

Health insurance data in France : from statistics to policy?

CIRANO, nov 16

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Data extraction:

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Plan de la présentation

- **The French health care system in a nutshell**
- **Basic trends in health care expenditure**
- **Data**
- **Concentration, persistence**
- ***From data to policy?***

The French health care system in a nutshell

Source : National Health Accounts 2013

- **Outpatient care :**

- Fee for services with private practice for physicians
- Pay for performance
- Freedom of establishment for physicians

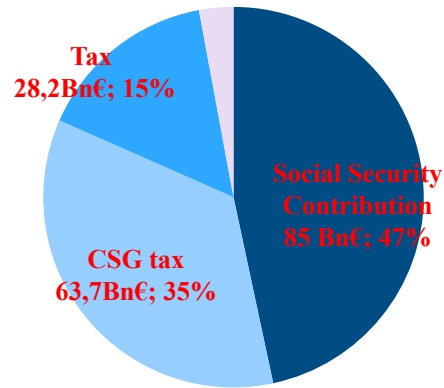
- **Inpatient care :**

- Majority of DRG payment + Global budget for specific missions (teaching, research, emergency care)
- Majority of public beds (62% of public beds, 14% of private not for profit beds, 24% of private for profit beds)

Universal health care insurance : a two-tier system mixing public and private insurance

- Funding in 2013:**

Mandatory public insurance



Supplementary private insurance

Premium dependent on : Age, area of living

Incentives in order to avoid medical screening

Group complementary health insurance to employees with tax incentives and individual contract

- Financing by type of care**

	Mandatory Public insurance and Government	Complementary private insurance	Out of pocket
Total Medical consumption	77,4%	13,8%	8,8%
Inpatient care	91,0%	5,3%	2,4%
Outpatient care	62,9%	22,2%	13,0%
Drugs	67,5%	14,3%	16,9%

Illustration of the two-tier system mixing public and private insurance in 2013 for each medical expenditure

General case

Social Security Price		Balance Billing
Mandatory Public Insurance Reimbursement	Complementary private insurance reimbursement	Out of pocket

“Chronic Disease expenditures”

Social Security Price		Balance Billing
Mandatory Public Insurance Reimbursement	(1)	Out of pocket

(15% of the population has at least one chronic disease, called **ALD**)

CMU-C The poorest Income < 720€/month

Social Security Price		Forbidden
Mandatory Public Insurance Reimbursement	Free government insurance	-

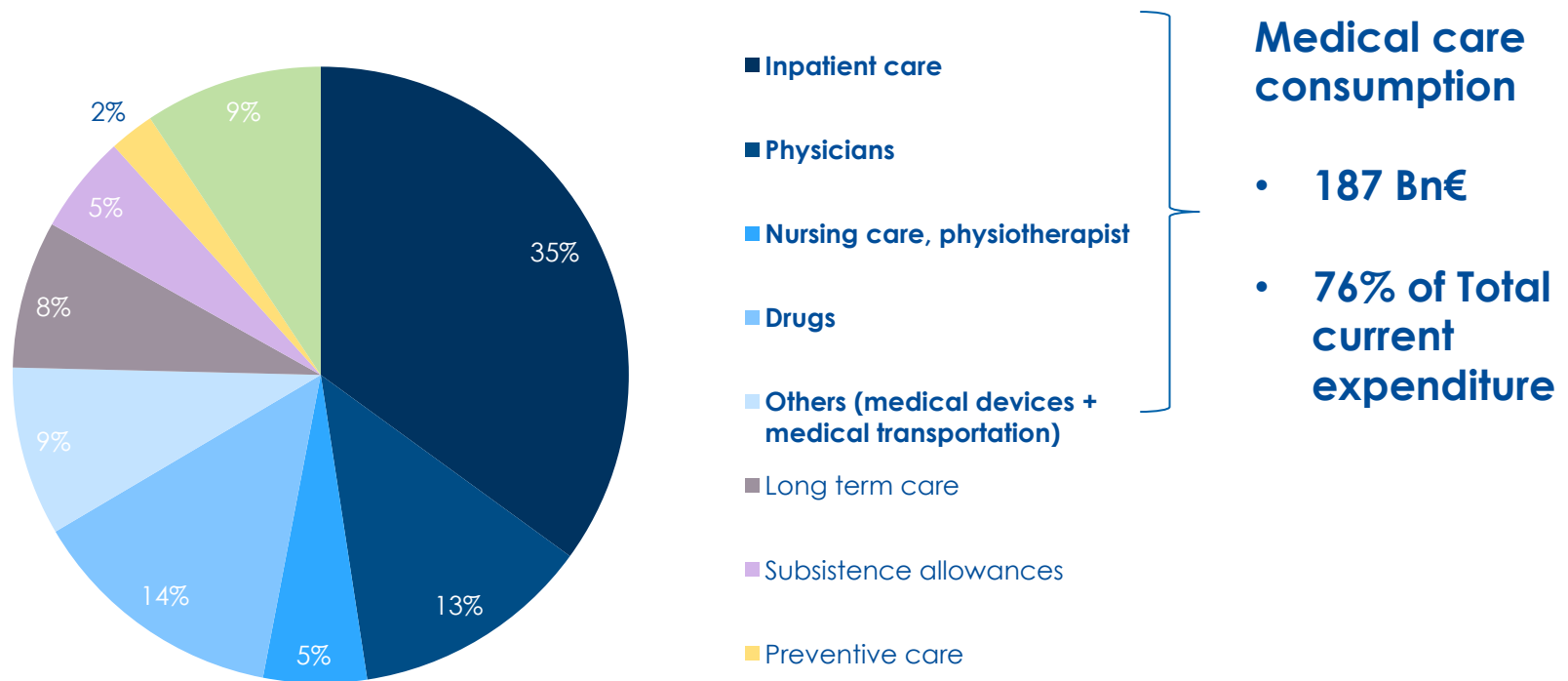
(7,1% of the population in 2013, Source : Fonds CMU)

(1) : Complementary private insurance reimbursement



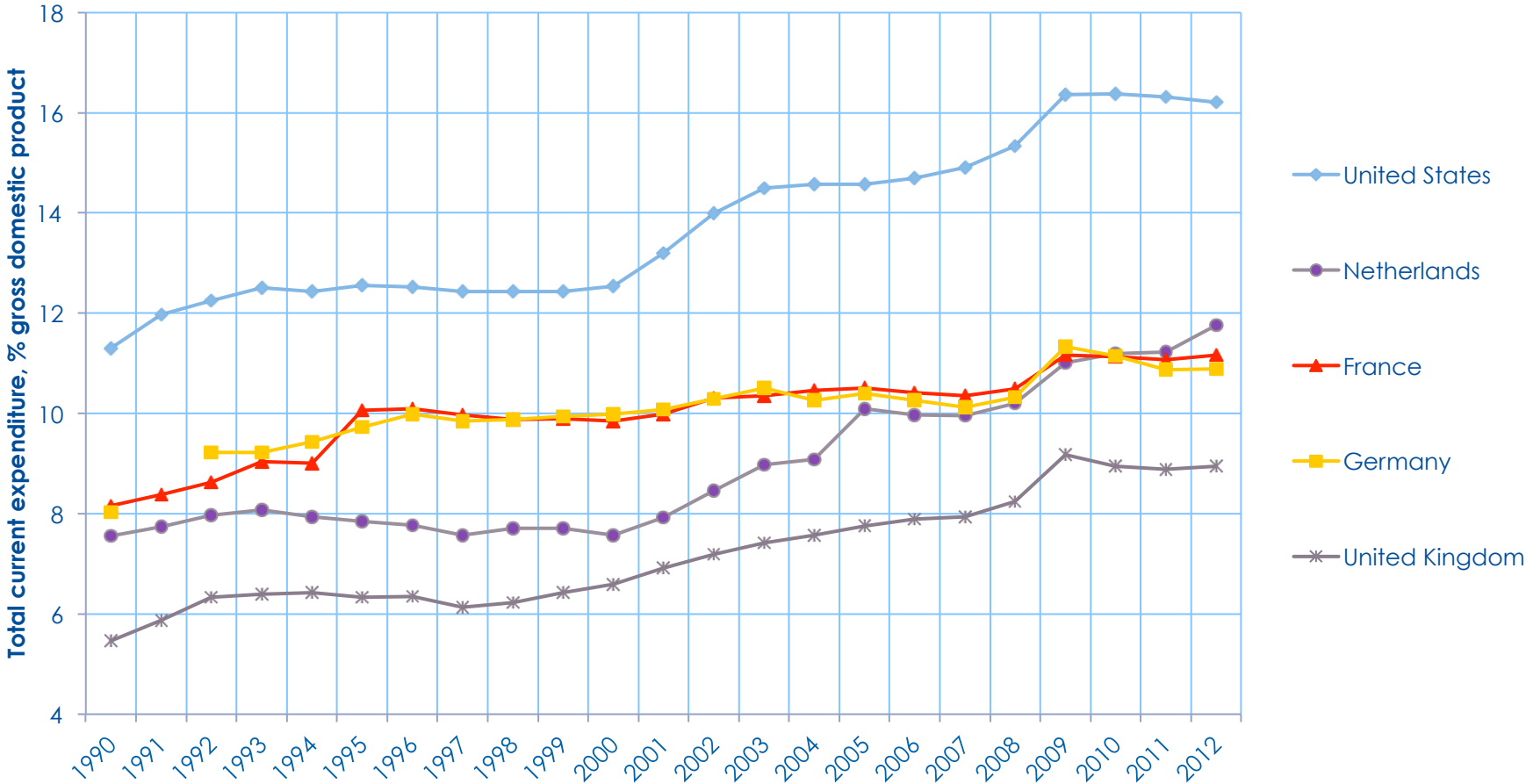
Total current expenditure - 2013

- **Total current expenditure** : 247 billion €, 11,7% GDP (11,6% in 2012 and 11,5% in 2011)



- **Basic trends in health care expenditure**

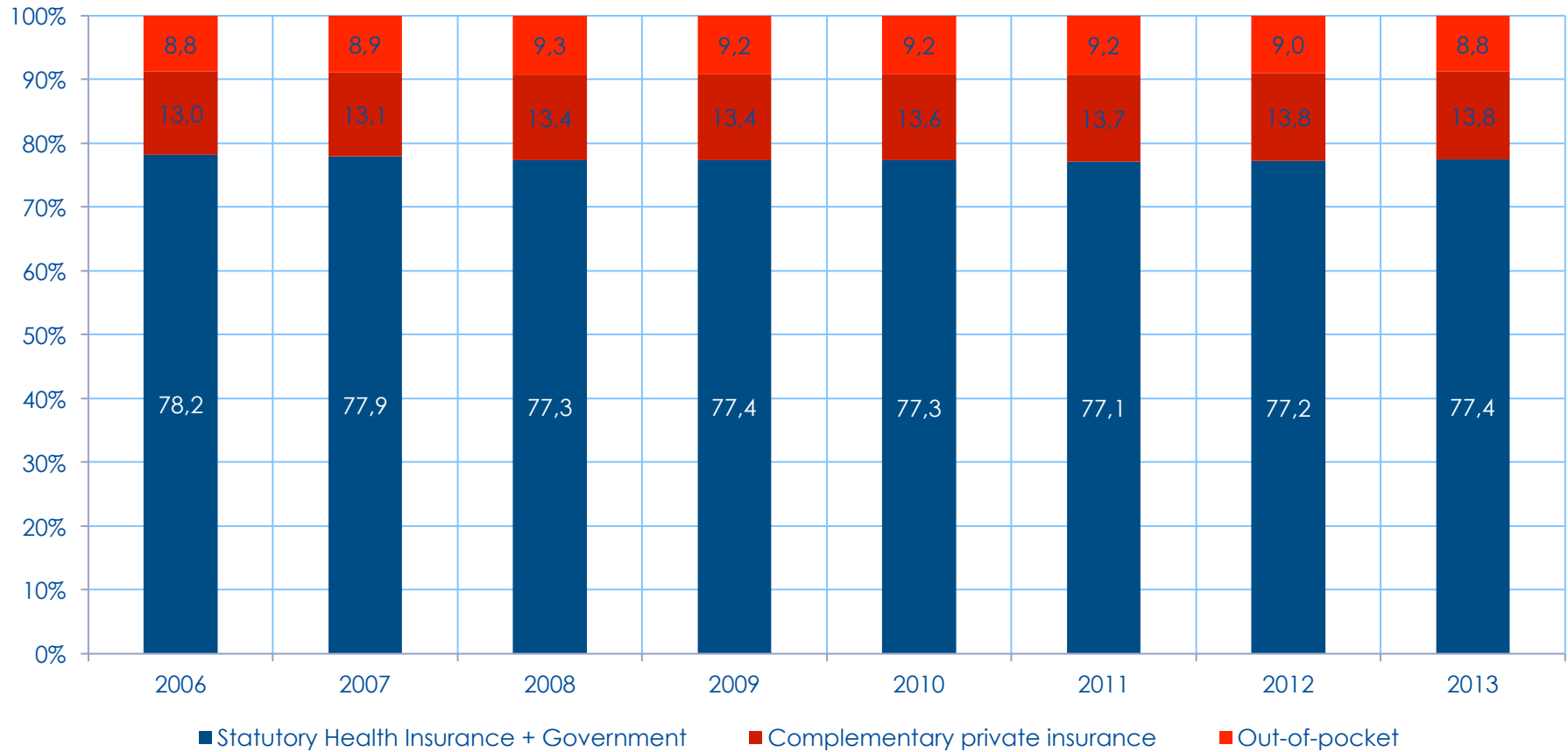
France spends more on health than most OECD countries



Source : OECD Health Data, 2013

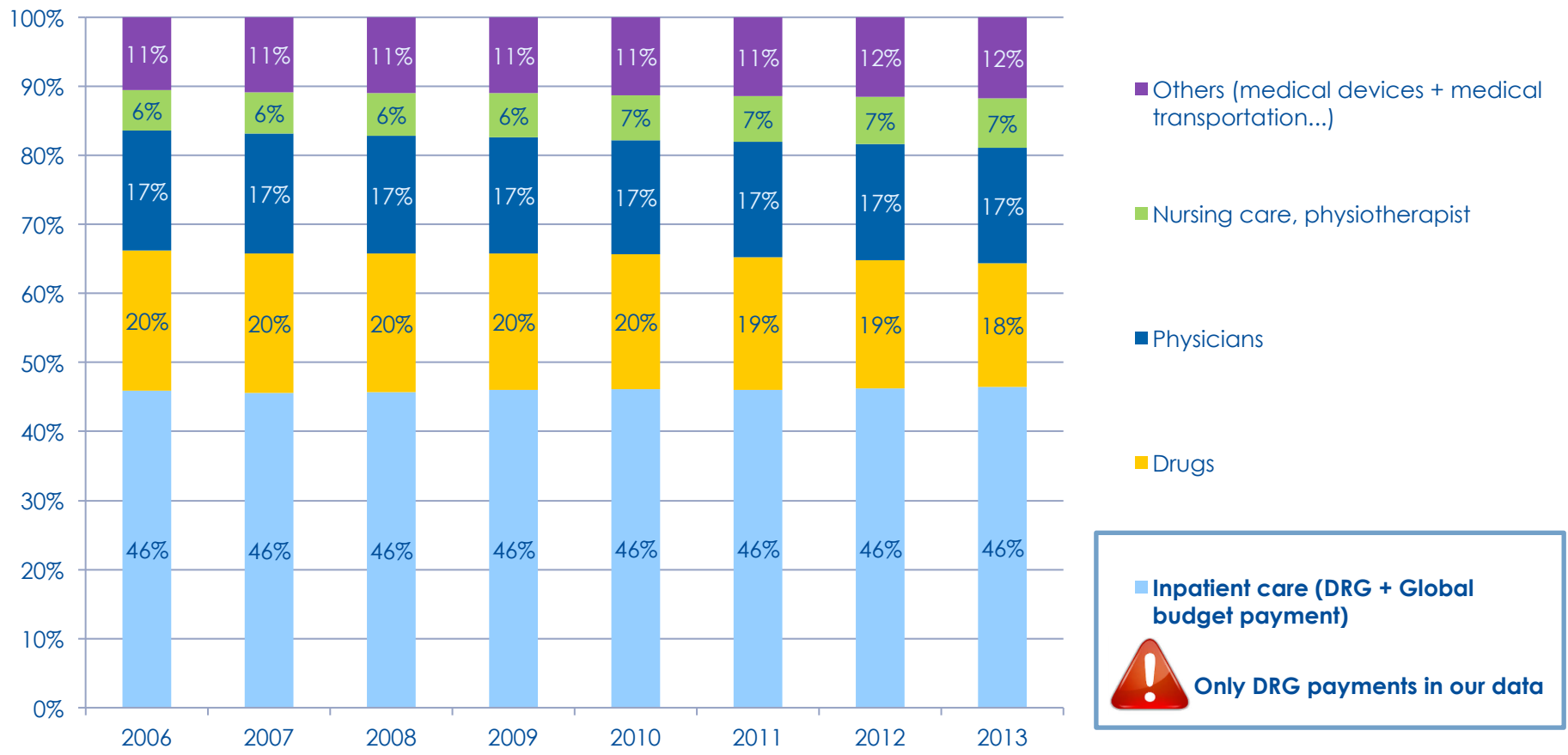


Public spending represents around 77% of healthcare expenditure in France



Source : National Health Accounts, 2013

Medical care consumption by function of health care

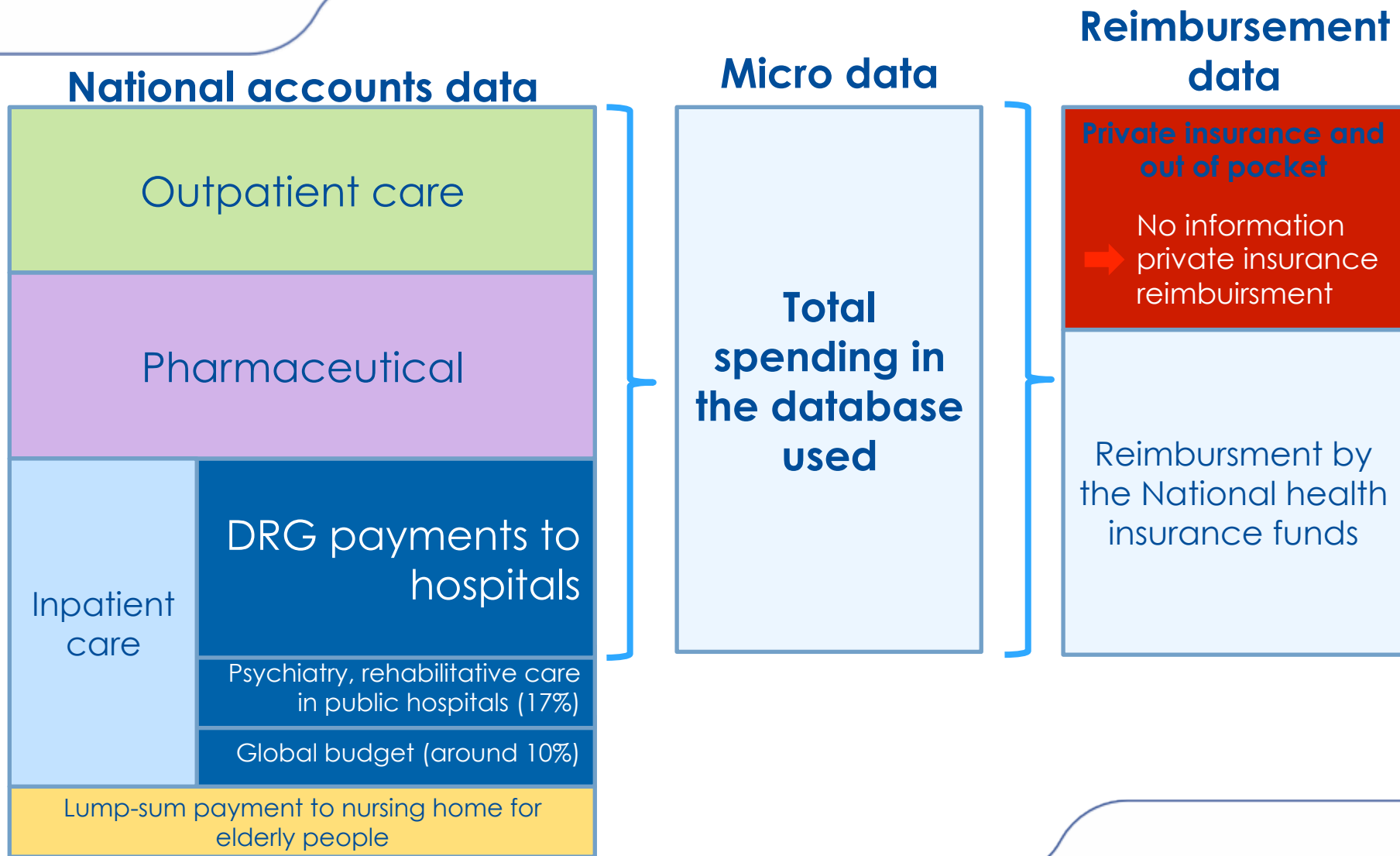


Source : National Health Accounts, 2013



- **Data for micro analysis**

Macro-Micro data

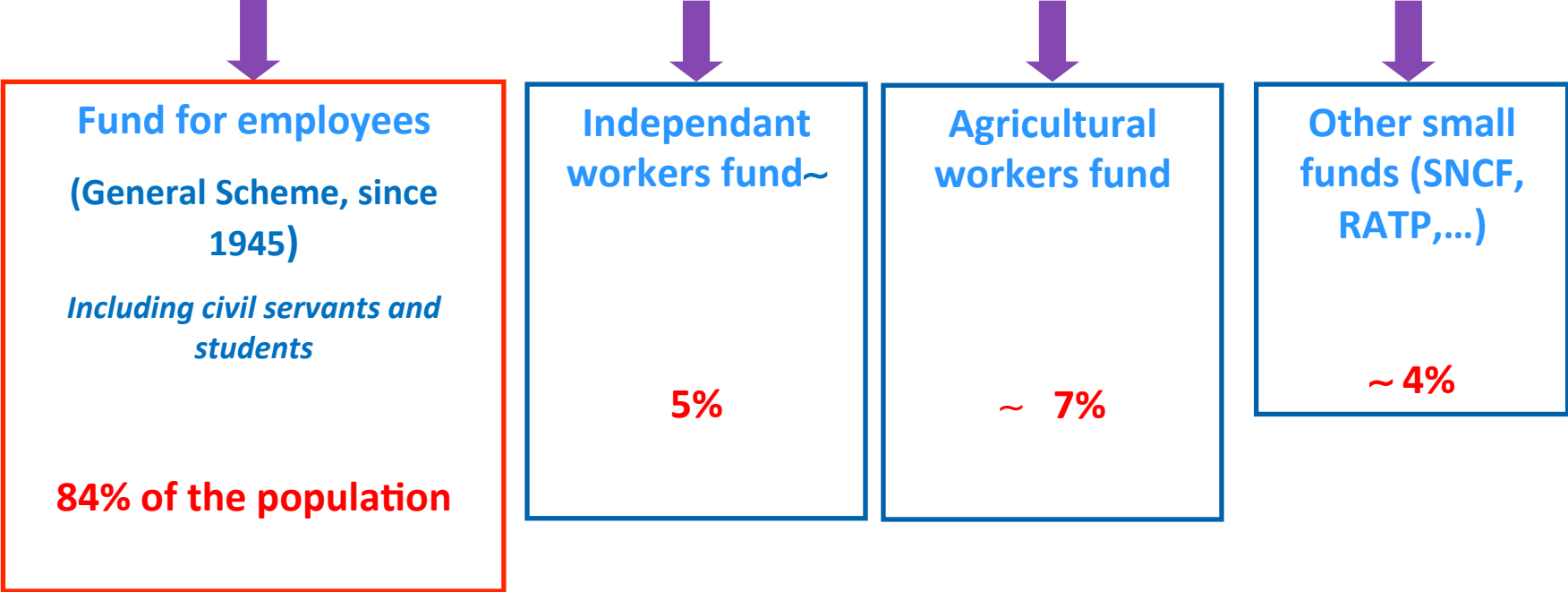


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Collection of data: administrative database, the French public insurance system

Universal mandatory insurance through occupation-based funds



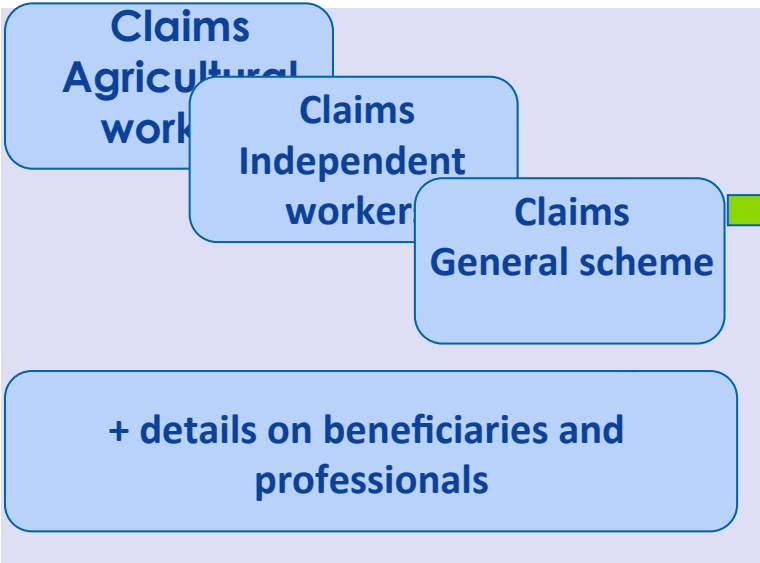
Source : Sniiram at a glance : <http://www.ameli.fr>



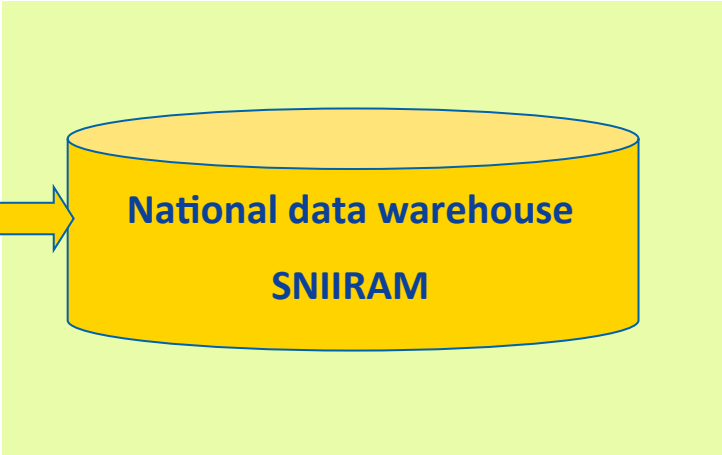
Collection of data: Data integration and linkage methods (1/2)

Local offices of the sickness funds

Nominative local database

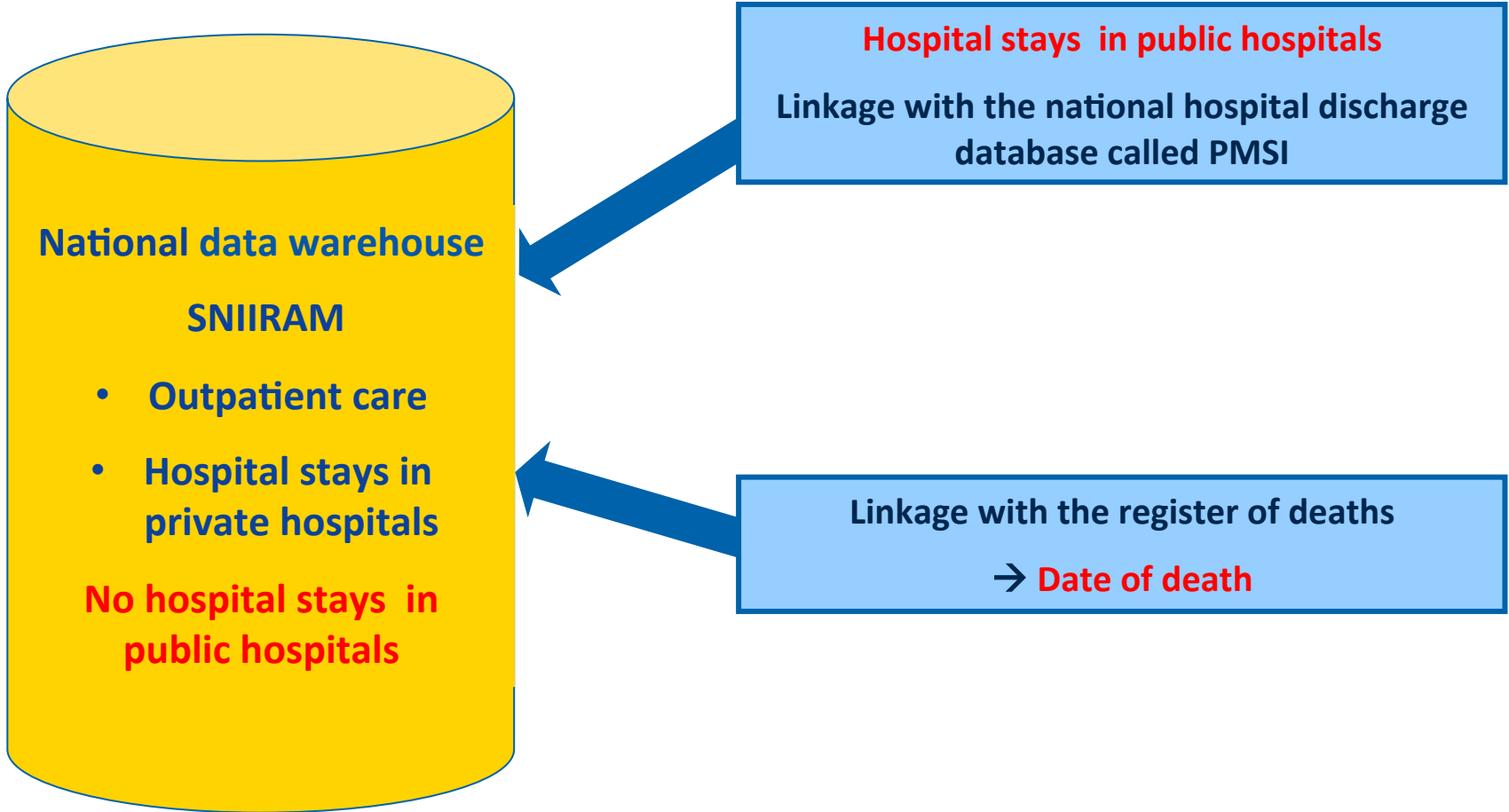


Anonymization



Source : Sniiram at a glance : <http://www.ameli.fr>

Collection of data: Data integration and linkage methods (2/2)



✓ Access to SNIIRAM data is limited to the 3 last years + the current year (i.e. today from 2012 to 2014), but a specific request is possible - if justified - for a deeper access

Source : Sniiram at a glance : <http://www.ameli.fr>

SNIIRAM: Summary of data available

Main data available	Data not available
<ul style="list-style-type: none">• <u>Information about insured people</u><ul style="list-style-type: none">• Age, gender• Area of residence• <u>Information about chronic disease</u><ul style="list-style-type: none">• « Chronic disease expenditures »• Long term chronic disease (ICD10)• <u>Information about medical consumption</u><ul style="list-style-type: none">• Reimbursed drugs and biological tests• Medical procedures and devices• GP and specialists visits• Other health care professionals• <u>Hospital</u><ul style="list-style-type: none">• Diagnoses (main, associated, related)• ICD10 and Diagnosis-related groups• Ambulatory visits in hospital• High cost drugs and medical devices	<ul style="list-style-type: none">• <u>Information about insured people</u><ul style="list-style-type: none">• Socioeconomic status (income, employment status...)• Risk factors (Smoking alcohol use, exercise, diet, family history, Weight, overweight...BMI)• Results of laboratory tests...• Diagnosis• Observance• Over the counter drugs• Causes of death• <u>Hospital</u><ul style="list-style-type: none">• Exams included in DRG« price »• Drugs used during hospital stay except for most costly and necessary drugs (specific list)• Long term hospitalizations in public hospitals (psychiatric and rehabilitative care)• <u>Supplementary private insurance</u>

Claims data : limitations for micro analysis

Reimbursement data : part of the expenditure unobserved

- **Supplementary insurance claims not available**
- **Access?**
 - CNAMTS, HCAAM, DREES
 - Researchers ?
- **Linkage with other data?**
 - Survey data : sample issues
 - Fiscal data
 - Employment,...

Other administrative data

Hospinnomics research chair

partnership PSE – APHP

chair holder : Lise Rochaix

promote policy-oriented research / foster evidence-based policy

Access to hospital data

... information systems...

Yet, some examples

Joint papers with Grégoire de Lagasnerie (et al.)

PhD Student, then economist at :

Direction du Trésor,

OECD

CNAMTS (Social health insurance)

now at Ministry of Health (DREES)

Policy oriented research

Health claims : distribution of out of pocket costs

(role of supplementary insurance?)

Concentration of health care expenditure

(where to focus?)

Persistence of health expenditure

(regulation of health insurance market)

1. Simulating a reform

Economie et Statistique, 2012 (Geoffard, Lagasnerie)

(INSEE publication...)

**« Réformer le système de remboursement pour les soins de ville,
une analyse par microsimulation »**

- **a ceiling on annual « out of pocket » ambulatory costs**
- **financed by an annual deductible**

1. Simulating a reform

Data used : health survey (2003) matched with claims data

Not available : reimbursement by supp insurance...

Focused on ambulatory care

(on copayments, not on balance billing)

Analysis showed important concentration of out-of-pocket costs

Among the 80+, 5% bear more than 1000€.

Reform ? Introduce a ceiling and an annual deductible

(self financed reform + incentives)

1. Simulating a reform

What level of deductible for a given ceiling?

- independent of income:

- $D = 100\text{€}, \text{cap} = 360\text{€}$

- $D = 50\text{€}, \text{cap} = 650\text{€}$

- income related:

- $D = 0,6\%, \text{cap} = 2,5\%$

- $D=0,3\%, \text{cap} = 5\%$

Huge media impact (popular press, national TV, radio...)

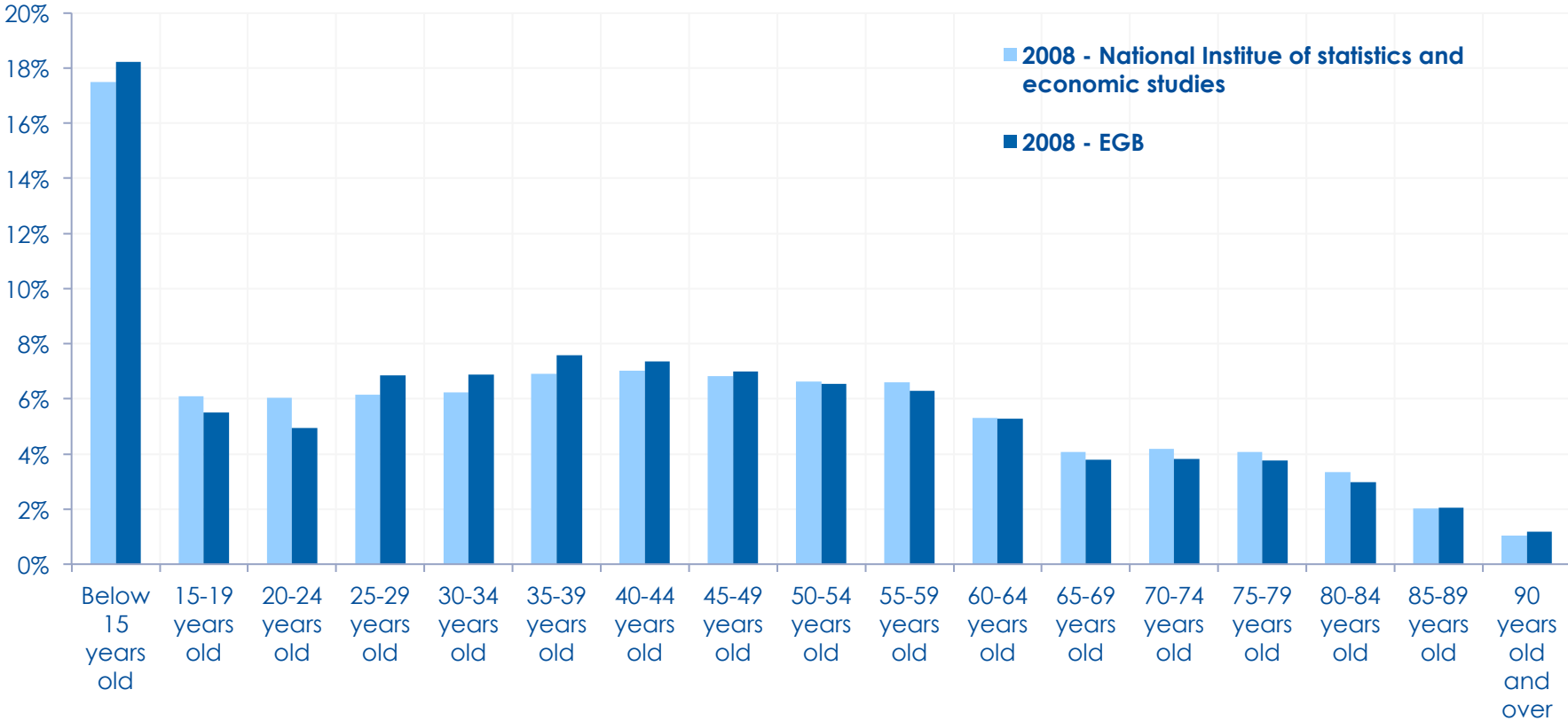
2. Evolution of health care expenditure (CGM, PYG, GdL, *Fiscal Studies*, 2016)

- **The *Echantillon généraliste de bénéficiaires* (EGB)**
 - Permanent representative sample of the population protected by French health insurance (1/97th)
 - For this study, data from 2008 to 2013
- **The database includes:**
 - Around 500,000 people covered by the National Health Insurance Fund for Salaried Workers (84% of the total population)
 - All SNIIRAM's data for people with healthcare consumption during the year

2. Evolution of health care expenditure (CGM, PYG, GdL, *Fiscal Studies*, 2016)

- **One (among others) policy issue :**
 - ALD system : no copayment for care related to chronic disease.
16% of the population
90 Billion € social insurance reimbursements for this population
(2/3 of total social health insurance costs)
 - How good?

Representativeness of the Echantillon Généraliste des Bénéficiaires (EGB) by age and gender in 2008



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Definition of the different types of care analyzed in this study

	Healthcare basket
Outpatient care	<ul style="list-style-type: none">• General practitioner• Specialist• Dentist• Nursing care, psychoterapist...• Biological test• Medical devices• Transportation
Drugs	<ul style="list-style-type: none">• All reimbursed drugs<ul style="list-style-type: none">• Include most costly and necessary drugs used during hospital stays
Inpatient care	<ul style="list-style-type: none">• Only DRG payments<ul style="list-style-type: none">• Medical, surgical and obstetrics in private clinics and public hospitals• Psychiatry and rehabilitative care only in private hospital• Emergency care



Database used in the Section 4

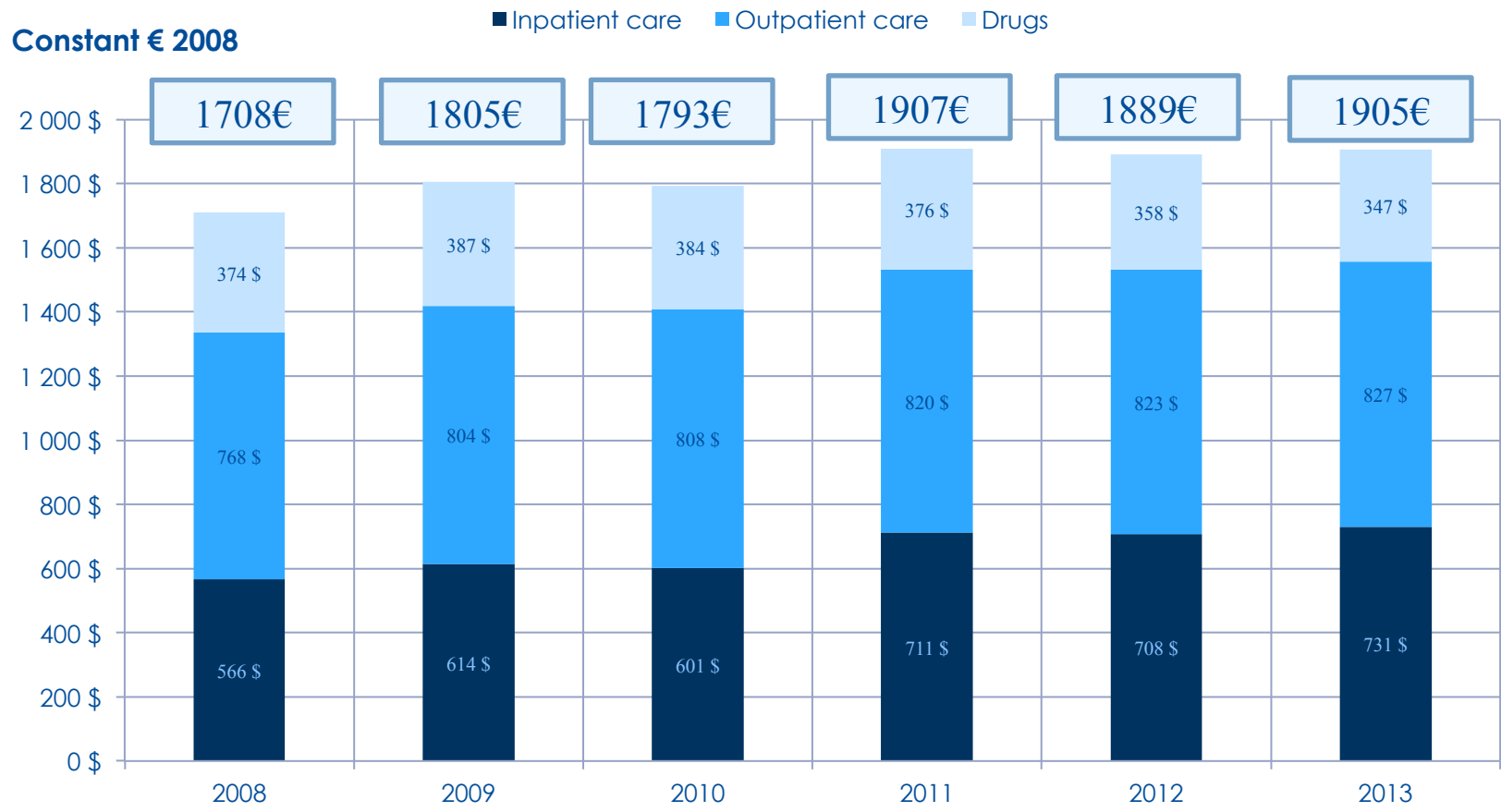
	2008	2009	2010	2011	2012	2013
Total (N)	500 758	504 151	522 967	522 313	527 476	533 580
Age						
Mean	38,9	39,1	38,9	39	39,2	39,4
Median	38	38	38	38	39	39
0 to 24 years old	151 738 (30%)	151 244 (30%)	160 577 (31%)	160 680 (31%)	161 205 (31%)	161 700 (30%)
25 to 64 years old	272 157 (54%)	274 464 (54%)	282 097 (54%)	278 837 (53%)	280 228 (53%)	282 461 (53%)
65 years old and over	76 863 (16%)	78 443 (16%)	80 293 (15%)	82 795 (16%)	86 043 (16%)	89 419 (17%)
% Women	258 435 (52%)	260 369 (52%)	270 006 (52%)	270 268 (52%)	273 131 (52%)	276 271 (52%)

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Increasing average health care expenditure by type of care (2008-2013)

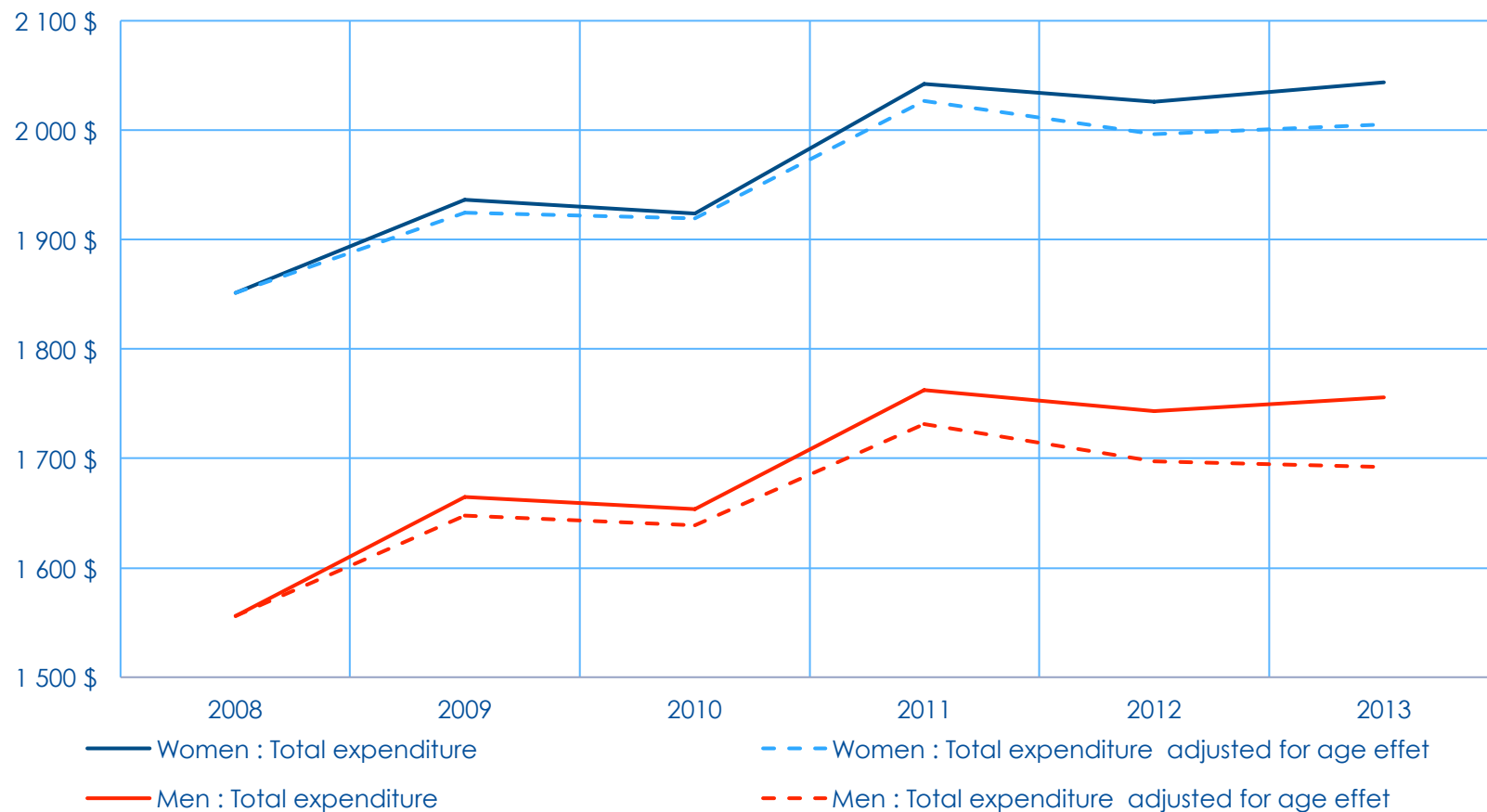


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Average health care expenditure adjusted for age effect by gender

Constant € 2008

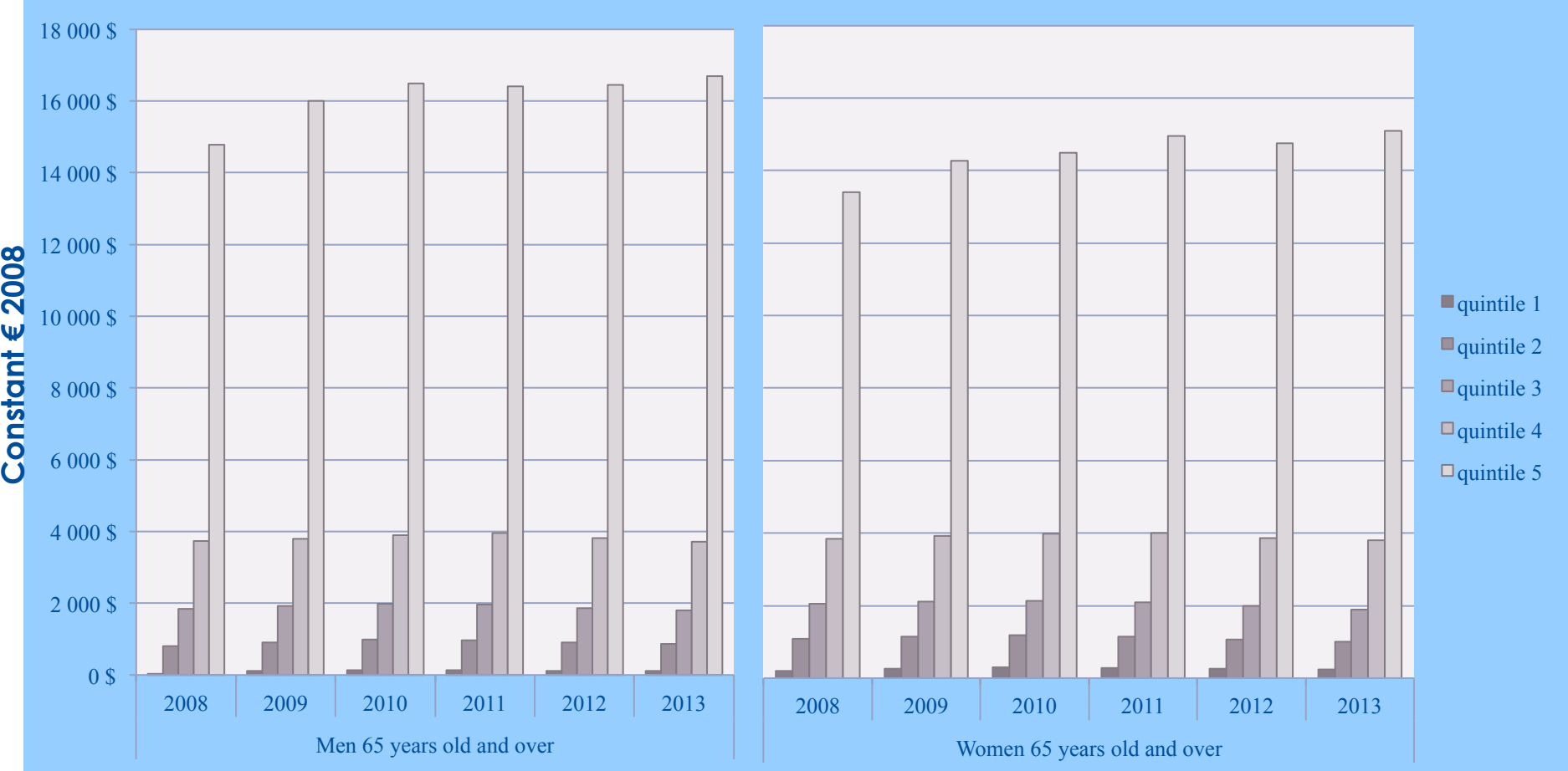


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Average medical spending by expenditure quintile and gender (65 years old and over)

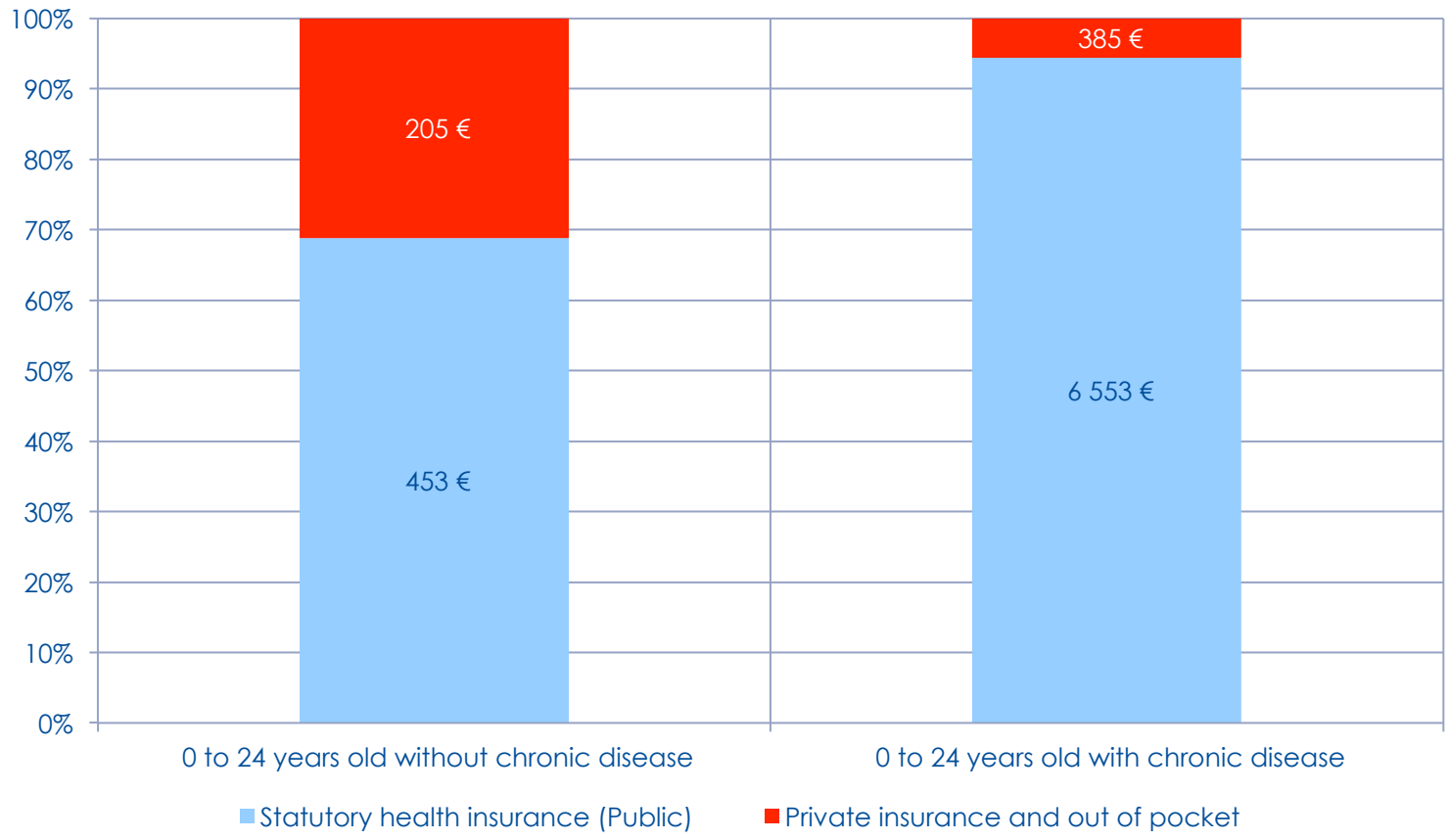


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Medical spending by type of financing, age and "health status" in 2013

0 to 24 yold

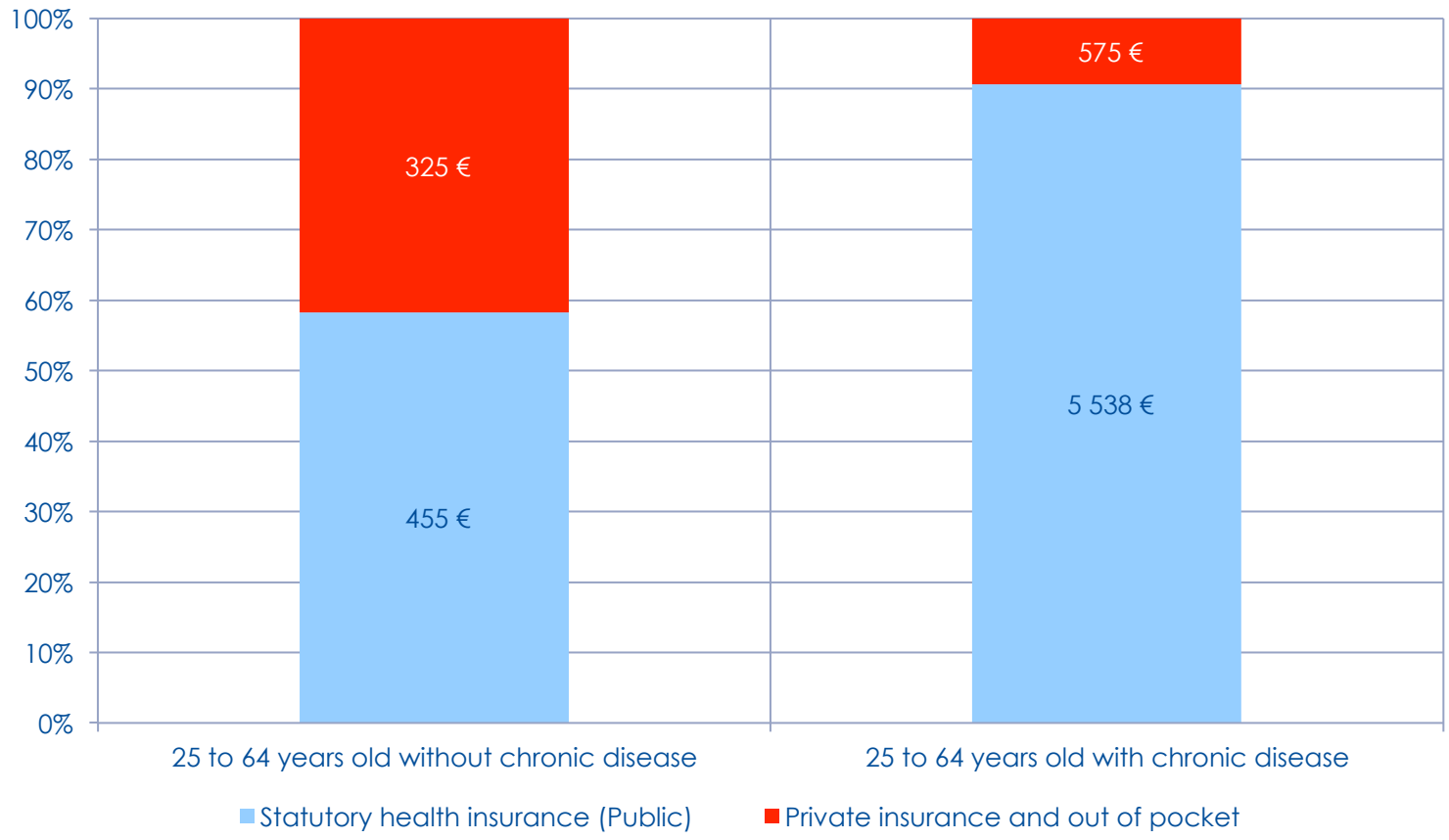


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Medical spending by type of financing, age and "health status" in 2013

25 to 64 yold

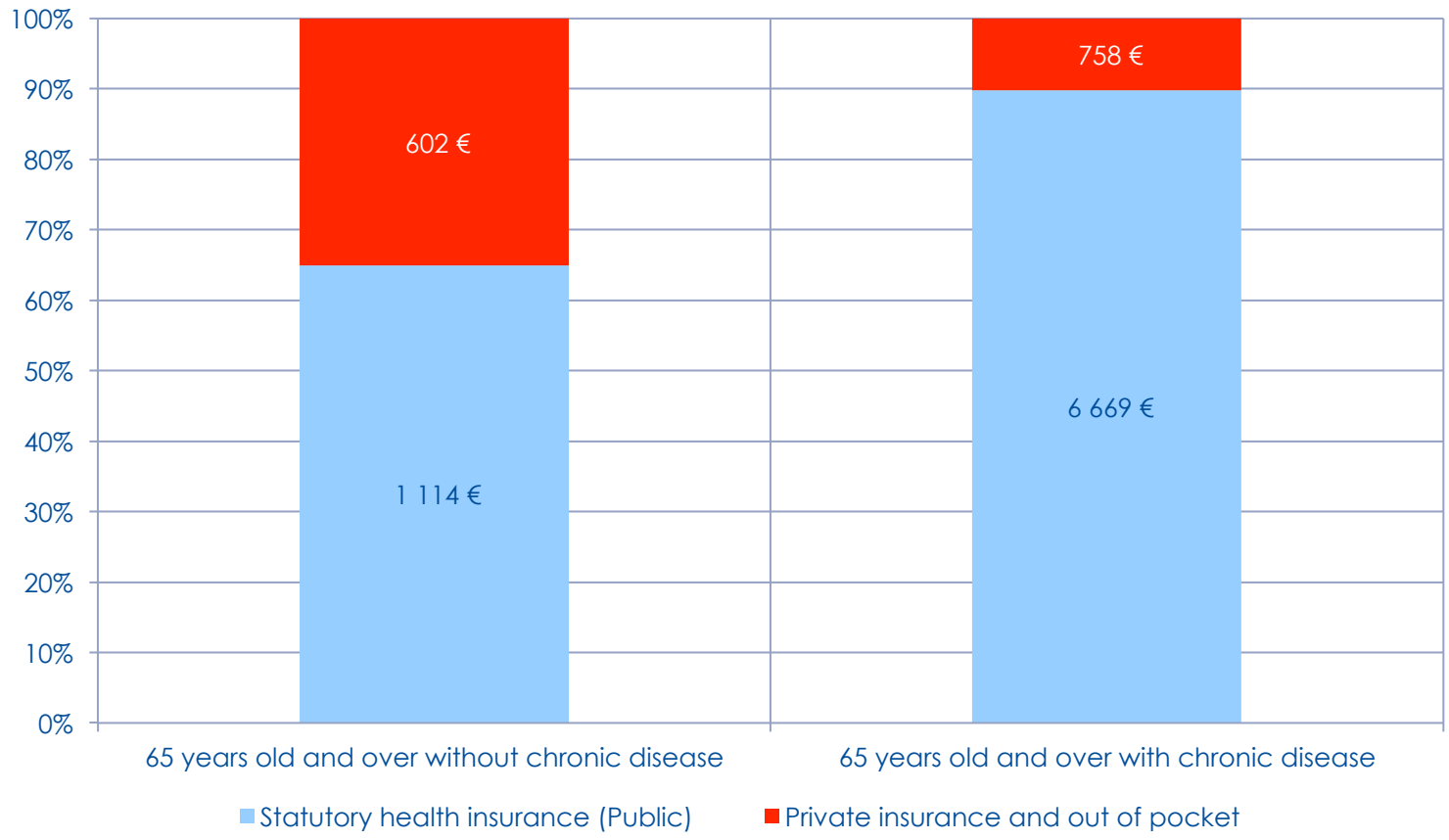


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Medical spending by type of financing, age and "health status" in 2013

65 and over

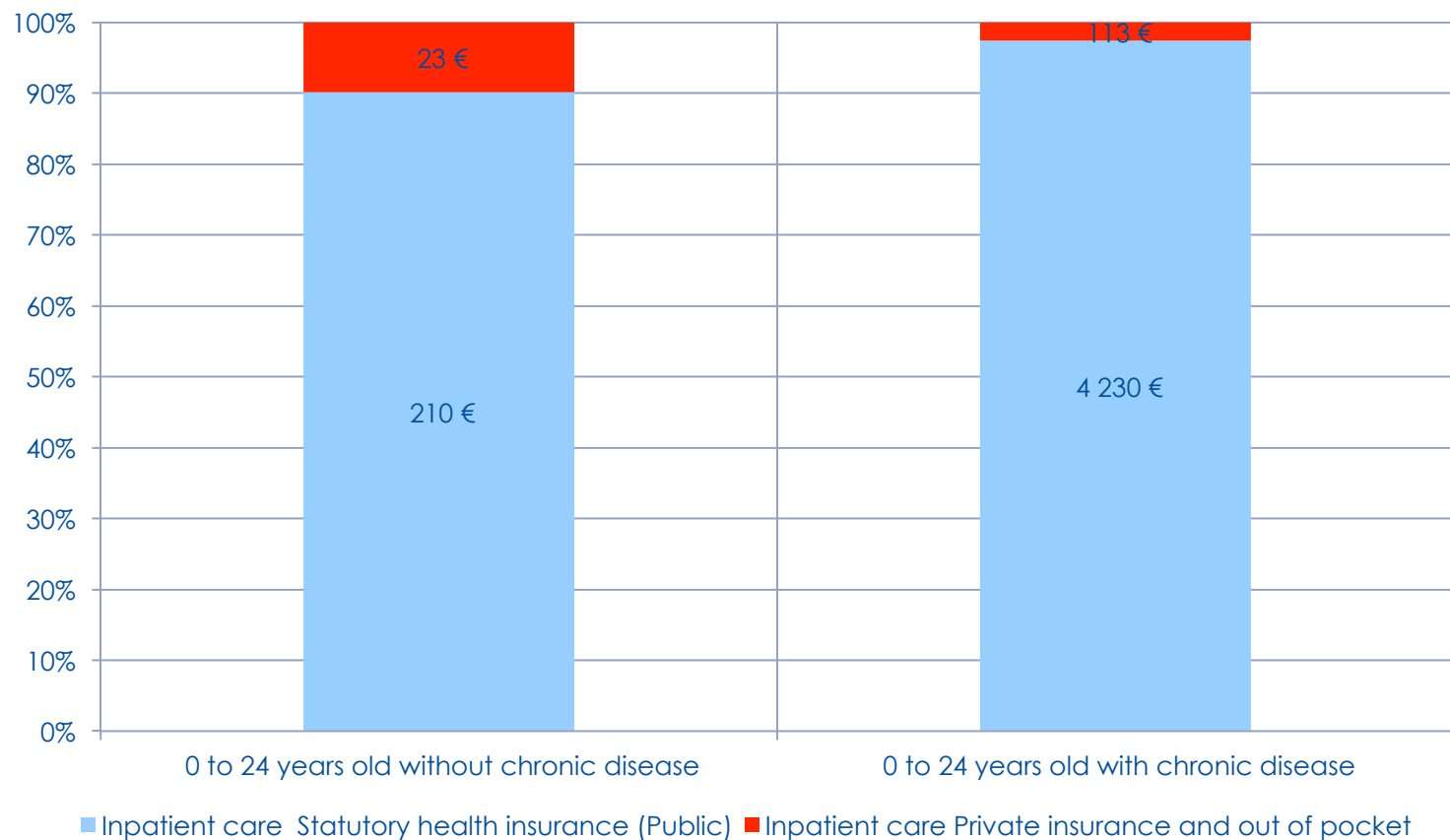


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



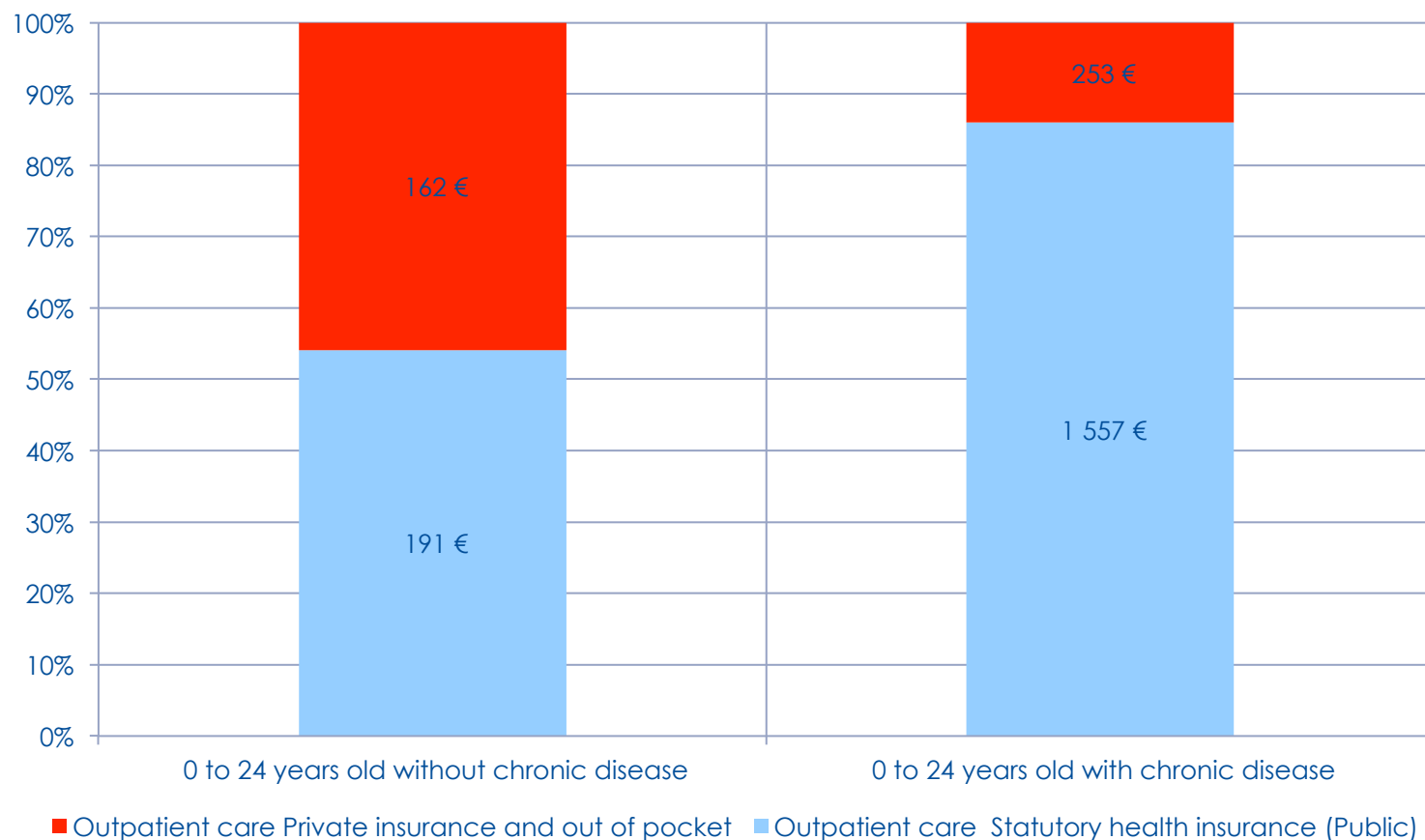
Expenditure by type of financing, type of care, "health status" in 2013

0 to 24 yold Inpatient



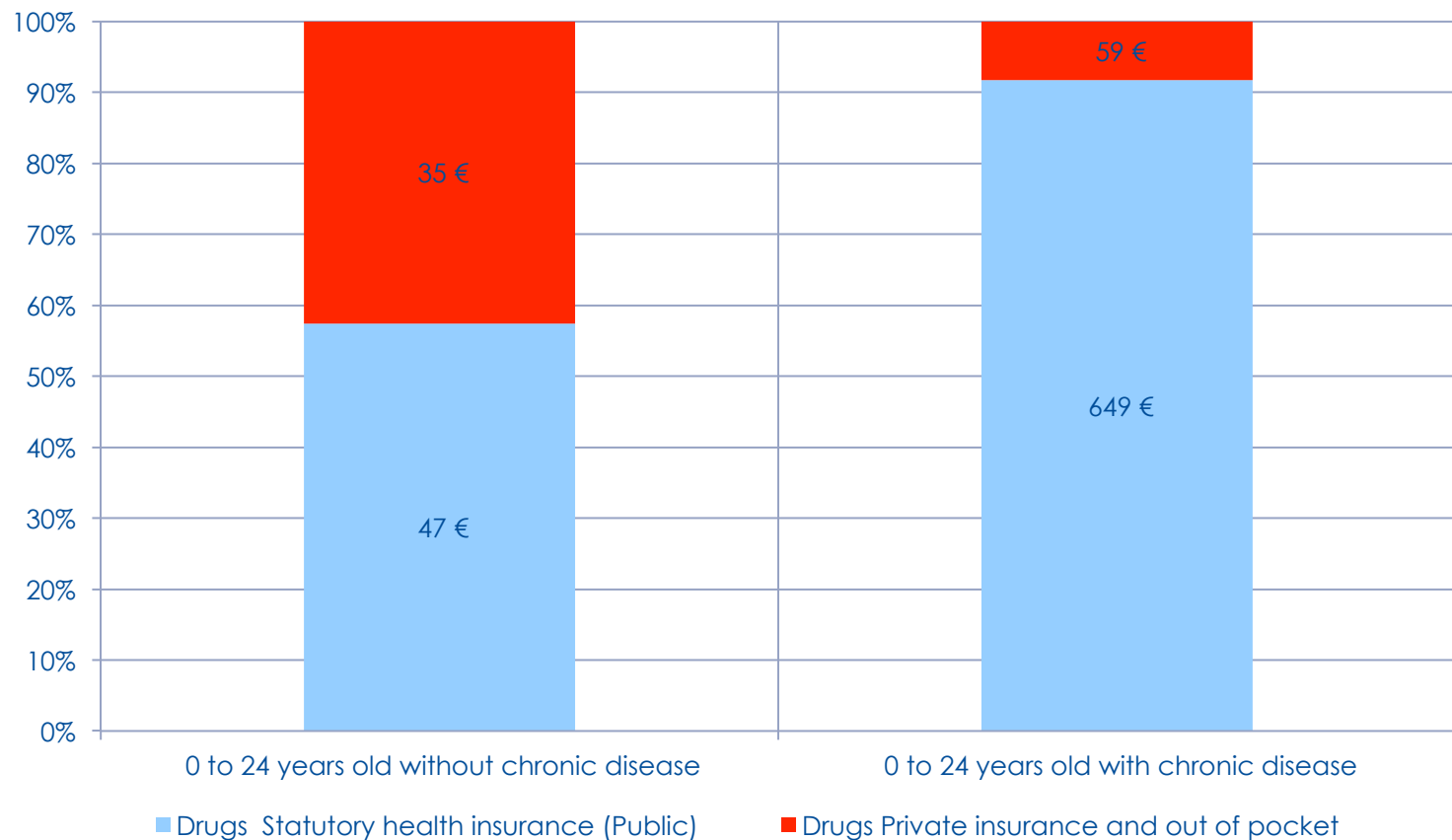
Expenditure by type of financing, type of care, "health status" in 2013

0 to 24 yold Outpatient



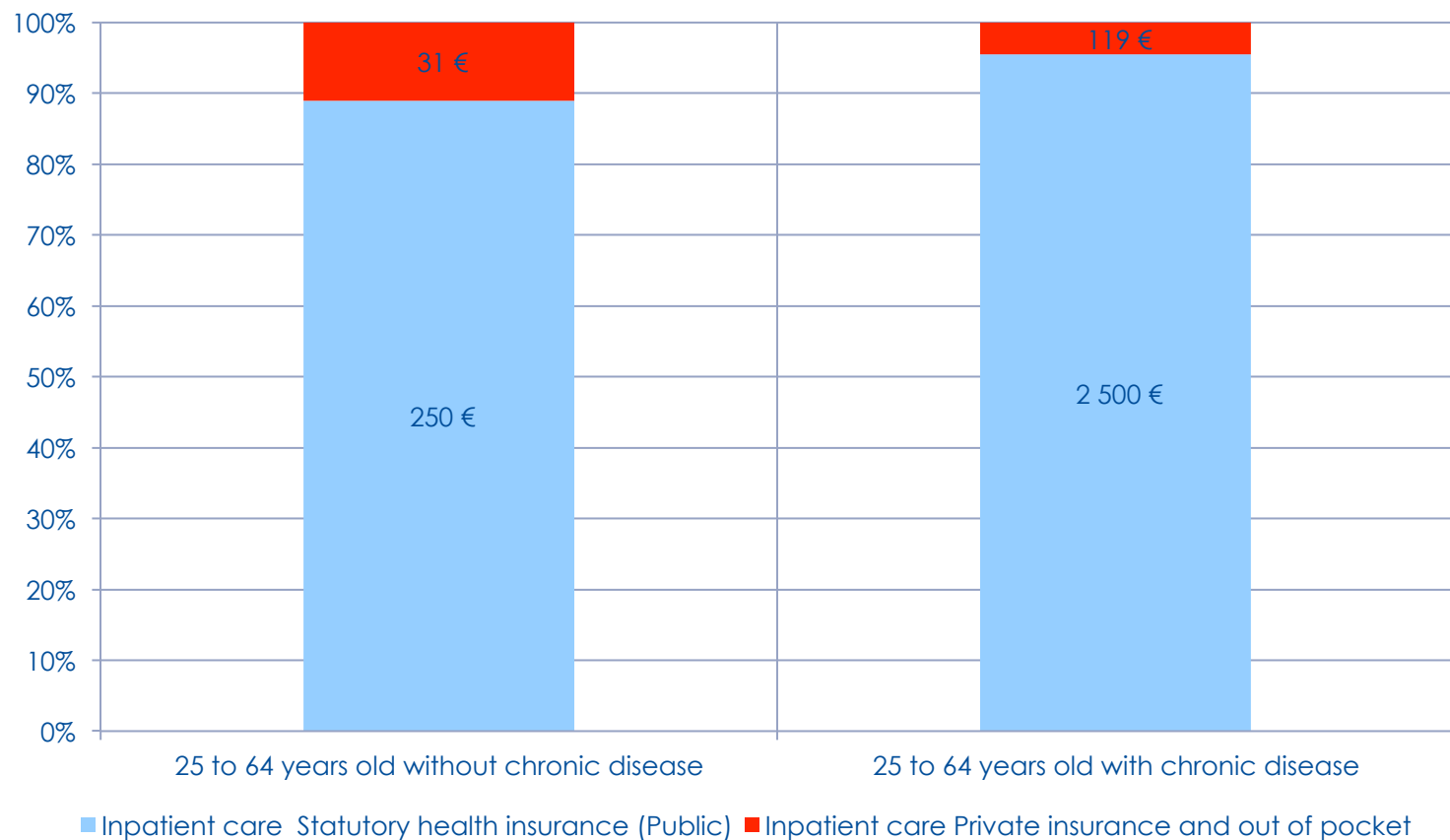
Expenditure by type of financing, type of care, "health status" in 2013

0 to 24 yold Drugs



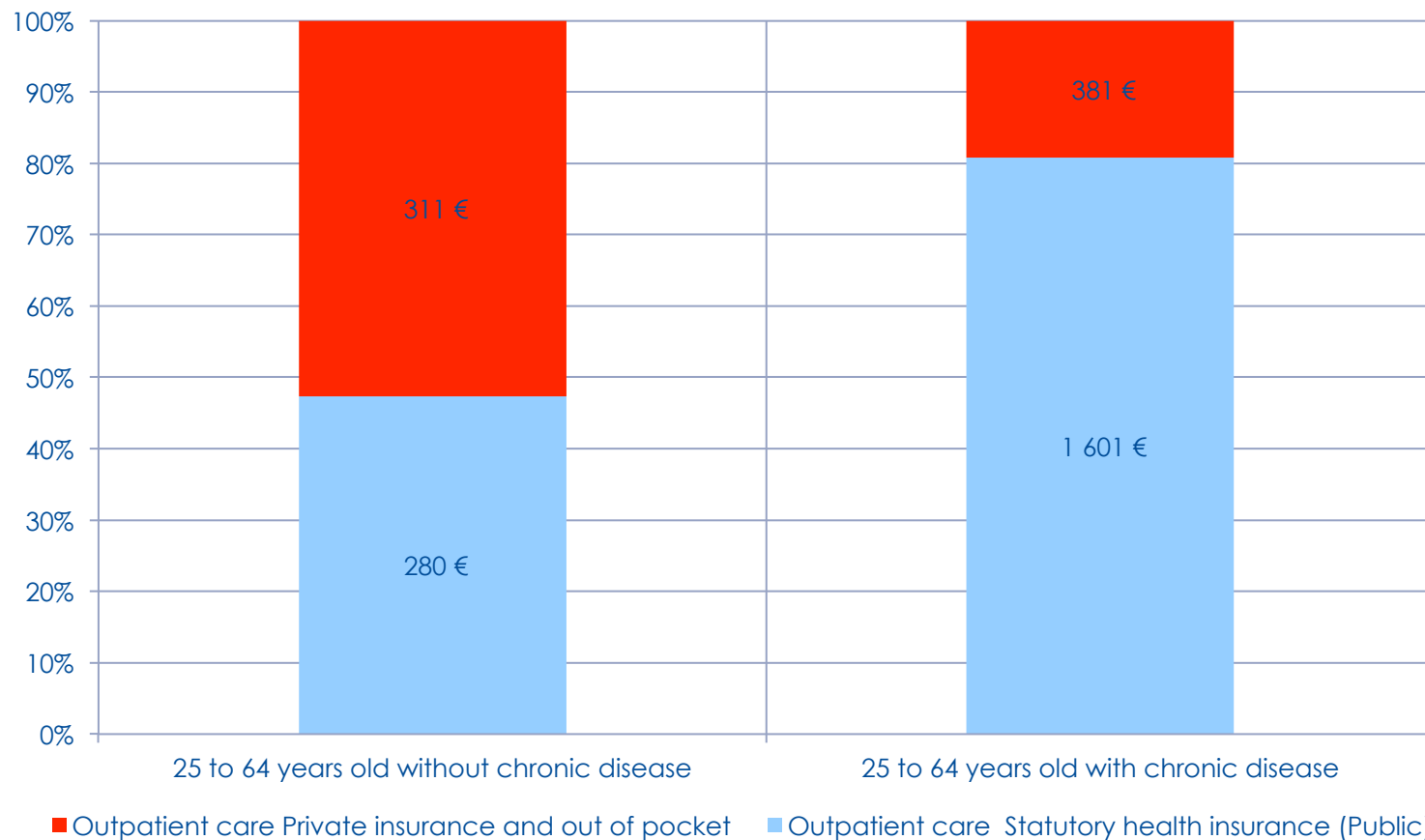
Expenditure by type of financing, type of care, "health status" in 2013

25 to 64 yold Inpatient



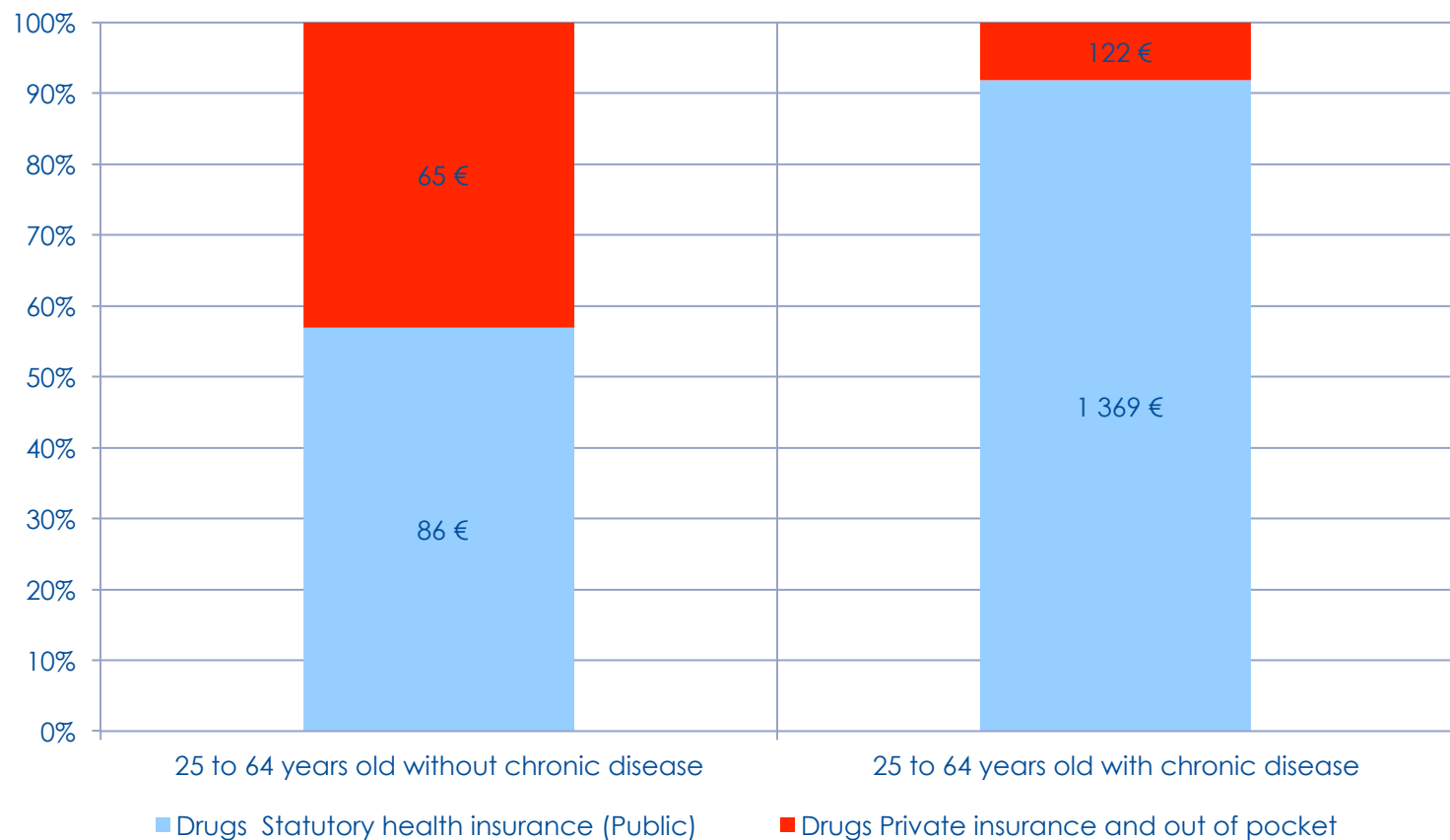
Expenditure by type of financing, type of care, "health status" in 2013

25 to 64 yold Outpatient



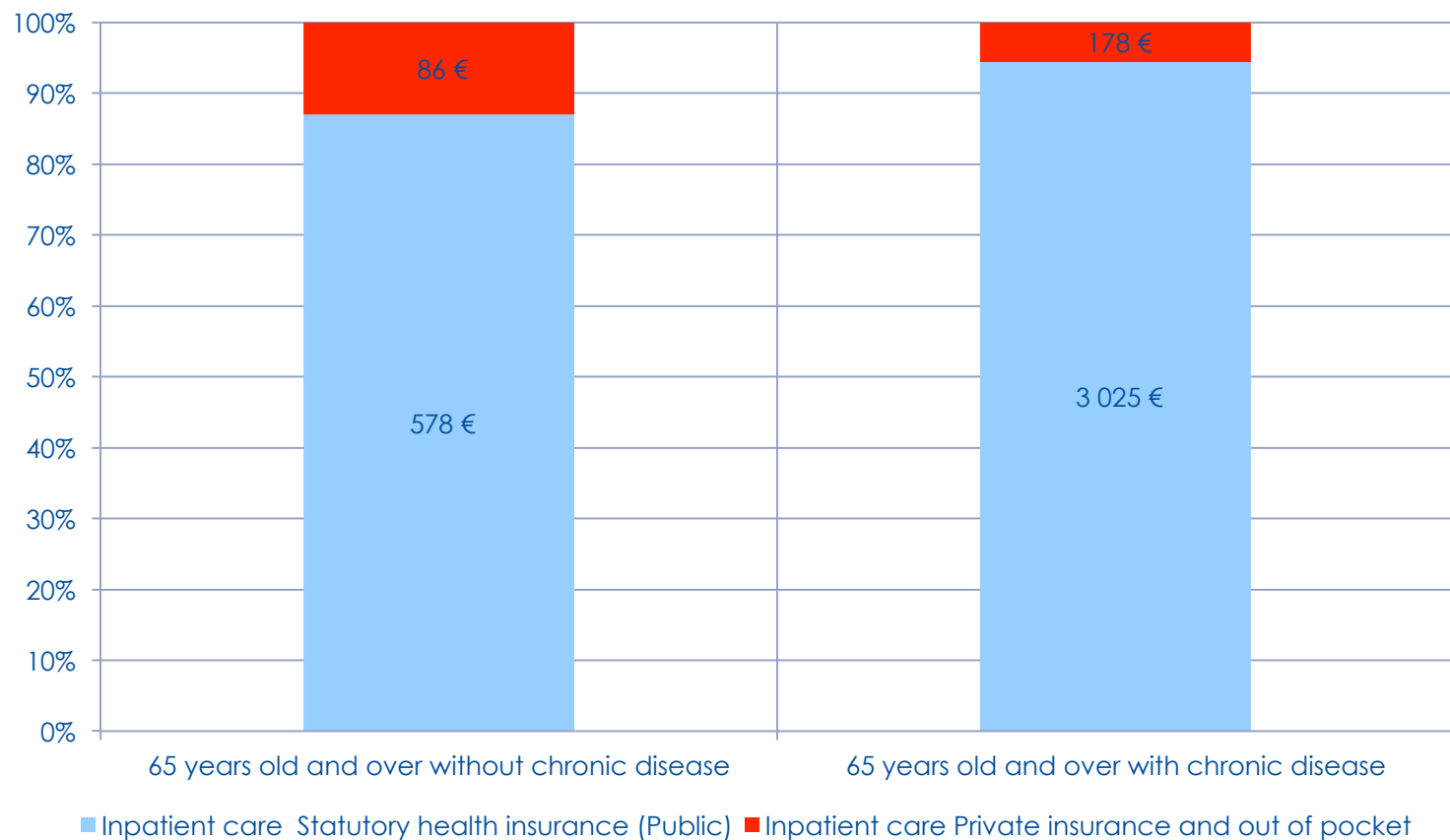
Expenditure by type of financing, type of care, "health status" in 2013

25 to 64 yold Drugs



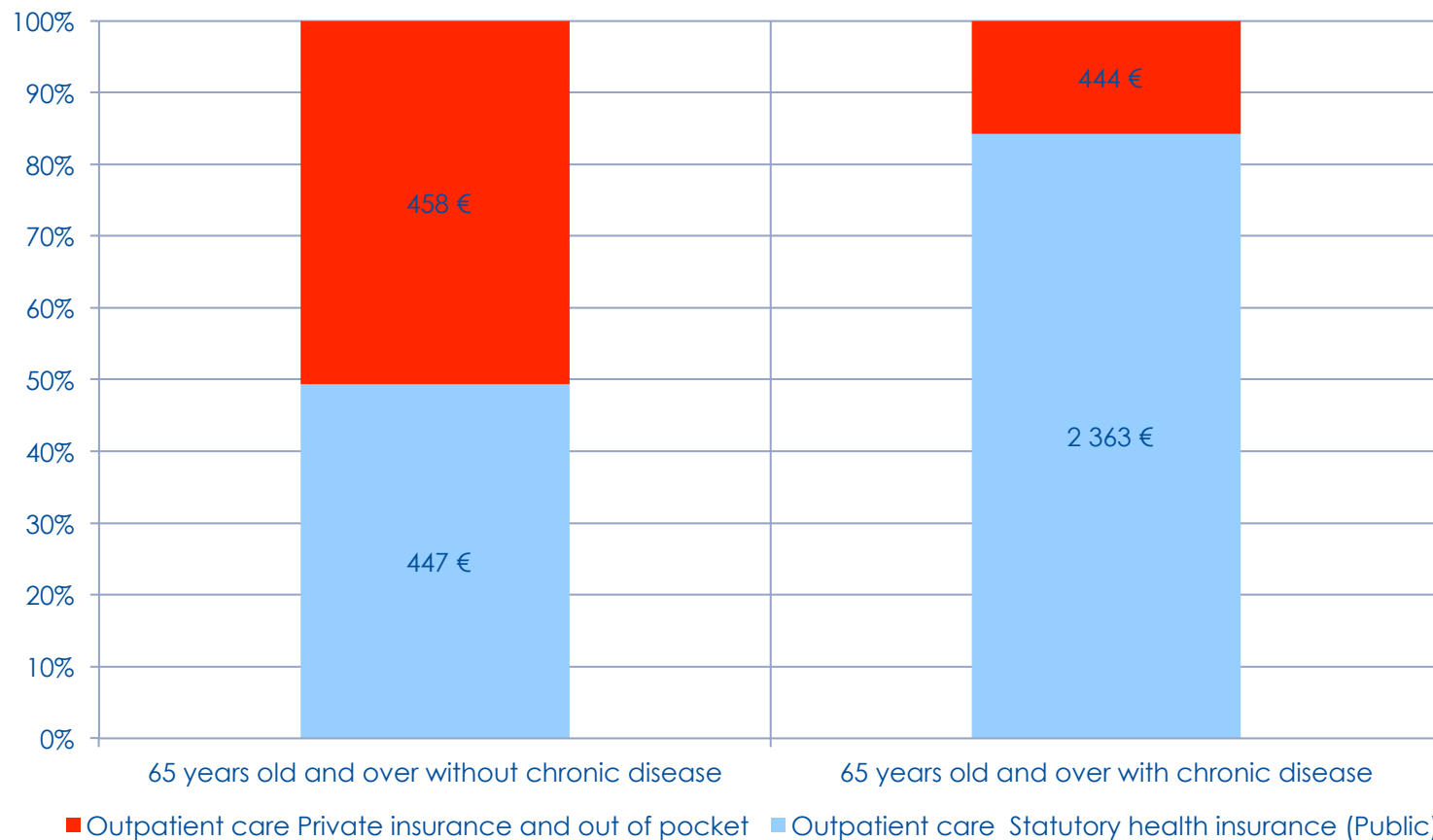
Expenditure by type of financing, type of care, "health status" in 2013

65 and over Inpatient



Expenditure by type of financing, type of care, "health status" in 2013

65 and over Outpatient



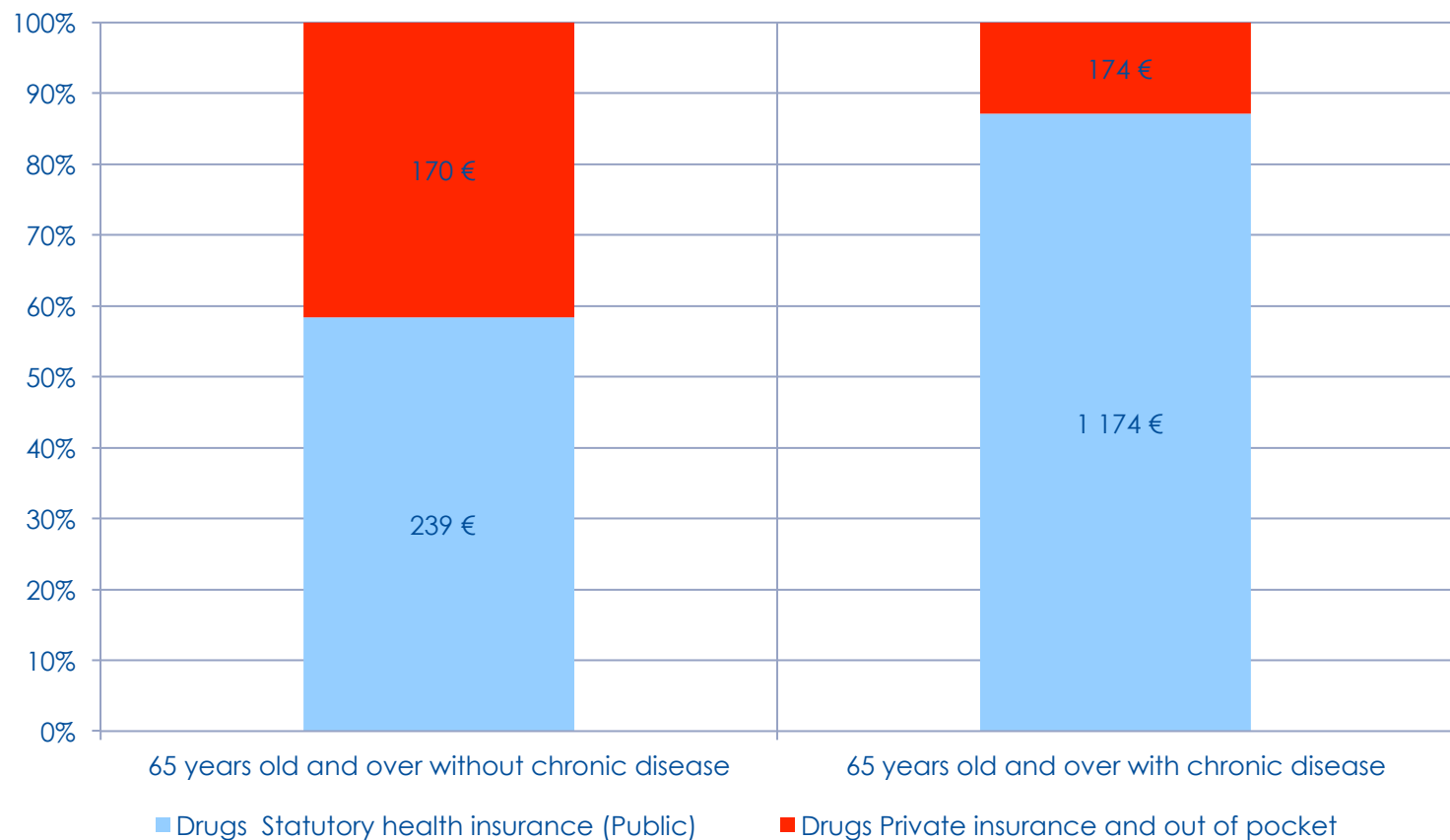
Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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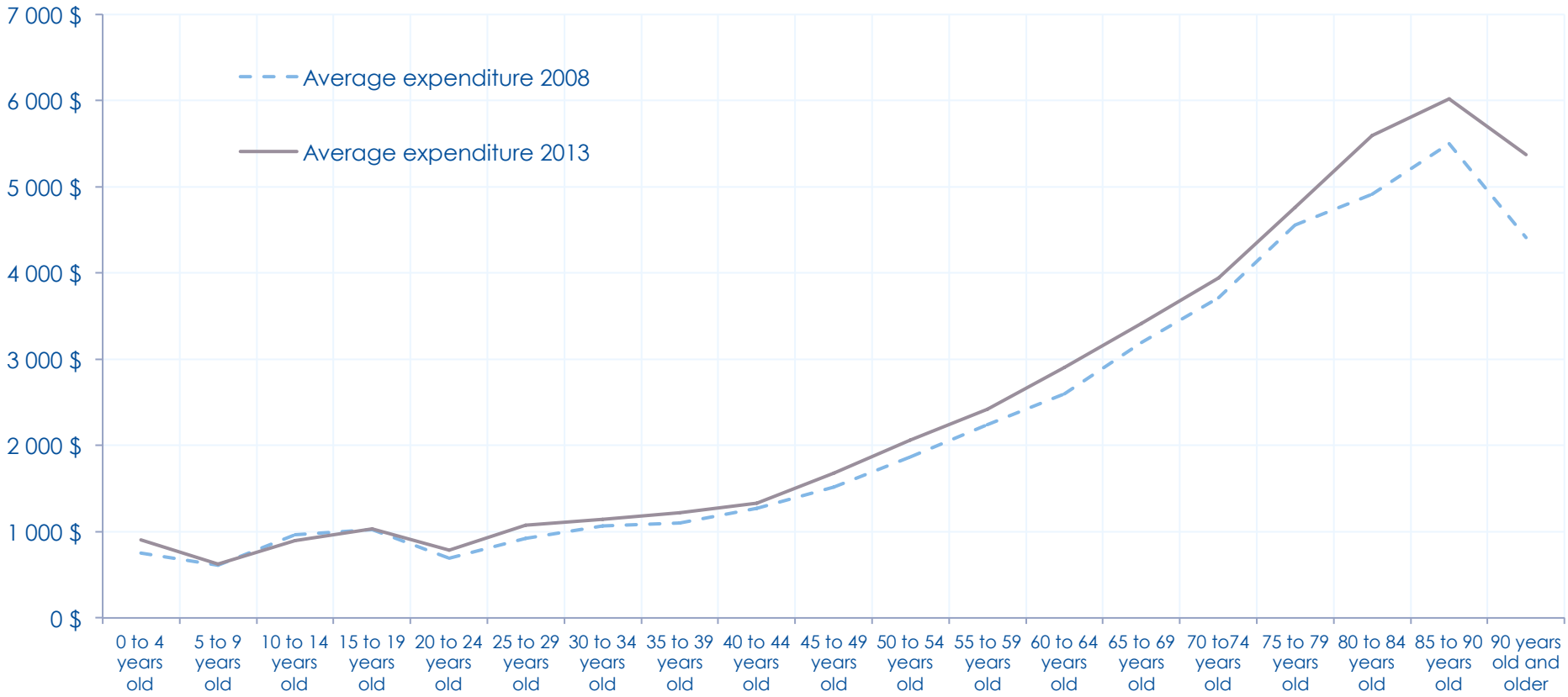


Expenditure by type of financing, type of care, "health status" in 2013

65 and over Drugs



Average expenditure by age (2008, 2013)



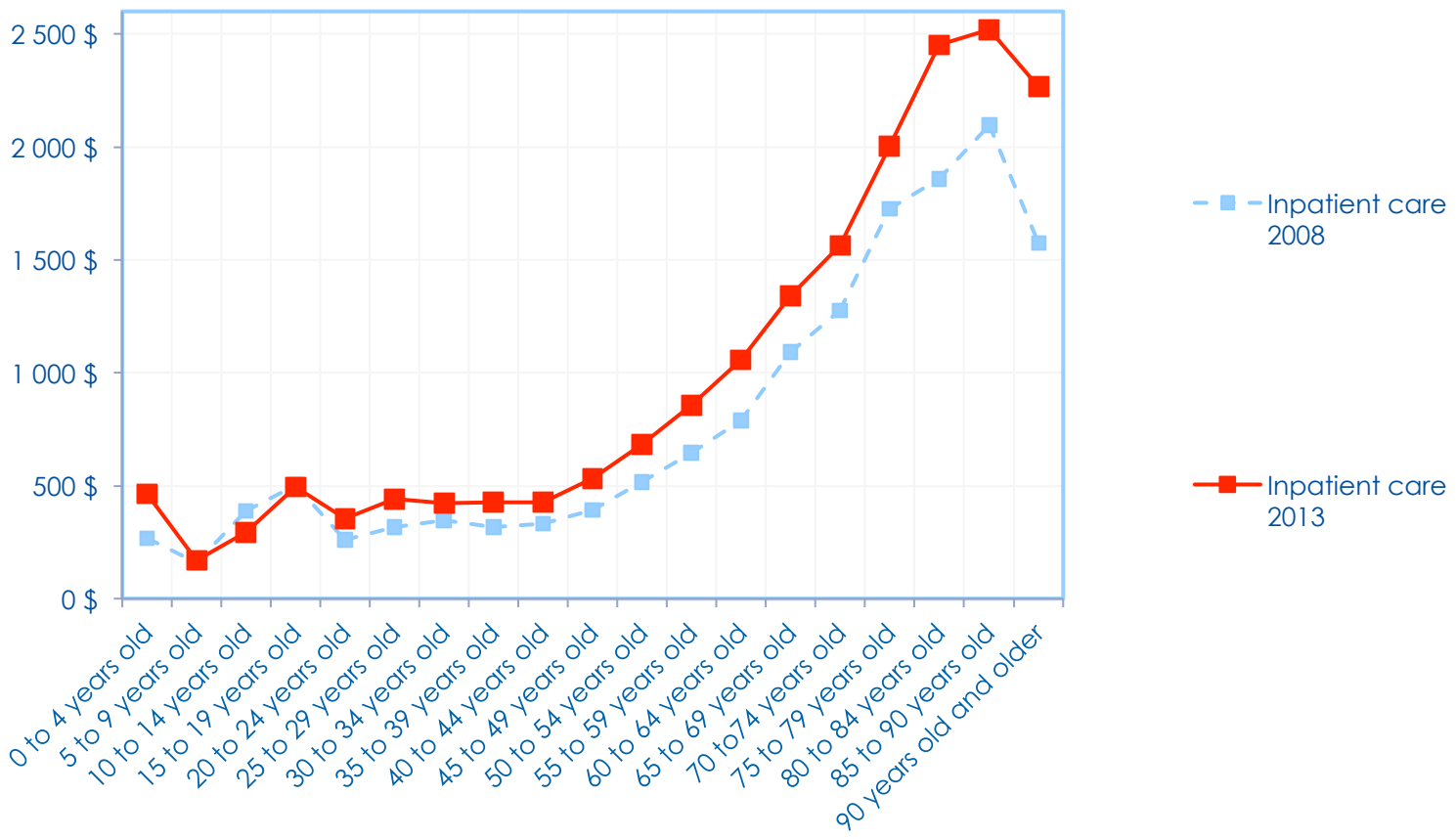
Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Average care expenditure by age and type of care (2008, 2013)

Inpatient care

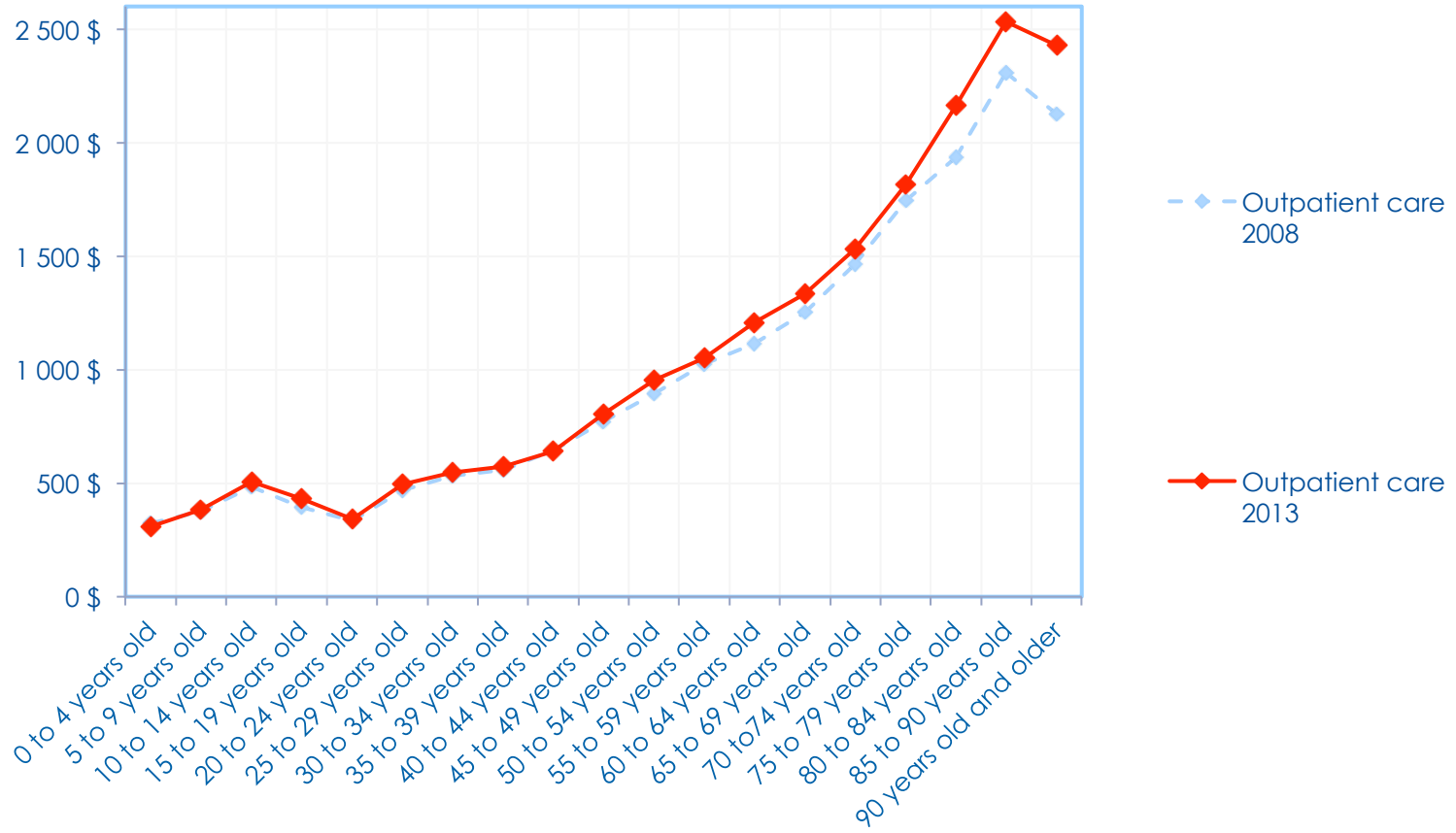


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Average care expenditure by age and type of care (2008, 2013)

Outpatient care

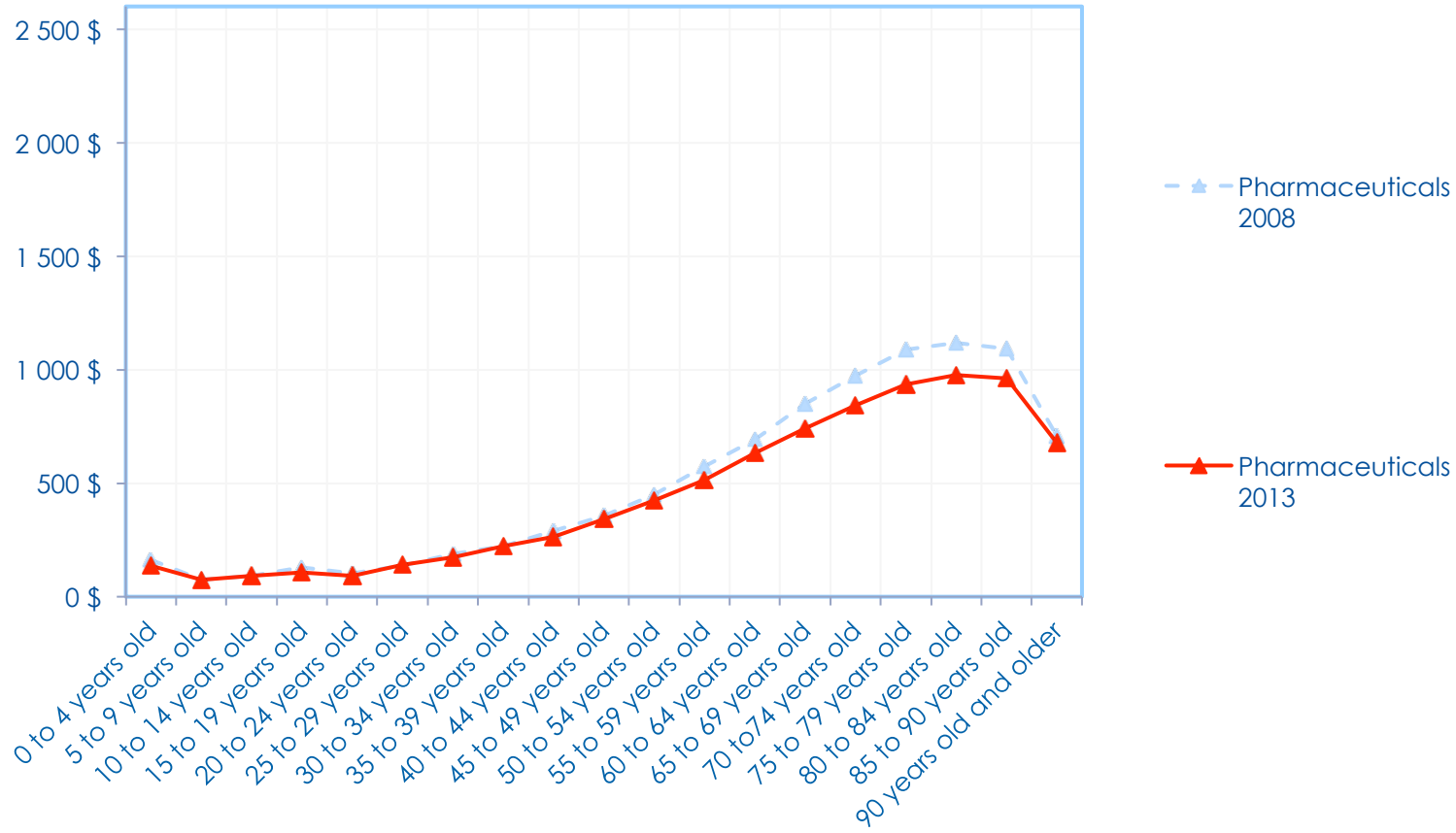


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Average care expenditure by age and type of care (2008, 2013)

Drugs



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



3. Concentration of medical spending: Age, “health status”, type of care

- **10% of the population with highest spending concentrate 62% of total medical spending** ([Lorenz curve](#))
- **Concentration of spending decreases with age : 10% of the population with with highest spending concentrate** ([Lorenz curve](#))
 - 0 to 24 years old : concentrate more than 60% of total spending
 - 65 years old and over : concentrate 51% of total spending
- **Concentration of spending increased between 2008 and 2013 : 10% of the population with chronic disease with highest spending concentrate** ([Lorenz curve](#))
 - 2008 : 45% total spending
 - 2013 : 48% of total spending
- **Concentration of public reimbursement is higher than total spending for outpatient care and drugs : 10% of the population with highest outpatient (drugs) spending concentrate** ([Lorenz curve](#))
 - concentrate 49% (58%) of total outpatient (drugs) spending
 - concentrate 57% (67%) of outpatient (drugs) reimbursement

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

4. Longitudinal « life cycle » approach

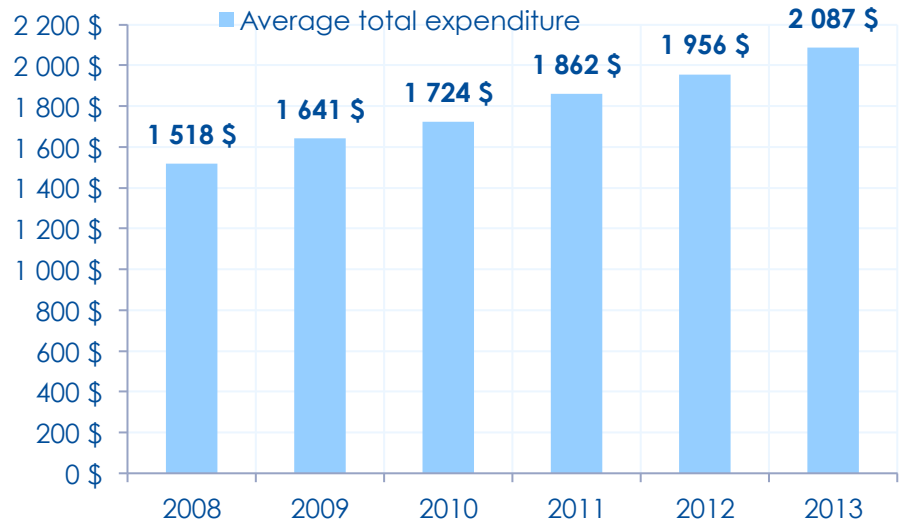
- **Longitudinal approach of medical spending (6 years)**
 - Correlation and concentration of medical spending over time

Database used in the section 5

- Cohort follow up from 2008 to 2013
- 500 758 individuals in 2008 at inclusion (attrition due to death or change of insurance schemes of 66 742 individuals, 13% of the population observed in 2008)

2008-2013	
Age	38 years old in 2008
0 to 24 years old	126 779 (30%)
25 to 64 years old	245 648 (57%)
65 years old and over	61 589 (14%)
% Women	226 520 52%

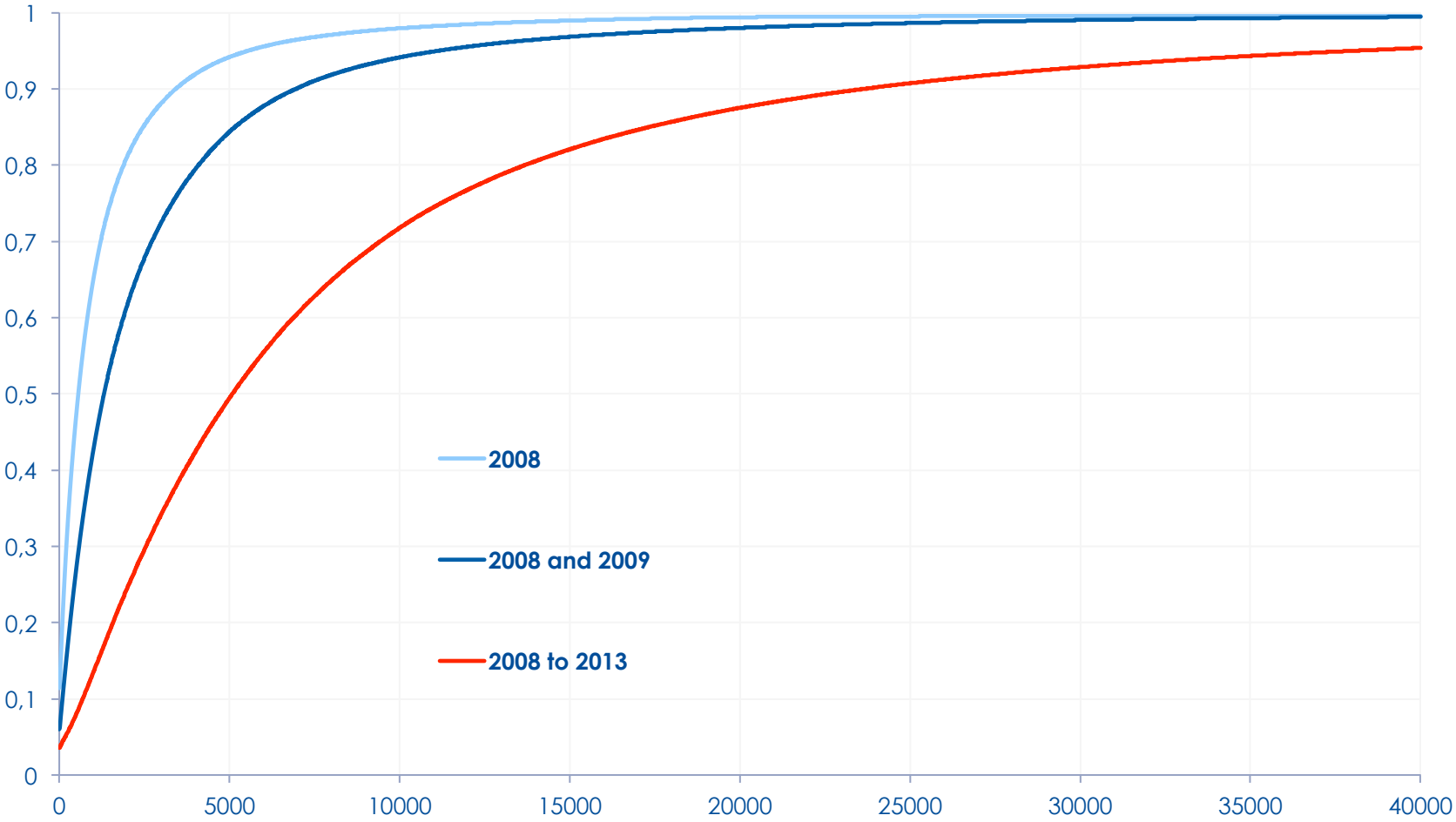
Constant € 2008



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Cumulative distribution function of total medical spending



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Measures of the concentration of medical spending over 1, 2 and 6 years

Total medical spending			
	1 year (2008)	2 years (2008-2009)	6 years (2008-2013)
Gini coefficient on medical spending	0,71	0,67	0,64
Percentage spent by top 1% of spenders	19,5%	18%	15%
Percentage spent by top 10% of spenders	56%	53%	50%

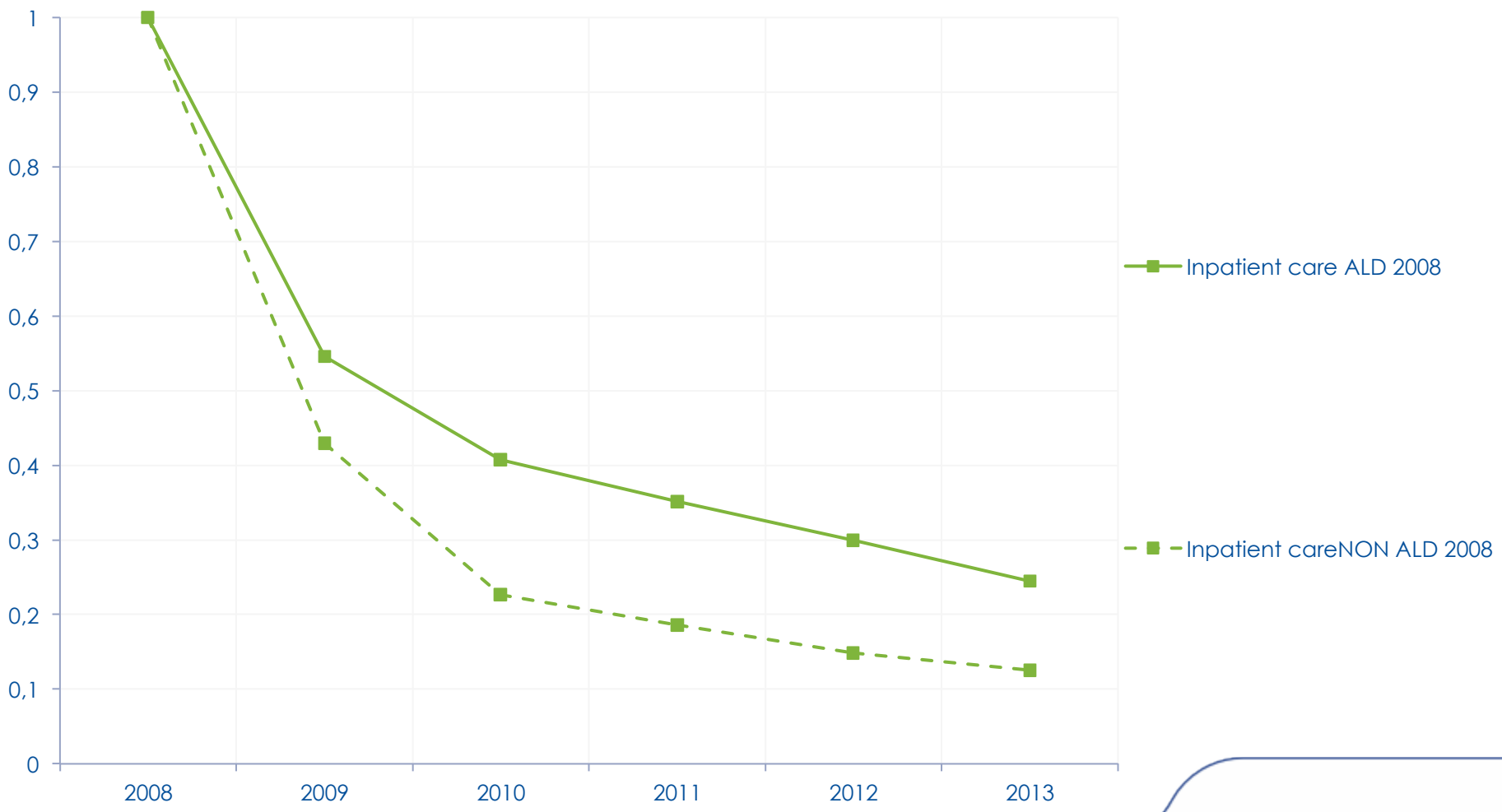
Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Correlation coefficients with 2008 health expenditure by year and health status

Inpatient care



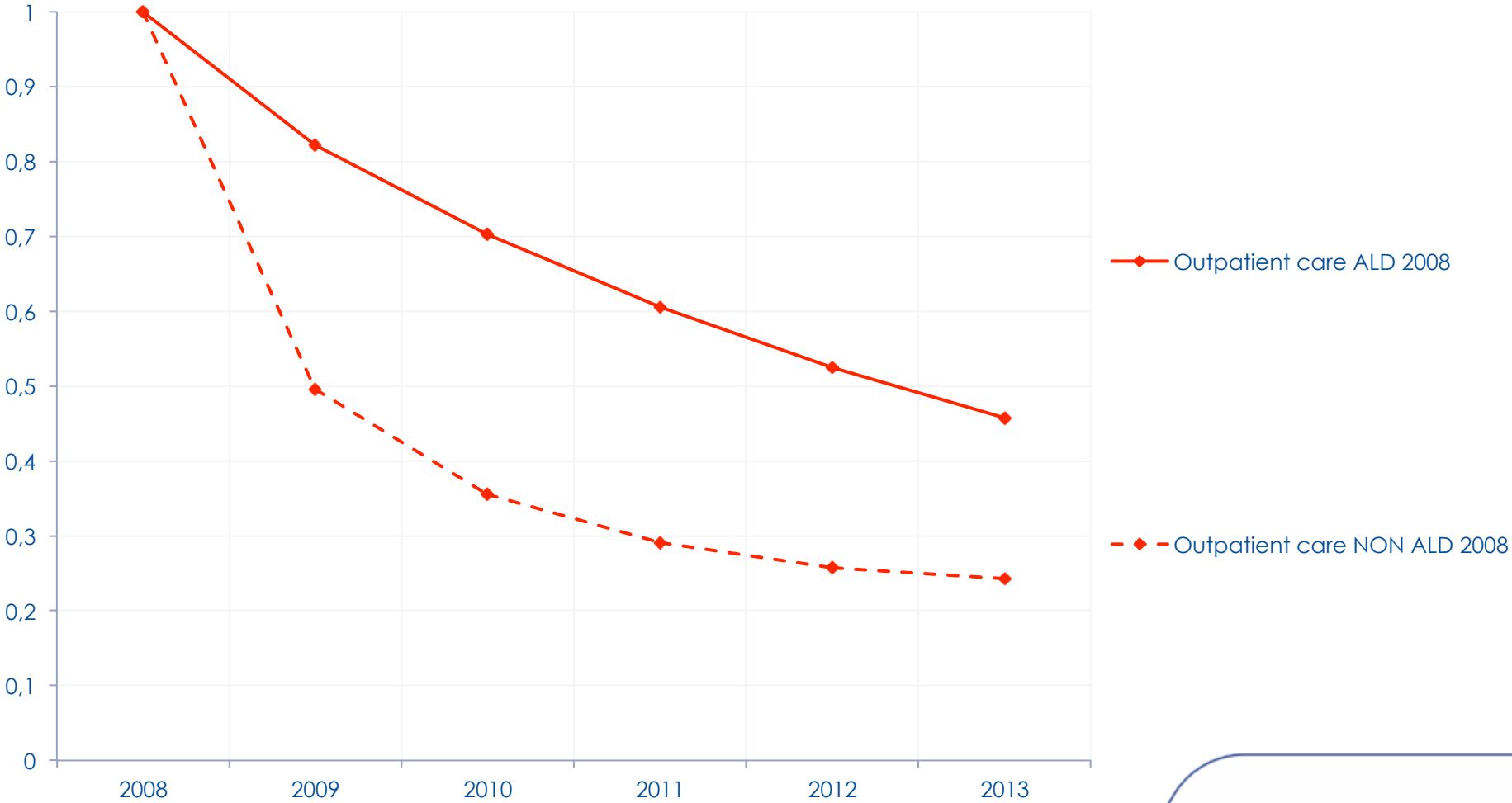
Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Correlation coefficients with 2008 health expenditure by year and health status

Outpatient care

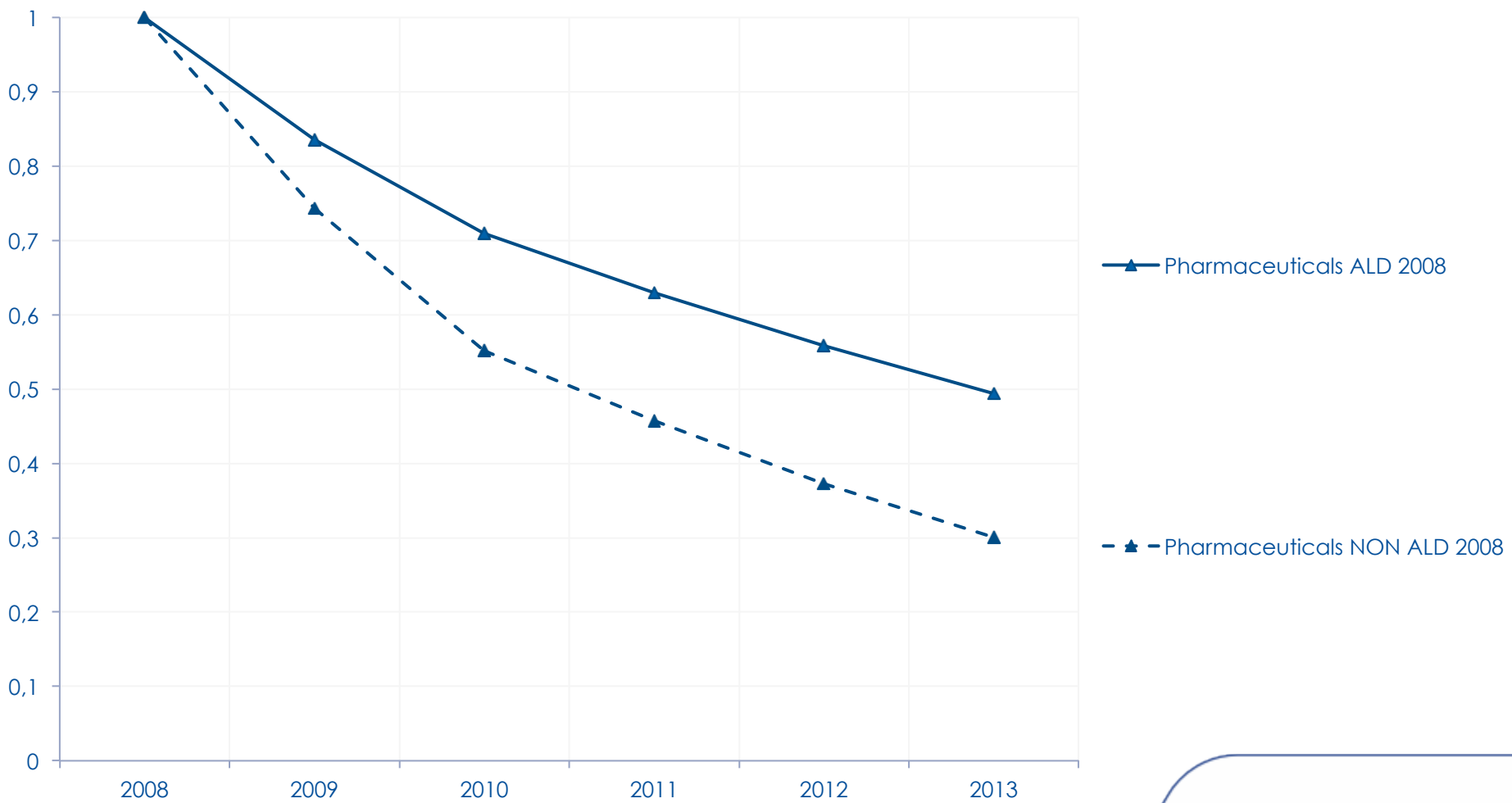


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Correlation coefficients with 2008 health expenditure by year and health status

Pharmaceuticals



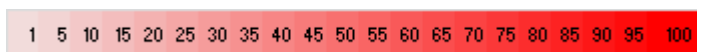
Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Total medical expenditure transition matrices in the all population: decile

Scale:



Decile in 2008

Decile in 2009

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
D1	56	14	8	6	5	4	3	2	2	1
D2	19	27	18	12	8	6	4	3	2	1
D3	9	20	21	16	11	8	6	3	3	2
D4	6	13	18	18	15	11	8	5	4	2
D5	3	8	13	17	18	14	11	8	5	3
D6	3	5	8	12	16	18	15	11	7	5
D7	2	4	6	8	12	16	19	16	10	7
D8	1	2	3	5	8	12	17	23	18	11
D9	1	2	3	4	5	7	11	19	30	19
D10	1	1	2	3	3	5	6	10	21	48

Decile in 2010

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
D1	50	13	8	6	5	4	4	4	4	3
D2	17	26	17	12	9	6	5	3	3	2
D3	10	20	19	15	11	9	6	4	3	2
D4	6	14	17	17	14	10	8	6	4	3
D5	4	10	13	16	17	14	10	7	5	4
D6	3	7	10	13	15	16	14	10	7	5
D7	2	5	7	9	12	16	17	15	10	7
D8	2	3	4	6	8	12	17	21	16	11
D9	1	3	3	4	6	7	11	19	27	19
D10	1	2	2	3	4	5	7	11	21	43

Decile in 2013

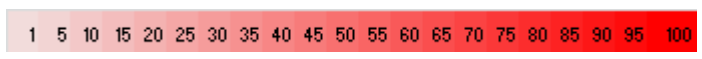
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
D1	45	13	8	6	6	5	4	4	4	5
D2	16	23	16	12	9	7	6	4	4	3
D3	10	19	17	14	11	9	7	6	4	3
D4	7	14	16	15	13	11	9	7	6	4
D5	5	10	14	15	14	12	10	8	7	5
D6	4	8	11	13	14	14	12	10	8	6
D7	3	6	8	10	12	14	15	13	10	8
D8	3	4	5	7	9	13	16	17	15	12
D9	2	3	4	5	6	9	12	18	22	18
D10	2	2	3	4	5	6	8	13	20	37

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Total medical expenditure transition matrices : decile for people with chronic diseases

Scale:



Decile in 2008

Decile in 2009

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
D1	25	7	7	9	9	10	10	7	7	9
D2	18	19	14	10	8	7	7	5	4	8
D3	10	13	15	14	11	10	8	7	5	8
D4	5	7	13	16	13	12	10	8	7	9
D5	3	4	6	12	18	15	13	10	7	10
D6	2	2	4	6	12	21	18	14	10	11
D7	1	1	2	3	7	14	23	21	14	14
D8	0	1	1	2	3	7	16	29	24	16
D9	0	0	1	1	1	3	7	18	39	29
D10	0	0	0	1	1	2	3	8	21	64

Decile in 2010

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
D1	17	5	4	4	5	6	8	12	17	22
D2	14	15	10	9	8	8	8	7	6	14
D3	9	11	13	11	9	9	9	9	8	13
D4	5	7	11	13	12	11	10	10	9	13
D5	3	4	6	10	14	15	13	11	9	14
D6	2	3	3	6	11	18	17	14	11	15
D7	1	1	2	3	7	13	21	19	16	16
D8	1	1	1	2	3	7	16	27	22	20
D9	1	0	1	1	2	3	8	20	35	30
D10	1	0	1	1	1	2	4	9	22	58

Decile in 2013

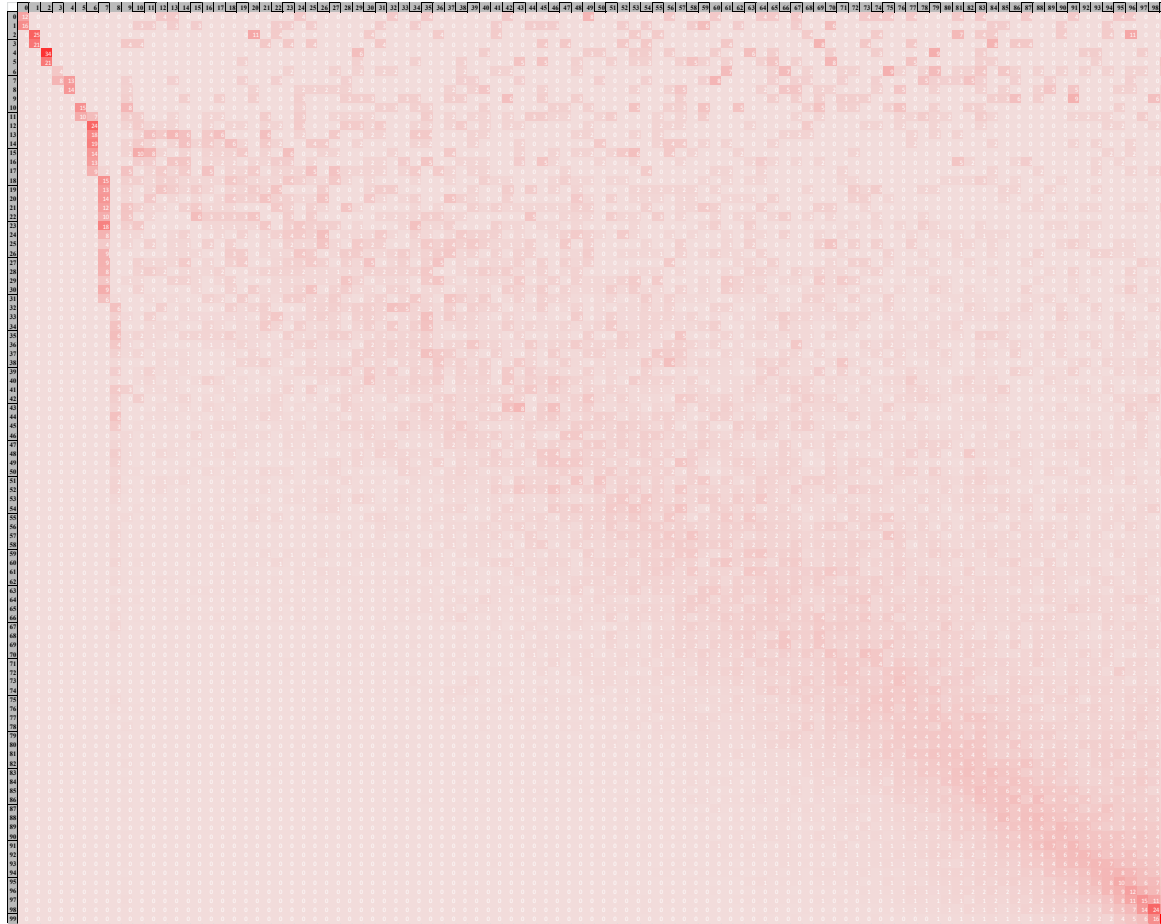
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
D1	8	3	3	3	5	7	10	13	17	32
D2	7	8	6	8	8	9	8	9	11	26
D3	5	7	6	7	8	10	10	11	12	24
D4	4	5	6	8	9	10	11	12	13	22
D5	3	3	4	7	10	11	12	12	14	24
D6	2	2	3	6	9	12	13	14	15	23
D7	2	1	2	3	6	12	15	17	17	24
D8	1	1	1	2	4	8	15	20	21	26
D9	1	1	1	1	2	5	10	19	28	33
D10	1	1	1	1	2	3	6	11	22	52

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Total medical expenditure transition matrices for people with chronic disease (ALD) : percentile

Percentile
in 2013



Percentile
2008

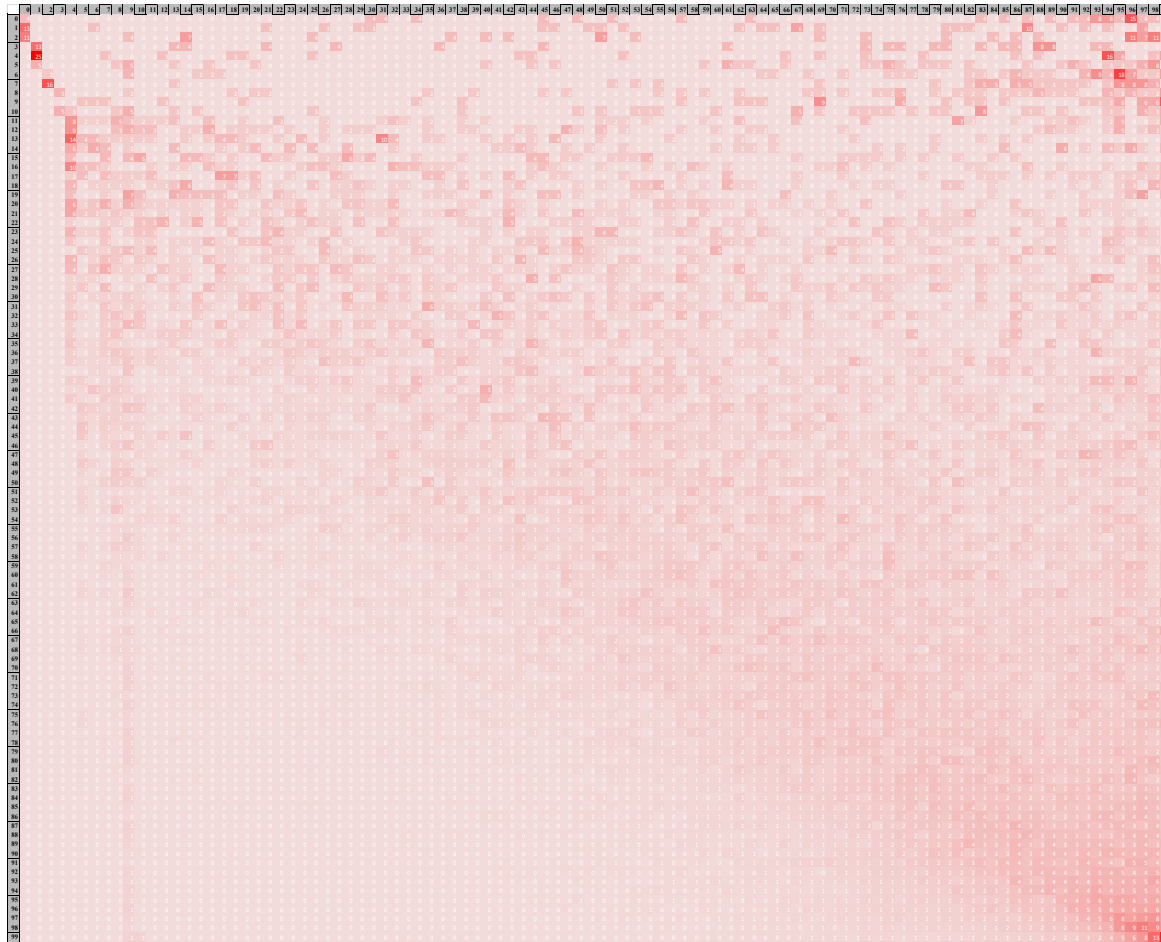
Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Total medical expenditure transition matrices for people with chronic disease (ALD) : percentile

Percentile
in 2013



Percentile
2008

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Drug expenditure transition matrices in the all population : percentile

Percentile of drug expenditure 2009



Percentile of drug expenditure 2008

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Drug expenditure transition matrices for people with chronic disease (ALD): percentile

Percentile of drug expenditure 2009



Percentile of drug expenditure 2008

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



- **To sum-up**

To sum-up (1/2)

- **Concentration of healthcare expenditure**
 - **Polarization** : 10% of the population with highest spending concentrate 62% of total medical spending
 - **Reimbursement** : 10% of the population with highest drugs spending concentrate 58% of total drugs spending and 67% of drugs reimbursement

- **Persistence of medical spending**
 - Total spending
 - Significant for people with chronic diseases
 - Weak for other people
 - By type of care
 - Weak for inpatient care spending regardless the health status of the insuree
 - Stronger for pharmaceutical expenditure

To sum-up (2/2)

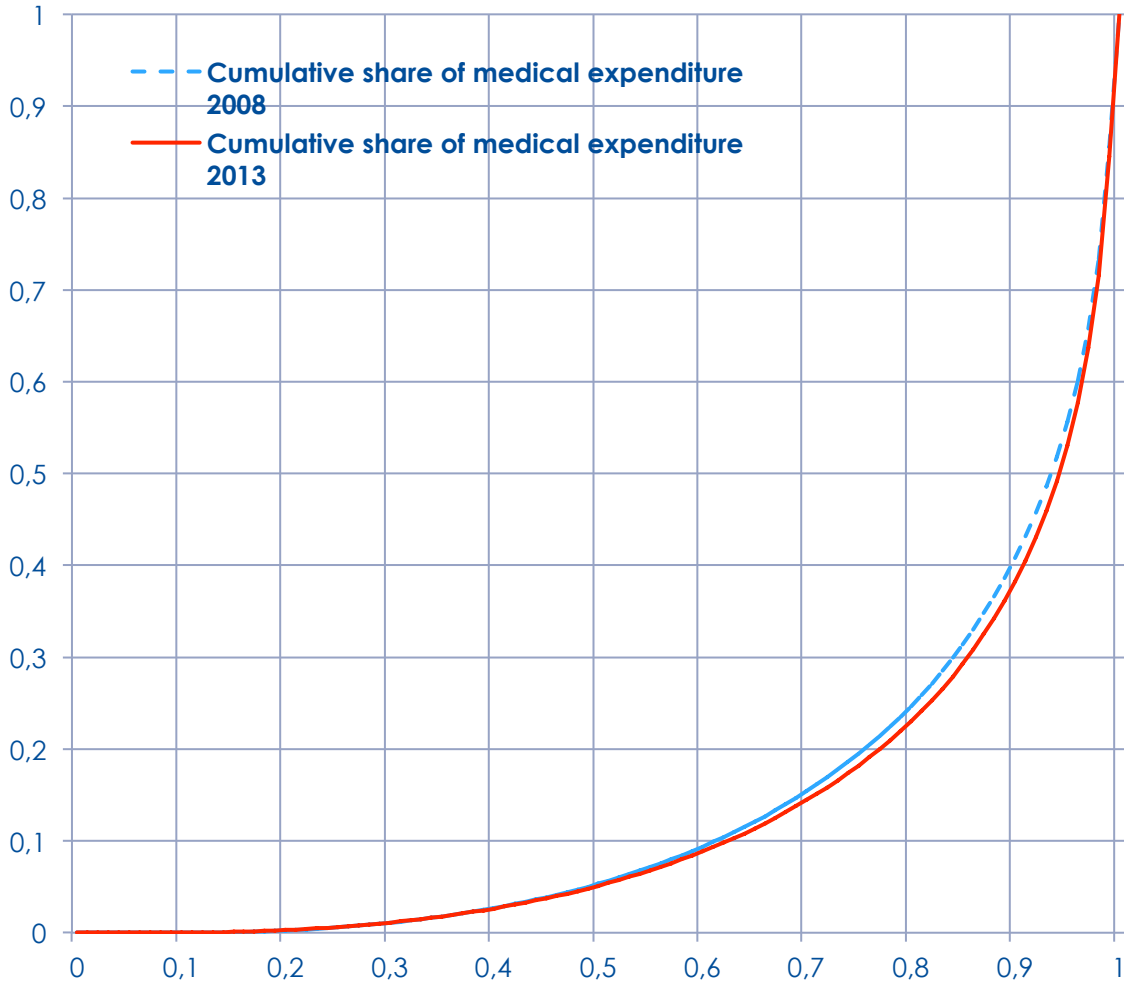
- **To go further:**

- Data :
 - Pros: size of the sample, panel dimension, details on healthcare spending
 - Cons: few socioeconomic variables

➡ Should we complete our analysis with results from surveys?

- **Back-up**

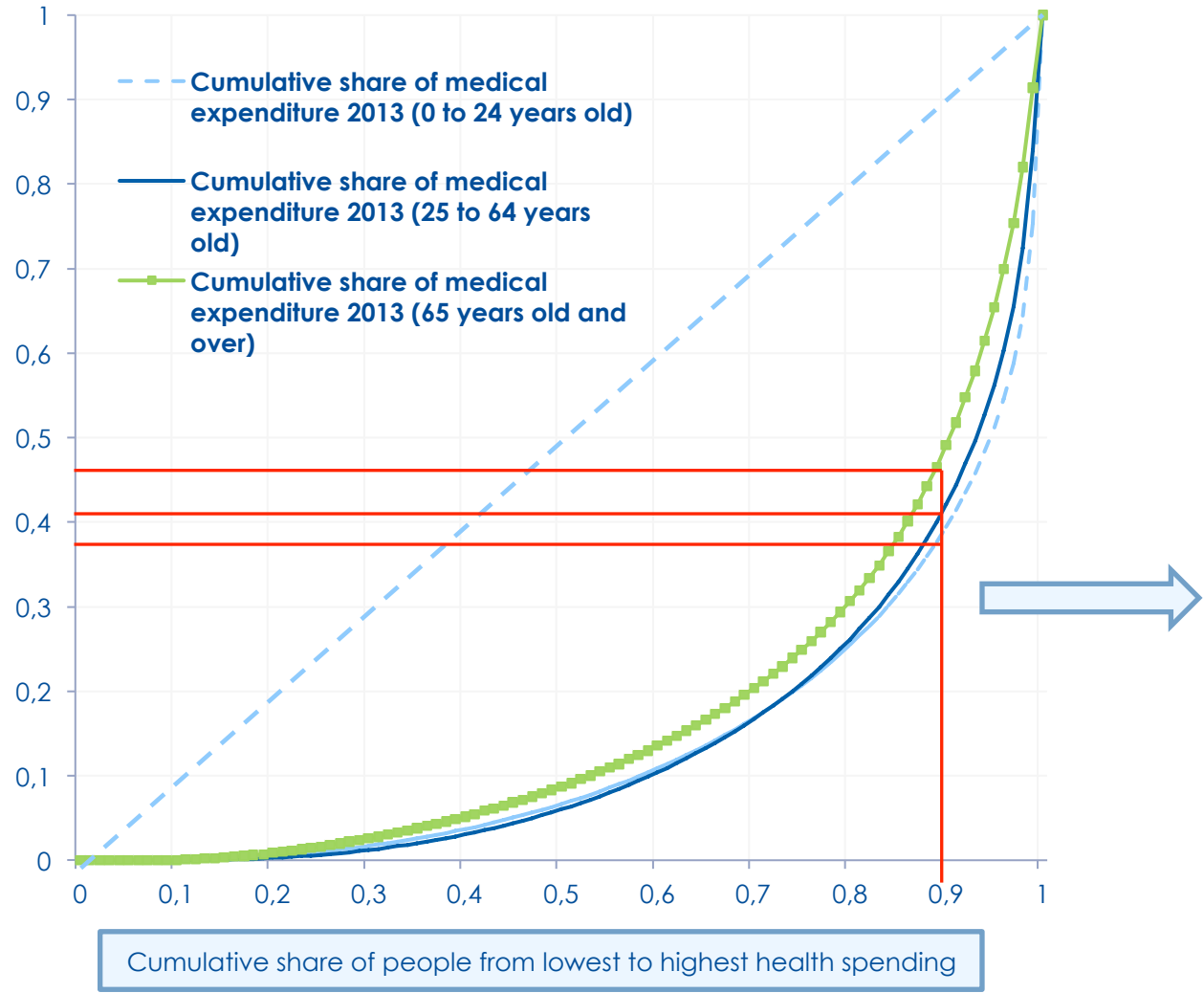
Lorenz concentration curve of medical expenditure (2008, 2013)



Source : SNIIRAM/EGB-PMSI,
2008-2009-2010-2011-2012-2013
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Lorenz concentration curve of medical expenditure 2013 by age



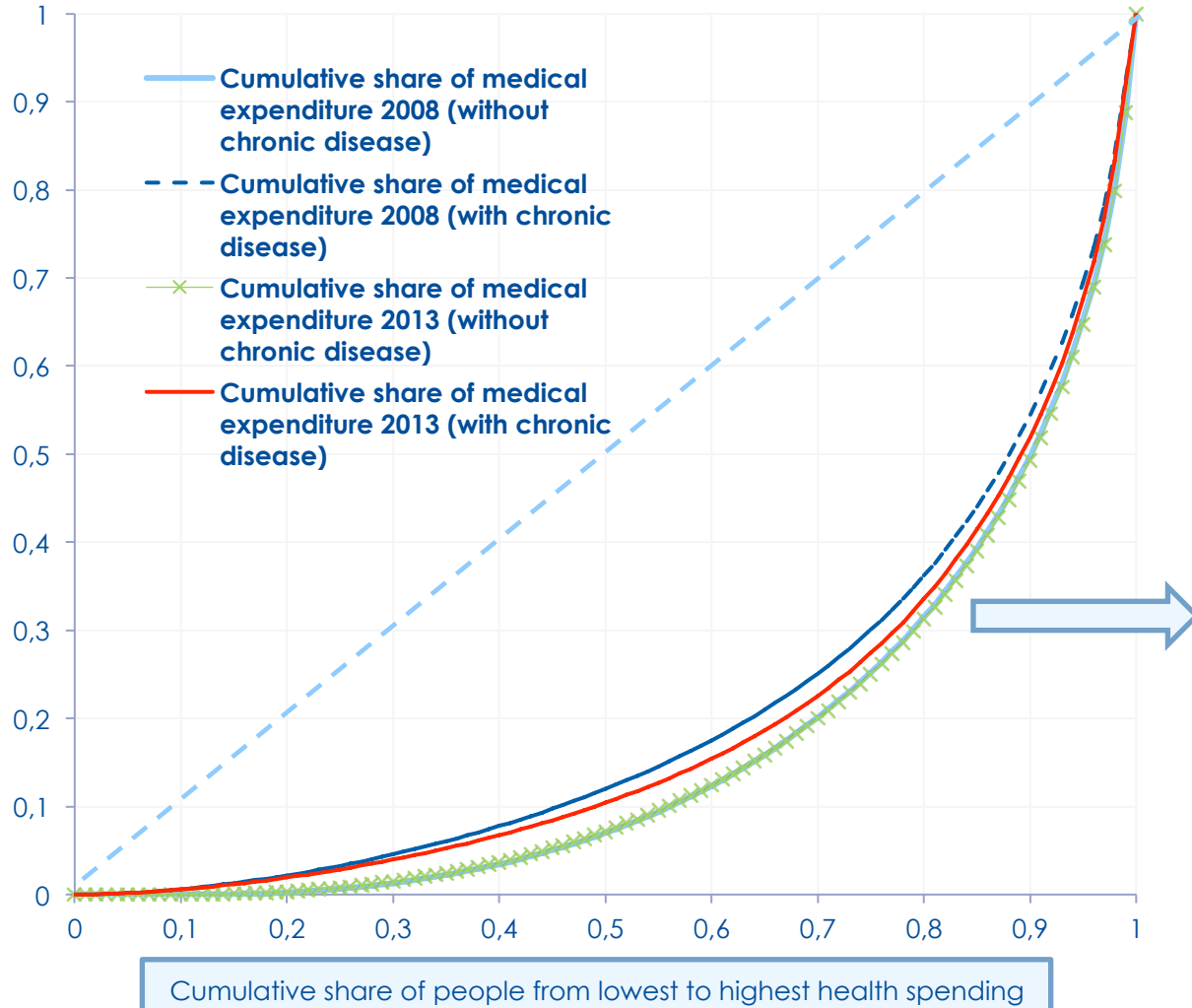
10% of the population with highest spending :

- 0 to 24 years old : concentrate more than 60% of total spending
- 25 to 64 years old : concentrate 58% of total spending
- 65 years old and over : concentrate 51% of total spending

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Lorenz concentration curve of medical expenditure (2008- 2013), by health status



30% of the population **with chronic disease** with **highest spending** :

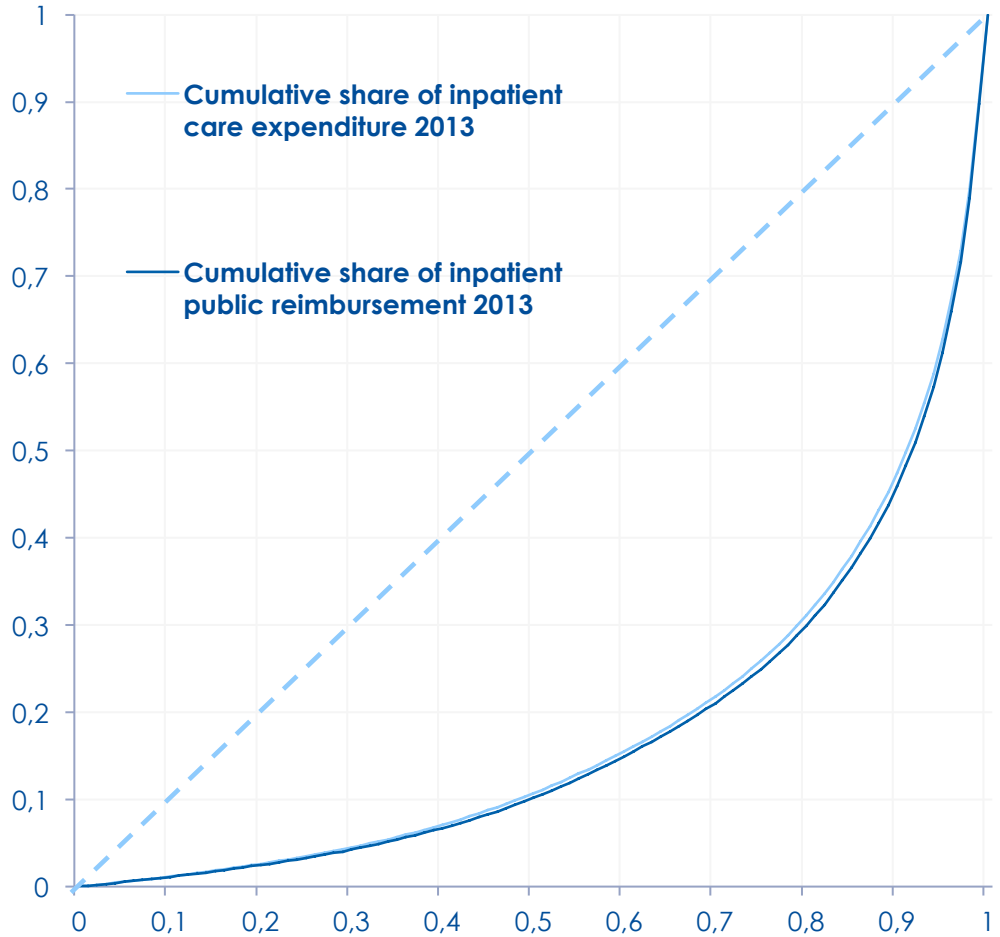
- 2008 : concentrate 75% total spending
- 2013 : concentrate 77% of total spending

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Lorenz concentration curve of medical expenditure 2013 by type of care



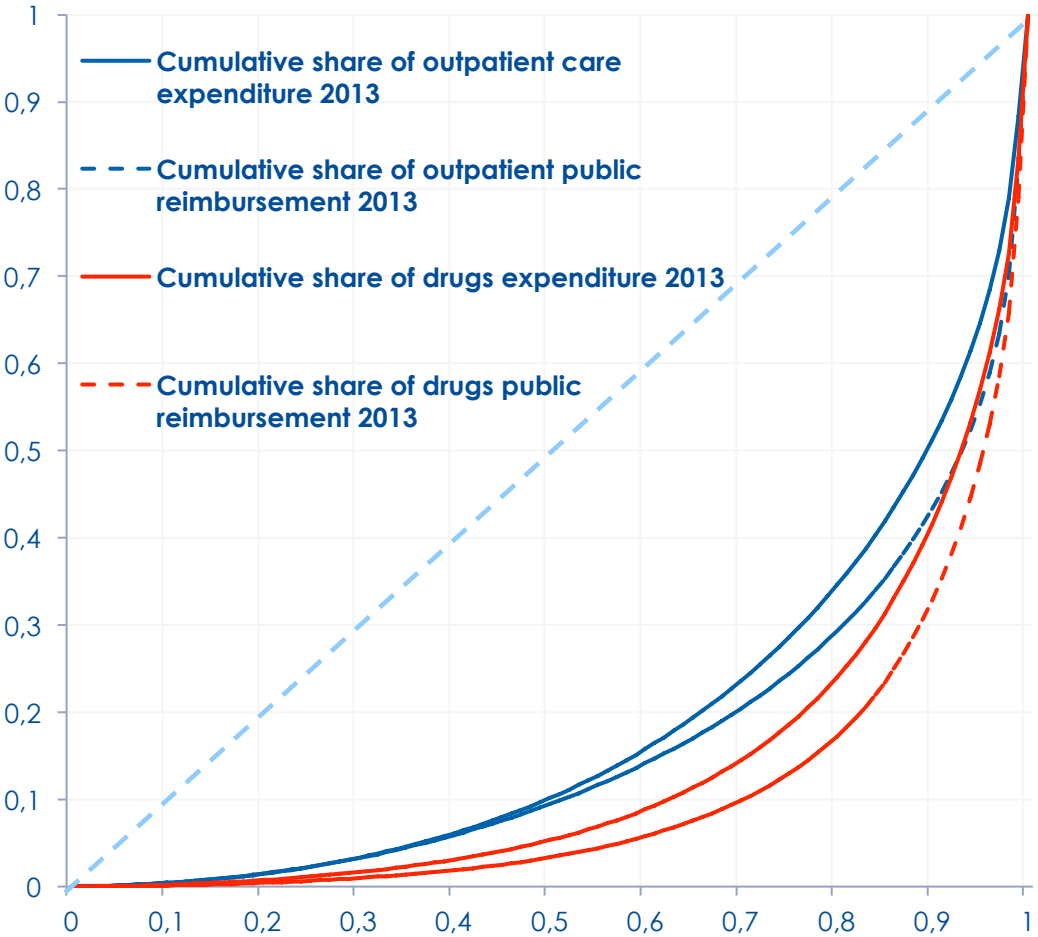
10% of the population with highest **inpatient** care spending :

- concentrate 53% total hospital spending
- concentrate 54% of total inpatient reimbursement

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Lorenz concentration curve of medical expenditure 2013 by type of care



10% of the population with highest **outpatient (drugs)** spending :

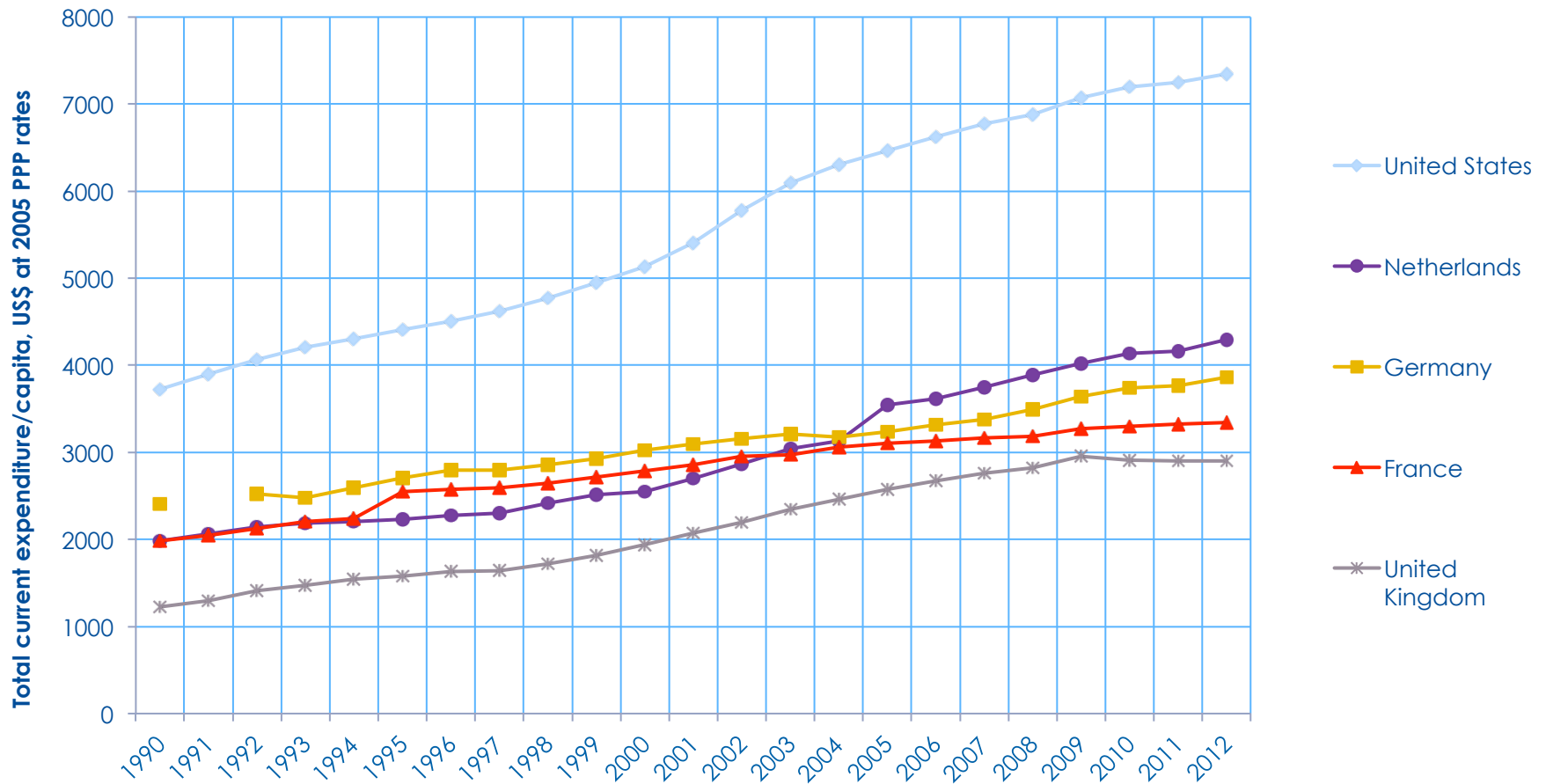
- concentrate 49% (58%) of total outpatient (drugs) spending
- 2013 : concentrate 57% (67%) of outpatient (drugs) reimbursement

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



- **Annex**

Total current expenditure per capita, US\$ at 2005 PPP rates



Source : OECD Health Data, 2013

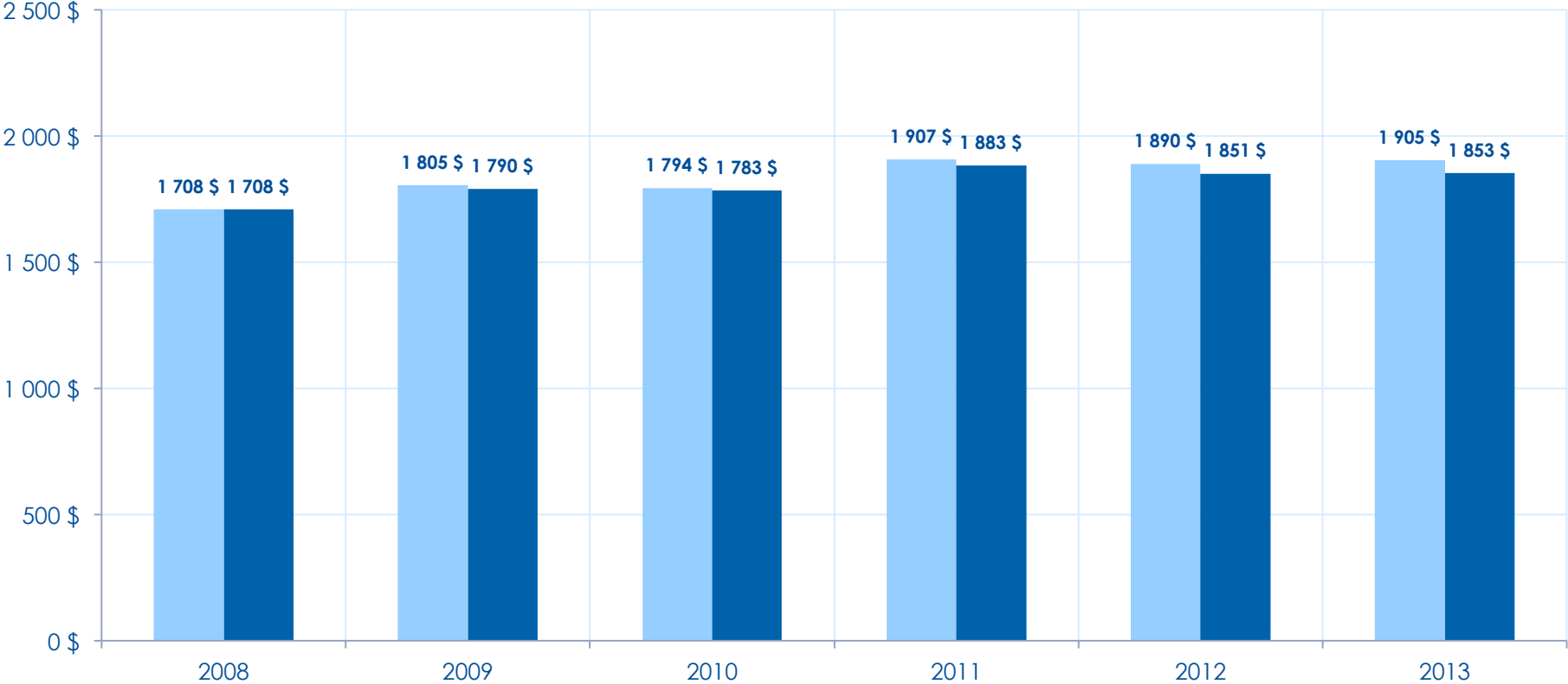
Source : SNIIRAM/EGB-PMSI,
2008-2009-2010-2011-2012-2013

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Average health care expenditure adjusted for cohort effect

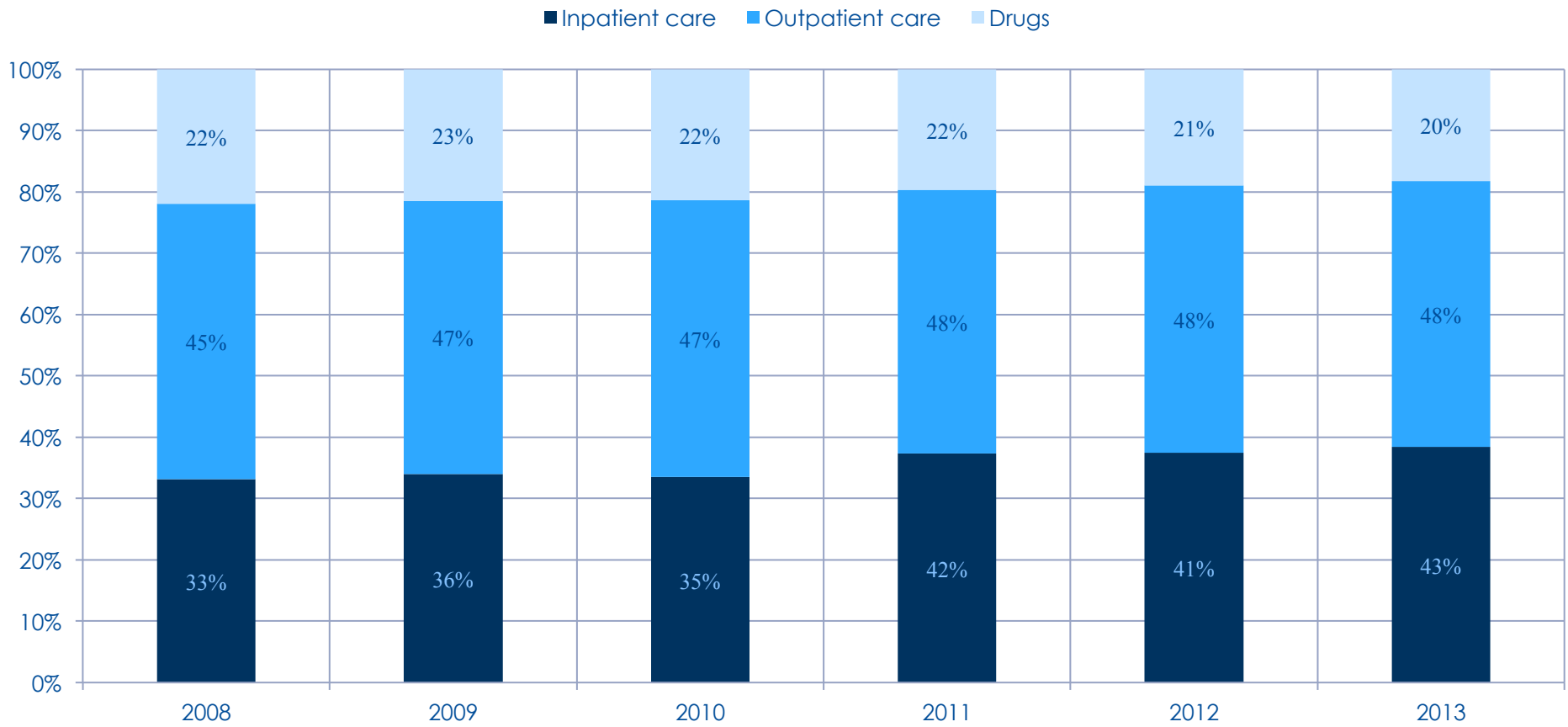
■ Total expenditure ■ Total expenditure adjusted for cohort effect



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



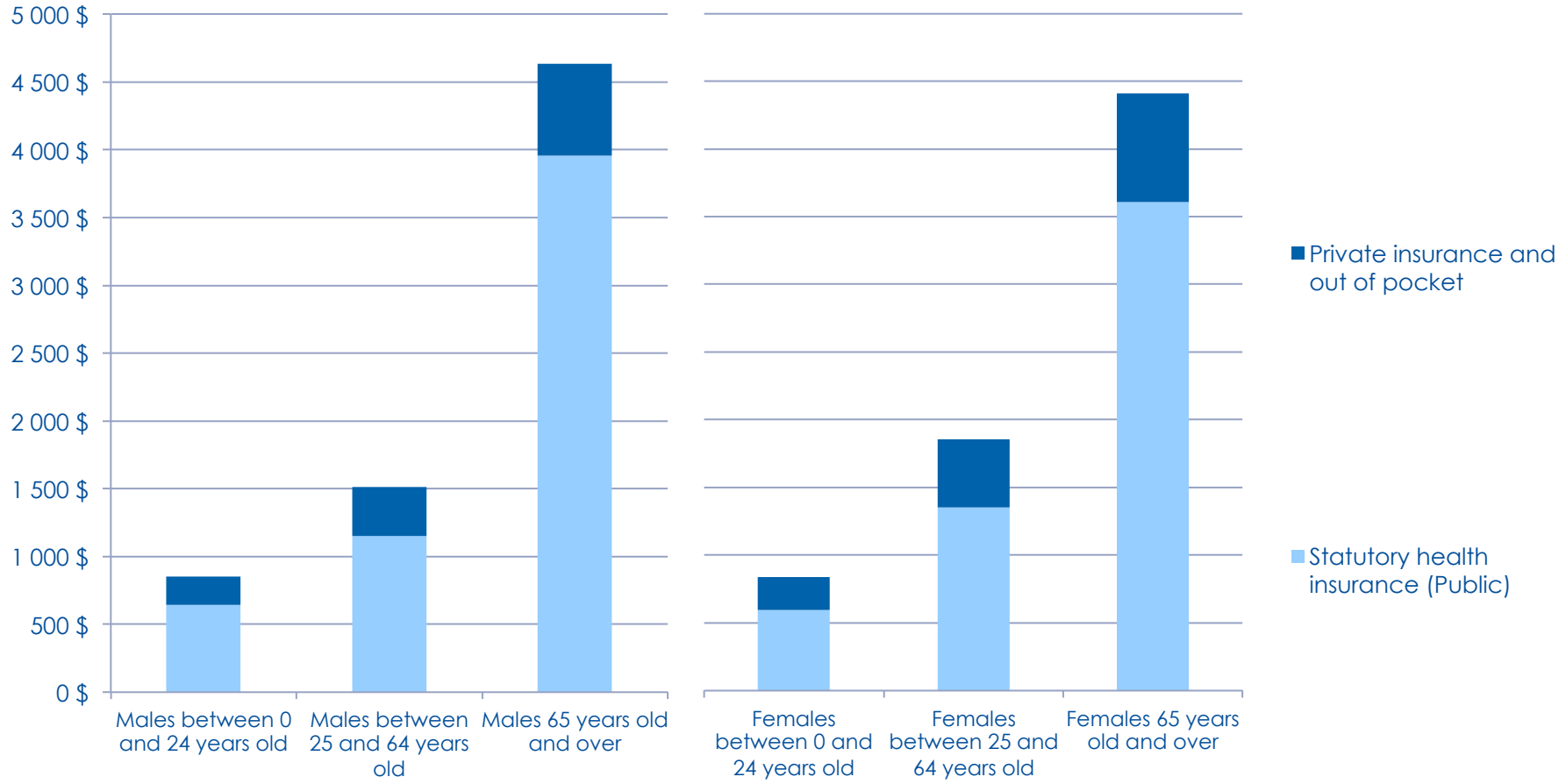
Health care expenditure by function of care (2008-2013)



Source : SNIIRAM/EGB-PMSI,
2008-2009-2010-2011-2012-2013
March 2015



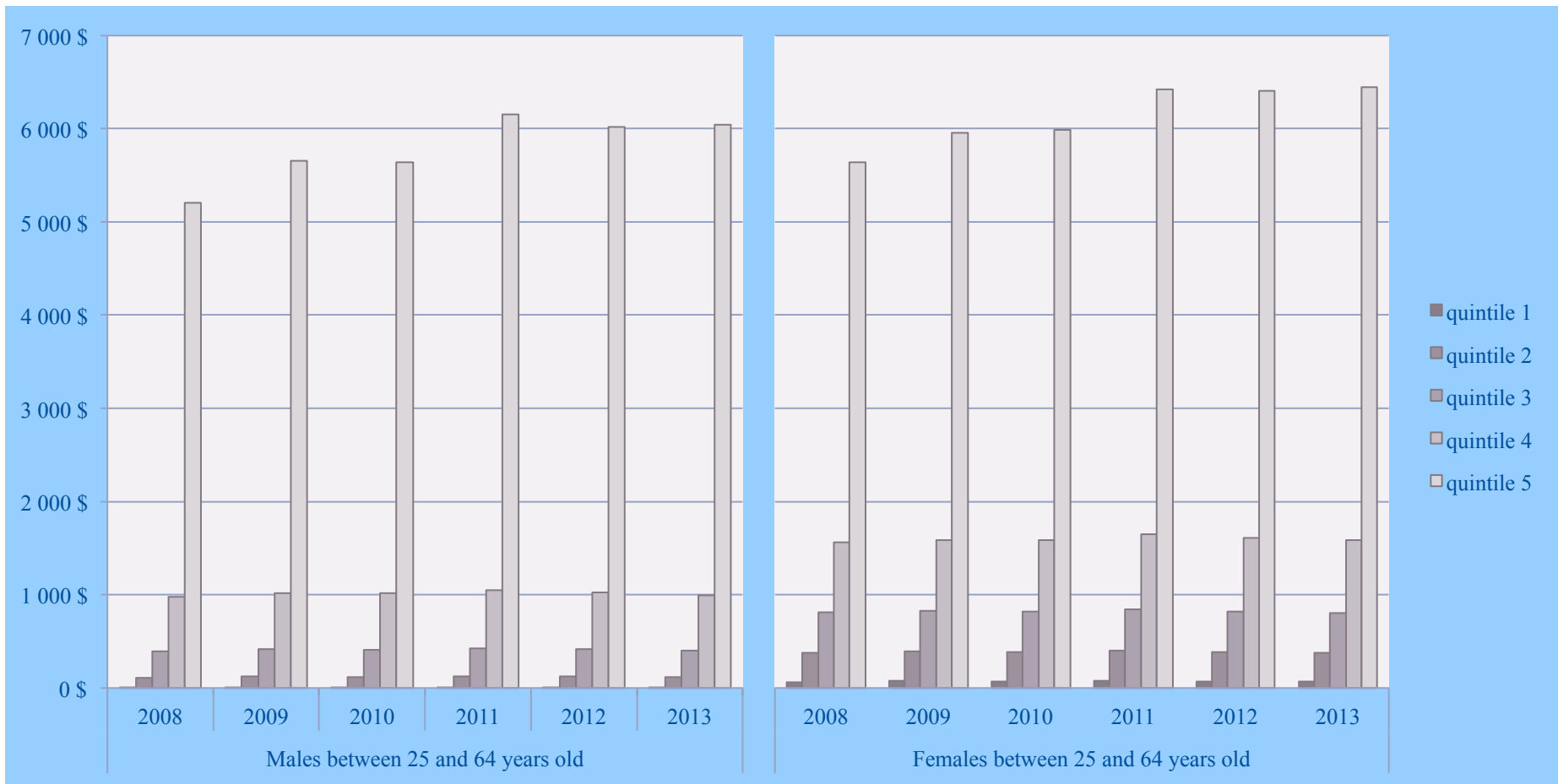
Expenditure by type of financing, age and gender in 2013



Source : SNIIRAM/EGB-PMSI,
2008-2009-2010-2011-2012-2013
March 2015



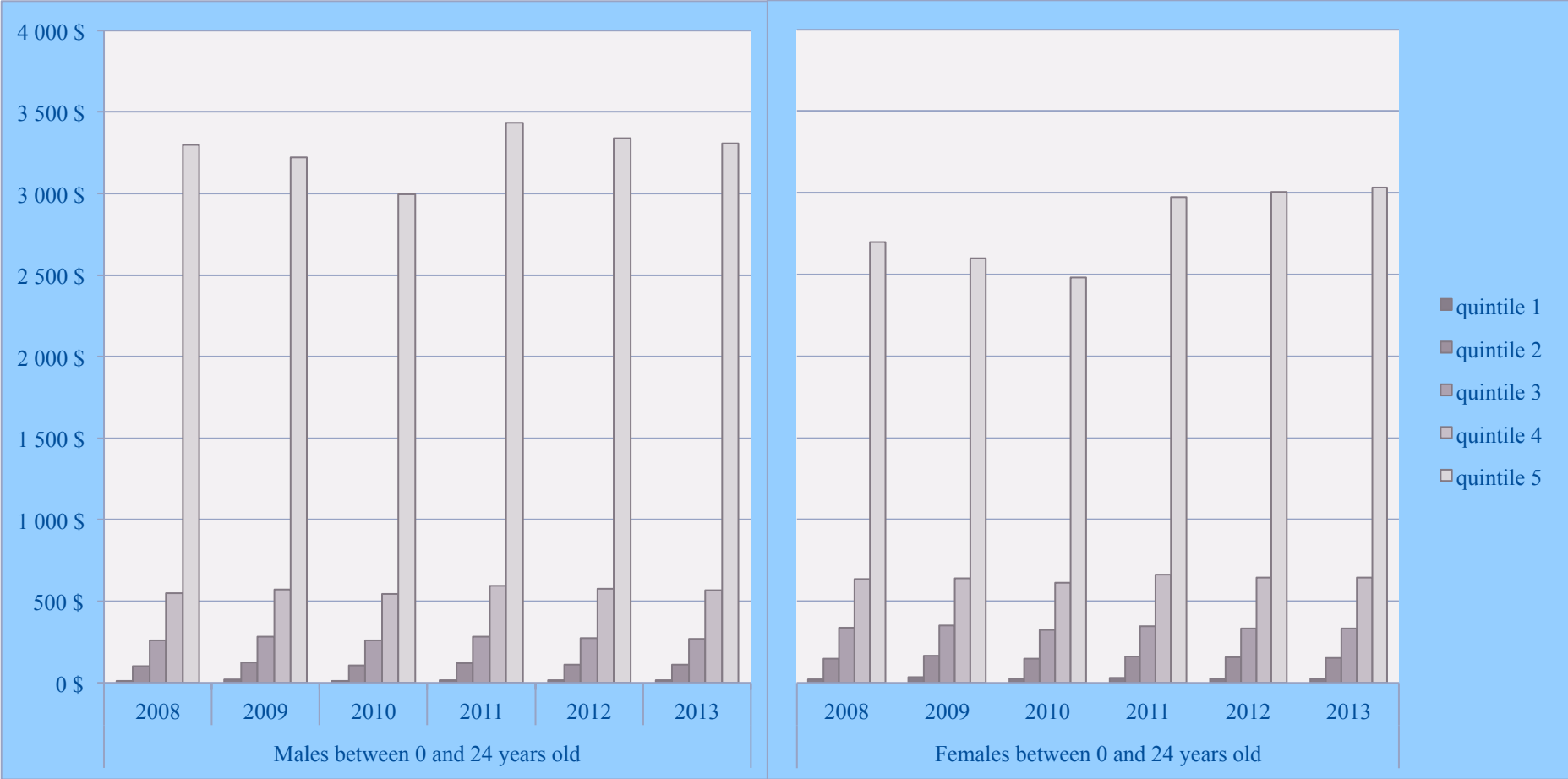
Average medical spending by expenditure quintile and gender (25 to 64 years old)



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



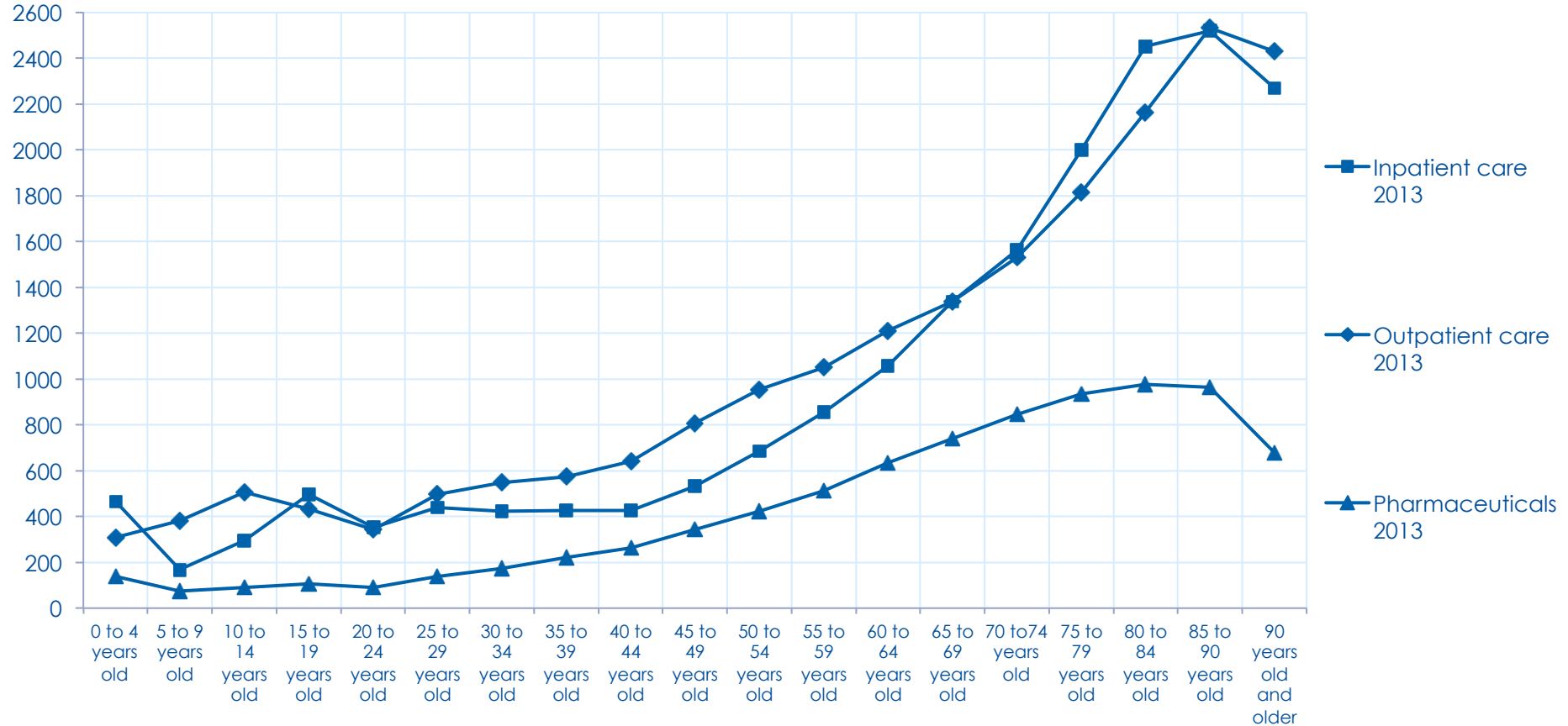
Average medical spending by expenditure quintile and gender (0 to 24 years old)



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Average expenditure by age and type of care

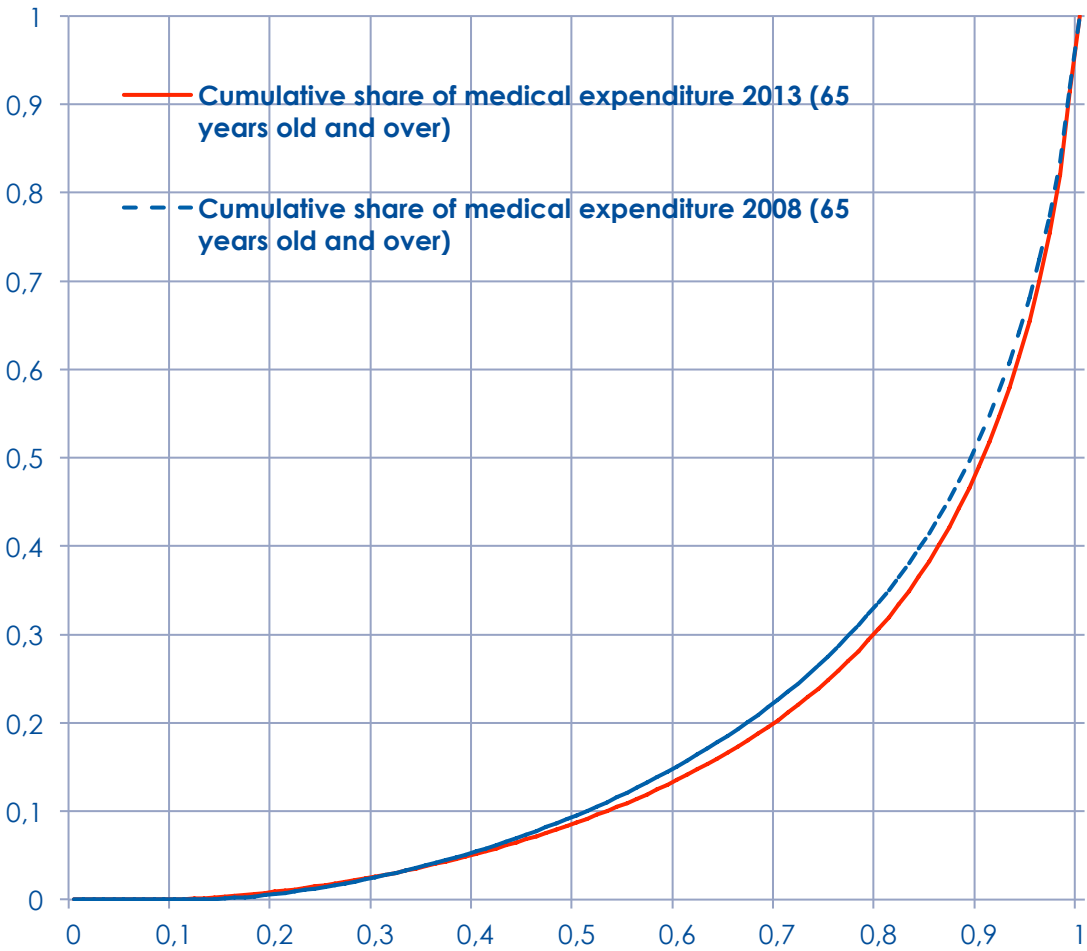


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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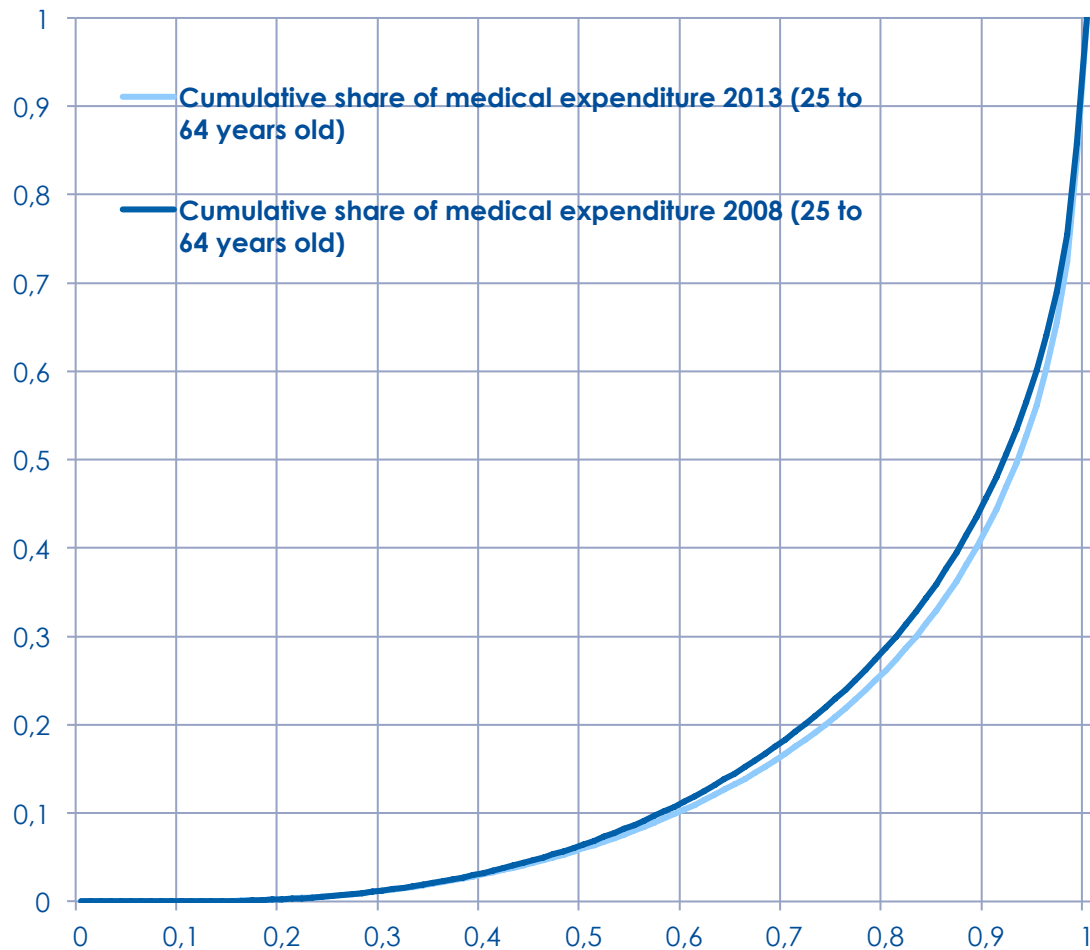
Lorenz concentration curve of medical expenditure (2008- 2013 by age)



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Lorenz concentration curve of medical expenditure (2008- 2013 by age)



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Correlation coefficients for annual health care expenditure by year

	2008	2009	2010	2011	2012	2013
2008	1.00000	0.64392	0.49142	0.45244	0.40691	0.36612
2009		1.00000	0.62022	0.53346	0.47664	0.42353
2010			1.00000	0.59517	0.50733	0.44109
2011				1.00000	0.64875	0.53579
2012					1.00000	0.64107
2013						1.00000

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Correlation coefficients for annual inpatient care expenditure by year

	2008	2009	2010	2011	2012	2013
2008	1.00000	0.51588	0.33784	0.30271	0.25807	0.21998
2009		1.00000	0.47942	0.38534	0.32889	0.27841
2010			1.00000	0.42901	0.34094	0.28254
2011				1.00000	0.49681	0.37660
2012					1.00000	0.48287
2013						1.00000

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Correlation coefficients for annual outpatient care expenditure by year

	2008	2009	2010	2011	2012	2013
2008	1.00000	0.75502	0.62934	0.54559	0.48366	0.43207
2009		1.00000	0.76238	0.65000	0.57083	0.49464
2010			1.00000	0.77718	0.66037	0.55888
2011				1.00000	0.79222	0.64607
2012					1.00000	0.76164
2013						1.00000

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Correlation coefficients for annual pharmaceuticals expenditure by year

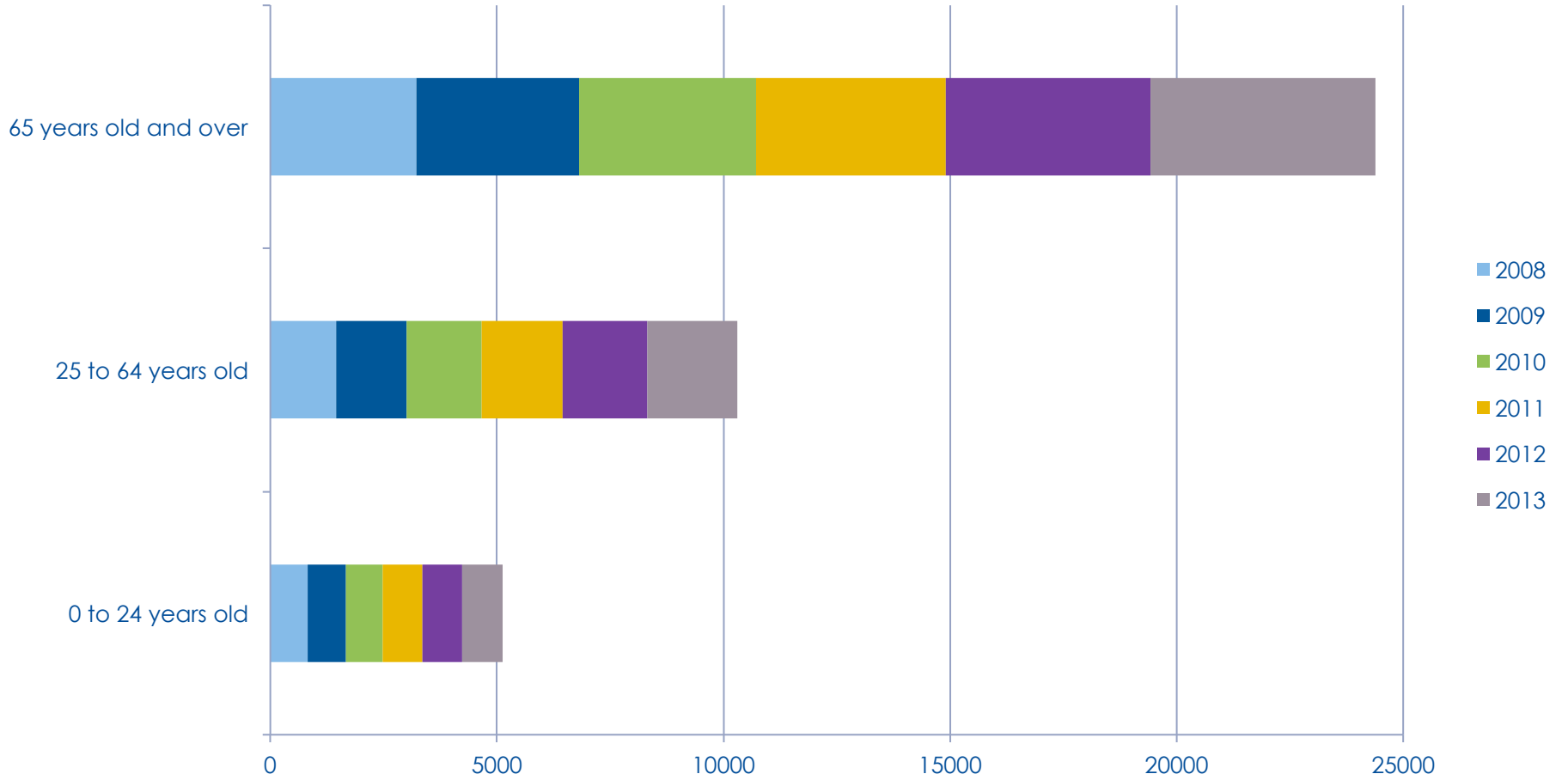
	2008	2009	2010	2011	2012	2013
2008	1.00000	0.84758	0.71828	0.63907	0.56585	0.49076
2009		1.00000	0.84305	0.72846	0.63368	0.53857
2010			1.00000	0.82559	0.70836	0.59774
2011				1.00000	0.83057	0.67360
2012					1.00000	0.78478
2013						1.00000

Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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Average health care expenditure by year and age

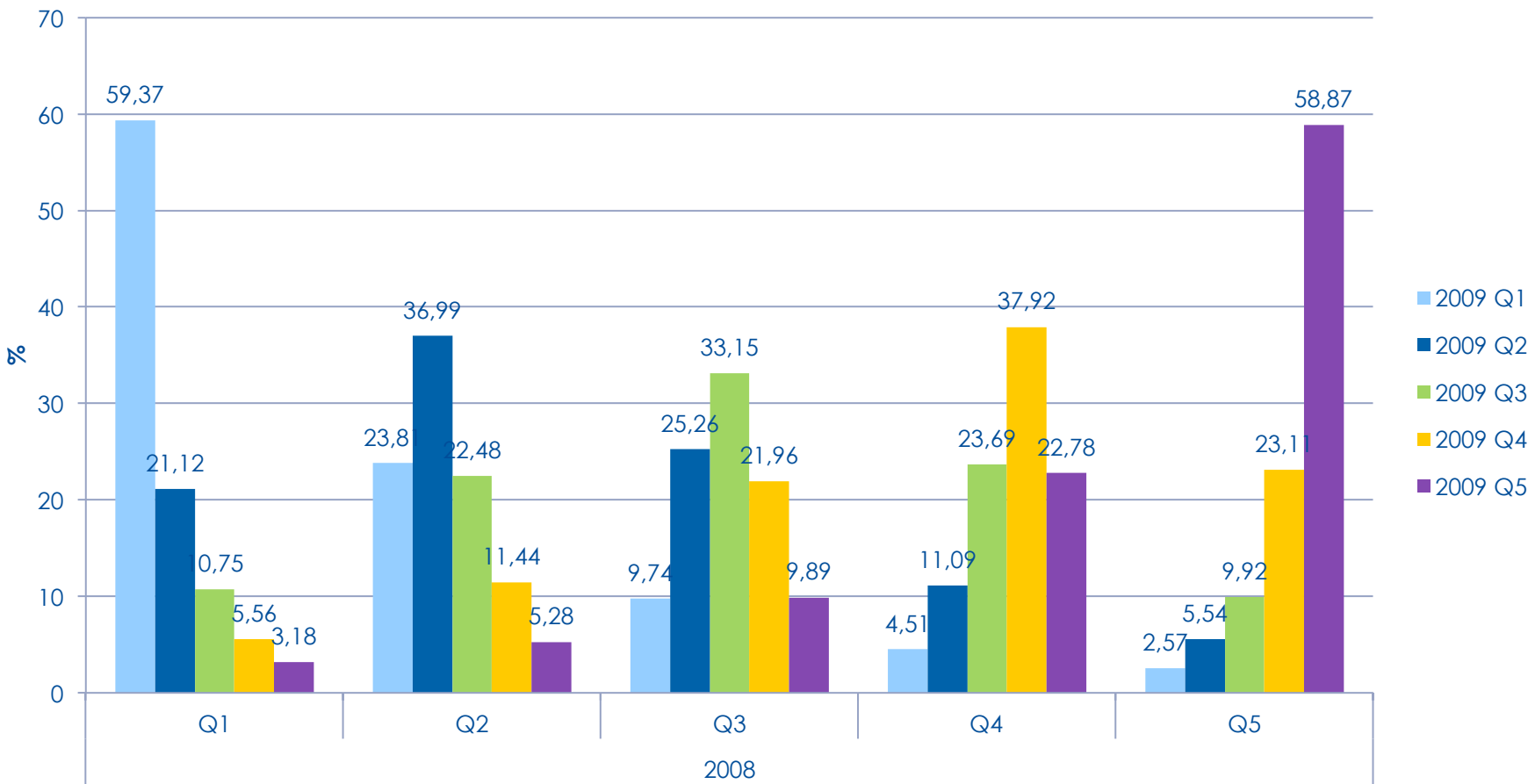


Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013

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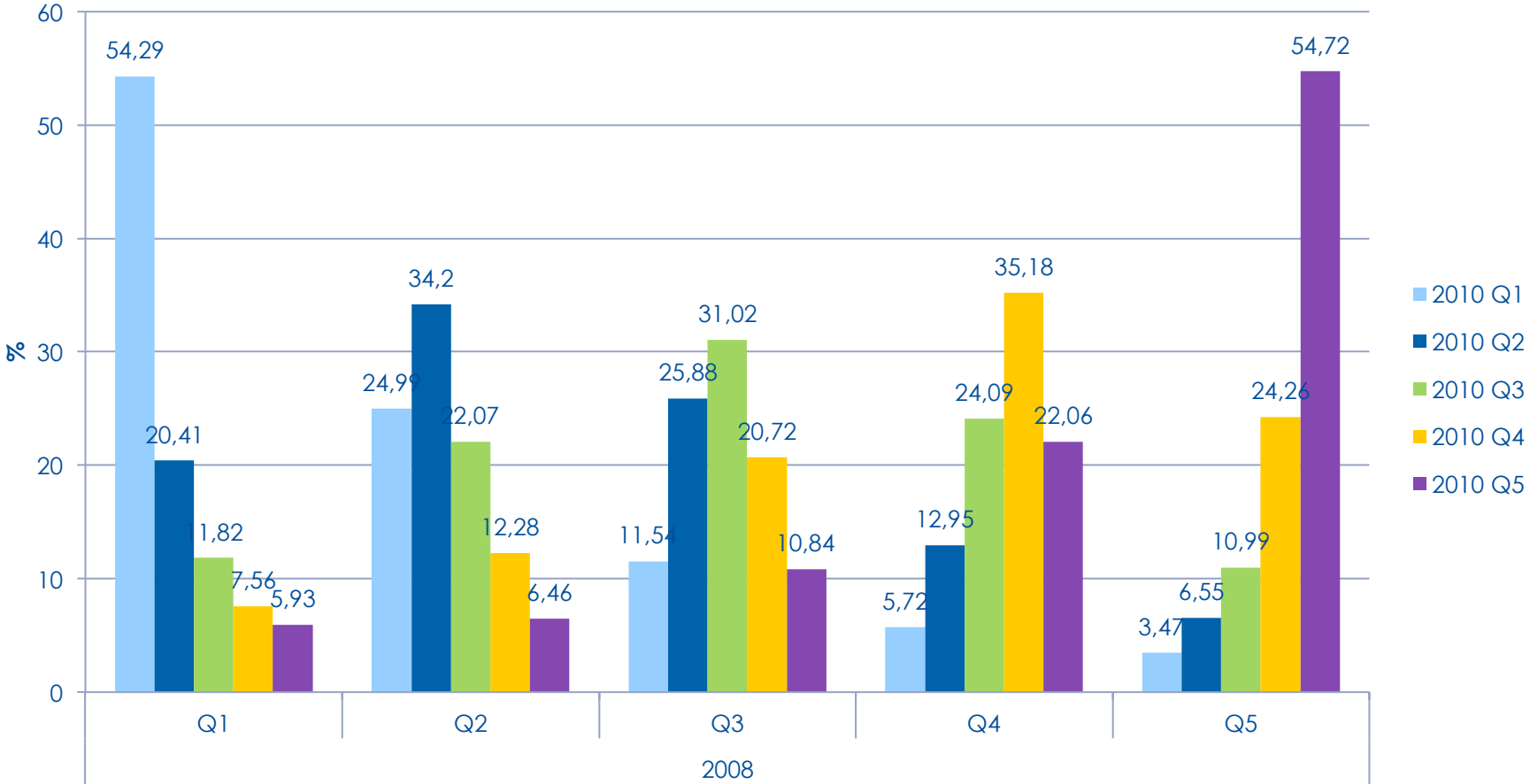
Total medical expenditure, transition matrices 2008-2009



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



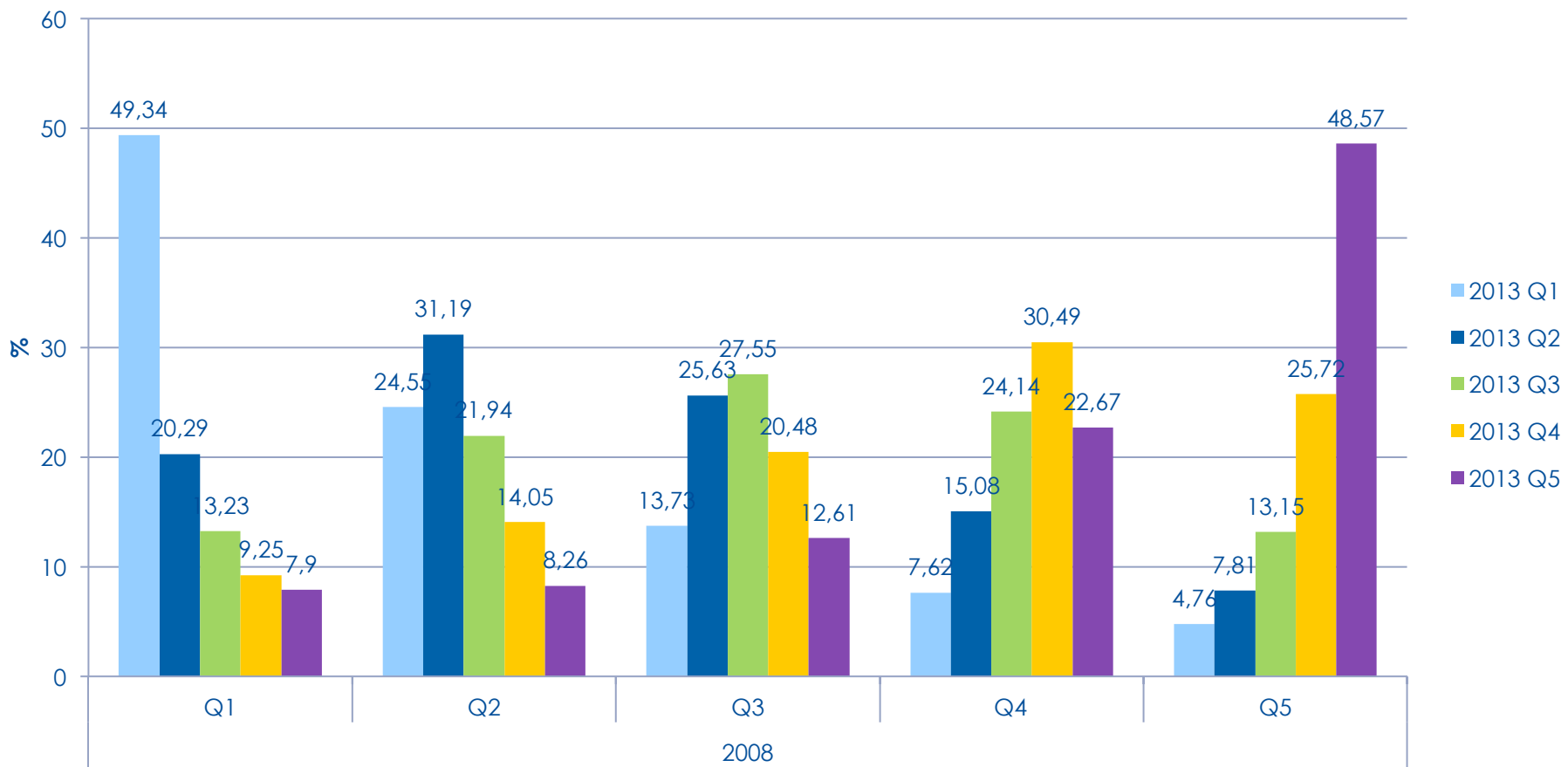
Total medical expenditure, transition matrices 2008-2010



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013



Total medical expenditure, transition matrices 2008-2013



Source : SNIIRAM/EGB-PMSI, 2008-2009-2010-2011-2012-2013