KCE REPORT 180C

Federaal Kenniscentrum voor de Gezondheidszorg
Centre Fédéral d'Expertise des Soins de Santé
Belgian Health Care Knowledge Centre

SIMPLIFICATION OF PATIENT COST SHARING

THE EXAMPLE OF PHYSICIAN CONSULTATIONS AND VISITS

Belgian Health Care Knowledge Centre

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KCE is in charge of conducting studies that support the political decision making on health care and health insurance.

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HEALTH SERVICES RESEARCH

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FOREWORD

The Belgian system of compulsory health insurance, established by a law of 1963, will soon celebrate its 50th anniversary. From the beginning, patient cost sharing was provided for by the law to keep healthcare consumption within reasonable limits. There was a fear that free healthcare would lead to a complete and utter waste.

Over these 50 years, both the law and its implementing orders have significantly evolved. Also patient cost sharing has had many evolutions, because policy makers wanted to meet new targets, initially not at issue or becoming essential due to socioeconomic changes. Over time, these new rules have made the situation so complicated and hardly transparent that RIZIV/INAMI asked KCE to examine how the rules can be simplified.

Of course we cannot simplify in every possible way. Each rule is the translation of underlying objectives and it is not the task of the KCE to judge which goals have become less important. For that reason different options to simplify have been simulated. The final decision is to be taken by the policy makers.

The subject remains complex. Each choice possibly has an impact on the income distribution and on the resource allocation for the most effective care of the highest quality. Simplification is indeed a good thing, but we should certainly keep in mind these other objectives. This is why we will come back on this point shortly in a report that puts these issues into a broader context.

Jean-Pierre CLOSON
Assistant Chief Executive Officer

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Chief Executive Officer

EXECUTIVE SUMMARY

BACKGROUND

Direct forms of patient cost sharing for healthcare are a characteristic feature of the Belgian system of health insurance. The amount of cost sharing is equal to the difference between the convention tariff and reimbursement. Two direct forms of cost sharing exist: co-payments and coinsurance. For example, in December 2011 the fee of a cardiologist was € 29.51. Patients entitled to increased reimbursement paid a co-payment of € 2.5. Patients not entitled to increased reimbursement paid a coinsurance of 40%.

Since the Health Insurance Act of 9 August 1963, which is the basis for current health insurance, until now a multitude of co-payments and coinsurance rates were introduced. Particularly for office consultations and home visits of general practitioners (GPs) and for office consultations of specialists, the situation has become rather complicated and non-transparent for the National Institute for Health and Disability Insurance (RIZIV/INAMI), the sickness funds, the providers and the patients.

Patient cost sharing can be defined as private payments at the point of use.

A **co-payment** is when a patient pays a fixed fee (flat rate) per item or service.

A **coinsurance** is when a patient pays a percentage of the cost of a product or service and the public payer (insurer) pays the remaining part.

AIM OF THE STUDY

KCE was asked by RIZIV/INAMI to study the financial impact for RIZIV/INAMI and for patients of reform options that simplify the current structure of co-payments and coinsurance rates for consultations and home visits of GPs and consultations of specialists.

METHODS

- Analysis of the legislative framework of co-payments and coinsurance rates in Belgium;
- Assessment of the financial impact of a simplification of the current structure of co-payments and coinsurance rates by means of microsimulations.

RESULTS

A succession of ad hoc measures since 1963

The current structure of co-payments and coinsurance rates for consultations and home visits of GPs and consultations of specialists is the result of 50 years of ad hoc measures. Fees and corresponding patient cost sharing are determined in the agreements of the National Commission of Representatives of Physicians and Sickness Funds. Since the Health Insurance Act of 1963 until 1982 there were two coinsurance rates for consultations and home visits of GPs and specialists: 0% for patients entitled to increased reimbursement and 25% for the general population.

Budget-driven increase of patient cost sharing

The economic crisis in the beginning of the 1980s and the ratification of the Maastricht Treaty made policy makers decide to increase coinsurance rates: maximum 30% for GP consultations, 35% for GP home visits and 40% for specialist consultations for the general population. For patients entitled to increased reimbursement these percentages amounted to 10%, 10% and 15% respectively.

Financial incentives to steer patient consumption

In the last decade, co-payments and coinsurance rates have increasingly been used as a tool for influencing consumption behaviour, such as to disincentivise home visits and stimulate the use of the global medical record (GMD/DMG).

Since 1 December 2011, the patient share of supplementary fees for (urgent) out-of-hours GP consultations is fully reimbursed by RIZIV/INAMI for all patients to reduce unnecessary reliance on hospital emergency departments.

Since the same date, cost sharing for GP consultations has been simplified to facilitate the social third-party payer system.

Complex structure of patient cost sharing

At this moment, patients pay a co-payment or a coinsurance rate. In some cases, both forms of cost sharing are applied to the same service. For example, a patient entitled to increased reimbursement pays a co-payment for a consultation with a GP with acquired rights at 10 PM (the same co-payment as during the day) plus a coinsurance rate applied to the supplementary fee for out-of-hours consultations. For certain specialist consultations patient cost sharing is equal to a coinsurance rate with a maximum ceiling of € 15.5.

Particularly for GP home visits a multitude of factors determine the amount of patient cost sharing: entitlement to increased reimbursement, the time of the day the visit is made, having a GMD/DMG, patient residence, age, chronic illness, GP qualification and the number of patients visited during one visit.

For the general population coinsurance is applied in most cases while for the vulnerable population co-payments are the norm, resulting in an increasing gap in the level of cost sharing between the two groups.

Total financial impact of policy reforms

The financial impact for patients is the same as for RIZIV/INAMI but with the opposite sign.

GP consultations

The simplification of December 2011 (4 co-payments according to having a GMD/DMG and entitlement to increased reimbursement) was a rather cheap reform for RIZIV/INAMI (1.9 million euros on a total budget of 605.3 million euros; 1.4 million euros if we take the maximum billing (MAB) into account).

GP home visits

Removing the difference in cost sharing according to GP qualification and patient residence (home or institution) is a straightforward measure, reducing the RIZIV/INAMI budget with about 0.23 million euros (0.17 million with the MAB; on a total budget of 403.3 million euros).

The same simplification but applying co-payments for all patients in a ratio of 1 to 4 for patients with and without preferential reimbursement respectively, demands an extra RIZIV/INAMI budget of 7.9 million euros (with an extra budget of 0.14 million euros if we take account of MAB reimbursements).

Introducing maximum coinsurance rates as provided for in the Health Insurance Act (10% and 35% for patients with and without increased reimbursement respectively) reduces the cost for RIZIV/INAMI with 4.7 million euros or 3.0 million euros if MAB reimbursements are taken into account. The same amount is borne by patients.

Specialist consultations

The financial impact of a simplification of cost sharing for specialist consultations, with current coinsurance rates replaced by co-payments in a ratio of 1 to 4 for patients with and without entitlement, largely depends on the amount of the co-payments and varies from a reduction of the RIZIV/INAMI budget of 52.3 million euros (43.0 million euros with the MAB) to an increase of 76.2 million euros (on a total budget of 474.5 million euros).

Financial impact for patient subgroups

The global financial impact of a policy reform is not necessarily evenly distributed over patient subgroups. Figures 1-9 in the scientific report show the financial impact of the simulated policy reforms for patient subgroups based on age and gender, health status, having a GMD/DMG and socioeconomic characteristics. The magnitude and the direction of the financial impact are strongly related to the cost-sharing arrangement of the policy reform and varies between patient subgroups.

CONCLUSION

The succession of reforms of patient cost sharing for consultations and home visits of GPs and for specialist consultations has resulted in a multitude of different amounts which are calculated in many different ways.

There are several ways to simplify the current complex structure. For example, removing differences in cost sharing according to GP qualification or patient residence is a relatively small and inexpensive reform for GP home visits. Other options are more fundamental and often also more expensive for RIZIV/INAMI of for certain patient groups.

To avoid that also in the future patient cost sharing will be determined in an ad hoc way, applying principles and objectives for defining the level and distribution of cost sharing might be a useful first step. If patient cost sharing is meant to give financial incentives and to steer patients towards particular services, then co-payments are more transparent than coinsurance rates. Moreover, co-payments have the advantage that they are easier to work with in a (social) third-party payer system because one can easily round them off.

In addition to transparency, also coherence can be aimed at when simplifying the structure of co-payments and coinsurance rates. Applying the same level of cost sharing, irrespective of GP qualification or patient residence are straightforward measures.

Recent decisions of the National Commission Physicians-Sickness Funds seem to go in that direction, but they are not yet translated into regulation.

RECOMMENDATIONS[a]

For the Minister following the advice of the Insurance Committee

- **Before introducing a fundamental reform to simplify the structure of patient cost sharing:**
  - **the principles underlying this reform and the objectives one wants to achieve or maintain should be determined;**
  - **the existence of supplements should be taken into account in the political considerations, since they can overshadow the role of co-payments and coinsurance rates;**
  - **the reflection on the implications of a simplification of cost sharing should be extended to the system of maximum billing and the third-party payer regulation;**
  - **a formal evaluation of the acceptability by the group of concerned professionals and of the practical feasibility, such as in terms of administrative simplification, should be performed.**
- **Given that the principles underlying the structure of cost sharing are distinct from the logic behind the fee determination, fixed and rounded amounts (rather than coinsurance rates) are preferable. This would make the system more transparent, coherent and user-friendly.**
- **Without a fundamental reform of the structure, two concrete and straightforward measures to simplify patient cost sharing can be recommended:**
  - **differences in cost sharing based on the following characteristics should be abolished:**
    - **GP qualification (licensed or with acquired rights);**
    - **patient residence (home or institution with collective accommodation);**
    - **number of patients per contacted per visit.**
  - **the same structure of cost sharing (co-payment of coinsurance rate) should apply to patients with and without entitlement to increased reimbursement.**

For the General Council of RIZIV/INAMI

In case of a reform proposal, the dossier should systematically mention the financial and other impact for patients, in addition to the budgetary impact for the health insurance system.

[a] These recommendations are under the sole responsibility of the KCE.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
EPS	Permanent sample of socially insured persons
EPS_{R5}	Permanent sample of socially insured persons release 5
FPS Public Health	Federal Public Service Public Health
FPS Social Security	Federal Public Service Social Security
GMD – DMG	Globaal medisch dossier – Dossier médical global
GP	General practitioner
IMA – AIM	Intermutualistisch Agentschap – Agence Intermutualiste
MAB	Maximum billing
PR	Preferential reimbursement
OOP–payments	Out-of-pocket payments
Q1, Q2, Q3, Q4	First, second, third and fourth quartile
RIZIV – INAMI	Rijksinstituut voor Ziekte – en Invaliditeitsverzekering – Institut national d'assurance maladie-Invalidité
SD	Standard deviation
VBI	Value-based insurance
WIV/ISP	Wetenschappelijk Instituut Volksgezondheid – Institut Scientifique de Santé Publique

SYNTHESIS

1. INTRODUCTION

1.1. Complexity of patient cost sharing for ambulatory physician-patient contacts

A characteristic feature of the Belgian system of healthcare and health insurance is patient cost sharing. Patient cost sharing can be defined as private payments at the point of use. Some services or drugs are exempt from patient cost sharing, such as for example the vital drug insulin. In general, three direct forms of cost sharing can be identified: co-payments, coinsurance and deductibles. A co-payment is a fixed fee (flat rate) per item or service. In case of coinsurance the patient pays a percentage of the cost of the service. Both forms are dominant in most European healthcare systems.[a] With a deductible, patients have to pay all healthcare costs up to a certain limit before coverage begins. The system of maximum billing (MAB) could be interpreted as a deductible. The MAB puts a ceiling on the total amount of co-payments and coinsurance rates at the level of a household, where the ceiling is a function of the net taxable income of the household.

In addition to co-payments, coinsurance and deductibles, some indirect forms of cost sharing exist. These include the difference between official tariffs and freely set fees by providers, called “supplements” in Belgium, “dépassements” in France and “balance billing” in the U.S., charges in excess of some amount (e.g., the cost of prescription drugs in excess of a reference price) and healthcare services not covered by the insurer.

[a] There is no appropriate term in Dutch or in French making a distinction between co-payment and coinsurance. For both forms the word “remgeld” is used in Dutch and “ticket modérateur” in French.

A **co-payment** is when a patient pays a fixed fee (flat rate) per item or service.

A **coinsurance** is when a patient pays a percentage of the cost of a product or service and the public payer (insurer) pays the remaining part.

An example: On 1 December 2011 the fee of a cardiologist was € 29.51. Patients entitled to increased reimbursement paid a co-payment of € 2.5. Patients not entitled to increased reimbursement paid a coinsurance of 40%.

Due to a multitude of different co-payments and coinsurance rates in Belgium, particularly for ambulatory physician services, the situation has become rather complicated and non-transparent for the National Institute for Health and Disability Insurance (RIZIV/INAMI), the sickness funds, the providers and the patients. Therefore, KCE was asked by RIZIV/INAMI to study reform options that simplify the current structure of co-payments and coinsurance rates for ambulatory physician services (office consultations and home visits) in Belgium.

1.2. Simplification within the contours of the current health insurance system

The scope is limited to general practitioner (GP) and ambulatory specialist office consultations and home visits to keep the study tractable and because of the largest complexity found in this sector.

The analysis rests on the acceptance of four basic principles in the current Belgian health insurance system, which determine the boundaries of the simplification:

1. The existence of co-payments and coinsurance as such is not questioned.
2. Current measures that reduce patient cost sharing for each encounter with the healthcare system, such as the preferential reimbursement scheme, are maintained.
3. The way physicians are reimbursed, i.e. the physician fee schedule and the fee-for-service payment, is not questioned.
4. All reform options depart from patient cost sharing rules in December 2011.

Indirect forms of cost sharing such as supplements and the minority of GPs who are paid by capitation, are out-of-scope.

2. A SUCCESSION OF AD HOC MEASURES SINCE 1963

2.1. The Health Insurance Act of 9 August 1963 laid the foundations of the current system

To fully understand the current structure of cost-sharing arrangements between patients and public authorities, we must go back to the Health Insurance Act of 9 August 1963. This law introduced several substantial changes, of which three of them are particularly relevant for this study. The main characteristics of these reforms are still valid today.

First, an official list of reimbursable diagnostic and therapeutic procedures, the so-called “nomenclature”, was created.

A second innovation was the establishment of a system of agreements between providers and sickness funds, fixing fees and prices to be respected by providers to establish price certainty for patients. The fees for GPs, specialists in hospitals and office-based specialists are negotiated at the national level in the National Commission of Representatives of Physicians and Sickness Funds of RIZIV/INAMI. Individual physicians have a choice whether or not to accede to the agreement. Physicians who do (who are “conventioned”) commit themselves to apply the fee schedule as determined in the nomenclature and, hence, give patients price certainty. Non-conventioned physicians can set their fees freely.

Third, a new category of beneficiaries, entitled to preferential reimbursement of healthcare costs, was defined. Contrary to the general population who was reimbursed 75% of the fee, this vulnerable population was exempted from patient cost sharing. However, already in 1965 the possibility of a ceiling on the patient share was provided for in the Health Insurance Act. This possibility was applied for the first time in 2010 when a ceiling limit of € 15.50 was introduced for specialist consultations.

2.2. Budget-driven reforms

Until the beginning of the eighties, there were hardly any demand-side constraints on healthcare utilization. However, as a response to the economic crisis and the problem of rising healthcare expenditures, the generosity of the health insurance system was decreased. Two Royal Decrees, both published on the same date (Royal Decrees of 23 March 1982), extended the coinsurance scheme to the vulnerable population by making them financially responsible of maximum 10% of fees for GP consultations and visits and maximum 15% of fees for specialist consultations. At the same time, the possibility of a maximum co-payment per service, introduced in 1965 for the general population, was extended to the vulnerable population.

In the beginning of the 1990s, about 2% of the healthcare budget was shifted to the patients in the form of increased co-payments or coinsurance rates. Article 37 of the “Law regarding compulsory insurance for healthcare and indemnities, coordinated on 14 July 1994” (hereafter Health Insurance Act of 14 July 1994) adopted the maximum co-payment and the 25% coinsurance rate for the general population as stipulated in the Act of 1963 and the 10%-15% coinsurance rates for the vulnerable population for GP visits and consultations and specialist consultations respectively, as determined in the Royal Decree of 23 March 1982. However, article 37bis introduced new coinsurance rates for the general population: 30% for GP consultations, 35% for GP visits and 40% for specialist consultations. Article 37bis does not bear on patients entitled to preferential reimbursement.

To sum up, legislation provides for the possibility of a co-payment or coinsurance for both population groups. In practice, however, for the general population coinsurance is applied in most cases while for the vulnerable population co-payments are the norm.

For patients entitled to increased reimbursement of co-payments and coinsurance, article 37 of the Health Insurance Act of 14 July 1994 determines coinsurance rates and the Royal Decree of 23 March 1982 determines the maximum co-payment. In practice, a co-payment is applied.

For the general population, article 37bis of the Health Insurance Act of 14 July 1994 determines coinsurance rates and article 37 determines the maximum co-payment. In practice, coinsurance rates are applied.

2.3. Incentive-based reforms

In the last decade, co-payments and coinsurance rates have increasingly been used as a tool for influencing consumption behaviour. Explicit patient cost-sharing measures taken in the period from 2000 to 2011 mainly had the intention to disincentivise home visits and stimulate the use of the global medical record (GMD/DMG). Patients with a global medical record pay reduced co-payments or coinsurance rates for consultations with the GP who has access to the global medical record.

Patients have direct access to specialist care in Belgium. To stimulate patients to see their GP before consulting a specialist, a reduction in patient cost sharing for specialist care for patients who are referred by their GP was introduced in 2007. The measure, however, was limited in scope. The reduction only applies to the first specialist consultation per calendar year and per specialism.

Since 1 December 2011, the patient share of supplementary fees for (urgent) out-of-hours GP consultations is fully reimbursed for all patients to reduce unnecessary reliance on hospital emergency departments. Since the same date, cost sharing for GP consultations has been simplified due to the replacement of co-payments and coinsurance rates by only four distinct co-payments. This measure was introduced to facilitate the social third-party payer system.

3. POLICY OPTIONS TO SIMPLIFY THE CURRENT STRUCTURE OF CO-PAYMENTS AND COINSURANCE RATES FOR PHYSICIAN-PATIENT CONTACTS

The current complex structure of co-payments and coinsurance rates for physician-patient contacts can be simplified in many different ways. As an extreme example, replacing all coinsurance rates and co-payments by only one co-payment would bring a drastic simplification for all parties concerned. However, depending on the exact amount of the flat rate, the impact on the RIZIV/INAMI budget or the patient cost and hence the financial accessibility for vulnerable groups may be unrealistic. Therefore, for all reform proposals the financial impact for RIZIV/INAMI and for subgroups of the population was calculated.

Table 1 summarizes the current structure (December 2011) of co-payments and coinsurance rates for GP consultations, GP visits and specialist consultations.

Table 1: Determining factors of patient cost sharing for GP consultations, GP visits and specialist consultations

	GP consultations	GP home visits	Specialist consultations
Patient status (increased reimbursement or not)	Co-payment for all patients, but differentiated between general population and patients eligible for increased reimbursement.	Coinsurance for general population and co-payment for patients eligible for increased reimbursement.	Coinsurance with a maximum ceiling for general population and co-payment for patients eligible for increased reimbursement.
Regular hours/out-of-hours	Supplementary fee for out-of-hours consultation is fully reimbursed by RIZIV/INAMI.	Patient cost sharing is based on a single fee for regular hours and on two fees for out-of-hours.	Coinsurance on supplementary fee for out-of-hours consultation, depending on patient status. For the general population a maximum ceiling is applied.
Global medical record	Reduction of 33% in patient share.	Reduction of 30% in patient share for patient with increased reimbursement, for chronically ill and for the elderly (+75) and children (<10).	Reduction in patient share if the patient is referred to the specialist by the GP for first specialist consultation per calendar year and per specialism.
Patient residence: • **Private home** • **Living in an institution with collective accommodation or residential care facilities (home for the elderly or a nursing home)**	-	Patient cost sharing is based on a single fee for visits at the private home and on two fees for visits at a collective home.	-
Patient age	-	Reduction in patient share for elderly (+75) with a GMD/DMG during regular hours and for children (<10) during regular hours and out-of-hours.	-
Being chronically ill	-	Reduction in patient share for chronically ill with a GMD/DMG during regular hours.	-
Physician qualification	-	Determines the amount as well as the form (coinsurance or co-payment) of cost sharing.	For patients eligible for increased reimbursement the co-payment varies with the specialism. For the general population, the amount paid as coinsurance varies with the specialism.
Number of patients during the visit or consultation	-	Determines the amount, the form and calculation (one versus two fees) of cost sharing.	-

We took into account the following ***principles for simplification*** in defining possible reforms:

- **Make the cost-sharing structure user-friendly:** if health authorities want to promote the (social) third-party payer system, round figures are easier to work with.
- **Increase the coherence of the cost-sharing structure:** a differentiation in cost sharing according to GP qualification is not regarded as a justifiable reason, since patients often do not know the qualification of their GP. Likewise, since patients are entitled to the same care wherever they reside (holding other factors constant), we consider cost sharing differentiation according to patient residence (at home or in an institution with collective accommodation) as unjustifiable. Along the same lines, the current difference in cost sharing according to the number of patients visited during the same visit is also considered to be incoherent.
- **Improve transparency:** if cost sharing is meant to steer patients towards particular services, signals should be transparent. The form of patient cost sharing (coinsurance or co-payment) should not differ according to patient characteristics. There are arguments in favour of both forms of cost sharing, but these arguments do not differentiate between patient characteristics such as preferential reimbursement.
- **Dissociate patient cost sharing from provider fee:** the determining factors of GP and specialist fees and the choices behind the amount of cost sharing, are basically distinct and mutually independent. Fees are the result of a negotiating process and do not necessarily reflect what is important for a patient.

In addition, also ***principles for cost-sharing differentiation*** were considered:

- **Maintain specific equity/accessibility choices:** current measures that reduce patient cost sharing for each encounter with the healthcare system, such as the preferential reimbursement scheme, are maintained.
- **Encourage the use of valuable services:** efficiency in healthcare utilization is one straightforward policy option. If health authorities believe, as they currently do, that having a GMD/DMG may have a positive effect on healthcare costs and/or on the health of patients, reduced cost sharing for patients with a GMD/DMG can be justified as long as the decision to have a GMD/DMG is up to the individual patient.

In most simulations, current legal stipulations remain applicable. Moreover, we aimed at a limited financial impact, especially for vulnerable patient groups.

The actual acceptability of these principles is to be judged by the decision makers.

3.1. Global financial impact for RIZIV/INAMI and for patients per policy reform

Microsimulation analysis

The financial impact for patients and RIZIV/INAMI of reform proposals that simplify the co-payment and coinsurance structure was calculated using microsimulations. The analyses are based on the Permanent Sample of socially insured persons (EPS) for 2009. All results are extrapolated to reflect the financial impact at the national level. A “baseline” simulation was first performed to replicate current policy (2011). This baseline simulation is the reference for the simulations that look at the financial impact of different policy measures. The financial impact of policy measures was also calculated at the level of subgroups of the population, based on characteristics including age, gender, disability, having a chronic illness, having a global medical record, unemployment status, eligibility for preferential reimbursement and total individual healthcare expenditures. Because of a lack of data on price elasticities, it was impossible to take account of how patients or providers could respond to policy changes. Hence, all results should be interpreted as short-term effects.

Financial impact and reimbursements by the system of maximum billing

Table 2 shows expenditures for RIZIV/INAMI and for patients in the baseline simulation and the simulated financial impact of all policy reforms of GP consultations, GP visits and specialist consultations. In the baseline simulation, MAB reimbursements are not taken into account. For the reform simulations, we give the financial impact for RIZIV/INAMI both with and without MAB reimbursements. For a patient who already had MAB reimbursements in 2009, an increase in the cost-sharing amount due to a policy reform was attributed completely to the RIZIV/INAMI. For patients below the ceiling in 2009 (and hence without MAB reimbursements in the data) or for patients above the ceiling but with a decrease in the cost-sharing amount due to the policy reform, the financial impact was calculated without taking account of the system of the MAB. The underlying assumption is that an increase or decrease in cost-sharing amounts will not bring an individual above or below the MAB ceiling as compared to the current situation.

The financial impact for patients is the same as for RIZIV/INAMI but with the opposite sign.

3.1.1. GP consultations

The measures taken in December 2011 were a rather cheap reform with an increase in the budget of RIZIV/INAMI of about 1.9 million euros (C1). The increase reduces to 1.4 million euros if we take the MAB into account.

Replacing current (non index-linked) co-payments by coinsurance rates of 10% and 30% for patients with and without preferential reimbursement respectively is almost budget neutral.

A remarkable result is that, although the financial impact for RIZIV/INAMI of C2 and C3 varies substantially, the amount of MAB reimbursements is exactly the same between the two scenarios. This is due to the fact that, in both simulations, patients without preferential reimbursement pay an amount of cost sharing that is lower than the current co-payments. For patients entitled to preferential reimbursement, the 10% coinsurance rate in C2 and C3 gives a slightly larger cost-sharing amount than the current co-payments. The zero amount of MAB reimbursements for C5 and C6 can be explained along the same lines.

3.1.2. GP visits

Removing the difference in cost sharing according to GP qualification and patient residence for GP visits is also a reform resulting in a limited budget decrease for RIZIV/INAMI (V1). On the other hand, applying co-payments for all patients in a ratio of 1 to 4 for patients with and without preferential reimbursement respectively, as currently is the case for GP consultations, demands an extra RIZIV/INAMI budget of 7.9 million euros (V2). MAB reimbursements in this scenario are very small (0.1 million euros) since for the majority of patients current cost sharing amounts are lower than in V2.

Introducing coinsurance rates for all patients (V3) reduces the cost for RIZIV/INAMI with 4.7 million euros or 3.0 million euros if MAB reimbursements are taken into account. A 10% coinsurance rate for patients with preferential reimbursement is larger than current co-payments.

The financial impact of removing differences in protection between children and the chronically ill and elderly depends on the direction in which differences are removed.

3.1.3. Specialist consultations

As was the case for C2 and C3, the financial impact of S1 and S2 differs substantially, but the MAB reimbursements are exactly the same.

Replacing current coinsurance and co-payments by the selected co-payments in S4-S7 has a substantial financial impact. If policy makers would decide that patients should pay the same co-payment for a specialist consultation as for a GP consultation, an extra budget of 76.2 million euros would be necessary (S4). S6 has the smallest financial impact, of which half consists of MAB reimbursements.

Table 2: Financial impact for RIZIV/INAMI and patients per policy reform as a difference with baseline simulations

Simulation	Patients	RIZIV/INAMI without MAB	RIZIV/INAMI with MAB	MAB reimbursements
GP consultations				
Baseline	€ 137 497 114	€ 605 274 730		
C1: Situation before December 2011		€ -1 859 891	€ -1 448 681	€ 411 210
C2: 10% for PR* - 25% for non-PR		€ 21 788 295	€ 22 156 577	€ 368 282
C3: 10% for PR - 30% for non-PR		€ 800 972	€ 1 169 254	€ 368 282
C4: 10% for PR - 40% for non-PR		€ -41 173 675	€ -36 384 139	€ 4 789 536
C5: € 1.5 for PR - € 3.75 for non-PR		€ 48 232 681	€ 48 232 681	€ 0
C6: € 1.5 for PR- € 4.5 for non-PR		€ 32 155 120	€ 32 155 120	€ 0
GP visits				
Baseline	€ 101 897 437	€ 403 295 589		
V1: Current patient share (no difference for GP qualification and patient residence)		€ -233 780	€ -165 396	€ 68 384
V2: Co-payments, ratio 1 for PR to 4 for non-PR (no difference for GP qualification and patient residence)		€ 7 876 675	€ 8 021 208	€ 144 533
V3: 10% for PR - 35% for non-PR		€ -4 659 175	€ -2 960 187	€ 1 698 988
V4: Arrangement of elderly and chronically ill for children		€ -1 738 873	€ -1 548 906	€ 189 968
V5: Arrangement of children for elderly and chronically ill		€ 5 393 252	€ 6 043 615	€ 650 363
Specialist consultations				
Baseline	€ 209 313 946	€ 474 523 137		
S1: 15% for PR - 25% for non-PR		€ 64 912 414	€ 66 575 540	€ 1 663 126
S2: 15% for PR- 40% with limit of € 15.5 for non-PR		€ -5 562 505	€ -3 899 379	€ 1 663 126
S3: 15% for PR - 40% no limit for non-PR		€ -8 400 866	€ -6 116 824	€ 2 283 941
S4: € 1.5 for PR- € 6 for non-PR		€ 76 189 945	€ 76 247 496	€ 57 551
S5: € 2 for PR - € 8 for non-PR		€ 33 077 272	€ 33 715 749	€ 638 477
S6: € 2.5 for PR - € 10 for non-PR		€ -9 500 894	€ -4 983 829	€ 4 517 064
S7: € 3 for PR - € 12 for non-PR		€ -52 346 313	€ -42 957 636	€ 9 388 677

**PR: preferential reimbursement; non-PR: non preferential reimbursement or general population*

3.2. Financial impact for patient subgroups of alternative policy reforms

The global financial impact of a policy reform is not necessarily evenly distributed over patient subgroups. Figures 1-9 in the scientific report show the financial impact of the simulated policy reforms for patient subgroups based on age and gender, health status, having a GMD/DMG and socioeconomic characteristics. The magnitude and the direction of the financial impact are strongly related to the cost-sharing arrangement of the policy reform and varies between patient subgroups.

4. DISCUSSION AND CONCLUSION

4.1. Lack of a coordinated approach

The current complex structure of co-payments and coinsurance rates for GP and specialist office consultations and home visits is mainly the result of successive political choices made for budgetary reasons, to provide patients with monetary incentives to alter their behaviour towards the consumption of more appropriate services or to guarantee financial accessibility to healthcare to vulnerable patient groups. In every health system difficult trade-offs have to be made to achieve multiple goals, such as efficiency, equity and quality of care, with limited resources. Consequently, the complex structure implicitly reflects the weights assigned to each of these goals. However, a coordinated approach based on clear principles is lacking.

A simplification is not necessarily neutral with respect to other values in a society, such as the financial accessibility of healthcare. Reducing the complexity of the co-payment and coinsurance structure may for example reduce access to healthcare for some vulnerable groups. However, for a global view on patient cost sharing and financial accessibility of GP and specialist services, we would also need to take into account indirect forms of cost sharing, especially supplements. At this moment, no information on supplements for GP and ambulatory specialist services is available.

4.2. Another possible explanation of complexity

Probably another explanation for the complex structure can be found in the way fees for GPs and specialists are set in Belgium. The negotiations in the National Commission of Representatives of Physicians and Sickness Funds are mainly targeted at the level of the fee. The agreements rarely mention the financial consequences for patients when fees are increased and coinsurance is due. The amount of coinsurance automatically follows the increase in the fee. Only in 2010, a non-indexed ceiling limit of € 15.50 was introduced for specialist consultations.

4.3. Co-payment versus coinsurance

Both co-payments and coinsurance have advantages and disadvantages and the choice between both forms is determined by the objectives of the policy maker.

The simplification of patient cost sharing for GP consultations, introduced on 1 December 2011, increased transparency for GPs and for patients. Since the four co-payments are not index-linked, GPs exactly know how much they have to charge for a longer period of time and patients know how much they have to pay. Rounded amounts are easier to work with, certainly in a system of (social) third-party payer.

On the other hand, given the way fees are set in Belgium, coinsurance has one important advantage over a co-payment for RIZIV/INAMI. The budgetary impact of an indexing of fees is in part counterbalanced by the coinsurance rate. To reach a similar result with a co-payment, the amount of the co-payment has to be adapted repeatedly by legislation. Of course, one could also keep the amount of the co-payment constant during several years and introduce a more substantial increase every few years to realize the same budgetary impact as with coinsurance.

Another argument in favour of coinsurance could be that patients should contribute more for higher-priced services. At the same time, it also implies that patients have to undergo the salient outcomes of the fee negotiations, while the arguments to increase GP or specialist fees in this negotiation process might not be relevant from their point of view. Moreover, because of the automatic increase in patient cost sharing, coinsurance does not allow to differentiate between an indexation of and an increase in fees.

Balancing the advantages and disadvantages of coinsurance and co-payments, there are more arguments in favour of co-payments. They are easier to work with in a third-party payer system and they allow policy makers to take an explicit decision whether patient cost sharing has to follow an increase in fees. Of course, the practical feasibility and acceptability by GPs and specialists of a system of co-payments and/or coinsurance rates also play a role in a simplification process.

Historically, coinsurance has mainly been applied for the general population and co-payment mainly for vulnerable groups. Due to the automatic increase in the amount to be paid out-of-pocket in case of coinsurance, the gap in the level of cost sharing between both groups has increased over the years. An increased focus on the weakest groups in society also increases the selectivity within a health insurance system. It is not clear whether this was an explicit choice of the policy makers.

4.4. Transparency

In conclusion, we can state without exaggeration that we have arrived at such a point of complexity of the fee structure and corresponding patient cost sharing that we should think about steps to increase the transparency and coherence of the system. Applying explicit principles for defining the level of cost sharing might be a useful first step.

In any case, fundamental questions should be addressed when establishing a transparent system of patient cost sharing: which criteria should determine the level of cost sharing? Should the level of cost sharing vary by the value of a product or service? Are differences in cost sharing according to the number of years of education of a GP or specialist or according to the specialism supported by society?

Reducing the complexity and diversity of the co-payment and coinsurance structure can be a goal in itself, but it is only one way to increase transparency. In this report some concrete situations are worked out, with a simulation of the financial impact for the health insurance budget and for patients.

Co-payments and coinsurance rates have increasingly been used as a tool for influencing consumption behaviour. If patient cost sharing is meant to steer patients towards particular services, signals should be transparent. The principle of “value-based insurance” is one possibility, though it should be noted that this will not necessarily lead to simplification. This model concentrates on what would be the most valuable treatment from a societal point of view. Of course, some overlap exists between both approaches.

Currently, fees are not determined by value but by a lot of other considerations. For instance, the relative proportion of technical acts specialists can charge as compared to intellectual acts is taken into account when a fee level is negotiated. However, the consequences of these differences in fees between specialists are not negligible if coinsurance is applied as a cost-sharing mechanism. For example, paediatrician care is more expensive from the patients' point of view, while it might be equally valuable as cardiologist care. So, why should a patient pay a larger amount of cost sharing if his illness requires the intervention of a specialist for whom the nomenclature determines a high fee? The possibilities and limits of "value-based insurance" is the topic of a subsequent KCE report.

SCIENTIFIC REPORT

1. INTRODUCTION

1.1. General background

The Belgian system of compulsory health insurance covers the entire population for a wide range of services. The health insurance system does not provide medical services but reimburses consumption. All diagnostic and therapeutic procedures that can be reimbursed by the National Institute for Health and Disability Insurance (RIZIV/INAMI) are described in a list, the nomenclature, which is determined by Royal Decree and updated regularly. This list gives a detailed description of the intervention, the fee and the conditions for reimbursement. In general, services not covered by the fee schedule are not reimbursable. The type of reimbursable benefits and their amounts (total fee and reimbursement) are determined through a process of negotiations with the various parties involved (sickness funds, representatives of healthcare professionals…) within RIZIV/INAMI, all within preset budgetary limits. The negotiated fee or convention tariff is settled in agreements (for physicians and dentists) and conventions (for other healthcare providers). For drugs, the procedure is somewhat different. Only inpatient and outpatient drugs included on a positive list of reimbursement are covered by the compulsory health insurance. This positive list contains drugs that got a positive decision from the Minister of Social Affairs, following a motivated reimbursement proposal from the Drug Reimbursement Committee.

The healthcare system is mainly financed through social security contributions and direct and indirect taxes. However, patients also contribute to the costs of healthcare at the point of use. In general, three direct forms of cost sharing can be identified: co-payments, coinsurance and deductibles. A co-payment is a fixed fee (flat rate) per item or service.

In case of coinsurance the patient pays a percentage of the cost of the service. Both forms are dominant in most European healthcare systems.[b] With a deductible, patients have to pay all healthcare costs up to a certain limit before coverage begins. The system of maximum billing (MAB) could be interpreted as a deductible. The MAB puts a ceiling on the total amount of co-payments and coinsurance rates at the level of a household, where the ceiling is a function of the net taxable income of the household.

In addition to co-payments, coinsurance and deductibles, some indirect forms of cost sharing exist. These include the difference between official tariffs and freely set fees by providers, called “supplements” in Belgium, “dépassements” in France and “balance billing” in the U.S., charges in excess of some amount (e.g., the cost of prescription drugs in excess of a reference price) and healthcare services not covered by the insurer. For inpatient care and for drugs, a third-party payer system applies. For outpatient care, patients are in principle required to pay upfront the full fee and claim reimbursement with their sickness fund.

Different kinds of arguments for co-payments or coinsurance have been offered in the literature. First, co-payments and coinsurance may be implemented for budgetary reasons since increasing healthcare costs also increase the financial burden on health insurance and governments. Second, they are often used as a tool to reduce moral hazard and hence to increase efficiency and reduce overconsumption. A third rationale for co-payments and coinsurance is to provide patients with monetary incentives to alter their behaviour towards the consumption of specific services or drugs. However, due to a multitude of different co-payments and coinsurance rates in Belgium, particularly for ambulatory physician services, the situation has become rather complicated and non-transparent for RIZIV/INAMI, the sickness funds, the providers and the patients. Of course, this complexity can to a certain extent be explained by the concern of Belgian policymakers to keep the healthcare system financially accessible for vulnerable groups. Special measures have been taken to protect low-income and/or high-cost persons against paying increasing amounts out-of-pocket.

[b] There is no appropriate term in Dutch or in French making a distinction between co-payment and coinsurance. For both forms the word “remgeld” is used in Dutch and “ticket modérateur” in French.

An important step towards simplifying patient cost-sharing arrangements was the replacement of 16 different co-payments and coinsurance rates for consultations of general practitioners (GPs) by only four co-payments on 1 December 2011. However, for GP visits and specialist consultations the situation is still complex. Therefore, KCE was asked by RIZIV/INAMI to study reform options that simplify the current structure of co-payments and coinsurance rates for ambulatory physician services (office consultations and home visits) in Belgium.

A **co-payment** is when a patient pays a fixed fee (flat rate) per item or service.

A **coinsurance** is when a patient pays a percentage of the cost of a product or service and the public payer (insurer) pays the remaining part.

An example: On 1 December 2011 the fee of a non-accredited cardiologist was € 29.51. Patients entitled to increased reimbursement paid a co-payment of € 2.5. Patients not entitled to increased reimbursement paid a coinsurance of 40%.

1.2. Research questions and scope of the study

1.2.1. Scope of the study

Cost-sharing arrangements between public authorities and patients are part of health insurance coverage. The choice of an optimal health insurance scheme involves a trade-off between the gains from reducing financial risk on the one hand and the welfare losses from inappropriate incentives to increase healthcare consumption on the other hand. The way this trade-off is resolved depends crucially on the weight attached to principal values of a healthcare system, such as efficiency, access to good quality care and equity. The tension between these values has always been present in the Belgian healthcare and health insurance system. Depending on the source, out-of-pocket (OOP)-payments have been estimated to account for about 20-25% of total health expenditures. To address concerns of distributive justice, the financial burden of the poor and the sick has been shifted to the public authorities by a wide range of protection measures. These measures can be classified into two groups.

The first group consists of measures that reduce the patient cost at the level of a drug or a specific item in the nomenclature. The preferential tariff system, in which patients with a specific social status (e.g., long-term unemployed or pensioners with a limited gross taxable household income) or households below a certain income level, are entitled to reduced co-payments and coinsurance rates is an example of a protection measure that alleviates the cost of healthcare for each encounter with the healthcare system. The second group of protection measures puts a cap on a patient's total healthcare costs. The most important measure that belongs to the second group is the system of maximum billing (MAB) introduced in 2002.

The overall **objective of this study** is to assess the global financial impact for RIZIV/INAMI and distributional effects for patient groups of a simplification of the co-payment and coinsurance structure for GP consultations and visits and specialist consultations.

The **scope** is limited to general practitioner (GP) and ambulatory specialist office consultations and home visits to keep the study tractable and because of the largest complexity found in this sector.

The analysis rests on the acceptance of four basic principles in the current Belgian health insurance system, which determine the boundaries of the simplification:

1. The existence of co-payments and coinsurance as such is not questioned;
2. Current measures that reduce patient cost sharing for each encounter with the healthcare system, such as the preferential reimbursement scheme, are maintained;
3. The way physicians are reimbursed, i.e. the physician fee schedule and the fee-for-service payment, is not questioned;
4. All reform options depart from patient cost-sharing rules in December 2011.

Indirect forms of cost sharing such as supplements and the minority of GPs who are paid by capitation, are out-of-scope.

Throughout the study, it should be kept in mind that increasing transparency by simplifying the co-payment and coinsurance structure will not necessarily contribute to the principal values of efficiency, access to good quality care and equity. For example, age is currently one of the determining factors of patient cost sharing for GP visits. It could be envisaged that removing the distinction in co-payment or coinsurance rate according to age may reduce access to care for some patient groups. Moreover, there are other ways to design a transparent structure of co-payments or coinsurance rates than by merely reducing their complexity and diversity. One way is the so-called "value-based insurance design" that concentrates on what would be the most valuable treatment from a societal point of view. The level of cost sharing for products or services is a function of the value of the benefits of these products or services: the higher the value, the lower the level of cost sharing. The main purpose of this alternative approach is to avoid reduced use of appropriate healthcare due to cost sharing. This approach is the topic of a second KCE report on cost sharing that will be published in the course of 2012. Of course, some overlap exists between both approaches. Proposals to simplify the structure of co-payments and coinsurance rates can be value-based.

A third KCE report on cost sharing, planned for the end of 2012, will elaborate on the problem of optimal demand-side healthcare cost sharing, with a focus on protection measures.

1.2.2. Research questions

The report addresses two research questions:

1. How are co-payments and coinsurance rates for ambulatory physician services structured in Belgium?
2. How can the current structure of co-payments and coinsurance rates be simplified?
   a. According to what principles can the policy reforms be defined?
   b. What are the financial consequences of the policy reforms?

1.3. Methods

The main purpose of the study is to make methodological recommendations for a less complex structure of co-payments and coinsurance rates for GP and ambulatory specialist care. The recommendations will be based on an assessment of the current practice in Belgium and an analysis of Belgian data.

The first research question will be studied by a review of the legislative framework for co-payments and coinsurance rates in Belgium and by consultation of experts to validate the interpretation and application of the legislative documents.

Different options to simplify the current structure of co-payments and coinsurance rate are assessed using a microsimulation technique, applied to a dataset with demographic and socioeconomic information, and healthcare expenditures for a random sample of Belgian residents with public health insurance coverage.

More details on the methods and dataset will be provided in the following chapters.

1.4. Content of the report

The report is organized as follows.

Chapter 2 presents a brief overview of the main legislative reforms of co-payments and coinsurance rates for GP and ambulatory specialist care since 1963, as well as a more detailed description of the current (December 2011) situation.

In Chapter 3 we define the general principles and look in detail at the global financial impact and distributional effects of different policy options to simplify the co-payments and coinsurance structure by using the technique of microsimulation.

2. A HISTORICAL OVERVIEW OF THE STRUCTURE OF CO-PAYMENTS AND COINSURANCE RATES FOR GP AND SPECIALIST- PATIENT CONTACTS

2.1. Main legislative reforms since 1963

To fully understand the current structure of cost-sharing arrangements between patients and public authorities, we must go back to the Health Insurance Act of 9 August 1963. Of course, in a time span of almost fifty years, countless changes were made. Therefore, in the overview of the legislation between 1963 and 2011, we will focus on the main changes concerning the benefits provided by the health insurance system, the amount of the benefits and fees for different categories of beneficiaries. The description of the evolution of cost-sharing schemes in sections 2.1.1 and 2.1.2 closely follows the report of Carette (2009)[1], which summarizes the regulation on co-payments and coinsurance rates for GP and specialists services and provides some examples of the complexity of and contradictions within the current system. For the legislation underlying this evolution, we refer to the report in question.

2.1.1. The Health Insurance Act of 1963

Although the foundations of a compulsory health insurance system were established immediately after World War II, the Health Insurance Act of 1963 was a major turning point in the history of Belgian health insurance. The law introduced several substantial changes, of which three of them are particularly relevant for this study.[2,3] First, an official list of reimbursable services, the so-called “nomenclature”, was created. Second, a system of conventions and agreements between representatives of the sickness funds and of healthcare providers came into effect. Third, a new category of beneficiaries, entitled to preferential reimbursement of healthcare costs, was defined. Contrary to the general population, they were exempted from patient cost sharing. We briefly describe the essential features of each reform.

The nomenclature

The list of reimbursable diagnostic and therapeutic procedures, the nomenclature, contains for each item the professional qualification needed to be eligible for reimbursement by the health insurance system, a code-number, a description of the item, a key letter according to the medical specialty, a coefficient and application rules. The coefficient gives for each procedure the relative value compared to other procedures with the same key letter. Multiplying the coefficient by the value of the key letter determines the amount of payment to medical providers. For example, the key letter N refers to consultations, visits, advice and technical acts of GPs and specialists and the key letter E to travel costs. Application rules may refer to GP qualification, beyond the specialism. The Health Insurance Act of 1963 contained nine categories of reimbursed services (Article 23). The nomenclature was created primarily as a tool for distributing the healthcare budget among the various healthcare providers, based on a fee-for-service payment system.[4] At present, the nomenclature contains ten chapters, classified into 36 articles. Chapter 2 (consisting of article 2) mainly refers to consultations and visits of GPs and specialists.

The National Commission of Representatives of Physicians and Sickness Funds

An essential innovation of the Health Insurance Act of 1963 was the establishment of official fees and prices to be respected by providers. The objective was to establish price certainty for patients. The fees for GPs, specialists in hospitals and office-based specialists are negotiated at the national level in the National Commission of Representatives of Physicians and Sickness Funds of RIZIV/INAMI. The resulting agreement is valid only after approval by the "General Council" of RIZIV/INAMI, composed of representatives of the government, employers, trade unions, sickness funds and providers of care (consultative voice only), the "Insurance Committee", composed of representatives of the sickness funds and providers of care and of employers and trade unions (consultative voice only) and the endorsement of the Minister of Social Affairs. Individual physicians have a choice whether or not to join the agreement. The agreement enters into force unless more than 40% of all physicians within a region have notified their refusal to adhere to it, or if more than 50% of GPs and 50% of specialists have refused to adhere to it.

In case of non-agreement or rejection, the government has three options: to impose fees unilaterally for some or all services; to submit an alternative draft agreement; or to set the reimbursement levels, leaving physicians free to set their own fees.[3]

Physicians who accede to the agreement (who are "conventioned") have to adhere to the fee schedule as determined in the nomenclature. Non-conventioned physicians can set their fees freely. A physician can also choose to be only partially conventioned (for instance during some days of the week). The difference between these freely set fees and the convention tariff is not a co-payment or a coinsurance rate but is called a "supplement" in Belgium. We abstract from these supplementary payments and their regulation in the remainder of the report.

Patient cost sharing for the general and vulnerable population

In February 1960, a Parliamentary Working Group was designated to identify the problems encountered in the compulsory health insurance system, established since 1945.[5] Recommendations of the group highlighted that in order to attain a sustainable system, it was necessary to better coordinate healthcare services, to increase financial resources to cover the cost of care as well as to evenly distribute responsibilities among all partners (the State, employees, employers, sickness funds, physicians, pharmacists and in general all individuals working in the healthcare sector). Also patient responsibility for financing healthcare costs was recommended. This recommendation was adopted in the final version of the Health Insurance Act of 1963. Article 25 stipulates that for usual care (at that time mainly consultations and visits of GPs and specialists; currently also nursing care, physiotherapy and dental care) patients are reimbursed 75% of the fee, except for a vulnerable patient who is fully reimbursed. Vulnerable patients were defined as widows, pensioners, disabled and their dependents persons (Article 21 and 25). In 1965, an income limit was imposed to be eligible for increased reimbursement.[6,7] Over the years, the definition of the vulnerable population was extended to other groups. Throughout the description of the legislation on patient cost-sharing for GP and specialist services, the wording "vulnerable population" refers to patients entitled to preferential or increased reimbursement.

Article 25 also states that the general population should pay part of the cost of reimbursable pharmaceuticals, without being specific about a fixed amount or a percentage of the cost. All other services included in the nomenclature are fully reimbursed for both the general and the vulnerable population.

Already in 1965, the possibility of a ceiling on the patient share (0% and 25% for the vulnerable and general population respectively) was provided for in the Health Insurance Act. In case of a substantial increase in the cost of care, a co-payment *could* be used to guarantee a patient payment limit.[1]

2.1.2. Changes in cost-sharing rules as a response to a new economic context

Two decades later, in the wake of the economic crisis of the 1980s, two Royal Decrees[c] published on the same date profoundly modified cost-sharing rules for certain acts, in particular for physician's consultations and visits. The **Royal Decree No. 22 of 1982** extended the coinsurance scheme to the vulnerable population by making them financially responsible for maximum 10% of the fees for GP consultations and visits and for maximum 15% of the fees for specialist consultations.[8] At the same time, the **Royal Decree of 23 March 1982** established a maximum co-payment for all individuals, whether belonging to the general or to the vulnerable population, for GP and specialist consultations and visits. As a consequence, patient cost sharing could be determined as a coinsurance rate with a limit. For instance, a patient belonging to the general population contributed 25% of the official fee of a specialist consultation, but with a maximum of € 1.61.

In the beginning of the 1990s, with Belgium's ratification of the Maastricht Treaty of 10 December 1991 and in order to attain the convergence criteria, about 2% of the healthcare budget was shifted from the health insurance budget to the patients in the form of increased co-payments or coinsurance rates.[9] In the same period, the general principles of compulsory health insurance were coordinated in one law. Article 37 of this "Law regarding compulsory insurance for healthcare and indemnities, coordinated on 14 July 1994" (hereafter **Health Insurance Act of 14 July 1994**) defines the new cost-sharing schemes for 18 categories of health services. As previously established by the law of 9 August 1963, the reimbursement level for different health services was dependent on belonging either to the general population or to the vulnerable population.

Article 37 of the Health Insurance Act of 14 July 1994 adopted the 25% coinsurance rate for the general population as stipulated in the Act of 1963 and the 10%/15% coinsurance rates for the vulnerable population for GP visits and consultations and specialist consultations respectively, as determined in Royal Decree No. 22 of 1982. However, **article 37bis**, appended to the Health Insurance Act of 1994 on 21 September 1994, introduced new coinsurance rates for the general population: 30% for GP consultations, 35% for GP visits and 40% for specialist consultations. No coinsurance rates for specialist visits were included. In Belgium, only paediatricians are allowed to pay a visit to a patient's home (Chapter 2 of nomenclature). Article 37bis does not bear on the vulnerable population.

Since a Health Insurance Act has precedence over a Royal Decree, the legal references for patients entitled to increased reimbursement are clear: article 37 of the Health Insurance Act of 1994 for coinsurance rates and the Royal Decree of 23 March 1982 for the maximum co-payment. In practice, the co-payment and not the coinsurance rates has been applied since then. However, since 1994 there is a contradiction in the law concerning the coinsurance rates for the general population. Articles 37 and 37bis mention different coinsurance rates. There is no hierarchy of legal documents here, since both articles belong to the same Health Insurance Act. Where does this contradiction stem from? The coinsurance rates of 30, 35 and 40% were in fact introduced (in the Health Insurance Act of 1993) by the Royal Decree of 21 September 1993[10] and were afterwards included in article 37bis of the coordinated law of 1994. For the maximum co-payment, article 37 of the Health Insurance Act is the legal reference. In practice, the coinsurance rates are applied.

[c] Because both Royal Decrees have the same promulgation date (23 March 1982), the first decree is cited as Royal Decree No. 22 of 1982 and the second one as Royal Decree of 23 March 1982.

For patients entitled to increased reimbursement of co-payments and coinsurance, article 37 of the Health Insurance Act of 14 July 1994 determines coinsurance rates and the Royal Decree of 23 March 1982 determines the maximum co-payment. In practice, a co-payment is applied.

For the general population, article 37bis of the Health Insurance Act of 14 July 1994 determines coinsurance rates and article 37 determines the maximum co-payment. In practice, coinsurance rates are applied.

2.1.3. Changes in cost-sharing rules to steer patient demand

In the last decade, co-payments and coinsurance rates have increasingly been used as a tool for influencing consumption behaviour. Table 1 gives an overview of measures related to the fee schedules and reimbursement for GPs and specialists as determined in the agreements between representatives of the sickness funds and of the organisations of physicians for the period 2000-2011. The agreements are usually signed for a period of one or two years (2001-2002; 2003; 2004-2005; 2006-2007; 2008; 2009-2010; 2011). The table provides information about the application period of the agreement, measures related to GP and specialist fees for consultations and visits, to having a global medical record (GMD/DMG) and to patient cost sharing. Sometimes the stipulations in an agreement are rather vague or deviate from the concrete amounts which are applied. Therefore, we did not use the text of the agreements as such but completed Table 1 with the data in the circular letters of RIZIV/INAMI, which are the basis for application.[9,11,12,13,14,15,16] We make a distinction between the measures mentioned in the column "patient cost sharing" and those in the other columns. The first measures were taken with the explicit intention of interfering with the level of patient cost sharing. The measures in the other columns in Table 1 primarily focus on GP and specialist fees, and only indirectly have an impact on patient cost sharing.

Increase in GP and specialist fees

When we go through Table 1, some general conclusions can be drawn concerning physician fees. For most years, an indexation of GP and specialist fees was determined. In addition to the indexation, fees for GP and specialist consultations or visits were increased by a certain percentage or by a fixed amount. Increases relate to regular or out-of-hours patient contacts, to visits or consultations, to transport costs, to single or multiple visits, to GP characteristics (whether or not accredited[d]) or to the medical specialism. The GP fee for the management of a patient's global medical record has increased several times (from € 13.06 in 2001 to € 28.15 in 2011). Except for this last fee, which is fully reimbursed, every change (indexation and extra increase) in GP or specialist fees has an effect on patient cost sharing.

Incentives to promote GMD/DMG and discourage home visits

Explicit patient cost-sharing measures taken in the period from 2000 to 2011 mainly had the intention to deter patients from home visits and to encourage patients to have a medical record. Patients with a global medical record pay reduced coinsurance rates (-30%; augmented to -33% since 1 December 2011) for consultations with the GP who manages or has access to the GMD/DMG. The measure was introduced on 1 May 1999 for patients over 60 years and extended to patients over 50 years and to all ages on 1 May 2001 and 1 May 2002 respectively. On 1 June 2000 the range of application was extended to GP visits of patients over 75 years and to some chronically ill. In the agreement of 2009-2010 the representatives of sickness funds and physician organizations linked the central role of the GP in prevention to the GMD/DMG. The agreement was put into practice on 1 April 2011. A prevention module that facilitates preventive healthcare maintenance of patients was added to the GMD/DMG for patients aged 45-75.

[d] Quality accreditation is granted if the following conditions are met: the physician (1) keeps a medical record for each patient; (2) follows a programme of ongoing training; (3) reaches a minimum level of activity (1 250 patient contacts per year) and (4) does not have an outlier prescription profile.[3]

Based on a checklist, once a year the GP discusses with the patient which preventive health measures could be useful. The patient pays € 10.14 (in the agreement of 2009-2010 € 10 was mentioned) but this amount is fully reimbursed.

Other patient cost-sharing measures

The increase in the fees for GP out-of-hours consultations and visits in 2002 was not (completely) passed on to the patient. The coinsurance rate of 35% for out-of-hours visits for the general population was reduced to a percentage in the range of 23.03%-33.58% depending on the nomenclature code.[17] For out-of-hours GP consultations a comparable reduction was introduced; the 30% coinsurance rate for the general population was reduced to 23.03%-26.65% depending on the code.[17]

A similar measure was taken in 2008: the increase in fees for out-of-hours consultations of GPs had no influence on the cost-sharing amount for patients with a GMD/DMG.

In general, an increase in the fee of accredited GPs has no impact on patient cost sharing because the cost-sharing amount is calculated on the fee without accreditation.

Patients have direct access to specialist care in Belgium. To stimulate patients to see their GP before consulting a specialist, a reduction in patient cost sharing for specialist care for patients who are referred by their GP was introduced in 2007. The measure, however, was limited in scope. The reduction only applies to the first specialist consultation per calendar year and per specialism. The reduction amounts to € 5 for the general population and € 2 for patients eligible for preferential reimbursement.

In 2010 and 2011 some measures directly affecting the structure of patient cost sharing were taken. Since 1 November 2010 coinsurance rates for specialist consultations are subject to a ceiling limit of € 15.50 to prevent patients from incurring high expenses for certain types of specialist care (e.g., haematologist, oncologist, rheumatologist). The ceiling limit of € 15.50 is not index-linked. Since 1 December 2011 supplementary fees for (urgent) out-of-hours GP consultations are fully reimbursed for all patients. At the same date, 16 co-payments and coinsurance rates for GP consultations were replaced by four co-payments, where the co-payment depends on eligibility for preferential reimbursement and on having a GMD/DMG (see section 2.2.1). In fact, the prevailing co-payments and amounts to be paid as coinsurance were rounded off to simplify the structure of patient cost sharing for GPs and for the sickness funds but also to facilitate the social third-party payer system for vulnerable groups, which was extended on 1 July 2011.

Table 1: Overview of measures related to the fee schedules and patient cost sharing for GPs and specialists for the period 2000-2011

Application period of agreement	Index (%)	Fee for GMD/DMG[a]	Fee GP Consultation	Fee GP Visit	Fee Specialist Consultation	Patient cost sharing measures
2001	1.53			+22% transport costs		Extension of GMD/DMG to 50+ (before 60+)
2002	2.82 (01/02)	+ €2 (01/07)	+ €2 out-of-hours (01/07)	+ 3.45% for multiple visits (01/04) + 2€ out-of-hours (01/07)	+ 7.55% for internist, paediatrician, neurologist, psychiatrist, neuropsychiatrist and rheumatologist (01/09) + €7.97 for neurologist (01/09)	New coinsurance rates for out-of-hours visits (<35%) and consultations (<30%) for the general population (01/07) Extension of GMD/DMG to entire population (01/05)
2003	1.97	+ €1.94 (01/01) + €1 (01/10)	Accredited GP + €1.47 (01/01) + €1 (01/10)	Regular hours + €0.73 (01/04) + €3.42 (01/10)	+ €0.73 for specialists using code 102535 (=accredited specialist) (01/01) Alignment of fees for accredited gastroenterologist, lung specialist and cardiologist to that of accredited internist (01/01) + €1.30 for accredited internist, psychiatrist, neurologist, rheumatologist, lung expert, cardiologist and paediatrician (01/04) + €1.30 for psychotherapy (01/04) + €1 for specialists using code 102535 (=accredited specialist) (01/10)	Patients without preferential reimbursement: + €1 for GP visits, except for chronically ill and <10 and >75 with GMD/DMG
2004	1.38	+ €1 (01/10)		+ €2.67 (01/10) (indexed 01/04)	+ €1.30 for dermatologist (01/04) + 15.29% for rheumatologist (01/10)	

Application period of agreement	Index (%)	Fee for GMD/DMG[a]	Fee GP Consultation	Fee GP Visit	Fee Specialist Consultation	Patient cost sharing measures
2005	-	+ €1 (01/04)	+ €0.74 (01/04) + €1 (01/12)	+ €1 (01/04) + €1 (01/12)	Increase equivalent to GP consultation (01/04 and 01/12)	
2006	2.26	+ €2 (01/02) (not indexed)	Regular hours: Fc=Consultation (€20) Out-of-hours: Evening=1.33*Fc Weekend=1.5*Fc Night =2*Fc	Regular hours: Fv= Visit (€30) Out-of-hours: Evening=1.33*Fv Weekend=1.5*Fv Night= 2.3*Fv Multiple visits on regular hours: 2 patients=0.8*Fv 3 patients=0.75*Fv + €0.68 for visit regular hours (licensed) (01/04)		
2007	1.65	+ €3 (01/10)				Reduced patient cost sharing for specialist consultation if referred by GP (01/02)
2008	1.62 (1.52 for some specialists)	+ €0.67	+ 2% accredited GP (including out-of-hours) Increase in fee for out-of-hours (experiments within the framework of GP organized duty centres) (01/07)	+ 2% (including out-of-hours)	+ 2% for specialists using code 102535 (=accredited specialist)	Experiments within the framework of GP organized duty centres: no patient cost-sharing if holding a GMD/DMG

Application period of agreement	Index (%)	Fee for GMD/DMG[a]	Fee GP Consultation	Fee GP Visit	Fee Specialist Consultation	Patient cost sharing measures
2009	4.32	+ €1.33 + €10 prevention module				Limit in patient cost sharing for GP visits for children <10 to 2*cost-sharing for GP consultation (1/10)
2010	0.93			Simplification of codes eliminating difference due to i) children's residence; ii) palliative care; iii) (nursing) home for the elderly (1/11)	+ €4.24 rheumatologist and + €1.57 neurologist (01/10) Introduction of 12 nomenclature codes for specialists during 2010 (e.g., geriatrician, haematologist, oncologist)	Ceiling limit of € 15.50 (not index-linked) for specialist consultations (1/11)
2011	1.40					For all patients full reimbursement of GP out-of-hours consultations (01/12) Simplification in patient cost-sharing for GP consultations (01/12)

[a]*Global medical record*

2.2. Determining factors of the current structure of co-payments and coinsurance rates

Based on an analysis of Chapter 2 of the nomenclature, it can be concluded that the current structure of co-payments and coinsurance rates for GP and specialist consultations and visits depends on the place and time of the service, on the type of service (visit or consultation), on patient characteristics, on the physician's qualification and on the number of patients seen per contact. We structure the overview of the situation on 31 December 2011 along the type of service for GPs (visit and consultation) and specialists (consultation).

The overview in the present section and the analyses in Chapter 3 are limited to GP consultations and visits and to specialist consultations. Nomenclature codes related to paediatricians' visits (negligible number of contacts), GPs visiting patients in or accompanying patients to a hospital, advice (prescription without consultation or visit), psychotherapies and child and youth psychiatric treatment and evaluation are excluded. Palliative patients are fully reimbursed.[18] They are included in the analysis, but in all reforms their amount of cost sharing is set equal to zero. Another exclusion concerns the supplementary fee for the use of a diabetes passport by a licensed GP (code 102852). Codes relating to experiments within the framework of GP organized duty centres (see agreement of 2008[14]; codes 101091 and 101113) and codes relating to healthcare pathways are excluded as well. These codes are not part of Chapter 2 of the nomenclature, but we mention them since they are included in the circular letters from the RIZIV/INAMI with respect to Chapter 2. Fees and cost-sharing rules for trainee physicians are taken into account.

2.2.1. GP office consultations

Before 1 December 2011, cost-sharing arrangements for GP office consultations were applied as provided for by article 37bis of the Health Insurance Act of 1994 for the general population and by the Royal Decree of 23 March 1982 for individuals eligible for increased reimbursement. Patient cost sharing depended on having a GMD/DMG, on eligibility for preferential reimbursement, regular or out-of-hours consultations and GP qualification (acquired rights or licensed)[e]. Accreditation did not have an impact on patient cost sharing since the fee without accreditation was the basis for the amount to be paid out-of-pocket. For consultations during regular and evening hours, the general population paid a coinsurance rate of 30%, patients entitled to preferential reimbursement paid a co-payment. Patients with a GMD/DMG were entitled to a reduction of 30%. The reduction did not apply to consultations during the weekend, holidays and night. For these out-of-hours consultations a supplementary fee with cost sharing was due. For example, a consultation with a licensed GP in the weekend for a patient without preferential reimbursement and without a GMD/DMG amounted to € 5.88 + € 2.76 = € 8.64.

[e] GP with acquired rights (in French "médecin généraliste avec droits acquis"/ in Dutch "algemeen geneeskundige met verworven rechten"; Licensed GP without an accreditation (in French "médecin généraliste agréé"/ in Dutch "erkende huisarts") and licensed GP with an accreditation (in French "médecin généraliste agréé accrédité"/ in Dutch "geaccrediteerde erkende huisarts"). A GP with acquired rights is a GP who had a physician diploma on 31 December 1994, but who does not have a certificate of supplementary training (for example, who did not do a work placement).

Table 2: Co-payments and coinsurance rates for GP consultations on 30 November 2011

		General population		Preferential reimbursement	
		GP qualification		GP qualification	
		Acquired rights	Licensed	Acquired rights	Licensed
No GMD/DMG*	Regular hours and evening (18:00-21:00)	30% (€4.15)	30% (€5.88)	€1.01	€1.51
GMD/DMG	Regular hours and evening (18:00-21:00)	30% (€2.98)**	30% (€4.12)	€0.77	€1.36
No GMD/DMG	Regular hours and evening (18:00-21:00)	30% (€4.15)	30% (€5.88)	€1.01	€1.51
With and without GMD/DMG	Weekend or holidays (8:00-21:00)	23.03% (€2.30)	24% (€2.76)	7.68% (€0.76)	€0.74
	Night (21:00-8:00)	26.31% (€5.00)	26.65% (€6.12)	8.77% (€1.66)	€1.54

** Global medical record*

*** A coinsurance rate of 30% is applied to the official fee, which equalled € 14.18 for a GP with acquired rights in November 2011. In addition, a reduction of 30% is applied for a patient with a GMD/DMG which gives an amount of cost sharing equal to € 2.98. The other amounts in brackets were calculated in the same way. Amounts not in brackets are co-payments.*

Since 1 December 2011 all patients pay a fixed co-payment for each office consultation.[19,20] Table 3 shows the exact amounts of the co-payments. Since the same date, supplementary fees for out-of-hours consultations are fully reimbursed by RIZIV/INAMI.

Table 3: Co-payments for GP consultations since 1 December 2011

	General population	Preferential reimbursement
No GMD/DMG*	€ 6.50	€ 1.50
GMD/DMG	€ 4.00	€ 1.00

**Global medical record*

2.2.2. GP home visits

Table 4 gives an overview of the current determining factors of patient cost sharing for GP visits (31 December 2011). Consistent with the determining factors of GP consultations before the simplification of 1 December 2011, patient cost sharing for GP visits depends on having a GMD/DMG, on eligibility for preferential reimbursement, on the time of the day the visit is made and on GP qualification. Additional determining factors are a patient's residence, the number of patients visited during one visit, age and chronic illness. Chronically ill patients are entitled to a reduction in cost sharing if they have a GMD/DMG. Being chronically ill is defined here as being entitled to one of the lump sum allowances for the chronically ill.

Table 4: Determining factors of patient cost sharing for GP visits

	Impact on patient cost sharing
Patient status (preferential reimbursement or not)	Coinsurance for general population and co-payment for patients eligible for preferential reimbursement.
Regular hours/out-of-hours	Patient cost sharing is based on a single fee for regular hours and on two fees for out-of-hours.
Global medical record	Reduction of 30% in patient share depending on patient status, age and being chronically ill.
Patient residence: • **Private home** • **Living in an institution with collective accommodation (not including residential care facilities)** • **Residential care facilities (home for the elderly or a nursing home)**	Patient cost sharing is based on a single fee for visits at the private home and on two fees for visits at a collective home.
Patient age	Reduction in patient share for elderly (+75) with a GMD/DMG during regular hours and for children (<10) during regular hours and out-of-hours.
Being chronically ill	Reduction in patient share for chronically ill with a GMD/DMG during regular hours.
GP qualification	Determines the amount as well as the form (coinsurance or co-payment) of cost sharing.
Number of patients visited by the GP	Determines the amount, the form and calculation (one versus two fees) of cost sharing.

2.2.2.1. Cost sharing for a "baseline" patient

To detail the complicated structure of co-payments and coinsurance for GP visits, we split up patients into two groups. The first group consists of individuals aged between 10 and 75 years, who are not chronically ill, who have a GMD/DMG and who belong to the general population. We call these patients "baseline" patients since they are the only group still paying a 35% coinsurance rate for GP visits during regular hours. All other patient groups pay reduced coinsurance rates or co-payments. The term "baseline" has no normative connotation but is only used as a technical aid to structure co-payments and coinsurance rates for GP visits.

The exact amount to be paid out-of-pocket by a baseline patient depends on three additional elements: the patient's residence, the GP's qualification and the number of patients seen per visit. These characteristics are structured in Table 5.

We also give the cost-sharing amounts for a patient entitled to preferential reimbursement but with otherwise the same characteristics as a baseline patient.

Table 5: Cost sharing of a baseline patient for GP visits on 1 December 2011

		General population		Preferential reimbursement	
		GP qualification		GP qualification	
		Acquired rights	Licensed	Acquired rights	Licensed
Private home	Regular hours	35% (€9.86)*	35% (€12.07)	€2.72	€2.69
	Evening (18:00-21:00)	32% (€10.28)	32.44% (€14.88)	€4.31	€4.20
	Weekend or holidays (8:00-21:00)	32.16% (€11.13)	32.60% (€16.87)	€4.62	€4.47
	Night (21:00-8:00)	33.16% (€16.37)	33.58% (€26.65)	€5.97	€6.27
Institution with collective accommodation	Regular hours	35% (€9.86)	35% (€12.07)	€2.57	€2.66
	Supplementary fees	*increased by*		*increased by*	
	Evening (18:00-21:00)	25.63% (€2.26)	26.28% (€2.99)	7.27% (€0.64)	€0.51
	Weekend or holidays (8:00-21:00)	26.87% (€2.69)	27.97% (€4.82)	7.68% (€0.76)	€0.74
	Night (21:00-8:00)	30.67% (€5.86)	32.66% (€14.65)	8.77% (€1.63)	€1.54

** A coinsurance rate of 35% is applied to the official fee, which equalled € 28.18 for a GP with acquired rights and a patient with a GMD/DMG in December 2011. The other amounts in brackets were calculated in the same way. Amounts not in brackets are co-payments.*

Eligibility for preferential reimbursement

As a general rule, patients belonging to the general population pay a coinsurance rate for a GP visit, while patients eligible for preferential reimbursement pay a co-payment. However, a mix of a co-payment and coinsurance rates is used for a visit during out-of-hours by a GP with acquired rights to a patient eligible for preferential reimbursement living in an institution with collective accommodation (collective home): a co-payment of € 2.57 (as for a visit during regular hours) plus a coinsurance ranging from 7.27% to 8.77%.

Patient residence

Also the patient's residence determines how much is charged for a GP visit. Patients entitled to preferential reimbursement pay a higher co-payment for a visit in a private home than for a visit in a collective home during regular hours. For patients belonging to the general population, the residence is not a differentiating factor during regular hours: a coinsurance rate of 35% is applied whatever the place of residence. Outside regular hours, the final payment differs between patients with and without entitlement to preferential reimbursement for both locations. For instance, for a visit during the night with a licensed GP, a patient with preferential reimbursement and living in a private or a collective home will pay respectively € 6.27 and € 4.2 (= € 2.66 + € 1.54). For a patient not eligible for preferential reimbursement and living in a collective home, the patient cost for out-of-hours visits by a GP with acquired rights is calculated by raising the 35% coinsurance rate on the fee for a visit during regular hours (€ 9.86) with a coinsurance on the supplementary fee for out-of-hours (30.67% or € 5.86 for a visit during the night).

GP qualification

Two patients, identical in terms of entitlement to increased reimbursement, of residence and of the moment of the day they ask for a GP visit, pay a different amount out-of-pocket for a GP visit, depending on the GP's qualification. For patients without entitlement to preferential reimbursement a lower coinsurance is charged (and also amount to be paid) for a visit from a GP with acquired rights than for a visit from a licensed GP. The opposite holds for patients with preferential reimbursement: they pay a higher co-payment and also a higher supplementary payment for out-of-hours visits for a GP with acquired rights.

Number of patients visited

If the GP pays a visit to more than one patient at the same time, patient cost-sharing rules for one patient living in an institution with collective accommodation apply. There is one exception: the co-payment for a visit in regular hours for a patient entitled to increased reimbursement is slightly different (see Table 6).

Table 6: Cost sharing of a baseline patient for GP visits on 1 December 2011 according to the number of patients visited

	Preferential reimbursement	
	GP qualification	
	Acquired rights	Licensed
Regular hours		
• **1 patient**	€2.57	€2.66
• **2 patients**	€2.12	€2.13
• **3 or more patients**	€1.78	€1.79

2.2.2.2. Cost sharing for the chronically ill and for patients younger than 10 and older than 75

Specific measures for patients younger than 10 and older than 75, and for the chronically ill were introduced. Their patient share is expressed by comparison with cost sharing for a baseline patient. An overview is given in Table 7.

For patients above the age of 75 and chronically ill with a GMD/DMG, the exact amount to be paid out-of-pocket depends on whether the visit takes place during regular hours or out-of-hours. For visits during regular hours, they are entitled to a reduction of 30% compared to the amount paid by a baseline patient. Eligibility to preferential reimbursement is not a differentiating factor. The reduction does not apply to patients living in a nursing home or a home for the elderly when the visit is made by a GP with acquired rights. In this case, patients pay the same amount as a baseline patient.

For children under the age of ten, cost sharing for a GP visit is limited to two times the amount for an office consultation with a GMD/DMG for regular hours plus part of the supplementary fee for out-of-hours. Having a GMD/DMG is not a differentiating factor.

All patients, other than children under the age of ten, without a GMD/DMG pay the same amount as a baseline patient for a GP visit, irrespective of the time of the day and of entitlement to preferential reimbursement. There is one exception to this rule. Patients between the age of 10 and 75 and belonging to the general population pay one extra euro if they do not have a GMD/DMG.

Table 7: Cost sharing for GP visits on 1 December 2011 according to age, chronic illness and having a GMD/DMG

		With a GMD/DMG[a]		Without a GMD/DMG	
		Regular hours[b]	Out-of-hours	Regular hours	Out-of-hours
Preferential reimbursement	Adult (10 to 75)	OOP_v^{GMDc}		OOP_v^{GMD}	
	Elderly 75+	**0.7 *** OOP_v^{GMD}	OOP_v^{GMD}	OOP_v^{GMD}	
	Chronically ill	**0.7 *** OOP_v^{GMD}	OOP_v^{GMD}	OOP_v^{GMD}	
	Children<10	OOP_v^{GMD} but limited to 2 * (OOP_o^{GMD}) + supplementary payment for out-of-hours			
General population	Adult (10 to 75)	OOP_v^{GMD}		OOP_v^{GMD} **+ €1**	
	Elderly 75+	**0.7 *** OOP_v^{GMD}	OOP_v^{GMD}	OOP_v^{GMD}	
	Chronically ill	**0.7 *** OOP_v^{GMD}	OOP_v^{GMD}	OOP_v^{GMD}	
	Children<10	OOP_v^{GMD} but limited to 2 * (OOP_o^{GMDc}) + supplementary payment for out-of-hours			

[a] *Global medical record*

[b] *Exception: if the patient lives in a nursing home or a home for the elderly, the patient share for a visit in regular hours by a GP with acquired rights is not reduced to 0.7 * OOP_v^{GMD}*

[c] *OOP_v^{GMD} corresponds to the patient share for a visit for the baseline patient; OOP_o^{GMD} corresponds to the final patient share for an office consultation.*

2.2.3. *Specialist consultations*

Since 1 November 2010 coinsurance rates for specialist care (40% as established in the Health Insurance Act of 1994) are subject to a ceiling of € 15.50 for individuals not eligible for preferential reimbursement. For patients with increased reimbursement a different rule applies: the Royal Decree of 23 March 1982 fixes co-payments that vary according to physician specialism (5 different co-payment levels; see Table 8).

As is the case for GPs, patient cost sharing does not depend on whether or not a specialist is accredited. Coinsurance rates for the general population are based on the fee for a non-accredited specialist, even if the patient is treated by an accredited specialist. For instance, a patient without increased reimbursement who visits an accredited cardiologist pays € 11.8 (40% of € 29.51) and not € 13.8 (40% of € 34.5). Special tariffs apply to consultations to diagnose dementia (coinsurance of 10% for all individuals), to the first consultation with an internist for patients with a complex pathology and no clear diagnosis and for a geriatric evaluation (10% and 25% coinsurance for patients with and without preferential reimbursement respectively).

Taking a closer look at the fees and the amounts to be paid out-of-pocket by patients reveals two remarkable features. First, the same fee level does not necessarily result in the same amount of patient cost sharing and vice versa. For example, although geriatricians, internists and paediatricians share the same fee level (€ 31.74), patient cost sharing is higher for paediatricians and this irrespective of eligibility for preferential reimbursement. Also, along the same reasoning, fees for anaesthetists are lower than for lung experts, geriatricians, internists, paediatricians, cardiologists and gastroenterologist. Yet, patients with preferential reimbursement pay a higher co-payment for a consultation with an anaesthetist. Second, accredited lung experts, geriatricians, internists, paediatricians, cardiologists and gastroenterologists share the same fee level. However, a lower fee is due for non-accredited cardiologists and gastroenterologists as compared to the other specialists.

Table 8: Cost sharing for specialist consultations on 1 December 2011

Specialism	Fees (€)		Patient cost sharing (€)		Patient cost sharing as a percentage of the fee of a non-accredited specialist (%)	
	Non-accredited	Accredited	Preferential reimbursement[1]	General population[2]	Preferential reimbursement	General population
Cardiologist	29.51	34.50	2.50	11.80	8.47	39.99
Gastroenterologist	29.51	34.50	2.50	11.80	8.47	39.99
Lung expert	29.51	34.50	2.50	11.80	8.47	39.99
Geriatrician	31.74	34.50	2.50	11.80	7.88	37.18
Internist	31.74	34.50	2.50	11.80	7.88	37.18
Anaesthetist	19.32	22.55	2.64	7.72	13.66	39.96
Other specialist	19.32	22.98	2.64	7.72	13.66	39.96
Paediatrician	31.74	34.50	2.68	12.69	8.44	39.98

Psychiatrist	39.67	42.48	2.68	15.50[3]	6.76	39.07
Neuropsychiatrist	39.67	42.48	2.68	15.50[3]	6.76	39.07
Neurologists or neuropaediatrician	41.26	44.14	2.68	15.50[3]	6.50	37.57
Haematologist	52.45	53.38	2.68	15.50[3]	5.11	29.55
Internist, endocrinologist- diabetes specialist	52.45	53.38	2.68	15.50[3]	5.11	29.55
Oncologist	52.45	53.38	2.68	15.50[3]	5.11	29.55
Oncologist and haematologist paediatrician	52.45	53.38	2.68	15.50[3]	5.11	29.55
Dermatologist	26.00	27.09	2.82	10.40	10.85	40.00
Rheumatologist	41.89	45.24	3.10	15.50[3]	7.40	37.00
Diagnostic check-up for dementia with a neurologist, psychiatrist or geriatrician	59.51	63.26	5.95	5.95	10.00	10.00
First consultation with internist for patient with complex pathology and no clear diagnosis	77.03	80.07	7.70	19.25	10.00	24.99
Geriatric evaluation[4]	97.03		9.70	24.25	10.00	24.99
Supplements for urgent consultations at the specialist office on a Saturday, Sunday or holiday between 8:00AM and 21:00PM[4]	8.06		0.80	3.22	9.93	39.95
Supplements for urgent consultations at the specialist office between 21:00PM and 8:00[4]	17.46		1.74	6.98	9.97	39.98

[1]For patients with preferential reimbursement, the amount of patient cost sharing is a co-payment.
[2]For the general population, the amount of cost sharing is the result of applying a coinsurance to the fee of a non-accredited specialist.
[3]A ceiling limit of € 15.5 is applied.
[4]There is no distinction in fee between an accredited and a non-accredited specialist.

Key Messages

Evolution and current structure of patient cost sharing

- **Patient cost sharing for ambulatory physician-patient contacts has evolved from two coinsurance rates in 1963 to a multitude of co-payments and coinsurance rates.**
- **Different combinations of co-payments and coinsurance rates exist: only co-payment, only coinsurance, a mix of a co-payment and coinsurance rate, a coinsurance rate with a maximum patient share.**
- **Determining factors of current patient cost sharing for GP office consultations are**
  - **Having a global medical record (GMD/DMG)**
  - **Eligibility for preferential reimbursement**
- **Determining factors of current patient cost sharing for GP home visits are**
  - **Having a global medical record (GMD/DMG)**
  - **Eligibility for preferential reimbursement**
  - **Patient age and health status**
  - **Patient residence**
  - **GP qualification**
  - **Number of patients visited**
  - **Regular or out-of-hours visit**
- **Determining factors of current patient cost sharing for specialist consultations are**
  - **Referral by GP**
  - **Eligibility for preferential reimbursement**
  - **Physician specialism**

3. PATHWAYS TO SIMPLIFY THE STRUCTURE OF CO-PAYMENTS AND COINSURANCE RATES FOR PHYSICIAN-PATIENT CONTACTS

The analysis in Chapter 2 of the evolution and current structure of co-payments and coinsurance rates for GP and specialist consultations and visits clearly reveals that the system of cost-sharing arrangements has developed in an ad hoc manner without a coordinated approach. The original coinsurance of 0% (for patients entitled to preferential reimbursement) and 25% (for the general population) for usual care acts rapidly evolved into a more complex system of co-payments and an increased number of coinsurance rates.

The representatives of physicians and sickness funds pleaded in their agreement of 2004-2005 in favour of a harmonization and simplification of cost-sharing arrangements. However, instead of a global revision, some isolated measures have been introduced in 2010 and 2011. Due to the simplification of 2010, the number of codes for GP visits was reduced substantially. Since 1 December 2011, all co-payments and coinsurance rates for GP consultations were replaced by four co-payments, where the amount of the co-payment depends on eligibility for preferential reimbursement and on having a GMD/DMG.

Nevertheless, cost-sharing arrangements for GP and specialist services are still complex. Complexity mainly comes from the multiplication of nomenclature codes reflecting particular needs, such as the introduction of new codes for haematology and oncology in 2010, as well as from the mix of co-payments and coinsurance rates and their relation with the physician fee. This mix of co-payments and coinsurance rates, sometimes for the same type of physician-patient contact, is an obvious cause of complexity for all parties involved. As an example, imposing coinsurance rates on the general population and co-payments on patients eligible for preferential reimbursement has created an increasing gap in the level of cost-sharing between the two groups. Whether this increase is compensated by protection measures such as the system of maximum billing, is beyond the scope of this study.

There is little theoretical or empirical literature on the impact of price framing on price sensitivity in the healthcare market. We refer to Schmitz and Ziebarth (2011)[21] and Dor and Encinosa (2010)[22] and the references therein for two interesting applications. The first paper investigates the impact on health plan choice of changing the framing of price differences to absolute Euro values. Before the reform, health plan premiums were expressed in the form of a mandatory payroll tax rate, independently set by each health plan. Switching rates were very low. The reform equalized and froze the tax rate across all health plans who had to report the difference to this standardized price in absolute Euro values. As a result, switching probability increased by a factor of six and demand elasticity by a factor of three. Dor and Encinosa developed a theoretical model and analysed empirically whether price framing (co-payment versus coinsurance) has an impact on refill purchases of drugs. Using claims data for diabetes from eight large firms, they found that when co-payments and coinsurance have the same expected amount of cost sharing ($9), at least 34% of patients under co-payments would refill their medication over the next 90 days against 24% of patients under coinsurance.

The main purpose of this study is to provide possible directions of reform to reduce the complex structure of co-payments and coinsurance rates for GP and specialist consultations and visits. We first describe the data and the data manipulation operations that were performed (section 3.1).The global budgetary impact of different reform options for RIZIV/INAMI and the distributional effects for subgroups of the population will be calculated using a microsimulation technique (section 3.2). Next, we discuss some possible principles governing simplifying reforms (section 3.3). The results of the microsimulations are described in section 3.4.

3.1. Description of the data

The analyses are based on the Permanent Sample of socially insured persons (EPS) for 2009. The EPS[f] release 5 (EPS_{R5}) is a sample of all data available within the Belgian sickness funds as far as they are related to the compulsory insurance for healthcare. The permanent sample is an instrument created and maintained by the IMA-AIM[g] and is accessible to a limited number of Belgian government agencies (RIZIV/INAMI, Federal Public Service (FPS) Public Health, WIV-ISP (Wetenschappelijk Instituut Volksgezondheid - Institut Scientifique de Santé Publique), FPS Social Security, KCE, and the Federal Planning Bureau). The sampling fractions are 1/40 for the population aged 0-64, and 1/20 for the population aged 65 and over.

The EPS links three administrative databases at the individual level containing population characteristics (Population database), billing data for reimbursed health services (Health Services database) as well as for reimbursed pharmaceuticals from public pharmacies (Reimbursed drugs database). For this report we only used data from the Population and the Health Services database. The EPS contains data on the specific reimbursement codes by procedure, service, admission, drug delivery, etc., including date, provider, institution and cost. Reimbursed amounts as well as patient cost sharing are available at these detailed levels. Hence, each record gives information on a reimbursed nomenclature code. The (oversampled) EPS for 2009 contains 320 286 individuals. Only individuals who received a reimbursement for at least one of the nomenclature codes of Chapter 2 of the nomenclature, were retained (see Appendix 1.1 for the selection of the nomenclature codes). The microsimulations were performed for GP consultations (227 491 individuals), GP visits (97 654 individuals) and specialist consultations (199 549 individuals) separately.

Data analyses and graphs were produced with SAS 9.1.3[23], and R 2.15[24] with additional package lattice.[25]

[f] http://www.riziv.be/information/nl/sampling/index.htm (Dutch); http://www.riziv.be/information/fr/sampling/index.htm (French).

[g] Intermutualistisch Agentschap – Agence Intermutualiste (http://www.cin-aim.be/)

3.2. Microsimulation technique as a tool for the analysis of policy measures

A microsimulation model is a model that uses simulation techniques to investigate the effects of social policies at the individual level. In KCE report 80A[26] a microsimulation technique was used to calculate the impact of the system of maximum billing on the financial accessibility of healthcare. We refer to this report for further details on how a microsimulation model works. Simulation results give an ex ante evaluation of a policy measure, controlling for confounding factors. On the contrary, ex post evaluations, comparing the situation before and after a policy change, do not allow to control for changes that occur concurrently.

A second advantage of a microsimulation approach is that it is possible to evaluate the distributional effects of a policy change since it takes micro level units (e.g. individuals, households, firms) as the basic units of analysis. An analysis at the macro level does not give (much) information on the distributional effects of a policy since the unit of analysis is at the very best the level of specific “types” of agents.

In this report, static microsimulation modelling is applied since own-price or cross-price elasticities are not available. Hence, possible behavioural changes after a policy intervention could not be taken into account. There is, however, some information that these elasticities are rather small for GPs and specialists in Belgium.[27,28,26]

3.3. Principles governing simplifying reforms

For a theoretical analysis of the problem of optimal cost sharing and a recent overview of empirical studies on demand response, we refer to Baicker and Goldman (2011)[29], McGuire (2012)[30] and Swartz (2010)[31].

To explore possible principles for simplification of the cost-sharing structure, we start from the most extreme case where only one amount of cost sharing is applied to all GP consultations and visits and specialist consultations. We then consider according to which principles cost-sharing differentiation could be justified and how this is currently translated in the Belgian cost-sharing structure. Similarly, we tried to identify principles that would justify no differentiation and hence simplification in cost sharing and explore to what extent the current structure in Belgium conforms with these principles.

In general, the following principles underpin cost-sharing decisions. The actual degree of desirability and acceptability of these principles is to be judged by the decision makers.

3.3.1. General principles governing cost-sharing differentiation

Control moral hazard

Moral hazard can be defined as the incentive of insured individuals to consume more of the insured service than they would if they faced the full price.

According to standard economic theory, the smaller the risk, the higher should be the cost sharing, since in that case insurance is less valuable. In addition, insurance coverage should be inversely related to demand elasticity: the more elastic the demand for a particular medical service, the lower the insurance coverage and the higher the degree of cost sharing.

Take into account cross-price elasticities

Healthcare is not a single good. Cost sharing will not only affect the consumption of services for which the price has changed, but also the consumption of their complements and substitutes. In other words, optimal cost sharing not only depends on own-price elasticities but also on cross-price elasticities. For example, raising the cost-sharing amount for GP home visits may influence the number of home visits, but also the number of GP consultations.

The theory suggests that an insured service with many *interchangeable substitutes* could have lower cost sharing, even if it has a highly elastic demand, when one wants to discourage additional use of the substitutable services. In the example of GP office consultations and home visits, increased cost sharing for GP home visits with the intention of replacing GP home visits by GP consultations implicitly assumes that both GP contacts are substitutes.

On the contrary, if the service affected by a price change entails many *complementary* (i.e. additional) services society wants to avoid, optimal cost sharing for that service will be higher. Of course, if the use of these complementary services is appropriate and adds to the quality of care, this conclusion does no longer hold.

As mentioned before, due to a lack of data on price elasticities, it was impossible to take account of how patients (or providers) could respond to policy changes in the microsimulation model.

Maintain specific equity/accessibility choices

From the onset of this study, it was decided that current measures that reduce patient cost sharing for each encounter with the healthcare system, such as the **preferential reimbursement scheme**, are maintained. In defining an optimal cost sharing structure, the system of preferential reimbursement might be reconsidered. But this is out of the scope of this report.

Encourage the use of valuable services

Efficiency in healthcare utilization is one straightforward policy option. If health authorities believe, as they currently do, that having a **GMD/DMG** may have a positive effect on healthcare costs and/or on the health of patients, reduced cost sharing for patients with a GMD/DMG can be justified as long as the decision to have a GMD/DMG is up to the individual patient. More generally, the principles of value-based insurance will be developed in a subsequent KCE report.

3.3.2. General principles governing cost-sharing simplification

Make the cost-sharing structure user-friendly

If health authorities want to promote the (social) third-party payer system, round figures are easier to work with.

Increase coherence of cost-sharing structure

An office consultation or a home visit by a GP with acquired rights or by a licensed GP can be considered as almost perfect substitutes, since patients often do not know the qualification of their GP. Hence, a differentiation in cost sharing according to **GP qualification** is not regarded as a justifiable reason. Likewise, since patients are entitled to the same care wherever they reside (holding other factors constant), we consider cost sharing differentiation according to **patient residence** (at home or in an institution with collective accommodation) as unjustifiable. Along the same lines, we propose to remove the current difference in cost sharing according to the **number of patients** visited during the same visit.

Improve transparency

If cost sharing is meant to steer patients towards particular services, signals should be transparent. For example, a combination of a coinsurance rate and a co-payment for the same type of physician contact could be considered as being non-transparent.

The **form of patient cost sharing** (coinsurance or co-payment) should not differ according to patient characteristics. There are arguments in favour of both forms of cost sharing, but these arguments do not differentiate between patient characteristics such as preferential reimbursement. This principle is currently not applied in Belgium, as cost-sharing arrangements do differ between patients with and without preferential reimbursement.

Dissociate patient cost sharing from provider fee

The determining factors of GP and specialist fees and the **choices behind the amount of cost sharing**, are basically distinct and mutually **independent**. Fees are the result of a negotiating process and do not necessarily reflect what can be influenced by the patient. So, why should a patient be “punished” and pay a larger amount of cost sharing if his illness requires the intervention of a specialist for whom the nomenclature determines a high fee?

3.3.3. Limited financial impact and in line with current legal stipulations

Of course, taking account of the abovementioned principles leaves room for a wide range of cost-sharing reforms. Therefore, we aimed at reforms with a **limited financial impact**, especially for vulnerable groups, in order to mitigate the effect on financial accessibility.

Second, in the simulations **current legal stipulations** remain applicable. For example, proposed coinsurance rates for GP visits do not exceed the maximum coinsurance in the Health Insurance Act of 1994.

The microsimulations do not meet all principles and the additional restriction of limited financial impact at the same time. The main reason is that we tried to calculate the global financial impact and distributional effects of different policy options separately, each taking account of a selection of the principles.

3.4. Simulation results: financial impact for RIZIV/INAMI and for patients

Baseline simulation

Our data (EPS_{R5} for 2009) reflect the regulation in effect in 2009. Hence, the first step is to compute the status quo, providing a realistic picture of the cost-sharing structure, reimbursements and patient cost-sharing amounts at one point in time, namely December 2011. Going from the data for 2009 to the status quo, involves two major interventions. First, the data need to be updated to 2011 prices. Second, some variables (GMD/DMG and preferential reimbursement) need to be adjusted so that policy measures can be introduced in a coherent way. A detailed description of the different steps involved, is given in Appendix 1.2. and Appendix 1.3. The baseline simulation is the reference for all subsequent simulations. For each simulation a documentation sheet containing all technical details is given in Appendix 2.2.

Simulations of reforms

The financial impact of different reform options for subgroups of the population was calculated, separately for GP consultations (section 3.4.1), GP visits (section 3.4.2) and specialist consultations (section 0). For each simulation, we mention the principle(s) underlying the reform and explain the concrete choice of coinsurance rates and/or co-payments. The global financial impact of each simulation, for RIZIV/INAMI and for patients, is given in section 3.4.4. Unless otherwise mentioned, all sample results are extrapolated to reflect the financial impact at the national level. As mentioned before, it was impossible to take account of how patients or providers could respond to policy changes. Hence, all results should be interpreted as short-term effects.

If health authorities would introduce reforms for GP consultations, GP visits and specialist consultations simultaneously, the global financial impact for RIZIV/INAMI and for patients can easily be calculated by adding up the financial impact of each separate reform. On the contrary, total distributional effects can not immediately be derived from the results of the separate reforms. At the patient level, effects can be cumulative, but they can also be compensating. We decided, however, not to present the results of joint simulations because of the large number of possible combinations of reforms.

Although microsimulation allows to look at the impact of policy measures at the level of each individual decision unit (e.g., a patient), it is of course impossible to present results for each individual patient. Therefore, we created subgroups of the population according to demographic, socioeconomic, health status and reimbursement-related variables. A detailed description of these variables is provided in Appendix 1.4.

Reimbursements by the system of maximum billing

The MAB reimburses co-payments and coinsurance above given ceilings to households, where the ceilings depend on the net taxable income of the household. Ceilings for co-payments and coinsurance are in the range of € 450 to € 1 800, with a reduction of € 100 for chronically ill patients. For a detailed description of the system of the MAB, we refer to KCE report 80A.[23]

The EPS_{R5} for 2009 contains two variables that indicate whether a patient received MAB reimbursements or not (see Appendix 1.4). Another variable gives the exact amount of the reimbursement. However, a patient may be reimbursed because of a high cost-sharing amount of a household member. Therefore, it was not possible to calculate the amount of cost sharing after MAB reimbursements for the baseline simulation. Hence, in the baseline simulation the financial cost for RIZIV/INAMI is underestimated and the amounts really paid by patients are overestimated.

For the simulations of policy reforms, we assumed that the increase or decrease in cost-sharing amounts would not bring an individual above or below the MAB ceiling as compared to the current situation. However, for a patient who already had MAB reimbursements in 2009, an increase in the cost-sharing amount due to a policy reform was attributed completely to the RIZIV/INAMI. For patients below the ceiling in 2009 (and hence without MAB reimbursements in the data) or for patients above the ceiling but with a decrease in the cost-sharing amount due to the policy reform, the financial impact was calculated without taking account of the system of the MAB since we do not know whether the policy reform would bring household cost sharing above or below the relevant ceiling.

3.4.1. Financial impact for patient subgroups of reforms for GP consultations

227 491 patients (extrapolated to 7 597 437 patients) with a nomenclature code referring to GP consultations were selected. The number of patients and the average number of consultations (which remains constant over all simulations since we cannot take changes in consumption behaviour into account) per subgroup of the population is given in Appendix 2.1.

Figure 1 - Figure 3 show:

1. the **median** amount of cost sharing in the *baseline simulation* for each subgroup of the population;
2. the financial impact of each *simulated reform*, expressed in terms of the **median**, the first quartile (**Q1**) and the third quartile (**Q3**) of the distribution of cost-sharing amounts.

The results for demographic subgroups are given in Figure 1; Figure 2 includes health status variables and having or not a GMD/DMG; socioeconomic characteristics are shown in Figure 3. The classification of subgroups slightly deviates from the table in Appendix 2.1; some of the reimbursement-related variables were included in Figure 2 (health status and GMD/DMG), others were interpreted as reflecting socioeconomic status (Figure 3).

We give a detailed description of the information that can be deduced from Figure 1 for one subgroup. All other figures contain the same kind of information for other population groups or for other physician-patient contacts (GP visits and specialist consultations).

We take the example of males between the age of 65 and 74. In the baseline simulation the median amount of cost sharing for one year (2011) equals € 18. As explained before, the amount really paid may be lower since MAB reimbursements were not taken into account. The ± sign is used to draw attention to this possible overestimation. We used the median instead of the mean value as a measure of central tendency to avoid that extreme outliers would skew the results. Since patients with large cost-sharing amounts are more likely to have MAB reimbursements, the median is less sensitive to the neglect of these reimbursements.

Next, the financial impact of six possible reforms is given. These results are corrected for MAB reimbursements. For example, for the first simulation (C1) the financial impact, expressed in terms of the median, is negligible. C4 increases the median to almost € 24; C5 reduces the median to € 12.5. Q1 and Q3 give an indication of the skewness of the distribution of cost sharing within the group of males between the age of 65 and 74. Since the median is closer to Q1 for C1-C6, we can say that the distribution is positively skewed (right tail). The larger the difference between Q3 and Q1 (called interquartile range), the larger the variability in cost-sharing amount. Hence, the variability of C4 is substantially larger than for C5. Or, although C1 and C3 have a comparable median amount of cost sharing, their variability differs (larger for C1). Of course, variability should not only be interpreted in statistical terms. A high variability and/or a large value for Q3 also should be interpreted in social terms.

A comparison of Q3 between the baseline simulation and the reform simulations is less straightforward since Q3 for the reform simulations is corrected for the MAB reimbursements and Q3 for the baseline simulation is not. However, we also computed Q3 for each reform simulation without MAB reimbursements and compared it with the values with reimbursements. The mean difference (Q3 with MAB minus Q3 without MAB) equalled € -0.2 (SD=0.54) for GP consultations, € 0 (SD=0) for GP visits and € -1.18 (SD=6.33) for specialist consultations. We could not do the same exercise for the baseline simulation but we assumed that the difference between Q3 with and without MAB reimbursements will be small too. In this way, a comparison of Q3 between the baseline simulation and the reform simulations becomes possible. Since MAB reimbursements are more likely to be concentrated in groups with larger cost-sharing amounts, a comparison of Q1 between the baseline simulation and the reform simulations is not likely to cause major bias.

Note that the figures relating to different characteristics (Figure 1 - Figure 3) have different scales.

Principles and concrete choice of co-payments and coinsurance

The three figures show the results for six simulations (C1-C6). The first simulation, C1, goes back to the situation just before the policy reforms applied on 1 December 2011 when four co-payments replaced a large number of co-payments and coinsurance rates, including cost sharing for supplementary fees for out-of-hours consultations. Hence, in C1 co-payments and coinsurance rates as given in Table 2 apply.

An additional two sets of simulations were performed. One set is based on only co-payments, the other set exclusively on coinsurance rates. In all simulations starting from the situation in December 2011 (C2-C6), we differentiated the amount of co-payment or the coinsurance rate according to entitlement to increased reimbursement; reduced cost sharing for patients with a GMD/DMG (minus 33%) was taken into account; the same form of cost sharing was applied to patients with and without entitlement to preferential reimbursement. Since the fee for a licensed GP is higher than for a GP with acquired rights, in the simulations based on coinsurance (C2-C4) the amount of cost sharing is still differentiated according to GP qualification, reducing coherence of the system.

The concrete coinsurance rates and co-payments comply with the stipulations of the Health Insurance Act of 1994, except for C4. A coinsurance rate of 10% for patients entitled to preferential reimbursement is provided for in article 37, as well as a 25% rate for the general population. Article 37bis stipulates a coinsurance rate of 30% for the general population for GP consultations. A rate of 40% (as in C4) is provided for in article 37bis, but only for specialist consultations. The co-payments have a ratio of 1 to 2.5 (C5) and 1 to 3 (C6) which are the same ratios as for the coinsurance rates in C2 and C3. A co-payment ratio of 1 to 4 (as the ratio of coinsurance rates in C4) corresponds to the baseline simulation.

Results

In the **baseline simulation**, the median cost-sharing amount substantially varies by subgroup of the population. For example, patients entitled to preferential reimbursement (PR; see Figure 3) pay on average a lower amount of cost sharing than patients without preferential reimbursement (€ 4.5 versus € 16). This difference can be completely ascribed to the reimbursement policy, protecting low-income households, since the average number of consultations is comparable between both groups (see Appendix 2.1). On the other hand, the average amount of cost sharing for patients with a GMD/DMG is slightly larger than for patients with a GMD/DMG although a GMD/DMG reduces cost sharing per consultation with 33%. Here, the average number of consultations is larger for patients with a GMD/DMG (5.04 consultations per year versus 3.24 for patients without a GMD/DMG).

- **C1 (situation before December 2011)**: for all patient subgroups, the two measures introduced on 1 December 2011 resulted in the same median amount of cost sharing as in the baseline simulation. Also the values for Q1 and Q3 hardly differ from the baseline simulation (see Table A. 9 in Appendix 2.1 for Q3 in the baseline simulation). Hence, the distributional effects of the reform of December 2011 can be considered as negligible.

The results for C2-C6 clearly show that the magnitude and the direction of the financial impact are strongly related to the cost-sharing arrangement of the policy reform and varies between patient subgroups. We discuss some striking results.

- **C3 (coinsurance of 10% for PR and 30% for non-PR)** has the smallest financial impact, both expressed in terms of the median as in terms of Q1 and Q3. However, for most socioeconomic groups (low income, preferential reimbursement) and for disability and chronic illness the financial impact is larger and is to the detriment of the lowest income groups. This negative financial impact is due to the fact that a coinsurance rate of 10% gives an amount of cost sharing which is larger than the current € 1.5 for patients without a GMD/DMG.
- **C2 (coinsurance of 10% for PR and 25% for non-PR)** reduces average cost sharing for all subgroups compared to the baseline simulation, except for low income patients, patients with preferential reimbursement and the disabled or chronically ill, which are exactly the same groups who were also worse off under C3.
- **C4 (coinsurance of 10% for PR and 40% for non-PR)** has a negative financial impact for all subgroups, but it is larger for patients not entitled to PR. The variability in cost sharing is larger than under C2 and C3.
- An alternative would be to **keep the current system of co-payments for all patients, but with another ratio between patients with and without PR (C5 and C6)**. The current ratio is 1/4 (€ 1.5 versus € 6 for patients without a GMD/DMG). As expected, cost sharing is reduced for all patient groups, except for patients entitled to PR since for them C5 and C6 do not change their cost-sharing amount per consultation. For all subgroups, variability decreases too.

Figure 1: Simulated financial impact on patient cost sharing of policy reforms for GP consultations, by age-gender groups

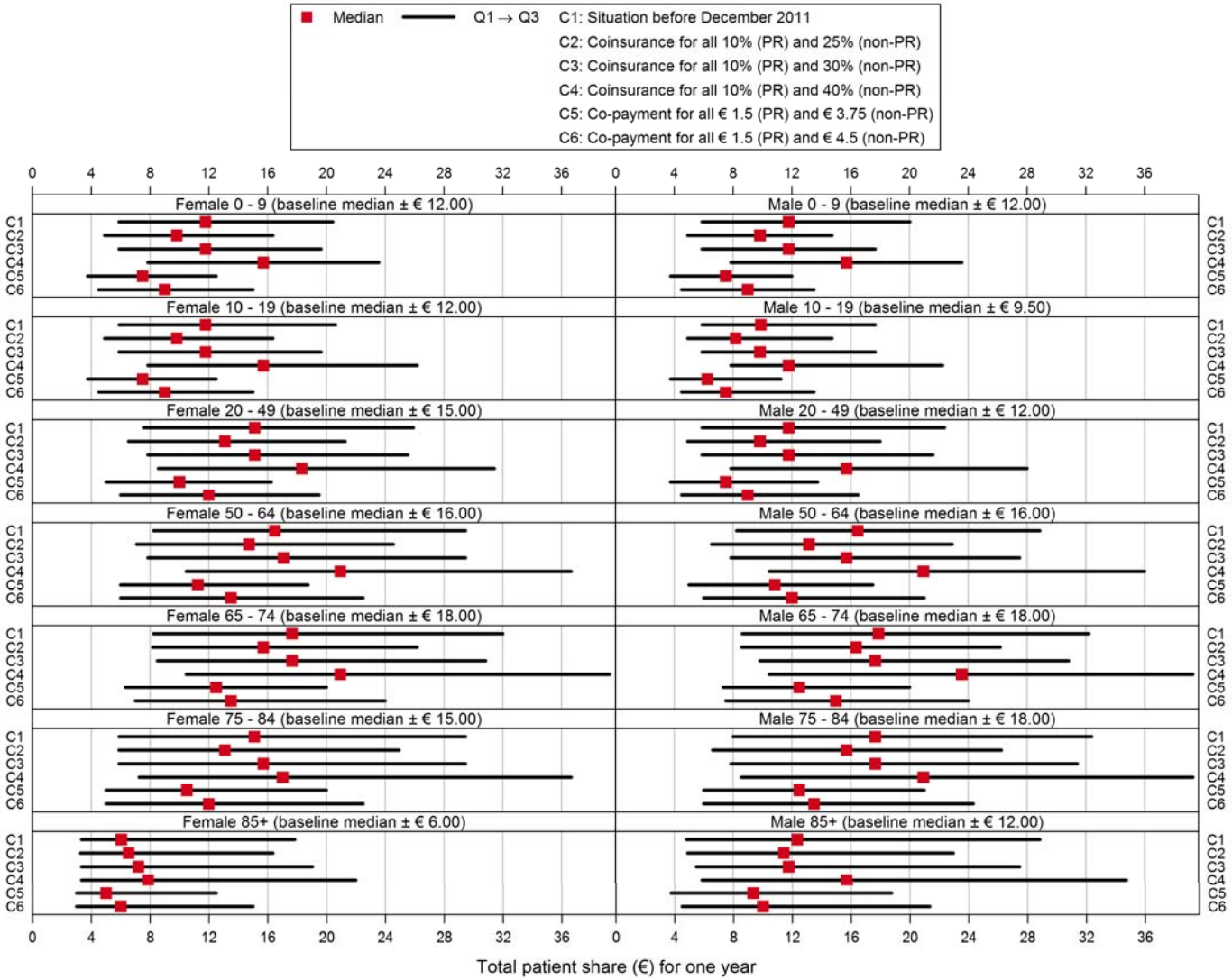


Figure 2: Simulated financial impact on patient cost sharing of policy reforms for GP consultations, by health status, GMD/DMG and quartiles of total co-payments

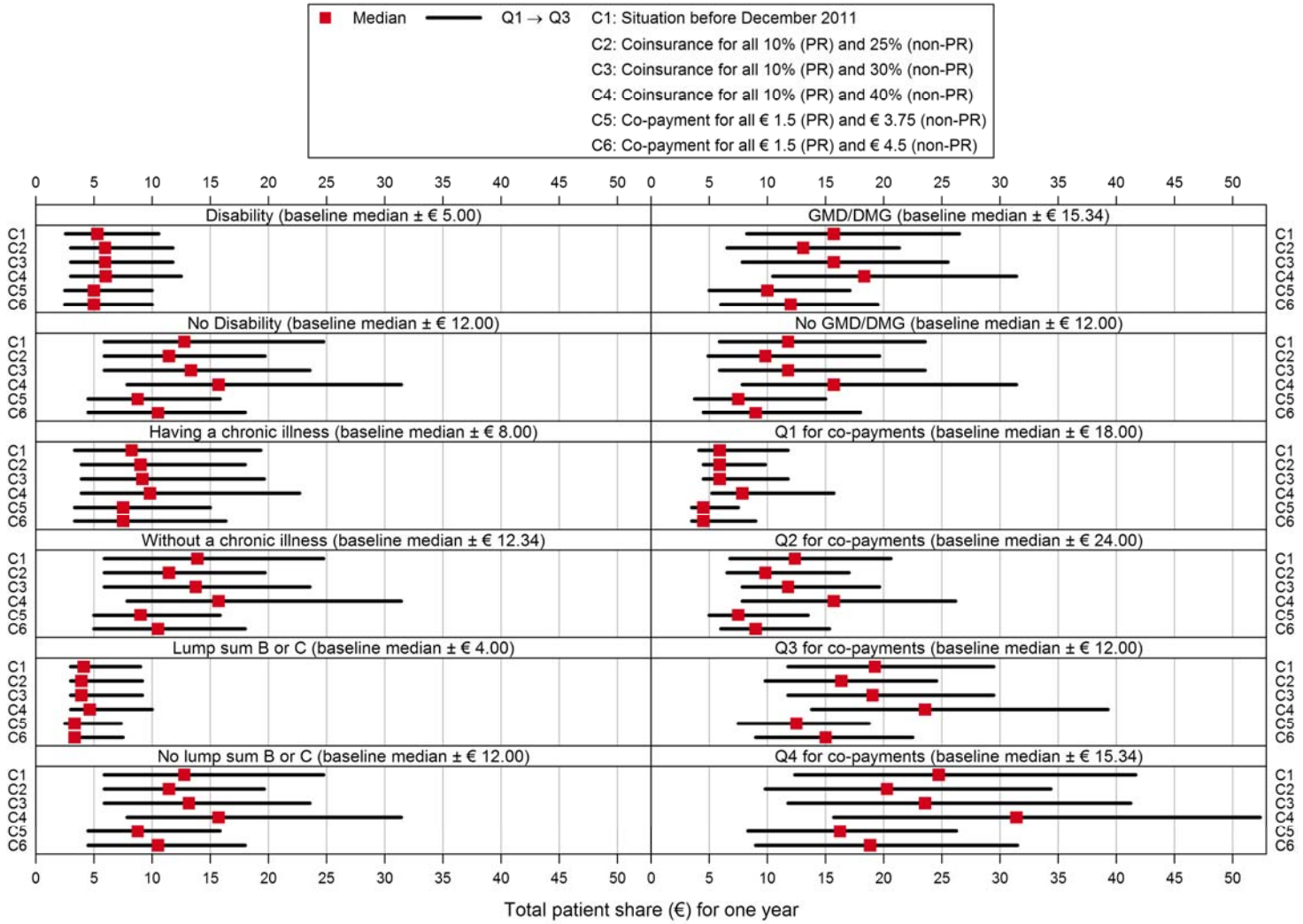
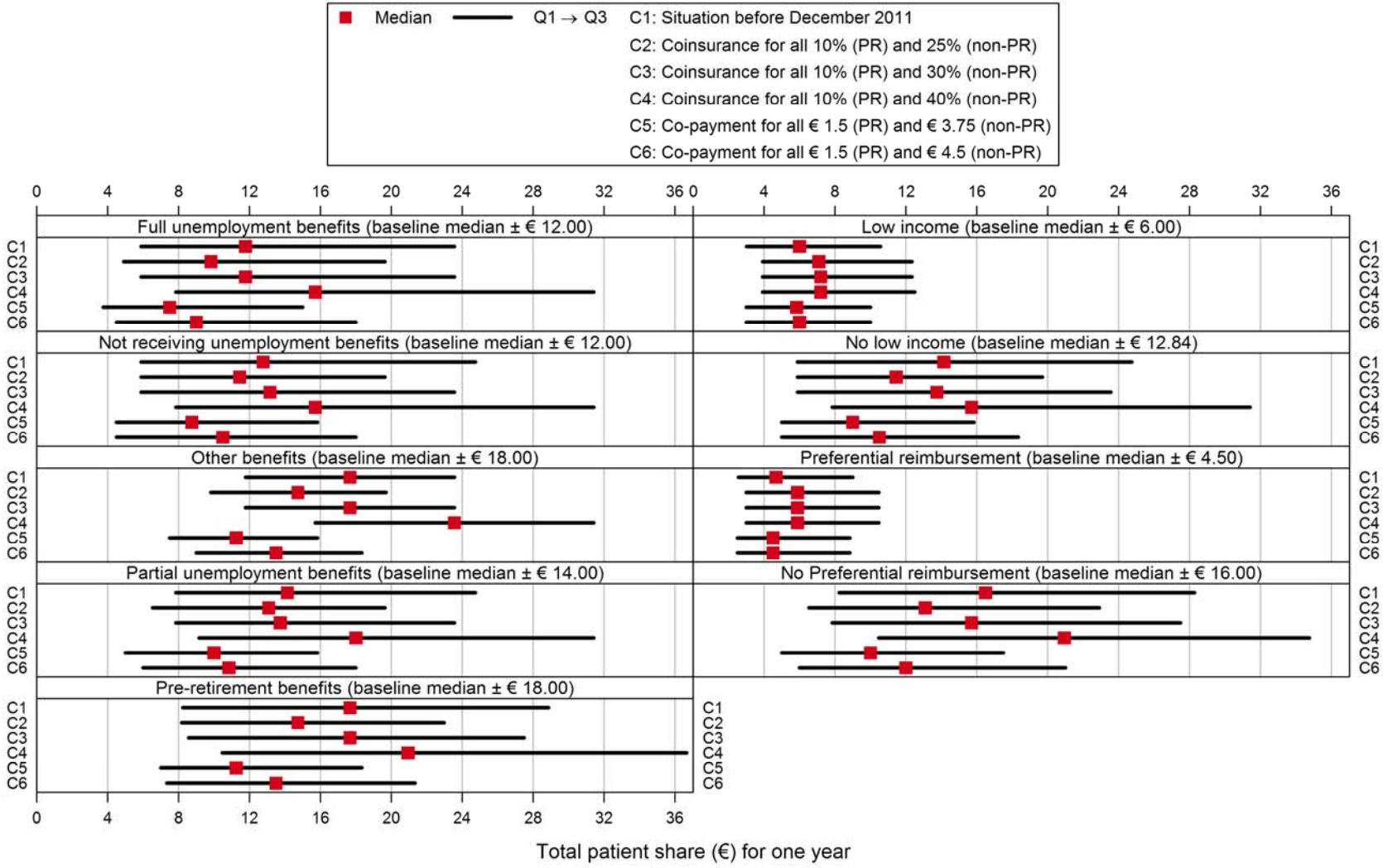


Figure 3: Simulated financial impact on patient cost sharing of policy reforms for GP consultations, by socioeconomic group



3.4.2. *Financial impact for patient subgroups of reforms for GP visits*

97 654 patients (extrapolated to 2 801 821 patients) with a nomenclature code referring to GP visits were selected. The number of patients and the average number of consultations per subgroup of the population is given in Appendix 2.1.

Figure 4-Figure 6 are constructed in the same way as Figure 1-Figure 3. They show the results for five simulations for GP visits.

Principles and concrete choice of co-payments and coinsurance

V1 and V2 are based on only co-payments. Moreover, differences in cost sharing according to GP qualification (licensed versus acquired rights) and according to patient residence were removed. Both simulations are based on cost-sharing arrangements for a licensed GP (majority of GPs) and for a patient living at home. Specific protection for children, the elderly and chronically ill is maintained, as well as the reduction in cost sharing for patients with a GMD/DMG.

V3 applies coinsurance (10% for patients with preferential reimbursement and 35% for the general population) to all selected nomenclature codes.

V4 and V5 remove differences in protection between children on the one hand and the elderly and chronically ill on the other hand. V4 applies the specific arrangement for the elderly and chronically ill to children and V5 does the opposite. In V4 and V5 a different form of cost sharing is applied to patients entitled to increased reimbursement (co-payment) and the general population (coinsurance).

All simulated policy options comply with the stipulations of the Health Insurance Act of 1994. V1 is based on current cost-sharing amounts (December 2011). Patients entitled to preferential reimbursement already pay co-payments. For them, current co-payments were maintained. Cost sharing for patients without increased reimbursement is now calculated as a percentage on official fees (coinsurance). For this group, current amounts were kept but were interpreted as a co-payment. For example, for a visit during regular hours a baseline patient living at home pays a coinsurance of 35% on the official fee, representing an amount of € 12.07 (see Table 5).

V2 is based on the same assumptions, except for the co-payments to be paid by patients without preferential reimbursement. In V2, their co-payments are four times larger than co-payments for patients without preferential reimbursement. The ratio of 1 to four makes the structure of co-payments compatible with the current structure for GP consultations. In the above example, our patient does no longer pay a co-payment of € 12.07, but he pays 4 x € 2.69 = € 10.76 instead.

A coinsurance rate of 10% for patients entitled to preferential reimbursement is provided for in article 37. Article 37bis stipulates a coinsurance rate of 30% for the general population for GP consultations.

Results

The variation in the average of cost sharing over subgroups in the **baseline simulation** is much larger than it was for GP consultations. For the age-gender groups, this variation can be explained by differences in the average number of visits (see Appendix 2.1), which increases by age. For some subgroups based on health status and socioeconomic variables, the difference is less pronounced than for age-gender groups. Patients with a low income, with unemployment benefits, with preferential reimbursement or disabled patients all have a substantial larger number of home visits. However, due to entitlement to preferential reimbursement, the larger number of visits is not reflected in higher average cost-sharing amounts. The median amount of cost sharing for patients with a GMD/DMG, with a chronic illness, entitled to lump sum B or C for chronic illness and with large cost-sharing amounts is larger than for those without these characteristics or entitlements. The largest difference in median value is found between patients with and without a lump sum B or C for chronic illness.

As expected, the financial impact of **V1** is negligible since the simulation resembles very well actual cost-sharing arrangements. V**2** reduces the difference in co-payments between patients without and with preferential reimbursement to a factor of four. Again, the average financial impact is very small. Both simulations have hardly any effect on the variability in cost-sharing amounts; for most subgroups Q1 and Q3 have exactly the same value as in the baseline simulation (see Table A. 10 in Appendix 2.1 for Q3 in the baseline simulation).

Introducing **coinsurance for all patients (V3)** increases cost sharing for all patient subgroups, but relatively more for patients with a bad health status and/or low income. V3 is, however, only one possible simulation replacing co-payments by coinsurance. Other percentages of coinsurance could change the picture considerably. The variability in cost-sharing amounts is comparable with the baseline simulation. However, for patients with a low income, entitled to preferential reimbursement, disabled patients and especially for patients with a chronic illness and the elderly variability is substantial.

V4 and V5 remove the difference between two groups who are currently protected by special measures, namely children and the elderly and chronically ill (see Table 7). The financial impact of V4 is very small, except for children who would pay an extra € 4 (median value). Currently, children are better protected than the elderly and chronically ill. In V5, especially patients entitled to lump sum B or C pay less on average. Variability in cost sharing decreases for patients entitled to lump sum B or C, for patients aged 75 and older and for patients with large amounts of cost sharing (Q4).

Figure 4: Simulated financial impact on patient cost sharing of policy reforms for GP visits, by age-gender groups

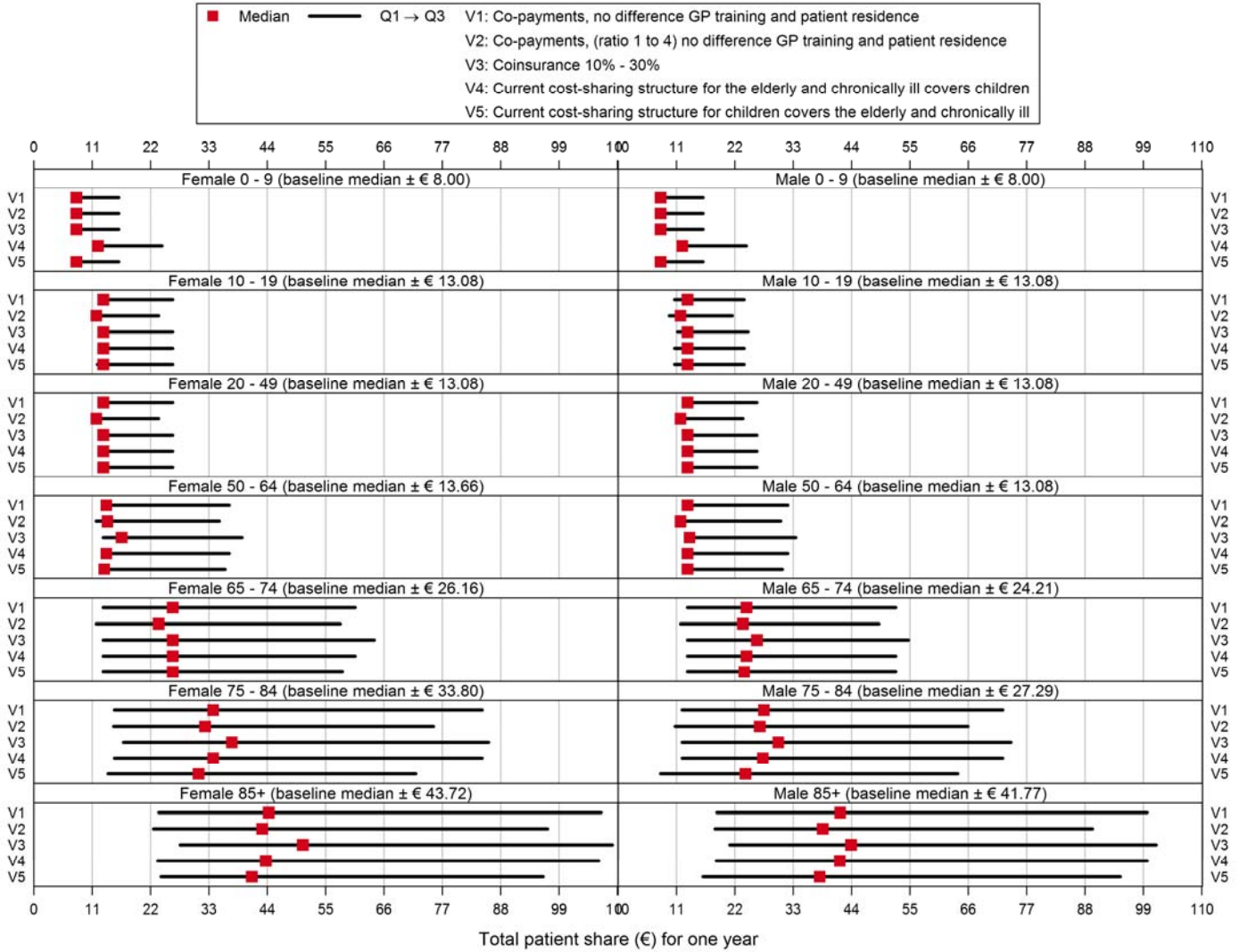


Figure 5: Simulated financial impact on patient cost sharing of policy reforms for GP visits, by health status, GMD/DMG and quartiles of total co-payments

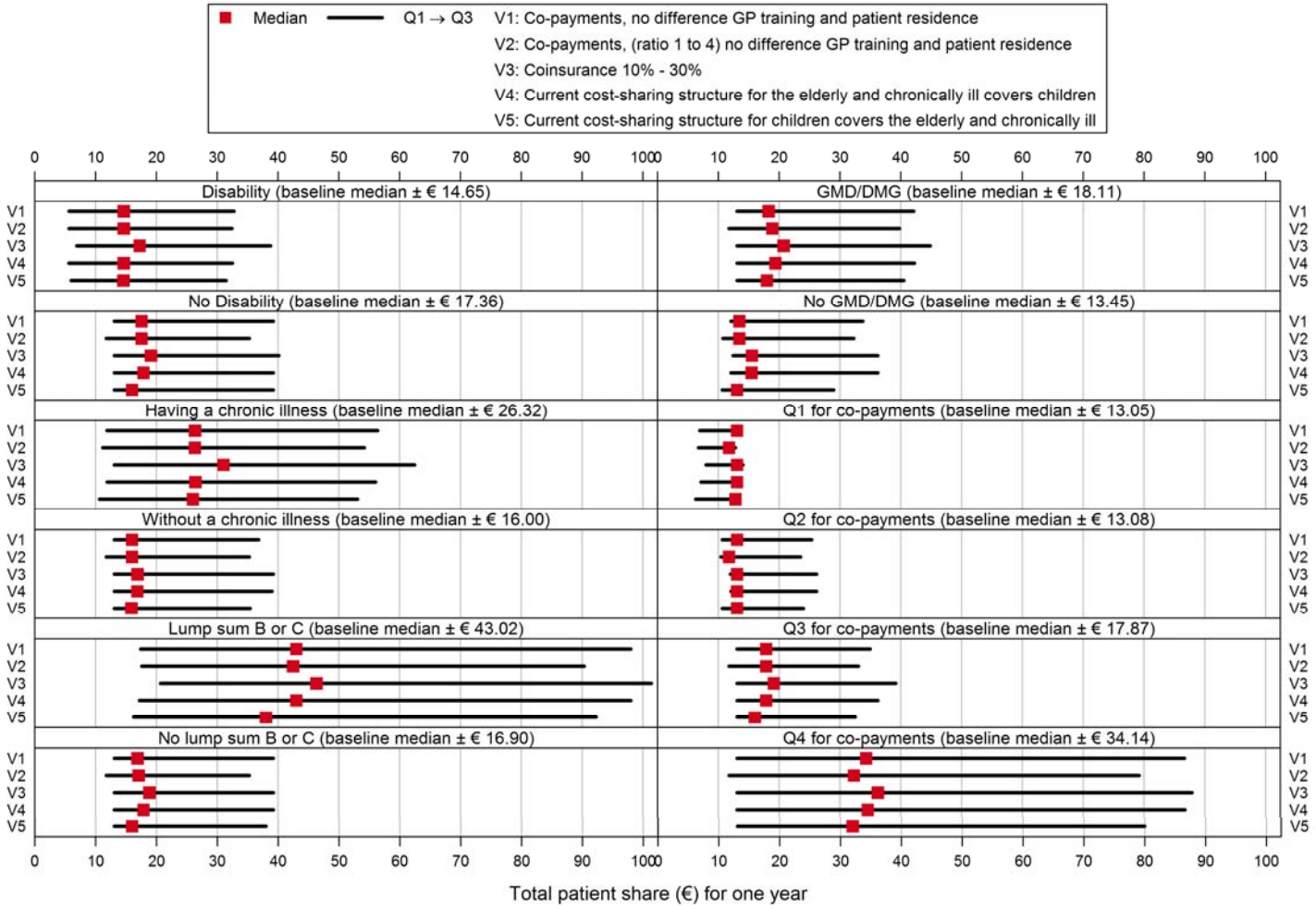
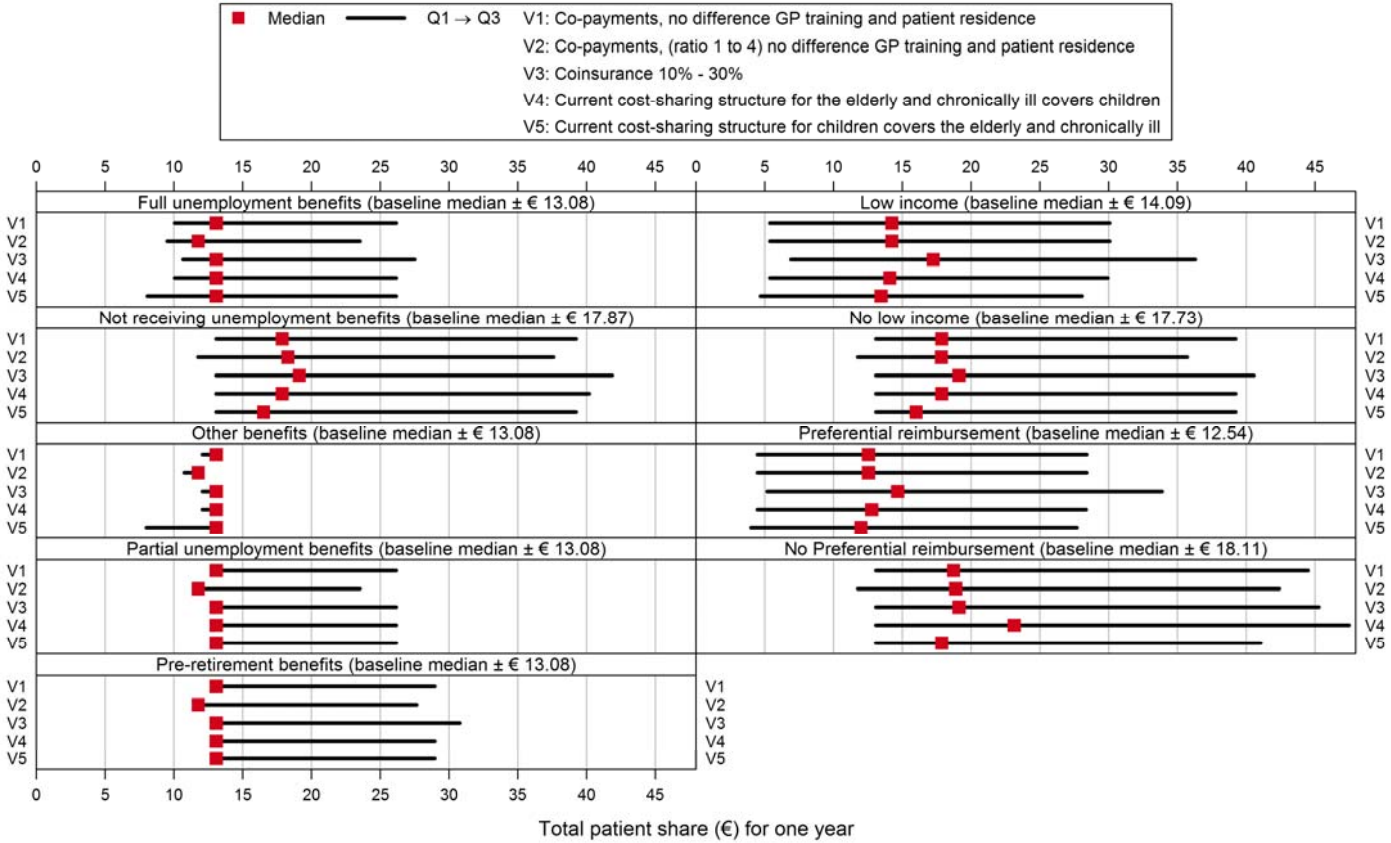


Figure 6: Simulated financial impact on patient cost sharing of policy reforms for GP visits, by socioeconomic group



3.4.3. *Financial impact for patient subgroups of reforms for specialist consultations*

199 549 patients (extrapolated to 6 454 673 patients) with a nomenclature code referring to specialist consultations were selected. The number of patients and the average number of consultations per subgroup of the population is given in Appendix 2.1.

Figure 7-Figure 9 show the results for seven simulations for specialist consultations.

Principles and concrete choice of co-payments and coinsurance

S1-S3 are based on only coinsurance except that S2 reflects the current situation with a coinsurance rate of 40% limited to an amount of € 15.5 for the general population.

S4-S7 are based on only co-payments. No distinction is made according to the specialism which reflects the idea that patients should not be held financially responsible for higher-priced services. In the four simulations a ratio of 1 (for patients with preferential reimbursement) to 4 (for patients without preferential reimbursement) is applied, in accordance with the current ratio for GP consultations. The concrete amounts of the co-payments range from € 1.5 to € 3 and from € 6 to € 12, for patients with and without preferential reimbursement respectively.

All simulated policy options comply with the stipulations of the Health Insurance Act of 1994. A coinsurance rate of 15% for patients with preferential reimbursement corresponds to the percentage as provided in article 37 of the Health Insurance Act of 1994; a coinsurance rate of 40% for the general population corresponds to article 37bis of the same act. The maximum patient share (€ 15.5) for the general population also complies with article 37 of the Health Insurance Act.

Results

The average (median) amount of cost sharing in the **baseline simulation** is between € 23 and € 27, except for all patients aged 10-19, males aged 20-49 and females aged 85+. They have a median value of cost sharing of about € 15. Patients with a weaker socioeconomic profile (low income, preferential reimbursement), disabled patients and patients entitled to a lump sum B or C pay on average a significantly lower average amount of cost sharing for specialist care while they have a comparable average number of consultations as wealthier or healthier patients. As was the case for GP consultations, this difference in patient share can be completely ascribed to the reimbursement policy, protecting low-income households. There is also a sharp increase in average cost sharing for specialist consultations with the quartile of total cost sharing (€ 7.72 for patients in the first quartile and € 47.21 for patients in the fourth quartile).

Compared to the baseline situation, patients pay considerably less for specialist consultations in **S1**, except for patients entitled to preferential reimbursement (including low-income patients and the disabled). A coinsurance rate of 15% results in a larger amount of cost sharing than with current co-payments. For the general population, a coinsurance of 25% is substantially lower than the current 40% or 40% with a maximum of € 15.5. The variability in cost sharing changes in line with the median value.

The impact of **S2 and S3** is very small, but for weaker socioeconomic groups (low income, preferential reimbursement and some categories of unemployment benefits) and for the disabled, the average amount of cost sharing slightly increases.

The co-payments in **S4-S7** show the expected pattern. In general, the median and variability increase with the amount of co-payments. Especially for patients without preferential reimbursement, the median amount of cost sharing in the four simulations increases faster than is the case for most other subgroups. The variability for S6 is most in line with the variability in the baseline simulation (see Table A. 9 in Appendix 2.1 for Q3 in the baseline simulation).

Figure 7: Simulated financial impact on patient cost sharing of policy reforms for specialist consultations, by age-gender groups

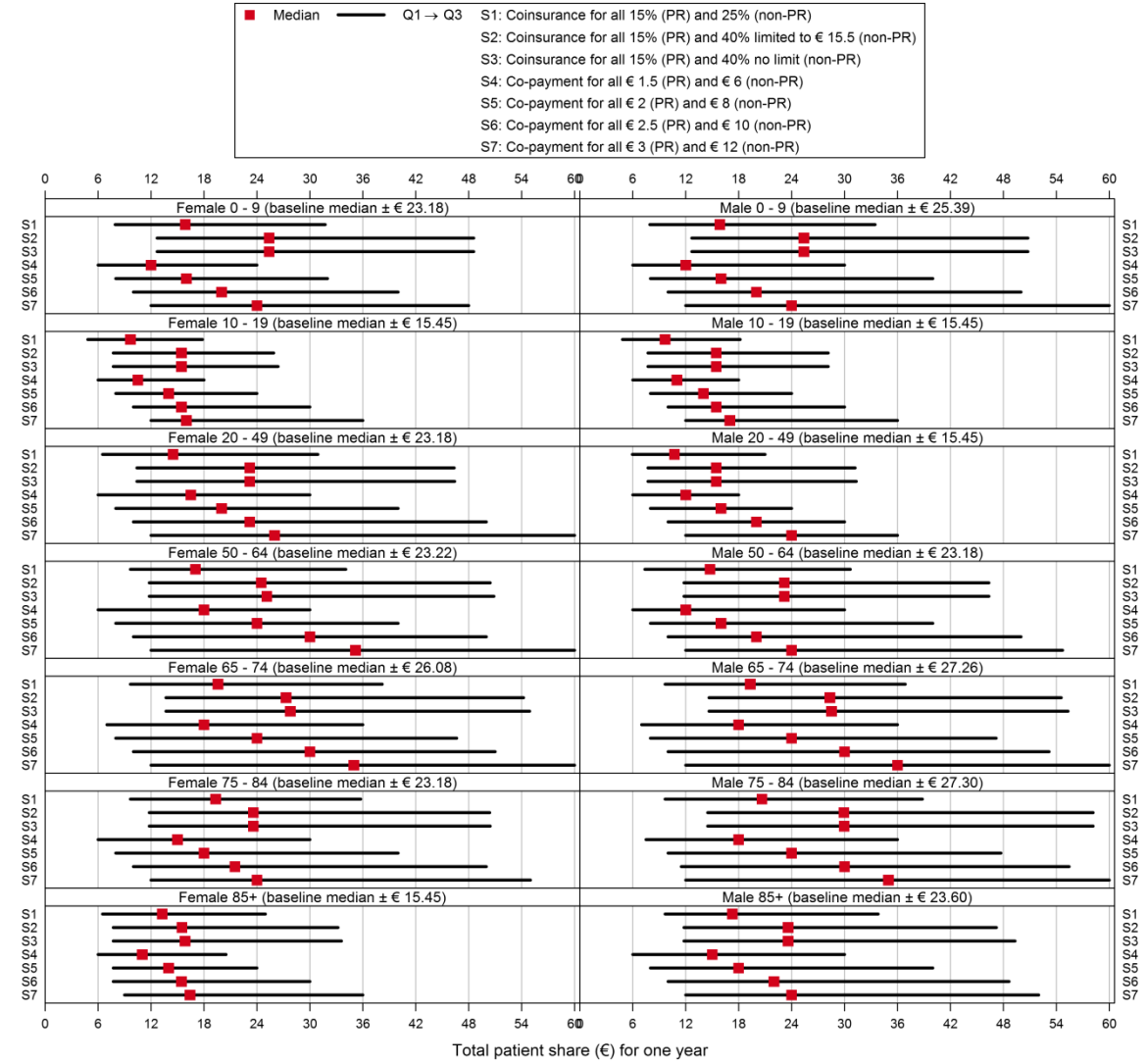


Figure 8: Simulated financial impact on patient cost sharing of policy reforms for specialist consultations, by health status and quartiles of total co-payments

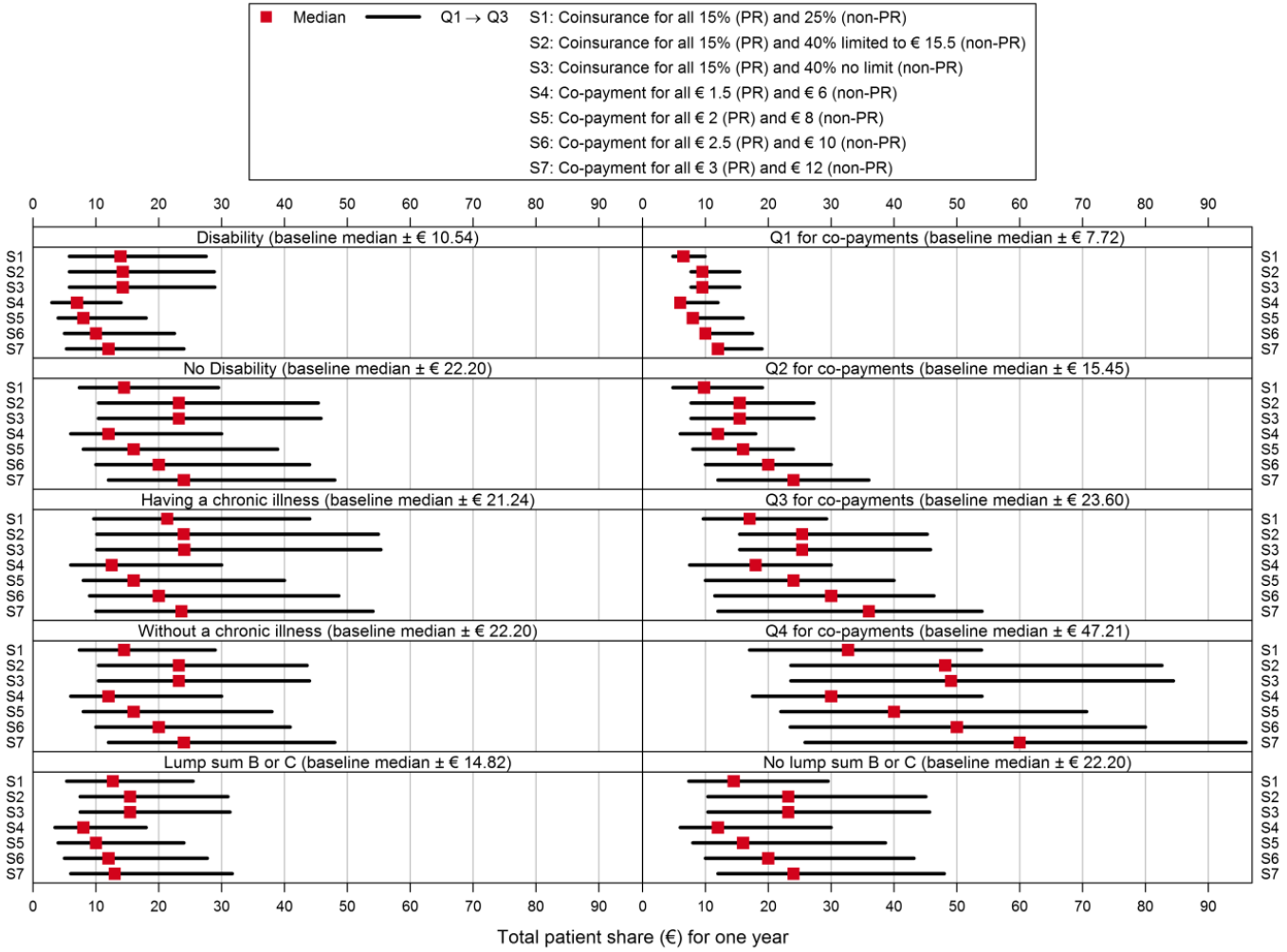
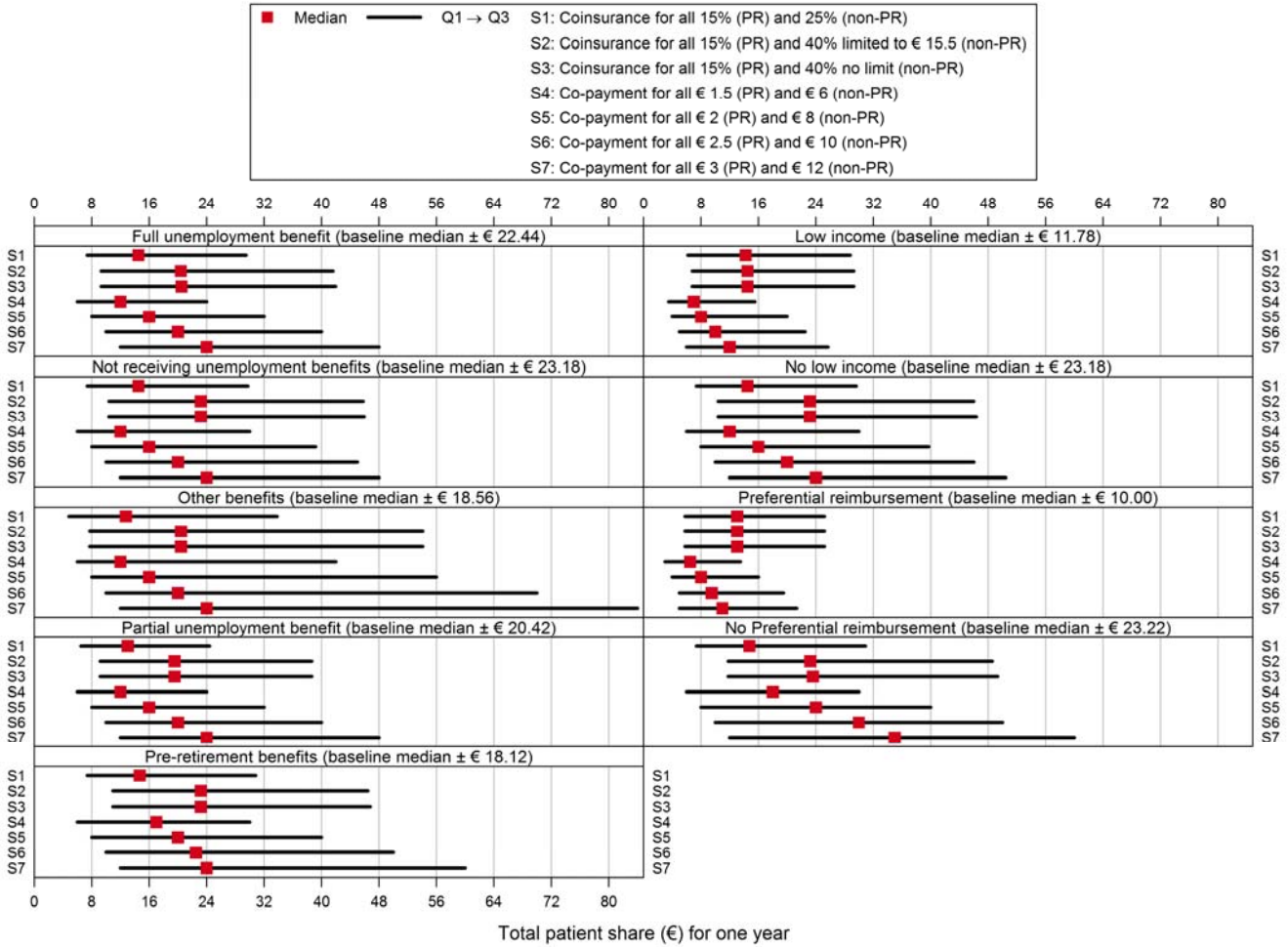


Figure 9: Simulated financial impact on patient cost sharing of policy reforms for specialist consultations, by socioeconomic group



3.4.4. *Global financial impact for RIZIV/INAMI and patients per policy reform*

Table 9 shows expenditures for RIZIV/INAMI and for patients in the baseline simulation and the simulated financial impact of all policy reforms of GP consultations, GP visits and specialist consultations. In the baseline simulation, MAB reimbursements are not taken into account. For the reform simulations, we give the financial impact for RIZIV/INAMI both with and without MAB reimbursements. As explained before, for a patient who already had MAB reimbursements in 2009, an increase in the cost-sharing amount due to a policy reform was attributed completely to the RIZIV/INAMI. For patients below the ceiling in 2009 or for patients above the ceiling but with a decrease in the cost-sharing amount due to the policy reform, the financial impact was calculated without taking account of the system of the MAB.

The financial impact for patients is the same as for RIZIV/INAMI but with the opposite sign.

GP consultations

The measures taken in December 2011 were a rather cheap reform with an increase in the budget of RIZIV/INAMI of about 1.9 million euros (C1). The increase reduces to 1.4 million euros if we take the MAB into account. By construction, shifting the patient share on supplementary fees for out-of-hours consultations to RIZIV/INAMI, increases the RIZIV/INAMI reimbursement. The simplification of patient cost sharing (four co-payments) has a mixed effect on the RIZIV/INAMI budget, determined by the age category of patients. Due to the rounding off of patient cost-sharing amounts, the RIZIV/INAMI pays less for patients younger than 50 years and more for those above the age of 50 (results not shown). Comparable calculations were made by RIZIV/INAMI, before the introduction of both measures. They were based on the EPS for 2008. For the simplification measure a budget of 0.763 million euros was allocated. To compensate for the full reimbursement of out-of-hours consultations, an additional budget of 1.334 million euros was reserved.[32]

Replacing current (non index-linked) co-payments by coinsurance rates of 10% and 30% for patients with and without preferential reimbursement respectively is almost budget neutral. Of course, as soon as official fees increase or are indexed, the choice between coinsurance and co-payments will matter more for the financial impact for RIZIV/INAMI and patients.

A remarkable result is that, although the financial impact for RIZIV/INAMI of C2 (10% coinsurance for PR and 25% for non-PR) and C3 (10% coinsurance for PR and 30% for non-PR) varies substantially, the amount of MAB reimbursements is exactly the same between the two scenarios. This is due to the fact that, in both simulations, patients without preferential reimbursement pay an amount of cost sharing that is lower than the current co-payment of € 6 or € 4 for patients without and with a GMD/DMG respectively. Hence, no MAB reimbursements were calculated. For patients entitled to preferential reimbursement, the 10% coinsurance rate in C2 and C3 gives a slightly larger cost-sharing amount than the current co-payments (€ 1.5 and € 1 for patients without and with a GMD/DMG respectively). The zero amount of MAB reimbursements for C5 and C6 can be explained along the same lines.

GP visits

Removing the difference in cost sharing according to GP qualification and patient residence for GP visits is also a reform resulting in a limited budget decrease for RIZIV/INAMI (V1). On the other hand, applying co-payments for all patients in a ratio of 1 to 4 for patients with and without preferential reimbursement respectively, as currently is the case for GP consultations, demands an extra RIZIV/INAMI budget of 7.9 million euros (V2). MAB reimbursements in this scenario are very small (0.1 million euros) since for the majority of patients current cost sharing amounts are lower than in V2.

Introducing coinsurance rates for all patients (V3) reduces the cost for RIZIV/INAMI with 4.7 million euros or 3.0 million euros if MAB reimbursements are taken into account. A 10% coinsurance rate for patients with preferential reimbursement is larger than current co-payments.

The financial impact of removing differences in protection between children and the chronically and elderly depends on the direction in which differences are removed. Applying the cost-sharing structure of children to the elderly and chronically ill, would increase the RIZIV/INAMI budget by 5.4 million euros without and 6.0 million euros with MAB reimbursements. The financial impact of applying current cost sharing of the elderly and chronically ill to children is smaller and leads to a reduction in the cost for RIZIV/INAMI. These results again show that children are better protected against cost sharing for GP visits than the elderly and chronically ill.

Specialist consultations

S2 has the smallest financial impact. For patients without preferential reimbursement, there is only one difference with the baseline simulation: a coinsurance rate of 40% with a ceiling limit of € 15.5 is applied to all nomenclature codes for specialist consultations, while for example in the baseline for a geriatric evaluation a coinsurance rate of 25% without a limit is used. For patients with entitlement to increased reimbursement, a 15% coinsurance rate results in a larger amount of cost sharing than with current co-payments, which can also be derived from the MAB reimbursements.

As was the case for C2 and C3, the financial impact of S1 and S2 differs substantially, but the MAB reimbursements are exactly the same.

Replacing current coinsurance and co-payments by the selected co-payments in S4-S7 has a substantial financial impact. If policy makers would decide that patients should pay the same co-payment for a specialist consultation as for a GP consultation, an extra budget of 76.2 million euros would be necessary (S4). S6 has the smallest financial impact, of which half consists of MAB reimbursements. The large amount of MAB reimbursements in S6 and S7 can be explained by the increase in cost sharing for “other specialists” (not given in the table). Current amounts equal € 2.64 for patients entitled to preferential reimbursement and € 7.72 for the general population (see Table 8). For the general population, the co-payments in S6 and S7 are substantially larger. Moreover, the nomenclature codes for “other specialists” are the most frequently used codes for specialists.

Table 9: Financial impact for RIZIV/INAMI and patients per policy reform as a difference with baseline simulations

Simulation	Patients	RIZIV/INAMI without MAB	RIZIV/INAMI with MAB	MAB reimbursements
GP consultations				
Baseline	€ 137 497 114	€ 605 274 730		
C1: Situation before December 2011		€ -1 859 891	€ -1 448 681	€ 411 210
C2: 10% - 25%		€ 21 788 295	€ 22 156 577	€ 368 282
C3: 10% - 30%		€ 800 972	€ 1 169 254	€ 368 282
C4: 10% - 40%		€ -41 173 675	€ -36 384 139	€ 4 789 536
C5: € 1.5 - € 3.75		€ 48 232 681	€ 48 232 681	€ 0
C6: € 1.5 - € 4.5		€ 32 155 120	€ 32 155 120	€ 0
GP visits				
Baseline	€ 101 897 437	€ 403 295 589		
V1: Current patient share (no difference for GP qualification and patient residence)		€ -233 780	€ -165 396	€ 68 384
V2: Co-payments, ratio 1 to 4 (no difference for GP qualification and patient residence)		€ 7 876 675	€ 8 021 208	€ 144 533
V3: 10% - 35%		€ -4 659 175	€ -2 960 187	€ 1 698 988
V4: Arrangement of elderly and chronically ill for children		€ -1 738 873	€ -1 548 906	€ 189 968
V5: Arrangement of children for elderly and chronically ill		€ 5 393 252	€ 6 043 615	€ 650 363
Specialist consultations				
Baseline	€ 209 313 946	€ 474 523 137		
S1: 15% - 25%		€ 64 912 414	€ 66 575 540	€ 1 663 126
S2: 15% - 40% with limit of € 15.5		€ -5 562 505	€ -3 899 379	€ 1 663 126
S3: 15% - 40% no limit		€ -8 400 866	€ -6 116 824	€ 2 283 941
S4: € 1.5 - € 6		€ 76 189 945	€ 76 247 496	€ 57 551
S5: € 2 - € 8		€ 33 077 272	€ 33 715 749	€ 638 477
S6: € 2.5 - € 10		€ -9 500 894	€ -4 983 829	€ 4 517 064
S7: € 3 - € 12		€ -52 346 313	€ -42 957 636	€ 9 388 677

Key Messages

Financial impact of policy reforms to reduce the complex structure of co-payments and coinsurance rates for GP and specialist consultations and GP visits

- **Proposals for simplification were defined in accordance with the following principles:**
  - **User-friendliness**
  - **Coherence**
  - **Transparency**
  - **Independence of criteria to determine cost sharing and fee**
- **A microsimulation model was used to calculate the financial impact of reform proposals for RIZIV/INAMI and for patient subgroups. All analyses are based on the Permanent Sample of socially insured persons (EPS) for 2009, adapted to 2011.**
- **The simplification of cost sharing for GP consultations, introduced on 1 December 2011, had a limited financial impact for all patient subgroups.**
- **The financial impact of removing the distinction in patient share according to GP qualification and patient residence for GP visits, is limited if current amounts of cost sharing are maintained (0.2 million euros increase in patient share) but is much larger if a ratio of 1 to 4 is introduced for patients with and without preferential reimbursement respectively (7.9 million euros increase in the budget of RIZIV/INAMI).**
- **Removing the distinction in patient share according to specialism (including the difference between a GP and specialist) by imposing a co-payment of € 1.5 for patients entitled to preferential reimbursement and € 6 for patients without preferential reimbursement, is an expensive reform for RIZIV/INAMI (76.2 million euros). Applying other co-payments in a ratio of 1 to 4 are cheaper for RIZIV/INAMI or may increase patient cost sharing.**
- **The effect of taking account of reimbursements by the system of maximum billing depends on the simulation. In any case, reform simulations without correction for MAB reimbursements may substantially overestimate the impact on patient cost sharing.**
- **In addition to the global financial impact, distributional effects of reforms may be significant. Some reforms have a disproportionately detrimental effect on the weakest groups.**

APPENDICES

APPENDIX 1. CONSTRUCTION OF THE FINAL DATASET

Appendix 1.1. Selection of nomenclature codes

The (oversampled) EPS for 2009 contains 320 286 individuals. Only those individuals who received reimbursement for at least one nomenclature code of Chapter 2 of the nomenclature (Article 2) were selected, which reduces the number of individuals to 281 939 (=88%). Table A. 1 gives the selected nomenclature codes (column Year_2009). They all refer to consultations, visits, advice, psychotherapy and other services.

As explained in section 3.4, the first step of the microsimulation exercise is to construct a baseline simulation which is coherent with regulation applicable in 2011. The column Year_2011 of Table A. 1 gives the valid nomenclature codes for 2011. Between 2009 and 2011 some codes were created (mainly in 2010), others were removed. On 1 November 2010 the nomenclature codes for GP visits were simplified (see Table 1). Removed codes were replaced with valid codes for 2011 as described in http://www.inami.fgov.be/care/fr/doctors/nomenclature/simplification_art_2/index.htm (French) and

http://www.inami.fgov.be/care/nl/doctors/nomenclature/simplification_art_2/index.htm (Dutch).

Table A. 1: Nomenclature codes in Chapter 2 of the nomenclature

Provider	Type of service	Year_2009	Year_2011
GP consultations	Consultations	101054	101054
		101010	101010
		101032	101032
		101076	101076
	Supplementary fees for out-of-hours consultations	101091	101091
		101113	101113
		102410	102410
		102432	102432
		102454	102454
		102476	102476
	Diabetes passport	102852	102852
	GMD/DMG	102771	102771
		102793	102793
GP visits	GP called by a physician to the patient's home	104355	104355
		104650	104650
	Visits	103110	103110
		104672	103110
		103132	103132
		104370	103132
		103213	103213
		103331	103213

Provider	Type of service	Year_2009	Year_2011
		104134	103213
		103235	103235
		103353	103235
		104156	103235
		103412	103412
		103530	103412
		103935	103412
		103434	103434
		103552	103434
		103950	103434
		103515	103913
		103913	103913
		103316	104112
		104112	104112
		104215	104215
		104392	104215
		104230	104230
		104414	104230
		104252	104252
		104274	104252
		104436	104252
		104451	104252

Provider	Type of service	Year_2009	Year_2011
		104510	104510
		104694	104510
		104532	104532
		104716	104532
		104753	104554
		104554	104554
		104576	104554
		104731	104554
	Supplements for out-of-hours visits	104296	104296
		104311	104311
		104333	104333
		104591	104591
		104613	104613
		104635	104635
	GPs visiting patients in or accompanying patients to a hospital	109701	109701
		109723	109723
		109734	109734
Specialist	Anaesthesiologist	102815	102815
		102830	102830
	Cardiologist	102093	102093
		102594	102594
	Consultation neurologist or neuropaediatrician	102174	102174

Provider	Type of service	Year_2009	Year_2011
		102675	102675
	Dermatologist	102734	102734
		102756	102756
	Gastroenterologist	102115	102115
		102616	102616
	Geriatrics evaluation	102233	102233
	Internist	102034	102034
		102550	102550
	Internist, endocrinologist-diabetes specialist	102255	102255
		102874	102874
	Lung expert	102130	102130
		102631	102631
	Neuropsychiatrist	102211	102211
		102712	102712
	Other specialist	102012	102012
		102535	102535
	Paediatrician	102071	102071
		102572	102572
	Paediatrician visit	103736	103736
		103751	103751
		103773	103773
		103795	103795

Provider	Type of service	Year_2009	Year_2011
		103810	103810
		103832	103832
		103854	103854
		103876	103876
		103891	103891
		104812	104812
		104834	104834
		104856	104856
		104871	104871
	Psychiatrist	102196	102196
		102690	102690
	Rheumatologist	102152	102152
		102653	102653
	Specialist called by physician to a patient's home	103014	103014
		103051	103051
		103073	103073
	Supplements for urgent consultations at the specialist office	102491	102491
		102513	102513
Advice	Advice	109012	109012
Psychotherapy	Psychotherapy	109513	109513
		109631	109631
		109535	109535

Provider	Type of service	Year_2009	Year_2011
		109550	109550
		109572	109572
		109653	109653
	Child and youth psychiatry	109410	109410
		109675	109675
New codes	Geriatrician		102896
			102911
	Haematologist		102314
			102336
	Oncologist		102270
			102292
	Haematologist and oncologist (paediatrics)		102351
			102373
	Diagnostic check-up for dementia with a neurologist, psychiatrist or geriatrist		102933
			102992
	First consultation with internist for patient with complex pathology and no clear diagnosis		102955
			102970
	Child and youth psychiatry		109432
			109454
	Prevention module GMD/DMG		102395

However, not all codes in Table A 1 were included in the analysis. Since the scope of the report is limited to GP consultations and visits and specialist consultations, the codes in Table A. 2 were excluded.

Table A. 2 also provides the amount and legal basis of patient cost sharing for each excluded code.

Table A. 2: Patient cost sharing for nomenclature codes in Chapter 2 of the nomenclature excluded from the analysis (01/12/2011)

Description	Code	Preferential reimbursement	General population	Legal basis for preferential reimbursement	Legal basis for general population
Consultation with a GP holding a diploma in dental care	101054	€1.5 (€1 with GMD/DMG[1])	€6 (€4 with GMD/DMG)	Art. 1, RD 1982[2] (Art.3, 1° for GMD/DMG)	Art. 37bis, §1, A,1° (Art. 37bis,Bbis,1° for GMD/DMG), HIA 1994[3]
Paediatrician visit	103736	Full reimbursement	€0.79	Art. 8, RD 1982	
	103751	€1.54	35% (€5.12)	Art. 2, §3, RD 1982	Art. 37bis, §1.B,Section 2, HIA 1994
	103773	€1.31	35% (€4.68)		
	103795	€1.62	35% (€5.81)		
	103810	€1.54	35% (€5.12)		
	103832	€1.31	35% (€4.68)		
	103854	10% (€0.8)	35% (€2.82)	Art. 37, §1, Section 2, HIA 1994	
	103876	10% (€1.74)	35% (€6.11)		
	103891	10% (€0,8)	35% (€2.82)		
	104812	10% (€2.07)	35% (€7.25)		
	104834	10% (€3.83)	35% (€13.43)		
	104856	10% (€2.32)	35% (€8.13)		
	104871	10% (€2.32)	35% (€8.13)		
Specialist called by a GP to the patient's home	103014	Full reimbursement	40% (€12.5)	Art. 10, §1, RD 1982	Art. 37bis C, HIA 1994
	103051	Full reimbursement	40% (€12.5)		
	103073	Full reimbursement	40% (€12.5)		

Description	Code	Preferential reimbursement	General population	Legal basis for preferential reimbursement	Legal basis for general population
Psychotherapy; child and youth psychiatric treatment and evaluation	109410 and 109675	10%	25%	Art. 7, §1, RD 1982	
		limited to €4.34	limited to €8.68	Art. 7, §3, RD 1982	
	109432	Full reimbursement	Full reimbursement	Art. 7, §4, RD 1982	
	109454	Full reimbursement	Full reimbursement		
	109513	10% (€6.5)	25% (€16.27)	Art. 7, §1, RD 1982	
	109631	As 109513 10% (€6.5)	As 109513 25% (€16.27)		
	109550	10% (€2.31)	25% (€5.78)		
	109572	10% (€2.31)	25% (€5.78)		
	109535	10% (€4.39)	25% (€10.98)		
	109653[4]	*As 109550* 10% (€4.34)	*As 109550* 25% (€10.98)		
Advice	109012	10% (€0.34)	25% (€0.87)	Art. 37, §1st, Section 2, HIA 1994	
GPs visiting patients in or accompanying patients to a hospital	109701	Full reimbursement	Full reimbursement	Art. 7octies, §1st. 2°, RD 1982	
	109723	10% (€3.45)	25% (€8.62)	Art. 37, §1er , Section 2, HIA 1994	
	109734	10% (€8.13)	25% (€20.34)		

[1] *Global medical record*
[2] *Royal Decree of 23 March 1982*
[3] *Health Insurance Act of 14 July 1994*
[4] *Should relate to code 109535 and not to code 109550. The codes 109535 (for an accredited psychiatrist) and 109653 (for a non-accredited psychiatrist) correspond to a psychotherapy session of sixty minutes for two individuals belonging to the same family. The code 109550 corresponds to a psychotherapy session of sixty minutes with a psychiatrist (non-accredited) for three individuals belonging to the same family.*

A certain number of pseudo-nomenclature codes (not included in Chapter 2 of the nomenclature) are included in the official circular letters from RIZIV/INAMI to the sickness funds. They refer to travel costs of GPs and specialists (109955, 109970, 109911) and to healthcare pathways (107015, 107096, 107052, 107133, 107013, 107111, 107074, 107155). These codes are not included in the analysis either.

Appendix 1.2. Setting up the baseline simulation

Step 1: matching nomenclature codes between 2009 and 2011

For all selected nomenclature codes in 2009, the corresponding codes for 2011 were identified (see Table A. 1). Removed codes were replaced according to RIZIV/INAMI rules. New nomenclature codes created between 2009 and 2011 were not taken into account.

Step 2: update from 2009 to 2011 on the basis of tariff codes

The update of each observation in the dataset from 2009 to 2011 was done on the basis of tariff codes. A tariff code is defined as *a code corresponding to a well-defined tariff*.[h] Most consultations and visits have several tariffs depending on e.g. patient characteristics (increased reimbursement, age) and the physician (acquired rights, licensed). RIZIV/INAMI has defined for each nomenclature code several corresponding tariff codes for each specific case (e.g. tariff code 1300 = "intervention for beneficiary with increased reimbursement"). Tariff codes were identified as follows:

- For 2009 and 2011, the list of all tariff codes for the selected nomenclatures were obtained from the table REFERER_TARIFCODES.
- The amount of patient cost sharing for a nomenclature code (variable ss00160 in the Health Services database of 2009) was matched with that of the tariff codes from RIZIV/INAMI for 2009 (± € 0.10). When the tariffs changed in 2009, we took the date of the service into account.
- For all records for which the above procedure resulted in a unique tariff code, the amount was updated to the 2011 tariffs.

Problems and how they were solved:

- One intervention could correspond to several tariff codes (either exactly the same amount or within the ± € 0.10 margin): the choice for a corresponding tariff code was done on a case by case basis. In general, preference was given to a match with a tariff code corresponding to a patient cost-sharing amount (not to a fee).
- For some interventions there was no match with a tariff code: these records were excluded from the analysis.

Step 3: regularisation

Since the sickness funds do not change false into correct values (e.g., of reimbursements) directly in the record in question but add a second record with the correct value, some adjustments (called regularisations) were needed. The quantitative variables in records with the same date, nomenclature code, patient identifier and provider qualification were summed.

Step 4: delete records with the number of occurrence equal to zero

Records without number of cases (variable SS00050 = 0) were excluded from the analysis.

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[h] The database is a local copy of the table REFERER_TARIFCODES from the database Nomensoft(R) from RIZIV/INAMI (downloadable at http://www.inami.fgov.be/care/fr/nomenclature/nomensoft.htm in French or http://www.inami.fgov.be/care/fr/nomenclature/nomensoft.htm in Dutch). A description note is available in the technical description of the structure and content of the tables at http://www.inami.be/care/fr/nomenclature/pdf-nomensoft/Referencetables_nomensoft.pdf in French and at http://www.inami.be/care/nl/nomenclature/pdf-nomensoft/Referencetables_nomensoft.pdf in Dutch, page 29.

Step 5: identification of having a GMD/DMG and being entitled to preferential reimbursement

Entitlement to preferential reimbursement and having a GMD/DMG are two patient characteristics that are available in the Population database and in the Health Services database (in combination with the tariff code). Both variables are defined in a different way in both databases. We first provide the definition of both variables in each source and then motivate our choice for one of two possible definitions.

- Entitlement to preferential reimbursement can be inferred from variable pp0030 in the Population database (snapshot on 31 December 2009) and from the value of the tariff code at the time of the service (see step 2). Since entitlement to preferential reimbursement can evolve along the year (as is the case in the Health Services database), we extracted the information from the Population database.
- Having a GMD/DMG can be inferred from two variables in the Health Services database (in combination with the tariff code). The first variable is the nomenclature code of a service (e.g., GP consultation during regular hours for a patient entitled to preferential reimbursement) combined with the value of the tariff code. The second possibility is to base the variable, indicating whether a patient has a GMD/DMG, on two specific nomenclature codes that relate to the opening (or the extension) of a GMD/DMG (codes 102771 and 102793). The second option was chosen as the former could not be applied for every record. However, patients with a GMD/DMG pay reduced cost-sharing amounts only for a consultation or a visit with a GP who can access the GMD/DMG (also a GP beloning to the same registered GP group, such as a group practice). For consultations and visits with another GP, they pay the same amount as patients without a GMD/DMG. Therefore, an additional variable was created indicating whether patients with a GMD/DMG received the reduction in cost-sharing amounts. The value of this additional variable (0 for reduced cost sharing and 1 otherwise) was based on the value of the tariff code.

Step 6: negative values

Remaining observations with negative values for physician fees were not included in the analysis. As the physician fee is not directly available in the Health Services database of 2009, it was calculated as the sum of the RIZIV/INAMI reimbursement (variable ss00060) and the amount of patient cost sharing (variable ss00160).

Table A. 3 summarizes the number of records after each of the preceding steps, including the elimination of codes given in Table A. 2.

Each record represents one physician-patient contact.

Table A. 3: Number of included records per step in constructing the baseline simulation

Step	Number of records
Initial database	2 885 125
After regularisation	2 850 336
After eliminating observations with missing tariff code	2 740 688
After eliminating observations with SS00050=0	2 731 393
After eliminating values with negative fees	2 715 989
After eliminating codes not included in the analysis (see Table A. 2)	2 566 992
Final number of records	**2 566 992**

Excluding the records according to Table A. 3 reduces the number of individuals to 280 921.

Appendix 1.3. Adapting the sample to the evolution of preferential reimbursement and GMD/DMG between 2009 and 2011

Introduction

With the introduction of the Omnio regulation (patients are entitled to preferential reimbursement if their household income is below a certain threshold) and the measures to stimulate the use of the GMD/DMG, there is a risk that the adaptations needed to update the 2009 EPS_{R5} sample to 2011 might underestimate the number of patients with GMD/DMG and preferential reimbursement. To reduce this risk, we adapted the weights in the 2009 data to take into account changes in the number of patients with GMD/DMG and preferential reimbursement.

In EPS_{R6}, we only dispose of patient level information for 2010 but not for 2011. We opted to predict the 2011 number of patients by linearly extrapolating the evolution between 2009 and 2010. The assumption of linearity is based on the evolution of patients with preferential reimbursement as published by RIZIV/INAMI [i]. We assume that the increase (or decrease) in the proportion of patients with or without GMD/DMG and with or without preferential reimbursement continues in the same way from 2010 to 2011 as it has from 2009 to 2010.

The following section details how we adjusted the number of patients with or without GMD/DMG and with or without preferential reimbursement to reflect 2011 levels rather than 2009 levels.

Methodology

For the following variables[j], we calculated the number of patients with and without GMD/DMG and with and without preferential reimbursement in 2009 and 2010 EPS_{R6}.

- Age category
- Gender
- Low income
- Unemployment status
- Disability
- Chronical illness
- Entitled to a lump sum B or C

All variables were crossed: e.g., we calculated the number of women aged 20-49, with a low income, employed, without disability, not chronically ill, without entitlement to a lump sum B or C. We refer to this as a cell.

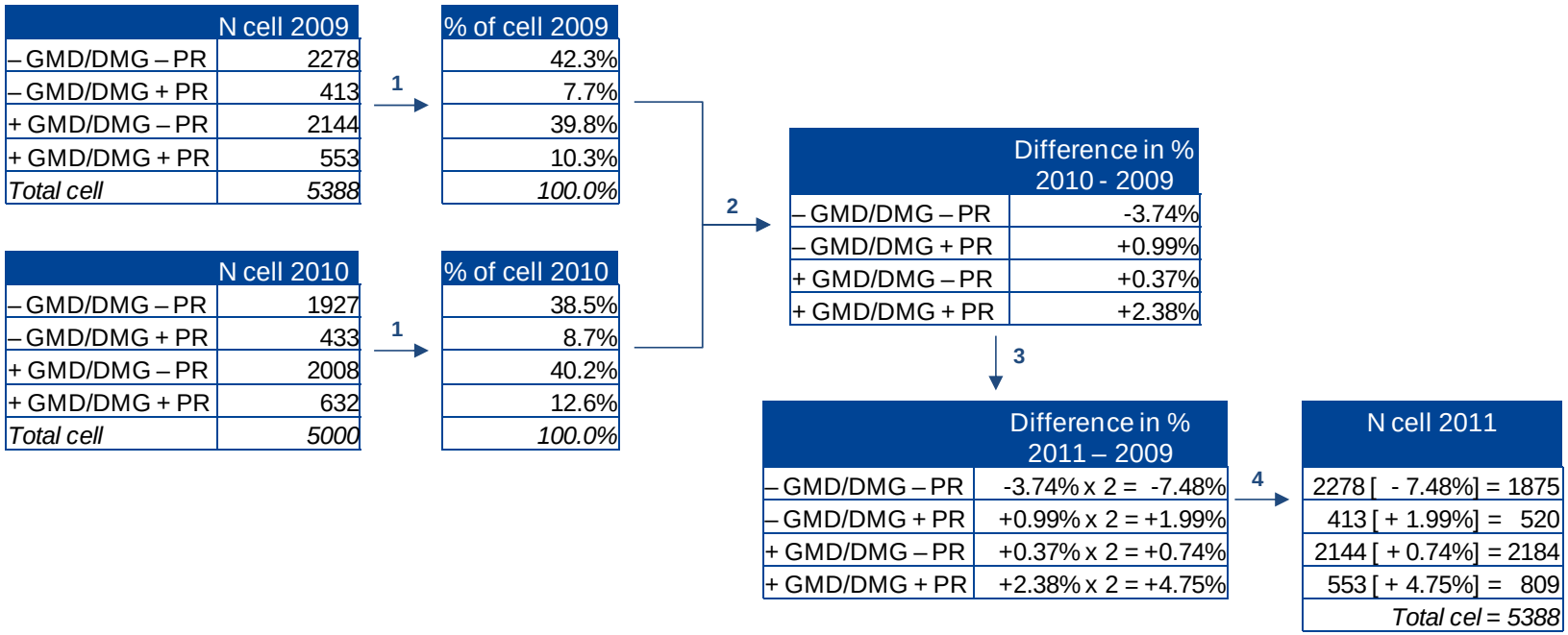
The following algorithm is used (see also Figure A. 1):

1. For each of the cells, we determine the proportion of patients with or without GMD/DMG and with or without preferential reimbursement for 2009 and 2010.
2. The difference in proportion between 2009 and 2010 is calculated as $p_{2010} - p_{2009}$.
3. This difference in proportion is multiplied by 2 to reflect the relation from 2010 to 2011, equal to the relation from 2009 to 2010.
4. The number of patients in 2011 is calculated by applying the difference in proportion from step 3: $N_{2011} = N_{2009} \times \left(\frac{2p_{2010}}{p_{2009}} - 1\right)$ where N = number of patients and p = proportion of patients along GMD/DMG and preferential reimbursement dimensions within a cell.

[i] http://www.riziv.fgov.be/information/nl/statistics/people/index.htm (NL), http://www.riziv.fgov.be/information/fr/statistics/people/index.htm (FR)

[j] See Table A. 7 for the definition of these variables.

Figure A. 1: Example scheme of the algorithm used to adapt the sample to the evolution of number of patients with or without GMD/DMG and with or without preferential reimbursement (+ = with, – = without, GMD/DMG = global medical record, PR = preferential reimbursement; the numbers refer to the steps described in the text).



Results

Over all variables, our calculations resulted in an increase both of patients with a GMD/DMG and of patients with preferential reimbursement between 2009 and 2011 (see Table A. 4).

Table A. 4: Predicted change in proportion of patients with GMD/DMG or preferential reimbursement between 2009 and 2011

Group	GMD/DMG	Preferential reimbursement
GP consultations	+3.31%	+0.51%
GP visits	+7.59%	+3.61%
Specialist consultations	+6.03%	+1.12%

For each of the cells, a different predicted change between 2009 and 2011 is calculated. Summary statistics of the predicted changes per cell are found in Table A. 5 (by GMD/DMG), and Table A. 6 (by preferential reimbursement). As the results show, the changes between 2009 and 2011 differ widely between cells. Some cells show a strong decrease while others show a large increase. This is reflected in the large standard deviation compared to the mean.

Table A. 5: Summary statistics of predicted changes per cell between 2009 and 2011 by simulation group and GDM/DMG

Group	GDM/DMG	Min	Max	Mean	SD	Q1	Median	Q3
GP consultations	**No**	-150.00%	+150.00%	-1.27%	+26.94%	-6.41%	-0.45%	+3.41%
	Yes	-133.33%	+150.00%	+0.29%	+29.52%	-4.94%	+0.28%	+7.57%
GP visits	**No**	-120.00%	+133.33%	-1.71%	+28.71%	-10.19%	-0.85%	+4.84%
	Yes	-150.00%	+133.33%	+4.26%	+32.71%	-4.34%	+2.30%	+13.33%
Specialist consultations	**No**	-160.00%	+133.33%	-2.82%	+29.79%	-10.57%	-1.57%	+3.72%
	Yes	-133.33%	+133.33%	+2.99%	+31.56%	-4.23%	+1.94%	+11.38%

Table A. 6: Summary statistics of predicted changes per cell between 2009 and 2011 by simulation group and preferential reimbursement

Group	Preferential reimbursement	Min	Max	Mean	SD	Q1	Median	Q3
GP consultations	**No**	-133.33%	+150.00%	-0.32%	+27.56%	-5.48%	+0.00%	+4.65%
	Yes	-150.00%	+150.00%	-0.43%	+28.96%	-6.35%	+0.00%	+7.20%
GP visits	**No**	-150.00%	+133.33%	-0.41%	+24.46%	-7.89%	+0.00%	+5.92%
	Yes	-150.00%	+133.33%	+2.39%	+33.83%	-8.59%	+0.00%	+12.83%
Specialist consultations	**No**	-114.29%	+133.33%	+0.64%	+27.36%	-7.78%	-0.31%	+6.44%
	Yes	-160.00%	+133.33%	-0.05%	+32.64%	-9.21%	+0.00%	+10.84%

Appendix 1.4. Definition of variables used in the analysis

We used variables and flags from Population and Health services databases. The difference between a variable and a flag is that the latter results from combining different variables or regrouping different categories from one single variable. Flags were created with the purpose of providing well documented and coherent analysis tools (or variables) to the different users of the EPS. Variables and flags selected for the analysis provide information on individuals' demographic and socioeconomic characteristics, indicators of health status and on variables related to the reimbursement level of different health services.

Table A. 7: Definition of variables used in the analysis

Group	Variable	Definition and category	Source	Variable/flag in database
Demographic	Gender and age	The variable age was grouped into seven categories: 0-9, 10-19, 20-49, 50-64, 65-74, 75-84 and 85+, separately for men and women. A second classification was created (<10, 10-75 and 75+) which corresponds to GMD/DMG-related measures for GP visits.	Population	PP0015A (year of birth) and PP0020 (gender)
Health status	Disability	Dichotomous variable giving information on whether the person was recognized as disabled.	Population	Flag recognition_YN. This flag is based on the variable PP1009 "origin of the recognition of disability". If PP1009 is equal to zero, the individual is not considered as being disabled. If PP1009 is not equal to zero (categories one to seven), the individual has an official recognition of disability. Disability recognition can be given by: the Medical control service (PP1009=1)[1], the Belgian Federal Public Service Social Security (PP1009=2)[2], to handicapped children (physical or mental handicap evaluated at least at 66%[3], PP1009=3,4), to self-employed individuals receiving invalidity benefits (and to their widow/widower, PP1009=5,6,7)[4]
	Lump sum B or C	Dichotomous variable giving information on individuals who received a lump sum that compensates extra expenses accompanied by a chronic illness. Two conditions have to be fulfilled at the same time. First, the amount of co-payments exceeds a threshold of € 450 for patients without preferential reimbursement and € 365 for patients with preferential reimbursement during two consecutive years. A second condition concerns the degree of dependency during the current calendar year.	Population	Computed combining PP2001 (equal to one for a person receiving a lump sum B) and PP2002 (equal to one for a person receiving a lump sum C). A value of one on either of these was sufficient.
	Having a chronic illness or handicap	Dichotomous variable giving information on whether the person received a lump sum or an allowance relating to having a chronic illness or handicap during the year.	Population	Uses the flag chronical_YN. This flag combines variables PP2001 to PP2011 and PP3011. PP2001 to PP2003 provide information on different lump sums (PP2001=lump sum B, PP2002=lump sum C, PP2003=physiotherapy E). PP2004 to PP2009 provide information on allowances attributed to disabled individuals

				(both for disability related to old age and handicap). Allowances include increased family allowance (PP2004), integration allowance for handicapped (PP2005), allowance for assistance to the elderly person (PP2006), allowance for assistance to a third person (PP2007), increased disability allowance for assistance to a third person (PP2008), lump sum allowance for assistance to a third person (PP2009) and income replacement allowance for individuals aged 21 to 65 years old (PP3003). PP2010 and 2011 provide information on long-term hospitalisation (PP2010 being hospitalized for at least 120 days and PP2011 being hospitalized at least 6 times during the reference year).
Reimbursement related variables	Preferential reimbursement	Dichotomous variable giving information whether the patient has right to increased reimbursement of patient cost sharing.	Population	Computed based on variable PP0030
	Chronic illness, higher reimbursement for GP visits	Dichotomous variable giving information on whether individuals aged between 10 and 75 years old were eligible to reduced patient cost sharing for visits because of chronic illness. This variable was created based on the tariff codes and was used only for analysis relating to GP visits.	Health services	Computed based on the tariff code
	Global Medical Record (GMD/DMG)	Dichotomous variable giving information on whether a patient has a GMD/DMG (either opened GMD/DMG in 2007, 2008 or 2009 or having extended its opening right).	Health services	Computed based on two nomenclature codes 102711 and 102793 from the variable SS00020
	Level of patient cost sharing	Quartiles based on the sum of patient cost-sharing amounts for all healthcare services paid by each individual in 2009 excluding maximum billing reimbursements.	Health services	
Socioeconomic	Unemployment status	Five categories are included for this variable. Individuals can either receive: i) Full unemployment benefits, ii) Partial unemployment benefits, iii) Pre-retirement benefits, iv) Not considered as unemployed and v) Missing information.	Population	Uses the flag unemployment_YN. The flag is based on the variable PP1004 which contains information on codes included in the unemployment certificates. PP1004 has ninety-nine categories[5].
	Guaranteed Income	Dichotomous variable indicating whether a person receives a minimum guaranteed income or assistance from a public municipal welfare centre.	Population	PP3010 and PP3013 were combined to create this variable (a large overlap between both variables exists). PP3010 is equal to one for

	individuals receiving an income guarantee for the elderly or a subsistence level income (zero otherwise). PP3013 is equal to one for individuals receiving support from a municipal welfare centre[6].

[1] *In French Service de contrôle Médical; in Dutch Dienst Geneeskundige Controle*
[2] *In French Service public fédéral Sécurité sociale; in Dutch Federale Overheidsdienst Sociale Zekerheid*
[3] *Measure based on: 1) disability level; 2) impact of handicap on learning and social skills ; 3) family's efforts on dealing with the handicap (http://handicap.fgov.be/fr/news/index.htm)*
[4] *In French indemnités d'invalidité; in Dutch invaliditeitsuitkeringen.*
[5] *Detailed information on the 99 categories can be found in the EPS lay-outs (http://www.riziv.be/information/nl/sampling/index.htm(Dutch); http://www.riziv.be/information/fr/sampling/index.htm(French).*
[6] *Receiving an income guarantee for the elderly (in French Droit au revenu minimum garanti aux personnes âgées ou garantie de revenus aux personnes âgées - in Dutch Recht op gewaarborgd inkomen voor bejaarden). Subsistence level income (in French Droit au revenu de moyens d'existence ou Minimex (CPAS) ou revenu d'intégration sociale ou RIS – in Dutch Recht op minimaal leefloon of bestaansminimum (OCMW) of sociale integratieinkomens of SII.*

Table A. 8: Definition of variables used to determine whether a patient has MAB reimbursements

Variable	Definition and category	Source	Variable/flag in database
Reimbursement and ceiling-household	Six values are possible: no reimbursement; reimbursement with a ceiling of € 450, € 650; € 1 000; € 1 400; € 1 800 with for all ceilings a reduction of € 100 for patients entitled to the MAB for chronically ill.	Population	PP3004 (reimbursement and ceiling-household)
Reimbursement and ceiling-individual or part of a household	Four values are possible: no reimbursement; reimbursement for a child (<19 years) with a ceiling of € 650; reimbursement for a handicapped child with a ceiling of € 450; reimbursement for the social MAB as part of a household with the income MAB - ceiling of € 450.	Population	PP3005 (reimbursement and ceiling-individual or part of a household)

APPENDIX 2. TECHNICAL DETAILS OF THE SIMULATIONS

For all simulations (including the baseline simulations for GP consultations, GP visits and specialist consultations) we provide a documentation sheet with technical details of the simulation, such as selected codes, status quo regulation (2011), definition of reform, objective of reform (Appendix 2.2).

We first show the (weighted) number of patients and the average number of GP consultations, GP visits and specialist consultations per patient subgroup (Appendix 2.1).

Appendix 2.1. Number of patients and average number of consultations and visits per patient subgroup

Table A. 9: Number of patients (N), average number of GP consultations and third quartile (Q3) of cost sharing in baseline simulation per patient subgroup

Group	Variable	Category	N (weighted)	Average number of GP consultations	Q3 of cost sharing in baseline simulation (€)
Demographic	Age/sex	M_0_9	375 310	3.14	18.00
		M_10-19	405 542	2.87	18.00
		M_20-49	1 422 452	3.50	22.00
		M_50-64	781 633	4.75	28.00
		M_65-74	351 834	5.82	31.34
		M_75-84	214 860	6.40	32.00
		M_85+	37 011	5.63	28.00
		W_0_9	353 206	3.11	18.68
		W_10-19	427 897	3.33	20.00
		W_20-49	1 674 465	4.30	26.00
		W_50-64	843 856	5.25	30.00
		W_65-74	397 464	5.98	31.34
		W_75-84	260 280	6.07	30.00
		W_85+	51 627	4.23	18.00
Health status	Disability	No	7 556 221	4.34	24.00
		Yes	41 216	5.15	10.34
	Having a chronic illness	No	7 287 570	4.28	24.00
		Yes	309 867	5.80	19.00
	Lump sum B or C	No	7 584 903	4.35	24.00
		Yes	12 534	3.14	8.00

Group	Variable	Category	N (weighted)	Average number of GP consultations	Q3 of cost sharing in baseline simulation (€)
Reimbursement related variables	GMD/DMG	No	2 951 799	3.24	24.00
		Yes	4 645 638	5.04	26.00
	Quartiles for patient share	Q1	1 951 759	2.28	12.00
		Q2	2 108 921	3.57	20.00
		Q3	1 960 661	5.09	30.00
		Q4	1 576 096	7.00	42.00
Socioeconomic	Low income	No	7 432 862	4.32	24.00
		Yes	164 575	5.24	10.34
	Preferential reimbursement	No	6 519 874	4.24	28.00
		Yes	1 077 563	4.99	8.84
	Unemployment status	Full unemployment benefit	454 644	4.59	24.00
		Not receiving unemployment benefits	6 810 131	4.33	24.00
		Other benefits	3 983	4.06	24.00
		Partial unemployment benefit	240 219	4.20	24.00
		Pre-retirement benefits	88 460	4.80	28.00
Total			7 597 437		

Table A. 10: Number of patients (N), average number of GP visits and third quartile (Q3) of cost sharing in baseline simulation per patient subgroup

Group	Variable	Category	N (weighted)	Average number of GP visits	Q3 of cost sharing in baseline simulation (€)
Demographic	Age/sex	M_0_9	141 636	2.14	16.00
		M_10-19	119 995	1.94	23.74
		M_20-49	304 922	2.23	26.16
		M_50-64	221 544	3.60	31.98
		M_65-74	136 222	5.68	52.32
		M_75-84	165 572	8.81	72.48
		M_85+	62 763	12.08	99.71
		W_0_9	138 372	2.07	16.00
		W_10-19	125 017	2.11	26.16
		W_20-49	436 341	2.45	26.16
		W_50-64	285 330	4.17	36.82
		W_65-74	198 794	6.81	60.56
		W_75-84	295 108	10.74	84.50
		W_85+	170 205	14.77	106.47
Health status	Disability	No	2 752 560	5.21	39.24
		Yes	49 261	10.53	32.51
	Having a chronic illness	No	2 411 777	4.10	36.82
		Yes	390 044	12.73	55.95
	Lump sum B or C	No	2 755 556	5.10	39.24
		Yes	46 265	16.98	98.02
Reimbursement related variables	GMD/DMG	No	1 031 633	3.79	33.61
		Yes	1 770 188	6.18	42.05

Group	Variable	Category	N (weighted)	Average number of GP visits	Q3 of cost sharing in baseline simulation (€)
	Quartiles for patient share	Q1	419 115	2.04	13.08
		Q2	599 701	2.92	25.32
		Q3	750 790	4.55	34.71
		Q4	1 032 215	8.56	86.58
Socioeconomic	Low income	No	2 703 809	5.16	39.24
		Yes	98 012	9.28	29.93
	Preferential reimbursement	No	2 065 399	3.94	44.06
		Yes	736 422	9.12	28.27
	Unemployment status	Full unemployment benefit	134 356	3.07	26.16
		Not receiving unemployment benefits	2 585 720	5.51	39.24
		Other benefits	520	1.23	13.08
		Partial unemployment benefit	60 042	2.17	26.16
		Pre-retirement benefits	21 183	2.54	28.97
Total			2 801 821		

Table A. 11: Number of patients (N), average number of specialist consultations and third quartile (Q3) of cost sharing in baseline simulation per patient subgroup

Group	Variable	Category	N (weighted)	Average number of specialist consultations	Q3 of cost sharing in baseline simulation (€)
Demographic	Age/sex	M_0_9	391 997	3.64	50.78
		M_10-19	302 449	2.43	26.40
		M_20-49	879 741	2.88	31.00
		M_50-64	590 935	3.82	46.36
		M_65-74	308 545	4.66	54.52
		M_75-84	223 820	5.03	56.81
		M_85+	51 872	4.47	46.79
		W_0_9	353 315	3.42	46.65
		W_10-19	323 120	2.51	25.85
		W_20-49	1 503 086	4.15	46.36
		W_50-64	749 232	4.40	49.32
		W_65-74	365 650	4.89	54.09
		W_75-84	307 357	4.82	47.21
		W_85+	103 554	3.65	31.33
Health status	Disability	No	6 402 135	3.86	43.14
		Yes	52 538	4.54	23.20
	Having a chronic illness	No	6 030 870	3.72	42.76
		Yes	423 803	6.03	50.44
	Lump sum B or C	No	6 426 895	3.87	43.14
		Yes	27 778	4.12	30.42
Reimbursement related variables	GMD/DMG	No	/	/	/
		Yes	/	/	/

Group	Variable	Category	N (weighted)	Average number of specialist consultations	Q3 of cost sharing in baseline simulation (€)
	Quartiles for patient share	Q1	1 118 988	1.70	15.45
		Q2	1 671 486	2.50	25.85
		Q3	1 867 079	3.74	43.14
		Q4	1 797 120	6.62	82.20
Socioeconomic	Low income	No	6 290 244	3.85	43.98
		Yes	164 429	4.68	23.42
	Preferential reimbursement	No	5 368 547	3.75	48.57
		Yes	1 086 126	4.44	20.30
	Unemployment status	Full unemployment benefit	373 214	4.11	38.72
		Not receiving unemployment benefits	5 859 986	3.86	43.64
		Other benefits	3 966	3.43	54.09
		Partial unemployment benefit	150 211	3.53	38.64
		Pre-retirement benefits	67 296	3.72	46.41
Total			6 454 673		

Appendix 2.2. Technical documentation sheets

We provide for all simulations a documentation sheet containing all technical details of the simulation.

Appendix 2.2.1. GP consultations

Table A. 12: Technical documentation sheet for the baseline simulation for GP consultations

	Technical documentation
Selected nomenclature codes	101010, 101032, 101076
GMD/DMG and preferential reimbursement assigned to each patient	See step 5 of Appendix 1.2 Since 1 December 2011, all patients pay a fixed co-payment for a GP office consultation. One equation was used to set the baseline situation. **Co-payment**: Reimbursement=Fee^{nom} – Co-$payment^{nom}$ x (1 – GMD/DMG_reduction x GMD/DMG x Ben_GMD/DMG) x (1 – Trainee_reduction x Trainee) Fee^{nom} is the fee for a given nomenclature code. Co-$payment^{nom}$ can vary between nomenclature codes and patient status (preferential reimbursement or not). GMD/DMG_reduction is equal to the reduction obtained when having a GMD/DMG (30% until 1 December 2011; 33% (1/3) since 1 December 2011). GMD/DMG is equal to one if the patient has a global medical record (GMD/GMD) (zero otherwise) Ben_GMD/DMG is equal to one if the patient benefited from the GMD/DMG related reduction (zero otherwise) (only benefits if consultation takes place with GP who manages or has access to the GMD/DMG) Trainee_reduction is equal to the reduction obtained when the consultation is performed by a trainee physician if the surveillance conditions are not fulfilled. This reduction is only applied to co-payments (i.e. 25%). Trainee is equal to one if the consultation is performed by a trainee physician (zero otherwise)
Baseline situation	1 December 2011
Patient cost sharing	Co-payments for all individuals • Preferential reimbursement: € 1.5 • General population : € 6

	33% (1/3) reduction on co-payments for patients with a GMD/DMG • Preferential reimbursement: € 1 • General population : € 4 Trainee reduction is equal to 0

Table A. 13: Technical documentation sheet for policy reforms for GP consultations

	Technical documentation
Selected nomenclature codes	101010, 101032, 101076
Objective	C1: Comparing patient share before the simplification of co-payments (situation before 1 December 2011). C2-C6: Reforms within current legal stipulations (except for C4). Apply coinsurance or co-payments to general population and patients with preferential reimbursement.
GMD/DMG and preferential reimbursement assigned to each patient	For simulations based on co-payments, the equation corresponds to that applied for the baseline situation (see previous table). For simulations based on a co-insurance, the following equation was used: **Coinsurance**: Reimbursement=Fee^{nom} – $Fee^{nom\_no\_accreditation}$ x $Coinsurance^{nom}$ x (1 – GMD/DMG_reduction x GMD/DMG x Ben_GMD/DMG) $Fee^{nom\_no\_accreditation}$ corresponds to the fee for a given nomenclature code for a non-accredited physician. The patient share is always based on the fee without accreditation. The variable "Trainee_reduction" is not introduced in this equation. In the case of a coinsurance the reduction is automatically applied because the fee for a trainee physician is reduced.
Cost-sharing setting (1)	
• **Patients with preferential reimbursement**	C1: € 1.51 or € 1.01 co-payment, for a licensed GP or for a GP with acquired rights respectively (Reimbursement = Fee^{nom} – Co-$payment^{nom}$ x (1 –0.3x GMD/DMG x Ben_GMD/DMG) x (1 –0.25 x Trainee) C5 and C6: € 1.5 co-payment (Reimbursement= Fee^{nom} – € 1.5 x (1-1/3 x GMD/DMG x Ben_GMD/DMG))
• **General population**	C5: € 3.75 co-payment (Reimbursement=Fee^{nom} – € 3.75 x (1-1/3 x GMD/DMG x Ben_GMD/DMG) (=1/2.5 ratio)) C6: € 4.50 co-payment (Reimbursement=Fee^{nom} – € 4.50 x (1-1/3 x GMD/DMG x Ben_GMD/DMG) (=1/3 ratio))
• **GMD/DMG**	C1: 30% (0.3) C5-C6: -33% (1/3)
Cost-sharing setting (2)	

• **Patients with preferential reimbursement**	C2, C3 and C4: 10% coinsurance (Reimbursement=Fee – $Fee^{no\_accreditation}$ x 0.1 x (1-1/3 x GMD/DMG x Ben_GMD/DMG)
• **General population**	C1: 30% coinsurance (Reimbursement=Fee^{nom} – $Fee^{no\_accreditation}$ x 0.30 x (1-0.3 x GMD/DMG x Ben_GMD/DMG) C2: 25% coinsurance (Reimbursement=Fee^{nom} – $Fee^{no\_accreditation}$ x 0.25 x (1-1/3 x GMD/DMG x Ben_GMD/DMG) C3: 30% coinsurance (Reimbursement=Fee^{nom} – $Fee^{no\_accreditation}$ x 0.30 x (1-1/3 x GMD/DMG x Ben_GMD/DMG) C4: 40% coinsurance (Reimbursement=Fee^{nom} – $Fee^{no\_accreditation}$ x 0.40 x (1-1/3 x GMD/DMG x Ben_GMD/DMG)
• **GMD/DMG**	C1: 30% (0.3) C2-C4 -33% (1/3)

Appendix 2.2.2. GP visits

Table A. 14: Technical documentation sheet for the baseline simulation for GP visits during regular hours

	Technical documentation
Selected nomenclature codes	103110,103132,104112,103213,103235,103913,103412,103434
GMD/DMG, preferential reimbursement and additional protection assigned to each patient	See step 5 of Appendix 1.2 Four different equations were used depending on patient age and on whether patient cost sharing is a co-payment or a coinsurance. *Individuals aged less than 10 years old* **Co-payment:** Reimbursement= Fee^{nom} – Minimum { $Co\text{-}payment^{nom}$ x (1 – Trainee_reduction x Trainee); 2 x $Co\text{-}payment^{office}$ } **Coinsurance:** Reimbursement= Fee^{nom} – Minimum { Fee^{nom} x $Coinsurance^{nom}$; 2 x $Co\text{-}payment^{office}$ } *Individuals aged 10 years or older* **Co-payment:** Reimbursement=Fee^{nom} – $Co\text{-}payment^{nom}$ x [1 – (Protection_reduction ^{nom} x Protection x GMD/DMG x Ben_GMD/DMG) x (1 – Trainee_reduction*Trainee)] – Penalty x (1 – Protection) x (1 – GMD/DMG x Ben_GMD/DMG) **Coinsurance:** Reimbursement=Fee^{nom} x [1 – $Coinsurance^{nom}$ x (1 – Protection_reduction ^{nom} x Protection x GMD/DMG x Ben_GMD/DMG)] – $Penalty^{nom}$ *(1 – Protection) x (1 – GMD/DMG x Ben_GMD/DMG)

	Co-payment^{office} is equal to the co-payment for an office consultation for a patient with a GMD/DMG (depends on preferential reimbursement or not). Co-payment^{nom} and Coinsurance^{nom} vary between nomenclature codes (nom) and patient status. Patient cost sharing is always based on the fee^{nom} for a specific nomenclature code. Fees vary between licensed GP and GP with acquired rights. Protection_reduction^{nom} refers to an additional reduction in patient share for specific nomenclature codes (30% since 1 December 2011). Protection is equal to one if an individual is eligible for the additional reduction in patient share Penalty^{nom} corresponds to an increase of patient share. It can vary between nomenclature codes (nom) and patient status.
Baseline situation	1 December 2011
Patient cost sharing	Co-payments for all individuals with preferential reimbursement • GP with acquired rights € 2.72 (103110 - one patient at private home), € 2.57 (104112 - one patient living in an institution with collective accommodation[k]), € 2.12 (103213 - two patients), € 1.78 (103235 - three patients) • Licensed GP € 2.69 (103132 - one patient at private home), € 2.66 (103913 - one patient living in an institution with collective accommodation), € 2.13 (103412 - two patients), € 1.79 (103434 - three patients) Coinsurance for the general population • 35% (no difference according to GP qualification) Co-payment^{office} • € 1 preferential reimbursement, € 4 general population Trainee_reduction • 25%

kk Includes nursing homes and homes for the elderly, since the data did not allow us to make a distinction between institutions for the elderly and other collective housing arrangements.

	Protection_reduction • 30% for all codes Protection: this variable is equal to one for individuals with GMD/DMG who are 75 years or older or who are chronically ill (otherwise it is equal to zero). Penalty^{nom} • € 1 for all codes but only for patients from the general population, who are aged between 10 and 75 years old who do not have a GMD/DMG

Table A. 15: Technical documentation sheet for policy reforms for GP visits during regular hours

	Technical documentation
Selected nomenclature codes	103110,103132,104112,103213,103235,103913,103412,103434
Objective	V1 and V2: no difference in patient share according to GP qualification or patient residence (using the arrangement of a visit to one patient living in his private home). A single cost-sharing arrangement is used (only co-payments). Specific protection for children and the elderly or chronically ill is maintained. V3: single cost-sharing arrangement (coinsurance for all individuals) with no difference according to GP qualification or patient residence. V4 and V5: only one protection mechanism is used for patients aged less than 10 years, more than 75 years old or chronically ill.
Cost-sharing setting (1)	
• **Patients with preferential reimbursement**	**Co-payment:** **Visit to children aged less than 10 years old** V1 and V2 : € 2.69 co-payment: (Reimbursement=Fee^{nom} – Minimum { € 2.69 x (1 – 0.25x Trainee); € 2 }) **For all other patients** V1 and V2 : € 2.69 co-payment: (Reimbursement=Fee^{nom} – € 2.69 x [1 – (0.3x Protection x GMD/DMG x Ben_GMD/DMG) x (1 – 0.25 x Trainee)] For a visit to two patients the co-payment is equal to € 2.13 instead of € 2.69 For a visit to more than two patients the co-payment is equal to € 1.79 instead of € 2.69

• **General population**	**Co-payment:** **Visit to children aged less than 10 years old** V1: € 12.07 co-payment (Reimbursement=Fee^{nom} – Minimum { € 12.07 x (1 – 0.25 x Trainee); € 8}) (current patient share) V2: € 10.76 co-payment (Reimbursement=Fee^{nom} – Minimum { € 10.76 x (1 – 0.25 x Trainee); € 8}) (=1/4 ratio as for the GP consultations) **For all other patients** V1: € 12.07 co-payment (Reimbursement=Fee^{nom} – € 12.07 x [1 – (0.3 x Protection x GMD/DMG x Ben_GMD/DMG) x (1 – 0.25 x Trainee)] – €1 x (1 – Protection) x (1 – GMD/DMG x Ben_GMD/DMG)) V2: € 10.76 co-payment (Reimbursement=Fee^{nom} – € 10.76 x [1 – (0.3 x Protection x GMD/DMG x Ben_GMD/DMG) x (1 – 0.25 x Trainee)] – €1 x (1 – Protection) x (1 – GMD/DMG x Ben_GMD/DMG)) V1 For a visit to two patients the co-payment is equal to € 9.66 instead of € 12.07 For a visit to more than two patients the co-payment is equal to € 9.55 instead of € 12.07 V2 For a visit to two patients the co-payment is equal to € 8.52 instead of € 10.76 For a visit to more than two patients the co-payment is equal to € 7.16 instead of € 10.76
• **GMD/DMG**	30%
Cost-sharing setting (2)	
• **Patients with preferential reimbursement**	**Visit to children aged less than 10 years old** V3: 10% co-insurance: (Reimbursement= Fee^{nom} – Minimum { Fee^{nom} x 0.1; € 2 }) **For all other patients** V3: 10% co-insurance: Reimbursement=Fee^{nom} x [1 – 0.10 x (1 – 0.3 x Protection x GMD/DMG x Ben_GMD/DMG)]
• **General population**	**Visit to children aged less than 10 years old** V3: 35% co-insurance: (Reimbursement= Fee^{nom} – Minimum { Fee^{nom} x 0.35 ; € 8}) **For all other patients**

	V3: 35% co-insurance: (Reimbursement=Fee^{nom} x [1 – 0.35 x (1 – 0.3 x Protection x GMD/DMG x Ben_GMD/DMG)] – € 1 x (1 – Protection) x (1 – GMD/DMG x Ben_GMD/DMG))
• **GMD/DMG**	30%
Specific setting for V4 and V5	For these simulations the cost-sharing structure follows the current settings (see the technical documentation sheet for the baseline simulation for GP visits on regular hours on 1 December 2011), except for the specific protection for children, the elderly and the chronically ill. V4: current cost-sharing structure for the elderly and chronically ill also covers children *Only two equations are used for all individuals (the specific equation for children is no longer applied)* **Co-payment for patients with preferential reimbursement** Reimbursement=Fee^{nom} – $Co\text{-}payment^{nom}$ x [1 – (Protection_reduction ^{nom} x Protection x GMD/DMG x Ben_GMD/DMG) x (1 – Trainee_reduction*Trainee)] **Coinsurance for patients from the general population** Reimbursement=Fee^{nom} x [1 – $Coinsurance^{nom}$ x (1 – Protection_reduction ^{nom} x Protection x GMD/DMG x Ben_GMD/DMG)] – $Penalty^{nom}$ *(1 – Protection) x (1 – GMD/DMG x Ben_GMD/DMG) V5: current cost-sharing structure for the children is applied to the elderly and chronically ill *Individuals aged less than 10 years old, individuals aged 75 years or older or chronically ill* **Co-payment for patients with preferential reimbursement** Reimbursement= Fee^{nom} – Minimum { $Co\text{-}payment^{nom}$ x (1 – Trainee_reduction x Trainee); 2 x $Co\text{-}payment^{office}$ } **Coinsurance for patients from the general population** Reimbursement= Fee^{nom} – Minimunm{ Fee^{nom} x $Coinsurance^{nom}$; 2 x $Co\text{-}payment^{office}$ } *Individuals aged 10 to 75 years old and not chronically ill* **Co-payment for patients with preferential reimbursement** Reimbursement=Fee^{nom} – $Co\text{-}payment^{nom}$ x [1 – (Protection_reduction ^{nom} x Protection x GMD/DMG x Ben_GMD/DMG) x (1 – Trainee_reduction*Trainee)] **Coinsurance for patients from the general population** Reimbursement=Fee^{nom} x [1 – $Coinsurance^{nom}$ x (1 – Protection_reduction ^{nom} x Protection x GMD/DMG x Ben_GMD/DMG)] – $Penalty^{nom}$ *(1 – Protection) x (1 – GMD/DMG x Ben_GMD/DMG)

Table A. 16: Technical documentation sheet for the baseline simulation for GP visits during out-of- hours

	Technical documentation
Selected nomenclature codes	Codes for out-of-hours visits for a patient living in his private home: 104510,104532,104554,104215,104230,104252 Codes for supplementary fees for patients living in an institution with collective accommodation and for multiple visits: 104635,104613,104591,104333,104311,104296
GMD/DMG, preferential reimbursement and specific protection mechanism assigned to each patient	See step 5 of Appendix 1.2 Eight different equations were used depending on patient age and on whether patient cost sharing is a co-payment or a coinsurance. *Individuals aged less than 10 years old living in their private home* **Co-payment:** $Reimbursement=Fee^{nom} - Minimum\{Co\text{-}payment^{nom} \times (1 - Trainee\_reduction*Trainee); 2 \times Co\text{-}payment^{office} + Co\text{-}payment^{Supplements} \times (1 - Trainee\_reduction \times Trainee)\}$ **Coinsurance:** $Reimbursement=Fee^{nom} - Minimum\{Fee^{nom} \times Coinsurance^{nom}; 2 \times Co\text{-}payment^{office} + Fees^{Supplements} \times Coinsurance^{Supplements}\}$ *Individuals aged less than 10 years old living in an institution with collective accommodation (visit to one or more patients)* **Co-payment:** $Reimbursement=Fee^{nom\_regular\_hours} + Fees^{Supplements} - Minimum\{(Co\text{-}payment^{nom\_regular\_hours} + Co\text{-}payment^{Supplements}) \times (1 - Trainee\_reduction \times Trainee); 2 \times Co\text{-}payment^{office} + Co\text{-}payment^{Supplements} \times (1 - Trainee\_reduction \times Trainee)\}$ **Coinsurance:** $Reimbursement=Fee^{nom\_regular\_hours} + Fees^{Supplements} - Minimum\{Fees^{nom\_regular\_hours} \times Coinsurance^{nom\_regular\_hours} + Fees^{Supplements} \times Coinsurance^{Supplements}; 2 \times Co\text{-}payment^{office} + Fees^{Supplements} \times Coinsurance^{Supplements}\}$ *Visit to one individual aged 10 years or older living in his private home* **Co-payment:** $Reimbursement=Fee^{nom} - Co\text{-}payment^{nom} \times (1 - Trainee\_reduction \times Trainee) - Penalty^{nom} \times (1 - Protection) \times (1 - GMD/DMG \times Ben\_GMD/DMG)$ **Coinsurance:** $Reimbursement=Fee^{nom} \times (1 - Coinsurance^{nom}) - Penalty^{nom} \times (1 - Protection) \times (1 - GMD/DMG \times Ben\_GMD/DMG)$ *Visit to one individual aged 10 years or older living in an institution with collective accommodation or visit to multiple individuals* **Co-payment:**

	Reimbursement=Reimbursement_regular_hours^{nom} + Fees^{Supplements} – Co-payment^{Supplements} x (1 – Trainee_reduction*Trainee) **Coinsurance:** Reimbursement=Reimbursement_regular_hours^{nom} + Fees^{Supplements} x (1-Coinsurance^{Supplements}) Fee^{nom_regular_hours}, Co-payment^{nom_regular_hours} and Coinsurance $^{nom\_regular\_hours}$ correspond to specific codes for visits on regular hours. Reimbursement_regular_hours^{nom} as calculated for each specific nomenclature code and according to patient status (see the technical documentation sheet for the baseline simulation for GP visits during regular hours). Fees^{Supplements} vary according to GP qualification (licensed vs. acquired rights) and the time of the visit (evening, night or weekend). Co-payment^{supplements} and Coinsurance^{supplements} can vary according to the time of the visit and GP qualification.
Baseline situation	1 December 2011
Patient cost sharing	*Visit to one individual with preferential reimbursement living in his private home* • *Co-payments* GP with acquired rights € 4.31 (104510 – evening), € 5.97 (104532 – night), € 4.62 (104554 - weekend) • *Co-payments* Licensed GP € 4.20 (104215 – evening), € 6.27 (104230 – night), € 4.47 (104252 - weekend) *Visit to one individual from the general population living in his private home* • *Coinsurance* GP with acquired rights 32% (104510 – evening), 33.16% (104532 – night), 32.16% (104554 - weekend) • *Coinsurance* Licensed GP 32.44% (104215 – evening), 33.58% (104230 – night), 32.60% (104252 - weekend) *Supplementary fees for out-of-hours visits for patients with preferential reimbursement living in an institution with collective accommodation or for multiple visits* • *Coinsurance for* GP with acquired rights 7.27% (104635 –evening), 8.77% (104613 - night), 7.68% (104591- weekend) • *Co-payment* for Licensed GP € 0.51 (104333 – evening), € 1.54 (104311 – night), € 0.74 (104296 - weekend) *Supplementary fees for out-of-hours visits for patients from the general population living in an institution with collective accommodation or for multiple visits* • *Coinsurance for* GP with acquired rights 25.63% (104635 –evening), 30.67% (104613 - night), 26.87% (104591- weekend) • *Coinsurance* for Licensed GP 26.28% (104333 – evening), 27.97% (104311 – night), 32.66% (104296 - weekend)

	Penalty^{nom} • € 1 for 104510,104532,104554,104215,104230,104252 but only for patients from the general population aged between 10 and 75 years old who do not have a GMD/DMG. For other codes for out-of-hours, the penalty is included in the reimbursement for a visit during regular hours (Reimbursement_regular_hours^{nom}).

Table A. 17: Technical documentation sheet for policy reforms for GP visits during out-of-hours

	Technical documentation
Selected nomenclature codes	Codes for out-of-hours visits for a patient living in his private home:104510,104532,104554,104215,104230,104252 Codes for supplementary fees for patients living in an institution with collective accommodation and for multiple visits: 104635,104613,104591,104333,104311,104296
Objective	V1 and V2: no difference in patient share according to GP qualification or patient residence (using the settings of a visit to one patient living in his private home). Supplementary co-payments for out-of-hours are calculated based on the amount paid by a patient living in his private home (i.e. for a visit during the evening (supplementary co-payment € 1.51) it is equal to the co-payment for a visit during the evening (€ 4.20) minus the amount paid for a regular visit (€ 2.69)). Specific protection for children and the elderly or chronically ill is maintained. V3: single cost-sharing arrangement (co-insurance for all individuals) with no difference according to GP qualification and time of visit. V4 and V5: only one protection mechanism is used for patients aged less than 10 years, more than 75 years or chronically ill.
Cost-sharing setting (1)	
• **Patients with preferential reimbursement**	**Co-payment** (V1 and V2) *Visit to children aged less than 10 years old* **Evening (supplementary co-payment = € 1.51)** (Reimbursement= Fee^{nom} – Minimum{(€ 2.69 + € 1.51) x (1 – 0.25 x Trainee); € 2 + € 1.51 x (1 – 0.25 x Trainee)} **Night (supplementary co-payment = € 3.58)** (Reimbursement= Fee^{nom} – Minimum{(€ 2.69 + € 3.58) x (1 – 0.25 x Trainee); € 2 + € 3.58 x (1 – 0.25 x Trainee)} **Weekend (supplementary co-payment = € 1.78)** (Reimbursement= Fee^{nom} – Minimum{(€ 2.69 + € 1.78) x (1 – 0.25 x Trainee); € 2 + € 1.78 x (1 – 0.25 x Trainee)} *Individuals aged 10 years or older* **Evening**

	(Reimbursement=Fee^{nom} – € 4.2 x (1 – 0.25 x Trainee) – €1 x (1 – Protection) x (1 – 0.3 x Ben_GMD/DMG) **Night** (Reimbursement=Fee^{nom} – € 6.27 x (1 – 0.25 x Trainee) – €1 x (1 – Protection) x (1 – 0.3 x Ben_GMD/DMG) **Weekend** (Reimbursement=Fee^{nom} – € 4.47 x (1 – 0.25 x Trainee) – €1 x (1 – Protection) x (1 – 0.3 x Ben_GMD/DMG) **Visit to two patients**: the co-payment is equal to € 3.64, € 5.71 and € 3.91 respectively for the evening, the night and the weekend. **Visit to three or more patients**: the co-payment is equal to € 3.30, € 5.37 and € 3.57 respectively for the evening, the night and the weekend.
• **General population**	*Visit to children aged less than 10 years old* **Evening (supplementary co-payment , V1= € 2.99 and V2 = € 6.04)** V1: (Reimbursement= Fee^{nom} – Minimum{(€ 12.07 + € 2.99) x (1 – 0.25 x Trainee); € 8 + € 2.99 x (1 – 0.25 x Trainee)} V2: (Reimbursement= Fee^{nom} – Minimum{(€ 10.76 + € 6.04) x (1 – 0.25 x Trainee); € 8 + € 6.04 x (1 – 0.25 x Trainee)} **Night (co supplementary co-payment, V1= € 14.65 and V2 = € 14.32)** V1: (Reimbursement= Fee^{nom} – Minimum{(€ 12.07 + € 14.65) x (1 – 0.25 x Trainee); € 8 + € 14.65 x (1 – 0.25 x Trainee)} V2: (Reimbursement= Fee^{nom} – Minimum{(€ 10.76 + € 14.32) x (1 – 0.25 x Trainee); € 8 + € 14.32 x (1 – 0.25 x Trainee)} **Weekend (supplementary co-payment, V1 = € 4.82 and V2 = € 7.12)** V1: (Reimbursement= Fee^{nom} – Minimum{(€ 12.07 + € 4.82) x (1 – 0.25 x Trainee); € 8 + € 4.82 x (1 – 0.25 x Trainee)} V2: (Reimbursement= Fee^{nom} – Minimum{(€ 10.76 + € 7.12) x (1 – 0.25 x Trainee); € 8 + € 7.12 x (1 – 0.25 x Trainee)} *Individuals aged 10 years or older* **Evening** V1: (Reimbursement=Fee^{nom} – € 14.88 x (1 – 0.25 x Trainee) – €1 x (1 – Protection) x (1 – 0.3 x Ben_GMD/DMG) V2: (Reimbursement=Fee^{nom} – € 16.8 x (1 – 0.25 x Trainee) – €1 x (1 – Protection) x (1 – 0.3 x Ben_GMD/DMG) **Night** V1: (Reimbursement=Fee^{nom} – € 26.65 x (1 – 0.25 x Trainee) – €1 x (1 – Protection) x (1 – 0.3 x Ben_GMD/DMG) V2: (Reimbursement=Fee^{nom} – € 25.8 x (1 – 0.25 x Trainee) – €1 x (1 – Protection) x (1 – 0.3 x Ben_GMD/DMG) **Weekend** V1: (Reimbursement=Fee^{nom} – € 16.87 x (1 – 0.25 x Trainee) – €1 x (1 – Protection) x (1 – 0.3 x Ben_GMD/DMG) V2: (Reimbursement=Fee^{nom} – € 17.88 x (1 – 0.25 x Trainee) – €1 x (1 – Protection) x (1 – 0.3 x Ben_GMD/DMG) **Visit to two patients** V1: the co-payment is equal to € 12.65, € 24.31 and € 14.48 respectively for the evening, the night and the weekend.

	V2: the co-payment is equal to € 14.56, € 22.84 and € 15.64 respectively for the evening, the night and the weekend. **Visit to three or more patients** V1: the co-payment is equal to € 12.04, € 23.70 and € 13.87 respectively for the evening, the night and the weekend. V2: the co-payment is equal to € 13.02, € 21.48 and € 14.28 respectively for the evening, the night and the weekend.
• **GMD/DMG**	30%
Cost-sharing setting (2)	
• **Patients with preferential reimbursement**	*Visit to children aged less than 10 years old living in their private home* V3: 10% coinsurance (Reimbursement= Fee^{nom} – Minimum { Fee^{nom} x 0.10; € 2 + $Fees^{Supplements}$ x 0.10}) *Visit to children aged less than 10 years old living in an institution with collective accommodation or multiple visits* V3: 10% coinsurance (Reimbursement= $Fee^{nom\_regular\_hours}$ + $Fees^{Supplements}$ – Minimum { $Fees^{nom\_regular\_hours}$ x 0.10 + $Fees^{Supplements}$ x 0.10 ; 2 x € 2 + $Fees^{Supplements}$ x 0.10} *Individuals aged 10 years or older living in their private home* V3: 10% coinsurance (Reimbursement=Fee^{nom} x (1 – 0.10) *Individuals aged 10 years or older living in an institution with collective accommodation or multiple visits* V3: 10% (Reimbursement=$Fee^{nom\_egular\_hours}$ x [1 – 0.10 x (1 – 0.3 x Protection x GMD/DMG x Ben_GMD/DMG)] + $Fees^{Supplements}$ x (1-0.10)
• **General population**	*Visit to children aged less than 10 years old living in their private home* V3: 35% coinsurance (Reimbursement= Fee^{nom} – Minimum { Fee^{nom} x 0.35; € 2 + $Fees^{Supplements}$ x 0.35}) *Visit to children aged less than 10 years old living in an institution with collective accommodation or multiple visits* V3: 35% coinsurance (Reimbursement= $Fee^{nom\_regular\_hours}$ + $Fees^{Supplements}$ – Minimum { $Fees^{nom\_regular\_hours}$ x 0.35 + $Fees^{Supplements}$ x 0.35; 2 x € 2 + $Fees^{Supplements}$ x 0.35} *Individuals aged 10 years or older living in their private home* V3: 35% coinsurance (Reimbursement=Fee^{nom} x (1 – 0.35) *Individuals aged 10 years or older living in an institution with collective accommodation or multiple visits* V3: 35% (Reimbursement= $Fee^{nom\_regular\_hours}$ x [1 – 0.35 x (1 – 0.3 x Protection x GMD/DMG x Ben_GMD/DMG)] – € 1 x (1 – Protection) x (1 – GMD/DMG x Ben_GMD/DMG)) + $Fees^{Supplements}$ x (1-0.35)

• **GMD/DMG**	30%
V4 and V5	For these simulations the cost-sharing structure follows the current settings (see the technical documentation sheet for the baseline simulation for GP visits on out-of-hours for the baseline situation, 1 December 2011), except for the specific protection of children, the elderly and the chronically ill. V4: Current cost-sharing structure for the elderly and chronically ill covers children *Only four equations are used for all individuals (the specific equation for children is no longer applied)* *For all patients living in their private home* **Co-payment for patient with preferential reimbursement** Reimbursement=Fee^{nom} – $Co\text{-}payment^{nom}$ x (1 – Trainee_reduction x Trainee) **Coinsurance for patient from the general population** Reimbursement=Fee^{nom} x (1 – $Coinsurance^{nom}$) – $Penalty^{nom}$ x (1 – Protection) x (1 – GMD/DMG x Ben_GMD/DMG) *For all other patients living in an institution with collective accommodation or multiple visits* **Co-payment for patient with preferential reimbursement** Reimbursement=$Reimbursement\_regular\_hours^{nom}$ + $Fees^{Supplements}$ – $Co\text{-}payment^{Supplements}$ x (1 – Trainee_reduction*Trainee) **Coinsurance for patient from the general population** Reimbursement= $Reimbursement\_regular\_hours^{nom}$ + $Fees^{Supplements}$ x (1-$Coinsurance^{Supplements}$) V5: Current cost-sharing structure for the children is applied to the elderly and chronically ill *Patients living in their private home aged less than 10 years old, older than 75 years or chronically ill (visit to one patient)* **Co-payment for patient with preferential reimbursement** Reimbursement= Fee^{nom} – Minimum {$Co\text{-}payment^{nom}$ x (1 – Trainee_reduction*Trainee); 2 x $Co\text{-}payment^{office}$ + $Co\text{-}payment^{Supplements}$ x (1 – Trainee_reduction x Trainee) } **Coinsurance for patient from the general population** Reimbursement= Fee^{nom} – Minimum { Fee^{nom} x $Coinsurance^{nom}$; 2 x $Co\text{-}payment^{office}$ + $Fees^{Supplements}$ x $Coinsurance^{Supplements}$} *Patients living in an institution with collective accommodation aged less than 10 years old, older than 75 years or chronically ill (or multiple visits)* **Co-payment for patient with preferential reimbursement** Reimbursement= $Fee^{nom\_regular\_hours}$ + $Fees^{Supplements}$ – Minimun {($Co\text{-}payment^{nom\_regular\_hours}$ + $Co\text{-}payment^{Supplements}$) x (1 – Trainee_reduction x Trainee); 2 x $Co\text{-}payment^{office}$ + $Co\text{-}payment^{Supplements}$ x (1 – Trainee_reduction x Trainee); } **Coinsurance for patient from the general population**

	Reimbursement= $Fee^{nom\_regular\_hours} + Fees^{Supplements} - Minimum \{ Fees^{nom\_regular\_hours} \times Coinsurance^{nom\_regular\_hours} + Fees^{Supplements} \times Coinsurance^{Supplements} ; 2 \times Co\text{-}payment^{office} + Fees^{Supplements} \times Coinsurance^{Supplements} \}$
	Individuals aged 10 to 75 years old and not chronically ill living in their private home
	Co-payment for patient with preferential reimbursement
	Reimbursement=$Fee^{nom} - Co\text{-}payment^{nom} \times (1 - Trainee\_reduction \times Trainee) - Penalty^{nom} \times (1 - Protection) \times (1 - GMD/DMG \times Ben\_GMD/DMG)$
	Coinsurance for patient from the general population
	Reimbursement=$Fee^{nom} \times (1 - Coinsurance^{nom}) - Penalty^{nom} \times (1 - Protection) \times (1 - GMD/DMG \times Ben\_GMD/DMG)$
	Individuals aged 10 to 75 years old and not chronically ill living in an institution with collective accommodation or multiple visits
	Co-payment for patient with preferential reimbursement
	Reimbursement=$Reimbursement\_regular\_hours^{nom} + Fees^{Supplements} - Co\text{-}payment^{Supplements} \times (1 - Trainee\_reduction*Trainee)$
	Coinsurance for patient from the general population
	Reimbursement= $Reimbursement\_regular\_hours^{nom} + Fees^{Supplements} \times (1\text{-}Coinsurance^{Supplements})$

Appendix 2.2.3. Specialist consultations

Table A. 18: Technical documentation sheet for the baseline simulation for specialist consultations

	Technical documentation
Selected nomenclature codes	102815,102830,102093,102594,102174,102675,102734,102756,102115,102616,102233,102034,102550,102255,102874,102130, 102631,102211,102712,102012,102535,102071,102572,102196,102690,102152,102653,102491,102513
GMD/DMG and preferential reimbursement assigned to each patient	See step 5 of Appendix 1.2. Two different equations were used depending on whether patient cost sharing is a co-payment or a coinsurance. **Co-payment**: Reimbursement= Fee^{nom} – $Co\text{-}payment^{nom}$ x (1 – Trainee_reduction x Trainee) – (Gatekeeping_reduction x Gatekeeping x GMD/DMG) **Coinsurance**: Reimbursement= Fee^{nom} – Min {$Fee^{no\_accreditation}$ x $Coinsurance\_rate^{nom}$; Ceiling} – (Gatekeeping_reduction x Gatekeeping x GMD/DMG) Gatekeeping_reduction is equal to € 2 for patients with preferential reimbursement and to € 5 for patients from the general population. Gatekeeping is equal to one if the patient was sent to the specialist by the GP.
Baseline situation	1 December 2011
Patient cost sharing	*Preferential reimbursement* Five different levels of co-payments according to the specialism • € 2.5 cardiologist, gastroenterologist, lung expert, geriatrician, internist • € 2.64 anaesthetist, other specialist • € 2.68 paediatrician, psychiatrist, neuropsychiatrist, neurologists or neuropaediatrician, haematologist, endocrinologist- diabetes specialist, oncologist, oncologist and haematologist paediatrician • € 2.82 dermatologist • € 3.1 rheumatologist and two coinsurance rates • 10% the first consultation with internist for patient with complex pathology and no clear diagnosis and for a geriatric evaluation • 10% on supplementary fees for urgent consultations at the specialist office *General population*

	Coinsurance rates with a limit • 40% limited to € 15.5 independent of the specialism (including the supplementary fees for urgent consultations at the specialist office) and one coinsurance rate with no limit on patient share • 25% for the first consultation with internist for patient with complex pathology and no clear diagnosis and for a geriatric evaluation Trainee reduction is equal to 25% Gatekeeping reduction is equal to € 2 for patients with preferential reimbursement and to € 5 for patients from the general population.

Table A. 19: Technical documentation sheet for policy reforms for specialist consultations

	Technical documentation
Selected nomenclature codes	102815,102830,102093,102594,102174,102675,102734,102756,102115,102616,102233,102034,102550,102255,102874,102130, 102631,102211,102712,102012,102535,102071,102572,102196,102690,102152,102653,102491,102513
Objective	S1, S2 and S3: single cost-sharing arrangement with coinsurance for all individuals S4, S5, S6 and S7: no difference in patient share according the specialism. A single cost-sharing arrangement is used for all individuals (co-payments).
Cost-sharing setting (1)	
• **Patients with preferential reimbursement**	S1, S2 and S3: 15% coinsurance (Reimbursement= Fee^{nom} – $Fee^{no\_accreditation}$ x 0.15 – € 2 x Gatekeeping x GMD/DMG)
• **General population**	S1: 25% coinsurance (Reimbursement= Fee^{nom} – $Fee^{no\_accreditation}$ x 0.25 – € 5 x Gatekeeping x GMD/DMG) S2: 40% coinsurance; limited to € 15.5 (Reimbursement= Fee^{nom} – Min {$Fee^{no\_accreditation}$ x0.40; € 15.5} – € 5 x Gatekeeping x GMD/DMG) S3: 40% coinsurance (Reimbursement= Fee^{nom} – $Fee^{no\_accreditation}$ x 0.40 – € 5 x Gatekeeping x GMD/DMG)
Cost-sharing setting (2)	
• **Patients with preferential reimbursement**	S4: € 1.5 co-payment: (Reimbursement= Fee^{nom} – € 1.5 x (1 – Trainee_reduction*Trainee) – (€ 2 x Gatekeeping x GMD/DMG) (=co-payment for GP consultations) S5: € 2 co-payment: (Reimbursement= Fee^{nom} – € 2 x (1 – Trainee_reduction*Trainee) – (€ 2 x Gatekeeping x GMD/DMG) S6: € 2.5 co-payment: (Reimbursement= Fee^{nom} – € 2.5 x (1 – Trainee_reduction*Trainee) – (€ 2 x Gatekeeping x GMD/DMG)

	S7: € 3 co-payment: (Reimbursement= Fee^{nom} – € 3 x (1 – Trainee_reduction*Trainee) – (€ 2 x Gatekeeping x GMD/DMG)
• **General population**	S4: € 6 co-payment: (Reimbursement= Fee^{nom} – € 6 x (1 – Trainee_reduction*Trainee) – (€ 5 x Gatekeeping x GMD/DMG) (=co-payment for GP consultations) S5 to S7: co-payment for a patient from the general population is four times that of a patient with preferential reimbursement (ratio 1:4 as for GP consultations) S5: € 8 co-payment: (Reimbursement= Fee^{nom} – € 8 x (1 – Trainee_reduction*Trainee) – (€ 5 x Gatekeeping x GMD/DMG) S6: € 10 co-payment: (Reimbursement= Fee^{nom} – € 10 x (1 – Trainee_reduction*Trainee) – (€ 5 x Gatekeeping x GMD/DMG) S7: € 12 co-payment: (Reimbursement= Fee^{nom} – € 12 x (1 – Trainee_reduction*Trainee) – (€ 5 x Gatekeeping x GMD/DMG)
Specific remarks	a. The geriatric evaluation (nomenclature code 102233) is included in simulations S1-S7. The geriatric evaluation is currently subjected to a coinsurance of 10% (preferential reimbursement) and 25% without a limit, which differs from the cost-sharing arrangement applied to other specialties. b. For the supplementary fees for urgent consultations at the specialist office during “out-of-hours”, a difference in co-payments is introduced in S6 and S7. For consultations during the weekend or on a holiday between 8-21h (102491) co-payments are set equal to € 1.5 and € 6 (instead of € 3 and € 12 in S7 and € 2.5 and € 10 in S6) to be in accordance with the fee level.

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