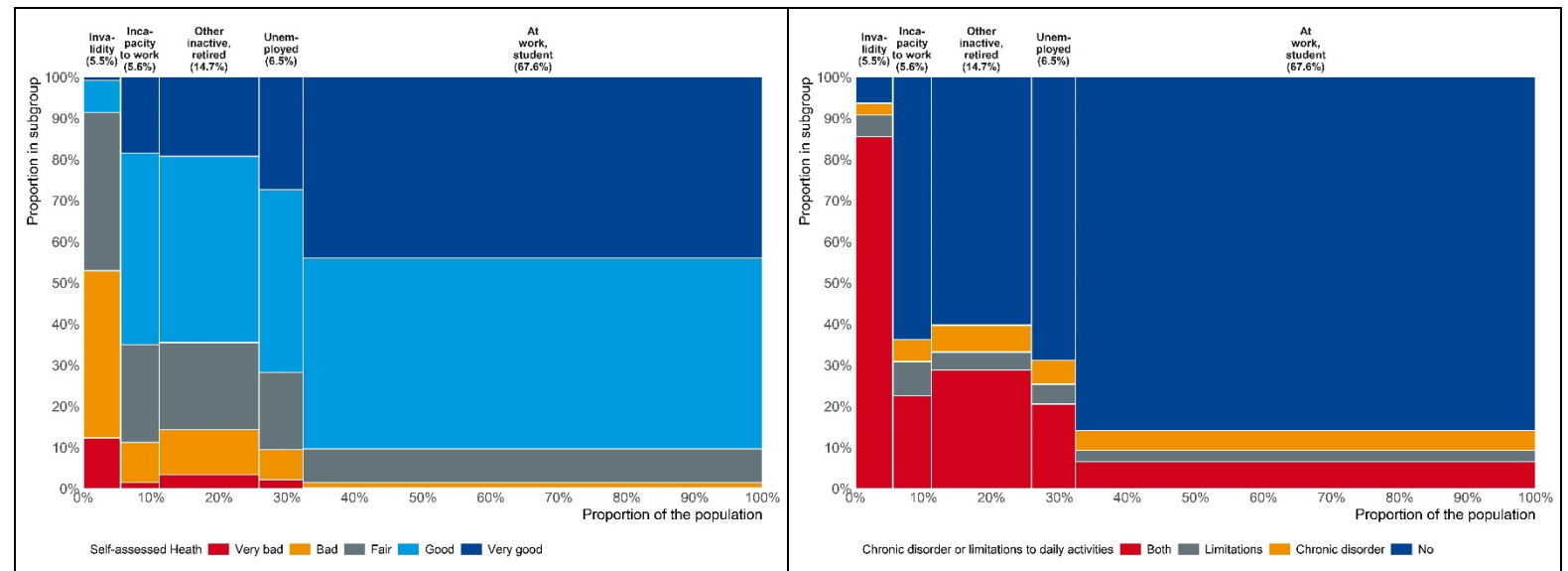


Income





Activity status (population 18-64)



2.4.2 From (in)equality to (in)equity – how to proceed?

If it is accepted that certain differences in healthcare use can be considered fair, e.g. if they (appropriately) reflect differences in healthcare needs (see section 2.4.3), then the perspective changes from (in)equalities to (in)equities. The horizontal equity principle posits that an equitable health system should provide equal treatment of people with the same health needs, irrespective of other characteristics such as income, race, place of residence, etc.

The methodology we apply to evaluate the horizontal equity principle, is based on the fairness gap as proposed by Fleurbaey and Schokkaert (2009, 2011),^{1, 12} which is a generalization of the evaluation of horizontal inequity in healthcare as studied amongst other by the OECD.^{18, 68} A more formal description of the methodology is given in Box 5, in the main text we provide the intuition behind the methodology. The idea is the following. Each individual's healthcare use (e.g. GP consultation, influenza vaccination,

regular dentist visits) is compared to a norm. This norm is not the same for each individual; it is adjusted to the individual's healthcare needs (or more generally to all characteristics that are considered to lead to fair differences in healthcare use), but it is blind to the individual's socioeconomic position (or more generally to all characteristics that are considered to lead to unfair differences in healthcare use). Hence the same norm applies to two individuals with the same health needs, but a different income or education level.



To create the needs-adjusted norm value, a reference (socioeconomic) profile is applied, to neutralize disparities that are considered to be unfair.¹ The chosen reference profile in this study reflects a person having all the opportunities (time, resources, cognitive ability, availability of care, etc.) to make an appropriate decision with respect to healthcare use. The reference person has a high income (household equivalized net disposable income at 200% of the median, the boundary between the upper and top middle class) – hence not at risk of poverty and without material deprivation –, has obtained the highest educational degree (tertiary education) and is working as full-time employee. For a full list of reference values, we refer to the [Supplement](#) (section 1.1.4.2). Hence, the need-adjusted norm value in healthcare use reflects the average use of individuals whose socioeconomic profile perfectly matches the reference profile, further subdivided by healthcare needs.

The gap between each individual's actual healthcare use and the needs-adjusted norm is called the fairness gap. This gap will be evaluated. It can be positive or negative, implying that an individual has, respectively, a higher or lower healthcare use than the norm. Given that the needs-adjusted norm value reflects the healthcare use of an individual with the same health status, but the reference socioeconomic profile, any deviation is a violation of the horizontal equity principle – equal treatment for equal needs – and is to be considered as inequitable.

¹ Traditionally, population average values were chosen as reference values under the premise that “the system gets it right on average”, but Fleurbaey and Schokkaert have argued that it might be more plausible to select reference values that represent the best or optimal situation.¹ However, it is not always clear what the best situation is with regard to healthcare use as it

Box 5 – The fairness gap

The proposed methodology is based on the fairness gap as proposed by Fleurbaey and Schokkaert (2009, 2011),^{1, 12} which is a generalization of the indirect standardization method used to evaluate the horizontal equity principle in healthcare use as studied amongst others by the OECD.^{18, 68}

Hypothetical distribution of healthcare use

In first instance, a hypothetical (needs-adjusted) distribution of healthcare use is simulated which neutralizes differences in healthcare use that are considered to be unfair and accounts for differences that are considered to be fair.

Step 1: estimate the relation between healthcare use and explanatory variables

More specifically, a relation is estimated between healthcare use – as captured by one of the proposed indicators – and a range of variables that potentially affect healthcare use, such as health status (self-reported health, age, sex, etc.); socioeconomic and sociodemographic features (education, activity status, income, material deprivation, increased reimbursement status, household composition, etc.); (place of) residence; and supply side factors (density of doctors, distance to hospital).

We rely on the explanatory model proposed by Fleurbaey and Schokkaert (2009). We use a parametric model to empirically estimate the relation and assume for simplicity that there are no interactions between the explanatory factors. The empirical specification can be defined as follows:

$$HC_i = F(\alpha + \beta N_i + \gamma SES_i + \delta R_i + \theta z_i) + \varepsilon_i$$

would require an evaluation of the appropriateness of healthcare use. Moreover, for each indicator, the best situation could be represented by a different set of reference values. For reasons of clarity and to avoid the debate on appropriateness of care, we opt for one reference set for all indicators in our evaluation.



in which HC_i refers to the individual's value for the healthcare indicator, N_i to health status, SES_i to the socioeconomic/sociodemographic characteristics, R_i to the (place of) residence, z_i to the supply side factors, ε_i is the residual term and $\alpha, \beta, \gamma, \delta, \theta$ are parameters and $F(\cdot)$ is the functional form of the empirical model, which is a probit for binary indicators (such as having at least one GP consultation in the past year or not) and a truncated negative binomial for count variables (such as the number of GP consultations in the past year given at least one consultation).

Step 2: distinguish between needs-related and other variables in healthcare use

To simulate the hypothetical distribution, two additional steps are necessary. First, a distinction has to be made between explanatory factors that can be considered to lead to fair differences in healthcare use, and those that lead to unfair differences. We assume that differences related to healthcare needs lead to fair differences. Different scenarios are used to define healthcare needs (see section 2.4.3). The **baseline scenario** follows the traditional approach in the literature in which healthcare needs are interpreted in a narrow sense, i.e. the observed differences in health status and co-morbidities.

Step 3: determine reference values for other variables

Second, a set of reference values is needed to neutralize the effect of explanatory factors that are considered to be unfair (see section 2.4.2).

Step 4: estimate the relation between healthcare use and needs-related variables plus other variables at reference value

The hypothetical distribution \widehat{HC}_i can now be estimated as the expected value resulting from the explanatory model when applying the observed values of the explanatory factors considered to lead to fair differences (e.g. health status) and fixing the explanatory factors considered to lead to unfair differences at a reference value (e.g. income level).

It is, however, not that clear how to deal with the residual term ε_i while computing the expected value. The residual term reflects individual

idiosyncrasies and can be interpreted as individual preferences, available information, unmeasured barriers in access, unmeasured characteristics such as lifestyle, or more detailed information on health needs or social background. In addition, the residual term takes up the effect of measurement errors. Hence, both fair and unfair sources of inequalities are incorporated in this term. Fleurbaey and Schokkaert (2009) propose to treat the residual term once as a fair source – evaluated at its estimated value – and once as an unfair source – evaluated at a reference value 0. In line with previous research by the OECD^{18, 66-69, 76-79}, our baseline scenario treats the residual variation as an unfair source of differences; however, in the detailed results for each indicator (see [Supplement](#), sections 1.2 to 1.14), the alternative results are provided as well.

Fairness gap

In second instance, we compute the fairness gap FG_i for each individual i . It is obtained as the difference between the actual value HC_i and the expected value \widehat{HC}_i .

$$FG_i = HC_i - \widehat{HC}_i$$

2.4.3 How to measure healthcare needs? A scenario analysis

Differences in healthcare use are considered fair if they are related to healthcare needs, and unfair if they result from access difficulties related to e.g. capacity to pay, health literacy or any kind of discrimination. While the horizontal equity principle is conceptually clear and an empirical strategy is available, the measurement of healthcare needs remains a difficult issue. Certain characteristics – at least in the imperfect way that we can measure them – combine elements of needs and access difficulties. In Figure 2, the strong association between self-reported health status and socioeconomic status (income, education, material deprivation) was illustrated. Another example is self-employment. Individuals who choose to be self-employed are aware that their protection against income loss due to sickness is less generous relative to individuals who work as employees. An assessment of the current and future health status is probably a determinant in the choice for self-employment. Therefore, being self-employed provides information on health status that is likely not captured by the variables on health status



at our disposal (see section 2.3). This effect of health status will (mistakenly) be attributed to being self-employed.

It is therefore advisable to perform a sensitivity analysis on the interpretation of healthcare needs. Different scenarios were developed that define healthcare needs in a narrow or a broad sense, including socioeconomic variables (information on the different scenarios is provided in Box 6). The main findings that will be discussed in this chapter are drawn from the baseline inequity scenario. In this scenario, the standard approach in the literature is followed with a narrow interpretation of healthcare needs as the observed differences in health status and co-morbidities. Results from other scenarios can be found in the detailed results section in the [Supplement](#) (section 1) and are mentioned in the main text when they add to the discussion of the results.

An additional issue is that – given the available information – we are not able to determine whether or not the use of care was appropriate or optimal or that, on the other hand, under- or overconsumption took place. As our main focus is on an equitable distribution of healthcare use, we will disregard such efficiency considerations. Therefore, variables related to the place of residence (such as region and urbanization) and registration in a community health centre are considered as mere control variables and are treated in the same way as fair differences; i.e. they do not lead to inequity. Place of residence variables capture a wide range of effects, going from regional differences in societal preferences, differences in care organisation that lead to efficiency differences, regional practice variation, population ageing, supply availability, etc. Care in community health centres is organised and financed in a different way, with a multidisciplinary approach (jointly providing GP care, nursing care, psychological care, physiotherapy, dietary advice) and without out-of-pocket payments for the patient at the point of use. Moreover, these centres are not uniformly available throughout the country.⁸⁰ Variables that are more directly related to healthcare supply, such as the density of or distance to healthcare providers, are considered to capture access barriers and are hence treated as unfair differences in healthcare use.

Box 6 – Different scenarios to interpret healthcare needs

We propose four different scenarios to define healthcare needs.

1. **Inequality scenario.** No adjustments to healthcare needs are made. This scenario is relevant for certain types of preventive care (e.g. preventive dental care), where one could argue that differences in health needs are irrelevant, as prevention is important and valuable irrespective of needs in order to preserve one's health status.
2. **Baseline inequity scenario.** Healthcare needs are interpreted in a narrow sense, i.e. the observed differences in health status and co-morbidities (age, sex, self-reported health status, health conditions derived from prescribed medication use, invalidity, disability, incapacity to work; see also section 2.3). This scenario is in line with the traditional approach in the literature.^{18, 65-69} If health status could be adequately measured, this approach would suffice. However, the limited information on health status and the difficulty to measure all aspects of it, justify alternative, broader definitions of healthcare needs.
3. **Net effect needs-access scenario.** Healthcare needs are interpreted more broadly. The effect of socioeconomic status and insurance status on healthcare use is seen as a trade-off between the effect of healthcare needs (i.e. a higher use of care for individuals with higher healthcare needs) and the effect of access barriers (i.e. a lower use of care for individuals facing access barriers). For example, severe material deprivation is associated with higher healthcare needs (see Figure 2), which might lead to higher care use; individuals with severe material deprivation are at the same time confronted with more stringent (financial) barriers to access healthcare, which might lead to lower use of healthcare. In the net effect needs-access scenario, socioeconomic status and insurance status are considered as a proxy for needs in case the needs-effect dominates the access-effect. In that case, the higher use by these individuals is considered fair.



Baseline-residual scenario. In addition to the baseline definition of healthcare needs, the variability left unexplained by the regression model is considered a fair source of inequalities. The unexplained variation can be interpreted as the combined effect of individual preferences, availability/absence of information, unmeasured barriers in access, unmeasured factors such as lifestyle, unmeasured aspects of health needs, social background, luck, etc. Given that unmeasured preferences are treated as a fair source of differences, this scenario is more in line with equality of access.

2.4.4 How to report the results on inequity?

Once the fairness gap is calculated at the individual level, there are different ways to evaluate inequity in the distribution of care use and present our results. One can compute averages of the fairness gap at the level of the population of various population subgroups and assess differences between groups. One can summarize the distribution of the fairness gap using different disparity measures.^m Differences between groups and summary scores of disparity measures can be expressed in relative or absolute terms (see Box 7 on the difference between absolute and relative disparities). These options entail different underlying value judgements. For the discussion in the main text, we choose to focus on absolute inequalities and two sets of results. For a more complete perspective on inequity in healthcare use, we encourage the interested reader to find additional results in section 1 of the [Supplement](#) (see Box 8 for more information on the available results in the Supplement).

First, inequities are expressed in absolute terms. Most of the indicators evaluated in this report are binary in nature, meaning that you can have two outcomes (e.g. participation or not in preventive care, contact or not with a dentist, use or not of antidepressants, etc.). This means that the same indicator can be expressed in terms of attainments (i.e. participation, contact, use, etc.) or reverse, as shortfalls (non-participation, absence of

contact, non-use, etc.). While absolute inequity is the same in either definition, it has been shown that the framing as shortfall or attainment might lead to different conclusions with respect to equity when using a relative disparity measure (an example thereof can be found in the Supplement (section 1.1.5.1)).⁸⁴ For this reason, we present absolute inequities.

Second, two sets of results are reported: the deviation between the average fairness gap in the population and the average fairness gap in a subgroup of interest (see section 2.5.2) and an assessment of systematic socioeconomic inequity in the fairness gap using the absolute concentration index (see Box 9 and section 2.5.3).

Box 7 – Absolute and relative disparity measures

Disparities can be measured in relative or absolute terms. Relative and absolute disparity measures have different underlying value judgements. They may yield different or even opposing patterns of the evolution of (in)equity or (in)equality over time and taken together, they provide a more accurate and complete description.^{84, 85} Disparity measures often have an absolute and relative version.⁸⁶

Absolute disparity is about differences in events between population groups. The magnitude of the disparity is expressed in the same measurement unit as the indicator (e.g. number of visits, prevalence, vaccination rate, cases, etc.). An equal absolute change (addition or subtraction) leaves (in)equality or (in)equity calculated by an absolute disparity measure unchanged, i.e. the disparity score remains the same.

Relative disparity is about the ratio of an event occurring in one group relative to a reference. This reference can be another population group, the population mean, or any other norm. Relative measures are invariant to an equiproportional change, i.e. the same percentage increase or decrease. They are more frequently used to address (in)equalities or (in)equities than absolute measures.

^m An overview of different disparity measures can be found amongst others in Harper and Lynch (2006, 2007) and Spinakis et al. (2011).⁸¹⁻⁸³



Box 8 – Overview results in the Supplement

For each indicator, the following additional results can be found in the [Supplement](#), sections 1.2 to 1.14:

- The **evolution of the indicator over time** for the population as well as various subgroups based on income, educational attainment, self-assessed health and other groups of interest (see also section 2.5.2 for an overview of the subgroups). It is important to understand the evolution as changes in socioeconomic inequality and inequity can be related by diverging trends in use across the different subgroups.
- The full **output of the regression model** underlying the calculation of the fairness gap. This is the outcome of step 1 of the methodology as explained in Box 5. Both the output of a pooled regression model and year-specific models are given and provide insight into the association between healthcare use and various characteristics. The year-specific models are used to calculate the fairness gap.
- Analysis of the evolution of inequity in needs-corrected healthcare use (fairness gap) over time in the population using the Gini index (see section 1.1.5.2 of the [Supplement](#) for more information on the Gini index). At this point no subdivision in subgroup or ranking by socioeconomic characteristic are applied. Both the absolute and relative version (see Box 7) of the Gini are used and different scenarios are assessed (see Box 6).
- Deviation in the average fairness gap between the population and a subgroup of interest, for the different scenarios (see Box 6).
- Analysis of the evolution of systematic socioeconomic inequity using the absolute concentration index (see Box 9), for the different scenarios (see Box 6).

Box 9 – The concentration index

The concentration index is a standard disparity measure for assessing socioeconomic inequalities and inequities in the economics literature.^{17, 18, 67-69, 79} It is related to the Gini coefficient. The concentration index measures the extent to which the healthcare indicator, e.g. having a contact with a GP or specialist in the past year, is concentrated among individuals when those individuals are ranked by socioeconomic status, i.e. from a low income to a high income or from a low educational attainment to a high educational attainment. The concentration index does not single out one specific income or education subgroup, but uses the entire distribution of income and education levels to summarize the disparity in a single score.

The summary score can be positive or negative and can be compared over time. Positive values indicate higher concentrations of the evaluated indicator in the upper middle or top of the (income or education) distribution, while negative values imply a higher concentration of the evaluated indicator in the bottom/lower middle of the (income or education) distribution. A zero value indicates the absence of systematic inequity by socioeconomic status.

2.4.5 Limitations

The presented methodology allows for a robust quantitative analysis of (in)equity in healthcare use with a database that is unique in Belgium. There are, however, two important limitations. First, no information is available on the quality of the provided healthcare services. Even if individuals with the same health needs use the same amount of care, healthcare use might not be equitable if there are systematic differences between individuals in the quality or appropriateness of the provided care.⁸⁷ Second, our empirical strategy does not allow to identify causal relations. All results should be interpreted as associations.^{35, 88}



2.5 Inequity in healthcare use: results

The methodology of the fairness gap (see section 2.4.2) is applied to all indicators on healthcare use listed in Table 1, with the exception of the indicators on unmet needs for medical or dental care for financial reasons. In this section, the main results are summarized. More details and additional results can be found in section 1 of the [Supplement](#). Contrary to the KCE HSPA report, the main focus is not on the evolution of indicators at the macro level, but on the distribution within the population.

The results are structured as follows. We first present a general picture of the evolution of healthcare use between 2008 and 2016 and of the estimated associations between healthcare use and a range of variables that potentially affect use (as explained in Step 1 of the calculation of the fairness gap in Box 5 and section 2.5.1). The next sections present the results for the fairness gap: the needs-adjusted healthcare use by subgroup (section 2.5.2) and the broader analysis of systematic inequity by income and education degree (section 2.5.3).

2.5.1 *Increasing number of healthcare contacts and higher use for higher needs groups*

Increased healthcare use over time by a population that is ageing and in poorer health

Between 2008 and 2016, there was an increase in the number of healthcare contacts for GP, specialist and hospital services in the adult population: 91.2% of the individuals had at least one doctor (GP or specialist) consultation in 2016, up from 89.5% in 2008, while the number of consultations (given at least one) increased from 8.5 in 2008 to 9.3 in 2016. Before any correction for healthcare needs, we find that there are almost no inequalities in the use of specialist care between income groups or education groups. Individuals with increased reimbursement status even have a higher use. As is discussed below, the absence of inequalities sharply contrasts with the assessment of inequities. For GP care, there is higher use among individuals with increased reimbursement and low educational attainment relative to the population average if no correction for needs is made, and limited variation between income groups.

For hospital care, we find that, respectively, 16%, 12% and 12% received emergency care, had a day-care or inpatient stay in 2016, up from 12%, 9% and 11% in 2008. Given that about 75% of the individuals only had 1 emergency contact, day-care or inpatient stay in a given year, the number of contacts (given at least one) remained more or less stable over time.

For medication use, we observe an increasing number of elderly (65+) with polymedication, i.e. with a chronic use of 5 or more types of medication. There is a slightly decreasing trend in the use of antibiotics and a stable trend in the use of antidepressants. For preventive care, we find a decreasing influenza vaccination rate among the population aged 65+ and breast cancer screening rate among women aged 50-69.

There is an important increase in the frequency of regular dentist visits, with 51.9% of the adult population having regular dentist visits over the period 2007-2009 increasing to 57.3% over the period 2014-2016. The population share with regular preventive dental care increased from 26.6% to 32.2% over the same period. The increase is, however, not uniform over the population, but concentrated in high income groups and individuals with tertiary education.

Finally, coverage by a global medical record – which centralizes healthcare information of the patient (health conditions, tests, treatments, health prevention, etc.) by the GP – has strongly increased over time (from 48.2% in 2008 to 66.6% in 2016), and is particularly high among the over-80 year olds. A GMR is recommended for everyone as it improves the continuity of care. Moreover, individuals with a GMR benefit from a reduction in co-payments for the GP.

The general picture is that healthcare use, as captured by the selected indicators, increased between 2008 and 2016. This trend can at least partly be explained by population ageing (the descriptive statistics of the sample can be found in section 1.1.1 of the [Supplement](#)). However, also the fraction of individuals who report to be in ill-health increased between 2008 and 2016: 9.5% reports bad or very bad self-assessed health in 2016 (up from 7.9% in 2008), 20.6% indicates to have a chronic disorder in combination with limitations to daily activities (up from 17.2% in 2008) and 5% received an invalidity or disability allowance in 2016 (up from 3.6% in 2008).



Higher use for higher needs groups

A first step in the analysis of inequity in healthcare use is to estimate the empirical relationship between healthcare use and individual or other characteristics (see Step 1 in Box 5). The empirical results indicate a strong association between healthcare contacts and healthcare needs (a detailed description of the estimated models and results can be found in section 1 of the [Supplement](#)). The relation is in general as expected, with higher care use among those with higher needsⁿ. A particularly strong positive association is found between incapacity to work and the use of GP, specialist and hospital care. The association is stronger than e.g. for invalidity (being incapacitated from work for more than 1 year). Hence, being incapacitated to work can be seen as a health shock with a strong and direct impact on the need for healthcare. Another association between needs and care use that results from the analysis is that the presence of a chronic disorder is more strongly associated with use of GP care, while the presence of limitations to daily activities is more strongly associated with use of specialist care.

An important association between healthcare needs and healthcare use is present for most other indicators as well, i.e. the indicators on medication use, GMR coverage and influenza vaccination. No (or a very limited) association was found for breast cancer screening and dental care. For regular preventive dental care, even a negative association was found with higher use among individuals with better self-assessed health. As was mentioned before, with respect to preventive care one can argue that differences in healthcare needs are irrelevant, as prevention is important and valuable irrespective of needs in order to preserve one's health status. Therefore, it was decided to present the results for dental care and breast cancer screening without correction for healthcare needs. For influenza vaccination, healthcare needs are taken into account as vaccination is particularly recommended for individuals with (chronic) health conditions.

ⁿ As mentioned in section 2.4.3, we only present the results for the baseline inequity scenario in which healthcare needs are narrowly defined as the observed differences in health status and co-morbidities.

2.5.2 Needs-adjusted healthcare use by subgroup

While healthcare needs and healthcare use are interrelated, other factors contribute to the observed differences in healthcare use. Once healthcare use is adjusted for differences in healthcare needs, following the methodology of the fairness gap (see section 2.4.2 and Box 5), it can be evaluated (see section 2.4.4). Systematic differences in the fairness gap are in violation of the horizontal equity principle and indicate that healthcare use is not equitable. One way to assess the presence of such violations is to look at systematic differences in the fairness gap by socioeconomic group. Are there systematic differences in the fairness gap by socioeconomic status, e.g. income or educational attainment? Are there systematic differences in the fairness gap for specific (vulnerable) population subgroups (e.g. single parents, individuals with severe material deprivation), compared to the general population? How have inequities evolved over time?

Figure 3 is a heatmap that presents differences in healthcare use adjusted for needs. It provides information on the (absolute) difference between the average fairness gap in the population and the average fairness gap in various population subgroups of interest for a given year (on the horizontal axis) and this for all indicators (on the vertical axis). The following subgroups are evaluated (see also section 2.3 for more information on available data):

- Groups based on self-assessed health: very bad or bad; fair; good or very good.
- Groups based on the highest obtained education degree: no degree, primary and lower secondary; upper secondary; tertiary.
- Groups based on equivalized household disposable income: at risk of poverty; lower middle class; core middle class; upper middle class; top middle class.



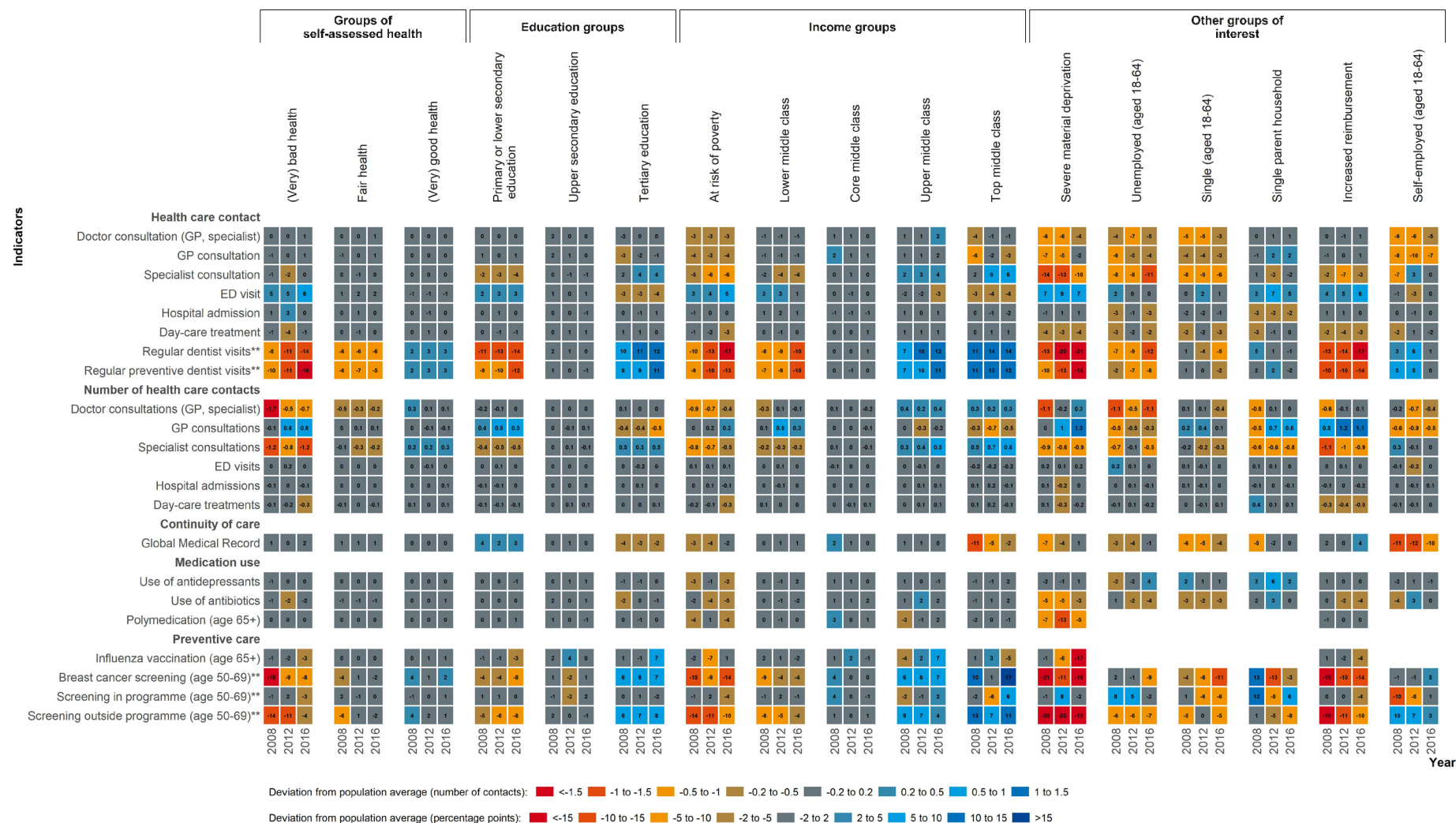
- Other subgroups in a financially vulnerable situation: unemployed (aged 18-64); single (aged 18-64); single parents; individuals in households with severe material deprivation. These subgroups have an increased risk of material deprivation, poverty and inactivity.³⁸
- Other subgroups of interest related to the health system: individuals with increased reimbursement status; self-employed individuals (whose coverage was expanded to include small risks in 2008).

In each square the difference is indicated, both as a number and as a colour. Negative values (in orange and red) indicate that – after accounting for healthcare needs – the subgroup has a lower healthcare use than the population in general. Positive values (in cyan and blue), on the other hand, indicate that – after accounting for healthcare needs – the subgroup has a higher healthcare use than the population in general. Squares with a grey colour indicate that the difference between the subgroup and the population is small. The variation in colours allows for a rapid overview of inequity for a specific indicator or subgroup and the evolution over time. For indicators on the number of healthcare contacts, the difference is expressed in number of contacts and the upper colour legend applies; for all other (binary) indicators, the difference is expressed in percentage points and the bottom legend applies.

For example, the first row provides information on the probability to have at least one doctor consultation in the past year. After a needs correction is performed and the fairness gap is calculated, we find that singles between 18 and 64 (column 14) have a 5 percentage point lower probability to go to a doctor in 2008 relative to the population average. The negative value is depicted by the orange background colour. The adjacent squares for 2012 and 2016 indicate that the gap with the population has decreased slightly to a 3 percentage lower probability in 2016.



Figure 3 – Deviations in fairness gap between population and subgroup, by subgroup and year



** For these indicators on breast cancer screening and dental care, no adjustment for healthcare needs are made. [Click here](#) to view high resolution image



2.5.2.1 Adjustment for healthcare needs reduces disparities

After adjusting healthcare use for healthcare needs (in all indicators except dental care and breast cancer screening, see above), the average fairness gap by group of self-assessed health was calculated. If our methodology to correct for healthcare needs is sound, almost no disparities between the average fairness gap in the population and the average fairness gap by groups of self-assessed health should remain. It is reassuring that this is what the results in Figure 3 indicate. The first three columns are related to subgroups of self-assessed health. The dominant colour is grey, implying that the needs-adjusted healthcare use of these subgroups is in line with the needs-adjusted population average healthcare use. However, there are some exceptions.

First, the probability to seek emergency care in 2016 is 6 percentage points higher among individuals with bad or very bad self-assessed health. This veils an underlying socioeconomic effect, where individuals in a financially precarious situation (at risk of poverty and severe material deprivation) rely more on emergency care, more than can be explained by their health status. As these individuals are overrepresented in the subgroup with (very) bad self-assessed health (see section 2.4.1), the socio-economic effect spills over to the assessment by groups of self-assessed health. In the net effect needs-access scenario (see Box 6), where socioeconomic status is considered a proxy for healthcare needs when it is associated with higher care use, the probability to seek emergency care is in line with the population average for all subgroups based on self-assessed health.

Second, for the indicators that were not adjusted for healthcare needs, we find clear gradients by self-assessed health status. There are lower breast cancer screening rates (outside the organised programme) and less use of regular (preventive) dental care among individuals with very bad or bad self-assessed health. The opposite is true for individuals reporting good or very good health. While the deviation with the population average is decreasing over time for breast cancer screening, it is increasing for (preventive) dental care.

Third, after correcting for healthcare needs, individuals in bad or very bad self-assessed health have a lower number of doctor consultations, and in particular specialist consultations, i.e. 1.2 fewer specialist visits in 2016.

Individuals in good or very good health on the other hand have relatively more specialist visits. The effect seems to be related to a higher number of specialist visits among high income individuals. Individuals in the upper and top middle class have on average, respectively, 0.5 and 0.6 specialist visits more than can be explained by their health status.

2.5.2.2 Financial situation determines care use

While inequities in healthcare use are found by educational attainment (e.g. with respect to specialist care, emergency care, dental care, coverage of GMR and breast cancer screening), the results in Figure 3 suggest that the financial situation of individuals contributes more importantly to inequities in use. Several findings support this conclusion.

Systematic lower use by individuals at risk of poverty and with severe material deprivation, with a few exceptions

First, Figure 2 indicates that individuals at risk of poverty and in the lower middle class are relatively comparable with respect to their self-reported health status. While perception on how to self-assess health may differ in both groups, this is a robust finding that is consistent over time. Moreover, the distribution of obtained education degree in the two income groups is similar. Both groups differ, however, in their use of healthcare, with individuals at risk of poverty using systematically less care than individuals in the lower middle class (except for emergency care).

Second, there is a lower use of care relative to the population average by *individuals at risk of poverty*, to a lesser extent by individuals in the *lower middle class*, and a fortiori by individuals with *severe material deprivation* (except for emergency care). *Medication use* is lower and there appear to be barriers to consult a GP or specialist. The probability to *consult a GP* in 2016 is 4, 1, and 2 percentage points lower among, respectively, individuals at risk of poverty, in the lower middle class and with severe material deprivation relative to the population average. In the latter group, accessibility to the GP has improved, while in the other groups it is stable over time. Once the barrier to consult a GP is overcome, low income groups seem to have a higher number of GP visits than the population average. The probability to *consult a specialist* in 2016 is 6, 4 and 10 percentage points



lower among, respectively, individuals at risk of poverty, in the lower middle class and with severe material deprivation relative to the population average. Not only is the probability to consult a specialist lower among low income individuals, but also the number of specialist consultations. Out-of-pocket payments for specialist care are in general higher than for GP care. Moreover, the fraction of “conventioned” physicians^o is higher among GPs than for many specialities, increasing the likelihood of supplementary payments for specialist care.^{60, 63} *Emergency care* seems to act as a substitute for GP and specialist care among individuals at risk of poverty or with severe material deprivation, and to a lesser extent among individuals in the lower middle class. One explanation is that emergency care is free at the point of use, while specialist and GP care are not. However, in the end, emergency care is not necessarily less expensive. Another explanation is that postponement of medical care for financial reasons may lead to a worsening health condition that becomes acute and requires emergency care. The analysis of unmet needs in section 2.6 demonstrates a substantial higher risk of postponement of medical (and dental) care among individuals at risk of poverty and with severe material deprivation. The use of *dental care* is significantly lower among individuals with low income; an effect that is increasing over time. At the population level, we have seen an increase between 2008 and 2016 in the regular use of (preventive) dental services (see sections 1.8.2.1 and 1.8.3.1 of the [Supplement](#)). However, this increase was not uniform in the population, but driven by higher income groups (upper and top middle class). The probability to use dental services in lower income groups remained more or less stable over time, explaining the increasing inequity over time. Finally, the *breast cancer screening rate* is below the population average. This is entirely the result of opportunistic screening (screening outside the organised screening programme).

^o “Conventioned” physicians accede to the fee agreements between representatives of physicians and the sickness funds.

Also the unemployed and singles (aged 18-64) have lower use

Third, we find similar patterns of healthcare use that is lower than expected based on healthcare needs in other groups of interest with an increased risk to be in a financially difficult situation, such as *unemployed individuals* and *singles* between 18 and 64. Singles, however, do not experience the same level of inequity in dental care as low income groups. *Single parent households* do not seem to have a reduced accessibility to healthcare, with a use profile that is generally in line with their healthcare needs.

Entitlement to increased reimbursement: an effective instrument for GP care but not for other types of healthcare

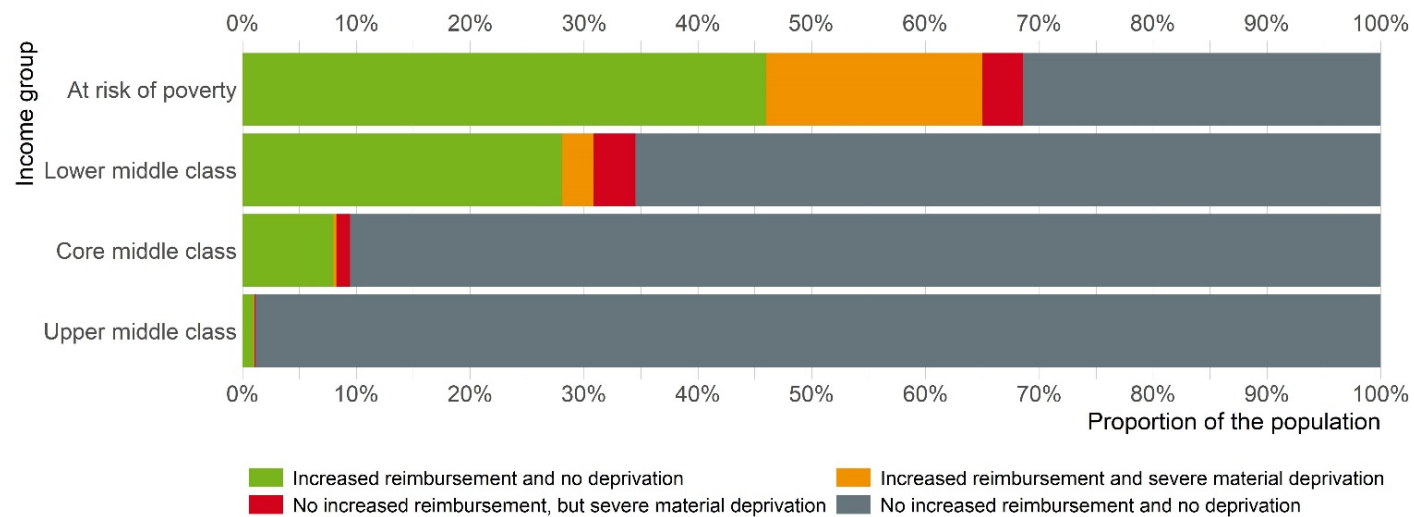
Fourth, several measures have been introduced in the public health insurance to reduce or remove financial barriers to access healthcare (see Box 10). One of these measures is increased reimbursement. *Increased reimbursement* is a means-tested status and entitled individuals benefit amongst others from reduced co-payments and the social-third-party payer arrangement for GP care (they do not have to pay the full price upfront at the point of use and be reimbursed afterwards, but only pay the co-payment). In most instances, the status is not automatically granted, but requires the submission of an application.

The results in Figure 3 indicate that after adjustment for healthcare needs, individuals with increased reimbursement face the same inequities in the use of *specialist care*, *emergency care* and *regular dental care* as other financially vulnerable groups (e.g. at risk of poverty, severe material deprivation, unemployed and singles between 18 and 64). With respect to GP care, the results are more positive. Individuals with increased reimbursement status have a probability to *consult a GP* in line with the population average, with a small improvement over time. Moreover, they have a higher number of GP consultations. Hence, accessibility to GP care is better for individuals with increased reimbursement status relative to individuals at risk of poverty or with severe material deprivation.



While the policy objective to increase accessibility of GP care for individuals with increased reimbursement is attained, it is worrisome that the inequities observed in the subpopulations at risk of poverty and with severe material deprivation are likely to be concentrated in a small subset of individuals without increased reimbursement. Figure 4 illustrates the important overlap between the different subpopulations in 2016. Two thirds of the population at risk of poverty benefits from increased reimbursement. At the same time, Figure 4 illustrates that about 5% of the individuals at risk of poverty reports severe material deprivation, but does not benefit from increased reimbursement.

Figure 4 – Overlap between income group, severe material deprivation and increased reimbursement in 2016





Use of specialist care, dental care and opportunistic breast cancer screening increases with income

Fifth, after correcting for needs, we find higher use of specialist care, dental care and opportunistic breast cancer screening (outside the organised programme) (hence related to specialist care) for *individuals with higher incomes*, i.e. in the upper and top middle class. The probability to consult a specialist is 4 and 6 percentage points higher than the population average in the upper and top middle class, respectively. In addition, the number of specialist visits is higher in both groups. The probability to have regular dental care in 2016 is 12 and 14 percentage points higher than the population average in the upper and top middle class, respectively.

2.5.2.3 Inequity differs by type of care

The results in Figure 3 indicate that there are not only important differences in equitable access by subgroup, but also by type of care.

Use of hospital care and medication is fairly equitable

In general, utilization of *hospital inpatient care and hospital day care* is in proportion to healthcare needs and access can be considered equitable, i.e. differences in the fairness gap are small, in particular for subgroups based on self-assessed health, income and education. Nonetheless, we find that specific groups, such as individuals with severe material deprivation, in unemployment, singles, single parent households and individuals with increased reimbursement status have a slightly lower probability to use hospital care.

Inequities in the *use of medication* are also limited, meaning that consumption is related to needs. The absence of major inequities seems to suggest that medication is considered as a necessity with limited potential to postpone consumption or realize savings. There are some exceptions.

First, there is a higher consumption of antidepressants among single parents and individuals in unemployment. Both can be the result of higher (but unmeasured) mental health needs. Second, we observe a lower usage of antibiotics by individuals with severe material deprivation and individuals at risk of poverty. The incidence of polymedication is also smaller in both groups. Chronic use of medication can be expensive and might explain the lower consumption by individuals at risk of poverty or with material deprivation. In section 3.1.4.4 on out-of-pocket payments, we find that expenses related to medication make up about 37% of healthcare payments among low income households in 2018.

But inequities in the use of GP and specialist care

The large majority of the adult population has had at least one doctor consultation in the past year. In 2016, about 85% has consulted a GP, 67% consulted a specialist and 91% had either a GP or specialist consultation. Nevertheless, inequities in *doctor consultations* are more widespread than for hospital care. Inequities in use are modest in size for GP care, and more severe for specialist care. As discussed above, there appear to be barriers related to *consulting a GP* among individuals at risk of poverty, individuals with severe material deprivation, individuals in unemployment and singles between 18 and 64. GP care is relatively inexpensive, but even small co-payments may deter low income individuals from seeking care (possibly in combination with the fear of additional costs and treatments prescribed by the doctor). This result is in line with other research.^{59, 60, 89} On the positive side, there is a substantial improvement over time in inequity for GP care for individuals with severe material deprivation; and the status of increased reimbursement seems to remove barriers to GP care. In addition, we find that self-employed individuals have a lower probability to consult a GP. The expansion in insurance coverage in 2008 does not have a major impact^p. It is unclear what is driving the lower use of GP care by the self-employed; potential explanations include amongst others a lower need for medical

^p Although the expansion in insurance coverage was introduced on 1 January 2008, it seems plausible that the impact of the measure comes with a delay. In that case, we can expect that healthcare use patterns in 2008 differ from those in the following years.



certificates for administrative use, a better (but unmeasurable) health status (see discussion in section 2.4.3), or a substitution between GP and specialist care. The latter seems to be driving the observed inequities in the top middle class, with a lower use of GP care, in combination with an increased use of specialist care. With respect to *specialist care*, inequities are more pronounced and clear social gradients can be discerned. There is lower use of specialist care among individuals with low educational attainment and low income and higher use among individuals with tertiary education and with high incomes. These disparities remain after healthcare needs are accounted for and relate not only to the decision to consult a specialist, but also to the number of consultations. A substantial lower use of specialist care is also found for individuals with severe material deprivation, in unemployment, singles between 18 and 64, and individuals with increased reimbursement. Among the self-employed, we find a significant change between 2008 and 2012 that might be related to the expansion of insurance coverage in 2008 to include ambulatory specialist care.

Inequities in coverage by a *global medical record* are in line with the results for the probability to consult a GP. This is not surprising as the GMR is opened and maintained by the GP.

Higher use of emergency care by low income groups and individuals with low educational attainment

For *emergency care*, inequities are found as well, but with the pattern opposite to specialist care: a higher use of emergency care by individuals with low educational attainment and low incomes. As discussed above, emergency care may well serve as a substitute for GP and specialist care among low income individuals and other subgroups in a financially difficult situation. This because emergency care is free at the point of use, contrary to GP and specialist care; or because postponement of medical care has resulted in an acute health condition requiring emergency care. It is debatable whether or not the higher use of emergency care by individuals in

a difficult financial situation is iniquitous. If it is the result of healthcare needs that have not been attended to in another setting due to access barriers, it should probably not be considered iniquitous. This perspective is taken in an alternative scenario, the net effect needs-access scenario (see Box 6). In this scenario, no substantial inequities in the use of emergency care remain (see [Supplement](#) section 1.5.2.4).

Large and increasing inequities for dental care, mixed results for preventive care

Inequities in *dental care* are substantial and increasing over time. A social gradient is visible, with lower use of regular (preventive) dental care by individuals with (very) bad health, with low educational attainment, with low income or in a financially difficult situation (with the exception of singles aged between 18 and 64 and single parents). The reduction in probability to have regular dental care in these groups relative to the population average ranges between 10 and 21 percentage points in 2016. Higher use of regular (preventive) dental care is observed for individuals with (very) good health, with tertiary education, with higher incomes and among the self-employed. The probability to have regular dental care for individuals with high income and high educational attainment is 11 to 12 percentage points above the population average in 2016. The increasing inequity is the result of an upward trend in use of dental care by groups with high income and educational attainment, while use of dental services has not increased in groups with low income and educational attainment.

The results for preventive care are mixed. We do not find systematic inequities with respect to influenza vaccination in the population aged 65 or more. With respect to *breast cancer screening* among women aged between 50 and 69, accessibility to opportunistic and organized screening are divergent. Inequities in the organised screening programme⁹ are relatively small, while important inequities exist for breast cancer screening outside the programme. Similar inequities apply to opportunistic breast cancer

⁹ Screening programmes are organised at the regional level (competence of the communities) and the participation rate is much higher in Flanders than in Wallonia and Brussels.³⁶



screening as for specialist care, but more pronounced. This affects equitable access to breast cancer screening in general.

2.5.2.4 Do (policy) incentives work?

It was already discussed above that the *status of increased reimbursement* and the resulting benefits improve accessibility to GP care, but do not seem to overcome access barriers for specialist care or dental care. Inequities for the latter two types of care are comparable in the subgroup with increased reimbursement, and the subgroups at risk of poverty and the lower middle class. The fraction of individuals with increased reimbursement in the adult population has increased significantly over time, from 13.6% in 2008 to 18.5% in 2016. This is related to both a reform of the eligibility criteria and an important effort to increase take-up of the status, but also to an increase over time in the share of the population that is at risk of poverty (13.2% in 2008 to 14.8% in 2016) or in the lower middle class (17.5% in 2008 to 19.1% in 2016).^{73, 90} Despite the increase in coverage, Figure 4 indicates that one third of the population at risk of poverty is not covered by the status, including individuals with severe material deprivation. On the other hand 8% of the individuals in the core middle class and 1% in the upper middle class benefit from increased reimbursement in 2016.

The *expansion of health insurance coverage* to include minor risks for self-employed individuals in 2008 had an important effect on the use of (ambulatory) specialist care. We find an increase in the probability to consult a specialist among self-employed individuals between 2008 and 2012. No such effect was found for GP care.

Throughout the analysis, we found suggestive evidence that the *creation of habits* through policy incentives may have positive and lasting effects on healthcare use. Further research is, however, necessary to better understand these results. First, we find a strong effect of being a student on the regular *use of dental care*. Between 2006 and 2009, co-payments for dental care were gradually abolished for children (below 18 years old), which has contributed to an increase in dental care use in this age group. Our results show that students have a significantly higher regular use of dental services in 2016 (regular use should be understood as one or more visits to a dentist in at least two years in the period 2014-2016), whereas no specific

different use was found in 2012 (based on the period 2010-2012). The majority of students in the period 2010-2012 had not yet benefitted from the abolishment of co-payments for dental care, while the majority of students in the period 2014-2016 did. This provides suggestive evidence that children have indeed changed their behaviour and increased the regular use of dental care, and that this change in behaviour has continued beyond the age of 18, when co-payments need to be paid. While this is a positive result, one cannot conclude that this has led to a reduction in inequities. Students are a particular subgroup in society, and their change in behaviour does not imply a lasting effect among all individuals turning 18, including disadvantaged individuals. Second, we find a similar effect among women (aged 50-69) being *screened for breast cancer* within the organised programme. For women screened outside the programme, there is no effect of age on the screening rate. For women in the programme, we find that the age effects have changed over time. Women who were age eligible at the time of implementation of the programme (period 2001-2002) appear to have a lower participation rate than women who became age-eligible when the programme was already in place. For example, in 2008, the rate of screening among women aged 60-69 is lower than for women aged 50-54. This effect has disappeared in 2016. One explanation for this age effect is the creation of habits and the perception of the organised programme.

2.5.3 Systematic socioeconomic inequity

In the previous section, subgroup specific results allowed for a detailed assessment of inequities. In this section, a broader perspective is applied where we examine if there are systematic socioeconomic inequities by income and education level. We do not look at the systematic effects of activity status as there are some specific disadvantages compared to income and education. First, there is no natural ranking in activity status, merely differences, e.g. one cannot objectify that being unemployed is strictly better/worse than being retired. This complicates the assessment of inequity as many measures require an ordered socioeconomic status. Second, activity status is not very informative once retirement age is reached, neglecting differences in a population group that is particularly prone to use healthcare.⁹¹



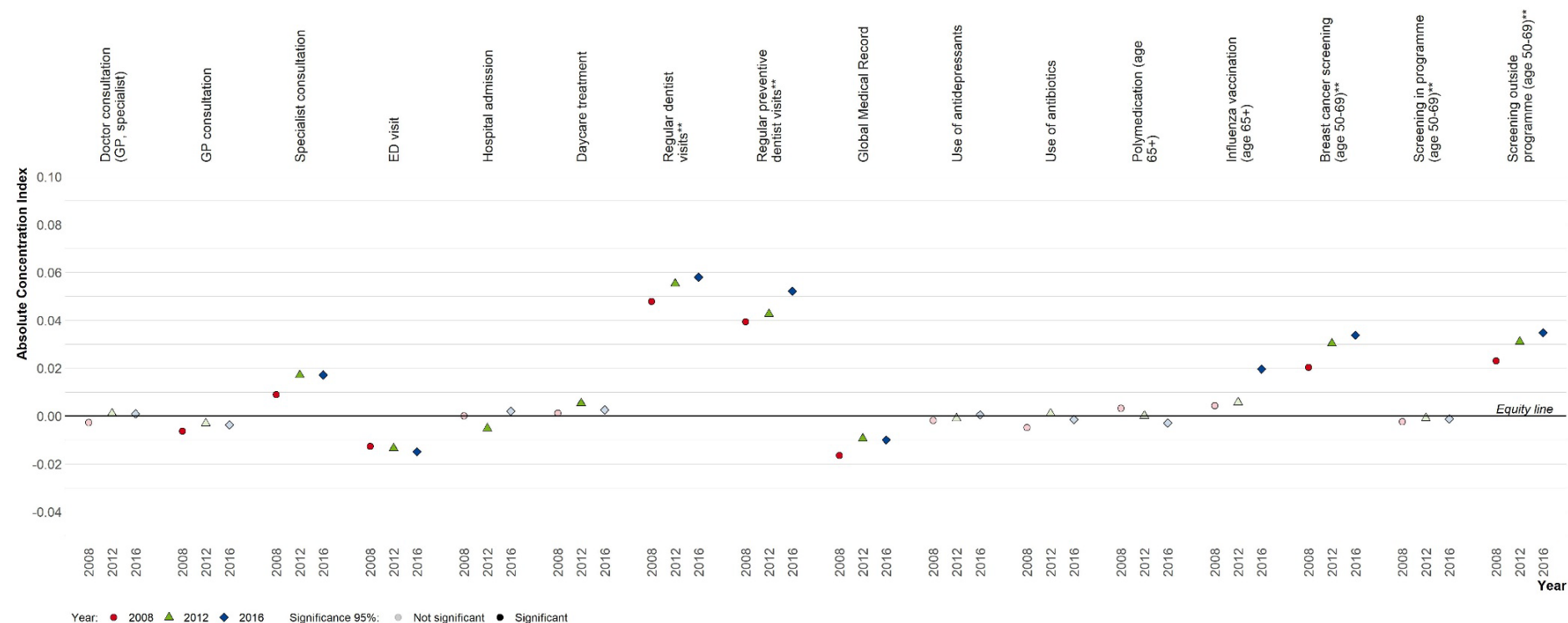
A summary score of the distribution of the fairness gap is calculated for each indicator and year using the (absolute) concentration index (see Box 9), this allows for a rapid evaluation of the trend over time. Figure 5 shows the summary scores of inequity by educational attainment and Figure 6 by the income distribution. Only results for the binary indicators are presented. Significant values are indicated in dark colour, and insignificant results in light colour.

The results in Figure 5 and Figure 6 confirm to a large extent what was already discussed in section 2.5.2. For indicators where a clear social gradient is found – i.e. specialist care, regular (preventive) dental, emergency care and breast cancer screening (outside the organised programme) – the summary scores show important and significant systematic socioeconomic inequities. The positive values for both education and income indicate that use of specialist care, dental care and breast cancer screening are concentrated among individuals with higher incomes and higher educational attainment. The important difference in inequity between screening within or outside the organised programme is striking.

Emergency care, on the other hand, is concentrated among individuals with low educational attainment and low income. The potential substitution between specialist and emergency care that might explain this pattern is discussed in section 2.5.2.2.

The increasing inequity in the regular use of (preventive) dental care stands out in the results. Inequities with respect to specialist care have an upward trend as well, both for income and education and hence increasingly favour well-educated and high-income individuals. For breast cancer screening outside the organised programme, there is an upward trend for education, indicating higher inequities by educational attainment over time.

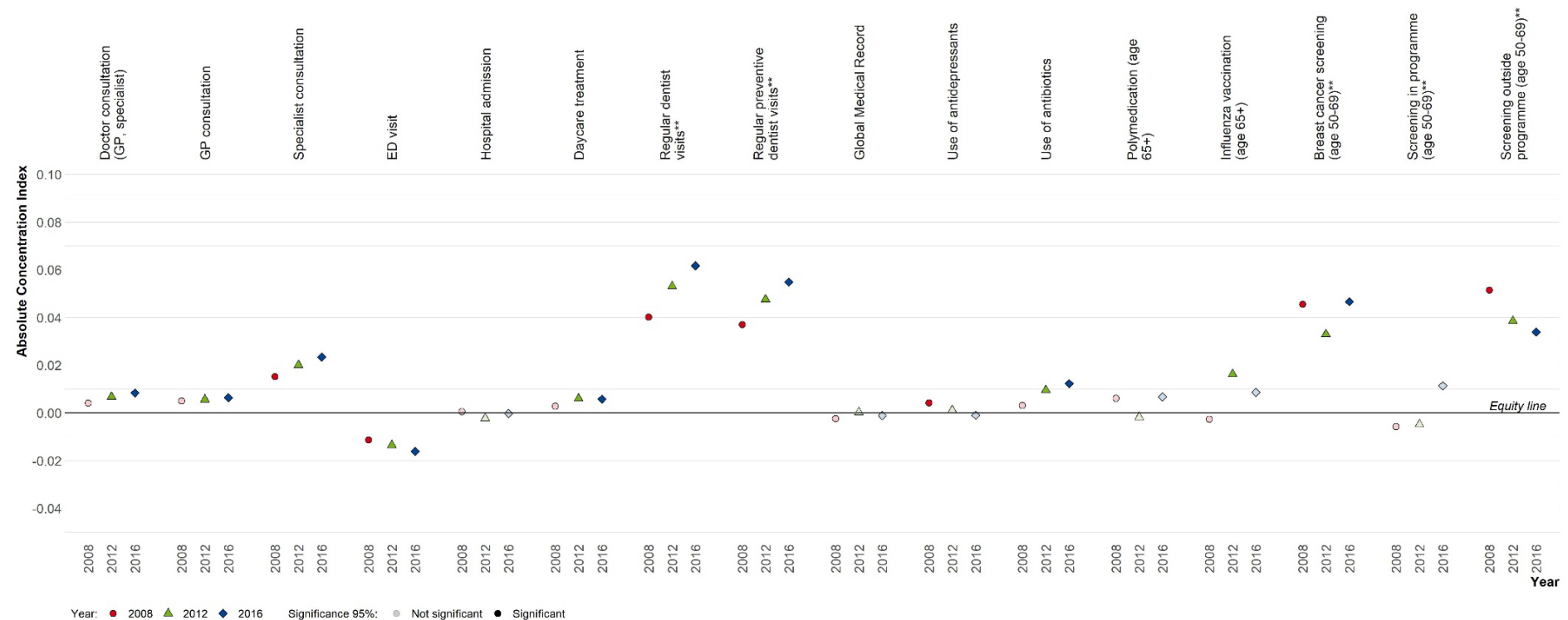
Socioeconomic inequities in hospital care, GP care and medication use are small and generally not significant. However, pro-rich inequities in income for GP care, day-care treatment and antibiotics use become significant as from 2012. While they are small, they might present a warning signal and require further monitoring.

**Figure 5 – Socioeconomic inequity in healthcare use by education degree**

** For these indicators on breast cancer screening and dental care, no adjustment for healthcare needs are made. Confidence intervals can be consulted in section 1 of the [Supplement](#).



Figure 6 – Socioeconomic inequity in healthcare use by income



** For these indicators on breast cancer screening and dental care, no adjustment for healthcare needs are made. Confidence intervals can be consulted in section 1 of the [Supplement](#).



2.6 Unmet needs for financial reasons

The assessment of inequity in healthcare use presented in section 2.5 reveals systematic socioeconomic inequities. However, as we mentioned before, healthcare use is only a partial interpretation of healthcare access as it can hide amongst others unmet needs for financial or other reasons. After all, the existence of unmet needs for healthcare impedes effective access to healthcare. Some advantages and disadvantages of the use of unmet needs as an indicator of healthcare access can be found in Schokkaert et al. (2017).⁹²

We first summarize some lessons from previous research (section 2.6.1). Next, we provide a detailed picture of the characteristics of groups with unmet needs for healthcare in 2016 (section 2.6.2). The main focus of both sections is not on the evolution of the indicator at the macro level, but on the distribution within the population, as is the case for the other indicators that are discussed in section 2.5.

2.6.1 Some lessons from previous research

Differences in survey methodology make results difficult to compare across studies

It was already mentioned in the KCE HSPA report of 2019³⁶ that *“these data should nevertheless be used with caution and further analysis is needed to fully understand differences in the magnitude and fluctuation of this indicator between years and between surveys”*. This warning holds for the results for Belgium as well as for results in an international context.

A recent policy brief of the OECD lists the main differences in methodology in the main surveys that collect data on unmet healthcare needs in European and OECD countries: the EU-SILC, the European Health Interview Survey (EHIS) and the Commonwealth Fund International Health Policy Survey.⁹³ The differences are multifactorial: the population considered, the range of health services and goods covered, the reasons for unmet needs (waiting time, financial, etc.), the wording and order of the questions and finally the inclusion of forgone and/or delayed care in the definition of unmet needs. Some of these differences in methodology also apply to the main surveys in Belgium that collect data on unmet needs, i.e. the Health Interview Survey

(HIS) and the EU-SILC. However, despite the sometimes large variation in the rate of unmet needs, the distribution among different groups of the population gives relatively stable results in the various surveys.

For an international comparison of rates of unmet needs for medical and dental examinations due to financial reasons (self-reported rates collected in the EU-SILC), we refer the interested reader to [Supplement 2 of the KCE HSPA report of 2019](#) (indicator A-4).³⁶ The main message that can be drawn from such international comparison between Belgium and other European Union countries (EU-15) is that rates in Belgium are above the European average, both for medical and for dental care. Moreover, unmet needs due to financial reasons for the lowest income quintile group are among the highest in Europe for both medical and dental examinations.

Higher rates of unmet needs among the least well-off in terms of financial situation or health

A recent report of the European Social Observatory summarizes the results from previous research on unmet needs for healthcare in Belgium, and contributes to existing research by analysing the 2011 and 2017 releases of the **EU-SILC** data in more detail (by means of a multivariate logistic regression).⁸⁹ The authors conclude that:

- the rate of unmet needs for dental care (3.5% in 2017) is higher than for medical care (2% in 2017).
- there is a large overlap between the population with unmet needs for medical and dental care. 72% of people with unmet medical needs also report to have unmet needs for dental care, and 41% of people with unmet needs for dental care also report unmet needs for medical care.
- unmet needs for financial reasons are concentrated among the least well-off, such as individuals who are unemployed, who have low income, who are tenant, or who cannot afford primary needs and social activities; and among individuals with health problems, such as persons with functional limitations or with a bad self-assessed health status.
- there was a significant deterioration between 2011 and 2017 for persons who are in the first income quintile group, for both medical care and dental care, which was not observed for the other quintiles.



- the share of individuals who report unmet needs is higher in Brussels and Wallonia than in Flanders and increased significantly between 2011 and 2017 in Wallonia while it remained stable in Flanders.

The above results are also found in other large-scale surveys. According to survey data collected in the fifth wave of **SHARE** (Survey of Health, Ageing and Retirement in Europe among the population aged 50 years and older, conducted in 2013), 3.1% of Belgian respondents aged 50 years and older reported to have unmet needs for a doctor because of financial reasons and 5.3% for a dentist. Compared to the total population of 50 years and older, those with unmet needs^r are on average poorer, have higher out-of-pocket payments for healthcare, spend a higher share of their income on healthcare, have a worse self-perceived health status and a larger number of chronic diseases.⁹⁴

The **MEqIN** (Measuring Equivalent Incomes) survey also contains some questions on unmet healthcare needs in Belgium.⁹⁵ The survey was conducted in 2016 (3 404 respondents (18+) in 2 098 households) and is a representative sample of the Belgian population at household and individual level. The survey makes a distinction between postponement of all types of healthcare on the one hand and postponement of urgent care on the other hand. Postponement of urgent care is slightly higher in younger people. A possible explanation is that the elderly continue to receive and pay for healthcare, even in financially difficult circumstances. As in the abovementioned surveys, the rate of unmet needs for healthcare is higher in low-income groups, the rate is higher for dental care than for medical care and dental care is also postponed by people with higher than average income.

Finally, the results of the 6th **Health Interview Survey** (HIS) in Belgium, conducted in 2018, have recently been made available.⁹⁶ The results from the 1st until the 5th HIS can be found in the Supplement to the KCE HSPA of 2019.³⁶ They can be summarized as follows: there is a clear association of the rate of unmet needs with the level of education of the household head, with the household income and there are large regional differences, with a much higher rate in Brussels (22% in 2013) than in Flanders (5%) or

Wallonia (9%). The results of the HIS of 2018 are in line with those of previous waves.

Unmet healthcare needs in specific vulnerable population groups

In addition to the above results from large-scale surveys, also some studies targeting specific vulnerable population groups collected data on unmet needs for healthcare in Belgium. No systematic review of the literature was performed, but we selected some studies that provide additional insights into characteristics associated with postponement of healthcare.

Verlinde et al. (2013) analysed the characteristics of low-income groups with a higher risk of postponing a GP visit in Flanders.⁹⁷ A face-to-face questionnaire was used to collect data from 606 low-income users of public social services. The questionnaire included questions on socioeconomic and demographic characteristics, social networks, health and healthcare use. About 32% postponed or cancelled a GP visit they thought they needed during the past 12 months. Depression, poor self-rated health and (lack of) trust in the GP were associated with an increased risk to postpone a GP visit. The authors conclude from this that access barriers in low-income people exist which are not directly related to the healthcare cost. Among the low-income people in the sample, those who have perceived difficulties in coping with their current available income do not postpone a visit to their GP more often than others who are able to make ends meet.

A second vulnerable group concerns the disabled. Adams et al. (2014) analysed financial access to healthcare for adult people with a disability in Flanders.⁹⁸ An online and paper survey were made available through two organisations for disability in Flanders. 889 respondents completed all questions of the survey. About 25% of respondents did not access healthcare because of financial reasons. Postponement most often occurred for dental care and vision aids. Patient characteristics associated with postponement of healthcare among the disabled are having children, a low level of dependence, not living in a specialised facility and having an income under the poverty threshold.

^r Also unmet needs for glasses is included in this comparison.



Comparable results were found in Avalosse et al. (2016).⁵⁰ For this study, in which 489 disabled persons were interviewed, the Christian sickness funds worked together with two organisations representing disabled persons. For 64% of the households of the interviewed disabled persons have difficulties to pay for healthcare. Four in ten households had to postpone healthcare (dental care, specialist services, glasses and medicines) for financial reasons.

2.6.2 Self-reported unmet needs for medical and dental care in different subgroups of the population

Overall magnitude

The share of the population aged 18 years and over who report unmet needs for medical care due to financial reasons increased over time from 0.4% in 2008 to 1.7% in 2012 and 2.3% in 2016. The rate of unmet needs for dental care follows a similar increasing trend but at a higher level: 1.6% in 2008, 2.7% in 2012 and 3.7% in 2016.³⁶ The important increase between 2008 and 2012 can (at least partly) be explained by a revision of the phrasing of the question in 2011.^s Hence a direct comparison of the results of 2008 on the one hand and 2012/2016, on the other hand, should be interpreted with caution. Compared to the 2012/2016 question, the question in 2008 is more restricted in scope and puts emphasis on the presence of a health condition as a preliminary to consult a doctor/dentist and the own responsibility of the interviewed person for not seeking care (see [Supplement](#) section 2.1).

Who has unmet needs?

Who are the individuals with unmet needs for medical care and dental care? Using a descriptive analysis, we look at the distribution of characteristics in the subpopulations with and without unmet needs and their evolution over the years 2008, 2012 and 2016. Systematic differences between both

groups may provide some answers on who has self-perceived unmet needs for financial reasons.

A wide range of individual and household characteristics related to health status, socioeconomic status and sociodemographic features were analysed as well as information on healthcare supply, out-of-pocket payments, and healthcare use. For the latter, we make use of a number of indicators analysed in this report (e.g. contacts with various healthcare providers, such as GP consultations, specialist consultations, ED contacts, hospital admissions and hospital day-care treatments^t) (see section 2.2). Throughout the analysis, we look at the adult population in its entirety, but also zoom in on the subgroups with lower incomes, individuals at risk of poverty and in the lower and core middle class. Detailed results can be found section 2.2 to 2.4 of the [Supplement](#).

How to read the results in Figure 7 and Figure 8?

We find evidence that individuals in the subpopulations with and without unmet needs differ in various aspects. A number of important differences are illustrated in Figure 7 and Figure 8 with data from 2016. In these figures, there are three sets of results. The different columns indicate whether the information concerns the adult population at large or a specific income group. First, the *blue bars* indicate the share of the subpopulation *with* unmet needs having a specific characteristic, e.g. row 4 in Figure 7 indicates that about 42% of the subpopulation with unmet needs reports (very) bad health, in combination with the presence of chronic disorder and limitations to daily activities. Second, the *red diamond* provides the same information, but for the subpopulation *without* unmet needs, e.g. row 4 in Figure 7 indicates that about 8% of the subpopulation with unmet needs reports (very) bad health, in combination with the presence of chronic disorder and limitations to daily activities. When the value of the blue bar and the red diamond diverge, that means that the subpopulations with and without unmet needs are different with respect to that characteristic, in this case self-reported health. Third, the rate of unmet needs in the subpopulation with a specific characteristic is

^s The question was revised to be more in line with the proposed phrasing of the question by Eurostat.

^t For these healthcare use indicators, we looked at both the actual and the expected value (see Box 5).



printed to the right of the blue bar, e.g. row 4 in Figure 7 indicates that 11.2% of the subpopulation with (very) bad health, in combination with the presence of chronic disorder and limitations to daily activities, reports to experience unmet needs for medical care due to financial reasons in 2016, compared to 2.3% in the population (mentioned on top of the first column). If the rate of unmet needs differs from the population average, it means that the characteristic is a distinguishing feature.

We illustrate the interpretation of the results in Figure 7 by nuancing the misconception that individuals with unmet needs for medical care use little or no healthcare services. The results in rows 31 to 33 indicate that individuals with unmet needs have only a slightly lower probability to consult a GP or specialist in the past year (there is a small or no deviation between the blue bars and the red diamonds for all income groups). The healthcare use in Figure 7 is, however, not corrected for healthcare needs. When the adjustment for healthcare needs is made, we find that the use in the group

with unmet needs is lower than expected based on their needs profile, in particular for specialist care (see discussion of the results below). The results in row 34 show that the use of ED care is even higher among individuals with unmet needs. This can be inferred from the blue bars that indicate a higher probability to go to an ED in the past year than the red diamonds, in particular in the lower middle class. Finally, we learn from the information in the bottom row that unmet needs are more prevalent among households with catastrophic out-of-pocket payments (OOPs). As explained in section 3.1, OOPs become catastrophic when an important share of a household's financial means is spent on healthcare. The catastrophic nature of OOPs is an indicator of financial hardship, but also of an intensive use of healthcare. The rate of unmet needs for medical care among individuals in a household with catastrophic OOPs equals 10.5% (this is indicated by the percentage printed to the right of the blue bar in the first column). This is more than 4 times the rate of unmet needs in the population that amounts to 2.3% (as indicated on top of the first column).



Figure 7 – Overview key characteristics for population with and without unmet needs for medical care in 2016

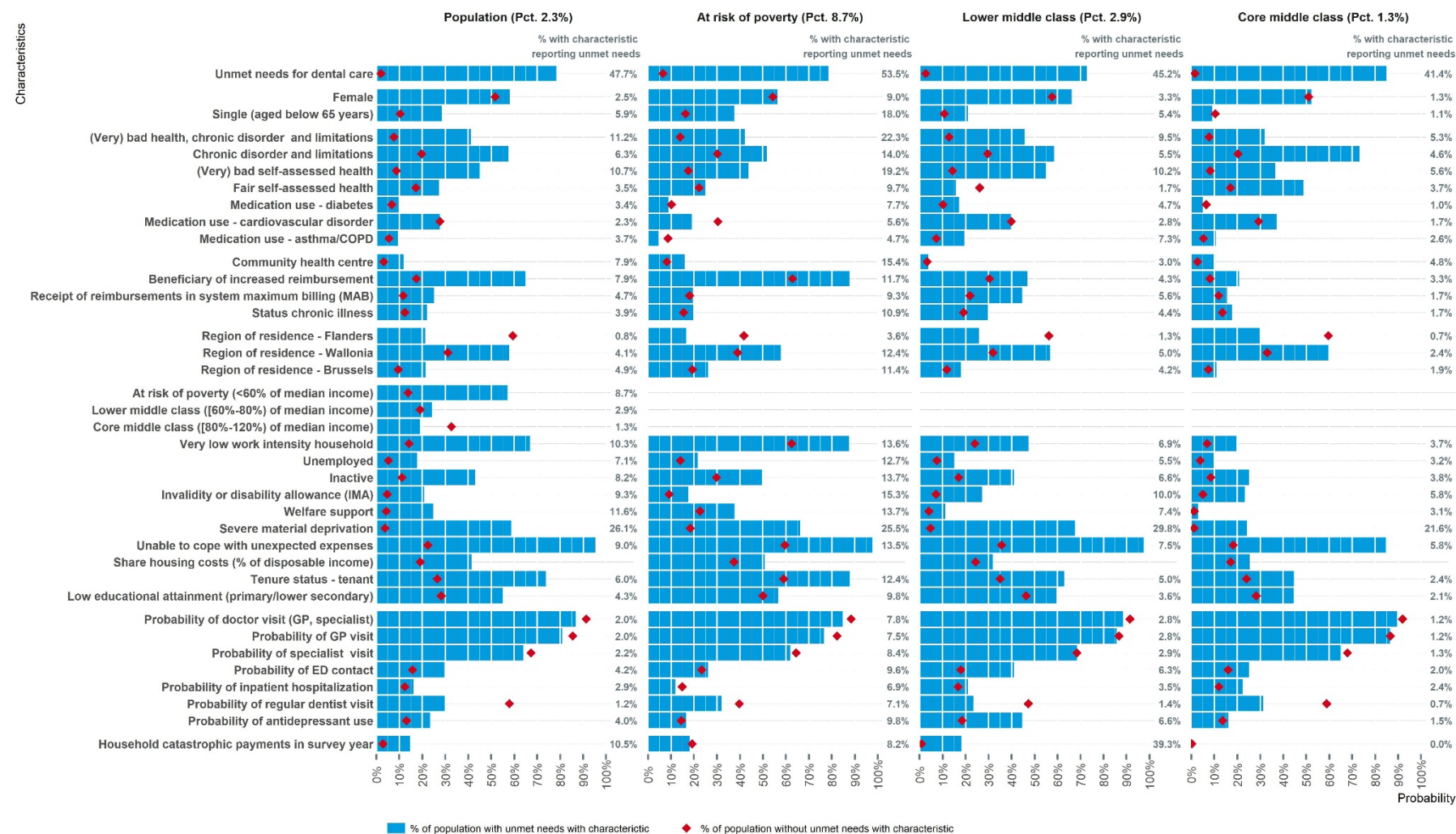
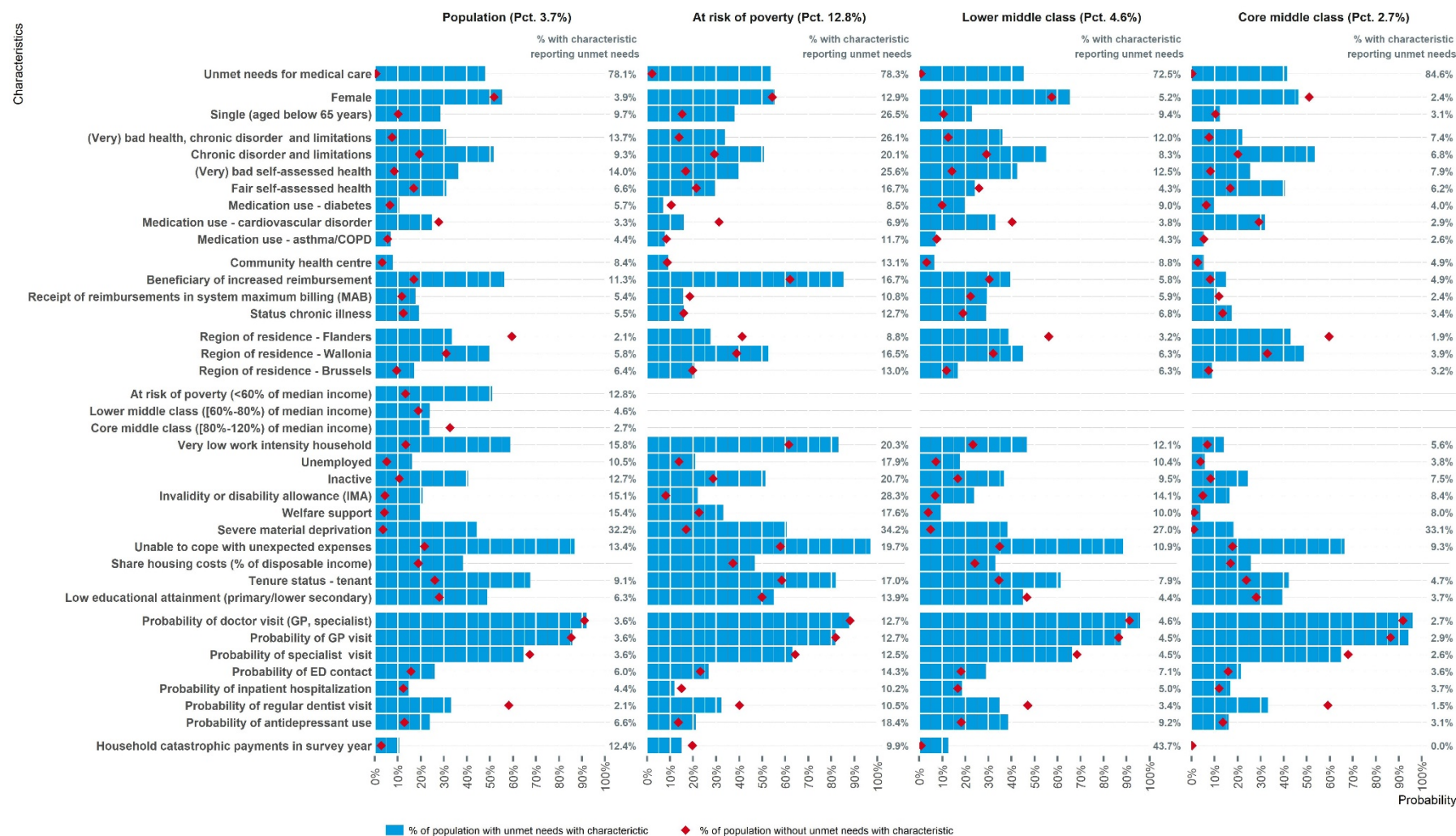




Figure 8 – Overview key characteristics for population with and without unmet needs for dental care in 2016





General results in line with previous research

In general, the results are in line with previous research (see section 2.6.1). There is an important number of individuals reporting unmet needs for both types of care. In 2016, almost 80% of individuals with unmet needs for medical care also report unmet needs for dental care (first line in Figure 7) and vice versa almost 50% of individuals with unmet needs for dental care report unmet needs for medical care (first line in Figure 8). Unmet needs due to financial reasons are concentrated in lower income groups, and increasingly so among the individuals at risk of poverty. In 2016, 57% of the individuals with unmet needs for medical care and 51% of the individuals with unmet needs for dental care are at risk of poverty compared to 43% in 2008 for unmet needs in both types of care. The rates of unmet needs are higher in subgroups with lower educational attainment. Unmet needs are concentrated in the age group 35-49 and among females aged 50-64. Single individuals aged between 18 and 64 years represent almost 30% of the subpopulation with unmet needs, compared to 10% of the subpopulation without unmet needs. Retired individuals have a lower probability to report unmet needs. The regional rates of unmet needs are quite divergent, with in the population residing in Flanders, Wallonia and Brussels, a rate of unmet needs for medical care of, respectively, 0.8%, 4.1% and 4.9% and for unmet needs for dental care 2.1%, 5.8% and 6.4%, respectively.

In addition to these general results, three important conclusions stand out that we want to discuss and illustrate in more detail.

A nuanced picture of financial vulnerability and unmet healthcare needs

First, unmet needs for financial reasons prevail among individuals in a financially precarious situation. The financial vulnerability of the subpopulation with unmet needs for medical care is higher relative to the subpopulation with unmet needs for dental care, suggesting that postponement of dental care also occurs in households with higher incomes and a better ability to cope with unexpected expenses. Even when comparing the subpopulations with and without unmet needs within the same income category, there are striking differences.

Equivalized household income is one way to measure financial vulnerability. Nonetheless, we find individuals in the core middle class who report to have unmet needs for financial reasons. The EU-SILC survey and certain IMA-AIM indicators allow for a richer description.

We find that in 2016 95% of the individuals with unmet needs for medical care and 87% of the individuals with unmet needs for dental care perceive an **inability to cope with unexpected expenses**, compared to about 22% in the subgroup without unmet needs. Moreover, 59% of the individuals with unmet needs for medical care and 44% of the individuals with unmet needs for dental care indicate in 2016 to be **severely materially deprived** (unable to afford at least 4 items out of a list of 9 items, see section 2.3), compared to about 4% in the subgroup without unmet needs. About 1 in 4 and 1 in 3 individuals with severe material deprivation indicate to have unmet needs for, respectively, medical and dental care financial reasons. Reducing material deprivation can be a lever for avoiding delayed or forgone care.

Our results provide suggestive evidence of **expenses for basic necessities (food, utility, housing and hygiene) competing with expenses for healthcare**, possibly leading to postponement of care. In 2016, we find that among individuals with unmet needs for, respectively, medical and dental care, about 54% and 36% cannot afford a hot meal every second day, 15% and 9% of individuals cannot afford a washing machine, 45% and 41% of has arrears on utility, rent or mortgage. Housing costs (mortgage, rent, water, heating electricity) represent a higher share of disposable income in the subpopulation with unmet needs (about 40%, compared to about 20% in the subpopulation without unmet needs in 2016) and they are more likely to be tenants. House ownership is associated with a lower probability to have unmet needs.

The (perceived) inability to cope with unexpected expenses is (at least partially) related to the activity status of the individuals. The majority of the individuals with unmet needs for medical care are **at working age, but without paid work**. The fraction that is unemployed (18% for medical care and 16% for dental care in 2016) or inactive (43% for medical care and 40% for dental care in 2016) is high and has increased over time. It concerns individuals in long-term unemployment or inactivity. Moreover, over 60% of the individuals with unmet needs for, respectively, medical and dental care belong to households with very low working intensity, i.e. where the



household members at working age spend less than 20% of their (combined) available time on paid work.

Hence it is not surprising that about 45% and 40% of the subpopulation with unmet needs for, respectively, medical and dental care receives either **welfare support or a disability/invalidity allowance** in 2016. In the subpopulation without unmet needs, this fraction is about 9%. From a different perspective we can say that about 1 in 10 and 1 in 7 individuals receiving welfare support or a disability/invalidity allowance report unmet needs for, respectively medical and dental care. Individuals who receive welfare support or a disability/invalidity allowances can be administratively identified. Moreover, these individuals enter into contact with a medical doctor (invalidity/disability) or a social worker (welfare support), contacts that could potentially help to better identify, understand and cope with unmet needs in this specific population.

Worse self-reported health status

Second, unmet needs prevail among individuals who have higher (self-reported) care needs. The association is stronger in the subpopulation with unmet needs for medical care relative to the subpopulation with unmet needs for dental care.

Less than 1% of the individuals with good or very good self-assessed health experience unmet needs for medical care, for dental care this is 1.7%. **The probability to report unmet needs increases strongly with a deteriorated self-assessed health status and the presence of a chronic disorder and limitations to daily activities.** Overall, about 41% of the subpopulation with unmet needs for medical care indicate to have bad or very bad self-assessed health in combination with a chronic disorder and limitations to daily activities (up from 26% in 2008), versus 8% in the subpopulation without unmet needs for medical care (up from 6% in 2008). With respect to unmet needs for dental care, the proportions are 31% and 8% in, respectively, the subpopulation with and without unmet needs (up from 27% and 6% in 2008). Similar important differences are found when the analysis is restricted to a particular income group. Where very bad or bad self-assessed health is in particular a distinctive feature in the population at risk of poverty and in the lower middle class, the presence of

a chronic disorder and limitations to daily activities is more important in the core middle class.

The association between unmet needs and the presence of specific disorders identified through the use of prescribed medication (e.g. asthma, COPD, diabetes, cardiovascular disorder), which is used in our analysis on healthcare use as a proxy for healthcare needs, is more difficult to interpret. On the one hand, the presence of specific disorders, provides information on an individual's health status and needs and hence the potential for perceived unmet needs. On the other hand, the absence of medication intake might indicate the absence of appropriate medical treatment for financial (or other) reasons. When comparing the subpopulations with and without unmet needs, there appears to be little difference in the use of prescribed medication for a set of disorders. However, a subanalysis by income group indicates that among individuals at risk of poverty, there is a somewhat lower usage rate in the subpopulation with unmet needs compared to the subpopulation without. In the lower middle class and core middle class, no such difference exists, or even the reverse.

A different use of healthcare

Third, there is a distinctively lower use of care (before and after correcting for healthcare needs, see section 2.4.2 on the methodology to correct healthcare use for needs) in the subpopulations with unmet needs relative to the population average in 2008. The deviation with the population average use of (need-adjusted) care is less pronounced in 2012/2016. The change over time corresponds with the revision of the question on unmet needs in 2011 (see above). The patterns of care consumption are different for individuals reporting unmet needs for medical and dental care and this is only partly because of the important overlap between both groups.

In the subpopulation with unmet needs for medical care, there is a **lower probability to consult a GP or specialist**, which is particularly important in 2008. **Lower levels of inpatient care** are also found in the subpopulation with unmet needs for medical care, but the effect is smaller in size. On the other hand, there is a **higher probability to go to an emergency department (ED)**, in particular among the lower and core middle class. This pattern is consistent with postponement of care until an acute health



situation occurs and emergency care is required. After correcting for healthcare needs, the subpopulation with unmet needs for medical care has a 29 percentage points lower probability to visit a GP and a 14 percentage points lower probability to visit a specialist in 2008 relative to the population average; this reduces to a 3 and 5 percentage points lower probability to consult a GP in 2012 and 2016, respectively; and a 11 percentage points lower probability to consult a specialist in both 2012 and 2016. Moreover, after correcting for healthcare needs, the number of specialist visits (conditional on having at least one visit) is 2.7 visits below the population average in 2008 in the subgroup with unmet needs; there are no other significant differences in the number of GP or specialist visits. Among individuals with unmet needs for dental care, the same pattern is visible, but less pronounced, in particular for GP consultations.

In the subpopulation with unmet needs for dental care, there is a **lower probability to have regular dentist visits**. Only about 21% of the subpopulation with unmet needs for dental care had regular dentist visits in 2008 (compared to 52% in the subpopulation without unmet needs). This fraction increased to 33% in 2012 and 2016 (compared to 52% and 58% in the subpopulation without unmet needs). In addition, we find a significantly lower use of preventive dental care, with regular visits for only 9% to 10% of the subpopulation with unmet needs for dental care. There is no clear break in probability between 2008 and 2012. Individuals with unmet needs for medical care also have a lower level of regular dental care, but less outspoken and without break in results between 2008 and 2012.

The rate of unmet needs due to financial reasons is higher and increasing among individuals registered in **community health centres**. The rate of unmet needs for medical care in 2016 was 7.9% (compared to 2.3% in the adult population); for dental care, the rate of unmet needs was 8.4% (compared to 3.7 in the adult population). It is unclear what is driving this trend. One likely explanation is that the vulnerable population experiencing unmet needs is turning increasingly towards community health centres to lower their out-of-pocket payments (care in the community centre is free at point of use) and/or to improve their accessibility to primary care. A second possible explanation is that there is a regional effect with a higher number of community health centres in Wallonia and Brussels. Both region have higher rates of unmet needs.

2.6.3 Affordability of healthcare

The high rate of unmet needs among financially vulnerable individuals in combination with the lower use of care suggest that there might be financial barriers in access of care, and this in spite of the protective measures aimed to improve accessibility.

Out-of-pocket healthcare expenses (after reimbursements by the maximum billing system or MAB) have increased over time, with higher growth rates in the population with unmet needs. The increase differs by income group, with a strong upward trend in the lower and core middle class and a more modest increase among individuals at risk of poverty (not shown in Figure 7 and Figure 8). The increase is driven by supplements, which can be particularly problematic for the subpopulation with unmet needs. Given their inactivity/unemployment and difficult financial situation, it is likely that these individuals do not have a hospital or supplementary dental insurance. Out-of-pocket payments are in general lower in the subpopulation with unmet needs compared to the subpopulation without unmet needs. This is not surprising as (1) delayed or forgone care is a strategy that aims to lower out-of-pocket payments, (2) protective measures such as increased reimbursement status and the system of maximum billing reduce co-payments, and (3) individuals registered in community health centres do not pay out-of-pocket for GP care. The increase in co-payments is lower than the increase in supplements. As a case in point, in the subpopulation at risk of poverty, co-payments (after MAB) in 2016 were similar (group without unmet needs) or lower (group with unmet needs) than in 2012, while out-of-pocket payments increased over the same period.

The analysis of average out-of-pocket payments and co-payments hide the fact that some individuals and households are confronted with high out-of-pocket payments. Therefore we look at households with catastrophic payments (see section 3.1) and households with **persistent high co-payments**.

First, the rate of unmet needs is higher among individuals with **catastrophic out-of-pocket healthcare payments**. The rate of unmet needs for medical care in 2016 was 10.5% among individuals in households with catastrophic payments (compared to 2.3% in the adult population); for dental care, the rate of unmet needs was 12.4% (compared to 3.7% in the adult population).



Hence, between 1 in 10 and 1 in 8 individuals with catastrophic payments also reports unmet needs for medical or dental care. This shows that, although both indicators are to some extent related, the subpopulation with catastrophic payments and with unmet needs are not entirely the same. Unmet needs relate to access barriers and hence absence or lower use of care while catastrophic payment are only possible in case of healthcare use. An individual with unmet needs who forgoes or delays care so that out-of-pocket payments are low or even zero, does not necessarily have catastrophic payments. And vice versa, an individual without unmet needs who has a small amount of out-of-pocket payments can have catastrophic payments simply because his or her capacity to pay for healthcare is low (see section 3.1.3).

Second, the fraction of households with **persistent high co-payments (before MAB)** – i.e. above € 450 in the current and previous year (an eligibility criterion for the receipt of the chronic MAB) – has increased over time. It nearly doubled in the subpopulation with unmet needs for medical care from 11% in 2008 to 20% in 2016, it was stable at 18%/19% in the subpopulation with unmet needs for dental care and increased from about 26% in 2008 to about 32% in 2016 in the subpopulation without unmet needs. There is important variation by income group, with much lower and stable fractions in the population at risk of poverty. The increase over time in the subpopulation with unmet needs for medical care is driven by the lower middle class.

High co-payments are partly mitigated by the system of maximum billing that sets a cap on the co-payments to be paid by a household (see Box 10). Supplements are not accounted for within the system of maximum billing. In 2016, we find that among the individuals with unmet needs for, respectively, medical and dental care, about 25% and 17% receive reimbursements through the **system of maximum billing** (versus 12% in the subpopulation without unmet needs). In general, we find that **individuals in the subpopulation with unmet needs have a higher coverage by protective measures** than their counterparts without unmet needs. In the subpopulations with unmet needs for, respectively, medical and dental care, about 65% and 56% have the **status of increased reimbursement** (versus 17% in the subpopulation without unmet needs), about 22% and 19% has

the **status of chronic illness** (versus 12%), and 14% and 13% is eligible to the **lump sum chronic illness** (versus 7%).

Our main findings can be explained by growing (perceived) needs for care related to ill-health and increasing costs of healthcare. These than can be (partly) met by higher healthcare consumption and out-of-pocket payments in the lower middle class, while the population at risk of poverty lack the financial means to increase care consumption. Individuals with severe material deprivation face a trade-off between meeting basic needs or using healthcare, leading to rates of unmet needs for financial reasons above 25% in 2016. Individuals with unmet needs do make use of protective measures that reduce co-payments, resulting in a lower increase in co-payments over time (or even a reduction in co-payments among the subpopulation with unmet needs at risk of poverty between 2012 and 2016). The growth in out-of-pocket payments is driven by increasing supplements, which are not mitigated by the current protective measures. This calls for a reflection on how we can improve these protective measures to better respond to the perceived unmet needs for medical and dental care in the population and in particular the population that suffers from ill-health and is financially vulnerable.



3 INEQUITY IN THE PAYMENTS FOR HEALTHCARE

In its striving for universal health coverage, the WHO states that everyone should be able to obtain the health services that they need, of high quality, without risk of financial hardship in doing so (resolution 58.33 of the World Health Assembly from 2005).⁹⁹⁻¹⁰¹ The ability of a health system to provide its population with an equitable distribution of healthcare based on needs, depends on the extent to which it can pool risks and resources and produce solidarity between high and low risks and high and low incomes. In this respect, health policy in Western European countries has not only been concerned with equity in healthcare use, as studied in Chapter 2, but also with respect to an equitable distribution of healthcare payments, which is discussed in this chapter. Both are of course related as healthcare financing arrangements create, reduce or break down potential financial barriers in the use of healthcare.^{102, 103}

To avoid financial hardship, the financing of universal coverage schemes in Western European countries is to a large extent decoupled from health risks or the receipt of healthcare. First, because illness can result from bad luck or circumstances over which individuals only have limited control. Individuals should not be held financially accountable for this. Second, if payments would be strongly related to the receipt of healthcare, they might reduce a household's ability to consume other necessary goods and services such as food, housing and utilities and hinder an individual's ability to attain or maintain a normal functioning and consequently the individual's range of opportunities.¹⁰⁴ If payments are to be decoupled from health risks or the receipt of healthcare, how should they be allocated? The analysis of equity in healthcare payments presumes that payments should reflect the household's ability or capacity to pay.^{u102-106}

Payments for healthcare can be subdivided into two groups: pre-payments and out-of-pocket payments. **Pre-payments** are used to finance public or voluntary health insurance and consist amongst others of social contributions, taxes and insurance premiums. These payments limit an individual's exposure to out-of-pocket payments at the point of use and reduce financial hardship. In case of (compulsory) public insurance, pre-payments are generally independent from health risks with the aim of sharing health risks and care expenses among the population. For private health insurance, the premiums can be (partially) adjusted to known health risks and the expected use of healthcare. **Out-of-pocket payments** are payments (net of insurance reimbursements) related to healthcare consumption. They include co-payments (and co-insurance) and supplements for healthcare services and products covered by the public health insurance, e.g. doctor consultations as well as direct payments for non-covered services and products, e.g. over-the-counter drugs or glasses.

The analysis follows the same distinction. In section 3.1 we look at indicators of financial protection, i.e. catastrophic and impoverishing out-of-pocket payments. These indicators relate household out-of-pocket payments to a pre-defined threshold based on the household capacity to pay. If payments exceed the threshold, this is indicative of financial hardship. In section 3.2, we analyse the redistributive effect of pre-payments for the public health insurance. This is an indicator of financial solidarity through the healthcare system that measures if the distribution of pre-payments is in relation to ability to pay. In addition, we calculate the redistributive effect of out-of-pocket payments, as international research has shown that out-of-pocket payments might strongly reduce the overall redistributive effect.

^u Ability and capacity to pay are slightly different concepts. Ability to pay refers to the financial resources at a household's disposal, while capacity to pay

refers to the financial resources corrected for a normative amount to cover expenses for basic needs, such as food, housing and utilities. The idea of the latter is that households can only spend resources once basic needs are met.



3.1 Financial hardship when using care

Out-of-pocket payments made at the point of consuming healthcare can be a financial burden, in particular for individuals with high care needs or limited resources. A severe financial burden may have two adverse consequences: individuals can delay or forgo the use of healthcare to temporarily reduce out-of-pocket payments (unmet needs, see section 2.6) or experience financial hardship when using care. A lack of financial protection may therefore create inequities in the use of care (see section 2.5) and lead to or deepen poverty. The results on unmet needs indicate that postponement of care has increased over time in Belgium, in particular among individuals in a financially difficult situation and individuals who suffer from ill-health. These individuals still use care, but less than expected based on their needs profile. In this section, we look at indicators for financial hardship.

“Today, it is unacceptable that people become poor as a result of ill health.” (Tallinn charter, 2008)¹⁰⁷

We measure the extent to which individuals are protected from financial hardship when using healthcare with two indicators: the incidence of catastrophic and impoverishing out-of-pocket payments. For reasons of international comparability, we follow the methodology proposed by the WHO European Region in its series on financial protection (in section 3.1.3 the methodology is detailed).³⁷ 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 normative amount to cover basic needs. 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. This implies that out-of-pocket payments by poor households are considered catastrophic. Hence out-of-pocket payments that are (further) impoverishing are always catastrophic, but catastrophic out-of-pocket payments are not necessarily impoverishing.

Other methodologies to calculate catastrophic and impoverishing out-of-pocket payments exist and entail different normative choices about how much households should spend on healthcare, about what a fair division is of the financial burden.^{108, 109} A well-known alternative is the budget share approach, which is used to calculate catastrophic health spending as indicator 3.8.2 for the sustainable development goals (SDG). In this case no correction for basic need expenses is made. Out-of-pocket payments are considered catastrophic if they exceed a proportion of total household expenses or income, irrespective of the financial situation of the household. This can lead to an underestimation of catastrophic spending among poor households as these spend a considerable amount of their resources on meeting basic needs and hence are more likely to spend a lower proportion on healthcare (while still experiencing hardship). A capacity-to-pay method, such as proposed by the WHO, corrects the amount of resources that can be (freely) spend on healthcare for a minimum consumption of basic necessities. Alternative corrections for meeting basic needs are proposed in the literature, but the underlying normative proposition is the same: poor households should spend a lower share of their resources on out-of-pocket payments for healthcare than rich household in order to be considered as having experienced financial hardship.

We first present a general picture of the overall pattern of out-of-pocket payments in Belgium and the financial protection provided by some measures in public health insurance (section 3.1.1). Data sources are detailed in section 3.1.2 and the methodology is discussed in section 3.1.3. Finally, the results are summarized in section 3.1.4.



3.1.1 Out-of-pocket payments and protective measures in Belgium

In Belgium, out-of-pocket payments as a share of current expenditures on healthcare are estimated at 19.1% in 2018 (or about € 9 billion) (figures have been recently revised upwards), well above the level in our neighbouring countries with 9.2% in France, 12.5% in Germany, 10.4% in Luxembourg, 10.8% in the Netherlands, and 16.7% in the United Kingdom.¹¹⁰ They have decreased slightly over time, from 20.2% in 2008 to 19.5% in 2012 and 18.9% in 2016, a trend that has been reversed since 2016.

At the same time, a wide range of protection measures have been introduced in the health insurance system to reduce financial barriers and financial hardship in using care (see Box 10 for a brief overview of protection measures^v). In spite of the protection measures, about 3% of the households in the EU-SILC survey indicate that they were not able to pay one or more invoices for healthcare on time due to financial reasons over the past 12 months (2.7% in 2008, 3.2% in 2012 and 3.0% in 2016).

Box 10 – Protection measures in the Belgian health insurance system

Increased reimbursement of healthcare expenses

Entitlement to increased reimbursement of healthcare expenses protects vulnerable population groups from (high) healthcare costs at the point of use. They pay lower co-payments than the general population. The reduction depends on the type of expenditure.

Increased reimbursement was introduced already in 1963, together with the introduction of the Health Insurance Act. However, it was only granted to individuals identified as vulnerable due to a *specific condition* and to their household members. In addition, eligibility required that the gross taxable income of the household had to be below a yearly-adapted limit. Over the years, the definition of the vulnerable population was extended

and also the household concept changed. For example, at the end of the nineties the system was extended to long-term unemployed, individuals entitled to an allowance for handicapped persons, individuals entitled to a subsistence level income, etc. Since 2007 the system is no longer restricted to vulnerable groups due a specific condition, but has been extended to all households below a certain income level.

Third-party payer system

In the third-party payer system, patients only pay the co-payment (instead of paying the full price upfront at the point of use and be reimbursed afterwards), while the sickness fund directly pays the providers. GPs are *obliged* to apply the system for all consultations and technical acts for persons entitled to increased reimbursement. GPs are *allowed* to apply the system for persons entitled to increased reimbursement in case of home visits (GPs) and specialists for all acts. Also for specific other vulnerable groups GPs and specialists may apply the system.

Status of person with a chronic illness

The status of person with a chronic illness was introduced in 2014. Individuals with such status may request the application of the third-party payer system for GP, specialist and dentist consultations. Doctors are, however, not obliged to apply the third-party payer system. Individuals entitled to the status also benefit from a reduction in the maximum billing ceiling (see below). The reduction in the maximum billing ceiling applies to all household members.

The status is automatically granted by the sickness fund for two years (and is renewable) (a) to individuals who are entitled to the lump sum for the chronically ill (see below) or (b) who had in eight consecutive quarters (in two calendar years) at least € 300 healthcare costs (indexed) in each quarter. Healthcare costs consist of co-payments and reimbursements from the sickness fund.

^v In Box 10 we give a short description of the protection measures. For more details, we refer to KCE Report 309⁷³ and the Green Book on access to healthcare in Belgium⁵⁵.



Lump sum for the chronically ill

The lump sum for the chronically ill, introduced in 1998, is an annual amount granted to specific chronically ill patients to cover non-medical costs. The amount of the annual allowance, which is indexed annually, is determined by the degree of dependence and is granted automatically by the sickness fund. The lump sum varies between € 318.23 and € 636.47 (October 2020) and is not means-tested.

Within this scheme, individuals are considered as chronically ill if (a) the sum of their individual co-payments exceeded € 450 in each of the two previous years (or € 365 for patients with increased reimbursement); and (b) individuals can prove that they have lost their ability to live independently to a major extent.

System of maximum billing

The system of maximum billing (MAB), introduced in 2002, puts a ceiling on the total amount of co-payments (not supplements) at the level of a household during a calendar year, where the ceiling is a function of the household income. While the income thresholds have been indexed since the introduction of the MAB in 2002, the MAB ceilings were indexed for the first time in 2017.

The MAB consists of four types, each with a different income and household concept. All households are entitled to one or more MAB types. The majority of healthcare services are included in the MAB system; exceptions are long-term stays in a psychiatric hospital and co-payments for certain medicines.

Social MAB: Individuals (and their household members) entitled to increased reimbursement are entitled to the social MAB. The ceiling amounts to € 477.54 (2020).

Income MAB: The income MAB applies to all households not entitled to the social MAB. The ceiling, ranging from € 477.54 to € 1 910.16 (2020), depends on the net taxable household income three years earlier (since 2019: two years earlier).

Child MAB: To give a supplementary protection to children who are confronted with high healthcare expenses, an individual MAB-right for children (<19 years) was installed. This right cannot be transferred to the other household members. Irrespective of the MAB-ceiling for the household they are living in, children are always entitled to individual reimbursement of their co-payments that exceed a ceiling of € 689.78 (2020).

MAB for the chronically ill: The fourth type was introduced in 2009. It reduces the child MAB ceiling or the household's social or income MAB ceiling with € 106.12 (2020) for a chronically ill person, who is defined as (a) a person entitled to the status of person with a chronic illness or (b) a person with a high co-payments in two previous calendar years (€ 468.18 in 2018 and € 477.54 in 2019 to be entitled to reduction of the ceiling in 2020).

Integration of minor risks of self-employed in public health insurance

Since January 2008 the minor risks (physician visits, dental care, minor surgery, home care and pharmaceuticals for outpatient care) of the self-employed are included in the compulsory health insurance package. Before that date, the self-employed had to take a private insurance to be covered for the minor risks.

Regulation of supplementary payments

In addition to co-payments, patients also pay supplementary payments over and above official tariffs. In some cases, services are covered but patients pay supplements on top of the official tariffs. These supplements include fee supplements, which are the difference between the official tariffs and freely set fees by providers, material supplements and room supplements for a hospital stay. In other cases, services are not covered by the compulsory health insurance and patients pay the full price out of pocket.



Supplements paid in the context of a hospital stay have been increasingly regulated. For example, before 1 January 2013 protection in common or two-person rooms was limited to some specific groups of vulnerable patients. On that date fee supplements in these room types were no longer allowed, except for a day-care stay and physicians that do not adhere to the official tariffs. Since 2015 the same rules apply for an inpatient and day-care stay. Since 1 January 2010 room supplements can only be charged in a single room.

Contrary to supplements charged for a hospital stay, there is little regulation for supplements charged for outpatient care.¹¹¹

3.1.2 Data sources and sample

Data sources

Two databases are used for the analysis on catastrophic and impoverishing out-of-pocket payments (see section 1.3): (1) the Household Budget Survey (HBS) data, which are internationally used as main source to compute both indicators, and include information on care consumption that is not covered by the public health insurance, but with a short registration period; and (2) the coupled EU-SILC/IMA-AIM data, which have the advantage of administrative registration of healthcare consumption over a full year, account for the effects of financial protection measures, but are limited to health services and products covered by the public health insurance. In Box 11, the main strengths and weaknesses of both data sources are discussed.

Box 11 – Strengths and weaknesses of HBS and EU-SILC/IMA-AIM data to analyse catastrophic and impoverishing out-of-pocket payments

Household Budget Survey (HBS), waves 2012, 2014, 2016 and 2018.

Strengths

- Detailed microdata on consumption (COICOP 6 digits), socioeconomic and sociodemographic information, information on private hospital insurance.
- Extensive information on out-of-pocket payments, including non-covered services and goods such as glasses, hearing aids, over-the-counter drugs.

Weaknesses

- 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.¹⁰²
- Not all expenses related to healthcare are recorded (e.g. transport costs to a healthcare provider).
- Registered 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.
- Low participation rate.⁴⁹

Opportunities & threats

- HBS data are internationally used as main source to compute catastrophic out-of-pocket payments. The recent series of WHO Europe Region on financial protection in healthcare allows for an international comparison. Such International comparison should be done with caution as the HBS survey design can differ across countries.



- While medical goods, such as glasses and hearing aids, are often necessities to a normal functioning, there is important price variation between basic and luxury designs. The latter may influence the incidence of catastrophic out-of-pocket payments.

EU-SILC/IMA-AIM, waves 2008, 2012 and 2016

Strengths

- Detailed administrative data on use of care covered by public health insurance and the associated out-of-pocket payments (IMA-AIM). Out-of-pocket payments accounting for financial protection mechanisms in place (increased reimbursement, maximum billing system). Extensive self-reported information on socioeconomic status, sociodemographic characteristics and health status (EU-SILC). Consumption expenses are imputed using the EUROMOD microsimulation model.

Weaknesses

- Certain population groups are not included, e.g. elderly in nursing homes, homeless individuals, individuals in prison.
- Underestimation of out-of-pocket payments: there is no information on payments for care that is not reimbursed (glasses, certain dental care, over-the-counter drugs) and only partial information on ambulatory supplements.
- There is no information on reimbursements from private insurance.

Opportunities & threats

- Coupling of datasets can be repeated in the future, but is a time-consuming procedure.
- Given the ad hoc nature of the coupled data, an international comparison is difficult.

Sample

The HBS sample consists of all households with positive total and food expenditures.

The EU-SILC/IMA-AIM sample consists of all households with positive (imputed) total and food expenditures and for which the coupling between the EU-SILC and the IMA-AIM database was possible for all household members.

Main selected variables

Descriptive statistics and more explanation on the variables used in the analysis can be found in sections 3.2.1, 3.2.2, 3.3.1.1 and 3.3.2.1 of the [Supplement](#). In this section we list the main variables. They can be classified in different groups:

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 (see section 3.1.3).
2. Information on **out-of-pocket payments (OOP)**:
 - a. In the HBS out-of-pocket payments are defined as all expenses related to COICOP category 06 (see Box 1 for more information on the COICOP classification). 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 consumption 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 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 will not include these expenses in our definition of out-of-pocket payments.

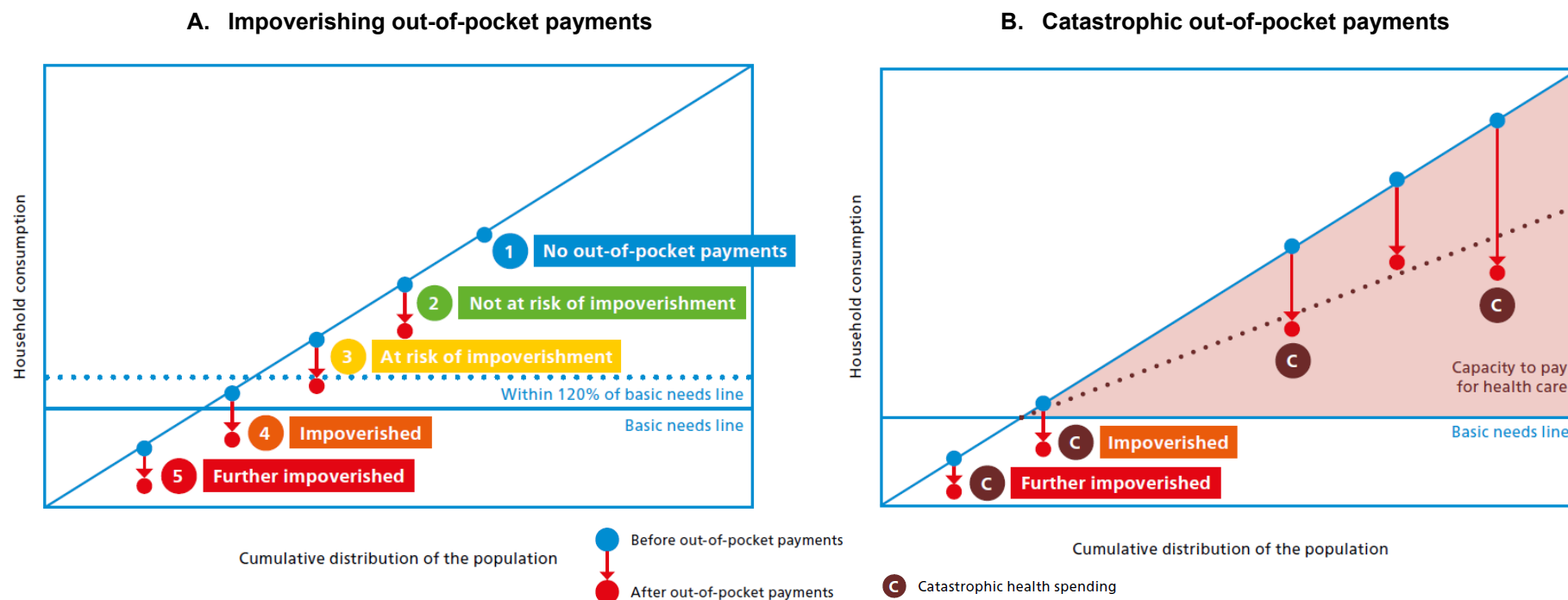
- b. In the EU-SILC/IMA-AIM, out-of-pocket payments relate to all healthcare use and medication use covered by the public health insurance. They include both co-payments (and co-insurance) and supplements. Out-of-pocket payments take into account increased reimbursement status and can be corrected for the system of maximum billing (for more details on this correction, see section 3.2.2 of the [Supplement](#)). Out-of-pocket payments can be further subdivided in categories: (1) medicines, (2) GP care, (3) specialist care, (4) dental care, (5) hospital day care, (6) hospital inpatient care, (7) other. The subdivision is made based on billing codes (of procedures, treatments and consultations), the classification of hospital stay in day care or inpatient admission and the professional title of the prescribing/consulting doctor (for more details on the classification, see section 3.2.2 of the [Supplement](#)). As institutionalized individuals are not sampled in the EU-SILC survey, no long-term care costs are included in the out-of-pocket payments.
3. **Socioeconomic information:** Household income in this section refers to the net income of all household members in the HBS and the household disposable income in the EU-SILC. In both instances, it concerns the income after direct taxation, social security and welfare transfers that a household has available for spending and saving.

3.1.3 Methodology – When out-of-pocket payments become catastrophic or impoverishing

In this section, the outlines of the methodology are specified, a more detailed description can be found in section 3.2.5 of the [Supplement](#) and a fully detailed description in the WHO technical note.³⁷ Figure 9 illustrates the methodology.



Figure 9 – Measurement of catastrophic and impoverishing out-of-pocket payments



Source: WHO Regional Office for Europe.¹⁰⁹

The analysis is carried out at the household level. This choice is imposed by the HBS survey design, but makes sense as households function as pools for risks and resources and households are the beneficiaries of important measures of financial protection, such as increased reimbursement or the system of maximum billing (see Box 10). In order to compute the incidence of catastrophic and impoverishing out-of-pocket payments, each household's capacity to pay needs to be calculated. The household total expenses are considered as the financial resources at the household's disposal.

In a first step, the standard amount to cover basic needs 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 equivalized household expenses. These households are selected based on the assumption that they are able to meet, but not necessarily exceed, basic needs for food, housing and utilities. The standard amount is adjusted for



household composition by the OECD equivalence scale^w. The amount of basic need expenses is also used as poverty line or basic needs line. In Figure 9 (panel A and B), the horizontal line represents the poverty line, while the diagonal line represents total household expenses. When total household expenses are below the poverty line, the consumption level of the household is not enough to meet basic needs and the household is considered poor.

Once the poverty line is known, the **incidence of (further) impoverishing out-of-pocket payments** can be calculated. Households are divided into five mutually exclusive categories based on their level of out-of-pocket payments in relation to the poverty line (see panel A in Figure 9).

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.

In a second step, each household's **capacity to pay** is calculated as total household expenses minus the standard amount to cover basic needs, adjusted for the household composition. Poor households have a negative capacity to pay since total household expenses are lower than the standard amount to cover basic needs.

Once the capacity to pay is established, **the incidence of catastrophic payments** can be calculated. 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. In panel B of Figure 9, the capacity to pay is indicated by the red triangle between the poverty line and the household total expenses. When OOPs are deducted from the total household expenses (i.e. the red dots in Figure 9), and the remaining financial resources fall below the threshold indicated by the dotted line, out-of-pocket payments are considered to be catastrophic. The figure illustrates clearly that in order to be labelled catastrophic, the amount of out-of-pocket payments paid by poor households or households with low financial resources is smaller (both in absolute as in relative terms, relative to the household's financial resources) than for households with high financial means. This is in line with the normative proposition that poor households should pay less (or even nothing) for healthcare.

^w The OECD equivalence scale (1 for the first adult, 0.7 for individuals aged 14 or more, 0.5 for individuals aged 13 or less) is the default choice for the analysis of financial protection by the WHO Europe Region.



Robustness check: income as proxy for financial means and alternative definitions of out-of-pocket payments

Multiple robustness and sensitivity checks were performed. First, total household expenses were replaced by household income as proxy for the financial resources at the household's disposal. Second, the sensitivity of the results to lower threshold values (besides 40% of the household's capacity to pay) to consider out-of-pocket payments as catastrophic was assessed, with 20%, 25% and 30% as threshold values. Third, alternative definitions of out-of-pocket payments were used. The results of the robustness and sensitivity checks can be found in section 3.3 of the [Supplement](#).

In the main text, results from two alternative definitions for out-of-pocket payments are presented (see Table 2). The **baseline definition of the HBS** simply adds up all expenses registered in COICOP category 06, which corresponds to the standard definition used by the WHO.¹⁰⁹ The **alternative definition** attempts to correct out-of-pocket payments for potential reimbursements through the sickness funds and the hospital insurance. Sickness fund reimbursements over the past 4 months are recorded as income source in the HBS and do not relate to the consumption of care during the registration period of expenses, i.e. one month in 2012-2016 or 15 days in 2018 (see section 1.3.2). Nonetheless, the reimbursements (corrected for the difference in registration period) are used as proxy for the expected reimbursements for the actual care consumed. For patients with chronic conditions or recurrent care use, the assumption makes sense, while for other patient profiles it might be less valid. This correction cannot be made in wave 2012, since the information on reimbursements is lacking. In addition, expenses for inpatient care are set to zero for patients with a hospital insurance. Coverage by a hospital insurance is assumed for individuals who have paid premiums, which is likely to be an underestimation as individuals can have a hospital insurance fully paid for by the employer.

In the EU-SILC/IMA-AIM, the **baseline definition** of out-of-pocket payments consists of all co-payments and supplements for healthcare services and goods covered by the public health insurance within one registration year. The out-of-pocket payments account for increased reimbursement status and maximum billing reimbursements. In the alternative definition, supplements for inpatient care are excluded for all households. The

assumption is that they might be covered by private hospital insurance and in absence of information on coverage by such insurance, it is applied to all households.

Table 2 – Definitions of out-of-pocket payments

| | HBS | EU-SILC/IMA-AIM |
|------------------------|--|---|
| OOP-baseline | All expenses related to COICOP category 06, prior to reimbursement if applicable. | Co-payments and supplements for all healthcare use and medication covered by the public health insurance. Increased reimbursement status and the system of maximum billing are accounted for. |
| OOP-alternative | OOP-baseline minus proxy for reimbursements from the sickness fund and minus inpatient expenses in case the household has paid for hospital insurance premium. | OOP-baseline minus supplements related to hospital inpatient care. |

3.1.4 Results

In this section, we highlight the main results, more detailed results can be found in section 3.3 of the [Supplement](#). *Unless otherwise specified, the presented results use total household expenses as proxy for financial resources, the baseline out-of-pocket definition and 40% of capacity to pay as threshold for catastrophic spending.* Results are presented for the population total as well as for a subdivision in quintiles based on equivalized total household expenses (or equivalized household income where indicated). The 1st quintile represents the 20% households with the lowest total equivalized expenses, while the 5th quintile represents the 20% households with the highest total equivalized expenses.



The results are structured as follows. We first present the incidence of impoverishing out-of-pocket payments (section 3.1.4.1) and the incidence of catastrophic payments (section 3.1.4.2). Second, we look at the degree of financial hardship, measured as the share of out-of-pocket payments in the total expenses of households with catastrophic and impoverishing out-of-pocket payments (section 3.1.4.3). Third, we look at the health spending patterns in the population and in households with catastrophic payments in particular (section 3.1.4.4). Finally, we discuss the financial protection of the system of maximum billing (section 3.1.4.5).

3.1.4.1 *Impoverishing out-of-pocket payments*

Table 3 presents the incidence of (further) impoverishing out-of-pocket payments using the HBS and the EU-SILC/IMA-AIM data. The incidence is computed both for total household expenses (default of the WHO) and household income as proxy for the household's financial resources and ranges between 1% and 2.5%. The incidence rates are highly similar when using other definitions for OOP, because the alternative definitions lower but do not eliminate OOPs and hence only marginally influence impoverishment by OOP. It is important to note that households without OOPs cannot be (further) impoverished. Higher rates of unmet needs, i.e. forgone or delayed care, may thus reduce the incidence but should not be considered as positive outcomes.

The first two rows in Table 3 indicate that there is important variation over time in **the incidence of impoverishing OOPs as computed by the HBS**. The combined share of impoverished and further impoverished households amounts to 2.1%, 1.3%, 1.9% and 0.8% in 2012, 2014, 2016 and 2018, respectively, when using total household expenses. The incidence is 0.3 to 0.7 percentage points higher when using household income. It is expected that the incidence rate is higher when using income instead of expenses,

because consumption expenses of low income households may exceed their income. The consequence is that household income for this group is lower than total household expenses and hence more likely to be below or close to the poverty line, explaining the higher incidence. There are good reasons that total expenses for low income households exceed income. One possibility is that the household has a temporary income shock (e.g. unemployment) or a permanent income shock (e.g. retirement) that is cushioned by the household's savings and so the household does not (or to a limited extent) change its consumption pattern. A second possibility is that the household faces unexpected expenses but has to meet basic needs at the same time, leading to higher spending than income permits, financed by savings or debt.

The important decrease between 2016 and 2018 is most likely related to changes in the survey design, and in particular the shortening of the registration period of expenses from 1 month to 15 days (see section 1.3.2). These results should be interpreted cautiously and cannot be simply compared with results from previous waves. As shown in the last row of Table 3, this change has led to a surge in households without OOP, from 19.7% in 2016 to 32.8% in 2018. The effect is even more pronounced in the subgroup of poor households with 62.2% of the poor households without OOPs in 2018 up from 42.8% in 2016, which explains the substantial reduction in incidence of (further) impoverishing OOP. On a general note, the proportion of households without OOPs in the HBS is substantially higher relative to the proportion in the EU-SILC/IMA-AIM which use annual data.

The **incidence of impoverishing OOPs in the EU-SILC/IMA-AIM** is stable over time at about 1.4% when using total household expenses and decreased over time when using household income from 2.6% in 2008 to 2.1% in 2016.



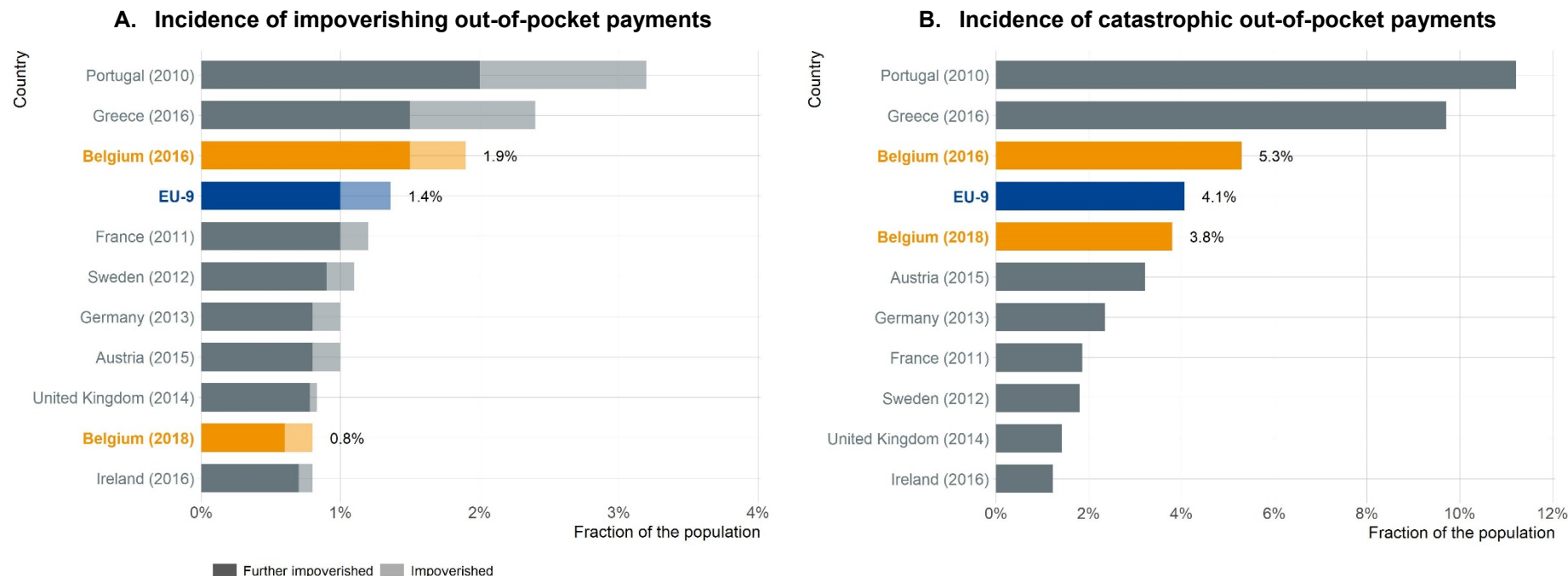
Table 3 – Evolution over time of share of households with impoverishing out-of-pocket payments

| | Household Budget Survey | | | | | | | | EU-SILC/IMA-AIM | | | | | |
|--------------------------------------|---|-------|-------|-------|---|-------|-------|-------|---|-------|-------|---|-------|-------|
| | Total household expenses as proxy for financial resources | | | | Household income as proxy for financial resources | | | | Total household expenses as proxy for financial resources | | | Household income as proxy for financial resources | | |
| | 2012 | 2014 | 2016 | 2018 | 2012 | 2014 | 2016 | 2018 | 2008 | 2012 | 2016 | 2008 | 2012 | 2016 |
| Further impoverished | 1.5% | 1.0% | 1.5% | 0.6% | 1.7% | 0.8% | 1.2% | 0.6% | 1.2% | 1.3% | 1.1% | 2.3% | 2.4% | 1.9% |
| Impoverished | 0.6% | 0.3% | 0.4% | 0.2% | 0.9% | 0.9% | 1.0% | 0.9% | 0.2% | 0.1% | 0.2% | 0.3% | 0.3% | 0.2% |
| At-risk of impoverishment | 1.8% | 1.7% | 2.0% | 0.8% | 1.5% | 0.9% | 1.7% | 0.6% | 1.9% | 1.9% | 1.9% | 2.8% | 2.4% | 1.9% |
| Not at-risk of impoverishment | 79.1% | 80.5% | 76.5% | 65.5% | 78.8% | 81.0% | 76.5% | 65.0% | 92.4% | 92.4% | 93.1% | 90.4% | 90.6% | 92.3% |
| No out-of-pocket payments | 17.1% | 16.4% | 19.7% | 32.8% | 17.1% | 16.4% | 19.7% | 32.8% | 4.2% | 4.4% | 3.7% | 4.2% | 4.4% | 3.7% |

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 Figure 10, panel A). Using the 2018 HBS result with household expenses as proxy for financial resources, Belgium has, together with Ireland, the lowest share of households with 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.^{112, 113}



Figure 10 – International comparison of incidence of impoverishing and catastrophic out-of-pocket payments



3.1.4.2 Catastrophic out-of-pocket payments

Figure 11 presents the incidence of catastrophic out-of-pocket payments using the HBS and the EU-SILC/IMA-AIM data. The incidence is computed both for total household expenses (default of the WHO) and household income as proxy for the household's financial resources and two alternative definitions for OOPs (see section 3.1.3).

Using the **default WHO methodology**, the results of the HBS (leftmost panel in Figure 11) indicate that 4.7%, 3.9%, 5.3% and 3.8% of the households experienced catastrophic OOPs in 2012, 2014, 2016 and 2018,

respectively. About 68% in 2012, 60% in 2014 and 2016 and 45% in 2018 of households with catastrophic payments are concentrated in the 1st quintile; or from a different perspective, the incidence of catastrophic payments in the 1st quintile equals 16.2%, 11.7%, 15.8% and 8.7% in 2012, 2014, 2016 and 2018, respectively. Similar to the results for impoverishing OOPs (section 3.1.4.1), a discrepancy between the results for 2018 and 2016 is discernible that is most likely driven by the shortening of the registration period. The lower incidence of impoverishing OOPs in 2018 also explains the lower incidence of catastrophic OOP, in particular in the 1st quintile. The results for 2018 should therefore be interpreted cautiously and cannot be simply compared with results from previous waves.



Using the **default WHO methodology**, the results of the **EU-SILC/IMA-AIM** (fifth panel from left in Figure 11) indicate that about 2% of the households experiences catastrophic OOP, well below the results of the HBS. The rate is stable over time and heavily concentrated in the 1st quintile.

There are some similarities and discrepancies between the results from both surveys.

First, the **alternative definitions** reduce the amount of out-of-pocket payments, by correcting for reimbursements by the sickness funds and excluding inpatient care expenses for households with hospital insurance (HBS) and by excluding inpatient supplements (EU-SILC/IMA-AIM). This obviously leads to a decrease in the incidence of catastrophic OOP. The decrease is, however, much more pronounced in the HBS results relative to the EU-SILC/IMA-AIM results. There are two main reasons. First, catastrophic health spending in EU-SILC/IMA-AIM is more concentrated in the 1st quintile and to a large extent related to (further) impoverished households. OOPs of (further) impoverished households are by definition catastrophic in nature, irrespective of the amount of the out-of-pocket payments and the incidence of catastrophic OOPs of this groups is thus largely unaffected by the definition of OOP. In the HBS, on the other hand, the incidence of catastrophic OOPs is less driven by the subgroup with (further) impoverishing OOP. Second, inpatient care expenses are an important source of catastrophic OOPs in the HBS among households in higher quintiles (see also section 3.1.4.4). Since many of these households have hospital insurance, the correction in the alternative definition effectively pushes down the incidence rate.

Second, the **use of household income as proxy for financial resources** has a mixed effect on the incidence of catastrophic OOP. First, there is an upward effect. Some low income households likely spend more on consumption than their income (see section 3.1.4.1). As a result, the incidence of (further) impoverishing OOPs (see section 3.1.4.1) is higher when using income rather than household expenses in the calculations, and hence also the incidence of catastrophic OOPs is higher (in the 1st quintile). Another effect for non-poor low income households is that a capacity-to-pay threshold based on household income is lower than one based on total household expenses, easing the criterion for low income households to have

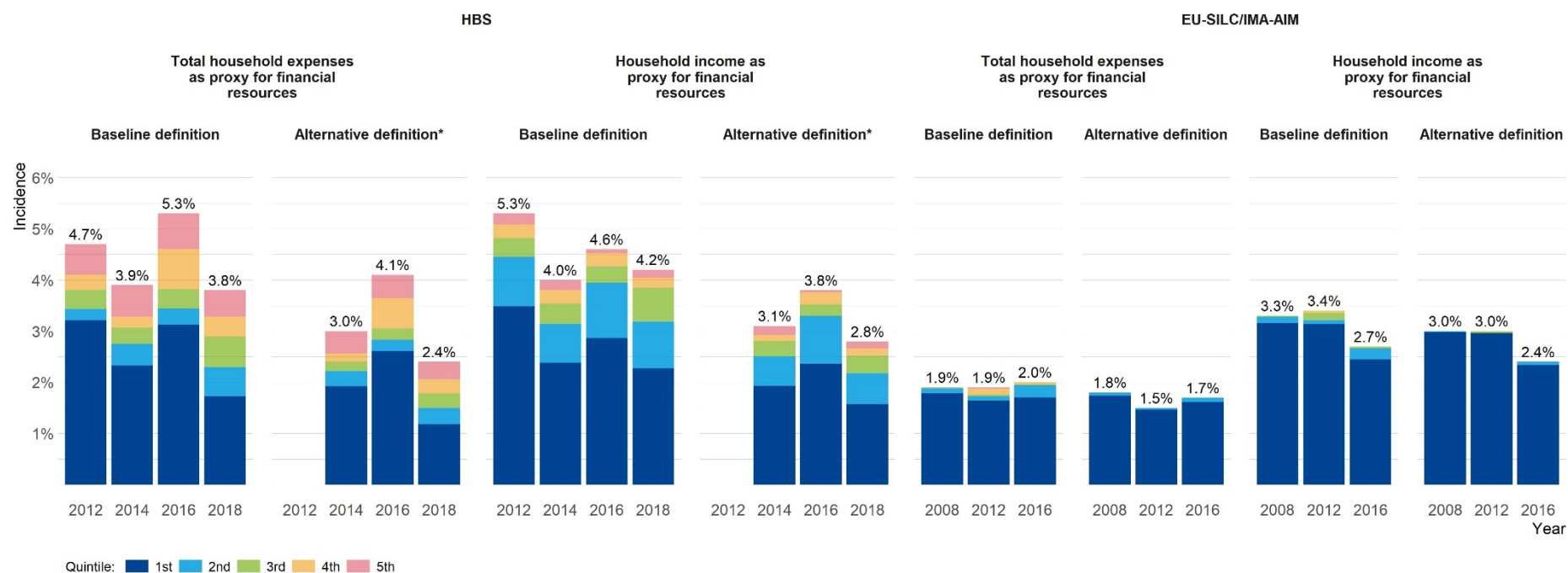
catastrophic OOP. Second, for high income households, the opposite is true. As they spend less on consumption than their income, a capacity-to-pay threshold based on household income tightens the criterion to have catastrophic OOP. Both effects can be clearly seen in the result of the HBS in Figure 11. When comparing the first and third panel from the left, it is clear that the incidence of catastrophic OOPs increases in the 1st and 2nd quintile and decreases in the other quintiles. For the results of the EU-SILC/IMA-AIM only the upward effect can be discerned, as there are nearly no catastrophic OOPs in the higher quintiles. The results with respect to household income are more similar in both surveys than the results with respect to total household expenses, in particular for the 1st quintile.

Third, while catastrophic health spending recorded in the EU-SILC/IMA-AIM is almost entirely concentrated in the 1st and 2nd quintile, we find a non-negligible share of households in other quintiles that experience catastrophic OOPs in the HBS. There are two main reasons. First, the results in the EU-SILC/IMA-AIM correct for financial protection measures, such as the system of maximum billing that sets an income-dependent cap on the co-payments to be paid by a household (see Box 10). This is not accounted for in the HBS. Second, the results for the HBS include non-covered medical goods and services as well as all supplements to be paid. In the EU-SILC/IMA-AIM data, no information on OOPs for non-covered services is recorded and information on ambulatory supplements is limited, leading to an important underestimation of out-of-pocket payments. The HBS results indicate that expenses for glasses, dental care, inpatient care, specialist care and physiotherapy are important sources of catastrophic OOPs among households in quintiles 3 to 5 (see also section 3.1.4.4). While medical goods, such as glasses and hearing aids, are necessary to a normal functioning, there is important price variation between basic and luxury designs. The latter may influence the incidence of catastrophic out-of-pocket payments among more affluent households.

Panel B in Figure 10 demonstrates that HBS results (default WHO methodology) for 2016 and 2018 are 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 11 – Evolution over time of share of households with catastrophic out-of-pocket payments



* In the alternative definition, no value for 2012 can be computed in the HBS due to a lack of information on sickness fund reimbursements.



3.1.4.3 How much financial hardship?

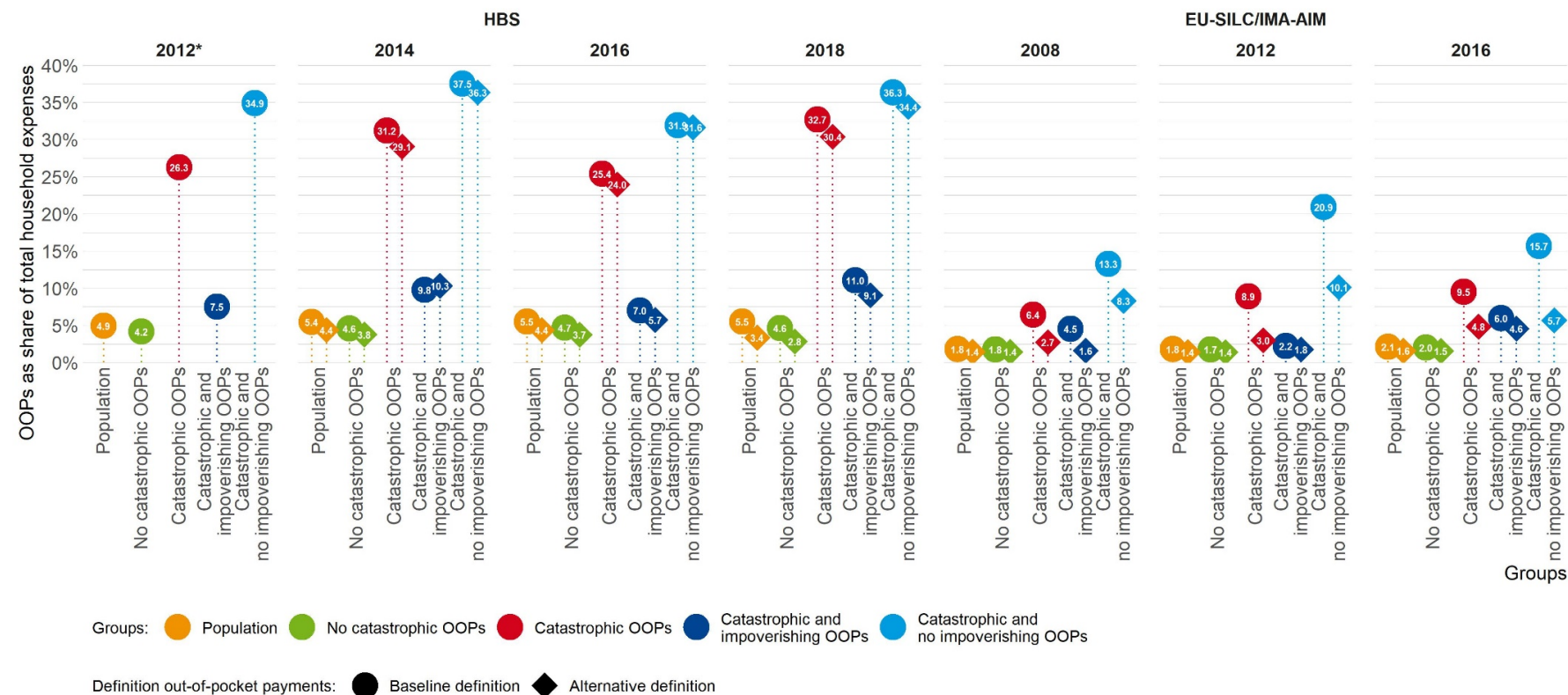
The degree of financial hardship experienced by households can be assessed, to some extent, by the share of out-of-pocket payments in the household total expenses. The share of out-of-pocket payments in the household total expenses for different population subgroups is depicted in Figure 12. For households with catastrophic out-of-pocket payments (red circles), this share increased from 26.3% in 2012 to 32.7% in 2018 in the HBS (default WHO methodology).

In the HBS, this share increased between 2012 and 2014 and remained stable thereafter. In the population (orange circles, baseline definition), out-of-pocket payments represent 4.9% of the household expenses in 2012 increasing to 5.5% in 2018. The results for the EU-SILC/IMA-AIM (orange circles, baseline definition) indicate a stable evolution between 2008 and 2012 and an increase between 2012 and 2016. The share of OOPs decreases (orange diamonds) when using the alternative definition and shows a decrease between 2016 and 2018 in the HBS. The difference between the share in the HBS and EU-SILC/IMA-AIM can be explained by out-of-pocket payments on non-covered healthcare services and goods as well as supplements.

As expected, the share of out-of-pocket payments for households without catastrophic payments (in green in Figure 12) is slightly below the population average, while those for households with catastrophic payments (in red) is above the population average, both for the results in the HBS and in the EU-SILC/IMA-AIM. The average share of OOPs for households with catastrophic payments is 6 to 7 times the share of households without OOPs in the HBS results and about 3 to 4 times in the EU-SILC/IMA-AIM results. In the results of the EU-SILC/IMA-AIM, we observe a clear upward trend over time in the share of OOPs for households with catastrophic payments, both in the baseline and alternative definitions. In the HBS, there is more variability over time, but the share in 2018 is significantly higher than the share in 2012.

The results for households with catastrophic OOPs can be further subdivided in two groups, households with^x or without (further) impoverishing OOPs, represented, respectively in dark blue and cyan. We find that the share of OOPs in total household expenses is particularly high among households with catastrophic OOPs, which are not (further) impoverished. However, also for households that are (further) impoverished, the share of OOPs is above the population average, irrespective of OOP definition and database.

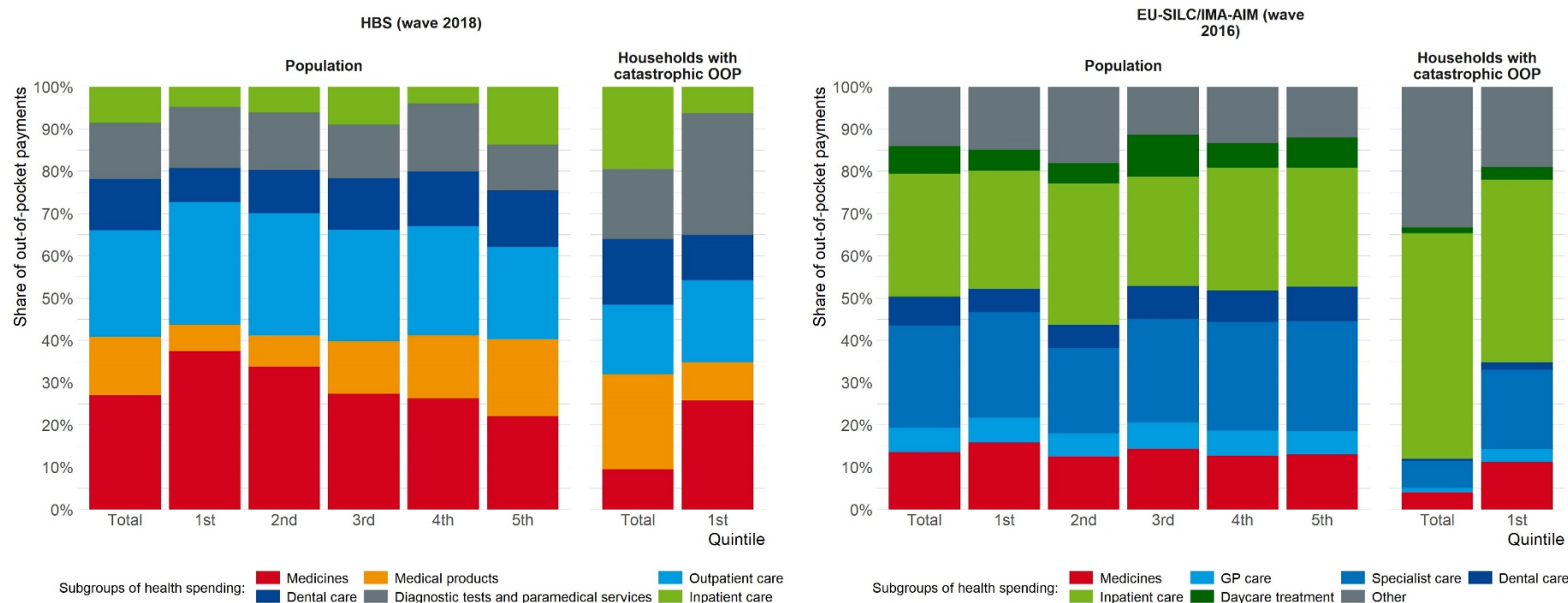
^x By definition, households with impoverishing OOPs also have catastrophic OOPs.

Figure 12 – Average share of total household expenses spent on out-of-pocket payments by subgroup and year


* In the alternative definition, no value for 2012 can be computed due to a lack of information on sickness fund reimbursements.



Figure 13 – Breakdown of out-of-pocket payments by health service among the population and among households with catastrophic out-of-pocket payments



3.1.4.4 Which health services are responsible for financial hardship?

Figure 13 shows the subdivision of out-of-pocket payments by type of health service among the population (total and further specified by quintile) and among households with catastrophic health spending (total and 1st quintile, other quintiles are not shown due to the small subsample size).



HBS, a breakdown of out-of-pocket payments on covered and non-covered services and goods

The population results for the HBS (bar total in Figure 12) indicate that in 2018, the majority of out-of-pocket payments are related to medicines (27%), outpatient care (25%) and therapeutic medical products (14%). The share of OOPs by type of healthcare is relatively stable over time. The top three categories of out-of-pocket spending vary across quintiles. Patients in the 1st and 2nd quintile (Q1 and Q2) spend relatively less on therapeutic medical products (6% and 7% for Q1 and Q2, respectively), dental (8% and 10% for Q1 and Q2, respectively) and inpatient care (5% and 6% for Q1 and Q2, respectively) and more on medicines (37% and 34% for Q1 and Q2, respectively) and outpatient care (29% for both Q1 and Q2) compared to the 5th quintile (18% for therapeutic medical products, 13% dental care, 13% for inpatient care, 22% for medicines and 22% for outpatient care). This discrepancy is observed in all other waves as well.

When zooming in on the households with catastrophic payments in the HBS, the picture is slightly different and the differences between the subdivision among all households (total bar) and the subdivision in the 1st quintile are more pronounced. The latter is remarkable as catastrophic payments are concentrated in the 1st quintile. In 2018, most of the OOPs among households with catastrophic OOPs in the 1st quintile were related to diagnostic tests and paramedical services (29%, in particular physiotherapy and rehabilitation, and paramedical services by dieticians, psychologists, speech therapists, etc.) and medicines (26%). The latter category is, however, less important among households with catastrophic payments than in the population in general. When looking at the breakdown of OOPs among all households with catastrophic spending, we observe that therapeutic medical products (23%, in particular glasses and prostheses), inpatient care (20%) and dental care (16%) are important categories, while medicines (10%) are not. The discrepancy with the results in the 1st quintile are related to different spending patterns among households with catastrophic payments in higher quintiles.

EU-SILC/IMA-AIM, a detailed view on out-of-pocket payments on covered services and goods

The out-of-pocket payments in the EU-SILC/IMA-AIM only consist of healthcare products and services covered by the health insurance. Not surprisingly, the breakdown of out-of-pocket payments is quite different from the HBS. The results among all households (population panel in Figure 12) show little variation in spending categories over the different quintiles. In 2016, the majority of OOPs were related to hospital inpatient care (29%), specialist care (24%) and medicines (14%). The composition of OOPs has changed over time, with an increase in the share of OOPs going to dental care, specialist care and hospital care, and a decrease in the proportion of OOPs related to GP care and medicines. In particular the decrease in the share of OOPs for medicines is noticeable, going from 24% in 2008 to 14% in 2016. The share of OOPs related to GP care decreased more importantly in the lower quintiles.

Expenses for medicines are restricted to prescribed medication. The share of OOPs is about half that found in the HBS, which includes payments for over-the-counter drugs. Moreover, the downward trend over time is opposite to the results from the HBS indicating a stable trend. This emphasizes the important (and possibly increasing) costs related to non-prescribed medicines, in particular among households in the 1st and 2nd quintile.

The share of out-of-pocket payments related to inpatient hospital care is much more important in the results of the EU-SILC/IMA-AIM relative to the HBS. The share of OOPs related to hospital inpatient care is about 4 to 5 times the share of OOPs related to hospital day care. The proportion of OOPs related to hospital care are likely upward biased, given that it is compulsory to register supplements for hospital care, but not for ambulatory care, leading to an underestimation of OOPs (and the share of OOPs) related to outpatient care. The share of OOPs for dental care is more pronounced in the higher quintiles, but not in the same magnitude as for the HBS, suggesting that unregistered supplements and non-covered services may push dental care costs upwards.



Among households with catastrophic payments (bar total in Figure 13), about half of the out-of-pocket payments relate to hospital inpatient care and one third to other care costs. The share of OOPs related to inpatient care is somewhat lower among households in the 1st quintile with catastrophic payments. In the 1st quintile, medicines and specialist care are also important sources of catastrophic OOPs. The proportion of OOPs for GP care are lower among households with catastrophic payments relative to the population.

3.1.4.5 Are households protected by the system of maximum billing?

The system of maximum billing is a protection measure implemented in 2002 with the objective to limit co-payments as a share of household income and hence avoid catastrophic payments. It sets an annual ceiling on household co-payments. While co-payments for specific health services are excluded from the system of maximum billing, its application covers a wide range of services as well as prescribed medication. Different ceilings are in place in function of the household net taxable income, entitlement to increased reimbursements, the level of co-payments in previous years and the status chronic illness (see Box 10). The co-payment ceilings were set to limit the share of out-of-pocket payments in household (net taxable) income to about 3% to 4.5%.¹¹⁴

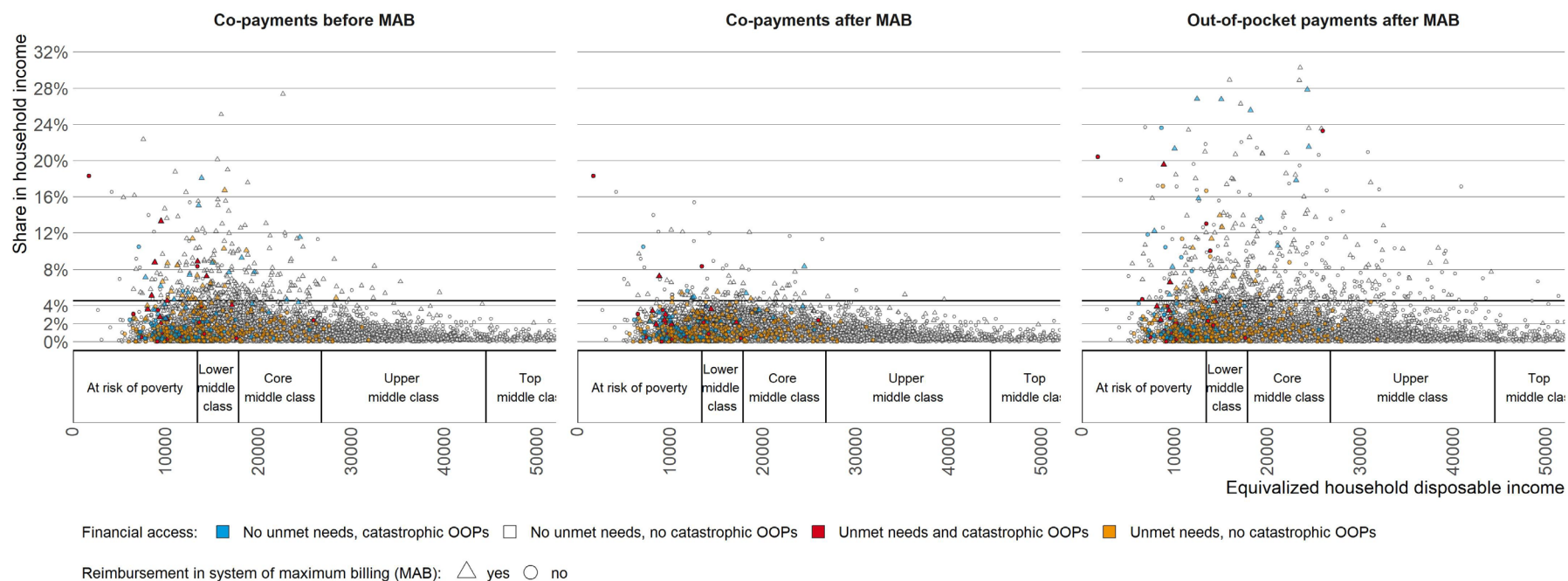
**Figure 14 – Impact of the system of maximum billing on the share of co-payments and out-of-pocket payments in household income**

Figure 14 illustrates the impact of the system of maximum billing on co-payments and out-of-pocket payments as share of household disposable income. The black horizontal line indicates a share of 4.5%. Each household in the EU-SILC/IMA-AIM survey (wave 2016) is represented by a circle (if the household has not received any MAB reimbursements) or a triangle (if the household has received MAB reimbursements). The left panel in Figure 14 represents the share of co-payments in household income before accounting for MAB reimbursements, the middle panel represents the share of co-payments after accounting for MAB reimbursements, and the right panel considers the share of out-of-pocket payments (hence including

supplements on top of co-payments). Moreover, different colours indicate if the household has catastrophic out-of-pocket payments and/or if anyone in the household reports unmet needs for medical or dental care.

The left and middle panel in Figure 14 clearly illustrate that the majority of households with a share of co-payments (before MAB) in income above 4.5% receive reimbursements through the MAB. After accounting for the MAB, co-payments for the large majority of households are below 4.5% of disposable income. There are exceptions, possibly related to the lag in income that is used to attribute the cap. Second, the middle panel shows



that co-payments after MAB as share of income are generally more important for households at risk of poverty, in the lower and core middle class (range between 0% and 5%) relative to the upper and top middle class (range between 0% and 3%). Hence, more affluent households pay relatively fewer co-payments in terms of their ability to pay. Third, once supplements are considered on top of co-payments (right panel), we find that out-of-pocket payments for an important number of households exceed the threshold of 4.5% of their income. Remark that the vertical axis is limited to 32% for visual reasons, but that the share of out-of-pockets for some households exceeds 32%. Hence, one cannot neglect the impact of supplements as driver for high out-of-pocket healthcare payments and possibly financial hardship.

The results in the right panel in Figure 14 indicate that households with catastrophic out-of-pocket payments are, on the one hand, concentrated in the population at risk of poverty and in the lower middle class, even at lower shares of income, i.e. below 2%, and on the other hand, situated well-above the 4.5% threshold in other income groups. Households with at least one individual reporting unmet needs for medical or dental care are concentrated among the lower income groups. As already discussed in section 2.6.3, these households generally have lower out-of-pocket payments than households where nobody experiences unmet needs, which is also visible in Figure 14. Hence their financial means are insufficient to absorb even modest amounts of out-of-pocket payments.

3.2 The redistributive effect of public health insurance

The budget of the public health insurance, including the budget for competences transferred from the RIZIV-INAMI to the federated authorities in the 6th state reform^y, was about € 33 billion in 2017, i.e. almost 4 times the amount of out-of-pocket payments (about € 9 billion in 2017). Hence the majority of expenditures on healthcare are covered by the public health insurance. A mixture of direct and indirect taxes as well as social contributions are used to finance the public health insurance. These pre-payments are generally independent from health risks, i.e. a chronically ill individual and a healthy individual with the same income contribute about the same amount to the public health insurance.

The public health insurance is a compulsory insurance that pools risks and resources and hence imposes solidarity between sick and healthy individuals (risk solidarity). Depending on the financing mix, there can also be solidarity or redistribution between income groups (income solidarity). The redistribution may be a policy objective in its own respect or an unintended consequence. Even in the latter case it may be of interest for policymakers to understand and measure to the degree of income solidarity.

Horizontal and vertical equity

What would be an equitable distribution of healthcare payments among households (or individuals) in society? Should there be income solidarity? In countries that commit to universal health coverage, one of the premises of equity in healthcare finance is that the payments should reflect the household's ability to pay.¹⁰²⁻¹⁰⁶ Similar to the evaluation of equity in healthcare use, we rely on the horizontal and vertical equity principle: *Horizontal equity* in healthcare finance means equal payments for healthcare by households having an equal ability to pay. *Vertical equity* on the other hand implies appropriately different payments by households with an unequal ability to pay. Redistribution can be both vertical – between households with a different ability to pay – and horizontal – between

^y The budget for competences transferred from the RIZIV-INAMI to the federated authorities in the 6th state reform is included to increase the comparability of the budget over time (period 2007 - 2017). The competences

were transferred on 1 July 2014, the financing of the competences were transferred on 1 January 2015. There was a transition period up to 31 December 2019 to deal with the transfer of operational aspects.



households with the same ability to pay.³ If income solidarity is pursued, this is generally understood as vertical redistribution, implying (relatively) higher payments by households with a higher ability to pay.

Progressivity and regressivity of healthcare financing sources

While most research with respect to equity in healthcare use evaluates the horizontal equity principle, most research on equity in healthcare finance has been focused on the vertical equity principle. In the KCE HSPA report of 2019, two indicators provide a rough assessment of the vertical equity principle, i.e. indicator EQ-2 that measures the share of progressive receipts in the financing of the public health insurance and indicator EQ-3 that measures the share of progressive receipts in the financing of the public health insurance.³⁶ By progressivity we do not refer to differences in patient cost sharing at the point of use, but the way average tax rate evolves in function of ability to pay:

- **progressive** when the average tax rate is increasing with ability to pay, implying relatively higher contributions by households with a higher ability to pay
- **proportional** when the average tax rate is invariant to ability to pay, implying relatively similar contributions by households irrespective of ability to pay
- **regressive** when the average tax rate is decreasing with ability to pay, implying relatively lower contributions by households with a higher ability to pay.

The analysis of the indicators shows a decreasing share of proportional receipts and an increasing share of progressive receipts over time.³⁶ In this section, we reassess the progressivity and regressivity of the financing sources of the public health insurance, but instead of making an assumption on the progressivity, regressivity or proportionality of the financing source as was done in the KCE HSPA report, it is calculated using household-level data (see section 3.2.3 on the methodology).³⁶

Redistributive effect

Moreover, the use of household level data allows us to go beyond the analysis of progressivity and regressivity of the financing source and assess the overall redistributive effect of each financing source as well as the total payment. The redistributive effect is an indicator of financial solidarity through the healthcare system. It can be thought of as the difference in income inequality before and after accounting for the healthcare pre-payment.^{3, 102} As the tax design and the distribution of the financial burden diverges across the various payment sources, each source has a different redistributive effect.¹⁰³ If the pre-payments lead to a reduction in income inequalities, there is income solidarity and the redistributive effect is positive; if, on the other hand, income inequality increases because of healthcare payments, the redistributive effect is negative. Both equity principles affect the magnitude of the redistributive effect (see section 3.2.3 on the methodology).

One should, however, be cautious in the interpretation of the redistributive effect of healthcare payments. First, even though there seems to be a strong commitment that the financing of public services, including the provision of healthcare insurance, should be organised according to ability to pay, it is less clear that income redistribution through the healthcare financing systems is an objective pursued on its own.¹¹⁵ Other policy instruments may be better suited for income redistribution than healthcare payments. In that sense, income redistribution is rather an indirect consequence of the financing mix. Second, it is difficult to examine the redistributive effect of healthcare financing in isolation from the redistributive effect of the overall tax system. Even if resources for the healthcare system are earmarked, e.g. social insurance contributions, the progressivity or lack thereof in the healthcare financing system can be offset by the way other public services are financed.¹² Ideally, an assessment of the redistributive effect of healthcare financing should therefore be complemented with an assessment of the redistributive effect of the overall tax system. For such an analysis we refer to indicator EQ-1 in the KCE HSPA report of 2019 that analyses the Gini before and after taxation as well as Verbist and Figari (2014) and Kuypers et al. (2019).^{36, 116, 117} Third, the inequality in pre-payment incomes can influence the extent to which redistribution through the tax system is pursued.



In what follows, section 3.2.1 provides information on the financing mix of the public health insurance over time. Data sources are detailed in section 3.2.2, and the methodology is discussed in section 3.2.3. Finally, the results are summarized in section 3.2.4.

3.2.1 *The financing mix of the public health insurance*

The public health insurance is financed through a mixture of social insurance contributions, alternative financing (value added tax (VAT), excises on tobacco and packaging and withholding tax on capital income), government subsidies (from the general means of the federal/federated governments, but for simplicity we assume that government subsidies are financed by means of the personal income tax), and various small taxes and diverse receipts (e.g. a levy on car insurance and hospital insurance, a levy on turnover pharmaceutical products, etc.).³⁶ The latter category that represents about 5% of the budget is not further taken into consideration.

Table 4 provides an overview of the composition for the years 2007, 2011, 2015 and 2017. The years 2007, 2011 and 2015 correspond to reference years for the income information in the EU-SILC waves 2008, 2012 and 2016, respectively. For these years the progressivity/regressivity and the redistributive effect of the financing sources are evaluated (see section 3.2.4). Information for 2017 is additionally provided as it is the latest year with full information available in the KCE HSPA report of 2019.³⁶ We find that:

- Between **2007 and 2011**, there was an important increase in the public budget for healthcare in real terms (see last row of Table 4). The increase in the budget was funded mainly through an increase in alternative financing, and in particular VAT. The share of alternative financing increased from 22.8% to 31.6%, while the share of social contributions decreased from 61.5% to 53.8% and the share of government subsidies remained stable.
- Between **2011 and 2015**, there was however an important shift in financing sources with an increase in government subsidies from 9.5% to 21.2%. In the 6th state reform, the federated authorities have taken over certain healthcare competences (e.g. institutional care for the elderly, mental healthcare, rehabilitation, hospital infrastructure) and contribute to the budget through subsidies.¹¹⁸ The importance of alternative financing, and in particular from VAT is reduced, with a decrease in budget share from 31.6% to 15.5%. The share of social contributions increases to 57.8% in 2015.
- Between **2015 and 2017**, a tax reform was implemented, lowering in particular social contributions from employers. The share of social contributions in the budget decreases to 53.6%. Moreover, the alternative financing of social security has been reformed.¹¹⁹ Receipts from excises are replaced by receipts from the withholding tax on capital income. In addition receipts from VAT have increased again, leading to a higher share (20.8%) of alternative financing.



Table 4 – Financing source of the public health system (2007, 2011, 2015, 2017)

| Public financing of the health system | 2007 | | 2011 | | 2015 | | 2017 | |
|---|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
| | Amount (million €) | Budget share | Amount (million €) | Budget share | Amount (million €) | Budget share | Amount (million €) | Budget share |
| Social contributions - total | 13 938 | 61.5% | 15 858 | 53.8% | 18 230 | 57.8% | 17 709 | 53.6% |
| Employees | 4 074 | 18.0% | 4 494 | 15.3% | 4 866 | 15.4% | 4 813 | 14.6% |
| Employers | 8 011 | 35.4% | 8 833 | 30.0% | 10 471 | 33.2% | 9 907 | 30.0% |
| Self-employed | 825 | 3.6% | 1 266 | 4.3% | 1 462 | 4.6% | 1 406 | 4.3% |
| Pensioners | 719 | 3.2% | 920 | 3.1% | 1 066 | 3.4% | 1 221 | 3.7% |
| Special social contribution | 310 | 1.4% | 345 | 1.2% | 365 | 1.2% | 363 | 1.1% |
| Alternative financing - total | 5 172 | 22.8% | 9 298 | 31.6% | 4 905 | 15.5% | 6 859 | 20.8% |
| Value added tax | 4 124 | 18.2% | 8 168 | 27.7% | 3 660 | 11.6% | 5 882 | 17.8% |
| Excises (tobacco and packaging) | 825 | 3.6% | 886 | 3.0% | 926 | 2.9% | 0 | 0.0% |
| Withholding tax on dividends and interest payments | 161 | 0.7% | 158 | 0.5% | 208 | 0.7% | 977 | 3.0% |
| Other | 62 | 0.3% | 85 | 0.3% | 111 | 0.4% | 0 | 0.0% |
| Government subsidies | 2 180 | 9.6% | 2 797 | 9.5% | 6 688 | 21.2% | 6 597 | 19.9% |
| Federal government | 2 180 | 9.6% | 2 797 | 9.5% | 3 008 | 9.5% | 2 077 | 6.3% |
| Regional government | 0 | 0.0% | 0 | 0.0% | 3 680 | 11.7% | 4 520 | 13.6% |
| Other receipts | 1 019 | 4.5% | 1 515 | 5.1% | 1 735 | 5.5% | 1 828 | 5.5% |
| Total | 22 648 | 100.0% | 29 468 | 100.0% | 31 558 | 100.0% | 33 025 | 100.0% |
| Total (in € 2007)^a | 22 648 | | 26 669 | | 27 222 | | 27 353 | |

^a amounts corrected by the evolution of the consumer price index.

Sources: Year reports of National Social Security Office, Year reports of National Institute for the Social Security of the Self-employed, Vade Mecum of financial and statistical data on social protection in Belgium¹²⁰, Budget for healthcare by National Institute for Health and Disability Insurance¹²¹, Court of Audit¹¹⁸, National Accounts¹²², KCE calculations



3.2.2 Data sources and sample

The analysis in this chapter relies on the coupled EU-SILC/IMA-AIM data (see section 1.3). The EU-SILC data from waves 2008, 2012 and 2016 are coupled with KSZ-BCSS administrative data on social contributions from 2007, 2011 and 2015, respectively.

The **sample** consists of all households in the EU-SILC waves (each year is analysed separately) with two exceptions. First, households are excluded if no national insurance number could be retrieved for one or more individuals because without such number it is not possible to couple data from EU-SILC and KSZ-BCSS. Second, households are excluded if they have a negative income after subtraction of the pre-payments for the public health insurance (see also section 4.1.1 of the [Supplement](#) for more detail).

Main selected variables

The following household-level information is necessary in the analysis. The information is extracted from the administrative KSZ-BCSS data, the EU-SILC survey and the EUROMOD tax-benefit microsimulation model that runs on EU-SILC data and is able to precisely simulate various taxes and social benefits at the individual and household level using the tax-benefit regulation of a chosen year.⁴⁰ Descriptive statistics and more explanation on the variables used in the analysis can be found in section 4.1 of the [Supplement](#).

1. **Ability to pay:** Social contributions, personal income tax, withholding tax on capital income and indirect taxes (VAT and excises) are levied on different income concepts. Social contributions are levied on gross incomes, personal income tax on gross incomes after social contributions, VAT and excises on consumption expenditures paid for by net incomes. In line with previous research, we opt for gross incomes (including replacement income, capital income and private transfers) as

proxy for ability to pay.^{41, 102, 103, 105} The income information from the EU-SILC is used.

2. Information on pre-payments:
 - a. Information on **social contributions for employees, employers and pensioners** is extracted from the KSZ-BCSS data. Social contributions for employees and pensioners equal the difference between gross incomes and gross taxable incomes (gross income minus social contributions).^z For employers, we combine all different contributions and reductions that can be attributed to an employee. Information on **social contributions for the self-employed** as well as the **special social security contribution** are simulated by the EUROMOD tax-benefit microsimulation model. The former is not administratively recorded in the KSZ-BCSS data and the latter is more precise in EUROMOD as it is calculated based on the taxable income.
 - b. The **personal income tax** is simulated using the EUROMOD microsimulation model.
 - c. Information on **alternative financing** is simulated using the EUROMOD microsimulation model. Value added taxes and excises for tobacco and packaging are simulated after household expenditures are imputed (see section 1.3.1). The withholding tax on capital income is simulated in EUROMOD using information on capital income in the EU-SILC survey. Remark that capital income is likely underreported in the EU-SILC survey, in particular at the top of the distribution.¹²³

^z For pensioners, we subtract the solidarity contribution from the social contribution, and take only into consideration the contribution for healthcare.



3. Information on **out-of-pocket payments**: In the EU-SILC/IMA-AIM, out-of-pocket payments relate to all healthcare use and medication use covered by the public health insurance. They include both co-payments and supplements. Out-of-pocket payments take into account increased reimbursement status and can be corrected for the system of maximum billing (for more details on this correction, see section 3.2.2 of the [Supplement](#)). Information on ambulatory supplements is limited.

A comparison between the macro values for contributions and taxes as recorded in the national accounts and the survey values indicate that there is a good match between population and survey values with respect to social contributions and personal income taxes (see section 4.1.2 of the [Supplement](#)). The receipts from VAT, excises and the withholding tax on capital income are undervalued in the survey. This is not necessarily problematic as long as the distribution of the tax in the survey is in line with the distribution in society.

The registered out-of-pocket payments in the EU-SILC/IMA-AIM are limited in scope and its total value represented in 2015 somewhat more than a third of the out-of-pocket payments indicated in the System of Health Accounts (SHA), a standardized international database to record financing flows in healthcare (see section 4.1.2 of the [Supplement](#)).

3.2.3 Methodology

Progressivity and regressivity of payments

The extent of progressivity or regressivity of the various financing sources (i.e. social contribution, alternative financing and government subsidies) is measured using the Kakwani-index (for more information on the Kakwani-index, see Box 12).^{103, 105, 124} The Kakwani-index takes values between -1 and 1 that indicate how healthcare payments relate to ability to pay, i.e. gross household income. Positive values indicate a progressive financing source, negative values indicate a regressive financing source and a value equal (or close to) zero indicates proportional payments. Larger absolute values imply a more important deviation from proportionality. The Kakwani-index of the total payments (combining the various sources) reflects the progressivity or regressivity of each source and the importance of each source in the financing mix, i.e. the budget share in Table 4. Both income and pre-payments for the public health insurance have been equivalized.^{aa}

Redistributive effect of payments

The redistributive effect of a pre-payment for the public health insurance measures the extent to which the payments increase or reduce income inequality. A natural way to assess the redistributive effect of healthcare financing is to compute the difference between the (relative) Gini coefficient of gross household income (before any payment) and the (relative) Gini coefficient of equivalized gross household income after subtracting the equivalized pre-payment for public health insurance (for more information on the Gini coefficient, see Box 12).^{102, 103, 116, 125}

The redistributive effect can be decomposed in two parts.¹⁰² The calculations for the decomposition are specified in section 4.2 of the

^{aa} The modified OECD equivalence scale is used (1 for the first adult, 0.5 for individuals aged 14 or more, 0.3 for individuals aged 13 or less). This scale is the default choice for the analysis of the EU-SILC by Eurostat.



[Supplement](#) and follow the methodology proposed in O'Donnell et al. (2008).³

1. The **vertical redistribution or income solidarity**. It measures the reduction in income inequality in case there is no horizontal inequity, i.e. if there is no differential tax treatment of households with the same income. Progressive payments lead to a positive vertical redistribution (from rich to poor), while regressive payments lead to a negative vertical redistribution (from poor to rich). The magnitude of vertical redistribution depends on the progressivity or regressivity of the financing source (measured by the Kakwani-index, see Box 12) as well as the proportion of gross household income taken up, on average, by the financing source.
2. The **horizontal inequity** in pre-payments for public health insurance. Horizontal inequity always decreases the redistributive effect. Horizontal inequity consists of two elements. First, the extent to which households with the same gross household income are treated differently and have different payments. Differential treatment can be the result of tax deductions/reductions for specific groups (e.g. lower employer social contributions for older employees), exemptions from tax for specific types of income (e.g. different treatment of replacement income, labour income, capital income and welfare support in personal income tax), geographic variation in the tax rates (e.g. different target group reductions in social security contributions implemented by the federated governments), etc. Second, the extent of reranking^{bb} that occurs because of this differential treatment and different payments by households with the same gross income. Reranking occurs when households have a different relative position (ranking) if they are ranked by gross household income (before any payment) compared to income after subtracting the pre-payment for public health insurance.

We calculate the redistributive effect for each financing source (i.e. social contribution, alternative financing and government subsidies) as well as for the overall payment to the public health insurance. In addition, we calculate

the level of vertical redistribution, which can be thought of as the redistributive effect that would have been attained in absence of horizontal inequity.

Box 12 – The Gini coefficient and the Kakwani-index

The Gini coefficient is a commonly used measure of disparity in policy research. In this section, it is used to evaluate income inequalities between households. The relative Gini coefficient summarizes the observed disparity in one single score that is bounded between 0 and 1 in case of non-negative incomes. Higher values of the Gini coefficient indicate a higher level of income inequality, with a value of 0 indicating perfect equality (every household has the same income) and a value of 1 indicating perfect inequality (one household has all income and all other households have none). The relative Gini coefficient is often represented by the area between a Lorenz curve and the perfect-equality diagonal. The Lorenz curve represents the concentration of income among the population when households are ranked from low to high according to their income.

The Kakwani-index measures the extent to which payments/benefits depart from proportionality.¹²⁶ In this section it is used to assess the pro-/regressivity of pre-payments for public health insurance. It is equal to the difference between the concentration index for pre-payments with households ranked by gross household income (before any payment) (see also Box 9 on the concentration index) and the Gini coefficient for gross household income (before any payment). The Kakwani-index takes values between -1 and 1 with negative values indicating regressive payments, positive values indicating progressive payments and a value equal to or close to zero indicating proportional payments.

^{bb} Reranking can also occur in absence of horizontal inequity in case of tax rates in excess of 100%, a possibility that is not considered here.¹⁰²



3.2.4 Results

3.2.4.1 Progressivity and regressivity of pre-payments for public health insurance

Figure 15 provides information on the progressivity and regressivity of the three main financing sources, i.e. social contributions, alternative financing and government subsidies, and all pre-payments combined.

Government subsidies (financed by the personal income tax) are the most progressive financing source with a Kakwani-index of about 0.28. This is not surprising as there are several progressive elements in the tax design of the personal income tax, such as amongst others (1) a progressive rate structure (higher tax rates in higher income brackets); (2) a tax free amount; (3) an exemption from taxation for subsistence income (*“leefloon”* / *“revenu d’intégration sociale”*); and (4) tax reductions for replacement income.^{cc}

Social contributions are often considered a proportional source of financing, given that there is no progressive rate structure.³⁶ However, the results in Figure 15 indicate that it is in fact a progressive source of financing with a Kakwani-index of about 0.14, half the value of the government subsidies. There are progressive elements incorporated in the tax design, such as (1) exemptions from social contributions for certain types of income (e.g. unemployment allowance, welfare support) that constitute a more important source of income among low income households; (2) reductions on social contributions for low wage employees (*“werkbonus”* / *“bonus à l’emploi”*); (3) lower contributions for pensioners, who are more likely than not in the bottom or middle income groups; and (4) reductions for employer social contributions for specific target groups, such as upon recruiting long-term unemployed.^{dd} Moreover, both high and low earners are subject to paying

social contribution, contrary to e.g. Germany where high earners are exempted and covered by private health insurance.

Alternative financing is a regressive source of financing. As indicated in Table 4, consumption taxes such as VAT and excises for tobacco and packaging, are the main component of alternative financing in all years. Consumption taxes are well-known to be regressive – which is confirmed by the results in Figure 15 – because low income households spend relatively more of their income on consumption than high income households and hence pay relatively more consumption taxes. While the consumption of low income households might consist of a larger share of necessities susceptible to lower VAT rates, this does not alter the regressive nature of consumption taxes. The withholding tax on capital income is a progressive source of financing, but accounts for only a small part of the alternative financing in the analysed years. In 2017, the share of the withholding tax in the alternative financing was increased, while excises were no longer a source of revenue.¹¹⁹ This is expected to reduce the regressivity of the alternative financing.

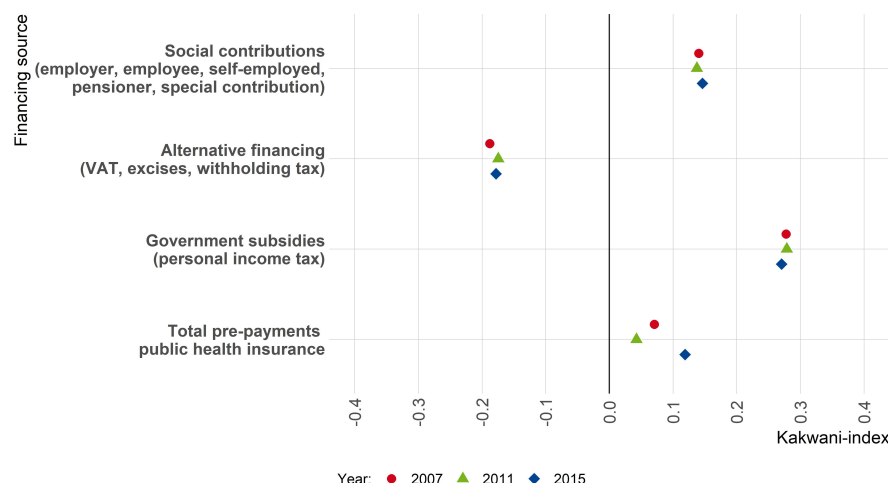
The results indicate that there is little to no variation over time in the progressivity or regressivity of each financing source. On the other hand, there is quite some variation in the overall progressivity of payments for the public health insurance. The Kakwani-index of overall payments equals 0.07 in 2007, 0.04 in 2011 and 0.12 in 2015. The decline in progressivity between 2007 and 2011 is explained by the increase in importance of alternative financing as financing source at the expense of social contributions, while the increase in progressivity between 2011 and 2015 is explained by the increase in government subsidies in combination with a reduction of alternative financing in the financing mix (see Table 4 and section 3.2.1).

^{cc} There are also regressive elements in the tax design, such as amongst others a wide range of tax reductions (e.g. tax reductions for mortgage payments, retirement savings, childcare expenses, service checks for housekeeping, donations, energy saving investments, etc.) that are more widely used by middle and high income households. Moreover, in the personal income, there is no or limited taxation of capital income, that constitutes a more important source of income among high income households.

^{dd} There are also regressive elements in the tax design, such as amongst others a maximum contribution for the self-employed or a maximum amount for the special social security contribution. The regressive elements are, however, outweighed by the progressive elements.



Figure 15 – Progressivity and regressivity of the financing sources



3.2.4.2 Redistributive effect of pre-payments for public health insurance

Table 5 and Figure 16 present the results on the redistributive effect of the different financing sources of public health insurance as well as for out-of-pocket payments (see below). While the progressivity of the financing source is a determinant factor, it is not the only one. The amount of revenue collected through a tax or contribution is a second determinant factor of the redistributive effect (see section 3.2.3). We can illustrate the importance of both effects by comparing the results for progressivity in section 3.2.4.1 with the redistributive effect. For example, government subsidies are a more progressive financing source than social contributions (see Figure 15). Nevertheless, the redistributive effect of social contributions is more important than the redistributive effect of government subsidies (see Table 5 and Figure 16). The reason is that a more important share of revenue for public health insurance is collected through social contributions than through government subsidies (see section 3.2.1 and Table 4).

The redistributive effect is positive and stable over time for social contributions, implying redistribution from high to low income households.

The redistributive effect is positive for government subsidies and increased between 2011 and 2015 as result of the increase in revenue collected through this source (see section 3.2.1). The redistributive effect of the alternative financing is negative, implying a transfer from low to high income households. The change in size of the negative effect is in line with the evolution of the amount of alternative financing used to finance the public health insurance (see section 3.2.1). Overall there is a positive redistributive effect of the pre-payments for the public health insurance (represented by the white diamonds in Figure 16), with a similar downward and upward evolution over time as observed for progressivity in Figure 15.

The third determining factor is the horizontal inequity or unequal payments made by households with the same income. Horizontal inequity reduces the redistribution realized through the financing of the public health insurance. The three rightmost columns in Table 5 provide some insights into the reduced redistribution related to horizontal inequity. The value in the column represents the vertical redistribution as fraction of the redistributive effect. In absence of horizontal inequity, the vertical redistribution would be equal the redistributive effect and the fraction in the column equal to 100%. In case horizontal inequities are present, there is a divergence from 100% with larger deviations being indicative for more important horizontal inequity. The 114.0% for social contributions in 2007 and 2015 implies that the redistributive effect would be 14% higher in case there was no horizontal inequity.

Overall, we find that the vertical effect is much more important than horizontal inequity. For government subsidies and alternative financing, the fractions are quite close to 100%, indicating little horizontal inequities. For social contributions, the redistributive effect would be 11% to 14% higher without horizontal inequities. This implies that a substantial number of households with a similar level of gross household income pay different social contributions. This is not surprising as the burden of social contribution falls mostly on the working population, hence households with similar gross incomes but a different share of labour income contribute differently. This effect spills over to the total pre-payments for public health insurance, where we find that the redistributive effect would be 14% to 23% higher in absence of horizontal inequities. The impact of horizontal inequities on the redistributive effect of total payments has decreased over time.



Figure 16 – Redistributive effect by financing source over time

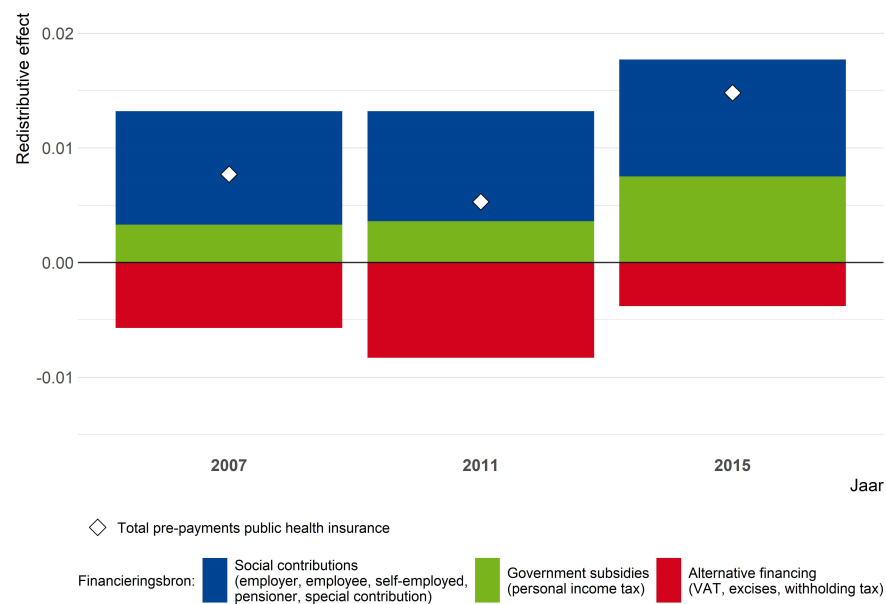


Table 5 – Redistributive effect and vertical redistribution by financing source over time,

| | Redistributive effect (RE) | | | Vertical redistribution as fraction of RE | | |
|---|----------------------------|--------|--------|---|--------|--------|
| | 2007 | 2011 | 2015 | 2007 | 2011 | 2015 |
| Social contributions | 0.010 | 0.010 | 0.010 | 114.0% | 111.0% | 114.0% |
| Alternative financing | -0.006 | -0.008 | -0.004 | 98.1% | 99.5% | 97.2% |
| Government subsidies | 0.003 | 0.004 | 0.008 | 101.1% | 101.3% | 103.6% |
| Total pre-payments public health insurance | 0.008 | 0.005 | 0.015 | 122.7% | 123.2% | 113.7% |
| Out-of-pocket payments | -0.004 | -0.004 | -0.004 | 96.4% | 96.0% | 92.1% |
| Total | 0.003 | 0.001 | 0.011 | 161.7% | 215.0% | 121.9% |



3.2.4.3 *Out-of-pocket payments reduce the redistributive effect of pre-payments*

Pre-payments are an instrument to pool risks, to limit an individual's exposure to out-of-pocket payments at the point of use and to reduce financial hardship. The way the public health insurance is financed leads to a positive redistributive effect of total pre-payments and hence income solidarity between high and low incomes.

Using the same methodology, it is possible to calculate the redistributive effect of out-of-pocket payments. International research has, however, shown that this redistributive effect is generally negative and strongly reduces the income solidarity attained through payments for healthcare.^{102, 105} Hence, the redistributive effect of out-of-pocket payments might provide some additional context when interpreting the results of pre-payments for the public health insurance. It is, however, important to note that an analysis of out-of-pocket payments is limited to the available data in the EU-SILC/IMA-AIM, which is a strong underestimation of the real out-of-pocket payments (see section 3.2.2).

We find that out-of-pocket payments are a strong regressive source of healthcare payments, with a Kakwani-index of -0.35 in 2007, -0.29 in 2011 and -0.27 in 2015. This implies that low income households contribute relatively more than high income households. Out-of-pocket payments are a more regressive source than the alternative financing (see section 3.2.4.1), but the regressivity has decreased over time.

The redistributive effect of out-of-pocket payments is negative and stable over time at about -0.004 (see Table 5). Given that out-of-pocket payments are underestimated, it is probable that the computed redistributive effect is also underestimated. When accounting for the redistributive effect of out-of-pocket payments, the overall redistributive effect (the effect of the pre-payments for the public health insurance and the out-of-pocket payments combined), is close to zero in 2007 and 2011, and is positive in 2015.

4 DISCUSSION AND CONCLUSION

Accessibility to and delivery of effective, high quality and affordable healthcare are fundamental objectives that have shaped health policy and the universal healthcare coverage in Belgium. A health system should be evaluated against these fundamental objectives. Does everyone in need of healthcare receive effective treatment without risk of financial hardship in doing so? Hence, the assessment and monitoring of equity in healthcare access and healthcare financing is necessary and is also a core component of a Health System Performance Assessment.

In this report we have studied the extent to which equity in healthcare access and healthcare financing is achieved in Belgium.

More equitable use of care when third-party payer principle applies

In general, the use of hospital care is in proportion to healthcare needs and access can be considered equitable. Inequities in the use of medication are also limited. Financially vulnerable individuals as well as individuals with low educational attainment even have a higher use of emergency care than expected based on their healthcare needs, perhaps partly as a substitute for GP and specialist care which they use less frequently. It seems to be no coincidence that the third-party payer principle applies to these types of care.

A similar conclusion can be drawn from inequity in the use of GP care. Individuals who are entitled to increased reimbursement – and hence benefit from a reduction in co-payments and the mandatory application of the third-party payer principle – have a probability to *consult a GP* in line with the population average. This is in contrast with the lower use of GP care among other financially vulnerable groups, such as individuals at risk of poverty, with severe material deprivation, unemployed, singles between 18 and 64. GP care is relatively inexpensive, but even small co-payments may deter low income individuals from seeking care.



Inequity in access to specialist care and dental care is high and increasing over time

The analysis of specialist care demonstrates how important it is to correct for healthcare needs when evaluating an equitable access to care. Before any correction for healthcare needs, there are almost no inequalities in the use of specialist care between income groups or education groups. Individuals with increased reimbursement status even have a higher use. Once a correction for healthcare needs is made, we find that inequities in the use of specialist care are important and increasing over time. Even more important inequities are found for the regular use of (preventive) dental care.

For both types of care, there is an important social gradient with a substantially higher use among high income groups and individuals with high educational attainment relative to low income groups and individuals with low educational attainment. The lower use is even more pronounced among individuals with severe material deprivation. Also individuals in unemployment, singles between 18 and 64 and individuals who are entitled to increased reimbursement have a lower use of specialist care and dental care than expected based on their care needs.

Unmet needs for medical and dental care prevail among individuals with high care needs in financially vulnerable households

A clear conclusion that stems from the analysis on unmet needs due to financial reasons is that a large majority of individuals with unmet needs perceive an inability to cope with unexpected expenses. These individuals face a trade-off between expenses for basic necessities and for healthcare. High rates of unmet needs are observed for financially vulnerable groups, in particular individuals with severe material deprivation, at risk of poverty and at working age, but without paid work. Almost half of the individuals experiencing unmet needs receives either welfare support or a disability/invalidity allowance in 2016.

Moreover, unmet needs prevail among individuals who have higher (self-reported) care needs. The share of individuals having bad or very bad self-assessed health in combination with a chronic disorder and limitations to daily activities is about 4 to 5 times higher in the subgroup with unmet needs relative to the subgroup without.

Individuals with unmet needs do use health care, but less than expected based on their healthcare needs, in particular a lower use of specialist care and dental care among individuals with unmet needs for, respectively, medical care and dental care. On the other hand, there is a higher probability to go to an emergency department (ED). This pattern of care use corresponds relatively closely to the inequities in care use for financially vulnerable groups that was described above. This suggests that the inequities in health care use may result from financial access barriers.

Financial burden of healthcare use can be catastrophic

A severe financial burden of healthcare may not only lead to postponement of care, but also to financial hardship when using care. We find that between 2% and 5% of the households experience catastrophic out-of-pocket payments, without clear trend over time. The lack of comprehensive data on out-of-pocket payments is the cause of the imprecisely estimated incidence. Administrative data are detailed on payments for covered services, but lack information on non-covered services and ambulatory supplements, while survey data include information on both covered and non-covered services, but do not account for reimbursements and protection mechanisms and have a short registration period

Protecting people from financial hardship and improving financial accessibility

To protect people from the financial consequences of healthcare use and improve financial accessibility, policy measures have aimed to limit out-of-pocket payments either by increasing financing through the public health insurance or creating protection measures that reduce or cap out-of-pocket payments when using care.

The public health insurance is compulsory and it is financed through pre-payments independent from healthcare use. Therefore, it imposes solidarity between sick and healthy individuals (risk solidarity) and between income groups (income solidarity). The way the public health insurance is financed leads to a positive redistributive effect of total pre-payments and hence income solidarity between high and low incomes. This because of the progressive nature of social contributions and government subsidies that



represent nearly three quarters of the revenue for public health insurance. The alternative financing on the other hand is a regressive source of financing and reduces the redistributive effect.

Despite the coverage of the public health insurance, an important part of healthcare expenditures (about 19% in 2018) consists of out-of-pocket payments. The share of out-of-pocket payments is well above the level in our neighbouring countries. Out-of-pocket payments are a regressive source of financing, i.e. they affect low income household relatively more than high income households, reducing the income solidarity achieved through the public health insurance.

Several protection measures to reduce the financial impact of out-of-pocket payments, have been introduced in the health insurance system aimed at low income households, chronic care users and individuals with high healthcare expenditures. However, in the light of our results, a number of reflections can be made with regard to these measures.

Population coverage by protection measures increases, but important gaps remain

First, the take-up of protection measures has increased over time. Ever more households benefit from increased reimbursement or receive reimbursements through the system of maximum billing. However, we found that about one third of individuals at risk of poverty do not benefit from increased reimbursement, including individuals with severe material deprivation. On the other hand some individuals in the core and upper middle class were covered.

Second, the status of increased reimbursement and the resulting benefits improve accessibility to GP care, but do not seem to overcome access barriers for specialist care or dental care. Inequities for the latter two types of care are comparable in the subgroup with increased reimbursement, and the subgroups at risk of poverty and the lower middle class. As mentioned before, the third-party payer principle appears to be important for an equitable access for financially vulnerable groups.

The current protection measures are not sufficient to counter unmet needs

Third, there is a high coverage of protection measures among individuals with unmet needs for medical or dental care due to financial reasons. About 65% and 56% of the group with unmet needs for, respectively, medical and dental care benefits from increased reimbursement (compared to 17% in the subgroup without unmet needs). About 25% and 17% of the group with unmet needs for, respectively, medical and dental care receive reimbursements through the system of maximum billing (compared to 12%). About 22%/19% of the group with unmet needs for, respectively, medical and dental care has the status of person with a chronic illness (compared to 12%). The fact that an important number of individuals experience unmet needs due to financial reasons, despite being covered by protection measures is striking.

One explanation is that protection measures are aimed at limiting co-payments, but offer little protection against supplements or care that is not covered by the public health insurance. We found that there is a growth over time in out-of-pocket payments, also for low incomes and individuals with unmet needs. This growth is driven by increasing supplements, while the growth in co-payments is limited (because of the protection measures in place). Related to this, we concluded that the system of maximum billing is effective in keeping co-payments as share of income below 4.5% for the large majority of households. However, the protection offered by the MAB is partly undone by the importance of supplements as a share of household income. It is clear from the analysis that supplements do not only affect high income households, but also households at risk of poverty and in the lower middle class.

A second explanation is that more selectivity is needed in the protection measures, i.e. that these should be even more focused on the financially most vulnerable individuals and at the same time become more generous. We found for example that co-payments after reimbursement of the MAB as share of household income is higher among low income households than high income households.

**Limitations**

The report was limited in scope to a subset of indicators from the KCE HSPA report of 2019.³⁶ Specific population groups – people residing in collective facilities such as the elderly and prisoners, the homeless or refugees – are not represented in the data. We know from other studies that these groups experience higher than average healthcare needs or difficulties in accessing healthcare.⁵²⁻⁵⁵



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