

PERFORMANCE OF THE BELGIAN HEALTH SYSTEM

REPORT 2012

SUPPLEMENT S1 DOCUMENTATION SHEETS





Belgian Health Care Knowledge Centre

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1. SOURCE OF PRIMARY DATA AND SOURCE OF RESULTS

This section presents the different data sources that have been used to measure the set of 74 indicators. For each of them, a distinction is made in the documentation sheet between two concepts:

- the source of primary data : this is the original database providing the information to calculate the indicator
- the source of indicator result: this is the document or database providing the value of the indicator that we present in this report.

When official values are available for some indicators, we present those instead of recalculating them in order to avoid duplication of programming and inconsistencies in results. If no recent official value have been calculated, the KCE have made the calculations.

For instance, the Data Cell of the SPF/FOD measures regularly the in-hospital mortality rate after a hip fracture (in the context of the multidimensional quality Feedback (FPS Health Food Chain Safety and Environment, 2008)). In that case, the original source of data for that indicator is the RCM/MKG, and the results presented in this report come from the Feedback report. Other indicators, such as total health expenditures, are compiled by the SPF social security and transmitted to the OECD who performs calculation in a harmonized way for its member states. The SPF social security is identified as the source of data, and the OECD as the source of results.

Indicators were calculated by the KCE where there were no recent results available. For instance, the most recent official results available for breast cancer screening dated from 2006. THE KCE has thus calculated the results for this indicator including data from 2010.

1.1. Source of primary data

Table 1 presents the different sources of primary data. The most contributing are administrative databases from national institutes or organisms: the EPS (échantillon permanent/permanente steekproef), the FPS Public health (mainly hospital administrative discharge data), the INAMI/RIZIV, and the WIV/ISP, mainly with the health interview survey. Other sources include specific surveys. These different data sources are briefly described below. More details on these data sources can be found in the Belgian Health in Transition report (HiT) (Gerken and Merkur, 2010), and in the second supplement of the previous performance report. (Vlayen *et al.*, 2010)

**Table 1 – Source of primary data for the set of performance indicators**

Owner of Data	Source of Data	N indicators (N = 74)	% of total
Intermutualistic Agency (IMA)	Echantillon permanent-Permanente Steekproef (EPS)	12	16.2
ISP-WIV	HIS, NSIH, AIDS surveillance	15	20.3
INAMI-RIZIV	Pharmanet, doc N, doc P	12	16.2
FPS Public Health	RHM-MZG, RPM-MPG	12	16.2
FPS Social Security	Systems of health accounts (SHA)	2	2.7
Belgian Cancer Registry	Cancer Survival after 5 years	4	5.4
DGSIE-ADSEI	Life expectancy, GINI index	2	2.7
Communities	Number of graduates (physicians, nurses)	2	2.7
Communities + ISP- WIV	Vaccination surveys	2	2.7
Communities + DGSIE – ADSEI	Death certificates	3	4.1
VIGEZ	Health promotion surveys in Flanders	3	4.1
Other	Specific surveys	5	6.8



1.1.1. Data from Sickness Funds: Echantillon Permanent – Permanente Steekproef (EPS)

The Intermutualistic Agency (IMA) gathers the socio-demographic and health expenditures data of the whole population from all sickness funds. Population data include demographics (year of birth, gender, decease date), data on the insurance status and on the professional status. Healthcare expenditure data include detailed information such as quantities, date of administration and amounts paid by the patient or reimbursed by the national health insurance for drugs, implants, diagnostic and therapeutic procedures covered by the national health insurance.

The EPS or Permanent Sample (Echantillon Permanent – permanente steekproef) is a sample of the IMA database, and contains information at the individual level for 300 000 people (1 in 40 of the population below 65 years old, 1 in 20 of the population aged 65 years or above). The database combines information on demographic and socioeconomic characteristics of patients, the use of pharmaceutical products and the use of health services (e.g. physician visits, hospitalizations ...), starting in 2002. The database is managed by the IMA.

1.1.2. FPS Health, Food Chain Safety and Environment: Hospital discharges administrative databases

The most important data sets developed for hospital policy since the 1980s are: Minimal Clinical Data (MKG/RCM), Minimal Nursing Data (MVG/RIM), Minimal Psychiatric Data (MPG/RPM), Hospital Billing Data (SHA/AZV) and Mobile Urgency Group Data (MUG/SMUR). These data are mainly collected as tools for the measurement of hospital needs for public financing, and evaluation of the effectiveness and quality of hospital care. In 2007, an integrated system for data collection, the Minimum Hospital Data Set (MZG/RHM) was launched, covering the clinical, nursing and urgency data. The registration of those data is mandatory for all hospitals.

MKG/RCM registration for hospitalized patients was developed in the 1980s and recording this data for all patients became compulsory in 1990. The information in the MKG/RCM includes relevant clinical data (e.g. primary and secondary diagnosis) and demographic characteristics of patients. Records are pseudonymized, thus patients cannot be directly identified in the data set. The MKG/RCM are used to group hospitalized patients in APR-DRGs (All Patient Refined DRGs, 3M), by pathology and

by degree of severity; which allows evaluating the case-mix of the hospitals.

1.1.3. ISP- WIV

1.1.3.1. Health Interview Survey (HIS)

The main objective of the Health Interview Survey (HIS) is to give a description of the health status of the population in Belgium and of the three regional subpopulations (Flemish, Walloon and Brussels regions). The HIS includes a vast amount of information on different health outcomes such as health status, lifestyle, use of health services and cancer screening. Four waves of the survey have been carried out in 1997, 2001, 2004 and 2008 on a representative sample of about 12000 persons. The fifth survey is foreseen for 2013.

1.1.3.2. NSIH National Surveillance of Infections in Hospitals

The National Surveillance of Health Care-Associated Infections and Antimicrobial Resistance in Belgian hospital (NSIH) aims to decrease hospital infection rates through surveillance, confidential feedback system and self-assessment. Participating hospitals are able to monitor local infection and antibiotic resistance rates. These results can be compared with those of other Belgian hospitals. Data are available for several infections, such as nosocomial bloodstream infections, Clostridium difficile associated diseases, and antibiotic resistance and use.

1.1.4. Belgian Cancer Registry (BCR)

Since June 2005, the Belgian Cancer Registry Foundation has been in charge of collecting, registering and analysing information on new cancer cases for Belgium. It is mandatory for physicians as well as for laboratories to register data on new cancer diagnoses.

1.1.5. INAMI-RIZIV

The INAMI-RIZIV receives health expenditure information either directly from sickness funds or through intermediate organizations on different health care expenses. Sickness funds provide official documents on health expenses (aggregated data, e.g. physician visits) and information that is used for administrative purposes: the documents N are aggregates of expenditures, numbers of cases and number of days by nomenclature code and year.



1.1.6. VIGeZ

For support with health promotional activities, the Flemish government appeals to the Flemish Institute of Health Promotion and Sickness Prevention (VIGeZ). VIGeZ is a centre of expertise that delivers a strategic vision, quality recommendations and training for professionals in health promotion. VIGeZ focuses on topics such as tobacco, healthy eating, promotion of physical activity and accident prevention. VIGeZ aims at intermediate target groups such as schools, working environments, local communities and the underprivileged.

1.2. Source of results

For 39 indicators, we could use directly the information from the source data to get the value of the indicators. For 14 indicators (mainly based on the EPS or on the RCM-MKG), the KCE performed the calculation. For 10 other indicators, the OECD health data provided the information. The remaining source of results are reports published by administration (GP performance report published by INAMI/RIZIV, Feedback report on quality or safety published by the PFS Public Health, KCE reports) or by the IMA.

Table 2 – Source of results for the set of performance indicators

Source of Results	N indicators (N = 74)	% of total
Own calculation (by KCE, ISP or RIZIV-INAMI)	32	43.2
International databases		
- OECD Health Data	13	17.6
- Eurostat	3	4.1
- WHO Health Database	1	1.4
Available from Belgian administration or institution		
ISP – WIV	8	10.8
DGSIE –ADSIE	2	2.7
IMA report	1	1.4
FPS Public Health	4	5.4
VIGeZ	3	4.1
Other	7	9.5



1.2.1. OECD Health Data

The OECD health data is a database which is divided in several domains: health status, healthcare resources, healthcare utilization, long term care resources and utilizations, expenditures on health, healthcare financing, social protection, pharmaceutical market, non medical determinants on health and demographic references. The database is updated every year at the end of June. (OECD, 2011c) Key indicators are described in the annual reports "Health at a Glance". (OECD, 2011b)

1.2.2. Feedback from FPS Public Health

1.2.2.1. Multidimensional Feedback to the hospitals

In 2006, the FPS Health, Food Chain Safety and Environment sent out a first report to the Belgian acute hospitals on their performance. This initiative has 3 main objectives. First, the results allow the hospitals to compare their performance to that of other institutions. Furthermore, the indicators enable an internal assessment of care processes and activities and the set-up of improvement initiatives. Finally, the results highlight deficiencies in the administrative databases and may trigger the hospitals to deliver more accurate data. This first feedback consisted of a limited set of indicators. The initiative was welcomed by the hospital sector and expanded on their demand.

In 2008, a second report was distributed. Twenty-nine indicators covering 4 performance dimensions were measured: Clinical performance, Economic performance, Capacity and innovation, Patient-centeredness. (FPS Health Food Chain Safety and Environment, 2008)

Patient safety indicators report (PSI)

Building on the results of a pilot study of the CHU Liège, investigating the feasibility to extract Patient Safety Indicators from the RCM/MKG database, the FPS Health, Food Chain Safety and Environment published a first feedback report to the Belgian hospitals in April 2008. (FPS Health Food Chain Safety and Environment, 2011) The 20 indicators used for this feedback were adapted from the patient safety indicator set of the AHRQ.

1.2.3. INAMI/RIZIV: GP's performance report

En 2012, le service des soins de santé de l' INAMI a réalisé un rapport important sur la performance en médecine générale dans le cadre du contrat d'administration de l'INAMI 2010-2012. (NIHDI, 2012b) Ce rapport est intéressant, par la méthodologie utilisée et par les conclusions qu'il tire sur le fonctionnement de la médecine générale en Belgique. Une brochure d'information est disponible sur le site de l' INAMI. L'approche performance utilisée dans ce rapport permet d'aborder des questions aussi fondamentales que complémentaires telles que l'accessibilité des soins, la sécurité tarifaire, la compliance, la coordination des soins, la qualité, la sécurité, l'efficacité, la pertinence des prestations, ainsi que la pérennité du secteur.

Ce rapport soulève des questions fondamentales, en particulier :

1. Report de soins et déficit d'accès général sur Bruxelles (pas uniquement MG)
2. Sécurité tarifaire à vérifier sous différents aspects (convention et cumul ticket modérateurs)
3. Exploiter le fait que MG occupe une place centrale dans les soins de santé et que le DMG est structurant
4. Faire connaître et persuader d'appliquer les recommandations de bonne pratique
5. Anticiper le déficit attendu en médecins généralistes dans un proche avenir (gros effectifs sur le départ, trop peu de nouveaux effectifs entrants).
6. Améliorer l'adhésion des MG du Sud aux incitatifs de l'assurance (ou améliorer les incitatifs)

1.2.4. IMA reports

The IMA regularly publishes evaluation reports on different topics, such as cancer screening, vaccination against influenza, follow up of pregnancies, medical imaging or consumption of pharmaceutical products. (<http://www.nic-ima.be/fr/imaweb/home/index.html>)



2. INDICATORS ON GLOBAL HEALTH STATUS

2.1. Life expectancy at birth

2.1.1. Documentation sheet

Description	Life expectancy at birth is the average number of years expected to be lived by a newborn.
Calculation	Life expectancy at a given age, and in a given calendar year, represents the (average) number of years remaining to be lived by the persons of that age if they were to experience the mortality rates of that particular calendar year. Life expectancy at birth is a summary measure of the age-specific all cause mortality rates in an area in a given period. To study the socio-economic differences(based on educational level) in Life expectancy, the life-expectancy at age 25 is usually preferred (because the study course is then completed)
Rationale	It is a basic indicator for population health. It reflects the cumulative effect of the impact of risk factors, occurrence and severity of disease, and the effectiveness of interventions and treatment.
Primary Data source	DGSIE/ADSEI
Indicator source	EUROSTAT
Periodicity	Yearly
Technical definitions and limitations	<p>The indicator can be calculated from slightly different ways. The difference in the calculation comes mainly from how to calculate the mortality in the first year. Therefore, it is best to use the calculation made by EUROSTAT to enable international comparisons. Life expectancies are calculated using (abridged) life tables presenting age specific mortality rates. Life expectancy tables are calculated based on death probabilities according to Farr's death rate method: $qx = Mx / (Bx + (Mx/2))$ where Mx = the number of deaths at the age of x to under $x+1$ years in the reported period; Bx = average population aged x to under $x+1$ in the base period; qx = death probability from age x to $x+1$. Farr's method of calculation of abridged life-tables assumes that there is a constant mortality within the age intervals and thus the years of life lived by a person dying in the interval is (on average) half of the length of the interval.</p> <p>To measure the Life expectancy by socio-economic level mortality data (DGSIE) was matched to the 2001 census.</p>
International comparability	Yes
Dimension	Health Status
Related performance indicators	Health expectancy (healthy life years)
References	<p>WHO Health for all Data base http://data.euro.who.int/hfadbf/</p> <p>DGSIE : http://statbel.fgov.be/fr/statistiques/chiffres/population/deces_mort_esp_vie/tables/OECD</p> <p>http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT</p> <p>DG Sanco: Heidi Data tool: the European Community Health Indicators :</p>



http://ec.europa.eu/health/indicators/indicators/index_en.htm

OECD: Health at a glance, 2011 (OECD, 2011b), OECD indicators Health Data , 2011(OECD, 2011c)

Eurostat database http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=demo_mlexpec&lang=fr

Deboosere et al, 2010 (Deboosere et al., 2010)

2.1.2. Results

2.1.2.1. Belgium

In 2010, the life expectancy at birth in Belgium was 80 years (DGSIE). LE is 5.3 higher in women than in men. The Life expectancy **is higher in Flanders** than in Wallonia (3 years in men, 1.8 year in women).

The evolution of life expectancy since 1997 by region and by sex is shown in figure 1:

- Life expectancy **is continuously increasing**, in men as well as in women. The difference in life expectancy between men and women decreased from 6.4 to 5.3 years during this period.
- During the whole period, life expectancy was the highest in Flanders and the lowest in Wallonia, for both genders.

Table 2 shows the life expectancy by Socio-economic Status. This indicator is measured at 25 years (because the socio-economic status was measured by the educational level reached by the person). **A clear gradient in life expectancy is observed in function of the educational level** in both sexes. It is more marked in men, with a life expectancy of men without diploma being 7.47 years lower than in men with a superior diploma; in women, the difference is 5.42 years.

Life expectancy in Belgium **is a slightly lower than the EU-15 average** (Figure 2). It is lower than in most neighbouring countries.

In summary, the life expectancy in Belgium:

- is higher in women
- is higher in Flandres
- is linked to the SES level
- is increasing over time
- is a little bit lower than the EU-15 average

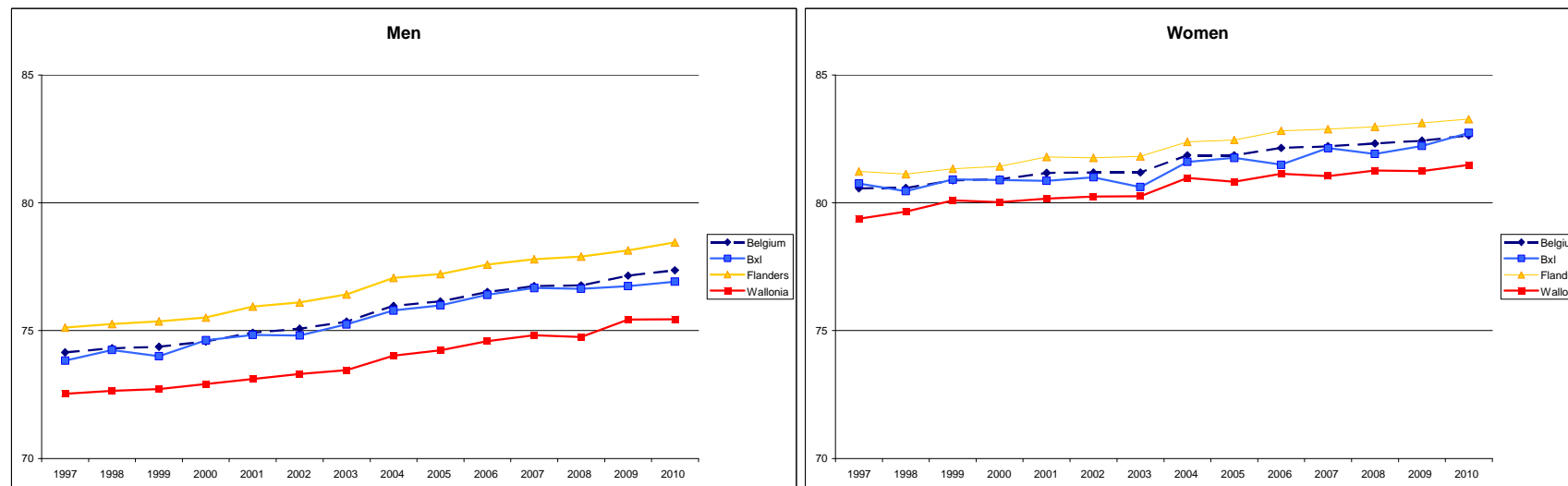
Table 3 – Life expectancy at birth, by sex and region (2010)

	Belgium	Bxl	Flanders	Wallonia
Men	77.36	76.92	78.45	75.45
Women	82.64	82.73	83.27	81.48

Source: DGSIE



Figure 1 – Life expectancy at birth, by region (1997-2010)



Source: DGISE

Table 4 – Life expectancy (at 25 years), by sex and socio-economic status (2001)

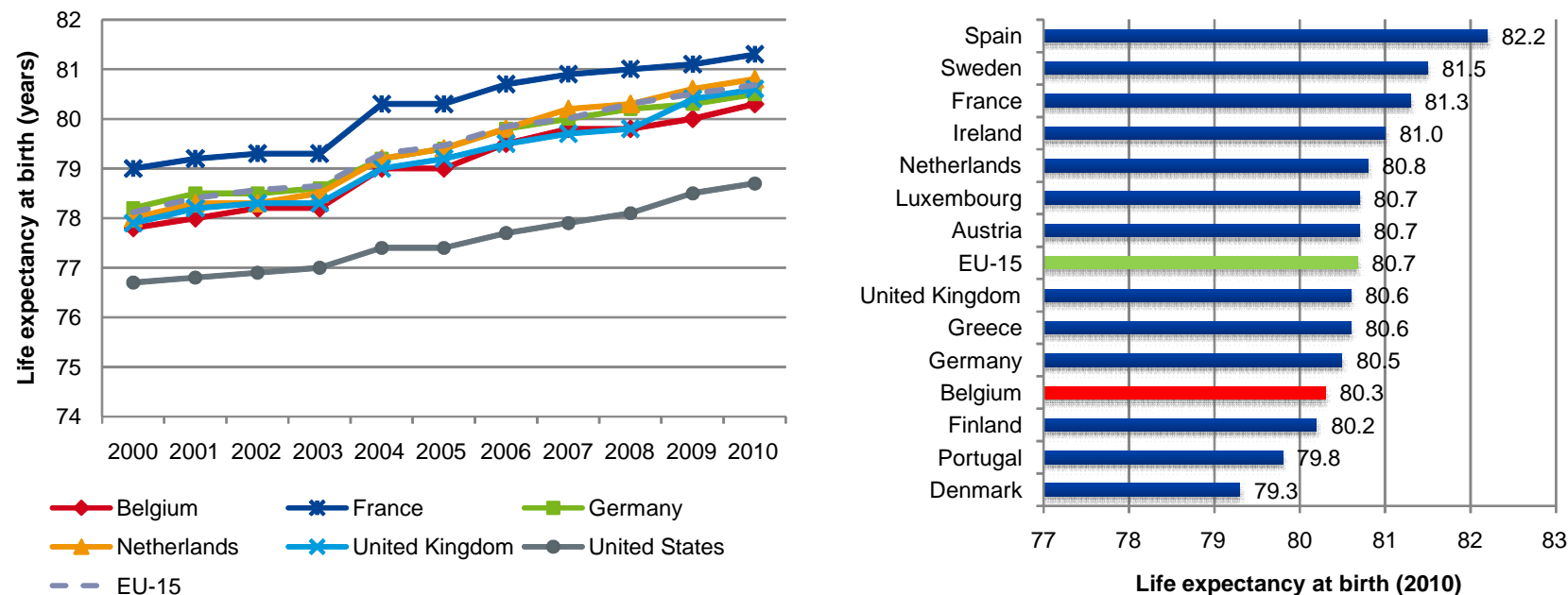
MEN			WOMEN	
Diploma	LE at 25	Difference with Highest Educ.level	LE at 25	Difference with Highest Educ.level
No	47.56	-7.47	53.98	-5.92
Primary	49.29	-5.74	56.17	-3.73
Sec.inf.	51.33	-3.7	58	-1.9
Sec.sup.	52.52	-2.51	58.52	-1.38
Sup.high	55.03		59.9	

Source : Deboosere et al, 2010 (Deboosere et al., 2010)



2.1.2.2. International Comparison

Figure 2 – Life expectancy at birth: international comparison (2000-2010)



Source: OECD Health Data 2012

Key Points Life expectancy in Belgium

- In 2010, the life expectancy at birth in Belgium was 80 years, and is increasing over time
- It is higher in women, higher in Flanders, and higher for persons with higher SES level
- Compared to other European countries, life expectancy is a little bit lower than the EU-15 average



2.3. Health expectancy at 25 years

2.3.1. Documentation sheet

Description	<p>The Healthy Life Years (HLY) indicator is one of the summary measures of population health, known as health expectancies.</p> <p>HLY at a particular age is the average number of years that a person is expected to live without long-term activity limitation. The chosen indicators for this project are HLY at 25 years (for Belgian comparisons) and HLY at birth (for international comparison)</p>
Calculation	<p>HLY is computed as the life expectancy at a particular age (for instance, at birth), from which the expected number of years lived with long-term activity limitations is subtracted. It is calculated by the Sullivan method based on life table data and age-specific period prevalence data on long-term activity limitations (according to the Euro-REVES Global Activity Limitation Indicator (GALI)). To study the socio-economic differences (based on educational level) in health expectancy, the health expectancy at a higher age is usually preferred (because the study course is then completed).</p> <p>Eurostat computes the indicator at birth and at age 65 for all member states. In Belgium, estimations are also performed at the regional level and by SES by the WIV-ISP. Those calculations are made for several ages ≥ 15. Here the HLY 25 will be presented.</p>
Rationale	<p>HLY at birth is one of the structural indicators of the European Union. It is also an indicator of the ECHI short list.</p> <p>Health Expectancies extend the concept of life expectancy to morbidity and disability in order to assess the quality of years lived. It is a composite indicator of health that takes into account both mortality and ill-health, providing more information on burden of diseases in the population than life expectancy alone. Monitoring time trend of life expectancy and healthy life years together allows assessing whether years of life gained are healthy years or not.</p>
Primary Data source	<p>This composite indicator requires multiple data sources.</p> <p>For comparisons between the European countries the following data sources are used: a) ADSEI/DGSIE provides mortality data by sex and age-group; b) Eurostat computes the life expectancies; c) The prevalence of long-term "Global activity limitation" (GALI) by sex and age-group is obtained from a nationally representative surveys the EU-SILC.</p> <p>For comparisons between Belgian regions, the following data sources are used:</p> <p>a) ADSEI/DGSIE provides mortality data by region, sex and age-group; b) ADSEI/DGSIE computes the life expectancies; c) The prevalence of long-term "Global activity limitation" (GALI) by region, sex and age-group is obtained from the Health Interview Survey (which is nationally and regionally representative).</p>
Indicator source	<p>EUROSTAT for international comparisons of HLY at birth.</p> <p>More detailed comparison (at regional level) are calculated by the WIV-ISP. Those are calculated for several ages ≥ 15</p>
Periodicity	<p>At Eurostat: annually since 2004</p> <p>For Belgium at regional level, every 3-5 years</p>
Technical definitions and limitations	<p>The GALI question is worded as following in the HIS (SH03) and the SILC: "For at least the past 6 months, to what extent have you been limited because of a health problem in activities people usually do?" (Answering categories; yes strongly limited, yes limited, no not limited). People answering "yes strongly limited" or "yes limited" are grouped into a category "Limited".</p>



	<p>There is some concern about the GALI question. It is thought that the complexity of this question makes it difficult to be understood, and very small changes in the formulation (e.g. place of the words) have consequences on the prevalence.</p>
International comparability	<p>International comparisons are available. However, comparability is limited given that some countries changed the wording of the GALI question and that question wording was not included in the translation guidelines of the EU-SILC survey. The complexity of the question can also hamper the validity of the indicator in a way that can vary across the countries. Consequently, not all countries have comparable question for measuring long-term activity limitation. The comparability improved since the revision of the translation of the GALI in 2008.</p>
Dimension	Health Status
Related performance indicators	Life expectancy
References	<p>European Commission Structural indicators : http://ec.europa.eu/health/indicators/healthy_life_years/index_en.htm http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_social_policy_equality/omc_social_inclusion_and_social_protection/health_long_term_care_strand EHLEIS website (European Health and Life Expectancy Information System): http://www.eurohex.eu SPMA: https://www.wiv-isp.be/epidemi/spma/index.htm</p>



2.3.2. Results

2.3.2.1. Belgium

In 2008, the Healthy Life Years at age 25 in Belgium were 41 years in men as well as in women.

In the period 2001-2008, it is noteworthy that, **although women live longer than men, they do not live much longer in good health** (in 2008, the number of HLY in both sexes was the same). Women live more years with activity limitation.

There are **regional differences** in the number of Healthy Life Years, with a **higher number of HLY in Flanders** (for both sexes) than in the other

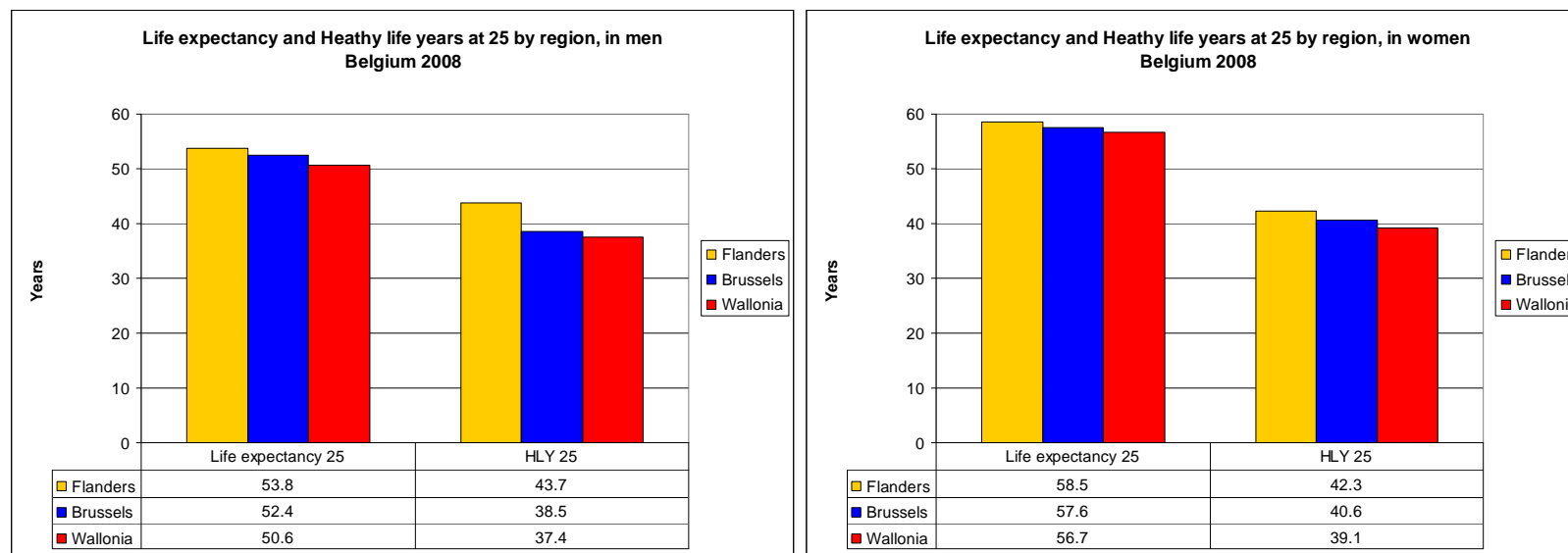
regions. Wallonia has the lowest number of HLY. The regional differences in HLY in men are more important than for the Life Expectancy: the HLY at age 25 are 6 years higher than in Wallonia (while there are 3 years difference in life expectancy). In women, the difference between Flanders and Wallonia in HLY is 3 years, and in LE 2 years.

There are very important socio-economic inequalities in Healthy Life Years: between the extreme levels of educational level (people with no diploma and people high a superior diploma) the difference in HLY reaches 18 years in both sexes in 2004.

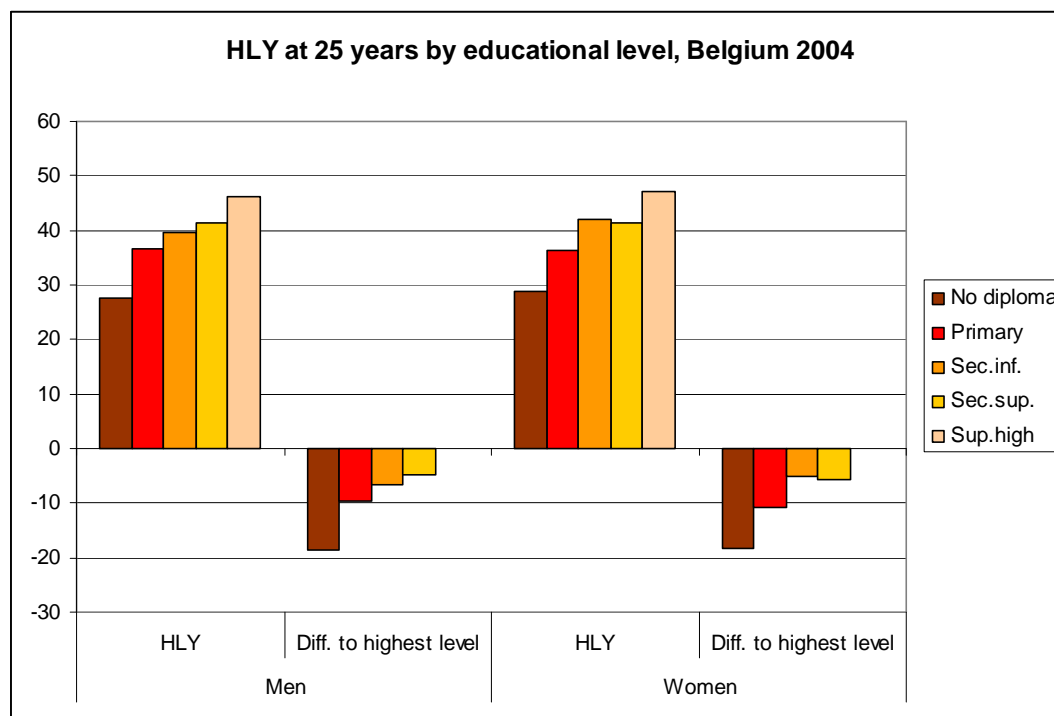
Table 5 – Expected Healthy Life Years and Years with activity limitation (at age 25), by sex (2001, 2004, 2008)

Men				Women		
Year	HLY	Years with activity limitation	Total	HLY	Years with activity limitation	Total
2001	38.7	12.3	51	40.7	16.2	56.9
2004	39.3	12.6	51.9	42.4	15	57.4
2008	41.3	11.3	52.6	41.2	16.7	57.9

Source= WIV-ISP, SPMA

**Figure 3 – Healthy Life Years (at age 25), by sex and region (2008)**

Source= WIV-ISP, SPMA

**Figure 4 – Healthy Life Years (at age 25), by sex and socio-economic status (2004)**

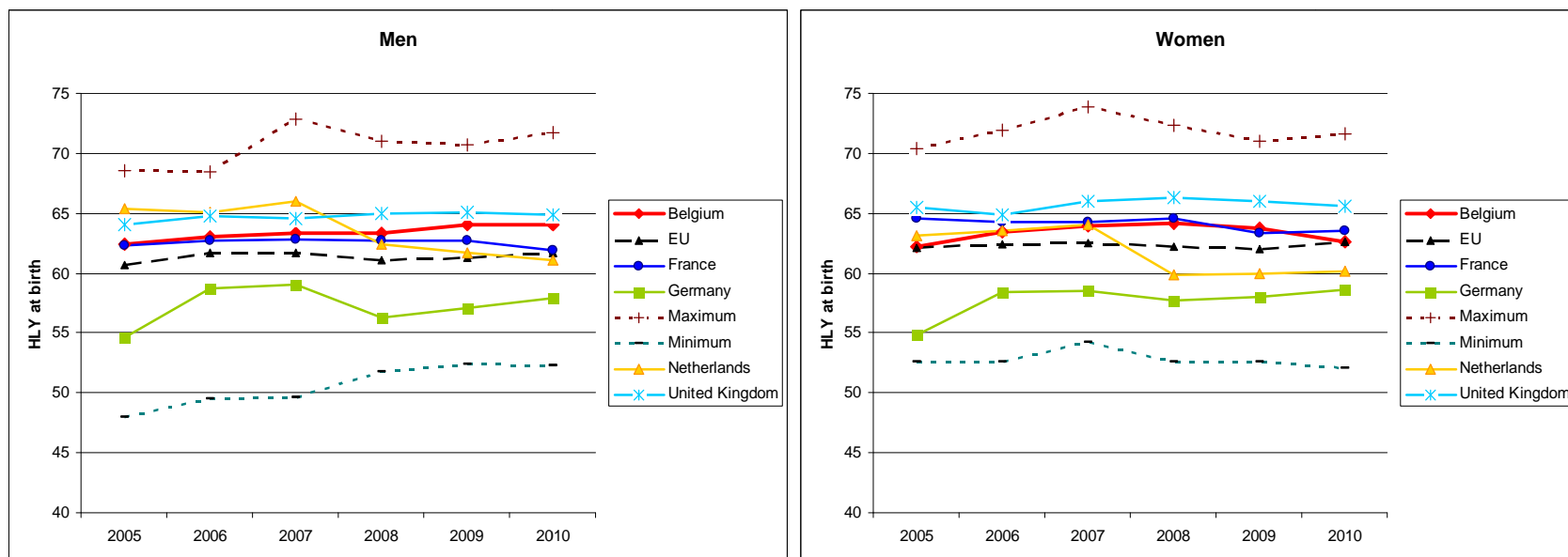
Source : Van Oyen H., 2010 (Van Oyen et al., 2010)

2.3.2.2. International comparison

Figure 5 shows international comparison in HYL (at birth). **Belgium is ranking good on average as compared with the EU-27 average and with the neighboring countries.** However, this cannot occult the important disparities mentioned above.



Figure 5 – Health expectancy at birth: international comparison (2005-2010)



Source: Heidi data tool(European Commission, 2012)

Key Points Healthy Life Years

- In 2008, the expected Healthy Life years at age 25 in Belgium was 41 years in men as well as in women.
- For the years 2001 to 2008, it is noteworthy that, although women live longer than men, they do not live much longer in good health (in 2008, the number of HLY in both sexes was the same). Women live more years with activity limitation.
- There are regional differences in the number of Healthy Life Years, with a higher number of HLY in Flanders (for both sexes) than in the other regions. Wallonia has the lowest number of HLY.
- There are very important socio-economic inequalities in Healthy Life Years: between the extreme levels of educational level (people with no diploma and people high a superior diploma) the difference in HLY reaches 18 years in both sexes.
- Belgium is ranking good in average as compared to the average of the EU-27 and with the neighbouring countries.



2.4. Self-perceived health

2.4.1. Documentation sheet

Description	Proportion of persons aged 15 years or older who assess their health to be (very) good.
Calculation	<p>The indicator is based on HIS question (SH01) on self-perceived health ('How is your health in general?'), which contains five answering categories; 1) very good, 2) good, 3) fair, 4) bad, 5) very bad.</p> <p>The number of people assessing their health as either very good or good should be added and divided by the total number of people who answered to the question.</p>
Rationale	Subjective health measurement is contributing to the evaluation of health problems, the burden of diseases and health needs at the population level. Perceived health status is not a substitute for more objective indicators but rather complements these measures. Studies have shown perceived health to be a good predictor of subsequent mortality.
Primary Data source	HIS Belgium 1997-2001-2004-2008 EU-SILC
Indicator source	For international comparison EUROSTAT (from EU-SILC) For regional comparison, HIS
Periodicity	Every 3-5 years in the HIS Every year at EU-level (SILC)
Technical definitions	See calculation
International comparability	<p>Yes, indicator available with Eurostat</p> <p>The implementation of the health questions in SILC is not yet fully harmonized and, thus, the comparability of the results is to be further improved for some countries. Guidelines for this question were provided by Eurostat in October 2007 to the Member States, in order to improve the data comparability for the coming years for the first wave of the EHIS. Comparability since 2008 could be assessed as good.</p>
Dimension	Health Status
Related indicators	Health expectancy
References	<p>HIS Belgium (Charafeddine et al., 2012) (IPH, 2010)</p> <p>ECHI Short list (ECHIM, 2005a)</p> <p>Eurostat data base, Indicators of the health and long term care strand</p> <p>http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_social_policy_equality/omc_social_inclusion_and_social_protection/health_long_term_care_strand</p>



Eurostat health portal :

http://epp.eurostat.ec.europa.eu/portal/page/portal/health/public_health/data_public_health/database

DG Sanco health portal: http://ec.europa.eu/health/indicators/indicators/index_en.htm

2.4.2. Results

2.4.2.1. Belgium

Seventy seven percent of the population reported their health to be (very) good in 2008. This is more the case for men than for women, and, as expected, there is a strong decreasing gradient with age.

There is also an important link with the socio-economic level, with an adjusted-rate of 69.8% of people from the lowest educational level

reporting to be in good health, against 86% in the highest. There are more people reporting to be in good health in Flanders than in Wallonia or Brussels.

A slight but significant increase was seen in Belgium between 1997 and 2008. This trend over time is mostly perceptible in Wallonia (from 73% in 1997 to 78% in 2008).

Belgium ranks rather favourably compared to the European average.

Table 6 – Percentage of the population (aged 15 years or older) with a good (to very good) subjective health (2008)

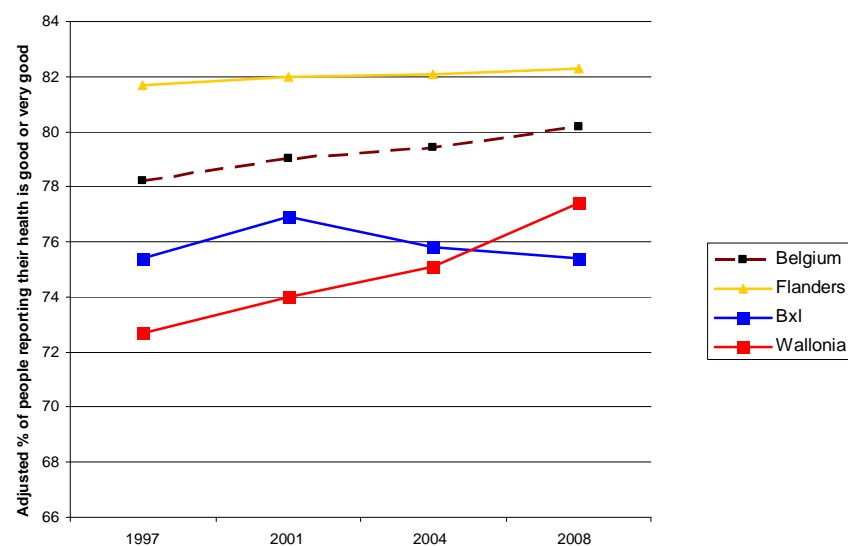
		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	76.8	(75.4-78.1)	80.2	(78.8-81.6)	7656
GENDER	Male	79.5	(77.7-81.3)	82.3	(80.5-83.9)	3518
	Female	74.3	(72.4-76.1)	78.1	(76.1-80.0)	4138
AGE GROUP	15 - 24	93.5	(91.4-95.6)	93.5	(91.1-95.3)	907
	25 - 34	89.0	(86.7-91.2)	89.1	(86.7-91.1)	1096
	35 - 44	84.1	(81.2-86.9)	84.2	(81.1-86.8)	1264
	45 - 54	73.3	(69.8-76.8)	73.4	(69.7-76.8)	1204
	55 - 64	71.3	(67.8-74.8)	71.4	(67.7-74.8)	1159
	65 - 74	60.6	(55.6-65.5)	60.8	(55.7-65.6)	734
	75 +	51.8	(47.5-56.2)	52.4	(48.0-56.8)	1292
EDUCATION LEVEL	Primary/no degree	57.4	(52.6-62.2)	69.8	(65.0-74.3)	973
	Secondary inferior	64.9	(60.9-69.0)	72.9	(68.9-76.6)	1226
	Secondary superior	77.9	(75.6-80.1)	79.8	(77.5-81.8)	2372



		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
URBANISATION LEVEL	Superior education	85.7	(83.8-87.6)	86.2	(84.1-88.0)	2908
	Urban	74.6	(72.5-76.6)	78.3	(76.2-80.3)	4176
	Sub-urban	78.1	(75.3-81.0)	81.5	(78.8-84.0)	1368
	Rural	78.9	(76.5-81.4)	82.2	(79.8-84.3)	2112
REGION	Flemish Region	78.6	(76.6-80.5)	82.3	(80.4-84.1)	3010
	Brussels Region	74.3	(72.0-76.5)	75.4	(72.8-77.8)	1952
	Walloon Region	73.7	(71.5-75.8)	77.4	(75.2-79.4)	2694

*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference) Source: Health Interview Survey, Belgium

Figure 6 – Percentage of population (aged 15 years or older) perceiving their health as good or very good, by region (1997-2008)



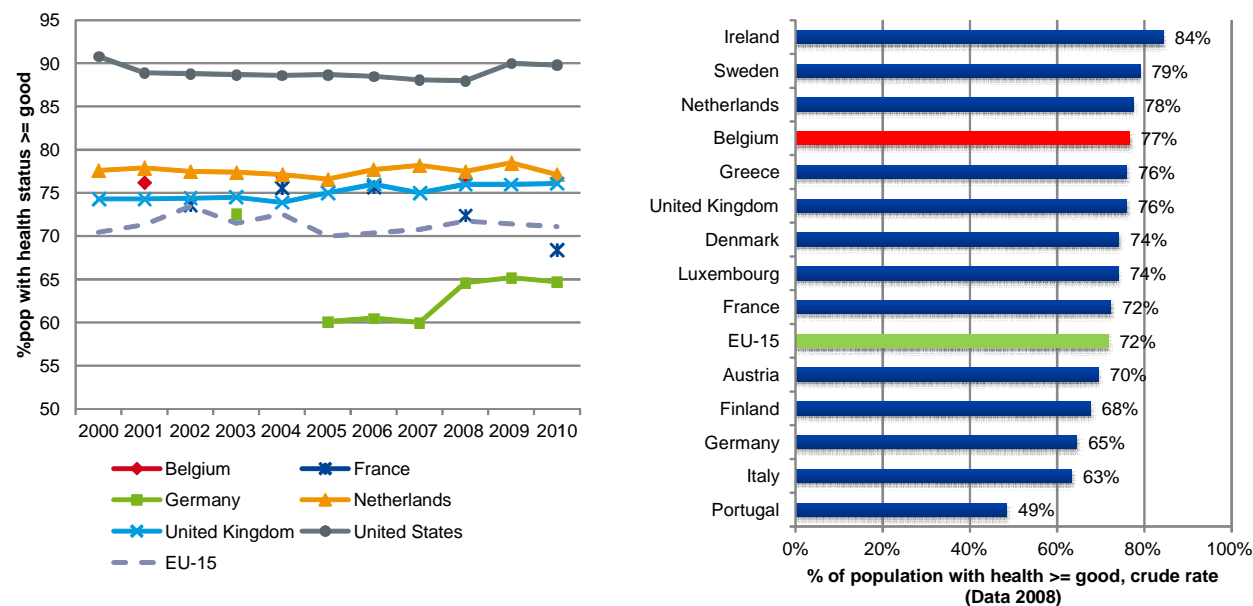
Source: Health interview survey, Belgium 2008



2.4.2.2. International comparison

Results from OECD Health Data (which is based on HIS data) are presented. Results are also available in the SILC survey (EURO STAT).

Figure 7 – Self perceived health: international comparison (2000-2010)



Source: OECD Health Data 2012

Key Points Self Perceived health

- **77% of the population reported their health to be good to very good in 2008. This is more the case for men than for women, and, as expected, there is a strong decreasing gradient with age.**
- **There is also an important link with the socio-economic level, more persons from the highest socio economic level reporting to be in good health. Also, there are more people reporting to be in good health in Flanders than in Wallonia or Brussels.**
- **Belgium ranks rather favourably compared to the European average, and the situation is similar to the one observed in The Netherlands.**



2.5. Infant mortality rate

2.5.1. Documentation sheet

Description	The number of deaths of infants (younger than one year of age at death) per 1000 live births (based on one year data).
Calculation	Number of deaths under one year of age in a given year, per 1000 live births in that year. The rates should be reported by 500g birth-weight groups. The IMR after exclusion of <1000g newborns should also be computed for international comparisons
Rationale	Basic indicator for population health and quality of health care services, the IMR is highly correlated to country's level of development. An important part of the infant mortality rate measures the consequences of perinatal events (low birth weight, prematurity) or births defects. Above this, infant mortality comprises the deaths in the post-neonatal period; those include accidents and infections, sudden Infant death syndrome and lack of the essentials of life (adequate food, water, maternal care). Those post-neonatal deaths are often preventable and are highly influenced by social factors. This indicator can thus serve as a measure of the quality of medical care, preventive services and health promotion intervention
Source (data and indicator)	DGSIE/ADSEI
Periodicity	Yearly
Technical definitions and limitations	For national purposes, infant mortality should be reported 1. for all live births and 2. by birth weight group. For international purposes, there are some differences between countries in a) the recording rules of extremely low birth weight newborns, and b) the ethical attitudes of neonatologists in case of extremely low births weight. This can lead to bias in comparisons of infant death rates including the lowest birth weight categories. Therefore, the WHO recommends for international comparison purposes, to compute an "infant mortality rate excluding live births<1000 g". This restricted indicator is currently not available in routine; it can be calculated from the Europeristat report on 2004 data . The 2 indicators will be presented here : a) the global infant mortality, routinely available, and b) the infant mortality excluding birth weight <1000g
International comparability	The WHO HFA database presents global infant mortality rates. There is some limitation of the comparability because of the inclusion of the very low birth weight mortality (see technical limitations) . The Europeristat report allows to calculate the restricted mortality rate for newborns ≥1000g only for the year 2004 in the different countries
Dimension	Health Status
References	Joseph K., 2012 (Joseph et al., 2012) Euro-Peristat Project, 2008 (EURO-PERISTAT Project, 2008) WHO, 2004 (WHO, 2004a) ECHIM Infant Mortality, 2010 (ECHIM, 2010)



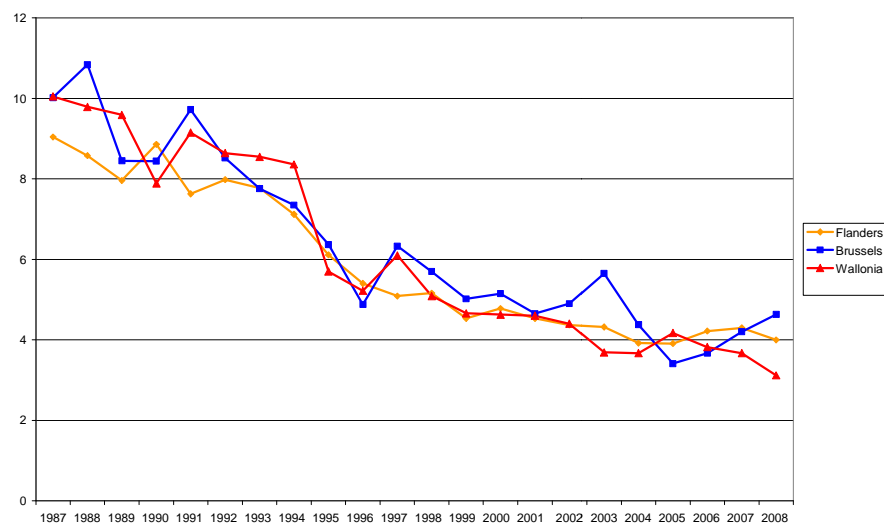
2.5.2. Results

2.5.2.1. Belgium

The infant mortality has regularly decreased over the last decennia's (Figure 8). The figures are similar in the 3 regions and are close to 4 for 1000 live births in 2008. The mortality in foreigners infants (Figure 9) seems to be a little bit higher (4.6 for 1000 in 2008) than in Belgian infants (3.62 for 1000).

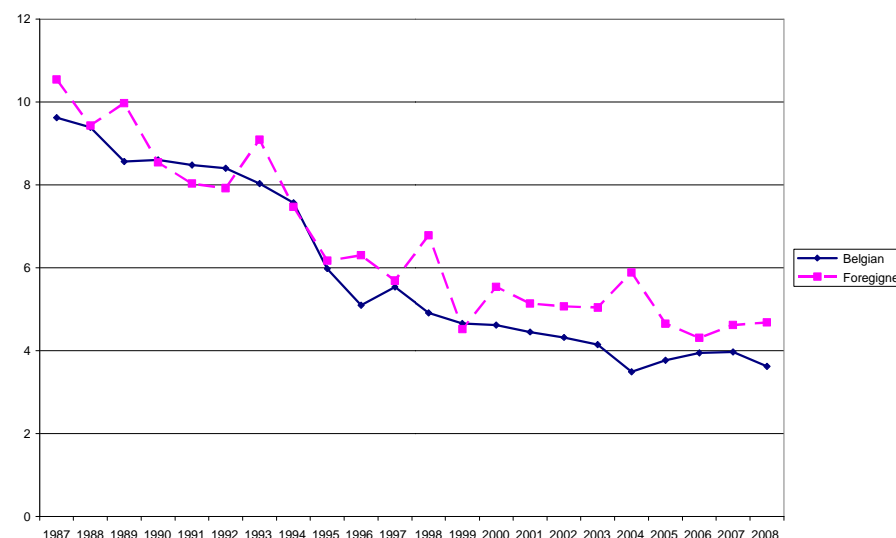
Infant mortality rates in Belgium are close to the average EU-15 rates, and better than in the neighboured countries.

Figure 8 – Infant mortality rate, by region (1987-2008)



Source: Communities + DGSIE - ADSEI

Figure 9 – Infant mortality rate, by nationality (1987-2009)

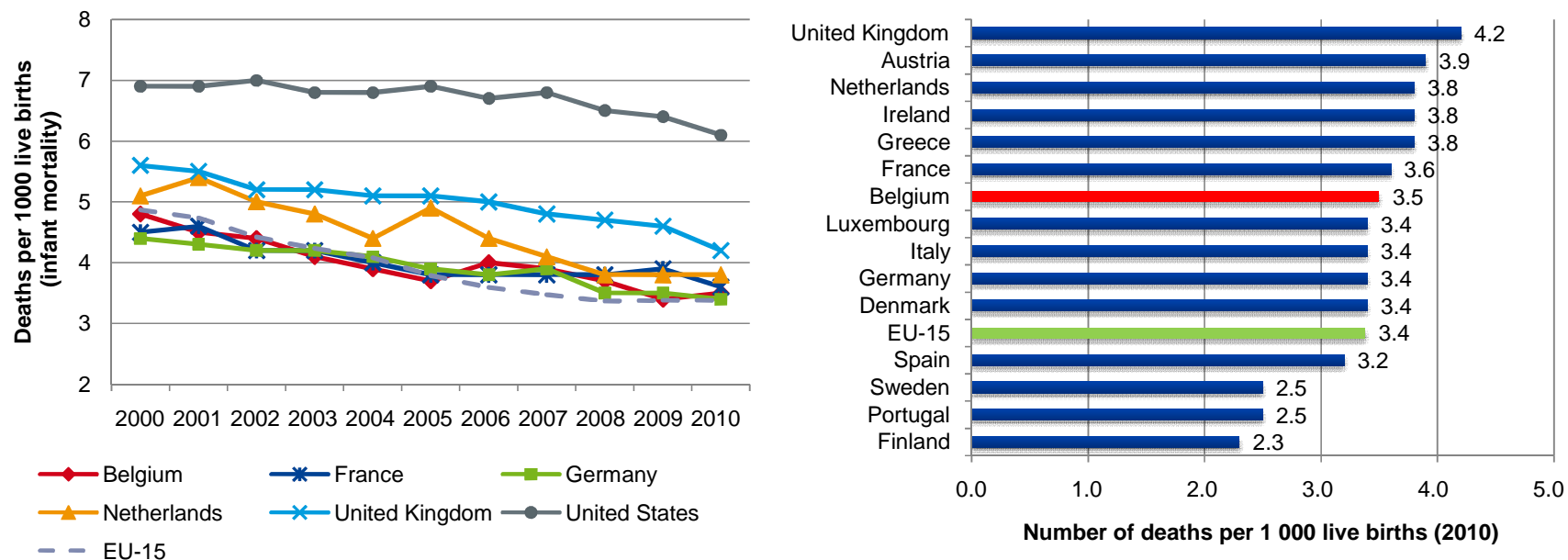


Source: Communities + DGSIE - ADSEI



2.5.2.2. International Comparison

Figure 10 – Infant mortality rate: international comparison (2000-2010)



Source: OECD Health Data 2012

Key messages Infant mortality

- The infant mortality has regularly decreased over the last decennia's). The figures are similar in the 3 regions and are close to 4 for 1000 live births in 2008.
- Infant mortality rates in Belgium are close to the average EU-15 rates, and better than in the neighboured countries.



3. INDICATORS ON THE ACCESSIBILITY OF HEALTHCARE

3.1. Practicing physicians

3.1.1. Documentation sheet

Description	Number of practicing physicians per 1000 population
Calculation	Numerator : Number of practicing physicians x 1 000 Denominator: Total mid-year Belgian population
Rationale	<p>The number of care providers gives important information on the medical workforce and thus the accessibility of healthcare. Together with the number of graduates, this information can be used for health providers supply planning.</p> <p>People with mental health problems may receive help from a variety of professionals but international organisations (OECD, 2011b) focus mostly on psychiatrists, as psychiatrists have a pivotal role in the mental health care system and the availability of comparable data on others, such as psychologists, is more limited. Therefore also in this report figures for psychiatrists are reported separately within the results-section.</p>
Primary data source	RIZIV/INAMI: yearly statistics (http://www.riziv.fgov.be/presentation/nl/publications/annual-report/index.htm) and fichier P
Indicator source	OECD Health Data
Technical definitions	<p>A care provider is considered to be practicing (RIZIV/INAMI: "profiles") if he/she provided more than 1 clinical service (i.e. consultations, visits, technical acts, but not prescriptions) during a given year or the 2 preceding years.</p> <p>General practitioners working as salaried in medical houses or in homes for elderly are added to those numbers.</p> <p>Physicians still in training are not counted.</p>
International comparability	The OECD differentiates between practising physicians (doctors providing direct care to patients), professionally active physicians (including also doctors working in the health sectors as managers, educators, researches, etc) and physicians licensed to practice (ie having the required diploma). In addition, OECD countries use different methodologies to calculate the same indicator (such as different levels of activity). Comparisons are therefore potentially inadequate.
Dimensions	Accessibility
Keywords	Health workforce
Related performance indicators	Qualification levels of healthcare providers. Medical and nursing graduates
References	OECD Health Data 2011 (OECD, 2011c); WHO; ECHI long list (ECHIM, 2005b)



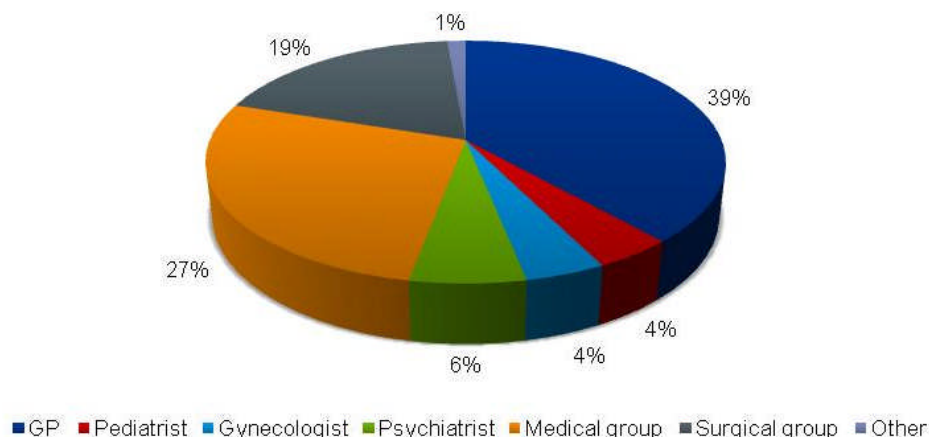
3.1.2. Results

3.1.2.1. Belgium

The number of practicing physicians increased between 2000 and 2010 from 28 999 to 31 815 (of which 12 228 GPs, 38.4% and 1 932 psychiatrists, 6.07%), which, taking into account the evolution of the Belgian population, corresponds to an increase from 2.83 /1000 pop in 2000 to 2.91/1000 pop in 2010 (relative increase of 2.8%). The qualification level of those 31 815 practicing MDs is presented in Figure 11. These data can also be subdivided based on the (home) address of the MD: 4 208 in Brussels (13.2%), 16 632 in Flanders (52.3%) and 10 974 (34.5%) in Wallonia, but this provides little information on the real available workforce per region, as the workplace address is not available.

Figure 11 – Qualification level of practicing medical doctors (2010)

Qualification level of practicing MDs in 2010



Source: RIZIV/INAMI

Importantly, these data do not take into account the real activity level of physicians. Since 2009, the RIZIV/INAMI evaluates the number of really active physicians, in terms of FTE. For the data of 2010, it showed that the 31 815 practicing physicians represent 21 691 FTE, that the 12 228 practicing GPs represent 8 646 FTE and that the 1 932 psychiatrists represent 1 260 FTE. (source RIZIV/INAMI).

Table 7 – Number of practicing physicians (per 1000 population), and estimation of Full Time Equivalent (2010)

Profession	65+	64 et-	Total	Total practising	%F	Total FTE	%F
Medical profession	7352	33447	40799	31 815	36%	21 691	32%
GP's	2360	12187	14547	12 228	33%	8 646	28%
Psychiatrists	514	1735	2249	1 932	42%	1 260	40%

Source: RIZIV/INAMI

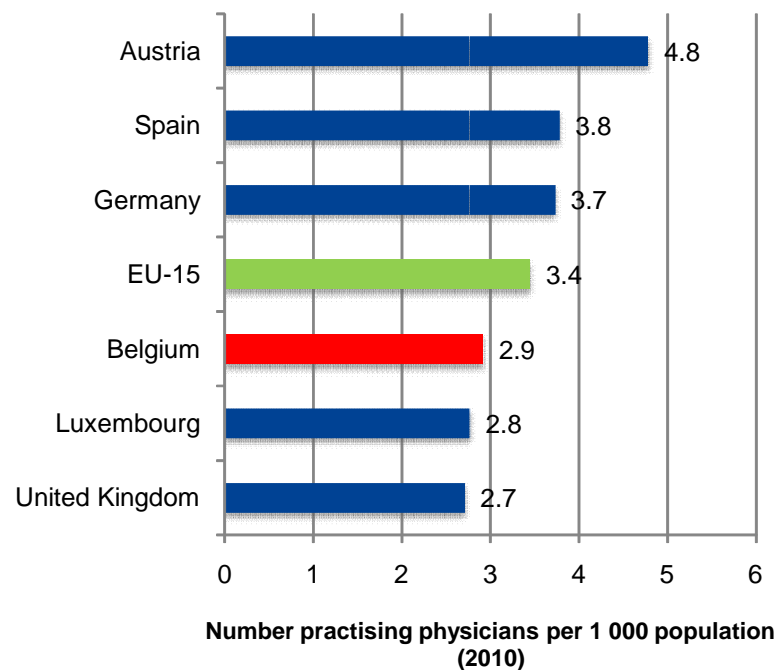
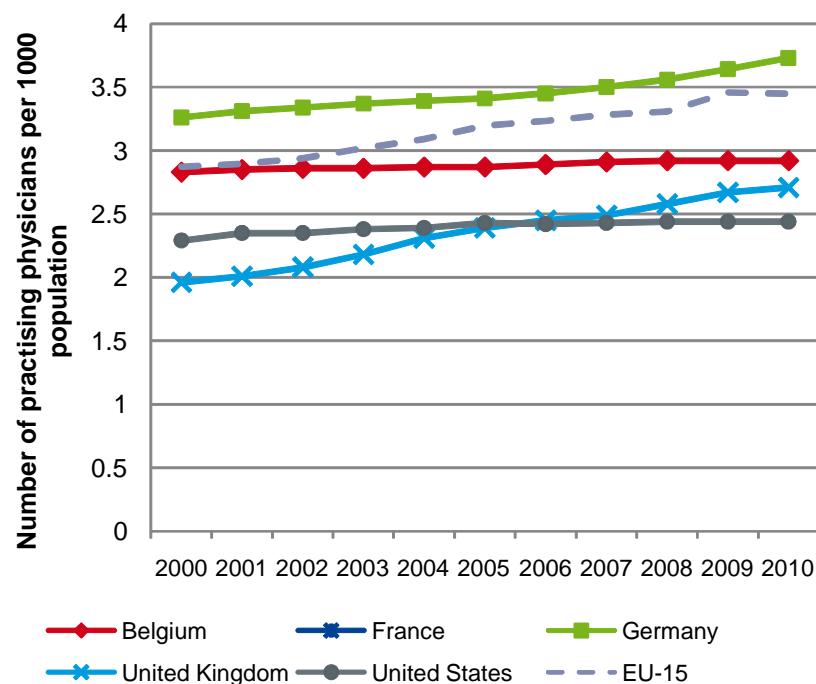
3.1.2.2. International comparison

Before 2009; data transferred to OECD for practicing physicians included all registered physicians at the INAMI/RIZIV (all physicians having a RIZV/INMI code). This amounted to a physician density of 4.03/1 000 pop, one of the highest in Europe. (Vlayen *et al.*, 2010) Since 2009 (and retrospectively) these data are based on the number of practicing physicians, giving a better picture of the medical density in Belgium.

Very few EU-15 European countries report the number of practicing physicians to the OECD health data. Other countries report data on professionally active physicians (including also doctors working in the health sectors as managers, educators, researches, etc) and physicians licensed to practice (ie having the required diploma). (OECD, 2011b) On the basis of the countries who report data on practising physicians, Belgium as a density below Germany, and slightly higher than UK (in 2009).



Figure 12 – Number of practicing physicians (per 1000 population): international comparison (2000-2010)

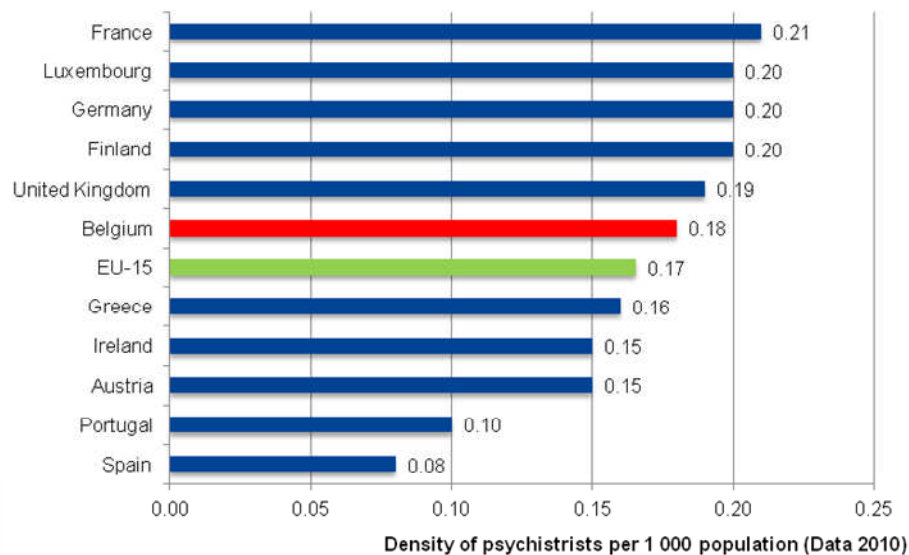


Source: OECD Health Data 2012

The role of psychiatrists and other mental health service providers (e.g. psychologists) varies across countries. For instance, in the Netherlands, there is a high number of psychologists who are very active in providing services that are covered under health insurance systems. In other countries such as France, the number of psychologists is lower and the services that they provide are not covered under public health insurance.(OECD, 2011b). An estimation on which types of care providers are consulted per country can be found in Eurobarometer.



Figure 13 – Number of practicing psychiatrists (per 1000 population): international comparison (2010)



Source: OECD Health Data 2012;

Key points Number of practicing physicians / 1000 pop

- The number of practicing physicians increased slightly from 2.83 /1000 pop in 2000 to 2.91/1000 pop in 2010.
- Some data are available based on the home address of the MD, but these data give little information on the effective work place (especially for specialists).
- This indicator poorly reflects the real workforce of practicing physicians, as all physicians performing more than 1 clinical act are included in the head counts. Expressed in full time equivalents; the medical density is 1.95 /1000 pop
- Very few EU-15 European countries report the number of practicing physicians to the OECD health data. On the basis of the countries who report data on practising physicians, Belgium as a density below Germany, and slightly higher than UK (in 2009).



3.2. Practicing nurses

3.2.1. Documentation sheet

Description	Number of practicing nurses per 1 000 population
Calculation	Numerator : Number of practicing nurses x 1 000 Denominator: Total mid-year Belgian population
Rationale	The number of care providers gives important information on the medical workforce and thus the accessibility of healthcare. Together with the number of graduates, this information can be used for health providers supply planning.
Data source	Voorlopige resultaten PlanKAD Gegevenskoppeling Verpleegkunde 2004-2009, Cel Planning Aanbod Gezondheidsberoepen, Dienst Strategische Coördinatie Gezondheidszorgberoepen, FOD Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu
International comparability	The definition used by OECD include practicing nurses (providing services directly to patients), Professionally active nurses (including those working as managers, educators or researches), nurses licensed to practice (with the required diploma), professional nurses (who have a higher level of education and perform higher level tasks) and associate professional nurses (who have a lower level of education but are nonetheless recognized and registered as nurses). Countries report data for one of these indicators (including or excluding midwives) which make the comparison between countries extremely hazardous. In health data 2011, Belgium reports data for practicing nurses. (OECD, 2011c)
Dimension	Accessibility
Keywords	Health workforce
Related performance indicators	Number of practicing physicians per 100 000 population Medical and nursing graduates
References	OECD Health Data 2011, WHO Database, ECHI short list

3.2.2. Results

3.2.2.1. Belgium

Nurses are generally the most numerous health profession, greatly outnumbering physicians in many OECD countries. (OECD, 2011b)

To have a complete picture of the number of nurses in Belgium, information is necessary on the following categories: nurses working in

hospitals, self employed nurses, nurses working in homes for elderly and midwives. The statistics that are available from the RIZIV/INAMI are only for nurses with a RIZIV/INAMI number, encompassing only self employed nurses and midwives. In 2010, they were 43365 self employed nurses and midwives (source: RIZIV/INAMI).



Table 8 – Number of practicing nurses, by region (2008)

Distributie van erkende verpleegkundigen naar activiteitssector-situatie 31/12/ 2008 (*) – naar woonplaats	Vlaams Gewest	Brussels Hoofdstedelijk Gewest	Waals Gewest	Onbekend	Geschrappt	Totaal (n)	Totaal (%)
Voorlopige resultaten / op basis van NACE-code werkgever – RIZIV-activiteiten-profiel - Datawarehouse Arbeidsmarkt-gegevens							
Gezondheids- en Welzijnssector	70934	4782	30645	37	18	106416	69.84%
Ziekenhuis	39000	3141	17781	17	4	59943	39.34%
Rustoord voor bejaarden / Rust- en Verzorgingstehuis	11986	826	4946	13	8	17779	11.67%
Thuisverpleging	10595	263	4120	4	4	14986	9.83%
Ziekenhuis + Rustoord voor bejaarden / Rust- en Verzorgingstehuis	983	189	1028	3	.	2203	1.45%
Rustoord voor bejaarden / Rust- en Verzorgingstehuis + Thuisverpleging	836	45	559	.	2	1442	0.95%
Ziekenhuis + Thuisverpleging	984	91	987	.	.	2062	1.35%
Ziekenhuis + Rustoord voor bejaarden / Rust- en Verzorgingstehuis + Thuisverpleging	44	8	68	.	.	120	0.08%
Gezondheidssector (Overige)	1254	87	426	.	.	1767	1.16%
OCMW (**)	3237	38	343	.	.	3618	2.37%
Welzijnssector	2015	94	387	.	.	2496	1.64%
Non-health	10942	849	5630	3	1	17425	11.44%
Onderwijs	3140	225	1683	1	.	5049	3.31%
Openbare sector	1671	259	2319	1	.	4250	2.79%
Privé sector (non-health)	2761	227	638	1	1	3628	2.38%
Verschillende sectoren (Comb.)	224	25	110	.	.	359	0.24%
Zelfst. activiteit (buiten RIZIV kader)	3146	113	880	.	.	4139	2.72%



Distributie van erkende verpleegkundigen naar activiteitssector-situatie 31/12/ 2008 (*) – naar woonplaats	Vlaams Gewest	Brussels Hoofdstedelijk Gewest	Waals Gewest	Onbekend	Geschrappt	Totaal (n)	Totaal (%)
Voorlopige resultaten / op basis van NACE-code werkgever – RIZIV-activiteiten-profiel - Datawarehouse Arbeidsmarkt-gegevens							
Niet (meer) actief op Belgische arbeidsmarkt	17821	1973	8303	244	194	28535	18.73%
Werkzoekend	840	96	434	1	.	1371	0.90%
Volledige loopbaanonderbreking, Leefloon, Financiële hulp	683	57	254	.	.	994	0.65%
Pensioen	10969	1183	4517	11	5	16685	10.95%
Kinderbijslag	133	8	67	.	.	208	0.14%
Arbeidsongeschikt	824	122	466	.	2	1414	0.93%
Ander (**)	4372	507	2565	232	187	7863	5.16%
Totaal	99697	7604	44578	284	213	152376	100.00%

(*) informatie over activiteit als thuisverpleegkundige is slechts beschikbaar over het volledige kalenderjaar

(**) OCMW als werkgever omvat ook Ziekenhuizen / Rusthuizen / ...

(***) Personen kunnen actief zijn als verpleegkundige in het buitenland (grens-arbeid), studeren zonder recht op kinderbijslag/sociale uitkering, actief zijn als huisvrouw/huisman

Source: Voorlopige resultaten PlanKAD Gegevenskoppeling Verpleegkunde 2004-2009, Cel Planning Aanbod Gezondheidsberoepen, Dienst Strategische Coördinatie Gezondheidszorgberoepen, FOD Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu

3.2.2.2. International comparison

We do not present data from the Health Data OECD, as they represent for Belgium nurse s licensed to practice, and hence also include all nurses who are not practising any more.



3.3. Health insurance status of the population

3.3.1. Documentation sheet

Description	Health insurance status of the population
Calculation	Number of (1) insured/ uninsured persons (2) persons with a complementary (public or private) health insurance, divided by total mid-year Belgian population.
Rationale	Belgium has a compulsory health insurance system, in principle covering the entire population (employees, self-employed, civil servants, unemployed, pensioners, minimum income recipients, disabled, students, foreign nationals, as well as all of their dependents) and a wide range of services. The percentage of insured/uninsured persons is an indicator of accessibility of health care.
Data source	Number of insured individuals: OECD Health Data 2011 (OECD, 2011c) Number of individuals with private insurance: there are currently no valid data in Belgium on complementary (public or private) insurance
Technical definitions and limitations	An uninsured person can be defined as someone who is not affiliated with a sickness fund and hence is not entitled to compulsory health insurance. The main reasons is because they do not fulfil the administrative and/or financial requirements (as e.g. asylum seekers) This does not mean that “uninsured people” have no right to necessary medical care. They are covered by the public municipal welfare centres (OCMW/CPAS).
International comparability	International comparability is possible. However, total health insurance coverage, both public and private, is an imperfect indicator of accessibility, since the range of services covered and the degree of cost-sharing applied to those services can vary across countries.
Related performance indicators	Amount of co-payments and out-of-pocket payments.

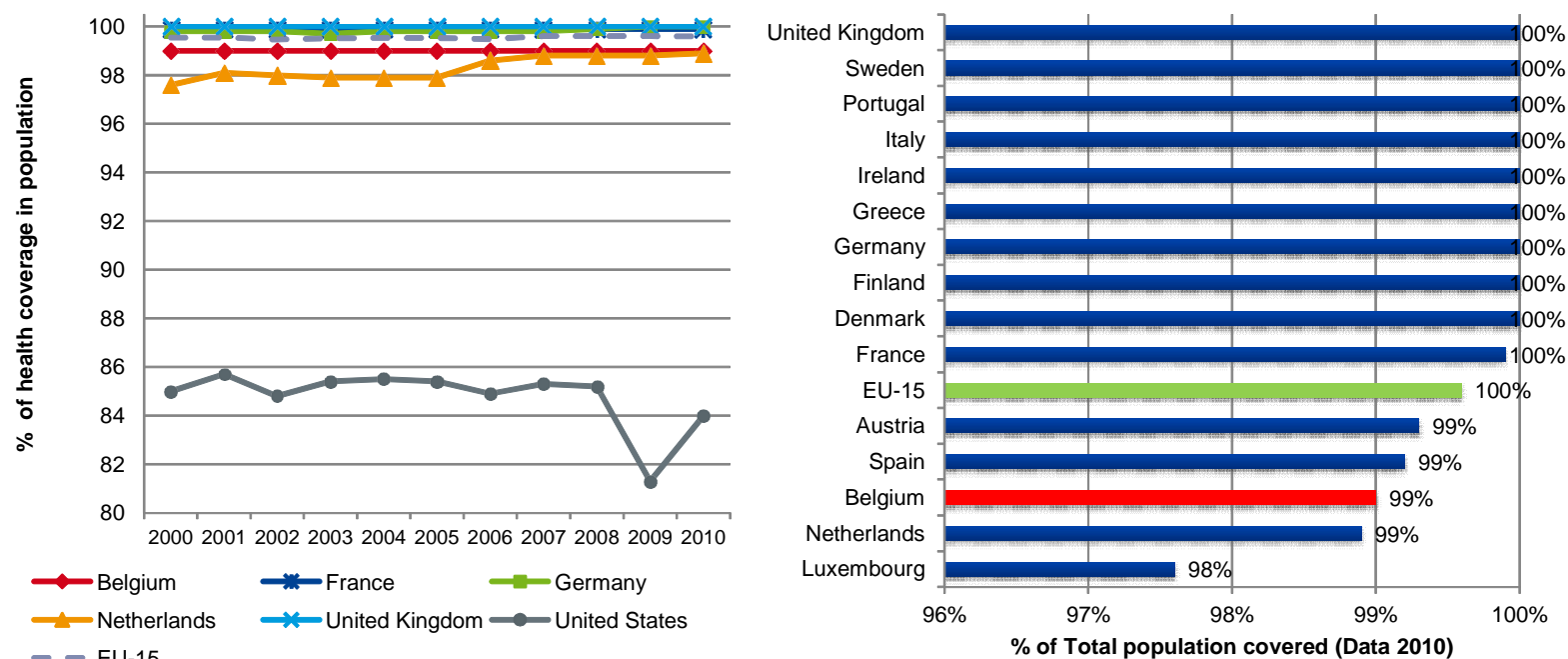
3.3.2. Results

Based on data provided by the RIZIV/INAMI, the proportion of uninsured persons (not affiliated with a sickness fund) ranges between 0.6% and 0.8%, with a dip in 2007 (1.4%).

The data for Belgium at OECD report a constant percentage of 99 % insured persons, to 99.5% in 2009. This is above The Netherlands, but slightly lower than other countries which report rates of 99.9% or 100%.



Figure 14 – Coverage of health insurance in population: international comparison (2000-2010)



Source OECD Health Data 2012

Key points Health coverage status of the population

- The percentage of uninsured persons (not affiliated with a sickness fund) in Belgium ranges from 0.6% to 0.8%.
- International comparison shows that Belgium has a higher coverage rate than The Netherlands and lower than Nordic countries, Germany and France. However, the range of services covered and the degree of cost-sharing applied to those services varies across countries, thus interpretation in terms of financial accessibility of care is limited.



3.4. Amount of out-of-pocket payments

3.4.1. Documentation sheet

Description	Amount of out-of-pocket payments
Calculation	Amount of out-of-pocket payments (HF.2.3 in the ICHA-HF classification of healthcare financing) divided by total healthcare expenditure (THE)
Rationale	Financial access is a basic condition for a functional healthcare system. Foregoing necessary treatment because of its cost can be detrimental to a person's health. High out-of-pocket payments that affect other necessary expenses are also considered undesirable. Care is generally considered financially inaccessible when people limit or postpone the use of necessary care because of (excessively) high costs, or when they have to relinquish other basic necessities because they need care.
Indicator results	OECD Health Data
Technical definitions	Out-of-pocket payments are expenditures borne directly by a patient where health insurance does not cover the (full) cost of the health good or service. They include cost-sharing (ticket modérateur/remgeld), self-medication and other expenditure paid directly by private households. It does not include the patient contribution to long term care in elderly and nursing homes. This is due to the fact that nursing homes (mostly used by the elderly) are classified under 'social care' in national accounts.
International comparability	The OECD definition was adopted. OECD Member countries are at varying stages of implementing the System of Health Accounts (SHA). Therefore, the data reported in OECD Health Data 2011 are at varying levels of comparability.
Dimension	Accessibility
Related performance indicators	Healthcare expenditures according to the System of Health Accounts (OECD) Delayed contacts with health services due to financial problems
References	OECD Health Data 2012 (OECD, 2012b)



3.4.2. Results

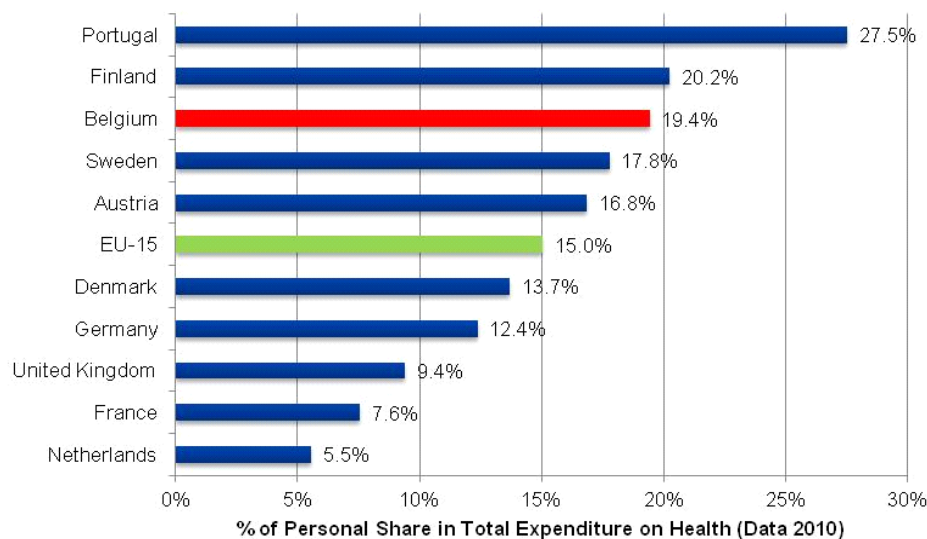
Between 2003 and 2010, the out of pocket expenditures rose from 5,33 to 7,25 billion €, but compared to the total health expenditures, this share stayed pretty flat (20.0% in 2003, 19.4% in 2010). Expressed per inhabitant, out-of-pockets payments represent a total of 665 € in 2010.

Table 9 – Out-of-pocket expenditures (2003-2010)

Year	2003	2004	2005	2006	2007	2008	2009	2010
Million €	5533,74	5530,49	5683,34	6270,44	6737,78	7028,68	6859,82	7255,18
% current expenditure on health	20,0	18,8	18,6	20,5	20,9	20,3	18,9	19,4
€/capita,	533,31	530,70	542,37	594,47	634,10	656,27	635,38	665,88

Source: SHA, OECD Health Data 2012

Figure 15 – Out-of-pocket expenditures as a percentage of total health expenditure: international comparison (2010)



Source: OECD Health Data 2012.

In the OECD SHA, there is no separate section on out of pocket costs for end of life care. This was however studied in a several Belgian studies. We

describe the largest one. In the report of the Christian Sickness Funds (Gielen *et al.*, 2008) (Gielen *et al.*, 2010) an increase of the personal share



is noticed nearby time of death (studied in 40 965 members who deceased between 1st of July 2005 and 30th of June 2006): an overall average of 159 euro per month during the last 6 months before decease, ranging from an

average of 90 euro at 6 months before decease until an average of 331 euro at 1 month before decease. This personal share includes out-of-pocket payments, co payments, and supplements for patients hospitalized.

3.5. Delayed contacts with health services due to financial problems

3.5.1. Documentation sheet

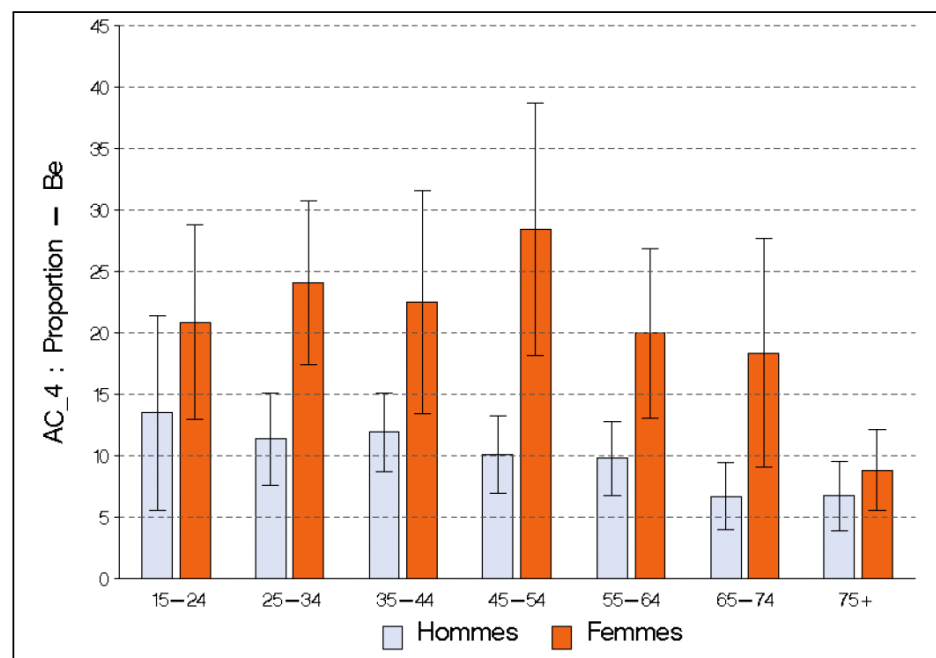
Description	Percentage of households delaying contacts with health services because of financial problems
Calculation	idem
Rationale	Financial access is a basic condition for a functional healthcare system. Foregoing necessary treatment because of its cost can be detrimental to a person's health. High out-of-pocket payments that affect other necessary expenses are also considered undesirable. Care is generally considered financially inaccessible when people limit or postpone the use of necessary care because of (excessively) high costs, or when they have to relinquish other basic necessities because they need care.
Data source	HIS
Technical definitions	AC.04. Au cours des 12 derniers mois, votre ménage a-t-il été confronté avec une situation où l'un d'entre vous a eu besoin de soins qu'il n'a pas pu se payer? AC.04.01. des soins médicaux ou une opération? o AC.04.02. des soins dentaires? o AC.04.03. des médicaments prescrits? o AC.04.04. des lunettes ou des lentilles? o AC.04.05. des soins de santé mentale, par un psychologue ou un psychiatre, par exemple? If one person in the household answers yes to any of the question above, the household is considered to have had to postponed healthcare due to financial accessibility. More technical details on the methodology are available in the HIS reports(Demarest et al., 2010).
International comparability	Data on unmet clinical needs are available in OECD Health Data. Reasons include financial accessibility, too long waiting times or too long travelling distances.
Performance dimension	Accessibility
Keywords	Financial access
Related performance indicators	Amount of co-payments and out-of-pocket payments
References	Demarest et al, 2010(Demarest et al., 2010)



3.5.2. Results

In 2008, 14% of the households declared that they had to postpone health care (medical care, surgery, drugs, brills of lenses, mental health care) due to problems of financial accessibility. This proportion is higher for women than men, for all age categories (Figure 16).

Figure 16 – Percentage of households which reported having to delay their healthcare due to financial problems, by age and sex (2008)



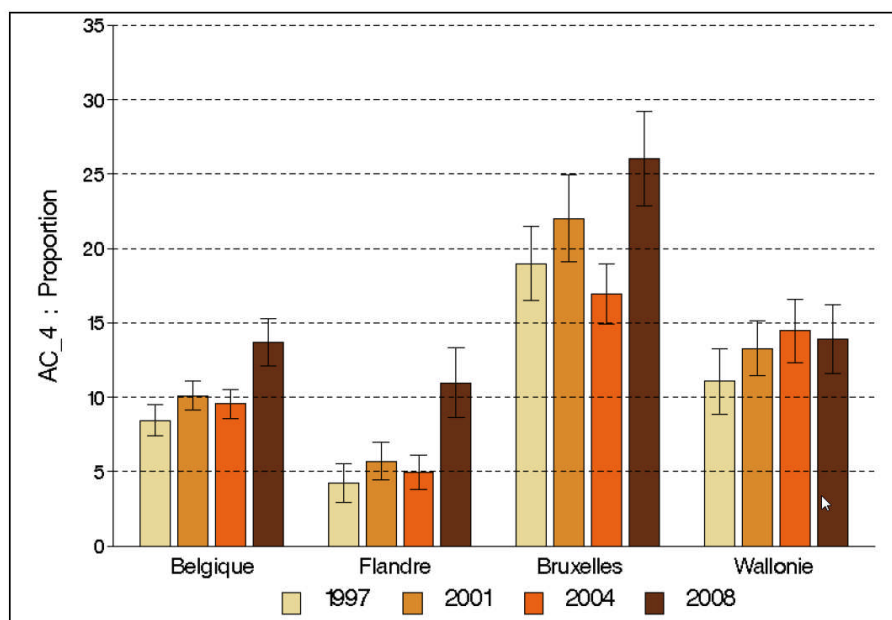
Source : HIS 2008

There is a clear association with the level of education for the household: 18% for households from lowest education level to 9% from the households in higher education level. This is also true for the income: 27% for households in lowest income versus 4% for households in highest income.

There is also a regional difference (after adjustment for age and sex): in Brussels 26% of the households declared to report health care, versus 14% in Wallonia and 11% in Flanders. In the three regions this percentage is increasing over time (Figure 17).



Figure 17 – Percentage of households which reported having to delay their healthcare due to financial problems, by region (1997-2008)



Source : HIS 2008

Key Points Delayed contacts with health services due to financial problems

- In 2008, 14% of the households declared that they had to postpone health care (medical care, surgery, drugs, brills of lenses, mental health care) due to problems of financial accessibility. In 1997, this percentage was below 10%.
- There is also a clear regional difference: in Brussels 26% of the households declared to report health care, versus 14% in Wallonia and 11% in Flanders.



3.6. Coverage of breast cancer screening

3.6.1. Documentation sheet

Description	<p>Proportion of women aged 50-69 having received a mammography within the last two years</p> <ol style="list-style-type: none"> 1. Within the context of the organized screening programme (mammothest only) 2. Within or outside the context of the organized screening programme (mammothest and other mammograms)
Calculation	<p>Numerator: number of women aged 50-69 in a given year who are alive at the end of that year, having received a (screening) mammogram within the past two years.</p> <p>Denominator: Total number of women aged 50-69 in a given year who are alive at the end of that year</p>
Rationale	<p>In Belgium, breast cancer is the leading cause of death by cancer in females (20.2% of all female cancer deaths) (Belgian Cancer Registry, 2011). Screening and subsequent treatment of breast cancer should lead to improved survival rates. (Mambourg <i>et al.</i>, 2010, Paulus <i>et al.</i>, 2005, Verleye <i>et al.</i>, 2012) Since 2001 in Flanders and 2002 in Brussels and Wallonia, a national breast cancer screening programme exists for women aged 50-69 years. The mammograms realized in the programme follow a specific procedure, and have their own RIZIV/INAMI billing codes. Those mammograms are called "mammothests" This is clearly to be distinguished from the opportunistic screening using mammogram (i.e. outside the programme).</p> <p>The first indicator measures the rate of eligible women undergoing mammothest (i.e. organized screening coverage), while the second measures the rate of eligible women undergoing mammothest or other mammogram (i.e. total coverage of mammogram). Together, these indicators measure the coverage of breast cancer screening in Belgium.</p>
Primary data source	IMA (EPS)
Indicator source	KCE calculation
Technical definitions	<p>RIZIV/INAMI billing codes: 450192 (screening mammogram within the screening programme – referred as mammothest in this report). 450096 (other mammography), 461090 (other mammography).</p> <p>Exams performed in hospitalized patients are not taken into account.</p> <p>In the IMA database only the year of birth is available and not the exact date of birth. Therefore, it is impossible to verify if a woman received a mammothest/mammogram exactly within the 2 years prior to her 51st – 69th birthday. It is only possible to verify if a woman received a mammothest/mammogram in the calendar year of her 51st – 69th birthday (T) and the year before (T-1). Given this constraint, the indicator will only be calculated for women aged 51-69.</p>
Limitations	<p>it is impossible to distinguish opportunistic mammograms (i.e. mammogram used for opportunistic screening outside the screening programme) and diagnostic mammograms (i.e. mammogram used for diagnostic reasons, e.g. in women with symptoms or at high risk). However, the fraction of diagnostic mammograms on all mammograms is quite low, so the rate of mammograms outside the screening is an acceptable proxy of the opportunistic screening.</p>



	(Mambourg <i>et al.</i> , 2010)
International comparability	<p>The OECD calculates the number of women aged 50-69 reporting having received a bilateral mammography within the past two years (for the majority of countries).</p> <p>The OECD warns for a limited comparability, since some countries use patient surveys, while other countries use administrative data. For Belgium, the OECD data are based on the IMA reports (IMA-AIM, 2010)</p>
Dimension	Accessibility
Keywords	Prevention; Ambulatory care ; Cancer care; Screening.
Related indicators	Breast Cancer survival rate, Breast cancer screening mammography in women aged <50 or > 70
References	<p>OECD health data (OECD, 2011c); ECHI shortlist (ECHIM, 2005b); CIHI (Canada) (CIHI, 2011);</p> <p>The European Cancer Observatory website provides summary information on the screening practices in 2007 in all European Member states. (European Cancer Observatory, 2012) based on the results of the 2008 European Commission report cited below.</p> <p>Reports:</p> <p>IMA report on breast cancer screening (IMA-AIM, 2010)</p> <p>A report on the Brussels screening programme for the years 2003-2010. (Deguerry <i>et al.</i>, 2012)</p> <p>A INAMI report on GP performance, including a section on breast cancer (NIHDI, 2012b)</p> <p>A European Commission Report on the implementation of the Council Recommendation on cancer screening. (European Commission, 2008)</p>

3.6.2. Results

3.6.2.1. Belgium

As a whole since 2006, the organized screening programme coverage is slightly getting better from year to year (from 27.7% in 2006 till 30.1% in 2010) while the total coverage by all mammograms stays stable around 60% suggesting a very small switch from opportunistic mammograms to screening programme mammothests. This overall coverage is still lower than the 75% European target screening rate. (OECD, 2011b) At the start of the first breast cancer screening programme in 2001, 10 years ago, the (total) coverage only reached 43%. (IMA-AIM, 2007)

According to the 2010 stratified results, the mammothest coverage improves with patient age, which seems intuitive for a screening programme, some women taking more time to take part in it. But conversely, the total mammogram coverage (mammothests and other mammograms) diminishes when age is increasing, probably because young women are more preoccupied by their health, as observed in the Health Interview Survey. (IPH, 2010)

In both organized and global coverage, vulnerable women (those entitled to increased reimbursement) have a lower coverage than the remaining population (respectively 23.2% versus 31.8% and 48.6% versus 62.9%).



Table 10 – Coverage of breast cancer screening in target group (mammothest coverage and total mammogram coverage) by year, region and patient characteristics (2006-2010)

Variable	Category	Rate (mammothest)	Nb women 50-69 with mammothests	Rate (all)	Nb women 50-69 with mammograms	Nb women 50-69
Year	2006	27.7%	7920	59.0%	16846	28575
	2007	29.3%	8518	60.2%	17469	29035
	2008	30.3%	8936	60.5%	17849	29521
	2009	30.5%	9170	60.6%	18211	30046
	2010	30.1%	9251	60.1%	18457	30695
Age (2010) (years)	50-54	28.8%	2209	61.8%	4732	7657
	55-59	29.7%	2573	60.5%	5248	8673
	60-64	31.0%	2514	60.4%	4890	8100
	65-69	31.2%	1955	57.3%	3587	6265
Entitlement to increased reimbursement (2010)	No	31.8%	7930	62.9%	15683	24923
	Yes	23.2%	1319	48.6%	2765	5695
Province (2010)	Antwerpen	43.1%	2110	63.6%	3115	4894
	Brabant Wallon	10.4%	123	62.0%	734	1184
	Bruxelles-Capitale	11.6%	275	51.9%	1235	2378
	Hainaut	6.7%	258	55.2%	2123	3848
	Limburg	55.2%	1311	68.4%	1624	2374
	Liège	6.8%	208	54.0%	1661	3078
	Luxembourg	8.5%	54	48.7%	311	638
	Namur	6.8%	89	56.1%	732	1304
	Oost-Vlaanderen	45.4%	1874	64.8%	2676	4130
	Vlaams Brabant	41.6%	1264	66.4%	2016	3037
	West-Vlaanderen	48.3%	1682	63.0%	2197	3486
Region (2010)	Brussels region	11.6%	275	51.9%	1235	2378
	Flemish region	46.0%	8241	64.9%	11628	17921
	Walloon region	7.3%	732	55.3%	5561	10052

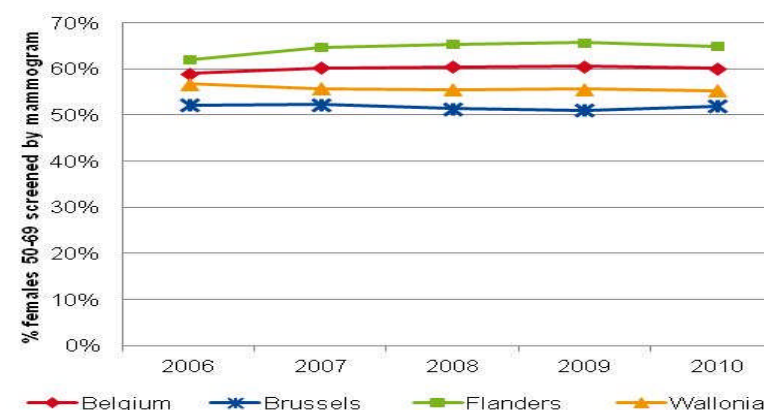
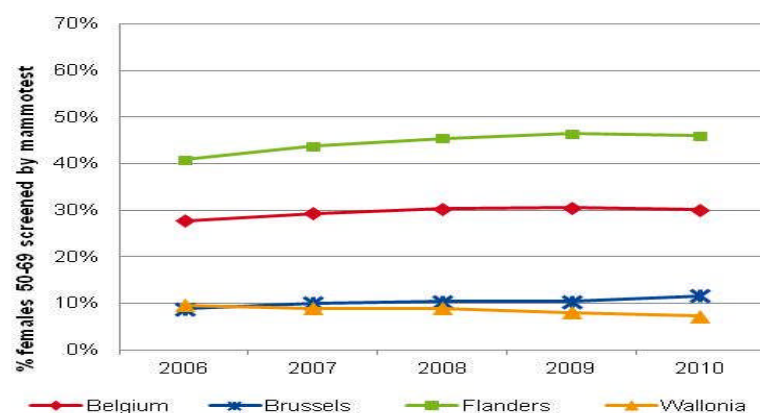
Source: EPS, KCE calculation



As observed in the previous performance report (Vlayen *et al.*, 2010), the organized screening coverage (as well as the total coverage) keeps slightly decreasing in Wallonia while it is increasing in the two other regions. In Flanders the total mammograms coverage has stopped to increase since a couple of years. The high coverage by mammograms outside the organized screening coverage in Wallonia is historically due to the early implantation of the opportunistic breast cancer screening.

In its report on the period 2003-2010 of the Brussels screening programme, the Brussels Health and Social Observatory also found disparities in terms of coverage between the Brussels districts. (Deguerri *et al.*, 2012) Our results are also consistent with those published by the IMA in 2010. (IMA-AIM, 2010)

Figure 18 – Coverage of breast cancer screening (organized and all mammograms) in target group, by region (2006-2010)



Note: mammotest = organized screening program, mammogram = organized + opportunistic screening + diagnostic test; Source: IMA-EPS, KCE calculation

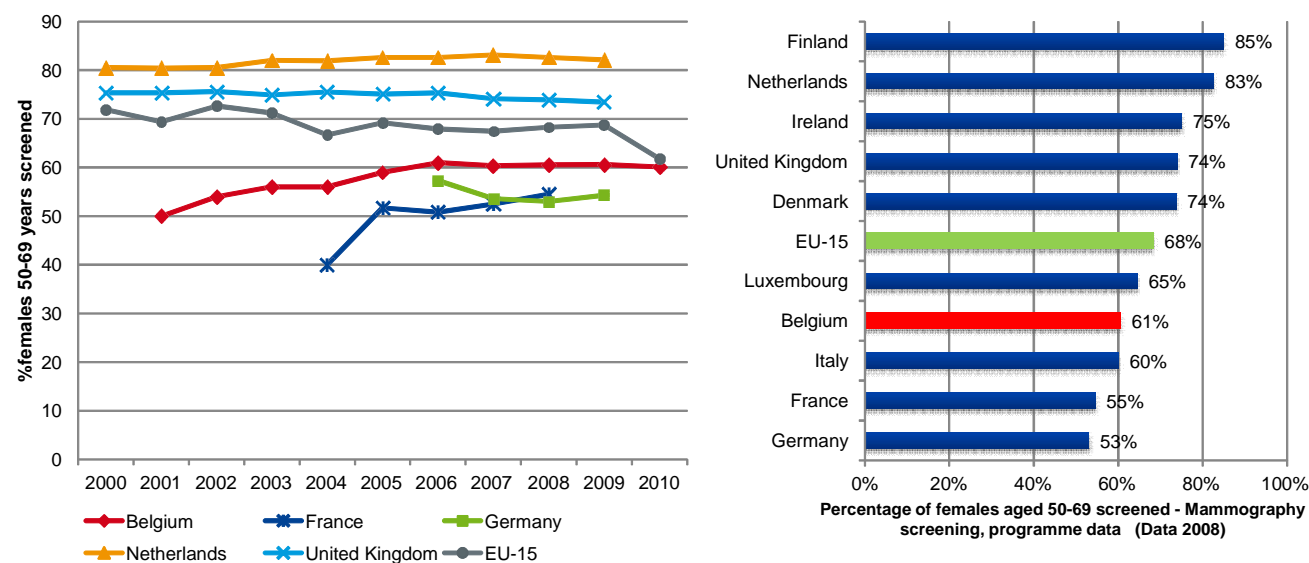
3.6.2.2. International comparison:

Only the total mammogram coverage can be compared with other countries. The Belgian coverage in Belgium, notwithstanding its rise in the years 2000-2005, stays below the EU-15 average.

The breast cancer screening coverage by level of income is considered by the OECD as an indicator of access of care. There is evidence in some other countries of income inequalities in breast cancer screening (Canada, Estonia, France, New Zealand, Poland and the United States). (OECD, 2011b)



Figure 19 – Coverage of breast cancer screening: international comparison (2000-2010)



Source: OECD Health Data 2011 except Belgian IMA data 2007-2010 (KCE calculation)

Key Points Breast Cancer Screening

- During the last five years, the coverage of organized breast cancer screening stagnates around 30%, with huge differences in participation between regions (B: 12%, F: 46%, W 7%)
- Overall coverage, including all mammograms, stabilized around 60%, which is far below the EU-15 average (around 75%)
- Woman with lower socio economic status are less screened than other women



3.7. Coverage of cervical cancer screening

3.7.1. Documentation sheet

Description	Proportion of women aged 25-64 having received a Pap test within the last three years.
Calculation:	<p>Numerator: number of women aged 25-64 in a given year, having had at least a Pap test within the past three years, who are still alive at the end of the given year.</p> <p>Denominator: total number of women aged 25-64 in a given year who are still alive at the end of that year.</p>
Rationale	<p>In 2008, 643 new cases of cervical cancer were registered in Belgium (Belgian Cancer Registry, 2011). Even if this incidence is quite low, cervical cancer has a medium to poor prognosis, and affects rather young women. It can largely be detected at a curable stage by an accessible and harmless test, the smear test. (Hulstaert <i>et al.</i>, 2006) Cervical cancer screening is essentially opportunistic in Belgium. It has been shown that the opportunistic cervical screening is performed too often and at the same time, only reaches 60% of the women, while the total number of smear tests performed is sufficient to screen all the women. (Arbyn <i>et al.</i>, 2011). A better organization of the screening is thus highly desirable. Screening initiatives were set up in the Flemish provinces, but efforts to start a central cervical cancer screening programme have failed so far.</p> <p>From July 1st, 2009, the Pap test is reimbursed only once every two years.</p>
Primary data source	IMA (EPS)
Indicator source	KCE calculation
Technical definitions and limitations	<p>RIZIV/INAMI billing codes: Pap smear (114030 or 149612), cytopathological examination of a Pap smear (588350).</p> <p>Tests performed for hospitalized women are not taken into account.</p> <p>In the IMA database only the year of birth is available and not the exact date of birth. Therefore, it is impossible to verify if a woman received screening exactly within the 3 years prior to her 27th – 64th birthday. It is only possible to verify if a woman received screening in the calendar year of her 27th – 64th birthday (T), one year (T-1) and two years before (T-2). Given this restraint, the indicator will only be calculated for women aged 27-64.</p>
International comparability	<p>The OECD calculates the number of women age 20-69 reporting cervical cancer screening within the past 3 years or the number of women age 20-69 screened for cervical cancer through an organised programme. However, since in Belgium cervical cancer screening is recommended in women age 25-64 every three years; this age category was also selected for the calculation of the indicator.</p> <p>The OECD warns for a limited comparability, since some countries use patient surveys, while other countries use administrative data. Also, the age categories covered are not the same in all OECD countries.</p>
Dimension	Accessibility
Keyword	Prevention ; Ambulatory care ; Cancer care; Screening.
Related indicators	Cervical cancer 5-year survival rate.

**References**

OECD (OECD, 2011c); ECHI shortlist(ECHIM, 2005a); CIHI (Canada) (CIHI, 2011);
 Reports:
 IPH-IMA report on cervical cancer screening (Arbyn *et al.*, 2011).
 GP performance report (NIHDI, 2012b)
 A European Commission Report on the implementation of the Council Recommendation on cancer screening (European Commission, 2008)

3.7.2. Results**3.7.2.1. Belgium**

The cervical cancer screening coverage, defined as the proportion of the target population of women between 27 and 64 years old who had a Pap smear taken in the last 3 years was very stable around 62%-63% between 2007 and 2010. Ten years ago, the cervical cancer screening coverage measured in 1998-2000 was already 59% at the national level. (Arbyn *et al.*, 2009)

The highest coverage rate (72%) is reached when the woman is in the 30-34 years old group, the rate then steadily decreases with age until 42% for the 60-64 years old group. Again, as for breast cancer screening, the coverage rate in more vulnerable populations (defined as those women entitled to increased reimbursement) is lower, reaching only 49% versus 64% in the remaining population.

From January 2008, the health insurance scheme for the self-employed also covers the minor risks. As the PAP smear (114030 or 149612) is considered belonging to the minor risks, there might be an artificial rise in the 2008 figure.

Table 11 – Coverage of cervical cancer screening in target group, by year, region and patient characteristics (2007-2010)

Variable	Category	Rate	Nb women 25-64 with Pap smear	Nb women 25-64
Year	2007	62.4%	41994	67319
	2008	63.1%	42790	67863
	2009	63.0%	43175	68569
	2010	61.8%	42668	68998
Age (2010) (years)	25-29	69.5%	3701	5323
	30-34	72.9%	6423	8815
	35-39	70.7%	6299	8908
	40-44	67.6%	6465	9557
	45-49	64.2%	6437	10019
	50-54	59.3%	5690	9603
	55-59	48.7%	4225	8673
	60-64	42.3%	3428	8100



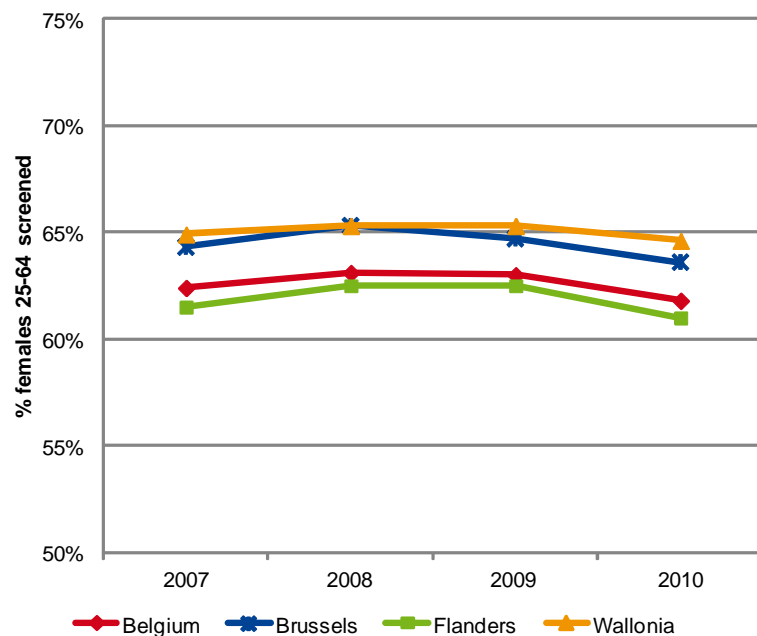
Variable	Category	Rate	Nb women 25-64 with Pap smear	Nb women 25-64
Entitlement to increased reimbursement (2010)	No	64.2%	38064	59273
	Yes	48.9%	4505	9219
Province (2010)	Antwerpen	61.4%	6763	11011
	Brabant Wallon	71.0%	1730	2438
	Bruxelles-Capitale	63.6%	4141	6513
	Hainaut	62.0%	5148	8309
	Limburg	58.1%	3082	5309
	Liège	65.9%	4476	6789
	Luxembourg	61.6%	835	1356
	Namur	65.4%	1975	3020
	Oost-Vlaanderen	60.4%	5541	9173
	Vlaams Brabant	66.0%	4552	6901
	West-Vlaanderen	58.7%	4210	7167
Region (2010)	Brussels region	63.6%	4141	6513
	Flemish region	61.0%	24148	39561
	Walloon region	64.6%	14164	21912

Source: EPS, KCE calculation

Opposite to what was observed for breast cancer screening, Wallonia reaches almost 65%, Brussels almost 64% and Flanders obtains the lowest rate with 61% in 2010. Like for the global rate as seen above, the rates of the three regions slightly decrease after 2008. This is due to the switch from a yearly examination reimbursement to an every 2 years reimbursement from July 1st, 2009. The ensuing global reduction of the number of Pap smears, by type of prescriber (Figure 21)

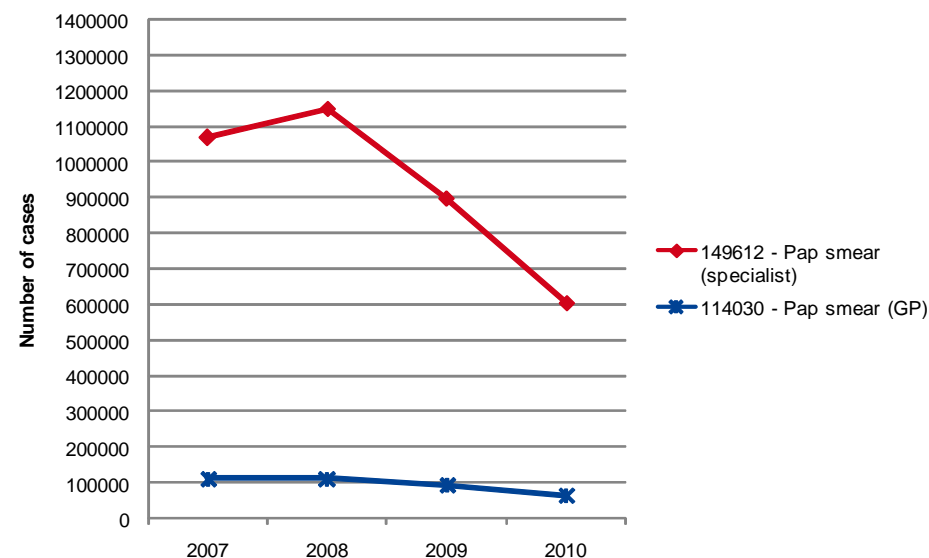


Figure 20 – Coverage of cervical cancer screening in target group, by region (2007-2010)



Source: EPS, KCE calculation

Figure 21 – Coverage of cervical cancer screening : number of Pap smear tests (2007-2010)



Source: Doc N, INAMI-RIZI 2012.

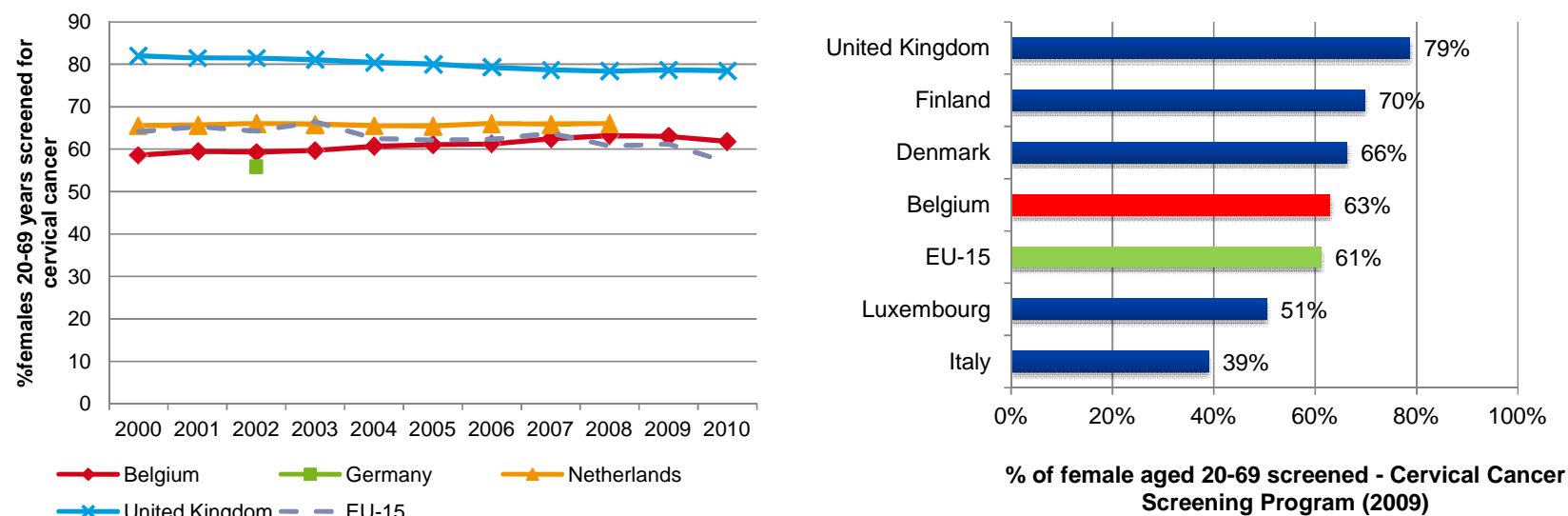
3.7.2.2. International comparison:

Coverage in Belgium caught up with the European average in 2008 when it reached 63%.

The cervical cancer screening coverage by level of income is considered by the OECD as an indicator of access of care. Income-related inequalities in cervical cancer screening are significant in 15 out of 16 countries. (OECD, 2011b)



Figure 22 – Coverage of cervical cancer screening: international comparison (2000-2010)



Source: OECD Health data 2012 (except Belgian data 2009-2010: KCE calculation)

Key Points Cervical Cancer Screening

- Coverage of cervical cancer screening was stable between 2007 and 2010, around 62%-63%, but the number of tests performed annually was divided by 2 between 2008 and 2010
- Coverage is higher for young women than older women
- Women with lower socio economic status are less screened than other women
- Coverage is rather similar between regions, slightly higher in Wallonia and Brussels than in Flanders (B: 64%, F: 61%, W: 65%)
- Coverage in Belgium is within the EU-15 average (63%) but lower than in the UK (around 80%)



3.8. Coverage of vaccinations against various childhood infectious diseases

3.8.1. Documentation sheet

Description	Percentage of infants who have been fully vaccinated against important infectious childhood diseases. The following coverage will be monitored: Poliomyelitis (Polio), Diphteria, Tetanus, Pertussis, Hepatitis B, Measles, Mumps, Rubella.
Calculation	Percentage of infants reaching their 1st birthday in the given calendar year who have been fully vaccinated for this age according to national vaccination schemes, against pertussis, diphteria, tetanus, polio, hepatitis B (3 doses at 12 months), and percentage of infants reaching their 2nd birthday in the given calendar year who have been fully vaccinated against measles, mumps and rubella (one dose).
Rationale	Immunisation is one of the most powerful and cost-effective forms of primary prevention. It is a classical prevention strategy which should be maintained to continue effective protection. The choice of the diseases included comes from the international indicators ECHIM and OECD
Primary Data source	Communities : vaccination coverage surveys
Indicator source	Communities for regional indicators; IPH (Service of Infectious Diseases in the general population)) for a Belgian pooled indicator
Periodicity	Vaccination coverage surveys occur every 3-4 years
Technical definitions	In Belgium, as vaccination is a regional health competence, the vaccination rates are measured at regional level. A national rate is computed as a weighted average of the 3 regional rates, assuming that the rates remain constant during the inter-surveys period.
International comparability	Yes For diphteria, tetanus, pertussis, polio, hepatitis B, the complete schemes in Belgium comprises 4 doses. However, the recommended international indicators measure the coverage at the age of 1 year, which is the coverage of the 3rd dose (completed-for-age coverage). The Belgian and regional figures can provide the coverage by number of doses. The coverage of the 4th dose (full coverage) is always a bit lower than the coverage of the international figures (3d dose coverage). So the rates must be carefully interpreted in function of the number of dose.
Dimension	Accessibility
References	WHO Health for all Database: http://data.euro.who.int/hfad/



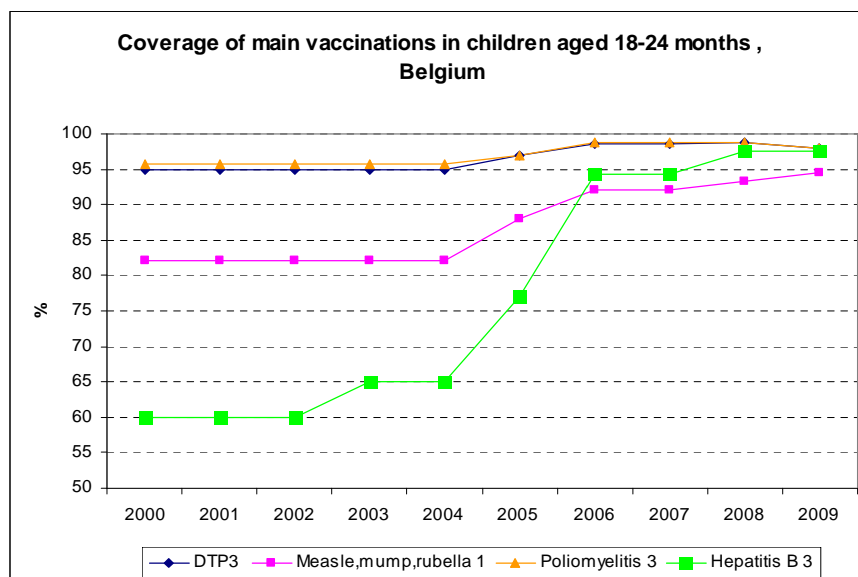
3.8.2. Results

3.8.2.1. Belgium

The WHO-recommended rate of coverage to reach a collective immunisation is 90% for DTP, 95 % for measles.

In general, the recommended coverage rates are reached. The 3rd dose-coverage of Diphtheria-tetanus-Pertussis (DTP3), poliomyelitis (Polio3), hepatitis B (Hep3) has increased and is now quite high, as it exceeds 95%. Only for MMR the coverage was still just below 95% in 2009. It must be noticed that some small epidemic outbreaks of measles have occurred in recent years, in all regions of Belgium and a large outbreak of measles occurred in 2011. (Sabbe *et al.*, 2011). In 2009 a slight decrease of vaccination coverage of DTP3 and Polio3 was observed compared to 2008, but this was not significant (confidence intervals are not requested by WHO).

Figure 23 – Coverage of main vaccinations in children aged 18-24 months (2000-2009)



Coverage by region and number of dosis

In Wallonia, the 4th dose-coverage for polio, DTP, Hib, HepB reaches 90% (which reaches the objective). There is a fall of 6-8% compared to the 3rd dose-coverage. (Robert E. and Swennen, 2009)

The MMR coverage (1st dose) is 92.4%, which is somewhat below the recommended rate.

A comparison with the coverage-rate in 2006 show a small decrease in the vaccination rate for most of the vaccines (around 2-4%). However the decrease was not significant, this should be monitored. If this trend is confirmed, its reasons should be explored.

Factors associated with a better coverage were the ranking of the child (with rank-1 child better vaccinated), the origin of the mother (Belgian best vaccinated), the attendance to ONE consultations (better coverage in children who attend ONE). Surprisingly, the rate was lower when the mother was highly educated.

In Brussels, the last vaccination coverage survey occurred in 2006. The results were similar to those of Wallonia. No significant association with related factors was shown. (Robert E. and Swennen, 2006)

In Flanders, the 4th dose coverage reached 95% for all the considered vaccinations. The fall between the 3^d and the 4th dose is 3%. The factors associated with a better coverage were the ranking of the child (with rank 1 child better vaccinated), the attendance to "Kind en Gezin" (better coverage) and the origin of the mother (Belgian best vaccinated). (Hoppenbrouwers *et al.*, 2009)



Table 12 – Coverage of main vaccinations in children aged 18-24 months, Wallonia (2009)

Tableau 20. Couvertures vaccinales selon les maladies contre lesquelles sont protégées les enfants en 2009

Vaccin (n=512)	1	2	3	4
Polio	99.6 (510) 99.1-100	99.6 (510) 99.1-100	98 (502) (96.8-99.2)	90.4 (463) 87.9-93
Diphtérie Tétanos Coqueluche	100 (512)	100 (512)	98.6 (505) 97.6-99.6	90.6 (464) (88.1-93.1)
Haemophilus	99.0 (507) 98.2-99.9	99.0 (507) 98.2-99.9	97.5 (499) 96.1-98.8	90.2 (462) 87.7-92.8
Hépatite B	98.8 (506) 97.6-99.8	98.8 (506) 97.6-99.8	96.9 (496) 95.4-98.4	90.4 (463) 87.9-93
Rougeole Rubéole Oreillons	92.4(473) 90.2-94.6	/	/	/

Source: (Robert E. and Swennen, 2009)

Table 13 – Coverage of main vaccinations in children aged 18-24 months, Flanders (2008)

Tabel 2.14: Vaccinatiegraad op de leeftijd van 18-24 maanden per dosis, uitgedrukt in procenten (met 95% betrouwbaarheidsinterval) (n = 915), Vlaanderen 2008

Vlaanderen	Dosis 1	Dosis 2	Dosis 3	Dosis 4
Polio	99.7 (99.0-99.9)	98.8 (97.8-99.3)	98.5 (97.4-99.1)	95.3 (93.7-96.5)
DTP	99.3 (98.5-99.7)	98.6 (97.6-99.2)	98.3 (97.2-98.9)	95.2 (93.6-96.4)
Hib	99.1 (98.3-99.6)	98.4 (97.3-99.0)	98.1 (97.0-98.8)	95.2 (93.6-96.4)
Hepatitis B	99.0 (98.1-99.5)	98.3 (97.2-98.9)	98.0 (96.9-98.8)	95.1 (93.5-96.3)
Pneumokok 7v*	97.7 (96.5-98.5)	93.8 (92.0-95.2)	89.1 (86.9-90.9)	32.2 (29.3-35.3)
MBR	96.6 (95.2-97.6)			

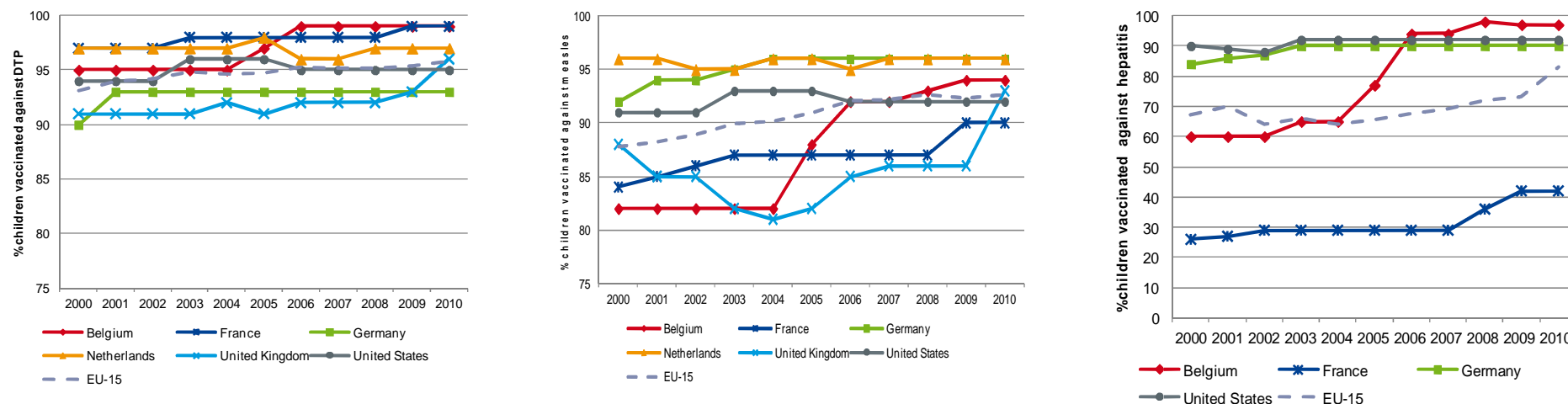
Source: (Hoppenbrouwers et al., 2009)

3.8.2.2. International comparisons

The following figure is build with data extracted from the OECD report "health at a glance 2011", and compares Belgium with some selected neighbouring countries, USA and the average for EU-15. Belgium ranks very good for DTP3 coverage, mostly since 2003. For measles (1st dose), the global coverage ranks good, has much improved and reaches almost the recommended level.



Figure 24 – Coverage of main vaccinations in children aged 18-24 months: international comparison (2000-2010)



Source: OECD Health data 2012

Key Points Vaccination children

- The WHO-recommended rate of coverage to reach a collective immunisation is 90% for DTP, 95 % for measles. In general, the recommended coverage rates are reached in Belgium. The 3rd dose-coverage of Diphtheria-tetanus-Pertussis (DTP3), poliomyelitis (Polio3), hepatitis B (Hep3) has increased and is now quite high, as it exceeds 95%. Only for MMR the coverage was still just below 95% in 2009.
- The 4th dose-coverage for polio, DTP, Hib, HepB reaches 90% in Wallonia and Brussels, and 95% in Flanders.
- Compared to other European countries, Belgium ranks very good for DTP3 coverage, mostly since 2003. For measles (1st dose), the global coverage ranks good, has much improved and reaches almost the recommended level



3.9. Coverage of vaccination against influenza for the elderly

3.9.1. Documentation sheet

Description	Proportion of the population 65 years and older that received a dose of influenza vaccine
Calculation	Numerator: number of individuals 65 and older years old who received a dose of influenza vaccine during the past season Denominator: number of individuals aged 65 years and older
Rationale	Influenza vaccines are considered as the most effective preventive tools to reduce disease burden and severe disease due to influenza in individuals. In Belgium, seasonal influenza vaccination is currently recommended for the prevention of influenza in 5 groups of persons, the first one being persons at higher risk of influenza complications. (Superior Health Council, 2007b): among which all persons aged 65 years and older and all persons living in institutions. The WHO recommends a target a 75% vaccination rate for the elderly. (WHO, 2003)
Primary data source	IMA (EPS)
Indicator source	3 IMA reports on influenza vaccination (IMA-AIM, 2006a) (IMA-AIM, 2008, 2011)
Technical definitions	All vaccines belonging to the ATC 4 class J07BB, anti-influenza vaccines.
Limitation	Only vaccines which have been reimbursed are taken into account.
International comparability	ECHIM, OECD and Eurostat data are based on Health interviews.
Dimension	Accessibility
Keywords	Prevention; Vaccination; Elderly care; Long term care;
References	OECD Health data 2011 (OECD, 2011c); ECHI short list(ECHIM, 2005a) KCE report on targets for seasonal influenza vaccination (Hanquet et al., 2011) Belgian Health Interview Survey (IPH, 2010) 3 IMA reports on influenza vaccination (IMA-AIM, 2006a) (IMA-AIM, 2008, 2011) GP performance report (NIHDI, 2012b) References of the indicator: CMMS, 2011(Centers for Medicare & Medicaid Services, 2011), Acove, 2007(Gnanadesigan and Fung, 2007)





3.9.2. Results





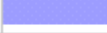
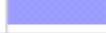








3.9.2.1. Belgium





The IMA-AMI has published three reports on influenza vaccination coverage. (IMA-AIM, 2006a) (IMA-AIM, 2008, 2011) The last report, which covers the winters 07-08 and 08-09, shows that:





- Vaccination coverage of elderly does not reach the WHO target (63% in 08-09)
- Vaccination rates are higher in Flanders (65.8%) than in Wallonia (60.9%) and Brussels (59.2%)
- The WHO target is achieved for elderly residing in institution (82.3%)
- Diabetic patients have a higher coverage (78.1% if they have a diabetes convention)
- Patients with a DMG have a higher coverage, even after adjustment for confounding factors
- Patients with preferential status have higher coverage, even after adjustment for confounding factors

Table 14 – Coverage of vaccination against influenza for elderly, by age, sex and other characteristics (winter 07-08 and winter 08-09)

	saison 07-08	saison 08-09
TOTAL	62,5% 	62,9% 

	saison 07-08	saison 08-09
65-69 ans	49,9% 	49,6% 
70-74 ans	61,0% 	61,1% 
75-79 ans	67,0% 	67,3% 
80-84 ans	70,3% 	71,5% 
85-89 ans	72,9% 	73,4% 
90-94 ans	74,9% 	75,6% 
95 ans et +	76,9% 	74,5% 

	saison 07-08	saison 08-09
Non BIM	45,6% 	46,3% 
BIM	63,2% 	63,5% 

	saison 07-08	saison 08-09
Sans DMG	52,2% 	52,7% 
Avec DMG	71,6% 	70,8% 



	saison 07-08		saison 08-09	
Région flamande	65,8%		65,8%	
Région wallonne	60,2%		60,9%	
Bruxelles	58,0%		59,2%	

	saison 07-08		saison 08-09	
Anvers	65,8%		65,7%	
Brabant Flamand	67,9%		68,7%	
Brabant Wallon	61,7%		62,8%	
Bruxelles	58,0%		59,2%	
Flandre Occidentale	62,1%		62,1%	
Flandre Orientale	66,0%		65,9%	
Hainaut	60,8%		61,3%	
Liège	59,6%		60,0%	
Limbourg	69,0%		68,3%	
Luxembourg	57,7%		58,9%	
Namur	60,3%		61,9%	

	saison 07-08		saison 08-09	
Domicile propre	61,0%		61,3%	
Maison de repos	81,9%		82,3%	

	saison 07-08		saison 08-09	
Sans médication anti-diabétique	60,7%		61,0%	
En convention de diabète	76,8%		78,1%	
Consommation d'insuline	80,2%		79,4%	
Médication orale	73,7%		73,4%	

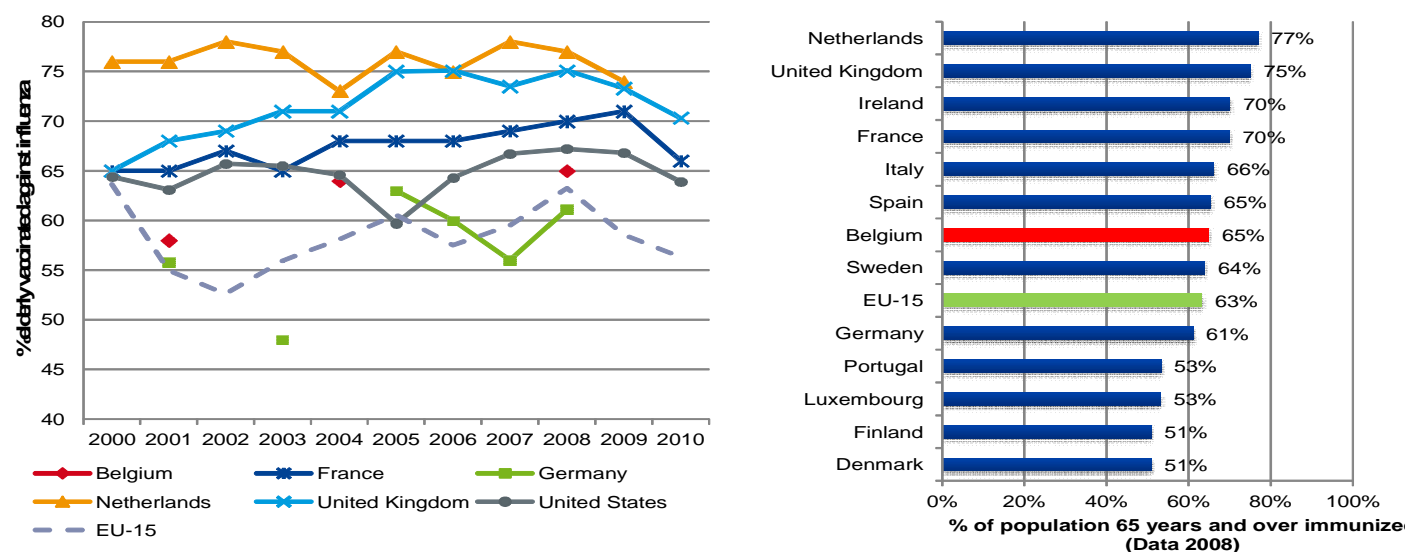
Source: IMA report



3.9.2.2. International comparison:

Coverage in Belgium for 2008 was 65%. This is lower than in France, UK and the Netherlands.

Figure 25 – Coverage of vaccination against influenza for elderly: international comparison (2000-2010)



Source: OECD Health data 2012

Note: fluctuation of the EU-15 is an artefact of the available of the coverage data of the different countries.

Key points Vaccination Influenza

- Globally, the vaccination coverage of the elderly only reach the WHO target of 75% for the elderly in institution (82%), but not globally (63% in 08-09)
- Vaccination rates are higher in Flanders (65.8%) than in Wallonia (60.9%) and Brussels (59.2%)
- Patients with preferential status have higher coverage, even after adjustment for confounding factors
- Vaccinations rates are lower than in France, UK and the Netherlands.



3.10. Number of beds in residential care for the elderly

3.10.1. Documentation sheet

Description	Number of recipients of long-term care.
Calculation	Numerator: total number of recipients of long term care, in elderly homes or at home Denominator: total population 65+
Rationale	<p>Demographic ageing of the population in the coming decades is expected to have significant implications on the future needs and use of long-term care (LTC). According to the latest demographic projections made by The Belgian Federal Planning Bureau (2011), the share of older persons in the total population (aged 65 or older) is expected to rise from around 17% in 2010 to 21% in 2025 and almost 26% in 2050. Unless radical shifts occur in the prevalence of age-related disability, these demographic trends will translate in growing numbers of older people in need of help with their activities of daily living, either at home or in residential care facilities (Van den Bosch et al., 2011).</p> <p>Monitoring the number of evolution over time of the number of recipients of long term care is thus an important indicator of sustainability.</p>
Data source	RIZIV/INAMI
Results source	KCE Report moratoire (Van den Bosch et al., 2011)
Technical definitions	<p>In the residential sector, homes for the elderly [woonzorgcentra (previously called rustoorden voor bejaarden (ROB)) in Dutch, maison de repos pour personnes âgées (MRPA) in French] provide nursing and personal care as well as living facilities to older persons with mainly low to moderate limitations. Older persons who are strongly dependent on care but who do not need permanent hospital treatment are admitted to nursing homes [rust-en verzorgingstehuis (RVT) in Dutch, maison de repos et de soins (MRS) in French]. Each nursing home has to have a functional link with a hospital. Eligibility for residential care, or more precisely the level of care covered by the public health insurance scheme, depends on the degree of care dependency, and is evaluated using the same criteria as in home nursing (6 ADL items and disorientation in time or space). While medical costs and costs of care in residential care facilities are covered by public health insurance, board and lodging costs are to be paid by the resident (Van den Bosch et al., 2011).</p>
International comparability	<p>Several countries included in the OECD comparison use different methodologies, so comparison is potentially biased. Methodology specific for Belgium (OECD):</p> <p>Age-breakdowns sometimes differ from the OECD guideline as data are available for recipients of all ages and those aged below 60, aged 60 and over, and aged 80 and over.</p> <p>- Data on recipients aged below 60 and aged 60 and over for years before 2004 are OECD estimates. The estimates are calculated by multiplying the total number of recipients for years before 2004 with the average percentage of recipients in the respective age groups in total recipients between 2005 and 2007 (98%). The average percentage is used since the proportion of recipients aged below 60 and aged 60 and over was constant between 2005 and 2007.</p>



Dimensions	Accessibility
Keywords	Long term care
Related performance indicators	Informal carers
References	OECD Health Data 2012(OECD, 2012b)

3.10.2. Results

The number of beds in homes for the elderly has decreased steadily in the last decade, from around 88 000 in 2000 to 64 000 in 2011, while the number of beds in nursing homes almost doubled, from around 33 000 to 65 000 over the same period. Relative to the 65+ population, the number of beds in residential care facilities has remained more or less constant over the past decade, from 71 beds per 1 000 persons of 65 years and over in 2000 to 70 beds in 2010(Van den Bosch *et al.*, 2011).

In 2010, the number of beds in homes for the elderly per 100 inhabitants of 65 years and older / 75 years and older was considerably higher in Wallonia and Brussels than in Flanders (Table 15); the nursing home cover ratio does not diverge much between the regions. Overall, the number of beds in residential facilities in relation to the elderly population is much higher in Wallonia and Brussels than in Flanders.

Table 15 – Number of accredited beds in homes for the elderly and nursing homes (per 100 inhabitants of 65 years and older or 75 years and older), by region (2010)

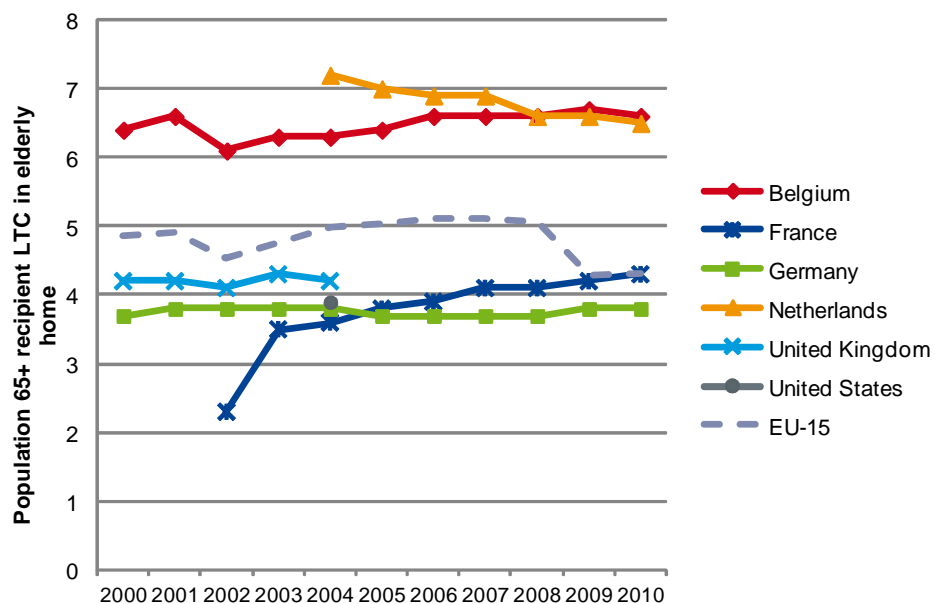
Beds in homes for the elderly				Beds in nursing homes		
	Wallonia	Flanders	Brussels	Wallonia	Flanders	Brussels
Number of beds/100 inhabitants 65 +	4.9	2.5	6.3	3.4	3.3	3.8
Number of beds/100 inhabitants 75 +	9.5	5.0	11.9	6.5	6.8	7.1

Source: NIHDI 2011, SVR 2011

Data are available internationally for the proportions of population over 65+ recipient of LTC in elderly home. With a percentage between 6% and 7%, Belgium is higher than the EU-15 average, between 4% and 5%, and similar to The Netherlands. No data are available for recipients in home care.



Figure 26 – Percentage of population (aged 65 years or older) recipient of long-term care in residential facility: international comparison (2000-2010)



Source OECD Health Data 2012

Key points Recipients of long-term care

- With 6%-7% of 65+ residing in a home for elderly, Belgium is higher than the EU-15 average, between 4% and 5%, and is similar to The Netherlands.
- There are only small differences between the regions/communities concerning the development and the use of the newer types of facilities (nursing home beds, short-stay, day-care, coma beds), but there is a rather wide gap between Flanders and Wallonia/Brussels concerning the number of beds in homes for the elderly (the more traditional residential supply).
- The number of beds in proportion to the elderly population, the differences between the regions with regard to the number of short-stay and coma beds are noticeably small, with a slight disadvantage for Flanders. Compared to Brussels, Wallonia has a smaller proportion of places in day-care centres, while Flanders has a higher proportion of day-care places.



3.11. Informal carers for the elderly

3.11.1. Documentation sheet

Description	Proportion of persons reporting to be informal carers
Calculation	Numerator: population aged 50 and over reporting to be informal carers Denominator: population aged 50 and over
Rationale	Informal carers, defined as people providing assistance with basic activities of daily living (ADL) for at least one hour per week (OECD, 2011b), are an important component in the long-term care process. The number of informal carers is estimated to decrease in the coming decades, as a result of declining family size, changes in residential patterns of people with disabilities and rising participation rates of women in the labour market. The provision of high-intensity care by a low number of informal carers and the lack of support for these informal carers might exacerbate employment and health inequalities.
Data source	OECD Health at a glance, 2011
Keywords	Long-term care; elderly
References	OECD-Health at a glance, 2011 (OECD, 2011b)

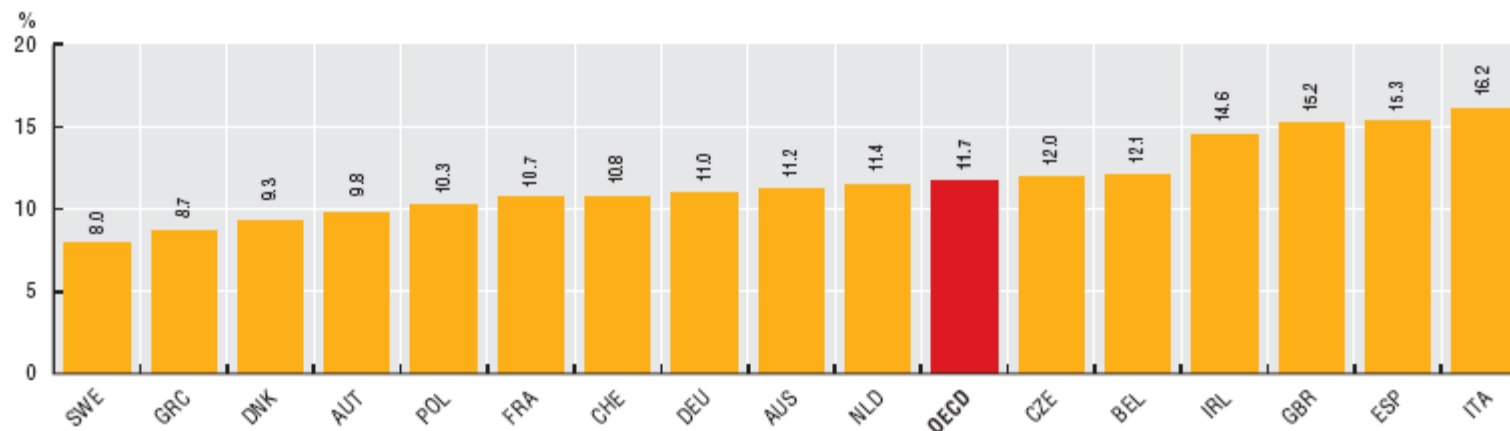


3.11.2. Results


Population aged 50 and over reporting to be informal carers, around 2007

The average proportion of informal carers varied from 8% in Sweden to 16.2% in Italy (see figure below). The Belgian average of 12.1% of the population aged 50 and older is slightly higher than the overall average of the OECD-countries (11.7%). The large variation between countries can be explained by the provision of informal care by more formal long-term care providers: the low rate of informal carers in Sweden is associated with a more developed provision of formal care whereas in Italy relatively few formal long-term care workers provide informal care.

8.5.1 Population aged 50 and over reporting to be informal carers, around 2007



Source: OECD estimates based on the 2005-07 HILDA survey for Australia, the 2007 BHPS survey for the United Kingdom and the 2004-06 SHARE survey for other European countries.

StatLink  <http://dx.doi.org/10.1787/888932526540>

More data are available in Health at a Glance (share of women among all informal carers, the weekly hours of care provided by informal carers, the distribution of care recipients, ...) (OECD, 2011b).



3.12. Start of palliative care very close to death

3.12.1. Documentation sheet

Description	Proportion of patients who start receiving palliative care and die within one week
Calculation	Numerator: Number of patients who started palliative care and died within the week. Denominator: Total number of patients who received palliative care services before their death
Rationale	The start of palliative care is sometimes delayed until patients are in terminal phase. This can denote either problems of accessibility of end of life care, either that the decision to start palliative care was taken too late.
Data source	No data currently IMA will present early 2013 a study on the quality of end of life care (including palliative patients and patients dying from cancer).
Technical definitions and limitations	It is not currently possible to identify all palliative patients in administrative databases or in registries. These specific populations can however be identified: Palliative patients at home can be identified by their lump sum for home palliative care (nomenclature 740213) Palliative patients hospitalized in specific palliative units (Sp) can be identified based on the nomenclature specific to SP services. All patients diagnosed with cancer can be identified via the Belgian cancer registry
International comparability	This is not an international indicator.
Dimensions	Accessibility
Key-words	End-of-life; palliative care service; timeliness
References	Report Christian Mutualities: palliative lump sum (Gielen et al., 2008, Gielen et al., 2010) Bossuyt et al, 2011 (Bossuyt et al., 2011) Houttekier et al, 2010 (Houttekier et al., 2010c) Cohen et al, 2011 (Cohen J. et al., 2011)



3.12.2. Results

Results for the indicator

The request of the palliative lump sum occurred for half of the patients in less than a month before the death. In 20% the patients died within the week of request. (Gielen *et al.*, 2008, Gielen *et al.*, 2010)

More background information

In the study of the Christian Sickness Funds (Gielen *et al.*, 2008, Gielen *et al.*, 2010) (n= 40 965 CM-members, older than 40 years, who died between July 2005 and June 2006) 10% of the 45% of deceases in the hospital occurred in the palliative care unit. Within the study sample, 18% is identified as palliative patient (of these 63% are cancer patients), classified in 12% of patients with a lump sum for palliative home care, 5% of the patient staying in a palliative care unit, 6% of the patients receiving palliative care by the multidisciplinary supportive teams and 0.08% of the patients staying in a palliative day care centre. Forty percent (40%) of the patients with a lump sum for palliative care had also contacts with the multidisciplinary teams. Looking at the geographical distribution of the palliative lump sums, more patients with a lump sum are found in the Flemish region (14%) compared to the French-speaking region (12%) and Brussels (6.7%) (after exclusion of the patients who died in a care home). The majority of the patients who received a palliative lump sum in the last 6 months died at home (71%) compared to 9% in palliative care units, 18% in hospital and 1% in care homes. The number of requests for palliative lump sums is higher in cancer patients (1 on 3 cancer patients received a lump sum), this can be explained by the better estimation of life expectancy in cancer patients. The results of the study show a underuse of the palliative lump sums by the palliative patients.

Accessibility to palliative care services could also be determined by the socio-economic status of the patient. The retrospective cohort study via a national wide sentinel network of GPs of Bossuyt *et al.* (Bossuyt *et al.*, 2011) (n= 2445 non-sudden deaths in 2005-2007) examined the relationship between educational level and the use of palliative care services. No bivariate relationship was found between educational level and the main treatment goal in the 3 last months of life (p=0.545). However, patients with a primary education or lower used less frequently multidisciplinary specialist palliative services (p<0.001), were less likely to

be transferred more than twice between care settings (p=0.006) and had fewer number of GP contacts (p=0.019) compared to patients with a lower secondary or higher secondary/higher education. The results indicate the lower use of palliative care services related to the lower educational level of the patients, suggesting an inequitable use of palliative care services. The authors recommend the empowerment of less well-educated palliative patients regarding the use of (specialist and general) palliative care services.

The retrospective study of 1690 patients who died in 2005-2006 (Houttekier *et al.*, 2010c), collected by a surveillance network of GPs, looked at the involvement of palliative care services and GPs in the health care delivered in the last 3 months of life. From all deaths, 23.8% occurred at home, 39.3% in the hospital (excl. palliative care unit), 26.7% in a care home and 10.1% in a palliative care unit. The treatment goals in the last 3 months was focused on comfort and palliation in the home setting, the care home and the palliative care unit in contrast to the treatment goal of cure and prolonging life in the hospital. The GP is often involved in home setting and in care home, in contrary to the lack of involvement of the GP in the hospital and in the palliative care unit. No home care involvement occurred in the last 3 months in patients who died in the hospital, in other care settings (home, palliative care unit and home care) often home care was involved. The majority of patients who died at home, in care home or in palliative care unit had no hospital admissions in the last 3 months in contrary to the two or more admissions to hospitals of the patients who died in the hospital. Multivariate logistic regression showed the independently influence of palliative care services on the place of death. The patients living at home, were more likely to die at home if a multidisciplinary palliative home care team was involved (OR 8.4, 95% CI 4.7-15.1), if they expressed a preference for home death (OR 14.2, 95% CI 9.5-21.4), if they used often informal care (OR: 2.3, 95% CI 1.2-4.6) or if they lived in regions with lower hospital beds availability (OR: 0.8, 95% CI 0.6-0.9). The patients in hospital were less likely to die at home if palliative support teams in hospital were involved (OR 0.3, 95% CI 0.1-0.9) but more likely to die at home if home palliative care teams were involved (OR 10.6, 95% CI 5.4-21.1), if the preference of dying at home was expressed (OR 10.1, 95% CI 5.7-18.1) and if informal care was often involved (OR 4.4, 95% CI 1.3-15.2). Death in a palliative care unit is more likely compared to



death in hospital if palliative home care team was involved (OR 2.9, 95% CI 1.6-5.5), for patients with cancer (OR 6.5, 95% CI 3.8-10.9), for women (OR 1.7, 95% CI 1.1-2.6) or if professional home care was involved (OR 2.2, 95% CI 1.4-3.5). No association was found between the involvement of a palliative support team and the death in a palliative care unit. Patients living in a home care were more likely to die in care home (compared to in hospital) if palliative care reference persons were involved (OR 9.4, 95% CI 3.3-26.7), if they expressed their place of death in care home (OR 10.4, 95% CI 4.4-24.9), if they had cancer (OR 2.5, 95% CI 1.1-5.9) and if they were women (OR 1.8, 95% CI 1.0-3.0). The results show a predictive relation between the involvement of palliative care services and the place of death: the involvement of a home palliative care team is strongly associated with death at home or in palliative care unit. For care home residents similar results were found: the involvement of a palliative care reference person is strongly associated with dying in the care home. The involvement of palliative care team in the hospital does not advantage death outside the hospital. In contrast to other studies, the role of the GP seems to be less important in the place of death. The GP plays a role in exploring patient preferences in place of death and involving the palliative care services.

The involvement of palliative care services (in the Brussels metropolitan region) is also analysed in the study of Cohen et al (Cohen J. *et al.*, 2011). In 23% of all non-sudden deaths (n= 410, in 2007), palliative care specialists were involved. Determinants for this involvement were patients younger than 65 years and patients with cancer. Older patients, non-cancer patients and patients residing in care homes were less likely supported by palliative care specialists. The palliative care specialists were mostly involved in patients who died at home (41.7%) compared to the patients who died in hospital (27.0%) or in a care home (4.0%). The results indicate the better knowledge of the preferred place of death due to the involvement of palliative care but no relationship could be found between the involvement of the palliative care specialists and the place of death.

Key points Start of palliative care very close to death

- **The start of palliative care very close to death is an indicator of the accessibility of palliative care. There are currently no national data on this indicator.**
- **In a study from the CM, one patient out of five died within the week after the start of palliative care services.**
- **To interpret properly this indicator, more data are needed on trends over time, regional differences and international comparability.**



4. INDICATORS ON EFFECTIVENESS (A SUBDIMENSION OF QUALITY)

4.1. 5 year relative survival after cancer (colon, breast, cervix)

4.1.1. Documentation sheet

Description	Overall and relative 5-year survival by stage: breast, cervical and colon cancer
Calculation	<p>Numerator: Number of persons with (a) breast cancer, (b) cervical cancer and (c) colon cancer, surviving 5 years after diagnosis in a given year</p> <p>Denominator: Number of persons with (a) breast cancer, (b) cervical cancer and (c) colon cancer diagnosed in a given year</p>
Rationale	<p>In 2009, 9 695 new cases of breast cancer were registered in Belgium (females: 9 596; males: 99), compared to 612 new cases of cervical cancer and 5 883 new cases of colon cancer (females: 2 798; males: 3 085). In Belgium, breast cancer is the most frequent cancer type in females, while colorectal cancer is the third and second most frequent cancer type in males and females respectively. Breast cancer is also the leading cause of death by cancer in females in Belgium.</p> <p>For all three cancer types, screening and treatment should lead to improved survival rates. Several treatment strategies have been linked with improved survival, and are recommended in the national guidelines developed by the KCE in collaboration with the College of Oncology.</p>
International comparability	Thanks to the work of EUROCARE, the methods used by cancer registries internationally are more standardized. Data on relative survival for these three cancer types can be retrieved from the OECD Health Data (most recent period being 2004-2009). However, these are not always presented by cancer stage.
Data source	Belgian Cancer Registry (BCR)
Technical definitions and limitations	<p>For international comparison, relative survival is used as a proxy of disease-specific mortality. Five-year relative survival rates assume that some patients with cancer will die from other causes and compare the observed survival with that expected for people without the cancer.</p> <p>All cancers are registered in the Belgian Cancer Registry (BCR), and can be identified using the following ICD-10 codes:</p> <ul style="list-style-type: none">- Breast cancer: C50- Cervical cancer: C53- Colon cancer: C18, C19 <p>Mortality data are retrieved by the BCR at the Kruispuntbank / Banque Carrefour, expected survival is retrieved from the mortality tables of StatBel.</p> <p>When comparing data on cancer survival over time or between countries, possible lead-time bias should be taken into</p>



	account. When cancer is diagnosed earlier, but there is no effect on treatability and prognosis, the prolonged survival that is detected is not a true quality effect.
Dimensions	Quality Effectiveness
Related performance indicators	Coverage of target group for breast cancer screening (within and outside organized screening program) Breast cancer screening: mammograms for women outside target group Cervical cancer screening
References	EUROCARE: http://www.eurocare.it/Home/tabid/36/Default.aspx KCE guidelines (Cardoso et al., 2012, Peeters et al., 2006, Vergote et al., 2011) OECD Health Data 2011 (OECD, 2011c) Cancer Incidence in Belgium, 2008. Belgian Cancer Registry, Brussels, 2011 (Belgian Cancer Registry, 2011)

4.1.2. Results

4.1.2.1. National results

An overview of the 5-year overall and relative survival for female breast cancer, cervical cancer and colon cancer (incidence date 2004-2008) is provided by stage (combined c and p) in Table 16. Since national 5-year survival data became only recently available, it is not very informative to provide the evolution of survival already in this report.

Table 16 – 5-year overall and relative survival for breast, cervical and colon cancer, by stage (2004-2008)

Cancer type	Total N at risk	Survival	All	I	II	III	IV	X
Female breast cancer	45.946	Overall	80.3%	93.2%	84.6%	66.2%	25.9%	63.6%
		Relative	88.0%	99.8%	93.3%	73.8%	29.2%	73.4%
Cervical cancer	3.065	Overall	66.6%	89.5%	58.3%	51.6%	15.7%	61.3%
		Relative	69.8%	92.2%	63.6%	54.5%	17.0%	64.6%
Colon cancer: males	12.519	Overall	49.3%	72.0%	66.4%	49.5%	12.1%	42.8%
		Relative	62.3%	91.6%	86.1%	61.7%	14.5%	54.5%
Colon cancer: females	11.848	Overall	52.3%	78.5%	67.7%	50.8%	14.0%	44.4%
		Relative	64.6%	96.3%	86.1%	62.1%	16.0%	55.5%



4.1.2.2. Regional comparison

Small regional differences were found for the 5-year relative survival for female breast cancer. Survival was slightly better in the Walloon Region (88.8%) compared with the Brussels Capital (88.0%) and Flemish Region (87.6%). Relative survival for cervical cancer was clearly better in the Flemish Region (70.6% vs. 69.1% in the Walloon Region and 67.7% in the Brussels Capital Region). For colon cancer in males, the Flemish and Walloon Region had a better relative survival than the Brussels Capital Region (62.5% both versus 59.9%). For colon cancer in females, relative survival was comparable across the 3 regions.

Possible explanations for these differences include lead time bias (e.g. earlier detection of breast or cervical cancer through screening) or differences in therapeutic approaches.

Table 17 – 5-year overall and relative survival for breast, cervical and colon cancer, by stage and region (2004-2008)

Cancer type	Total N at risk	Survival	Brussels Capital Region	Flemish Region	Walloon Region
Female breast cancer	45.946	Overall	79.7%	80.3%	80.5%
		Relative	88.0%	87.6%	88.8%
Cervical cancer	3.065	Overall	64.4%	67.8%	65.2%
		Relative	67.7%	70.6%	69.1%
Colon cancer: males	12.519	Overall	46.6%	50.0%	48.7%
		Relative	59.9%	62.5%	62.5%
Colon cancer: females	11.848	Overall	50.3%	53.1%	51.3%
		Relative	64.3%	64.5%	64.9%

4.1.2.3. International comparison

Compared with Germany, the Netherlands, and the UK, Belgium has a high 5-year relative survival for female breast cancer, cervical cancer and colon cancer (Table 18). Only for breast cancer and colon cancer, the US has higher survival rates than Belgium.

Possible explanations for these differences again include lead time bias (e.g. earlier detection of breast or cervical cancer through screening) or differences in therapeutic approaches.

**Table 18 – 5-year relative survival (all stages combined): international comparison (2004-2009)**

Country	Female breast cancer	Cervical cancer	Colon cancer ^{\$}
Belgium	88.0% ^{\$}	69.8% ^{\$}	63.5% ^{\$}
France	-	-	-
Germany	83.3%	62.9% [*]	60.4% [*]
The Netherlands	84.4%	67.0%	61.0%
UK	81.3%	58.8%	53.3%
US	89.3% [#]	64.4% [*]	64.5% [*]

^{\$} 2004-2008 data.; ^{*} 2003-2008 data.; [#] Both sexes.

Key Points 5 year survival after cancer

- The overall relative survival 5 years after a diagnosis of breast cancer, cervix cancer and colon cancer is respectively 88%, 70% and 63% (62% for male, 65 for women). Since national survival data became only recently available, trends over time are not yet available.
- Small differences are observed between regions, especially a lower survival in Brussels for cervical cancer and colon cancer in males.
- Compared with Germany, the Netherlands, and the UK, Belgium has a high 5-year relative survival for female breast cancer, cervical cancer and colon cancer



4.2. Hospital admissions for asthma

4.2.1. Documentation sheet

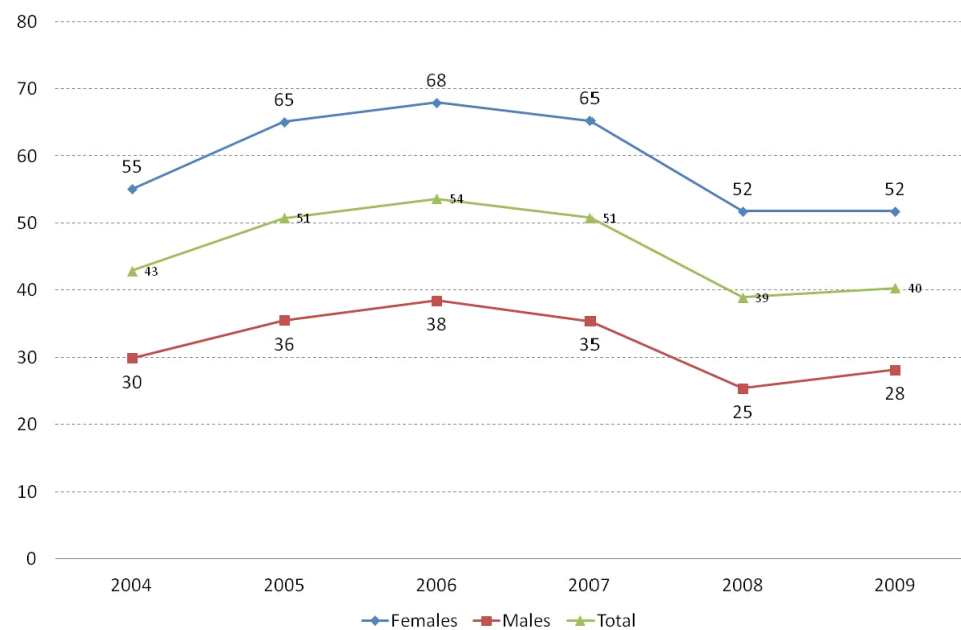
Description	Number of hospital discharges with principal diagnostic of asthma in people aged 15 years and over per 100 000 population
Calculation	Numerator: All discharges (age 15+) with a principal diagnosis code of asthma in a specified year. Denominator: 100,000 Population (age 15+ years).
Rationale	Asthma is a common disease, generally manageable on an outpatient basis. But proper treatment requires a good continuity of care (longitudinal between GP and patient; informational and management between physicians). Thus, high hospital admission rates for asthma can serve as a proxy for pointing to poor effectiveness of first line care, as well as poor co-ordination or continuity of care.
Primary data source	Numerator: RCM/MKG Denominator: FPS Economy - Directorate-General Statistics and Economic Information, Demographics division
Indicator source	OECD health data. This indicator belongs to the set of indicator on quality of care (HCQI)
Technical definitions and limitations	Asthma diagnosis codes: ICD-9 CM 493.xx Exclusion of : <ul style="list-style-type: none">- cases transferred from another institution- same day/day only admissions
International comparability	This is the OECD definition. According to OECD, differences in diagnosis and coding between asthma across countries may limit the precision of the specific disease rates. Differences in disease classification systems, for example between ICD-9 CM and ICD-10 AM, may also affect the comparability of the data. OECD shows data for 15+, and AHRQ suggests to combine admission rates for children (2-17) and adults (18+);
Dimensions	Effectiveness + Continuity (Management);
Keywords	Ambulatory care; Curative; Chronic care
References	OECD indicators (health at a glance)(OECD, 2011b); (AHRQ, 2006b)



4.2.2. Results

4.2.2.1. Belgium

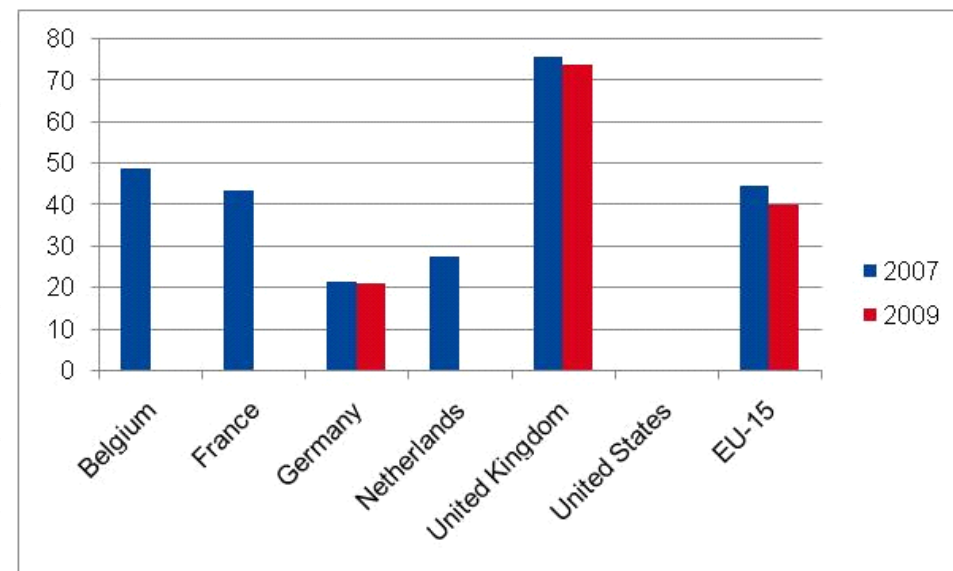
Figure 27 – Number of hospital admissions for asthma (per 100 000 population aged 15 years and older) (2004-2009)



Source: FPS Public Health

4.2.2.2. International comparison

Figure 28 – Age-sex standardized hospital admissions for asthma (for population aged 15 years and older): international comparison (2007-2009)



Source: OECD Health Data 2012, HCQI



4.3. Suicide rate

4.3.1. Documentation sheet

Description	Suicide, in the population per 100,000 inhabitants (by sex)
Calculation	Numerator: number of deaths by suicide (x100 000) Denominator: total population
Rationale	Suicide may be the end-point of a combination of psychological, social and demographic factors. It is more likely to occur during crisis periods associated with upheavals in personal relationships, through alcohol and drug abuse, unemployment, clinical depression or other forms of mental illness. Because of this, suicide is often used as a proxy indicator of the mental health status of a population (including the lack of well-being). However, it remains a controversial indicator because of the instability of suicide rates, difficulty in data collection and the lack of association between suicide and quality of care provided. (Desai et al., 2005) Therefore, it is recommended to use suicide rates in combination with other mental health related indicators. (OECD, 2011a)
Primary data source	DGSIE/ADSEI
Indicator source	DGSIE/ADSEI
Technical definitions and limitations	Deaths by suicide are classified to ICD-10 codes X60-X84.
International comparability	<p>The World Health Organization defines suicide as an act deliberately initiated and performed by a person in the full knowledge or expectation of its fatal outcome. Standardised population suicide rates are available in OECD Health Data (extracted from the WHO Mortality database).</p> <p>Comparability of data between countries is affected by a number of reporting criteria, including how a person's intention of killing themselves is ascertained, who is responsible for completing the death certificate, whether a forensic investigation is carried out, and the provisions for confidentiality of the cause of death. Caution is required therefore in interpreting variations across countries. Some countries, for instance, also include the death certificates with the ICD-10 codes Y10 - Y34 and Y87(http://apps.who.int/classifications/icd10/browse/2010/en) in their suicide statistics. For this report we only include the codes specified by the OECD (ICD-10: X60-X84). Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. (OECD, 2011b)</p> <p>OECD uses direct age-standardization methods to remove variations arising from differences in age structures across countries and over time and thus enhance international comparability. The source they use is the WHO Mortality Database (population year 1980).</p>
Dimensions	Effectiveness of mental healthcare
Keywords	Mental health; mortality

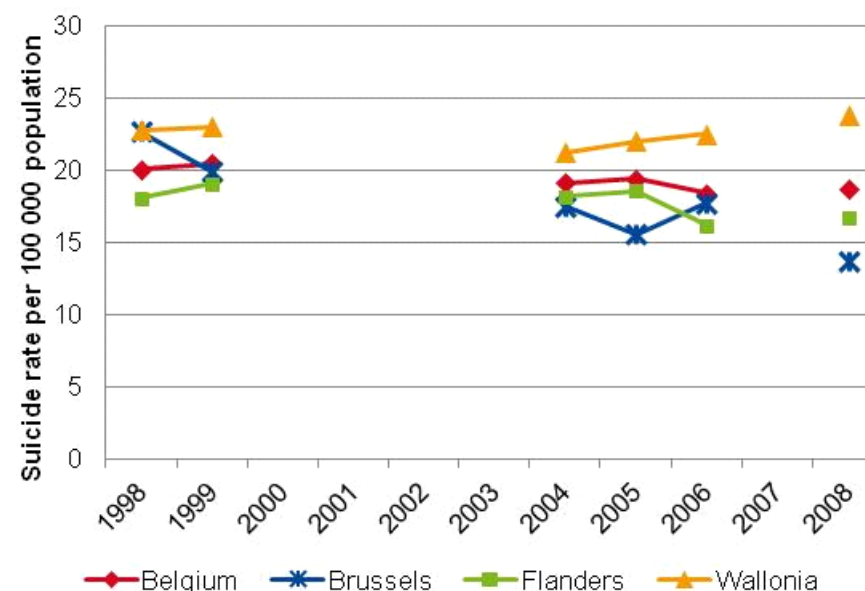


Related indicators	Average daily quantity of medication (antidepressants /antipsychotics/ hypnotics and anxiolytics) prescribed
References	OECD health data (OECD, 2011a, b); OECD health at a glance 2011 (OECD, 2011b)

4.3.2. Results

Figure 29 illustrates that the number of suicides per 100 000 inhabitants in Belgium decreased slightly between 1998 and 2008¹ from 20.05 to 18.75. In addition it is shown that this figure is considerable higher in Wallonia compared with Flanders. What's more Wallonia is the only region where the number of suicides per 100 000 inhabitants increased (from 22.82 in 1998 to 23.84 in 2008). In Brussels the suicide numbers decreased the most (from 22.66 in 1998 to 13.73 in 2008). However, it should be noted that the numbers in the Brussels region fluctuate considerably which could indicate to some flaws in the data available.

Figure 29 – Suicide rates, by region (1998- 2008)



Source: DGSIE, based on mortality causes register

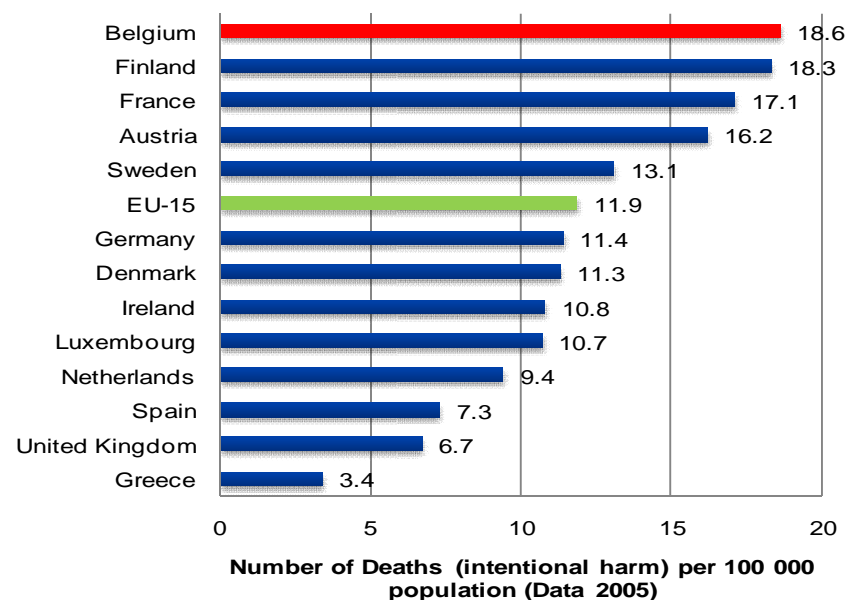
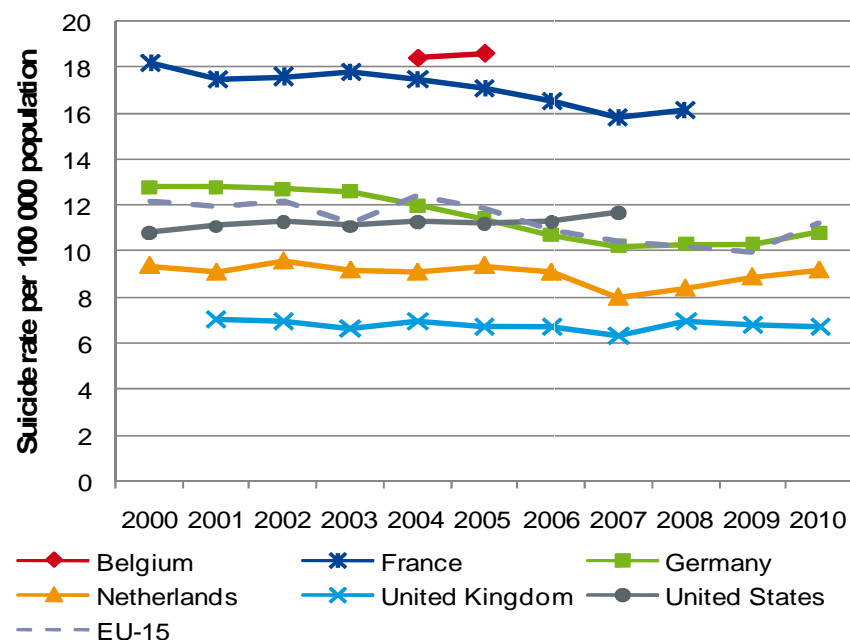
An analysis of the national data of the year 2008 shows that the number of suicides per 100 000 inhabitants is considerably higher among men (men: 27.81, women: 10.05). In Wallonia this differences between sexes is the highest (men: 37.06; women: 11.36). Suicide numbers are highest in the age group 40-64 years old (0-14 years: 0.44; 15-39 years: 16.22; 40-64 years: 27.33; ≥65 years:24.56).

It is clear from Figure 30 that the number of suicides per 100 000 inhabitants is remarkably higher in Belgium compared to the Benchmark countries.

¹ No data for the years 2000-2003



Figure 30 – Suicide rates: international comparison (2000-2010)



Source: OECD Health Data 2012

Key Points Suicide

- Suicide rates decreased slightly in Belgium between 1998 and 2008.
- Suicide rates are higher for men than for women, and higher for middle-aged adults (40-64 years old).
- Suicides rates are higher in Wallonia than in Flanders and Brussels, consistently over time
- Compared to other European countries, suicide rate in Belgium is relatively high



4.4. Employment rate of persons with mental illness

4.4.1. Documentation sheet

Description	<ol style="list-style-type: none"> 1. Employed people as a proportion of working-age people 2. Employment rates by health condition, as a ratio of the employment rate of all people with disability
Calculation	<ol style="list-style-type: none"> 1. Numerator: Employment rate of people without a mental disorder, with a moderate mental disorder, with a severe mental disorder; Denominator: working age-population without a mental disorder, with a moderate mental disorder, with a severe mental disorder; 2. Numerator: employment rate of people with a mental illness; Employment rate of all people with a disability
Rationale	<p>A recent OECD report(OECD, 2010a) has highlighted the low employment rates of people with mental health conditions. Only about one in four individuals reporting a mental health problem is in employment. People suffering from mental conditions are typically 30-50% less likely to be employed than those with other health problems or disability. This may be related to changes in the nature of work which has become more challenging in many sectors, making it more difficult for certain groups in the population with low skills and qualifications to compete and succeed.(OECD, 2010a)</p> <p>International evidence and service users views emphasize strongly the link between participation in social roles and recovery.(Counties Manukau District Health Board, 2007) Clearly, this is a distal outcome which is determined by several factors, some of which are outside the control of the mental health system.(McEwan and Goldner, 2001) Monitoring this indicator for populations with mental illness, however, is critical. Mental health service providers cannot be held responsible for employment. However, this is a critical objective and mental health services should have some impact.(Ganju <i>et al.</i>, 2000) While paid employment represents the ultimate functional level in this area, there are a number of different supported employment options which can provide a sense of independence and involvement.(McEwan and Goldner, 2001)</p> <p>In addition, an increasing share of new disability benefit claims is for mental health reasons. Mental health problems now account for a third of all new disability benefit claims on average. In some countries, this share has almost doubled in the past 10-15 years. Mental illness is systematically relatively more frequent among younger adults.(OECD, 2010a)</p>
Primary data source	<ol style="list-style-type: none"> 1. HIS ; 2. EUROSTAT (European Labour Force Survey)
Indicator source	<ol style="list-style-type: none"> 1. OECD (Sick on the Job ? Myths and Realities about Mental Health and Work)(OECD, 2011a); 2. EUROSTAT (European Labour Force Survey)(Eurostat, 2012)
Technical definitions and limitations	<p>This indicator is calculated by means of national health surveys. The content of these survey's can differ from country to country. In addition, mental disorders are identified by self-reporting of the included respondents.</p> <p>Available via Eurostat, ad-hoc module 'on employment of people with disability' from the European Labour Force</p>



Survey. This ad-hoc module is not yet available for 2011 (EU regulation No 317/2010). The most recent available data are from the year 2002. It is also suggested as a potential indicator for the future OECD-data set.(OECD, 2011a)

http://circa.europa.eu/irc/dsis/employment/info/data/eu_lfs/lfs_main/adhoc_modules/2002/Module2002.htm

International comparability

Perfect comparability among countries is difficult to achieve, even when a single direct survey (i.e. a survey carried out at the same time, using the same questionnaire and a single method of recording) is used. Nevertheless, the degree of comparability of the EU Labour Force Survey results is considerably higher than that of any other existing set of statistics on employment or unemployment available for Member States. This is due to:

(a) the recording of the same set of characteristics in each country; (b) a close correspondence between the EU list of questions and the national questionnaires; (c) the use of the same definitions for all countries; (d) the use of common classifications; (e) the data being centrally processed by Eurostat. The EU Labour Force Survey, although subject to the constraints of the EU's statistical requirements, is a joint effort by Member States to coordinate their national employment surveys, which must serve their own national requirements. Therefore, in spite of the close coordination between the national statistical institutes and Eurostat, there inevitably remain some differences in the survey from country to country. This is especially the case for:

- Population coverage (restricted to age: 16-74 in IS; 15-74 in NO*; CH, 15 and over in PL before 2006, before 1999 in EE, before 2002 in LT and before 2001 in BG; 15-74 in SE (1995)),
- Labour status coverage (restricted to age: 16 and over in ES, IT (from 2008 onwards) and UK; 16-74 in IS and SE (1995 - 2000); 15-74 in DK, EE, LV, HU, FI, NO* and SE (from 2001 onwards). In 1999, the division between unemployment and inactivity was not possible for Cyprus).

(http://circa.europa.eu/irc/dsis/employment/info/data/eu_lfs/lfs_main/lfs/lfs_comparability.htm)

Dimension

Quality(effectiveness)

Keywords

Mental health

References

OECD(OECD, 2011a); NHS(NHS, 2011)



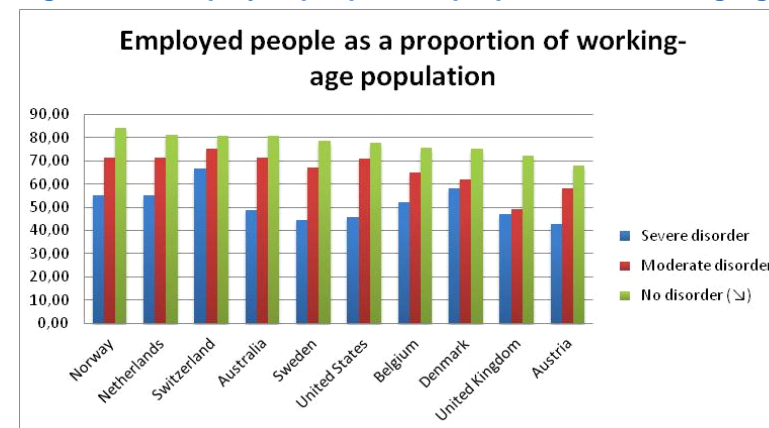
4.4.2. Results

4.4.2.1. Employed people as a proportion of working-age people

Based on the HIS-survey of the year 2008 it was calculated that the proportion of employed people in Belgium was 52.1%, 64.9% and 75.6% in people with severe mental disorders, moderate mental disorders and no mental disorders, respectively.

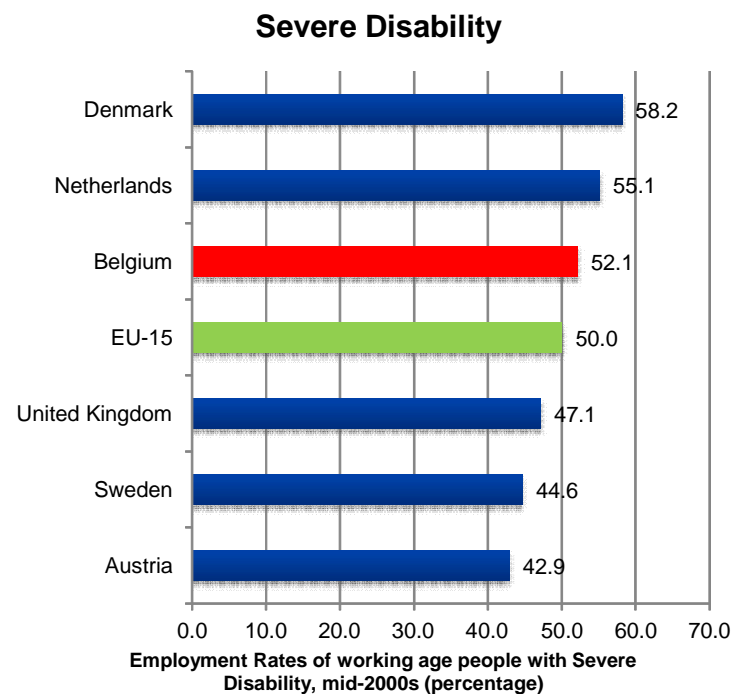
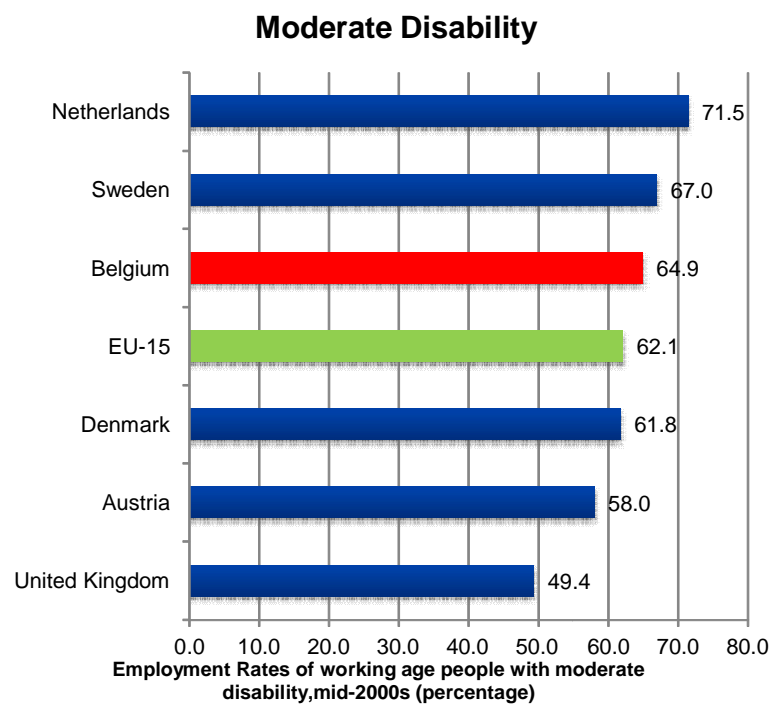
In the group with no disorders only Denmark, The United Kingdom and Austria have lower employment rates. In the group with moderate mental disorders only the United Kingdom and Austria have lower employment rates while in the group with severe mental disorders lower rates are reported for Australia, Sweden, United States the United Kingdom and Austria.

Figure 31 – Employed people as a proportion of working-age people



Source: *Sick on the Job? Myths and Realities about Mental Health and Work* – © OECD 2011²

² Note: Data for the United Kingdom shown in this chart and all other charts and tables using the same survey refer to England only. Employment is generally defined as paid or self-employed work of at least one hour per week (ILO definition). Source: National health surveys. Australia: National Health Survey 2007/08; Austria: Health Interview Survey 2006/07; Belgium: Health Interview Survey; Denmark: National Health Interview Survey 2005; Netherlands: POLS Health Survey 2007/09; Norway: Level of Living and Health Survey 2008; Sweden: Survey on Living Conditions 2004/05; Switzerland: Health Survey 2007; United Kingdom: Health Survey of England 2006; United States: National Health Interview Survey 2008.



Source: OECD Health Data 2011



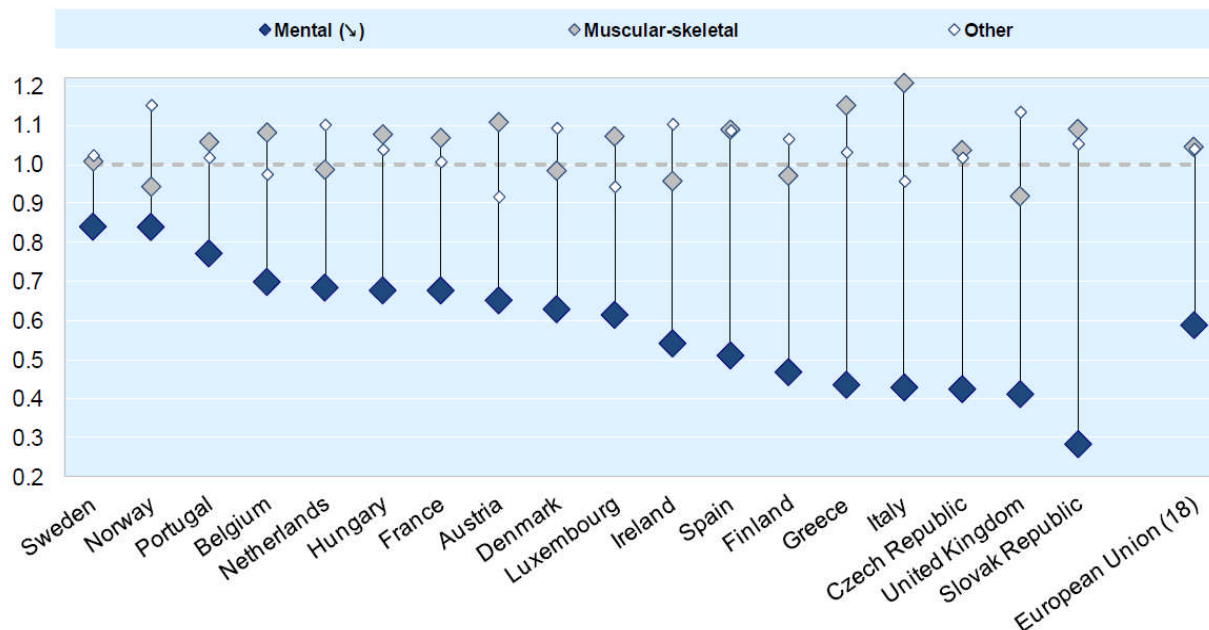
4.4.2.2. Employment rates by health condition, as a ratio of the employment rate of all people with disability

Figure 32 illustrates that internationally employment rates among people with disability are particularly low in the mental health group.

Figure A2.14. Employment rates of people with mental health conditions are particularly low

ability

Employment rates by health condition, as a ratio of the employment rate of all people with disability, 2002



Source: European Labour Force Study 2002

Source: European Labour Force Survey (2002), Ad-hoc module on employment of people with disability.

Key points Employment rates for people with mental illness

- Results from the HIS 2008 showed that the persons with severe mental disorders or moderate mental disorders had lower employment rates than persons with no mental disorder (respectively 52.1%, 64.9% and 75.6%).



5. INDICATORS ON APPROPRIATENESS (A SUBDIMENSION OF QUALITY)

5.1. Breast cancer screening for women outside age target group

5.1.1. Documentation sheet

Description	Proportion of women aged 41-49 or 71-79 having had a mammogram within the last two years.
Calculation	Numerator: number of women aged 41-49 or 71-79 in a given year who are still alive at the end of that year, having had a mammogram within the past two years. Denominator: total number of women aged 41-49 or 71-79 in a given year who are still alive at the end of that year
Rationale	Since 2001 in Flanders and 2002 in Brussels and Wallonia, a national breast cancer screening programme exists for women aged 50-69 using the mammo-test. Two recent guidelines have not recommended the extension of the scope of this programme to younger (40-49) and older age categories (70-79) in Belgium (Mambourg <i>et al.</i> , 2010, Mambourg <i>et al.</i> , 2012). This indicator measures whether breast cancer screening is really limited to the age group 50-69, and thus how many women falling outside this age category undergo inappropriate opportunistic screening.
International comparability	This is not an international indicator
Primary data source	IMA (EPS)
Indicator source	KCE calculation
Technical definitions	NIHDI billing codes: 450096 and 461090 (mammograms for ambulatory patients). In the IMA database only the year of birth is available and not the exact date of birth. Therefore, it is impossible for an individual woman to verify if she received a mammography within the 2 years prior to her 41 st – 49 th or 71 st – 79 th birthday. It is only possible to verify if a woman received a mammography in the year of her 41 st – 49 th or 71 st – 79 th birthday (T) and the year before (T-1).
Limitations	It is impossible to distinguish opportunistic mammograms (i.e. mammogram used for opportunistic screening outside the screening programme) from diagnostic mammograms (i.e. mammogram used for diagnostic reasons, e.g. in women with symptoms or at high risk).
Performance dimensions	Quality (appropriateness) ;
Keywords	Prevention ; Ambulatory care ; Cancer care
Related indicators	Coverage of target group for breast cancer screening (within and outside organized screening programme); Breast cancer 5-year survival rate



5.1.2. Results

5.1.2.1. Belgium

The percentage of women 41-49 years old who received a mammogram in the last 2 years was stable around 35-36% between 2006 and 2010. The rate was higher in women close to 50 years than in younger women (38.6% versus 31.4%). The coverage was lower in vulnerable women, entitled to the preferential reimbursement. Brussels showed the highest rate (47.7%), close to Wallonia while Flanders' rate reached only 28.6%. Figure 33 – Mammogram coverage of women aged 41-49 years and of women aged 71-79 years, by region. Figure 33 shows that the trend in

Wallonia and Brussels is slightly rising, while in Flanders a small declining trend is observed after 2008.

The rate observed in 71-79 year-old women was lower than the coverage in 41-49 year-old women. Nevertheless the rate rose from 17.9% in 2006 to 20.8% in 2010. The rate is higher in women 70-74 years versus older women. As expected, the coverage rate was also lower in vulnerable women, entitled to the preferential reimbursement. Like in the women 41-49 years, Brussels showed the highest rate (31.2%), followed by Wallonia and further away by Flanders (16.4%). The next chart shows that every regional rate tended to increase from 2006 to 2010.

Table 19 – Mammogram coverage of women aged 41-49 years (2006-2010)

Variable	Category	Rate	Nb women 41-49 with mammogram	Nb women 41-49
Year	2006	35.6%	6301	17699
	2007	35.8%	6328	17698
	2008	36.4%	6448	17719
	2009	36.0%	6370	17682
	2010	35.5%	6283	17692
Age (2010) (years)	41-44	31.4%	2412	7673
	45-49	38.6%	3871	10019
Major coverage (2010)	No	36.6%	5675	15489
	Yes	28.6%	603	2106
Province (2010)	Antwerpen	24.8%	713	2878
	Brabant Wallon	53.9%	342	635
	Bruxelles-Capitale	47.7%	691	1449
	Hainaut	47.6%	974	2048
	Limburg	29.2%	402	1375
	Liège	43.4%	751	1730
	Luxembourg	40.6%	136	335
	Namur	46.1%	376	816



Variable	Category	Rate	Nb women 41-49 with mammogram	Nb women 41-49
Region (2010)	Oost-Vlaanderen	31.1%	745	2396
	Vlaams Brabant	36.4%	679	1865
	West-Vlaanderen	23.5%	455	1939
	Brussels region	47.7%	691	1449
	Flemish region	28.6%	2994	10453
	Walloon region	46.4%	2579	5564

Table 20 – Mammogram coverage of women aged 71-79 years (2006-2010)

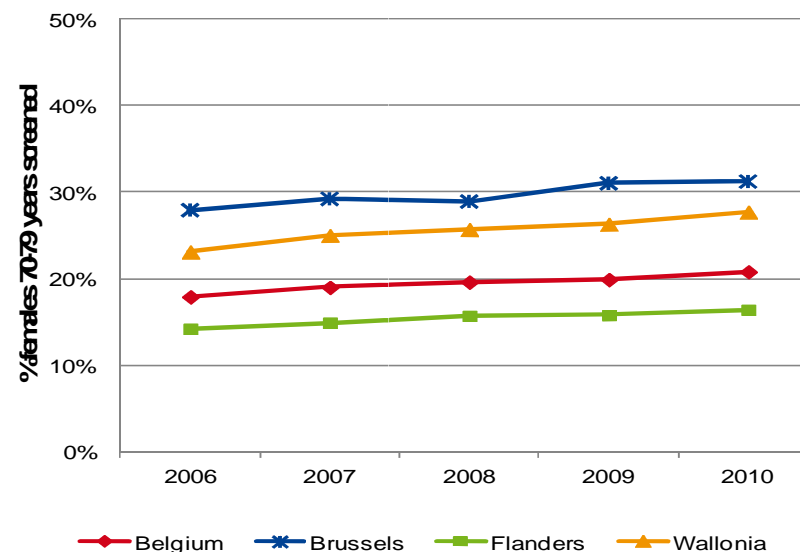
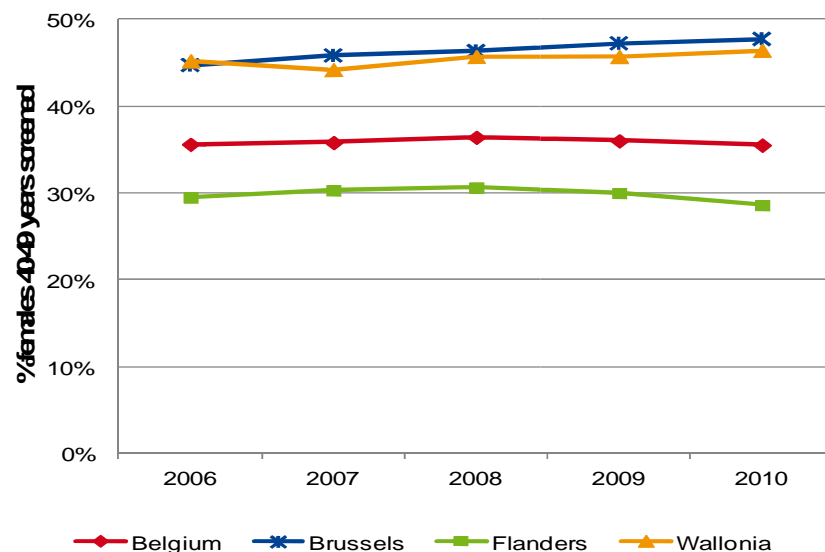
Variable	Category	Rate	Nb women 71-79 with mammogram	Nb women 71-79
Year	2006	17.9%	1956	10898
	2007	19.0%	2051	10781
	2008	19.6%	2104	10762
	2009	19.9%	2153	10794
	2010	20.8%	2244	10780
Age (2010)	70-74	25.8%	1293	5003
	75-79	16.5%	951	5777
Entitlement to increased reimbursement (2010)	No	23.2%	1651	7117
	Yes	16.2%	593	3658
Province (2010)	Antwerpen	16.2%	278	1715
	Brabant Wallon	34.1%	114	334
	Bruxelles-Capitale	31.2%	238	764
	Hainaut	28.6%	381	1332
	Limburg	17.8%	140	786
	Liège	28.0%	290	1037
	Luxembourg	24.2%	57	236
	Namur	21.7%	100	461



Variable	Category	Rate	Nb women 71-79 with mammogram	Nb women 71-79
	Oost-Vlaanderen	15.6%	235	1502
	Vlaams Brabant	18.8%	192	1022
	West-Vlaanderen	15.0%	214	1422
Region (2010)	Brussels region	31.2%	238	764
	Flemish region	16.4%	1059	6447
	Walloon region	27.7%	942	3400



Figure 33 – Mammogram coverage of women aged 41-49 years and of women aged 71-79 years, by region (2006-2010)



Source: IMA-EPS, KCE calculation

Key Points Breast cancer screening for women outside age target group

- Breast cancer screening is recommended for women aged 50-69. However, there is a large group of women who are screened before that age (36% in Belgium overall, 48% in Brussels, 46% in Wallonia and 39% in Flanders). Evolution over time shows no real declining trend.
- Older women undergo less often a mammography: 21% of 71-79 years old women had a mammography in the last two years (Brussels 31%, Wallonia 28%, Flanders 16%). Evolution over time shows rising trends (from 18 % in 2006).



5.2. Appropriate diabetes follow up

5.2.1. Documentation sheet

Description	Qualité du suivi des patients diabétiques sur base de plusieurs critères
Calculation	<p>Numerator: Number of diabetic patients who received at least one test in past 15 months.</p> <ul style="list-style-type: none">• a Record of HbA1c• micro-albuminuria testing• Serum Creatinine testing• Consultation by an ophthalmologist <p>Denominator: number of patients with diabetes (type I and type II) years who meet GP a year</p>
Rationale and characteristics	<p>Clinical practice guidelines are intended to reduce variability in care and to enhance the <i>appropriateness</i> of medical acts. However, the implementation of guidelines remains a difficult problem.</p> <p>KCE report 85 on quality of care for GPs (Annemans <i>et al.</i>, 2008) Chez un patient diabétique, il est recommandé de suivre au minimum une fois par an, et en tout cas tous les 15 mois, le niveau d'hémoglobine glyquée, l'albumine et la créatinine. Il est également conseillé de réaliser un fond de l'œil chez l'ophtalmologue tous les ans afin de prévenir les complications oculaires.</p>
Data source	EPS
Results source	GP's performance report RIZIV/INAMI (NIHDI, 2012b)
Technical definitions and limitations	<p>Numerator:</p> <p>Test 1 : HbA1c :</p> <p>540750 540761 Doser en van glycohemoglobine in hemolysaat (Maximum 1) (Cumulregel 18) (Diagnoseregel 56)" B 250</p> <p>Test 2: albumine :</p> <p>543712 543723 Doser en van albumine in micro-hoeveelheid door een immunologische methode (Maximum 1) (Diagnoseregel 3) (Cumulregel 69)" B 150</p> <p>Test 3 : créatinine :</p> <p>540330 540341 *Doser en van creatinine (Maximum 1) (Cumulregel 8)" B 70</p> <p>Test 4° ophtalmo : consultation spécialiste avec code qualification 370 ou 371 ou 374 ou 378 ou 397</p> <p>Denominator: Sélection des diabétiques sur le critère pharmanet : prescription de médicaments de la classe A 10</p> <p>Distinguer 2 sous-groupe :</p> <p>1) insulino-dépendants : A10A +/- A10B (>80DDD)</p>



	2) non insulinodépendant A10B à l'exclusion des A 10A (>80DDD))
Dimensions	Appropriateness and Continuity of Care
Keywords	Curative care ; chronic care ; diabetes
References	OECD health data (OECD, 2011c) GP's performance report RIZIV/INAMI (NIHDI, 2012b)

5.2.2. Results

Le médecin généraliste accueille respectivement 94% des diabétiques non insulinodépendants et 90% des insulinodépendants. Globalement, les recommandations sont bien suivies chez les insulinodépendants : 95% ont une hémoglobine glyquée au moins une fois tous les 15 mois (moyenne 2,9) ainsi qu'un test de créatinine. Le dosage des lipides est également fréquemment réalisé, au moins une fois par an chez 85% des patients (moyenne 2,3). L'albumine est un peu moins bien suivie : 56% des patients ont un dosage au moins tous les 15 mois (moyenne 0,73). 57% des patients ont une consultation ophtalmologique tous les ans, mais 20% n'en n'ont aucune sur une période de 3 ans.

Les recommandations sont un peu moins bien suivies chez les non insulinodépendants, en particulier pour la consultation ophtalmologique annuelle (39%).

Les patients diabétiques qui bénéficient d'un programme particulier (convention ou passeport) sont systématiquement mieux suivis (il n'est pas encore possible d'évaluer les trajets de soins dont le code de nomenclature a été introduit en 2009). Les patients avec un DMG bénéficient d'un meilleur suivi. Les patients âgés de plus de 75 ans et en MRS sont moins bien suivis.

Tous diabétiques			sexe		classes d'âges					abonnement			MR					
Indicateurs	2008	F	M	0-14	15-29	30-44	45-59	60-74	75+	DMG-	DMG+	MM +	Chroniq	MR +	CONV+	PASS+		
nbre de diabétiques ID+NID	11752	6075	5677	33	167	518	2716	4838	3480	5219	6533	195	2133	433	2915	655		
% diabétiques ID+NID chez MG	93%	94%	91%	45%	72%	81%	89%	94%	98%	86%	97%	99%	95%	100%	92%	99%		
% chroniques	19%	21%	18%	60%	12%	10%	11%	14%	31%	19%	19%	19%	100%	67%	25%	20%		
% Hb glyquée 15 mois	88%	87%	90%	87%	76%	84%	89%	90%	86%	85%	90%	91%	85%	80%	99%	98%		
% test cholestérol/hdl 12 mois	80%	79%	81%	47%	75%	80%	82%	83%	76%	79%	81%	80%	75%	64%	89%	85%		
% test albumine 15 mois	31%	30%	32%	47%	39%	40%	36%	33%	22%	27%	33%	44%	26%	16%	63%	47%		
% test creatinine 15 mois	91%	91%	91%	60%	84%	88%	91%	92%	89%	89%	92%	92%	89%	83%	95%	96%		
% patients avec ophtalmo dans les 3 ans	65%	68%	63%	60%	54%	60%	63%	68%	65%	62%	67%	66%	64%	57%	84%	74%		
% avec ophtalmo dans l'année	44%	45%	42%	40%	28%	30%	41%	47%	43%	40%	46%	44%	40%	31%	63%	52%		
insulinodépendants			F		M	0-14	15-29	30-44	45-59	60-74	75+	DMG-	DMG+	MM +	Chroniq	MR +	CONV+	PASS+
nbre de diabétiques ID	2896	1502	1394	30	107	223	616	1080	840	1239	1657	49	761	168	2061	171		
% diabétiques ID chez MG	90%	93%	86%	43%	67%	74%	86%	93%	97%	80%	91%	100%	93%	99%	90%	99%		
% chroniques	27%	30%	25%	69%	14%	10%	18%	22%	43%	29%	28%	27%	100%	70%	26%	32%		
% Hb glyquée 15 mois	95%	94%	96%	100%	97%	98%	96%	96%	92%	94%	95%	98%	91%	86%	98%	99%		
nb moyen d'Hb glyquée	2,9	3,0	2,9	4,1	3,2	2,9	3,0	3,0	2,8	2,9	3,0	3,3	3,0	2,6	3,1	3,5		
% test cholestérol/hdl 12 mois	85%	85%	85%	54%	83%	84%	86%	88%	82%	83%	86%	84%	80%	70%	89%	88%		
nb moyen cholestérol/hdl	2,3	2,3	2,3	0,8	2,0	2,0	2,4	2,5	2,1	2,2	2,3	2,2	2,5	2,0	2,5	2,4		
% test albumine 15 mois	56%	53%	60%	54%	56%	65%	66%	61%	42%	54%	57%	59%	43%	23%	64%	62%		
nb moyen test albumine	0,73	0,69	0,77	0,77	0,81	0,85	0,83	0,80	0,54	0,67	0,75	0,59	0,54	0,26	0,84	0,79		
% test creatinine 15 mois	93%	93%	93%	69%	89%	92%	93%	94%	92%	92%	93%	98%	91%	84%	95%	97%		
nb moyen creatinine	2,9	2,9	2,9	0,8	1,9	2,2	2,8	3,1	3,0	2,8	3,0	3,7	4,0	3,3	3,1	3,1		
% patients avec ophtalmo dans les 3 ans	80%	80%	79%	62%	65%	76%	80%	85%	75%	75%	82%	78%	72%	59%	85%	89%		
% avec ophtalmo dans l'année	57%	58%	57%	38%	40%	47%	58%	65%	52%	52%	61%	55%	47%	35%	63%	59%		
nb moyen de consult ophtalmo	2,2	2,4	2,0	1,6	2,1	1,9	2,2	2,2	2,3	2,1	2,3	2,4	2,6	2,0	2,2	2,3		
NON insulinodépendants			F		M	0-14	15-29	30-44	45-59	60-74	75+	DMG-	DMG+	MM +	Chroniq	MR +	CONV+	PASS+
nbre de diabétiques NID	8856	4573	4283	3	60	295	2100	3758	2640	3980	4876	146	1372	265	854	484		
% diabétiques NID chez MG	94%	95%	92%		80%	86%	89%	94%	98%	88%	99%	99%	97%	100%	96%	99%		
% chroniques	16%	19%	13%		8%	10%	9%	12%	27%	16%	16%	16%	100%	65%	23%	16%		
% Hb glyquée 15 mois	86%	84%	88%		44%	74%	87%	88%	84%	82%	89%	89%	82%	7				

Diabétiques: suivi



Tous diabétiques		Regions			Bruxelles		Vlaanderen			Wallonie						
Indicateurs	2008	B	F	W	21000	10000	20001	30000	40000	70000	20002	50000	60000	80000	90000	
nbre de diabétiques ID+NID	11752	1011	6397	4338	1011	1640	1029	1363	1555	810	335	1743	1509	244	507	
% diabétiques ID+NID chez MG	93%	86%	94%	92%	86%	94%	94%	95%	95%	94%	87%	93%	91%	91%	93%	
% chroniques	19%	15%	20%	17%	15%	17%	15%	24%	22%	23%	14%	19%	16%	15%	20%	
% Hb glyquée 15 mois	88%	88%	89%	86%	88%	90%	89%	91%	86%	90%	88%	88%	83%	84%	88%	
% test cholestérol/hdl 12 mois	80%	85%	79%	82%	85%	80%	82%	77%	77%	77%	85%	84%	79%	66%	85%	
% test albumine 15 mois	31%	40%	32%	26%	40%	34%	34%	34%	30%	30%	27%	25%	25%	26%	32%	
% test créatinine 15 mois	91%	90%	90%	91%	90%	88%	92%	93%	88%	92%	88%	91%	91%	93%	94%	
% patients avec ophtalmo dans les 3 ans	65%	69%	65%	65%	69%	66%	69%	64%	61%	68%	68%	67%	63%	57%	63%	
% avec ophtalmo dans l'année	44%	45%	45%	41%	45%	46%	49%	44%	41%	46%	47%	44%	37%	39%	41%	
insulinodépendants	2008	B	F	W	21000	10000	20001	30000	40000	70000	20002	50000	60000	80000	90000	
nbre de diabétiques ID	2896	249	1697	948	249	425	271	370	374	257	95	422	280	40	111	
% diabétiques ID chez MG	90%	81%	91%	90%	81%	88%	92%	92%	91%	93%	80%	93%	89%	83%	90%	
% chroniques	27%	17%	28%	28%	17%	23%	18%	35%	33%	29%	26%	28%	28%	27%	31%	
% Hb glyquée 15 mois	95%	94%	95%	96%	94%	97%	94%	96%	92%	95%	92%	96%	97%	97%	98%	
nb moyen d'Hb glyquée	2,9	2,9	2,9	3,0	2,9	3,0	3,1	2,9	2,9	2,8	3,4	3,0	2,7	2,8	3,2	
% test cholestérol/hdl 12 mois	85%	89%	84%	87%	89%	89%	91%	76%	80%	85%	84%	89%	86%	67%	90%	
nb moyen cholestérol/hdl	2,3	2,4	2,3	2,4	2,4	2,4	2,1	2,2	2,4	2,2	2,5	2,5	2,2	2,1	2,4	
% test albumine 15 mois	56%	60%	59%	50%	60%	63%	61%	60%	56%	55%	54%	43%	54%	55%	64%	
nb moyen test albumine	0,73	0,77	0,78	0,62	0,77	0,76	0,71	0,89	0,86	0,62	0,58	0,52	0,72	0,73	0,80	
% test créatinine 15 mois	93%	94%	92%	94%	94%	89%	95%	94%	90%	94%	86%	93%	96%	97%	99%	
nb moyen créatinine	2,9	3,1	2,7	3,1	3,1	2,7	2,6	2,7	2,8	2,9	2,5	3,2	3,0	3,1	3,4	
% patients avec ophtalmo dans les 3 ans	80%	83%	80%	78%	83%	84%	83%	77%	75%	82%	83%	79%	71%	97%	82%	
% avec ophtalmo dans l'année	57%	51%	60%	53%	51%	63%	67%	57%	58%	57%	62%	54%	44%	61%	65%	
nb moyen de consult ophtalmo	2,2	2,4	2,2	2,2	2,4	2,0	2,4	2,1	2,3	2,4	1,8	2,3	2,1	1,9	2,5	
NON insulinodépendants	2008	B	F	W	21000	10000	20001	30000	40000	70000	20002	50000	60000	80000	90000	
nbre de diabétiques NID	8856	762	4700	3390	762	1215	758	993	1181	553	240	1321	1229	204	396	
% diabétiques NID chez MG	94%	88%	96%	92%	88%	96%	95%	97%	96%	95%	90%	92%	91%	93%	94%	
% chroniques	16%	14%	18%	14%	14%	16%	14%	19%	19%	20%	10%	16%	13%	13%	17%	
% Hb glyquée 15 mois	86%	86%	88%	83%	86%	88%	88%	90%	85%	88%	87%	85%	80%	82%	85%	
nb moyen d'Hb glyquée	2,1	2,1	2,2	1,9	2,1	2,3	2,2	2,2	1,9	2,1	2,3	2,0	1,6	1,8	2,0	
% test cholestérol/hdl 12 mois	79%	84%	77%	80%	84%	77%	79%	77%	76%	74%	85%	83%	77%	66%	83%	
nb moyen cholestérol/hdl	1,7	1,8	1,7	1,7	1,8	1,8	1,8	1,8	1,7	1,7	1,9	1,9	1,5	1,7	1,8	
% test albumine 15 mois	23%	34%	23%	20%	34%	25%	24%	24%	22%	19%	18%	19%	19%	21%	23%	
nb moyen test albumine	0,27	0,41	0,28	0,23	0,41	0,30	0,30	0,31	0,26	0,22	0,22	0,21	0,23	0,25	0,28	
% test créatinine 15 mois	90%	89%	90%	90%	89%	88%	90%	92%	88%	91%	89%	90%	90%	92%	92%	
nb moyen créatinine	2,1	2,1	2,0	2,1	2,1	1,9	2,1	2,1	1,9	2,0	2,2	2,1	2,0	2,4	2,4	
% patients avec ophtalmo dans les 3 ans	61%	65%	60%	61%	65%	60%	64%	59%	57%	62%	63%	63%	61%	51%	58%	
% avec ophtalmo dans l'année	39%	44%	39%	38%	44%	40%	43%	39%	35%	41%	41%	41%	36%	35%	34%	
nb moyen de consult ophtalmo	2,1	2,2	2,2	1,9	2,2	2,0	2,4	2,1	2,3	2,0	1,8	2,0	1,9	1,5	2,0	
Diabétiques:suivi																

Source: RIZIV - INAMI

Key points Follow up Diabetic patients

- Globally, guidelines are well followed for patients insulino-dependent, and a bit less well followed for other diabetic patients, especially for the ophthalmologic annual consultation (39%).
- There are no systematic differences between regions for all indicators



5.3. Appropriate prescription of antibiotics

5.3.1. Documentation sheet

Description	Percentage of cases in which GPs prescribe AB according to guidelines. <ol style="list-style-type: none">1. Volume In Defined Daily Dose (DDD) of antibiotics prescribed within ambulatory care2. ratio amoxicilline sur la prescription d'amoxicilline combiné ou non à l'acide clavulanique3. % patients with an antibiotic at least once a year																				
Calculation	<ol style="list-style-type: none">1. Nb of DDD / class AB2. Nb Patients with AB prescription <ol style="list-style-type: none">1. Total nb of AB DDD for patients who meets GP2. Total Belgian insured who had a contact with a GP in the year																				
Rationale	<p>Clinical practice guidelines are intended to reduce variability in care and to enhance the <i>appropriateness</i> of medical acts. However, the implementation of guidelines remains a difficult problem.</p> <p>An increase of pathogens resistant against antibiotics is observed (Delaere). Recent studies found a significant association between high antibiotic usage and this emerging resistance (Goossens <i>et al.</i>, 2005) (Bronzwaer <i>et al.</i>, 2002). Therefore, the WHO urged its Member States to encourage appropriate and cost-effective use of antibiotics (WHO, 1998).</p>																				
Data source	IMA (EPS)																				
Results source	GP's performance report NIHDI																				
Technical definitions and limitations	<ol style="list-style-type: none">1. Nb of DDD / class AB (The volume of antibiotics or antimicrobials for systemic use (ATC J01) (measured by DDD, expressed in grams) prescribed within ambulatory care Data are gathered and DDDs are calculated according to the 2007 ATC classification.2. Nb Patients with criteria (criteria = A1 prescription AB (J01C))<table><tr><td>ATC</td><td>DENOMINATION</td></tr><tr><td>J01A</td><td>TETRACYCLINES</td></tr><tr><td>J01B</td><td>AMPHENICOLS</td></tr><tr><td>J01C</td><td>BETA-LACTAM ANTIBACTERIALS, PENICILLINS</td></tr><tr><td>J01D</td><td>OTHER BETA-LACTAM ANTIBACTERIALS</td></tr><tr><td>J01E</td><td>SULFONAMIDES AND TRIMETHOPRIM</td></tr><tr><td>J01F</td><td>MACROLIDES, LINCOSAMIDES AND STREPTOGRAMINS</td></tr><tr><td>J01G</td><td>AMINOGLYCOSIDE ANTIBACTERIALS</td></tr><tr><td>J01M</td><td>QUINOLONE ANTIBACTERIALS</td></tr><tr><td>J01R</td><td>COMBINATIONS OF ANTIBACTERIALS</td></tr></table>	ATC	DENOMINATION	J01A	TETRACYCLINES	J01B	AMPHENICOLS	J01C	BETA-LACTAM ANTIBACTERIALS, PENICILLINS	J01D	OTHER BETA-LACTAM ANTIBACTERIALS	J01E	SULFONAMIDES AND TRIMETHOPRIM	J01F	MACROLIDES, LINCOSAMIDES AND STREPTOGRAMINS	J01G	AMINOGLYCOSIDE ANTIBACTERIALS	J01M	QUINOLONE ANTIBACTERIALS	J01R	COMBINATIONS OF ANTIBACTERIALS
ATC	DENOMINATION																				
J01A	TETRACYCLINES																				
J01B	AMPHENICOLS																				
J01C	BETA-LACTAM ANTIBACTERIALS, PENICILLINS																				
J01D	OTHER BETA-LACTAM ANTIBACTERIALS																				
J01E	SULFONAMIDES AND TRIMETHOPRIM																				
J01F	MACROLIDES, LINCOSAMIDES AND STREPTOGRAMINS																				
J01G	AMINOGLYCOSIDE ANTIBACTERIALS																				
J01M	QUINOLONE ANTIBACTERIALS																				
J01R	COMBINATIONS OF ANTIBACTERIALS																				



	J01X	OTHER ANTIBACTERIALS
Limitation	The DDD not exactly reflects the used doses within a country. One should also take into account the impact of the packaging of the medicine which has changed over time, and which can influence the number of DDDs a patient purchases. This can be different from other countries. Furthermore, this indicator reflects the average use, but it reflects neither the proportion of the population that takes that DDD, nor the simultaneous combination of antibiotics per patient. Another point of discussion is that there is no 'standard' which defines the correct use of antibiotics, since there is also some concern about underuse which could have a negative effect on morbidity and mortality. In other words, a lot of discussion is possible about which indicator is the most appropriate to measure the usage of and the resistance against antibiotics. For this project, the volume in DDD has been chosen, which makes it possible to compare Belgium with other countries.	
International comparability	OECD (and ECHI) have data on the pharmaceutical consumption by daily defined dose, according to the anatomic therapeutic chemical classification. There are differences concerning the OECD data in the version of the ATC index used by the countries: France uses the version of 2006, Belgium 2007, the Netherlands 2008, and Germany 2009.	
Dimension	Quality – appropriateness; Safety	
Keyword	Ambulatory care; antibiotics	
Related indicators	Incidence of MRSA	
Source	GP's performance report, 2012 (NIHDI, 2012b)	

5.3.2. Results

5.3.2.1. Belgium

Depuis le début des années 2000, les autorités sensibilisent la population à la problématique de l'antibiorésistance. Les antibiotiques ne doivent être prescrits que lorsqu'ils sont vraiment nécessaires et le choix doit s'orienter de préférence vers les antibiotiques de première génération. Le médecin généraliste est en première ligne dans cette sensibilisation.

En 2008, 43% des patients ont reçu au moins une prescription d'antibiotiques, comme en 2006 et en 2007. Le nombre de jours moyen a progressé de 21,9 en 2006 à 23,9 en 2009. La qualité de la prescription, représentée par le ratio amoxicilline sur la prescription d'amoxicilline combiné ou non à l'acide clavulanique est également restée stable à 45%.

On constate cependant une amélioration chez les enfants (0-14 ans) dans la mesure où le pourcentage de patients avec antibiotiques diminue de 51% à 47%, le % d'amoxicilline augmente de 63% à 68% et le % de sirops prescrits augmente également de 54% à 62%. Il est également rassurant de constater l'absence de prescription de quinolones chez ceux-ci.

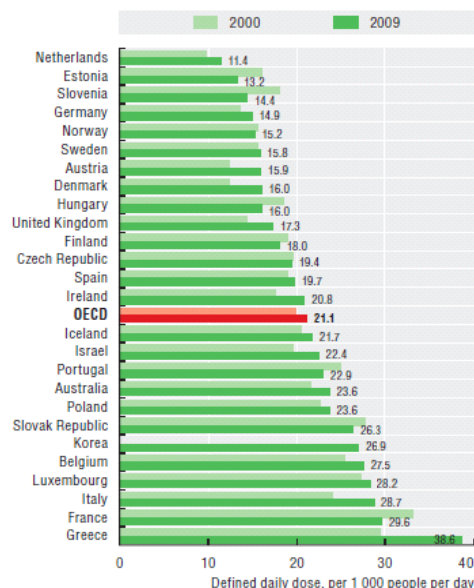


5.3.2.2. International comparison

Table 22 – Percentage of patients (having seen a GP) with a prescription of antibiotic on one year, daily doses of antibiotic, ratio amoxicilline versus amoxicillin + acid clavulanic, repartition of type of antibiotic, by age, sex, region (2006-2008)

Indicateur	Année	Classes d'âges						Abonnement	
	2006	0-14	15-29	30-44	45-59	60-74	75+	DMG-	DMG+
nb patients GP	183.389	28.634	31.794	36.450	38.093	30.163	18.255	98.654	84.728
nb patients avec AB	78.708	14.616	13.425	15.686	15.214	12.118	7.649	41.949	36.755
% patients avec AB	43%	51%	42%	43%	40%	40%	42%	43%	43%
nb DDD par patient AB	21,2	11,0	19,8	21,8	23,2	26,4	29,4	19,2	23,4
% amoxi / amoxi+amoxiclavu	44%	63%	54%	44%	38%	33%	34%	44%	44%
% sirop amoxi+amoxiclav		54%							
2007									
nb patients GP	185.310	26.538	32.032	36.426	38.756	31.123	20.435	102.046	83.256
nb patients avec AB	80.512	13.181	13.367	15.862	15.969	12.950	9.183	43.925	36.584
% patients avec AB	43%	50%	42%	44%	41%	42%	45%	43%	44%
nb DDD par patient AB	23,0	11,3	20,9	23,2	24,9	28,1	31,9	21,3	25,0
% amoxi / amoxi+amoxiclavu	44%	65%	54%	45%	39%	35%	34%	44%	44%
% sirop amoxi+amoxiclav		57%							
2008									
nb patients GP	198.596	25.487	33.608	39.253	43.386	33.705	23.157	112.919	85.677
nb patients avec AB	84.635	11.973	13.695	17.103	17.752	13.778	10.334	47.603	37.032
% patients avec AB	43%	47%	41%	44%	41%	41%	45%	42%	43%
nb DDD par patient AB	23,9	12,0	21,3	23,5	25,3	28,5	33,0	22,3	25,9
% tétracyclines (DDD)	5%	1%	8%	5%	6%	5%	4%	5%	5%
% betalactames	65%	79%	69%	71%	67%	60%	52%	67%	63%
% cotrimoxazole	1%	2%	1%	1%	1%	1%	2%	1%	1%
% macrolides	10%	12%	10%	11%	11%	10%	6%	11%	9%
% quinolones	9%	0%	6%	7%	9%	11%	12%	8%	9%
% autres	10%	5%	6%	5%	6%	12%	23%	8%	12%
% amoxi / amoxi+amoxiclavu	45%	68%	57%	47%	39%	35%	35%	45%	45%
% sirop amoxi+amoxiclav		62%							

4.11.4 Antibiotics consumption, 2000 and 2009 (or nearest year)



source: OECD Health Data 2011.

StatLink <http://dx.doi.org/10.1787/888932525020>

Key points Appropriate prescription of antibiotics

- In 2008, 43% of patients have received at least one antibiotic prescription during the year, such as in 2006 and in 2007. There are large differences between regions: 47% in Wallonia, 42% in Flanders and 37% in Brussels.
- The percentage of prescription with amoxicilline alone (compared to amoxicilline and clavucid acid) is stable, around 45% (B: 43%, F: 46%, W: 41%) .
- Belgium ranks very high internationally in terms of antibiotic prescription. There are concerns about comparability of results in total of DDD, especially if differences in package size exist between countries.



5.4. Caesarean sections rates

5.4.1. Documentation sheet

Description	Caesarean sections per 1000 live births
Calculation	Number of caesarean sections (x1000), divided by all live births.
Rationale	Rates of caesarean delivery have increased in the majority of European countries in the last decades. Reasons for this increase include reductions in the risk of caesarean delivery, malpractice liability concerns, scheduling convenience of both physicians and patients, increase in first birth in older women and the rise of multiple births resulting from assisted reproduction (OECD, 2011b). Recent guidelines from the French Health Authority recommend informing the patient on the increased risk of complication for future pregnancy. (Haute Autorité de Santé (HAS), 2012) Trends and variability of caesarean rates inform on the appropriateness of care.
Primary data source	Numerator: RCM-MGK Denominator: FPS Economy - Directorate-General Statistics and Economic Information, Demographics division
Indicator source	OECD health data
Technical definitions	ICD9-CM codes: 74.0 Classical caesarean section; 74.1 Low cervical caesarean section; 74.2 Extraperitoneal caesarean section; 74.4 Caesarean section of other specified type; 74.99 Other caesarean section of unspecified type This indicator is also part of the multidisciplinary feedback from the SPF/FOD (FPS Health Food Chain Safety and Environment, 2008), which use a more specific definition, excluding multiple births and very low birth weights (data 2004-2007).
International comparability.	Same definition of ICD9 codes, but not all countries use the same definition of live births.
Performance Dimension	Quality (appropriateness)
Key words	Curative care; Surgery, Hospital; perinatal care
References	OECD (OECD, 2011b, c); ECHIM short list(ECHIM, 2005a); WHO Health for all database (WHO, 2012c) SPF/FOD multidisciplinary feedback (FPS Health Food Chain Safety and Environment, 2008) IMA report on caesarian sections (IMA-AIM, 2006b)



5.4.2. Results

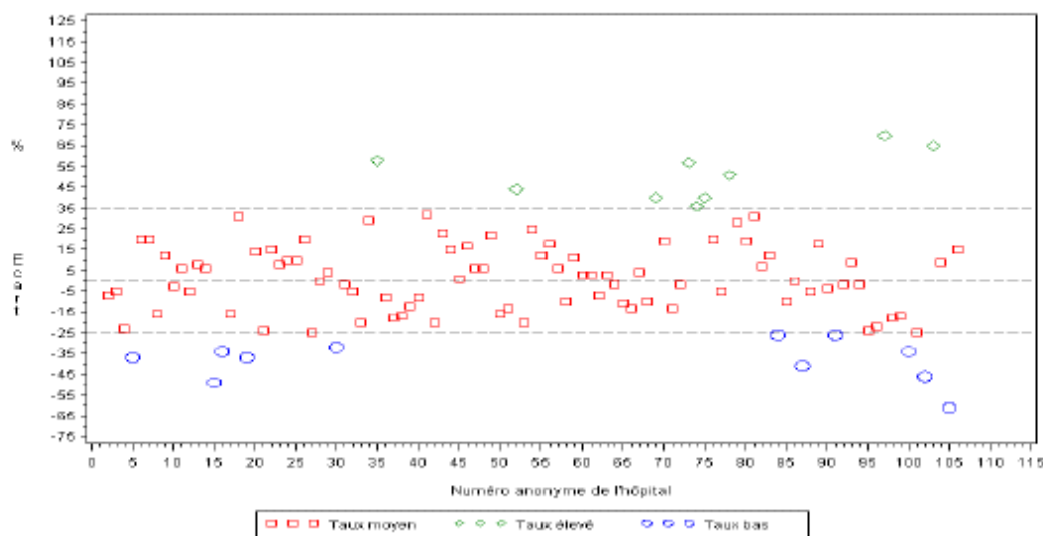
5.4.2.1. Belgium

In 2009, the C-section rate in Belgium was 193/1000 live births (source FPS Public Health)

Results from the multidisciplinary feedback from the SPF/FOD, based on data from 2004-2007, showed a 1% increase in c-section rate per 6 months. (FPS Health Food Chain Safety and Environment, 2008) A multivariate regression analysis on the same data revealed the following factors to be associated with higher probability of c-section: age, day in the week (Monday highest rate) and low gestational age (37-38 weeks lower than above 42 weeks). The analysis also revealed a very high variability between hospitals; the national rate was 13.7%, and differences range from -61% to 70% around this average.

Figure 34 – Variability in caesarean sections rates between hospitals (as percentage from the national average) (2004-2007)

Figure 1.1.: taux de césariennes, écart (exprimé en %) des hôpitaux comparé au taux national. Belgique, 2004-2007



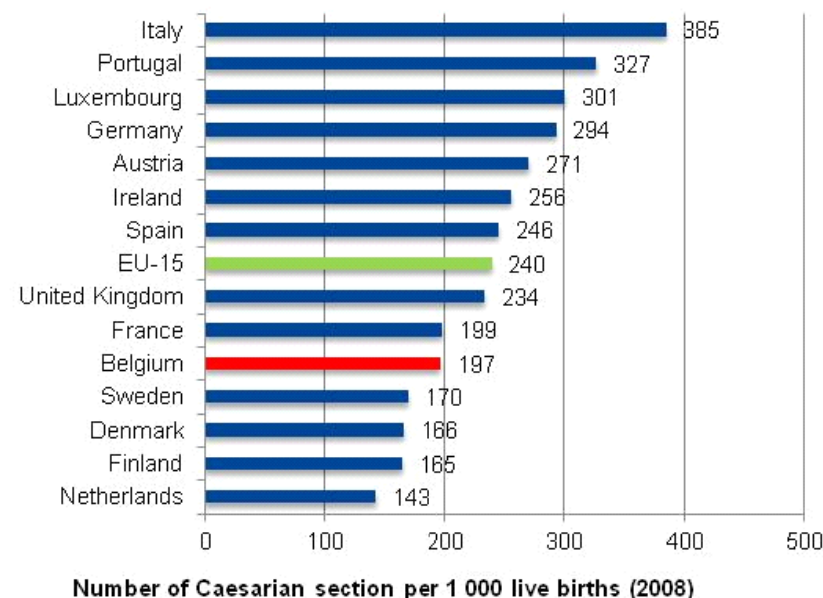
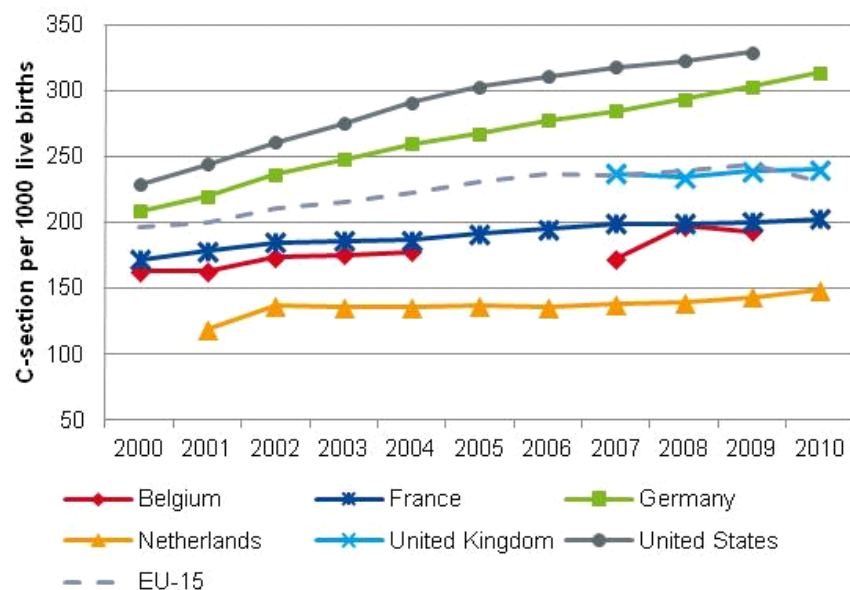
Source: Multidisciplinary feedback from the SPF/FOD (FPS Health Food Chain Safety and Environment, 2008)



5.4.2.2. International Comparison

Results from international comparison show that C-sections are increasing in majority of European countries, with EU-15 average at 251/1000 live births in 2009. Belgium has c-sections rate similar to France, and lower EU-15 average. In 2009, the C-section rate in Belgium was 193/1000 live births (source FPS Public Health)

Figure 35 – Number of caesarean sections (per 1000 live births): international comparison (2000-2010)



Source: OECD Health data 2012, except for Belgium 2009 (FPS Public Health)

Key Points Caesarean sections

- Caesarean rates in Belgium are lower than the EU-15 average (in Belgium; 193/1000 live births in 2009, EU-15 average 251/1000 live births), and increasing, as in the majority of European countries.
- Several studies on Belgian data have shown a large variability between hospitals in caesarian rates.



5.5. Involuntary committal in psychiatric hospitals

5.5.1. Documentation sheet

Description	Rate of involuntary committals as a percentage of all psychiatric hospitalizations per annum
Calculation	Numerator: number of involuntary admissions per annum Denominator: All psychiatric hospitalizations per annum.
Rationale	<p>The need to minimize unnecessary involuntary admissions but provide appropriate treatment, supervision and protection for persons with serious mental illness is a key system goal. (McEwan and Goldner, 2001) An involuntary admission is indicative of a crisis episode but can also shed some insights into the availability and adequacy of inpatient resources and alternative forms of care for the group of more demanding patients (Lorant et al., 2007, OECD, 2011a). In addition, this risk of involuntary admissions has been shown to be greater for ethnic minority groups. (Lorant et al., 2007, Morgan et al., 2004)</p> <p>In order to better protect psychiatric patients, most European countries have reformed their mental protection laws and reviewed their criteria for involuntary commitment. (Lorant et al., 2007) Despite these reforms, there are international and intra-regional differences in the use of involuntary admissions with rates increasing in some western European countries that cannot be explained by increased prevalence of severe mental disorders. (OECD, 2011a, Priebe et al., 2005) While some authors have expressed concern that an increased number of forensic beds signals re-institutionalisation (Priebe et al., 2005), this has not been accompanied by a consistent rise in forensic involuntary admissions. (OECD, 2011b)</p>
Primary data source	MPG
Indicator source	SPF-FOD own calculation
Technical definitions	<p>Numerator: All involuntary admissions identified in MPG by variable "MA09 Type of admissions" by the following response categories (21 "opname ter observatie"; 22 "internering"; 23 "verderzetting gedwongen verblijf"; 24 "probatie"; 29 "andere juridische voorwaarde";).</p> <p>Denominator: All patient episodes included in MPG (except 'Initiatives of sheltered living - Beschut wonen & PVT')</p> <p>Psychiatric admissions admitted on general acute hospital units are excluded from the denominator.</p>
International comparability	<p>The interpretation of this indicator in an international context requires investigation into the operation of legislation pertaining to such admissions in the countries under analysis.</p> <p>In Belgium a change in status from involuntary towards voluntary admission during the hospitalization period is not taken into account whereas this was usually done by other countries. (Salize and Dressing, 2004)</p>
Dimension	Quality (appropriateness)
Keywords	Mental Health, Hospital
References	OECD (OECD, 2011a); NHS Scotland (Herbstman and Pincus, 2009);

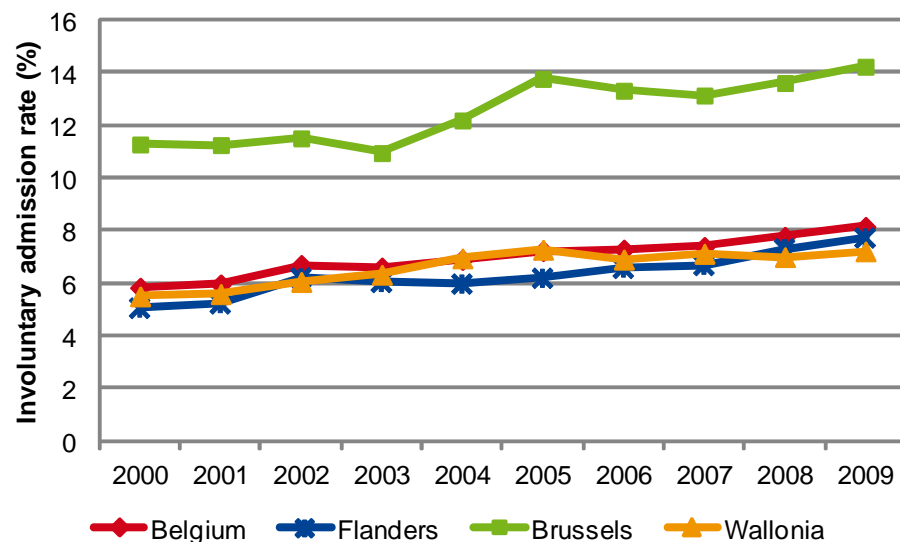


5.5.2. Results

5.5.2.1. Belgium

Figure 36 illustrates that the percentage of involuntary psychiatric hospitalizations in Belgium steadily increased between 2000 and 2009 from 5.84% to 8.15%. In addition it is shown that in Brussels the percentage of involuntary committals in psychiatric hospitals is consistently higher in Brussels compared to Flanders and Wallonia.

Figure 36 – Percentage of involuntary committals on total admissions in psychiatric hospitals (2000-2009)



Source: FPS Public Health, RPM data

An analysis of the data of the year 2009 shows that 62.6% of the patients that are involuntary committed to a psychiatric hospital are males. The majority of involuntary committed patients are between 18 and 40 years (49.5%) or 41 and 64 years (37.7%) old. In addition, the three most common conditions among the 7719 involuntary committals registered in 2009 were Schizophrenia (n=1579 or 20.46%); Psychotic conditions (n=1270 or 16.45%); Alcohol abuse (n=723 or 9.37%). The three conditions with the largest share of involuntary committals in 2009 were paraphelia (57/157 or 36.31%); Schizophrenia (n=1579/6274 or 25.17%); Psychotic conditions (n=1270/5747 or 22.10%).



Table 23 – Percentage of involuntary committals, compared to all psychiatric hospitalisations (2009)

		Number Involuntary	% Involuntary	Total number of admission
Sex (2009)	Male	4833	10%	47437
	Female	2886	6%	47308
Age category (2009)	0-17y	412	8%	5196
	18-40jy	3833	10%	36955
	41-64y	2616	6%	43431
	≥65y	469	5%	8728
Region (2009)	Flemish	4509	8%	58469
	Brussels	1201	14%	8435
	Walloon	2009	7%	27841
Diagnostic (2009)	Zwakzinnig	75	14%	542
	Ontwikkelingsst.	0	0%	190
	Autisme	71	8%	866
	Aandacht-/gedragsst.	130	9%	1395
	Relatiestoornis	43	12%	347
	Andere stoornis kind	3	3%	111
	Aanpassingsstoornis	436	6%	7430
	Cognitieve stoornis	109	7%	1504
	Dementie	92	8%	1190
	Delirium	14	11%	124
	Alcoholmisbruik	723	4%	17085
	Alcohol geïnduceerde st.	118	4%	3046
	Medicatiemisbruik	38	4%	969
	Drugmisbruik	512	10%	5101
	Drug geïnduceerde st.	89	7%	1363
	Schizofrenie	1579	25%	6274
	Psychotische st.	1270	22%	5747
	Depressie	526	3%	18616
	Bipolaire st.	656	14%	4857
	Angst & stress	66	2%	2756
	Somatoforme st.	13	2%	649



	Number Involuntary	% Involuntary	Total number of admission
Dissociatieve st.	6	5%	131
Parafilie&sexuele functiest.	57	36%	157
Eetstoornis	24	3%	870
Slaapstoornis	0	0%	1043
Impulscontrole	163	19%	846
Persoonlijkheid-CI_A	34	16%	215
Persoonlijkheid-CI_B	314	10%	3253
Persoonlijkheid-CI_C	87	7%	1286
V-codes	82	6%	1278
Overige problemen	9	5%	194
Uitgestelde diagnose/niet ingevuld	380	7%	5310

Source: FPS Public Health

5.5.2.2. International comparison

The findings from the scarce available international comparisons suffer from data validity & reliability (e.g. non-standardized definitions or data recording methods). A WHO study in the European region identified data availability on involuntary admission rates in 22 of the 50 included countries (WHO, 2008b). Another European study describes involuntary admission rates in Belgium, Denmark, Finland, France, Ireland, The Netherlands, Luxembourg, Portugal, Sweden and the United Kingdom. (Salize and Dressing, 2004) In their study, Salize et al. (Salize and Dressing, 2004) used the percentages of involuntary placements on all psychiatric admissions for international comparison (weighted data). It was shown that in 1998 Belgium had (except Denmark) the lowest percentage of involuntary committals in psychiatric hospitals.

Key Points Involuntary committal

- The percentage of involuntary psychiatric hospitalizations in Belgium steadily increased between 2000 and 2009 from 5.8% to 8.2% of all psychiatric hospitalisations.
- The rate in Brussels is twice as high as in the 2 other regions (Brussels 14.2%, Flanders 7.7%, Wallonia 7.2%).
- Results based on old data 1998 showed that rates of involuntary committal are very low in Belgium compared to other European countries.



5.6. Prescription of antidepressants, antipsychotics, hypnotics and anxiolytics

5.6.1. Documentation sheet

Description	Daily defined dose of antidepressants per 100 000 inhabitants; Daily defined dose of antipsychotics per 100 000 inhabitants % of persons reporting to have taken a tranquilizer or sleeping tablet
Calculation	Numerator: Daily defined doses of antidepressants (=total number of DDD on the year divided by 1 year-period); b. Daily defined dose of antipsychotics (=total number of DDD on the year divided by 1 year-period); c. Number of respondents reporting to have taken a tranquilizer or sleeping tablet during the last 2 weeks prior to the HIS Denominator: and b. Number of inhabitants; c. number of respondents in HIS 2008
Rationale	The use of psycho-pharmaceutical (In this report: antidepressants; antipsychotics; tranquilizers; sleep medications) drugs increases year by year. The DDD's for antidepressants provided by community pharmacies, for instance, increased between 2001 & 2009, from 157 to 262 million(NIHDI, 2009). The reasons for this and other increases (e.g. antipsychotics), however, are unclear. Several Belgian reports(Casteels <i>et al.</i> , 2010, Superior Health Council, 2011) have pointed out that there is an inappropriate use (wrong indication; wrong duration; wrong type of medication) of the psycho-pharmaceutical drugs which not only causes a risk for public health but also results in unnecessary societal costs.
Primary data source	Farmanet (a & b); HIS (c); Belgian demography data
Indicator source	INAMI/RIZIV own calculation (a & b); HIS (c)
Technical definitions	The medications studied are classified into the following ATC classes: Antipsychotics: N05A Antidepressant: N06A
Limitations	Data do not include medicines provided by hospital pharmacies; data only include reimbursed medications. As anxiolytics (N05B); hypnotics and sedatives (N05CD – N05CE – N05CF – N05CG) are not reimbursed, no data are available on their global consumption.Indicator C has thus to be obtained via a proxy of the health survey.
International comparability	Similar methods are used internationally to measure medication utilization which allows cross-country comparisons
Dimension	Quality(appropriateness)
Keywords	Mental Health
References	Wilkinson(Wilkinson <i>et al.</i> , 2007); Spaeth-Rublee(Spaeth-Rublee <i>et al.</i> , 2010); Minimum Dataset European Mental Health Indicators(Stakes, 2001)

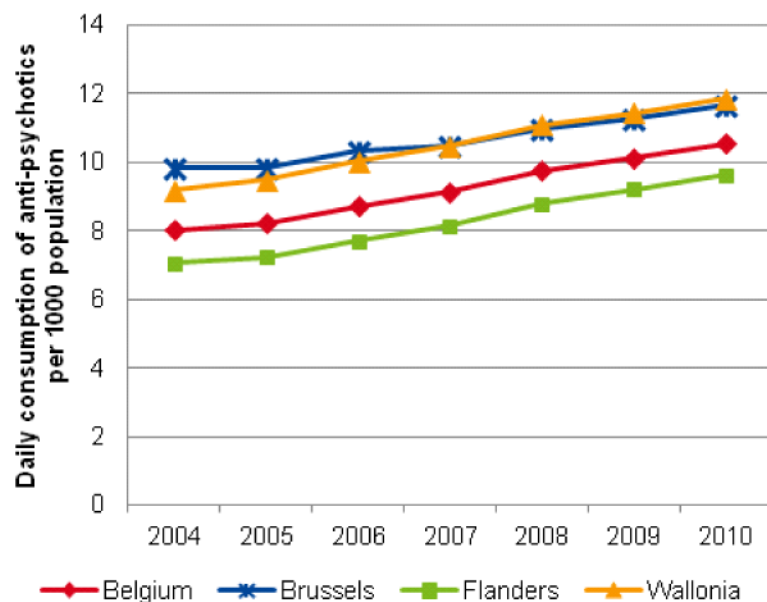


5.6.2. Results

5.6.2.1. Belgium

The daily consumption of antipsychotic medication (N05A) increased from 8.0 DDD per 1000 population in 2004 to 10.5 DDD per 1000 population in 2010, with large differences between regions (higher from Brussels and Wallonia than in Flanders), as shown in Figure 37.

Figure 37 – Daily consumption of anti-psychotics (per 1000 population), by region (2004-2010)



Source Pharmanet, RIZIV - INAMI

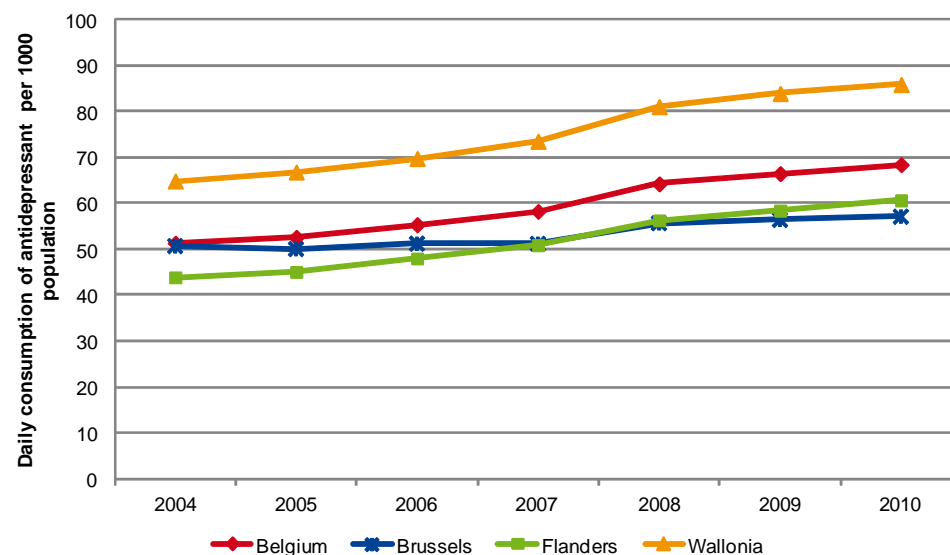
The daily consumption of antidepressants (N06A) also increased from 51.4DDD/1000 inhabitant in 2004 to 68.4DDD per 1000 population in 2010, with large differences between regions (higher from Wallonia than in Brussels and Flanders), as shown in



Figure 38.. A recent study of the Socialist Sickness Fund (Boutsen *et al.*, 2012) illustrated that for about 1 in 2 patients only 1 box of antidepressants was prescribed. This is a stable finding when data from 2002 until 2010 are studied. One box corresponds in general with 1 month of treatment while 6 months is the minimum recommended duration. This could indicate poor compliance or non-indicated prescription of anti-depressants. For patients

with more than 1 prescription it was found that the length of treatment increased (The median number of days increased from 168 to 201 for patients who started treatment in 2004 and 2008 respectively). The patients that continued with treatment after 6 months increased from 48.9% in the cohort of patients that started treatment in 2004 to 55% of the patients that started treatment in 2008. (Boutsen *et al.*, 2012)

Figure 38 – Number of Defined Daily Doses (DDDs) of antidepressant (per 1 000 population per day), by region (2004-2010)



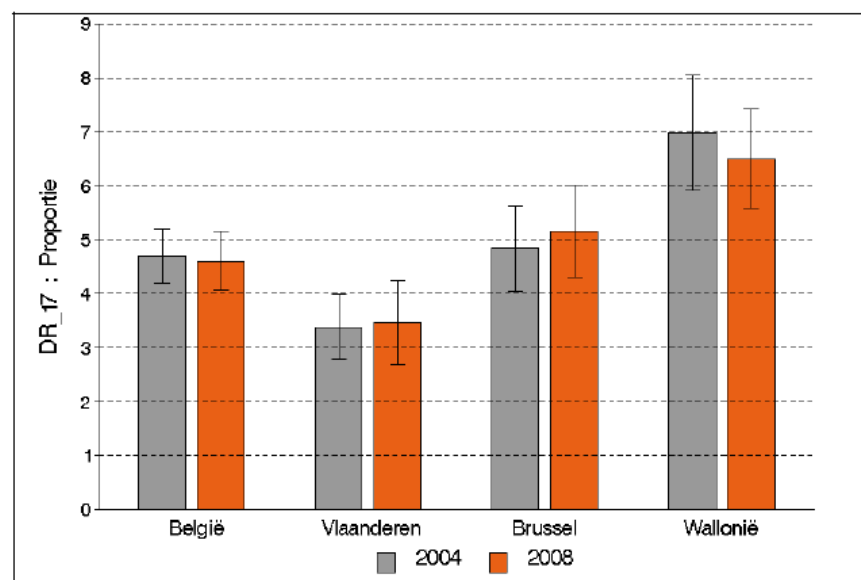
Source Pharmanet, RIZIV - INAMI



Farmanet does not include data about anxiolytics and hypnotics. However, the HIS of 2008 measures the prevalence of anxiolytics and hypnotics use in the Belgian population. Of the 11 116 persons surveyed 4.6% and 3.2% reported to have used in the last 24h anxiolytics and hypnotics, respectively. The percentage of respondents indicating to have used anxiolytics is the highest in Wallonia (6.5%) compared to Brussels (5.2%)

and Flanders (3.5%). The percentage of respondents indicating to have used hypnotics is the highest in Wallonia (4%) compared to Flanders (2.9%) and Brussels (2.7%). The data of 2004 and 2008 do not show large differences. In the following figure it is illustrated that both medication types are more used by females and that the use increases by age.

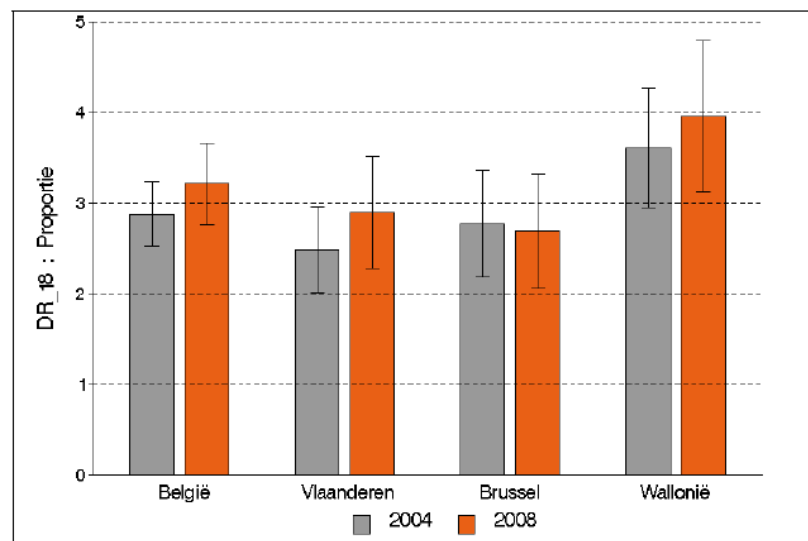
Figure 39 – Percentage of the population (15 years or older) that used anxiolytics during the last 24 hours, per region (2008)



Source: HIS



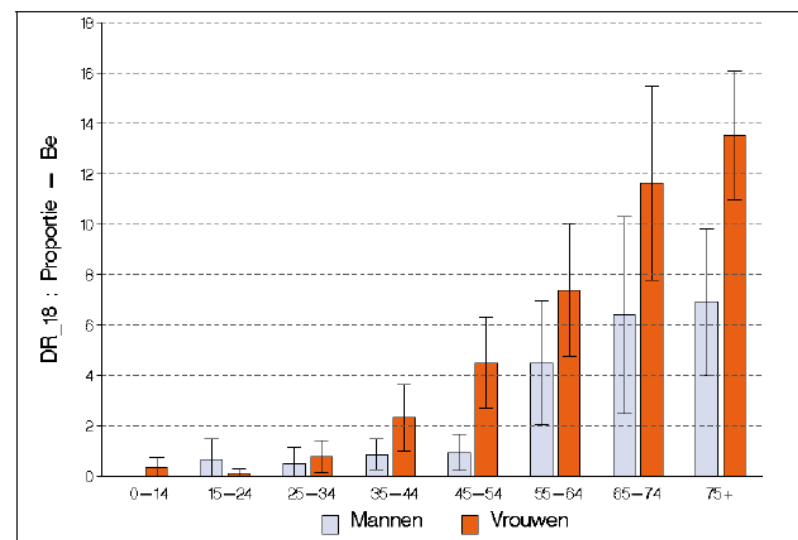
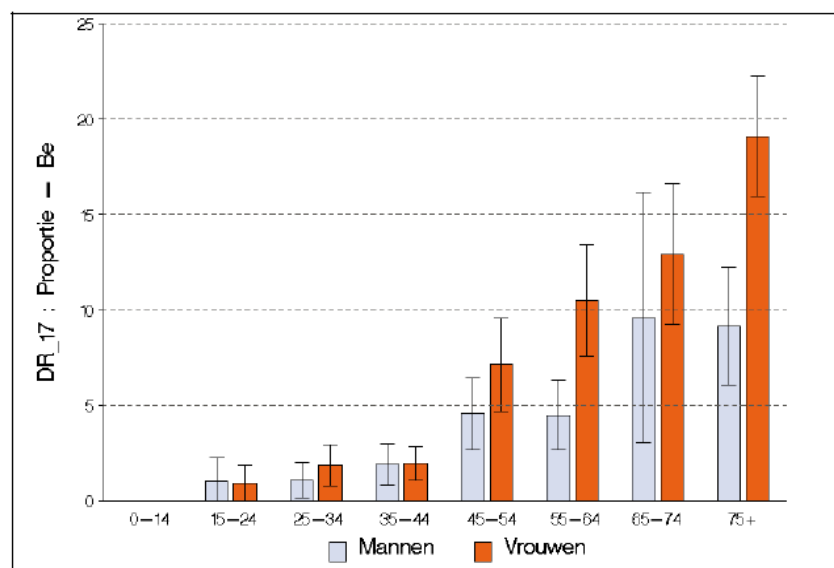
Figure 40 – Percentage of the population (15 years or older) that used hypnotics during the last 24 hours, per region (2008)



Sourec: HIS



Figure 41 – Percentage of the population (15 years or older) that used hypnotics and anxiolytics during the last 24 hours, per age group and sex (2008)

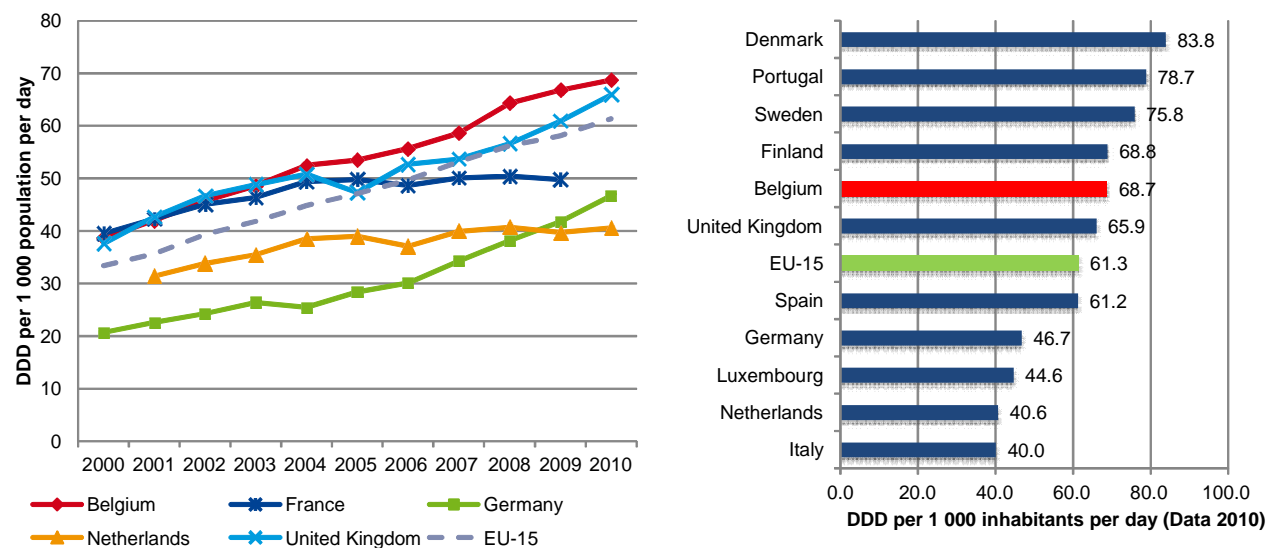


Source: HIS



5.6.2.2. International comparison

Figure 42 – Number of Defined Daily Doses (DDDs) of antidepressant (per 1 000 population per day): international comparison (2000-2010)



OECD Health Data 2012

Source: Pharmanet (RIZIV – INAMI, for Belgium) and OECD Health Data 2012 for international comparison.

Key points Prescription of antidepressants, antipsychotics, hypnotics and anxiolytics

- Of the 11 116 persons surveyed in the HIS 2008, 4.6% and 3.2% reported to have used in the last 24h anxiolytics and hypnotics, respectively.
- The prescription of antipsychotic medication increased from 2004 to 2010, with large differences between regions (higher from Brussels and Wallonia than in Flanders).
- The prescription of antidepressants (N06) also increased from 2004 to 2010, with large differences between regions (higher from Wallonia than in Brussels and Flanders). International comparison shows that Belgium ranks high in term of antidepressant consumption



5.7. Chemotherapy during the last 14 days of life of patients with cancer

5.7.1. Documentation sheet

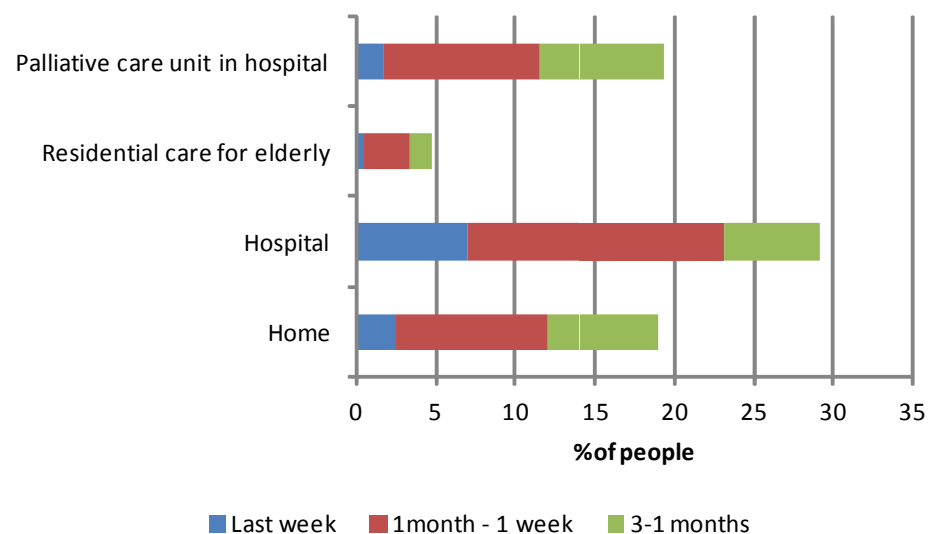
Description	Proportion of patients with cancer receiving chemotherapy in the last 14 days of their life
Calculation	Numerator: number of patients receiving chemotherapy within the last 14 days of their life. Denominator: number of patients who died from cancer
Rationale	The main goal of palliative care is to improve or at least maintain quality of life in patients near death. The curative treatments, like active cancer treatment are stopped and the focus is on pain and symptom control. This indicator is a measure of the aggressiveness of care in the last days of life.
Primary data source	This indicator requires a linkage of IMA data to Belgian Cancer Registry to identify patients with terminal cancer.
Indicator source	Currently: a study from the Christian Sickness Funds on care near end-of-life (Gielen <i>et al.</i> , 2008, Gielen <i>et al.</i> , 2010) Coming in 2013: an IMA report on the same subject
Periodicity	None for the moment (this is one shot project)
Limitations	Not all palliative patients can be identified in administrative databases.
International comparability	This is not an international indicator.
Dimension	Quality (appropriateness)
Key words	End of life care; aggressiveness of care
Related indicators	Utilisation of health services during the last 3 month of life Place of death (home versus hospital)
References	Source of indicators: Earle, 2006(National Quality Forum, 2006), Pasman, 2008(Pasman <i>et al.</i> , 2009) Source of results: a report of Christian Sickness Funds (Gielen <i>et al.</i> , 2008, Gielen <i>et al.</i> , 2010)

5.7.2. Results

Within the study of the Christian Sickness Funds on care near end of life of palliative patients and cancer patients (Gielen *et al.*, 2008) (Gielen *et al.*, 2010), the highest use of chemotherapy during last month of life was observed for cancer patients who died in hospital (23.1%). The use of chemotherapy in patients staying at home or in palliative care unit is quite similar: 12.1% for patients who died at home and 11.5% for patients who died in palliative care unit. The lowest use of chemotherapy was seen in cancer patients who died in care home (3.4%).



Figure 43 – Percentage of cancer patients receiving chemotherapy near end-of-life, by place of death (2005)



Source: CM study (Gielen *et al.*, 2008)

Key points Chemotherapy during the last 14 days of life of patients with cancer

- The use of chemotherapy during the last days of life for patients dying from cancer is an indicator of the aggressiveness of care. There are currently no national data on this indicator.
- In a study from the CM, the highest use was observed for cancer patients who died in hospital (23.1%), and the lowest for patients who died in care home (3.4%).
- To interpret properly this indicator, more data are needed on trends over time, regional differences and international comparability.



6. INDICATORS ON SAFETY (A SUBDIMENSION OF QUALITY)

6.1. Medical radiation exposure of the Belgian population

6.1.1. Documentation sheet

Description	Medical radiation exposure of the Belgian population.									
Calculation	Numerator: Total prescribed medical radiation dose.									
Denominator	Denominator: (a) Number of patients with imaging tests, (b) number of inhabitants									
Rationale	<p>In December 2006, the Superior Health Council published recommendations to reduce the medical radiation exposure (Superior Health Council, 2007a). It stressed the need to follow the guidelines about the referral for diagnostic imaging that were elaborated by the Consilium Radiologicum in 2004 and that were based on the guidelines of the European Association of Radiology(NIHDI, 2012a)</p> <p>En 2009 les autorités sanitaires ont été averties du niveau élevé d'irradiation d'origine médicale en Belgique. Les niveaux par habitants étaient les plus élevés d'Europe et bien supérieurs aux pays limitrophes en 2008 et en croissance inquiétante. Une campagne de sensibilisation des prescripteurs a été réalisée en 2010, en particulier sur les examens particulièrement irradiants et les examens irradiants qui n'étaient plus recommandés afin d'accélérer leur disparition (RX thorax, crâne, colonne, UIV, cystopyélographie, phlébographie des membres)</p> <p>The indicator can be considered as a mean to follow-up the implementation of these recommendations, which is linked to the dimension appropriateness. However, since the indicator primarily gives an indication about the radiation exposure, it is also linked to the dimension safety. Furthermore, it gives an idea about the use of newer technologies (innovation as a subdimension of sustainability), requiring less irradiation.</p>									
Data source	IMA(EPS), RIZIV/INAMI (DOC N)									
Results source	GP's performance report (NIHDI)									
Technical definitions	<p>Used nomenclature codes and their presumed radiation dose</p> <table><tr><td>Nomenclature number</td><td>dose</td><td>Exam type</td></tr><tr><td>451474, 451485, 451511, 451522, 451710, 451721, 451754, 451765, 462512, 462523, 462711, 462722, 462755, 462766</td><td>20</td><td>Contrast barium enema</td></tr><tr><td>451813, 451824, 462814, 462825, 451894,</td><td>15</td><td>Cholangiowirsungography</td></tr></table>	Nomenclature number	dose	Exam type	451474, 451485, 451511, 451522, 451710, 451721, 451754, 451765, 462512, 462523, 462711, 462722, 462755, 462766	20	Contrast barium enema	451813, 451824, 462814, 462825, 451894,	15	Cholangiowirsungography
Nomenclature number	dose	Exam type								
451474, 451485, 451511, 451522, 451710, 451721, 451754, 451765, 462512, 462523, 462711, 462722, 462755, 462766	20	Contrast barium enema								
451813, 451824, 462814, 462825, 451894,	15	Cholangiowirsungography								



451905, 462895, 462906		
458850, 458861	12	CT vertebra
458813, 458824	10,63	CT neck/thorax/abdomen
451312, 451323, 451356, 451360, 451393, 451404, 451430, 451441, 462431, 462442	10	Contrast barium enema
453121, 464111, 464122, 453110, 453132, 453143, 464133, 464144	9,6	Coronarography
453154, 453165, 453176, 453180, 453235, 453246, 464236, 464240, 453272, 453283, 464273, 464284, 453294, 453305, 464295, 464306	7,5	Arteriography
450531, 450542, 461532, 461543	7,2	Intravenous urography
450634, 450645, 461635, 461646, 450671, 450682, 461672, 461683, 450715, 450726, 461716, 461720, 461591, 461602, 450590, 450601	7,2	Urologic X-ray
458835, 458846	5,7	CT vertebra
453073, 453084, 464074, 464085, 453095, 453106, 464096, 464100	5	Angiocardiopneumography
453515, 453526, 464516, 464520, 453530, 453541, 464531, 464542	5	Digital subtraction angiography
453316, 453320, 464310, 464321, 453331, 453342, 464332, 464343, 453390, 453401, 453412, 453423	5	Venography
442971, 442982	4,94	Nuclear medicine
442212, 442223, 442234, 442245, 442396, 442400, 442411, 442422, 442455, 442466, 442492, 442503, 442514, 442525, 442595, 442606, 442610, 442621, 442632, 442643	4,3	Nuclear medicine
450074, 450085, 461075, 461086	4,2	Hysterosalpingography
455475, 455486, 466476, 466480	4,2	X-ray lumbar spine



455593, 455604, 466594, 466605	3,5	X-ray spine
455394, 455405, 466395, 466406, 455416, 455420, 466410, 466421	2,6	X-ray cervical/dorsal spine
451614, 451625, 462615, 462626, 451776, 451780, 462770, 462781, 451850, 451861, 462851, 462862	2,3	Cholangiography
458673, 458684	2,1	CT skull
451135, 451146	2	Esophageal X-ray
459196, 459200, 469195, 469206	2	Fistulography
458732, 458743	1,7	CT sella turcica
455534, 455545, 466535, 466546	1,6	Sacroiliacal X-ray
458872, 458883, 458894, 458905	1,554	CT limbs/joint
455276, 455280, 466270, 466281	1,2	Pelvic X-ray
455254, 455265, 466255, 466266	1,2	Hip X-ray
454016, 454020, 454031, 454042, 465043, 465032, 454053, 454064, 454075, 454086, 453471, 453482, 464483, 464472	1	Cerebral angiography
455711, 455722	1	Arthrography
451835, 451846, 459115, 459126, 469114, 469125	1	Radioscopy
450030, 450041, 4611031, 461042	0,1	Pelvimetry
451010, 451021, 450516, 450520, 450015, 450026, 461510, 461521	0,83	Abdomen X-ray
452793, 452804, 463794, 463805	0,7	Laryngeal X-ray
455335, 455346	0,64	Rib X-ray
455873, 455884	0,35	Sternal X-ray
450192, 450203	0,34	Mammography



452712, 452723, 463713, 463724	0,23	Chest X-ray
455630, 455641, 466631, 466642	0,22	Skull X-ray
450096, 450100, 461090, 461101	0,17	Mammography
451076, 451080	0,13	Swallow X-ray
452690, 452701, 463691, 463702	0,06	Chest X-ray
307090, 307101, 377090, 377101, 307112, 307123, 377112, 377123, 307134, 307145, 377134, 377145	0,02	Dental X-ray
455291, 455302	0,02	Rib X-ray
455136, 455140, 466130, 466141	0,0168	Shoulder X-ray
455814, 455825, 466292, 466303, 455836, 455840, 466314, 466325	0,0144	X-ray shoulder/clavícula
455851, 455862, 466336, 466340	0,0126	Upper leg X-ray
455696, 455700, 466690, 466701	0,01	Nose X-ray
307016, 307031, 307042, 307053, 307064	0,01	Dental X-ray
455210, 455221, 466211, 466222	0,00408	Lower leg X-ray
455195, 455206, 466196, 466200	0,0009	Ankle X-ray
455232, 455243, 466233, 466244	0,00088	Knee X-ray
455070, 455081, 466071, 466082, 455092, 455103, 466093, 466104, 455114, 455125, 466115, 466126	0,0006	Arm X-ray
455151, 455162, 466152, 466163	0,00032	Toe X-ray
455173, 455184, 466174, 466185	0,0003	Foot X-ray
455033, 455044, 466034, 466045	0,00014	Hand X-ray
455011, 455022, 466012, 466023, 455055, 455066, 466056, 466060	0,00012	X-ray fingers/wrist



International comparability	<p>The European Commission uses this information from several European countries to compare the medical radiation exposure across Europe (Health Protection Agency (HPA), 2008). The same definition is used for this project.</p> <p>The same calculations are done by neighbouring countries such as the Netherlands and Germany. However, the reliability and completeness of the data available from different countries is extremely variable and strongly cautions against over-interpreting the data when making international comparisons.</p>
Dimension	Quality – safety
Keyword	
Related indicators	none
Reference	GP's performance report (NIHDI, 2012b)

6.1.2. Results

6.1.2.1. Belgium

L'ionisation d'origine médicale est particulièrement importante en Belgique, en particulier à cause de l'utilisation du scanner et les prescriptions fréquentes non recommandées d'examens d'imagerie. Une dose cumulée de 100 mSv sur 3 ans représente un risque. Le médecin généraliste est en partie responsable car, à lui seul, il prescrit près de 25% de l'irradiation totale et 33% de l'irradiation chez des patients ambulants.

En 2008, 51% des patients qui fréquentent un généraliste ont eu une prescription d'imagerie irradiante. En moyenne les patients examinés ont une dose cumulée de 5,23 mSv et le % de patients qui risquent de dépasser une dose de plus de 100 mSv en 3 ans est de 6,4% (Ce risque est toutefois relatif dans la mesure où seulement 0,6% des patients ont reçus une dose théorique cumulée de plus de 100 mSv entre 2006 et 2008).

La prescription d'imagerie irradiante est en progression depuis 2006 alors que les recommandations pour en limiter la prescription ont été publiées en 2002 (et actualisées en 2010). Le % de patients avec un examen d'imagerie augmente (de 49 à 51% depuis 2006, le niveau d'irradiation théorique par patient avec examen augmente (4,6 à 5,23 mSv/patient examiné), le % de patients qui ont une dose supérieure à 30 mSv augmente également de 5,4% à 6,4%.

Les patients les plus à risque sont les patients chroniques, les patients de MRS et les personnes âgées de plus de 45 ans. Il est rassurant de constater que la prescription est moins fréquente chez les enfants - qui sont plus sensibles au rayonnement- avec une dose limitée et un % de risque très faible.

La prescription d'imagerie est systématiquement plus fréquente et plus intense au Sud du pays



Table 24 – Percentage of patients at the GP who have received a prescription for medical imaging (from any physician), annual cumulated dose, and percentage of patients above the limit of 30 mSv in the year (or 100mSv on 3 years) (2006-2008)

Indicateur	2006-08	2006	2007	2008	sexe		classes d'âges					
					F	M	0-14	15-29	30-44	45-59	60-74	75+
nb patients avec contact GP	198598	183389	185310	198596	106829	91767	25487	33608	39253	43386	33705	23157
% chroniques	7%	7%	7%	7%	7%	6%	2%	2%	3%	5%	9%	24%
% de patients avec RX	78%	49%	50%	51%	55%	46%	32%	44%	49%	59%	60%	54%
dose moyenne cumulée (patient R+)	9,11	4,60	5,01	5,23	4,98	5,57	1,07	2,38	3,96	5,35	7,56	9,22
% patientsà risque (dose annuelle>30)	0,6%	5,4%	6,0%	6,4%	5,9%	7,1%	0,5%	1,7%	3,7%	6,1%	10,6%	14,0%
exposition à l'ionisation d'origine médicale												

Indicateur	type de patient		abonnement		type de pratique		Maison de repos		regions		
	non chronique	chronique	DMG-	DMG+	MM-	MM+	MR -	MR +	B	F	W
nb patients avec contact GP	185301	13295	112919	85677	194119	4477	235301	2470	15335	119890	63117
% chroniques	0%	100%	6%	8%	7%	5%	8%	59%	6%	7%	7%
% de patients avec RX	50%	65%	49%	53%	51%	48%	51%	59%	53%	49%	54%
dose moyenne cumulée (patient R+)	4,36	14,42	4,89	5,64	5,24	4,39	5,84	10,82	5,32	4,91	5,75
% patientsà risque (dose annuelle>30)	4,7%	24,1%	5,8%	7,2%	6,4%	4,9%	7,5%	17,9%	6,8%	5,9%	7,2%

Indicateur	Brussel	Vlaanderen					Wallonie				
	10000	20001	30000	40000	70000	20002	50000	60000	80000	90000	
nb patients avec contact GP	15335	33084	19729	23114	27666	16297	6509	24030	19768	4005	8805
% chroniques	6%	6%	5%	8%	7%	7%	5%	8%	7%	7%	7%
% de patients avec RX	53%	48%	49%	48%	49%	49%	53%	54%	56%	52%	53%
dose moyenne cumulée (patient R+)	5,32	4,76	4,76	5,02	5,13	4,84	4,72	6,10	5,48	6,55	5,81
% patientsà risque (dose annuelle>30)	6,8%	5,3%	5,9%	6,2%	6,3%	5,9%	5,7%	7,7%	6,7%	8,9%	7,5%

**Exposition to medical radiation per inhabitant****Table 25 – Exposition to medical radiation per population (expressed in nb mSv)**

années	2004	2005	2006	2007	2008	2009	2010	2011
nb mSv / hab	2,00	2,01	2,11	2,18	2,25	2,29	2,29	2,22
évolution de l'exposition année (X+1)/X		0,4%	4,6%	3,6%	3,4%	1,6%	-0,1%	-2,9%

1. Le niveau d'exposition par habitant culmine en 2009 (2.29). Il se stabilise en 2010 et décroît en 2011 (2.22). Autrement dit, la croissance de l'irradiation totale s'est ralentie dès 2009. Depuis 2010, on observe une décroissance qui s'accélère en 2011 (- 2.9%) (voir graphiques 1 et 2)
2. La décroissance se constate dans tous les domaines de l'imagerie (RX, CT,Angio, scinti) mais pas pour la phlébographie (qui croît de 3% l'an) ni le PET scan (+10% en 2011). La décroissance est plus marquée pour les RX que pour les CT
3. La décroissance de l'irradiation liée aux examens désuets se déroule au même rythme que l'ensemble des autres examens irradiants, alors qu'au départ la décroissance de ces examens était plus rapide
4. La part des mammothests (dépistage organisé) dans l'ensemble des mammographies est en croissance importante
5. Ces chiffres sont encourageants. Toutefois il convient :
 - a. de répéter la sensibilisation afin d'accélérer le phénomène
 - b. d'insister sur les examens de colonne totale (CT, RX) toujours en croissance, bien que moins recommandés
 - c. d'analyser pourquoi on observe un glissement régulier de l'ensemble des examens irradiants du secteur "hospitalier" vers le secteur "ambulatoire".(Le secteur ambulatoire est responsable de 75 % de l'irradiation pour 69 % en 2004)



Figure 44 – Medical radiation (in mSv per population) (2004-2011)

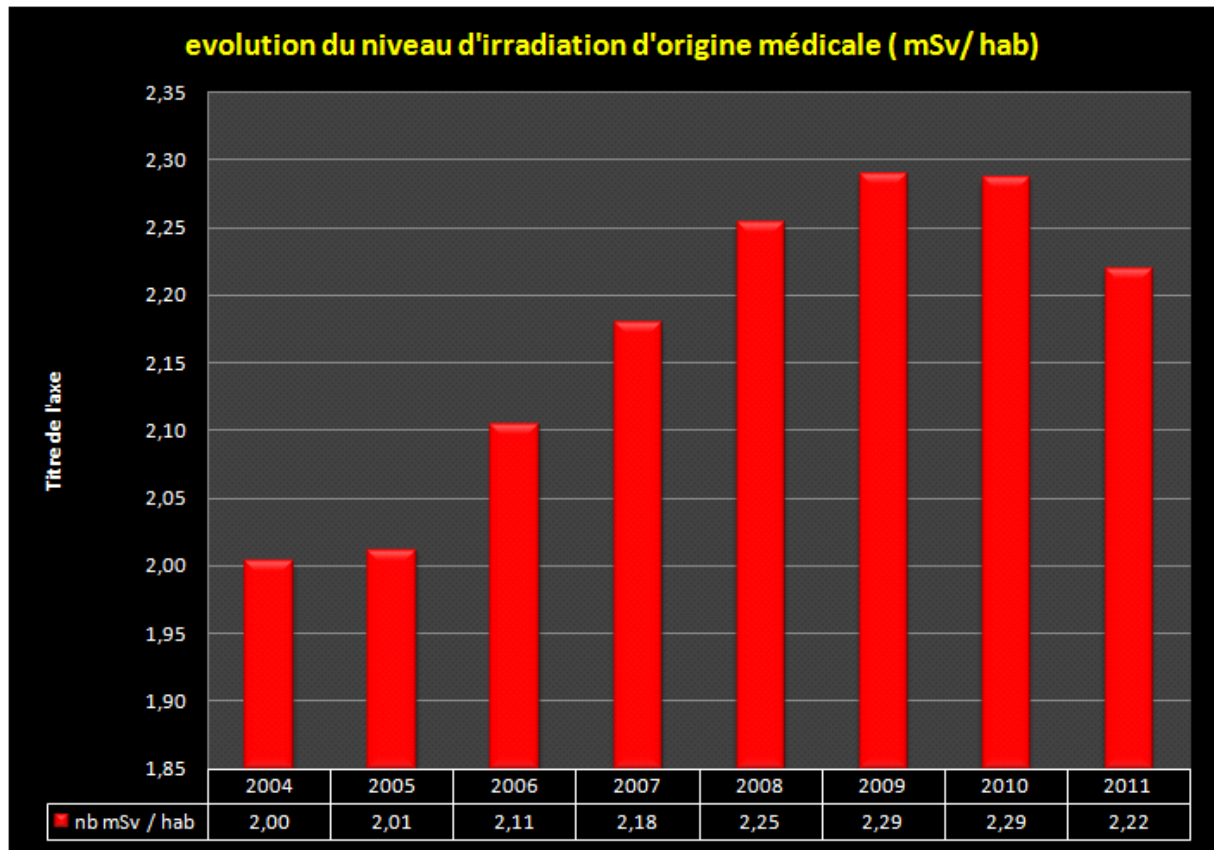




Figure 45 – Evolution of annual increase of medical radiation (2004-2010)

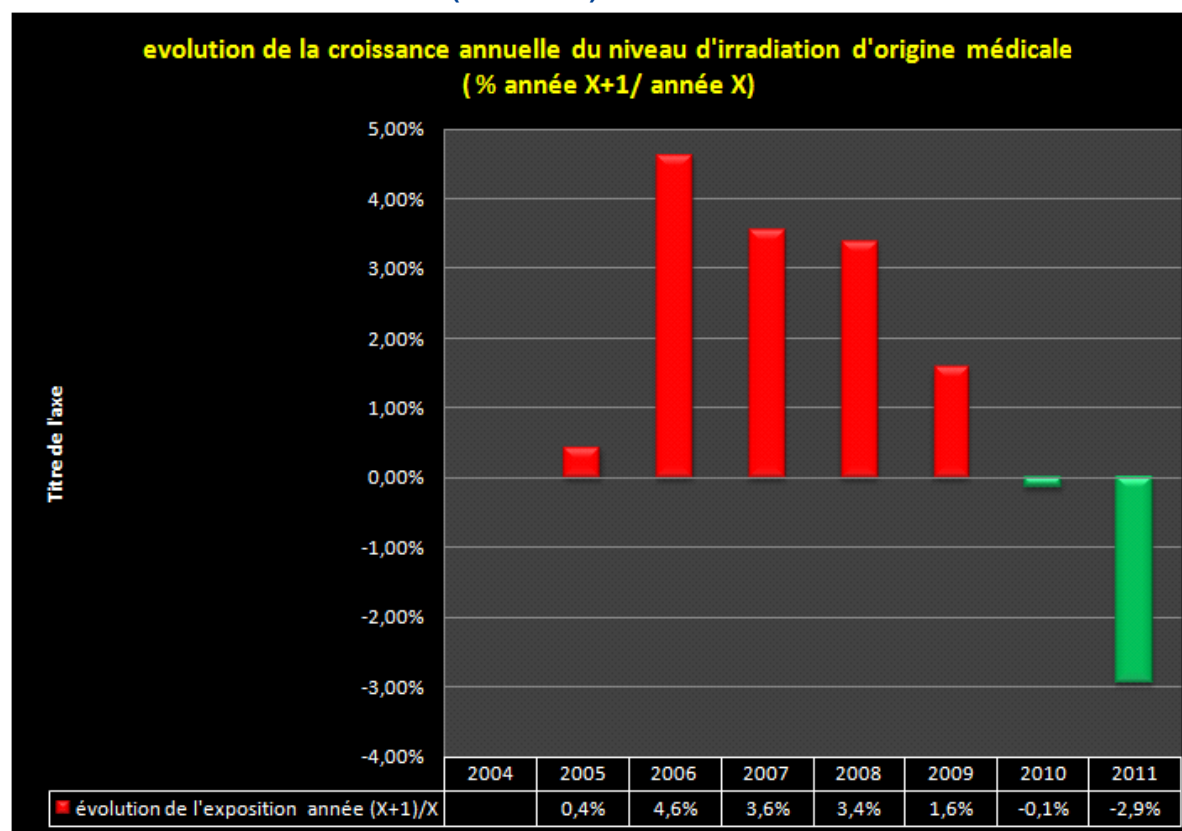




Table 26 – Total of theoretical doses per type of exam (standardised on population 2011)

irradiation selon le type d'examen (ambulatoire + hospitalier)							evolution année (X+1/X)			
type d'examen (hospi+ amb)	V1-2 2004	V1-2 2006	V1-2 2008	V1-2 2009	V1-2 2010	V1-2 2011	2008/2007	2009/2008	2010/2009	2011/2010
1. RX	8.075.456	7.357.902	7.013.333	6.793.364	6.540.877	6.192.622	-2,2%	-3,1%	-3,7%	-5,3%
2. Tomo	10.502.706	12.023.351	13.991.950	14.652.510	14.927.015	14.606.078	7,5%	4,7%	1,9%	-2,1%
3. angio	425.511	555.682	566.247	547.690	544.696	529.820	3,1%	-3,3%	-0,5%	-2,7%
3. angio coro	276.532	623.069	644.589	638.854	646.539	631.786	1,0%	-0,9%	1,2%	-2,3%
4. phlébo	35.894	31.386	28.859	29.372	30.187	31.060	-4,7%	1,8%	2,8%	2,9%
5. scintigraphie	2.561.637	2.382.190	2.344.548	2.312.245	2.248.919	2.203.961	-1,7%	-1,4%	-2,7%	-2,0%
6. PET	69.822	85.276	98.280	105.712	107.431	117.799	4,0%	7,5%	1,6%	9,6%
Total général	21.947.559	23.058.856	24.687.806	25.079.747	25.045.664	24.313.126	3,4%	1,6%	-0,1%	-2,9%
total desuet	11.280.402	11.025.700	11.350.161	11.229.378	11.075.108	10.752.143	1,3%	-1,1%	-1,4%	-2,9%
% désuet/ total RX +CT+phlé	61%	57%	54%	52%	52%	52%	-2,7%	-3,1%	-1,5%	0,2%
% mammotest/total mammo	22%	25%	26%	26%	27%	28%	0,8%	1,5%	1,3%	6,2%

Table 27 – Share of ambulatory imaging in total medical radiation (2004-2011)

Part de l'irradiation "ambulatoire" dans l'irradiation totale						
type d'examen	V1-2 2004	V1-2 2006	V1-2 2008	V1-2 2009	V1-2 2010	V1-2 2011
1. RX	75%	77%	78%	78%	79%	79%
2. Tomo	68%	71%	73%	75%	76%	76%
3. angio	20%	16%	19%	18%	19%	21%
3. angio coro	3%	4%	5%	6%	7%	8%
4. phlébo	54%	55%	55%	57%	55%	52%
5. scintigraphie	68%	72%	75%	76%	77%	78%
6. PET	79%	83%	84%	86%	86%	87%
Total général	69%	70%	72%	73%	74%	74%

Table 28 – Total of theoretical doses of medical radiation, by type of exam RX and CT (standardisation on 2011 population)

irradiation selon le type d'examen (ambulatoire + hospitalier)							evolution année (X+1/X)			
type d'examen (hospi+ amb)	V1-2 2004	V1-2 2006	V1-2 2008	V1-2 2009	V1-2 2010	V1-2 2011	2008/2007	2009/2008	2010/2009	2011/2010
1. RX	8.075.456	7.357.902	7.013.333	6.793.364	6.540.877	6.192.622	-2,2%	-3,1%	-3,7%	-5,3%
1. RX thorax	390.280	363.921	360.074	362.783	346.234	335.768	-0,9%	0,7%	-4,5%	-3,0%
1. RX face, base	32.156	26.307	22.441	20.828	17.866	14.746	-7,2%	-7,1%	-14,1%	-17,3%
1. RX cervicale	722.937	671.256	639.844	607.367	573.991	518.437	-2,7%	-5,0%	-5,5%	-9,6%
1. RX dorsale	482.701	447.294	426.154	406.493	390.508	357.295	-1,7%	-4,6%	-3,9%	-8,4%
1. RX hanche	589.269	570.422	583.061	579.741	568.372	558.142	1,0%	-0,6%	-1,9%	-1,8%
1. RX lombaire	1.988.496	1.880.195	1.797.820	1.730.438	1.663.929	1.522.080	-2,4%	-3,7%	-3,8%	-8,4%
1. RX bassin	533.089	513.722	510.410	504.097	493.133	472.830	0,0%	-1,2%	-2,2%	-4,1%
1. RX sacrée	21.032	20.717	20.816	22.282	22.223	21.581	-1,6%	7,0%	-0,3%	-2,9%
1. RX colonne all	115.603	121.916	124.907	128.985	130.441	131.712	0,3%	3,2%	1,1%	1,0%
1. RX abdomen à blanc	395.541	356.077	336.061	324.125	311.542	284.066	-0,2%	-3,5%	-3,9%	-8,7%
1. RX abdomen+ampli	824.162	732.492	648.191	617.014	580.958	559.000	-6,4%	-4,8%	-5,8%	-3,7%
1. RX abdomen baryté	784.086	549.262	464.811	414.501	386.975	353.860	-6,9%	-10,7%	-6,6%	-8,5%
1. RX UIV	254.482	162.763	101.529	80.828	66.971	50.134	-21,0%	-20,2%	-17,0%	-24,9%
1. RX cystopyélo	172.580	161.713	148.505	150.247	140.999	145.375	-4,3%	1,2%	-6,1%	3,1%
1. RX mammographie	184.338	192.821	193.596	194.429	186.433	187.973	-0,3%	0,4%	-4,1%	0,8%
1. RX mammatest	52.248	63.014	67.873	69.549	67.880	74.389	0,8%	2,4%	-2,4%	9,5%
1. RX else	532.457	524.008	567.240	579.658	592.422	605.235	4,2%	2,2%	2,2%	2,1%
2. Tomo	10.502.706	12.023.351	13.991.950	14.652.510	14.927.015	14.606.078	7,5%	4,7%	1,9%	-2,1%
2. Tomo head	981.226	1.030.523	1.138.551	1.156.447	1.144.348	1.124.081	4,4%	1,6%	-1,0%	-1,8%
2. Tomo spine	2.956.870	3.385.732	3.998.126	4.093.831	4.206.431	4.271.977	7,4%	2,4%	2,7%	1,5%
2. Tomo thx abd	6.395.304	7.405.245	8.614.538	9.150.719	9.316.242	8.938.123	7,9%	6,2%	1,8%	-4,0%
2. Tomo else	169.307	201.851	240.735	251.513	259.994	271.897	9,0%	4,4%	3,3%	4,5%

Key Points Medical radiation exposure of the Belgian population

- Une dose cumulée de 100 mSv sur 3 ans représente un risque. En moyenne les patients examinés ont une dose cumulée de 5,23 mSv et le % de patients qui risquent de dépasser une dose de plus de 100 mSv en 3 ans est de 6,4% (Ce risque est toutefois relatif dans la mesure où seulement 0,6% des patients ont reçus une dose théorique cumulée de plus de 100 mSv entre 2006 et 2008).
- Le niveau d'exposition par habitant culmine en 2009 (2.29). Il se stabilise en 2010 et décroît en 2011 (2.22). Autrement dit, la croissance de l'irradiation totale s'est ralentie dès 2009. Depuis 2010, on observe une décroissance qui s'accélère en 2011 (-2.9%).
- La prescription d'imagerie de la part des médecins généralistes est systématiquement plus fréquente et plus intense au Sud du pays



6.2. Hospital-acquired MRSA infections

6.2.1. Documentation sheet

Description	Incidence of nosocomial MRSA (Methicillin-resistant <i>Staphylococcus aureus</i>) infections per 1 000 admissions
Calculation	<p>Numerator : Number of newly acquired nosocomial MRSA infections in acute care hospitals in the reporting period. Nosocomial is defined as not present at admission, no known carriage (for 12 months), or first positive strain >48h after admission.</p> <p>Denominator: Number of admissions in the reporting period x 1000.</p>
Rationale	<p><i>Staphylococcus aureus</i> is an important cause of infections of the skin and mucosae, of postoperative wound infections, catheter infections, pneumonias, bacteremias and infections of articulations. (Superior Health Council, 2005) Since his first description (Jevons, 1961), MRSA was a major source of nosocomial infections in European countries and abroad.</p> <p>Participation in the surveillance of MRSA (at least one semester/year) is compulsory in Belgium since 2007. (BS-MB, 2006)</p>
Primary data source	Primary data: Scientific Institute of Public Health (IPH): National Surveillance of Infections in Hospitals (NSIH): Nationale Surveillance van Methicilline-Resistente <i>Staphylococcus aureus</i> (MRSA) in acute ziekenhuizen. / Surveillance nationale du <i>Staphylococcus aureus</i> résistant à la Méthicilline (SARM) dans les hôpitaux aigus. (NSIH, 2012)
Results source	Idem
International comparability	<p>ECHI (long list (ECHIM, 2005b)) measures the percentage of samples showing resistance by making use of the EARS-network (European Antimicrobial Resistance Surveillance network, ECDC (Cohen J. <i>et al.</i>, 2007, ECDC, 2012) project data. The focus is on <i>Staphylococcus aureus</i> (MRSA), <i>Streptococcus pneumoniae</i> and other resistant pathogens.</p> <p>No international organisations include data on MRSA, making comparison difficult. An exception is the European Antimicrobial Resistance Surveillance System (EARSS), but this European program does not focus on nosocomial acquisition and considers MRSA from blood cultures and cerebrospinal fluid only. Differences between countries concerning the coverage and participation, the quality of the lab results, and the frequency of sampling are also possible.</p>
Periodicity	<p>Semestrial data are available since 1994. Surveillance is continuous and actually counts 33 observation periods of 6 months each.</p> <p>Since 2012 the retrospective MRSA data (for the previous surveillance year) are transmitted once a year instead of each semester.</p>
Technical limitations	<p>definitions and In Belgium the following indicator is in use: the total number of hospitalised patients with new Methicillin resistant <i>Staphylococcus aureus</i> strain isolated from clinical samples (all). MRSA is not present at admission, no known</p>



carriage for the 12 past months or the first MRSA-positive strain is isolated >48h after admission. Duplicates and screening samples are excluded.

Only patients admitted to one of the following departments of acute care hospitals are taken into account:

intensive care, intensive neonatology, coronary care, mixed departments (H-index)

surgery, medicine, paediatrics, maternity, neonatology (N-index)

psychiatry

geriatrics and Sp-index as far as these two departments are physically part of the hospital or the fusion.

An admission is defined as a stay in a hospital bed of minimally one night. Samples of ambulant patients (e.g. day clinic, one-day clinic, haemodialysis department, polyclinic services,...) are not included in the surveillance.

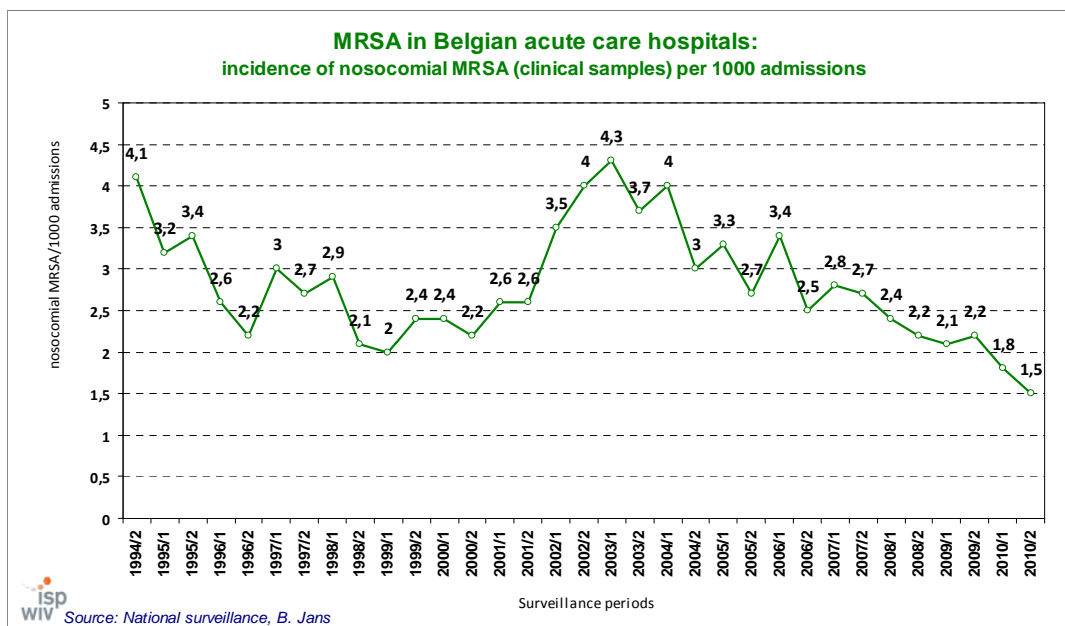
The retrospectively collected data (previous year) are transmitted, aggregated at hospital level. Institutions that are part of a fusion unity are asked to gather their data per hospital site.

Dimensions	Quality (Safety)
Related performance indicators	Post-operative sepsis; MRSA in institutions
References	Website NSIH (http://www.nsih.be)

6.2.2. Results

The mean incidence of nosocomial MRSA was calculated as the average of all incidence rates of hospitals participating at the surveillance period. A decreasing incidence was found between 1994 and 1999 (from 4.1 to 2 cases/1000 admissions, respectively), after which the incidence again increased reaching 4.3 in 2003. Since 2003, we measure a slow, constant and statistically significant decrease of the incidence of nosocomial MRSA in acute care hospitals, finally reaching 1.5 new cases/1000 during the second semester of 2010 (test for linear trend for a cohort of hospitals participating at least at 5 surveillance periods since 2003: annual decrease of -0.29 new cases/1000 admissions, $p < 0.001$) (Figure 46).

Probably, the application of the recommendations for the control of MRSA (since 2003, actually in revision), the national hand hygiene campaigns, and the rationalization of the use of antibiotics influenced positively this evolution. Nevertheless, the interpretation of the indicator remains influenced by the screening practices which vary in coverage rate and intensity between hospitals. (Jans and Denis, 2010)

**Figure 46 – Mean incidence of nosocomial MRSA (1994 – 2010)**

Source: NSIH

In order to illustrate the trends by Region, we used the median incidence of nosocomial MRSA by Region, because the Brussels Region contains only a small number of acute care hospitals and the participation of less or more Brussels hospitals during a period can lead to very large variations in the incidence for the Brussels region.

Only data from hospitals participating at least 5 times since the start of surveillance are taken into account. The median incidence was increasing in all Regions between 2000 and 2003-2004, but again decreasing afterwards (Figure 47).

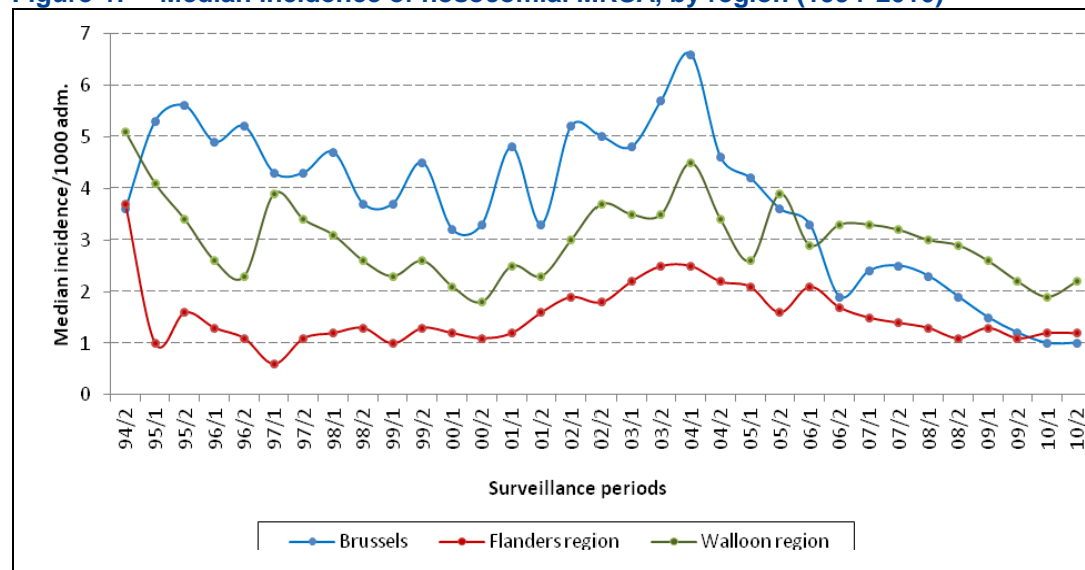
This decrease was most impressive in the Brussels hospitals: from 6.6 cases/1000 admissions in 2004 to 1 case/1000 admissions during the last semester of 2010 (test for linear trend for hospitals with at least 5 participations (cohort 2003-2010): annual decrease with -0.73 cases/1000 admissions, $p < 0.001$).

In the Flanders Region, the incidence decreased from 2.5 cases (2003-2004) to 1.2 cases/1000 admissions during the last semester of 2010 (annual decrease with -0.21 cases/1000, $p = 0.002$).

In the Walloon Region, after a peak at 4.5 cases/1000 (2004), the incidence reached 2.2 cases/1000 in 2010 (annual decrease with -0.26 cases/1000, $p = 0.002$).



Figure 47 – Median incidence of nosocomial MRSA, by region (1994-2010)



Source : NSIH

Key Points MRSA

- A decreasing incidence in MRSA was found between 1994 and 1999, after which the incidence again increased in 2003. Since 2003, we measure a slow and constant decrease of the incidence of nosocomial MRSA in acute care hospitals. This decrease was most impressive in the Brussels hospitals.
- Probably, the application of the recommendations for the control of MRSA (since 2003, actually in revision), the national hand hygiene campaigns, and the rationalization of the use of antibiotics influenced positively this evolution. Nevertheless, the interpretation of the indicator remains influenced by the screening practices which vary in coverage rate and intensity between hospitals
- No data are currently available internationally to benchmark these results



6.3. Post-operative sepsis

6.3.1. Documentation sheet

Description	Incidence of post-operative sepsis
Calculation	Rate of hospitalisations with a septicæmia as a complication of surgery, per 1000 hospitalisations
Rationale	Incidence of post-operative sepsis is an international indicator of patient safety in hospital (Patient Safety Indicator, PSI). (AHRQ, 2011a, OECD, 2009), which is monitored on the basis on hospital discharge date
Data source	RCM-MKG
Source of results	Patient Safety Indicators Feedback (FPS Health, Food Chain Safety and Environment) (FPS Health Food Chain Safety and Environment, 2011)
Technical definitions	<p>Numerator: stays from the denominator with a secondary diagnosis of sepsis.</p> <p>Denominator: All elective stays presenting a surgical APR-DRG AND an Operating Room Procedure, in patients age 18 years or older, excluding the following cases:</p> <p>Length of stays of less than 4 days,</p> <p>MDC14 (pregnancy, childbirth, and puerperium),</p> <p>Referrals from another hospital, nursing home or home for the elderly,</p> <p>With principal diagnosis of infection or sepsis,</p> <p>With secondary or principal diagnosis of cancer,</p> <p>With secondary or principal diagnosis or procedure of immunocompromised state,</p> <p>These exclusion rules were developed to deal with the uncertainty of the time when the problem occurred (during or before hospitalization). From 2008 this information (diagnostic present at admission) is recorded in the RHM, and exclusion rules will need to be adapted.</p>
Limitation	This indicator is highly dependent on the quality of the registration of secondary diagnoses. (Gillet <i>et al.</i> , 2008)
International comparability	<p>This is the definition from the Feedback on quality from SPF, and it is also the definitions used to report to OECD.</p> <p>Differences in data reporting across countries may influence the calculated rates of patient safety indicators. These include differences in coding practice, coding rules (e.g. definition of principal and secondary diagnoses), coding for billing purposes and the use of diagnosis type markers (e.g. "present at admission"). (OECD, 2011b)</p>
Dimension	Quality – safety
Keyword	Hospital acquired infections
Related indicators	Hospital-acquired MRSA and Clostridium difficile
References	Patient Safety Indicators Feedback (FPS Health, Food Chain Safety and Environment) (FPS Health Food Chain Safety and



Environment, 2011)
OECD (OECD, 2009, 2011b)

6.3.2. Results

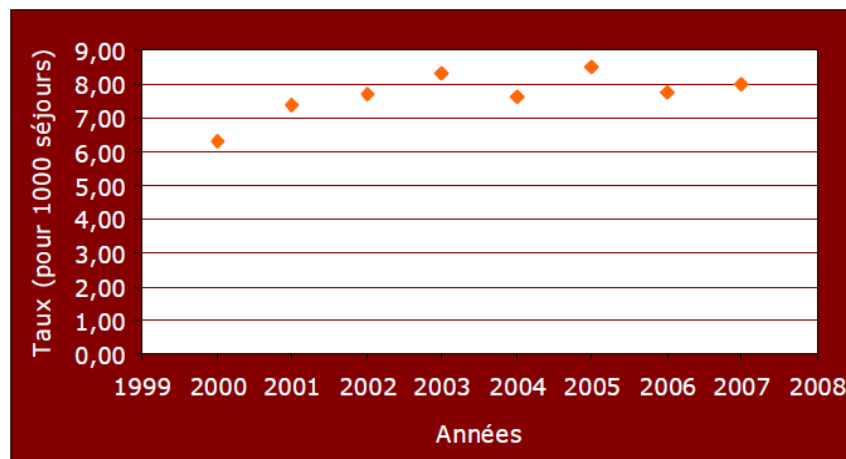
6.3.2.1. Belgium

Between 2000 and 2007, the incidence of post operative sepsis was stable around 8 cases per 1000 admissions.

Table 29 – Incidence of post-operative sepsis (2000-2007)

Tableau 13.1 et Graphique 13.1: Fréquence du PSI 13 par année (taux/1.000 séjours)

Année	Hospitalisation classique		
	Num.	Dénom.	Taux
2000	1.029	162.781	6,32
2001	1.139	154.783	7,36
2002	1.174	153.041	7,67
2003	1.212	146.123	8,29
2004	1.092	143.135	7,63
2005	1.176	137.968	8,52
2006	1.035	133.785	7,74
2007	1.062	132.541	8,01
Total	8.919	1.164.157	7,66

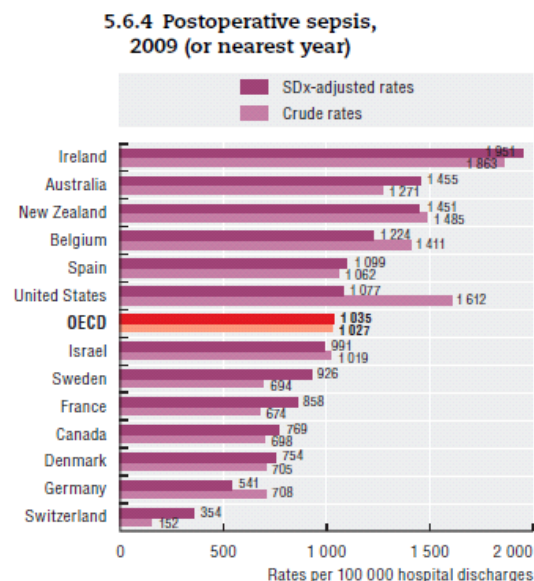


Source: Patient Safety Indicators Feedback (FPS Health Food Chain Safety and Environment, 2011)



6.3.2.2. International comparison

Figure 48 – Incidence of post operative sepsis: international comparison (2009 or nearest year)



Note: Some of the variations across countries are due to different classification systems and recording practices.

SDx: Secondary diagnoses adjustment.

Source: OECD Health Data 2011.

Key points Post-operative sepsis

- Incidence of post-operative sepsis is an international indicator of patient safety in which is monitored on the basis on hospital discharge date
- Between 2000 and 2007, the incidence of post operative sepsis was stable around 8 cases per 1000 admissions.
- Belgium ranks high in comparisons with other European countries, but this might be due to large differences in coding practices between countries.



6.4. Pressure ulcer in patients hospitalized

6.4.1. Documentation sheet

Description	Incidence of pressure ulcer in hospitals.
Calculation	Numerator: number of incident cases of pressure ulcer in hospitals. Denominator: all medical and surgical discharges (See technical definitions for exclusions).
Rationale	The occurrence of a pressure ulcer in a hospitalised patient has a serious negative impact on the individual's health (Gorecki <i>et al.</i> , 2009) and often leads to a much prolonged hospital stay. Pressure ulcers can be prevented with good quality nursing care. (McInnes <i>et al.</i> , 2011) (Reddy <i>et al.</i> , 2006)
Data source	RCM/MKG
Results source	Patient Safety Indicators Feedback (FPS Health, Food Chain Safety and Environment) (FPS Health Food Chain Safety and Environment, 2011)
Technical definitions and limitations	<p>Numerator : ICD-9-CM code: 707.0 Pressure ulcer. Secondary diagnosis field.</p> <p>Denominator: all medical and surgical discharges, excluding:</p> <ul style="list-style-type: none"> Stays of patients aged below 18 years One-day stays Stays with length of stay of less than 5 days MDC 9 (Skin, Subcutaneous Tissue, and Breast) MDC 14 (pregnancy, childbirth, and puerperium) Stays of patients admitted from a long-term care facility or an acute care facility Stays with pre-existing condition of pressure ulcer (principal diagnosis) Stays with any diagnosis of hemiplegia, paraplegia, or quadriplegia Stays with ICD-9-CM code of spina bifida or anoxic brain damage Stays with an ICD-9-CM procedure code for debridement or pedicle graft before or on the same day as the first operating room procedure (surgical cases only)
Limitation	This indicator is highly dependent on the quality of the registration of secondary diagnoses. (Gillet <i>et al.</i> , 2008)
International comparability	<p>The AHRQ definition was adopted. AHRQ intended to measure the incidence of pressure ulcer by including in the numerator discharges with ICD-9-CM code 707.0 in any secondary diagnosis field and ICD-9-CM of stage III, IV or unstageable in any secondary diagnosis field. This amounts to exclude the stage I and II.</p> <p>The FPS has not implemented this adaptation yet. The RIVM provides data on the prevalence of pressure ulcer in hospitals, although it is unclear how the indicator was operationalised.</p>



One of the exclusion criteria is surgical cases with a debridement or pedicle graft before or on the same day as the major operating room procedure. This definition was adapted by the FPS as there is no indication of the major surgical procedure in the RCM/MKG database. Hence, stays were excluded when a debridement or pedicle graft was performed before or on the same day as the first operation room (OR) procedure.

The Belgian definition will be adapted for the future, as from 2008 the diagnoses present on admission are recorded in the RHM/MZG. The stays with pre-existing condition of pressure ulcer to be excluded will be defined not only by a principal diagnosis of ulcer but also by an ulcer secondary diagnosis present on admission.

Related indicators	Incidence of pressure ulcers in long-term care facilities and individuals at risk.
Dimensions	Quality (Safety);
Keyword	Hospital (acute care); Curative care ; Preventive Care
References	RIVM (the Netherlands) (RIVM, 2008) AHRQ (AHRQ, 2011a) Belgium: Patient Safety Indicators Feedback (FPS Health, Food Chain Safety and Environment) (FPS Health Food Chain Safety and Environment, 2011)

6.4.2. Results

6.4.2.1. Belgium

The global rate of pressure ulcer in acute hospitals between 2000 and 2007 reached 17 cases for 1000 stays, with increasing trends over time for both surgical and medical APR-DRGs.

**Table 30 – Incidence of pressure ulcers in acute hospitals (2000- 2007)****Tableau 3.1 : Fréquence du PSI 03 par type d'APR-DRG et par année (taux/1.000 séjours)**

Année	APR-DRG chirurgical			APR-DRG médical			Total		
	Num.	Dénom.	Taux	Num.	Dénom.	Taux	Num.	Dénom.	Taux
2000	2.355	228.029	10,33	4.752	348.649	13,63	7.107	576.678	12,32
2001	2.772	224.010	12,37	5.407	339.674	15,92	8.179	563.684	14,51
2002	3.349	221.982	15,09	5.894	332.546	17,72	9.243	554.528	16,67
2003	3.447	217.373	15,86	6.281	326.842	19,22	9.728	544.215	17,88
2004	3.599	213.371	16,87	5.928	314.468	18,85	9.527	527.839	18,05
2005	3.886	208.618	18,63	6.556	312.369	20,99	10.442	520.987	20,04
2006	3.683	206.030	17,88	6.742	303.728	22,20	10.425	509.758	20,45
2007	3.002	204.087	14,71	5.584	305.777	18,26	8.586	509.864	16,84
Total	26.093	1.723.500	15,14	47.144	2.584.053	18,24	73.237	4.307.553	17,00

Source: Patient Safety Indicators Feedback (FPS Health Food Chain Safety and Environment, 2011)

In 2008 a prevalence study was organized for the first time, following the last European Pressure Ulcer Advisory Panel guidelines (specific for registration and classification of pressure ulcers). This study was organized in 84 hospitals in 2008 and included 19 964 patients. A pressure ulcer prevalence of 12.1% was observed. Contrary to previous Belgian pressure ulcer prevalence measurements no distinction was made between a pressure ulcer and incontinence associated dermatitis. The prevalence of grade 2 to 4 pressure ulcers was 7%. (Project PUMap, 2008)

6.4.2.2. International comparison

Based on data 2009, the RIVM reported a global rate of all pressure ulcers of 9.9% (general hospitals) and 14.9% (academic hospitals). But without stage I and measuring only in patient at risk, the rate decreases to 5.3% (general hospitals) and 9.8% (academic hospitals). The rates calculated in US hospitals by the AHRQ are 5.18 for 1000 stays (before the stage I and II exclusion, the rate was 25.1 per 1000)

Key messages Pressure ulcer in acute hospitals

- Prevalence of in-hospital pressure ulcer can be monitored based on administrative hospital discharge date.
- The global rate of pressure ulcers in hospitals between 2000 and 2007 reached 17 cases for 1000 stays, with increasing trends over time for both surgical and medical APR-DRGs
- International comparison are difficult, as it is not always clear if stage I and II pressure ulcers (the less severe form) are included.



6.5. In-hospital mortality after hip fracture

6.5.1. Documentation sheet

Description	In-hospital mortality after hip fracture.
Calculation	Numerator: all persons admitted for a hip fracture (principal diagnosis) and dying during admission. Denominator: all persons admitted for a hip fracture (principal diagnosis).
Rationale	<p>Hip fractures are frequent causes of disability in elderly and are associated with an important mortality risk. Several interventions are known to positively influence outcomes after hip fracture, such as deep venous thrombosis prophylaxis, antibiotic prophylaxis, adequate nutrition, (Beaupre <i>et al.</i>, 2005) A 2008 meta-analysis showed that operative delay beyond 48 hours negatively impacted mortality. (Shiga <i>et al.</i>, 2008)</p> <p>Because in-hospital mortality after hip fracture gives direct information about outcomes and indirectly about the technical quality of care, it is first considered as an indicator of in hospital safety, and secondly as an indicator of quality-effectiveness of care.</p>
Data source	RCM/MKG
Results source	FPS Health, Food Chain Safety and Environment (multidimensional feedback to hospitals) (FPS Health Food Chain Safety and Environment, 2008)
Technical definitions	<p>Denominator:</p> <p>ICD9-CM 820 (fracture of neck of femur), excluding :</p> <ul style="list-style-type: none">• Stays of patients <18 years• MDC 14 Pregnancy, childbirth & the puerperium• MDC 15 Newborns & other neonates• Transfer to other acute hospital• Surgical day cases or long-term stays (more than 6 months)• Polytrauma• Hospitals admitting <80 persons with a hip fracture (this arbitrary exclusion was not applied for the global rate but for the analysis of the hospital variation only. It was applied to ensure statistical stability, a good chart visualization and identify areas sufficiently large for future actions)
International comparability	Important differences exist between the FPS definition and the AHRQ definition. In the AHRQ definition, patients aged 65 or more only are included against patient aged 18 or more in Belgium. MDC15 (Newborns & other neonates), surgical day cases, long stays and polytrauma are included by the AHRQ and finally AHRQ excludes periprosthetic fractures.
Performance dimensions	Quality - Safety; effectiveness



Key words Hospital (acute care); Curative

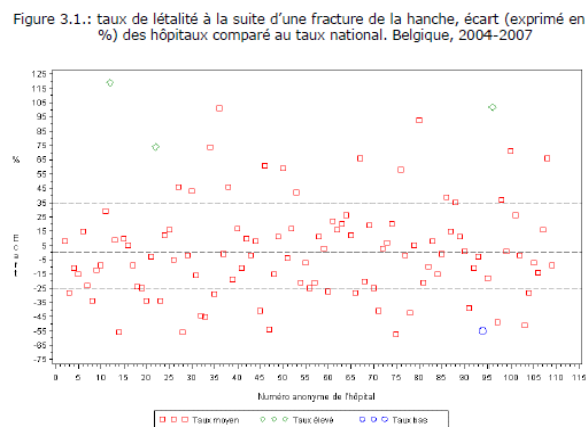
Source AHRQ. (AHRQ, 2011b)

6.5.2. Results

6.5.2.1. Belgium

The in-hospital mortality rate after a hip fracture was 6.3% in Belgium between 2004 and 2007 (source: FPS Health, Food Chain Safety and Environment (multidimensional feedback to hospitals) (FPS Health Food Chain Safety and Environment, 2008)). Variability of in hospital mortality between hospitals is illustrated in Figure 49.

Figure 49 – In-hospital mortality after hip fracture: variability between hospitals (pooled 2004-2007)



Source: FPS Public Health

6.5.2.2. International comparison

The rate measured in 2008 by the AHRQ was 2.98 % (risk-adjusted 2.71 %).

Key Points In-hospital mortality after hip fracture

- The in-hospital mortality rate after a hip fracture was 6.3% in Belgium between 2004 and 2007, with large variability between hospitals. More data are needed on trends over time
- Few data are available for benchmarking at international level, however results are much higher than in the US.



6.6. Prescription of anti-cholinergic anti-depressant drugs among the elderly

6.6.1. Documentation sheet

Description			% of persons age 65+ years prescribed antidepressants using an anticholinergic anti-depressant drug
Numerator			Number of persons aged 65+ prescribed an anti-cholinergic anti-depressant drug
Denominator			Number of persons aged 65+ prescribed anti-depressants
Rationale			While elderly individuals can be treated effectively with antidepressant medications, they are at greater risk of adverse drug reactions due to the physiological changes associated with the aging process. In particular, anti-depressants with strong anti-cholinergic effects (e.g., imipramine, amitriptyline and doxepin) are not recommended for ongoing use in the elderly as they can cause orthostatic hypotension, sedation and confusion. Use of these agents has been associated with high rates of adverse effects, including falls, among elderly patients. The health system has considerable influence over this indicator, as it is treatment-based. The appropriateness of prescribing behaviours by clinicians within the health system can be increased through education and training and the use of guidelines.(Hermann and Mattke, 2004, OECD, 2011a)
Data source			Farmanet; INAMI
Technical limitations	definitions	and	<p>Farmanet does not include hospital pharmacies</p> <p>The medications studied are classified in the following ATC classes (level 3 or 4):</p> <ul style="list-style-type: none">• Anti-depressant: N06A• Anti-cholinergic anti-depressant : DESIPRAMINE (N06AA01);IMIPRAMINE (N06AA02); IMIPRAMINE OXIDE (N06AA03); CLOMIPRAMINE (N06AA04);TRIMIPRAMINE (N06AA06); AMITRIPTYLINE (N06AA09);NORTRIPTYLINE (N06AA10) PROTRIPTYLINE (N06AA11);DOXEPINE (N06AA12); DOSULEPINE (N06AA16); MOXAPINE (N06AA17).• The following drugs are not available in Belgium: N06AA01 DESIPRAMINE; N06AA03 IMIPRAMINE OXIDE ; N06AA06 TRIMIPRAMINE; N06AA11 PROTRIPTYLINE; N06AA17 AMOXAPINE
International comparability			<p>Included in set that is proposed by the OECD (not yet implemented).</p> <p>An OECD-survey(Armesto <i>et al.</i>, 2008) about information availability survey found that of the 18 countries where information availability for measuring and comparing quality of mental health care was assessed, 9 could provide this indicator. However, there is no consensus about an operational definition and data are not yet benchmarked. In one study about prescription behaviour in primary care highly anticholinergic drugs were defined as AMITRIPTYLINE (N06AA09); CLOMIPRAMINE (N06AA04); DOXEPINE (N06AA12); IMIPRAMINE (N06AA02); Maprotiline (polycyclic derivate) (van Eijk <i>et al.</i>, 2001). Another study labelled anticholinergic antidepressants as AMITRIPTYLINE (N06AA09); IMIPRAMINE (N06AA02); DOXEPINE (N06AA12); TRIMIPRAMINE (N06AA06); NORTRIPTYLINE</p>



	(N06AA10); PROTRIPTYLINE (N06AA11); AMOXAPINE (N06AA17); Maprotiline (polycyclic derivate) CLOMIPRAMINE (N06AA04). (Mintzer and Burns, 2000)
Dimension	Quality –appropriateness ; safety
Keywords	Mental health
References	OECD(Hermann and Mattke, 2004, OECD, 2011a)

6.6.2. Results

Table 31 – Percentage of patients (aged 65 years or older) prescribed antidepressant using anticholinergic antidepressant drugs (2007-2011)

Data	annee														
	Sum of patients (>=65y) N06A					Number of patients (>=65y) N06AA					%of patients with N06AA (>=65y)				
REG FR	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Bruxelles-Capitale	39 165	40 418	40 393	40 582	40 240	4 063	4 052	4 031	4 186	3 904	10%	10%	10%	10%	10%
Flandre	223 190	235 469	239 945	245 191	247 789	37 152	39 036	39 635	40 637	40 295	17%	17%	17%	17%	16%
Wallonie	167 906	174 774	175 265	176 850	177 890	18 925	19 445	18 859	18 777	18 081	11%	11%	11%	11%	10%
Belgium	430 261	450 661	455 603	462 623	465 919	60 140	62 533	62 525	63 600	62 280	14%	14%	14%	14%	13%

Source: Source: Farmanet

Benchmarking Belgian results with results presented in international papers is difficult due to differences in operational definitions. In the study of van Eijk et al. (2000), for instance, the prevalence of the prescription of anticholinergic drugs among elderly >69 years) was 4.13% and 3.68% in 1994 and 1995 respectively. However, the operational definition used by these authors was different than the definition used for the current report. (van Eijk *et al.*, 2000)

Key Points Anti-cholinergic anti-depressant drugs among the elderly

- During the last 5 years the prescription of anti-depressants known for their anti-cholinergic side-effects for elderly (≥65 years) is stable (13-14%). The percentages are higher in Flanders (16-17%) compared to Wallonia (13-14%) and Brussels (10%).



7. INDICATORS ON CONTINUITY OF CARE (A SUBDIMENSION OF QUALITY)

7.1. Coverage of global medical record in the population

7.1.1. Documentation sheet

Description	Percentage of persons who have a global medical dossier (GMD)
Calculation	Numerator: number of insured persons with a global medical dossier Denominator: all insured persons
Rationale	Since 2001, the global medical file (GMD) is implemented in Belgium, where a patient can ask a unique general practitioner to manage his/her medical information. By leaving the coordination of medical care to one central person, e.g. the general practitioner, the quality of care is expected to increase. Referral to and communication with other care providers could become more efficient, and double investigations or contrasting treatments could be avoided.
Data source	NIHDI (fichier N)
Results source	GP's performance report (NIHDI, 2012b)
Technical definitions and limitations	NIHDI billing codes: 102771, 102793. This system was used as a proxy to calculate the present indicator.
International comparability	Limited (specific to the Belgian system)
Performance dimension	Quality (continuity); Quality (effectiveness); Efficiency
Keywords	GP
Related indicators	DMG+ coverage and type of contacts



7.1.2. Results

In 2002, the percentage of persons with a GMD was 20% (Vlayen *et al.*, 2010), and reached 46% in 2009. This percentage is higher for the elderly (78% coverage for the 75+), and for persons entitled to increased reimbursement (non BIM 44%, BIM 54%)

Table 32 – Percentage of insured population with a Global Medical Record, by age and sex (2006-2009)

Couverture DMG / assure	2006	2007	2008	2009
Par sexe				
F	39%	42%	47%	50%
M	32%	34%	40%	42%
par classe d'âge				
0-14	21%	23%	27%	30%
15-29	24%	27%	32%	35%
30-44	27%	29%	35%	38%
45-59	37%	39%	46%	49%
60-74	56%	58%	63%	65%
75+	69%	71%	76%	78%

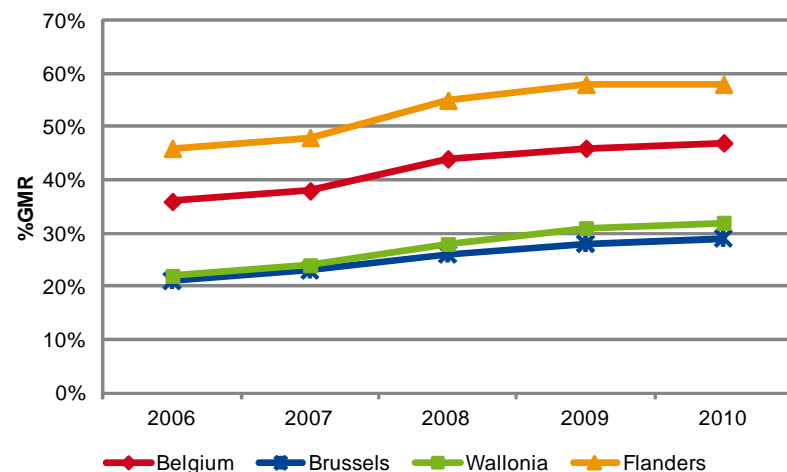


Couverture DMG / assuré	2006	2007	2008	2009
par type d'assuré				
non BIM	34%	36%	42%	44%
actif (non BIM)	28%	30%	36%	39%
salariés (a,nbim)	31%	34%	37%	40%
indépendants (a,nbim)	0%	0%	30%	31%
VIPO (non BIM)	59%	60%	63%	66%
salariés (vipo,nbim)	61%	63%	65%	67%
indépendants (vipo,nbim)	20%	23%	40%	61%
BIM	48%	50%	53%	54%
actif (BIM)	33%	35%	39%	40%
salariés (a,bim)	33%	35%	39%	40%
indépendants (a,bim)	5%	4%	34%	30%
VIPO (BIM)	55%	58%	63%	65%
salariés (vipo,bim)	57%	60%	62%	64%
indépendants (vipo,bim)	40%	45%	68%	71%
Total	36%	38%	43%	46%



Il est rassurant de constater que le % d'assurés abonnés chez un généraliste est en croissance identique et constante quelle que soit la région.

Figure 50 – Percentage of insured population with a global medical record, by region (2006-2009)



Source: RIZIV – INAMI

Key Points Patient registration with a GP

- In 2002, the percentage of persons with a GMD was 20%. It reached 46% in 2009. This percentage is higher for the elderly and for persons entitled to increased reimbursement.
- Differences are large between regions (Flanders 58% in 2009, Wallonia 31%, Brussels 28%), but the evolution over time shows increasing trends overall.



7.2. Consultation of GP for elderly patient after discharge of hospital

7.2.1. Documentation sheet

Description	Percentage of hospital discharge followed with a GP's encounter within a 6-weeks period for senior patients (65+)
Calculation	<p>Numerator: Number of hospitalizations for elderly patients (65+) with at least one GP's encounter within the 6-weeks following the hospital discharge</p> <p>Denominator: Number of hospitalisations for elderly patients (65+), alive 6 weeks after discharge and without new hospital admission in the 6 weeks following the discharge.</p>
Rationale	Being discharged from hospital is a pivotal moment in the care of an older person. As says the Commission on Dignity in Care for Older people (NHS Confederation, the Local Government, Association and Age UK), the objective of discharge is not simply to get the person out of hospital, but to ensure seamless clinical, physical and emotional support and the best possible return to their home or care home (Commission on Dignity in Care for Older People, 2012). Recently, this Commission suggests that GP arrange for a follow-up assessment around 6 weeks after an older person has been discharged from hospital (to check whether care arrangements put in place when the patient was discharged are still appropriate).
Data source	EPS
Technical definitions	<p>Nomenclature numbers for GPs' encounters : 101010, 101032, 101076, 103110, 103132, 103213, 103235, 103316, 103331, 103353, 103412, 103434, 103515, 103530, 103552, 103913, 103935, 103950, 104112, 104134, 104156, 104355, 104370, 104650, 104672</p> <p>Nomenclature numbers for hospital stays: 760502, 760524, 760642, 768003, 768025, 768040, 768062, 768084, 768106, 768121, 768143, 768165, 768180, 768202, 768224, 768246, 768261, 768283, 768305, 768320, 768342, 761106, 761246, 761342, 761364, 761401</p> <p>Exclusion of :</p> <ul style="list-style-type: none">- stays with a length lower than 24 hours (minimum length of stay)- stays followed, within 6-week after discharge, by death or re-hospitalization- stays which are still ongoing for the period of investigation- stays begun prior to the first day of the first studied year- stays in patients not aged 65 years or + in the year of the hospital discharge
International comparability	This is not an international indicator.
Dimensions	Continuity (Management/Coordination);
Keywords	Link hospital-GP; Curative; Generic



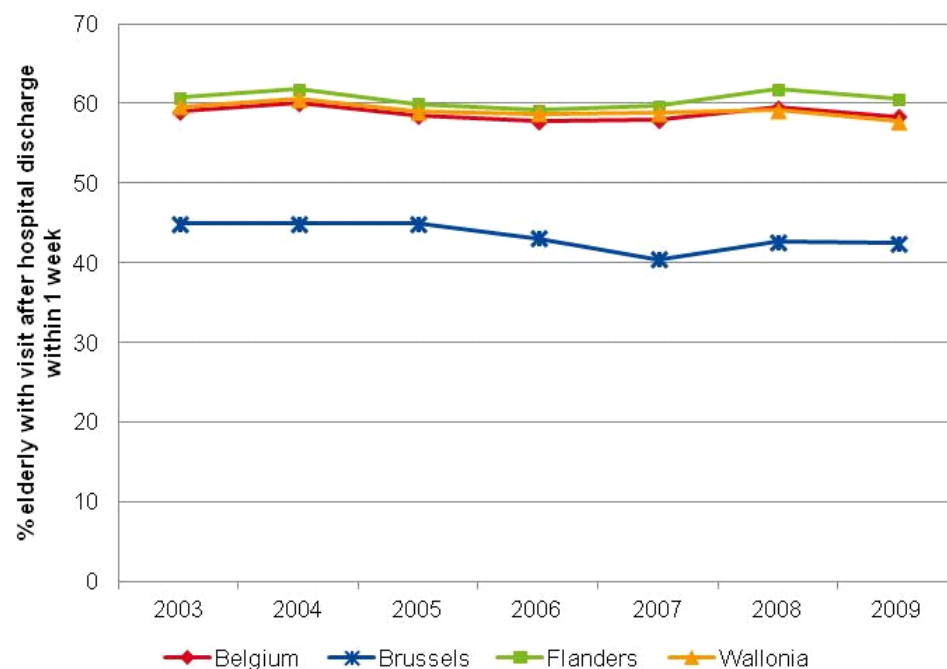
Related indicators	None
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References	Source of indicator: (Commission on Dignity in Care for Older People, 2012)
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7.2.2. Results

As hospitalisation discharge is a pivotal moment in the care of an older person, a GP's encounter in the 6 weeks following discharge is advised in UK.(Commission on Dignity in Care for Older People, 2012) We have adapted the definition to one week, which is more relevant in Belgium. A majority of elderly (58%) have at least one contact with a GP in the week after a discharge from the hospital. In the Brussels region, this percentage is lower (42.5). This result is an indication of continuity of care between the hospitals and the first line, even if we do not know if the GP's encounter followed a discharge plan from the hospital or from the patient's own initiative.

Figure 51 – Percentage of hospitalizations for the elderly (aged 65 years or older) followed by a contact with a GP within 1 week after discharge, by region (2003-2009)



Source: IMA- EPS, KCE calculation



7.3. Usual provider continuity index

7.3.1. Documentation sheet

Description	Proportion of encounters that were conducted by the GP consulted most frequently: Usual provider continuity (UPC) index.
Calculation	Numerator : Number of encounters to the usual GP during 2 years Denominator : Total of encounters to GPs during the same period.
Rationale	Longitudinal relationship between physician and patient is acknowledged to encourage communication, improve satisfaction, medication compliance, and behavioural problems, stimulate receipt of preventive services and decrease hospitalisations and emergency department visits for patients with chronic disease (Cabana and Jee, 2004). There are several measures of longitudinal continuity with UPC as one of the most common index use. The advantage of this indicator is its easy interpretation.
International comparability	Nothing in OECD, OMS, ECHI and Eurostat
Data source	EPS
Technical definitions	<p>Nomenclature numbers for GPs' encounters (office and home visits, out-of-hour visits excluded) : 101010, 101032, 101076, 103110, 103132, 103213, 103235, 103316, 103331, 103353, 103412, 103434, 103515, 103530, 103552, 103913, 103935, 103950, 104112, 104134, 104156, 104355, 104370, 104650, 104672.</p> <p>Usual GP: the GP seen most frequently or the more recent one if 2 GPs were seen at the same frequency during the period.</p> <p>Period: Two year ; one year may be inadequate because patients who had not seen a doctor at all during the year were assigned to a separate "no visits" category and were not used in the calculation of mean or median UPC scores.</p> <p>Category "low" continuity if $UPC \leq 0.5$; "high" continuity if $UPC > 0.75$</p> <p>Exclusion of:</p> <ul style="list-style-type: none">- patients with <3 encounters with GP during the period of 2 years.
Limitations	problem with group practices because a growing number of patients are served by different GPs in one practice or cooperation of GPs and we can't identify the GPs belonging to the same practice
Related indicators	Global Medical Dossier
Dimensions	Continuity (Longitudinal);
Keyword	General practitioner; Generic
References	(Cabana and Jee, 2004, De Maeseneer <i>et al.</i> , 2003, Jee and Cabana, 2006, Reid <i>et al.</i> , 2002, Salisbury <i>et al.</i> , 2009, Saultz, 2003, Saultz and Lochner, 2005, van Walraven <i>et al.</i> , 2010)



7.3.2. Results

Near one half of the total population have exclusive encounters with the same GP during 2 years and less than 10% have an UPC <0.5. The age group of 65-84 years has the higher proportion of UPC=1 (55.9%). Differences were found for the sex, the major coverage and the region.

Table 33 – Number and Percentage of individuals by Usual Provider Continuity (UPC) category (2003-2010)

Variable		UPC category					Total
		<0.25	[0.25-0.5[[0.5-0.75[[0.75-1[1	
Period	2003-2004	219 0.13	9351 5.48	38192 22.39	49276 28.89	73530 43.11	170568
	2005-2006	217 0.13	9772 5.72	38830 22.72	49348 28.88	72733 42.56	170900
	2007-2008	182 0.10	9815 5.42	40594 22.43	50305 27.80	80068 44.25	180964
	2009-2010	202 0.11	10327 5.51	42729 22.81	51768 27.64	82289 43.93	187315
Overall (Period 2009-2010)		202 0.11	10327 5.51	42729 22.81	51768 27.64	82289 43.93	187315
Sex (Period 2009-2010)	Male	83 0.10	4509 5.33	19007 22.49	22240 26.31	38680 45.76	84519
	Female	119 0.12	5818 5.66	23722 23.08	29528 28.72	43609 42.42	102796
Age category (Period 2009-2010)	00-19	67 0.21	2824 8.68	10177 31.30	7854 24.15	11595 35.66	32517
	20-34	84 0.27	3173 10.32	9754 31.73	7973 25.94	9752 31.73	30736
	35-64	45 0.06	3522 4.50	16977 21.70	21353 27.30	36327 46.44	78224
	65-84	6 0.02	700 1.83	4964 12.97	11538 30.14	21077 55.05	38285



	≥ 85	0 0.00	108 1.43	857 11.35	3050 40.38	3538 46.84	7553
Major Coverage (Period 2009-2010)	No	169 0.11	8870 5.76	36438 23.66	41445 26.92	67053 43.55	153975
	Yes	33 0.10	1443 4.35	6245 18.84	10289 31.04	15139 45.67	33149
Region (Period 2009-2010)	Brussels	45 0.35	1044 8.18	3266 25.60	3243 25.42	5159 40.44	12757
	Flemish Region	123 0.11	6698 5.77	27121 23.35	32245 27.76	49975 43.02	116162
	Walloon Region	34 0.06	2584 4.43	12339 21.14	16276 27.88	27148 46.50	58381

Source EPS

Key points Usual Provider Continuity index for GP

- Near one half of the total population have exclusive encounters with the same GP during 2 year. This is particularly high (55%) in the age group 65-84 years.
- Even in patients with 7 or more encounters with GPs during 2 years, the UPC is high (>0.75 in near 70% except among the <35 years old).
- A slight difference is noted between the 3 regions with a greater proportion of patients having high UPC (>0.75) in Wallon re gion (74%) and a smaller in Brussels (66%).



7.4. Cancer patients discussed at the multidisciplinary team meeting

7.4.1. Documentation sheet

Description	Proportion of cancer patients discussed at the multidisciplinary meeting
Calculation	Numerator: Number of persons with cancer diagnosed in a given year discussed at the multidisciplinary meeting Denominator: Number of persons with cancer diagnosed in a given year
International comparability	No data are readily available from other countries. Data on multidisciplinary discussion are only sporadically published. Nevertheless, EUSOMA recently recommended a target value of 90% for the multidisciplinary discussion of women with breast cancer.
Data source	BCR Cancer centre: evaluation of National Cancer Plan
(Periodicity)	Yearly
Technical definitions and limitations	Specific nomenclature codes are available for the multidisciplinary meeting, which were created in February 2003. In 2010, additional codes were created. The following nomenclature codes are used to calculate this indicator: 350372-350383, 350394-350405, 350416-350420, 350276-350280, 350291-350302.
Rationale	Multidisciplinary team meetings (MDT) have been implemented in many countries as the predominant model of cancer care to ensure that all patients receive timely diagnosis and treatment, that patient management is evidence-based, and that there is continuity of care (Patkar 2011). In all cancer guidelines developed by the KCE and College of Oncology, multidisciplinary discussion is recommended to decide on the diagnostic, staging and treatment plan of cancer patients.
Dimensions	Quality Continuity; Curative; Acute & chronic care
Related performance indicators	Cancer 5-year survival rate, by stage (breast, cervix, colon)
References	KCE guidelines (Cardoso <i>et al.</i> , 2012, Peeters <i>et al.</i> , 2006, Vergote <i>et al.</i> , 2011) EUSOMA (EUSOMA (European Society for breast cancer specialists), 2010) Evaluatie van het Kankerplan 2008-2010 (Van Hoof <i>et al.</i> , 2012)



7.4.2. Results

7.4.2.1. National results

Since the introduction of specific nomenclature codes for the multidisciplinary oncology meeting (MOC – COM) in 2003, a clear increase of its use is noticed for all cancer types (Table 4). In general, about 69% of cancer patients were discussed at the MOC – COM in 2008. Cancer types for which the MOC – COM seems to be clearly adopted are breast cancer and the cancers of the female genital organs (Table 4 and Table 5), with a bout 84% of patients with breast cancer being discussed at the MOC – COM in 2008. In contrast, only about half of the patients with a malignant melanoma of the skin were discussed at the MOC – COM in 2008.

Table 34 – Percentage of patients discussed at cancer multidisciplinary team meeting (MOC – COM) for selection of frequent cancer types (2005-2008)

Localisation	2005			2006			2007			2008		
	N of Patients	N of MOC	% MOC	N of Patients	N of MOC	% MOC	N of Patients	N of MOC	% MOC	N of Patients	N of MOC	% MOC
C15 Oesophagus	869	512	58,9	889	536	60,3	907	586	64,6	859	624	72,6
C16 Stomach	1.370	713	52,0	1.362	787	57,8	1.287	822	63,9	1.254	807	64,4
C18 Colon	4.938	2.870	58,1	5.016	3.035	60,5	5.050	3.285	65,0	5.290	3.793	71,7
C20 Rectum	2.082	1.349	64,8	2.256	1.465	64,9	2.277	1.612	70,8	2.318	1.771	76,4
C25 Pancreas	1.058	602	56,9	1.166	691	59,3	1.159	799	68,9	1.132	825	72,9
C32 Larynx	623	335	53,8	602	323	53,7	684	443	64,8	656	469	71,5
C34 Bronchus and lung	6.857	4.101	59,8	6.923	4.366	63,1	7.133	4.834	67,8	7.013	5.176	73,8
C43 Malignant melanoma of skin	1.562	412	26,4	1.564	476	30,4	1.580	586	37,1	1.770	889	50,2
C50 Breast	9.644	7.093	73,5	9.794	7.622	77,8	9.896	8.073	81,6	9.906	8.362	84,4
C53 Cervix uteri	638	394	61,8	596	385	64,6	675	462	68,4	621	458	73,8
C54 Corpus uteri	1.341	803	59,9	1.305	833	63,8	1.355	936	69,1	1.418	1.065	75,1
C56 Ovary	912	594	65,1	895	641	71,6	887	650	73,3	854	687	80,4
C61 Prostate	9.416	3.919	41,6	9.057	4.285	47,3	8.608	4.562	53,0	8.499	4.960	58,4
C64 Kidney	1.285	650	50,6	1.304	695	53,3	1.322	751	56,8	1.379	891	64,6
C67 Bladder	1.993	845	42,4	1.934	928	48,0	2.029	1.058	52,1	2.084	1.277	61,3
C71 Brain	707	327	46,3	698	323	46,3	720	355	49,3	739	445	60,2
C73 Thyroid gland	673	190	28,2	670	254	37,9	686	270	39,4	731	374	51,2



Localisation	2005			2006			2007			2008		
	N of Patients	N of MOC	% MOC	N of Patients	N of MOC	% MOC	N of Patients	N of MOC	% MOC	N of Patients	N of MOC	% MOC
C82-85 Non-Hodgkin's lymphoma	1.813	781	43,1	1.897	878	46,3	1.917	967	50,4	1.927	1.128	58,5
C90 Multiple myeloma	662	290	43,8	679	313	46,1	724	356	49,2	685	386	56,4
C91 Lymphoid leukaemia	659	335	50,8	612	345	56,4	645	394	61,1	696	473	68,0
C92 Myeloid leukaemia	560	254	45,4	490	210	42,9	590	288	48,8	571	361	63,2
Total, excl.non-melanoma	57.054	31.024	54,4	56.989	33.154	58,2	57.667	36.316	63,0	58.393	40.192	68,8

Source: Belgian Cancer Registry

Table 35 – Percentage of patients discussed at cancer multidisciplinary team meeting (MOC – COM) per tumour group (2007-2008)

Localisation	2007			2008		
	N	N of MOC	% MOC	N	N of MOC	% MOC
Head & neck	2.458	1.636	66,6	2.439	1765	72,4
Digestive organs	12.083	7.962	65,9	12.391	8.869	71,6
Respiratory organs	7.202	4.873	67,7	7.065	5.211	73,8
Bones, articular cartilage, soft tissue & Kaposi Sarcoma	619	311	50,2	626	320	51,1
Malignant melanoma	1.580	586	37,1	1770	889	50,2
Mesothelioma	240	150	62,5	254	192	75,6
Breast	9.896	8.073	81,6	9.906	8.362	84,4
Female genital organs	3.180	2.242	70,5	3.166	2.419	76,4
Prostate	8.608	4.562	53,0	8.499	4.960	58,4
Other male genital organs	380	240	63,2	388	271	69,8
Urinary tract	3.673	2.003	54,5	3.789	2.376	62,7
Eye & central nervous system	857	405	47,3	868	513	59,1
Thyroid & other endocrine glands	734	292	39,8	781	408	52,2



Localisation	2007			2008		
	N	N of MOC	% MOC	N	N of MOC	% MOC
Hematologic tumours (incl MDS,MPD)	5.113	2.619	51,2	5.276	3.156	59,8
Unknown primary and ill defined sites	1.080	369	34,2	1215	493	40,6
All tumours, excl. non-melanoma	57.667	36.316	63,0	58.393	40.192	68,8

Source: Belgian Cancer Registry

7.4.2.2. Regional comparison

Clear regional differences are found in the use of the MOC – COM (see Table 36). Although an increasing use is noticed for all three regions, cancer patients are more frequently discussed at the MOC – COM in Flanders (74% in 2008), followed by the Walloon Region (63% in 2008) and the Brussels Capital Region (56% in 2008).

Table 36 – Percentage of patients discussed at cancer multidisciplinary team meeting (MOC – COM), per region (2005-2008)

Region	2005			2006			2007			2008		
	N of Patients	N of MOC	% MOC	N of Patients	N of MOC	% MOC	N of Patients	N of MOC	% MOC	N of Patients	N of MOC	% MOC
Belgium	57.054	31.024	54,4	56.989	33.154	58,2	57.667	36.316	63,0	58.393	40.192	68,8
Brussels Capital Region	4.769	2.020	42,4	4.708	2.236	47,5	4.650	2.306	49,6	4.747	2.644	55,7
Flemish Region	33.915	20.616	60,8	34.377	22.119	64,3	34.983	23.920	68,4	35.288	26.043	73,8
Walloon Region	18.370	8.388	45,7	17.904	8.799	49,1	18.034	10.090	55,9	18.358	11.505	62,7

Source: Belgian Cancer Registry

Key Points Cancer patients discussed at the multidisciplinary team

- Since the introduction of specific nomenclature codes for the multidisciplinary oncology meeting (MOC – COM) in 2003, a clear increase of its use is noticed for all cancer types. Overall, about 69% of cancer patients were discussed at the MOC – COM in 2008, with large variations between types of cancer (89% breast cancer).
- Although an increasing use is noticed for all three regions, cancer patients are more frequently discussed at the MOC – COM in Flanders (74% in 2008), followed by the Walloon Region (63% in 2008) and the Brussels Capital Region (56% in 2008).
- No data are currently available on differences by socio economic groups.



7.5. Contacts with GP for palliative patients during 3 last months of life

7.5.1. Documentation sheet

Description	Number of contacts between the GP and the palliative patient during the 3 last months of his/her life
Calculation	Numerator: Number of contacts between the palliative patients and the GP during the 3 last months of life, by year. Denominator: Number of palliative patients, by year
Rationale	<p>With the regulation of palliative care services in the residence of the patient (at home or in nursing homes/ homes for the elderly) a more prominent role of the GP is needed for the coordination of services. This is thus an indicator of the continuity of care.</p> <p>Home care services for the palliative patient, in which the number of contacts between GP and palliative patients is part of, could also decrease the admissions in hospitals in the last three months of life.</p> <p>The results of cross-sectional surveys in a KCE-study on the organisation of palliative care in Belgium (Keirse <i>et al.</i>, 2009), show that GPs take care for 8000 to 13 000 palliative patients, of which approximately 5500 patients stay in a care home and 3000 patients in a hospital. However, the estimations of these numbers cannot be generalized due to the frequent transfers of the patients between the different care settings.</p>
Data source	<p>No data currently</p> <p>IMA will present early 2013 a study on the quality of end of life care (including palliative patients and patients dying from cancer).</p>
Technical definitions and limitations	<p>It is not currently possible to identify all palliative patients in administrative databases or in registries. These specific populations can however be identified:</p> <ul style="list-style-type: none"> • Palliative patients at home can be identified by their lump sum for home palliative care (nomenclature 740213) • Palliative patients hospitalized in specific palliative units (Sp) can be identified based on the nomenclature specific to SP services (see data section). • All patients diagnosed with cancer can be identified via the Belgian cancer registry
International comparability	This is not an international indicator
Dimensions	Quality (Continuity of care)
Keywords	End-of-life care; GP
Related indicators	Hospitalisations during the last three months of life for palliative patients
References	Report Christian Mutualities: contacts with GPs (Gielen <i>et al.</i> , 2008, Gielen <i>et al.</i> , 2010)



Meeusen et al, 2011 (Meeussen K. *et al.*, 2011b)

Abarshi et al, 2011 (Abarshi *et al.*, 2011)

KCE-report "organisation of palliative care in Belgium"(Keirse *et al.*, 2009)

7.5.2. Results

In the study of the Christian Sickness Funds (n= 40 965 CM-members, older than 40 years, died between July 2005 and June 2006) (Gielen *et al.*, 2008, Gielen *et al.*, 2010) the majority of the patients (72%) who died at home, were at least once visited by the GP in the last week of life. This percentage is even higher in the care homes: 91% of the patients had a contact with the GP.

Meeussen et al (Meeussen K. *et al.*, 2011b) compared the number of GP visits and the characteristics of communication processes in a cancer population (n=422) in Belgium and in the Netherlands. During the three last months of life, 38% of the Belgian and 56% of the Dutch patients had more than 8 contacts with their GP (p=0.001). During the last week, 71% of the Belgian and 87% of the Dutch patients had one or more contacts with their GP (p=.001) and the treatment changed from curative and/or prolonging life to palliation (in 94% of the Belgian patients and in 91% of the Dutch patients (p=.372)). Even after adjustment for differences in patient characteristics, the number of GP visits remained significantly higher in the last week of life in the Netherlands, compared to Belgium (OR 0.48). Before the last of month of life, primary diagnosis, incurability of the illness and physical symptoms were most frequently discussed whereas the spiritual issues were the least discussed with their GP. During the last month of life none of the end-of-life care issues were more discussed than by more than half of the Belgian patients in contrast to the Dutch patients who discussed all issues and most frequently about life expectation, options for palliative care and physical problems (spiritual issues were the least discussed). This significant difference (p<0.01) remained significant after adjusting for patient characteristics and number of contacts during last month of life. The differences between both countries can be partly explained by the differences in medical culture but in both countries more physical and psychological issues were discussed with the GP. The

discussions on the options for palliative care were mostly discussed during the last month of life, despite the emphasis of the palliative care services on early communication and advanced care planning.

Abarshi et al (Abarshi *et al.*, 2011) compared the use of palliative care services in Belgium and in the Netherlands (n= 543 patients) and found an increased number of visits by the GP at home in the Netherlands (78% versus 41% at home, 39% versus 5% in care homes) (p<0.05). The use of palliative care services in the last three months of life is higher in Belgium than in the Netherlands (78% versus 41% at home and 39% versus 5% in care homes). These differences between both countries can be due to the more hospital-based initiatives in Belgium and the higher involvement of the GP in the home-based services in the Netherlands.

Key Points Contacts with GP for palliative patients during 3 last months of life

- **There are currently no national data over the contacts with GPs during end of life of palliative patients**
- **In a study on CM members, 72% of the palliative patients who died at home had a contact with a GP during the last week of their life**
- **Several studies have compared the situation of end of life patients in Belgium to The Netherlands. In general, they show a higher number of contacts between palliative patients and their GP in The Netherlands than in Belgium.**
- **More data are needed on the trends over time and geographical variability to draw conclusions.**



7.6. Hospital re-admissions for mental disorders

7.6.1. Documentation sheet

Description	The number of re-admissions per 100 patients with a diagnosis of (a) schizophrenia or (b) bipolar disorder
Calculation	<p>Numerator: Re-admissions (i.e. each hospital stay) for any mental disorder to the same hospital within 30 days of discharge</p> <p>Denominator: all patients (i.e. hospital stay for the first admission) with at least one admission during the year for the condition (a. Schizophrenia; b. bipolar disorders) as principal diagnosis or as one of the first two listed secondary diagnosis.</p>
Rationale	<p>Patients with severe mental disorders still receive specialized care at hospitals to stabilize crises or acute symptoms, rather than provide long-term care. Once stabilized, individuals are discharged, and subsequent care and support are ideally provided through outpatient and community programs. This requires that a broad array of services (e.g. assertive community care; follow-up by GP's) in the community is implemented and coordinated. Hospital readmission rates are widely used as proxies for relapse or complications following an inpatient stay for psychiatric and substance use disorders since they indicate premature discharge (sub-optimal discharge planning: follow-up care and support have not been appropriately coordinated before discharge) or lack of continuity of services (e.g. follow-up visits after discharge).</p> <p>There are other aspects of hospital care that may provide clues about successful transitions from hospital to community. They include the length of stay for patients, the time to readmission and whether or not individuals had ED visits before being readmitted .(CIHI, 2011)</p>
Data source	RPM
Technical definitions	<p>A 30-day time frame was chosen in lieu of a longer time frame to increase the probability that the readmission would be related to the previous hospitalization.(CIHI, 2011, OECD, 2011b)</p> <ul style="list-style-type: none"> • Schizophrenia : Codes ICD9 : 295*(1 to 9) • Bipolar disorder : Codes ICD9: 296*(4 to 8) <p>The data should be interpreted with caution since in the denominator the number of patients is counted (a patient can only be counted once: index admission) while in the numerator the number of hospital stay of patients with an index admission for which the previous hospital stay was within a 30-day timeframe are counted (one patient can be counted several times during the year).</p>
Limitation	<p>The absence of unique patient identifiers in many countries does not allow the tracking of patients across hospitals. Rates are therefore biased downwards as re-admissions to a different hospital cannot be observed.</p> <p>Difficulties to distinguish planned from unplanned readmissions.</p>
Dimension	Quality (Safety)
Keyword	Mental health



International comparability	OECD uses age-sex standardization (based on the 2005 OECD population structure) to enhance international comparability. Mental health care systems have been developing new organisational and delivery models over the past few decades. Some countries (e.g. Norway; UK) use community-based “crisis teams” to stabilize patients on an outpatient basis, while other countries, such as Denmark and Finland, use interval care protocols to place unstable patients in hospital for short periods. These developments may also have some implications on re-admission rates and make it more complex to identify those re-admissions that are truly unplanned.(OECD, 2011b)
References	OECD(Hermann and Mattke, 2004, OECD, 2011b); CIHI(CIHI, 2011)

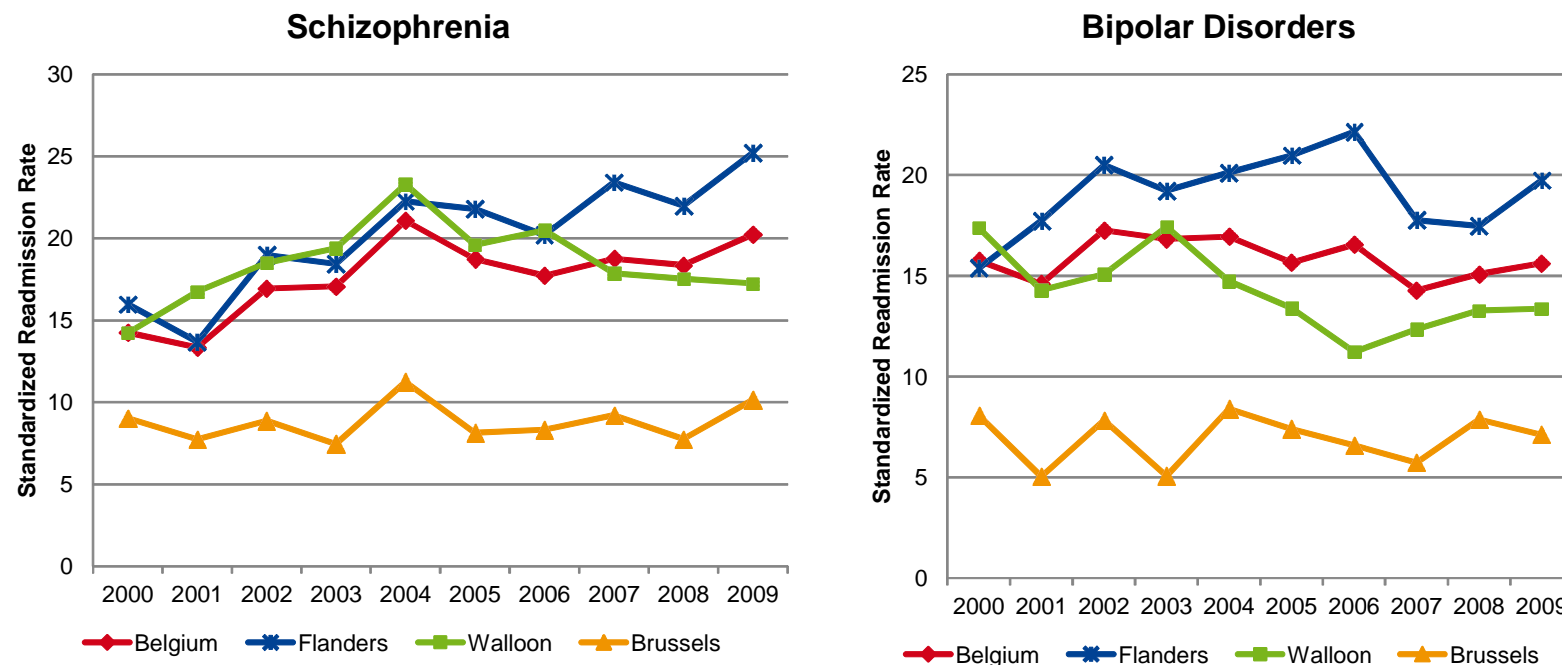
7.6.2. Results

Patients with severe mental disorders still receive specialised care at hospitals but if appropriate and co-ordinated follow-up is provided after discharges, patients are not usually readmitted within 30 days. (OECD, 2011b) However, the recent reforms in mental health (i.e. early discharges, community care) make it more difficult to assess if a readmission is truly unplanned.

7.6.2.1. Belgium

From the following figure it is clear that the number of standardized unplanned readmissions rates (within 30 days) is higher for schizophrenia compared to bipolar disorders. The most recent data (i.e. year 2009) show that 20.24% of all patients with schizophrenia have a readmission within 30 days, for bipolar disorders this is the case for 15.63% of the patients. For both conditions these readmission rates are the highest in Flanders (Schizophrenia 25.2%; Bipolar disorders:19.7%) and lowest in Brussels (Schizophrenia10.2%; Bipolar disorders:7.1%).

For schizophrenia there is an increase since 2000, in particular for Flanders (from 15.98% in 2000 towards 25.23% in 2009). For bipolar disorders the results are stable on the national level. This is mainly due to an increasing trend in Flanders (from 15.37% in 2000 towards 19.74% in 2009) and a decreasing trend in Wallonia (from 17.39% in 2000 towards 13.37% in 2009).

**Figure 52 – Readmissions rates in the same psychiatric hospital for patients initially admitted for Schizophrenia or Bipolar disorders (2000 – 2009)**

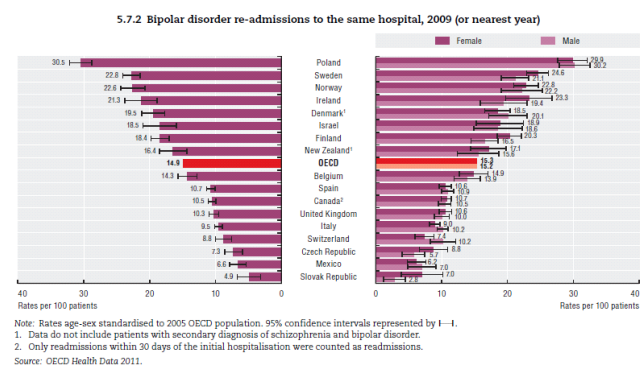
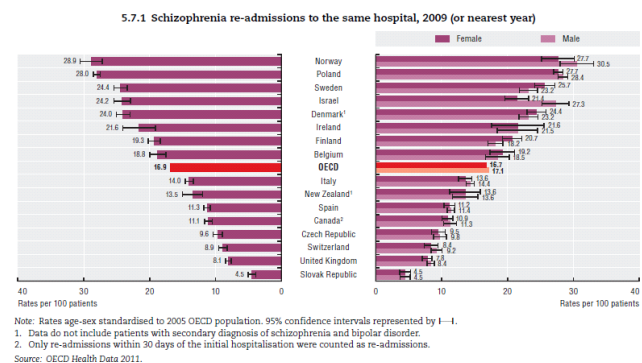
Source: RPM

7.6.2.2. International comparison

The most recent data for Belgium (i.e. year 2007) are published in health at a glance 2011. From it is clear that Belgium is close to the OECD-average (i.e. just above the average for schizophrenia and just below the OECD-average for bipolar disorders).



Figure 53 – Readmissions rates in the same psychiatric hospital for patients initially admitted for Schizophrenia or Bipolar disorders in ternational comparison (2009 or nearest year)



Source OECD Health Data 2012

Key-points hospital re-admissions for mental health disorders

- Re-admissions within the same hospitals are higher for patients with schizophrenia compared to patients with bipolar disorders
- For schizophrenia there is an overall increasing trend (especially in Flanders and Wallonia). For bipolar disorders there is only an increasing trend in Flanders. The readmission rates for patients with bipolar disorders are decreasing in Wallonia.
- Re-admission rates for patients with schizophrenia and bipolar disorders are situated around the OECD-average



8. INDICATORS ON PATIENT CENTEREDNESS (A SUBDIMENSION OF QUALITY)

8.1. Patient satisfaction with healthcare services

8.1.1. Documentation sheet

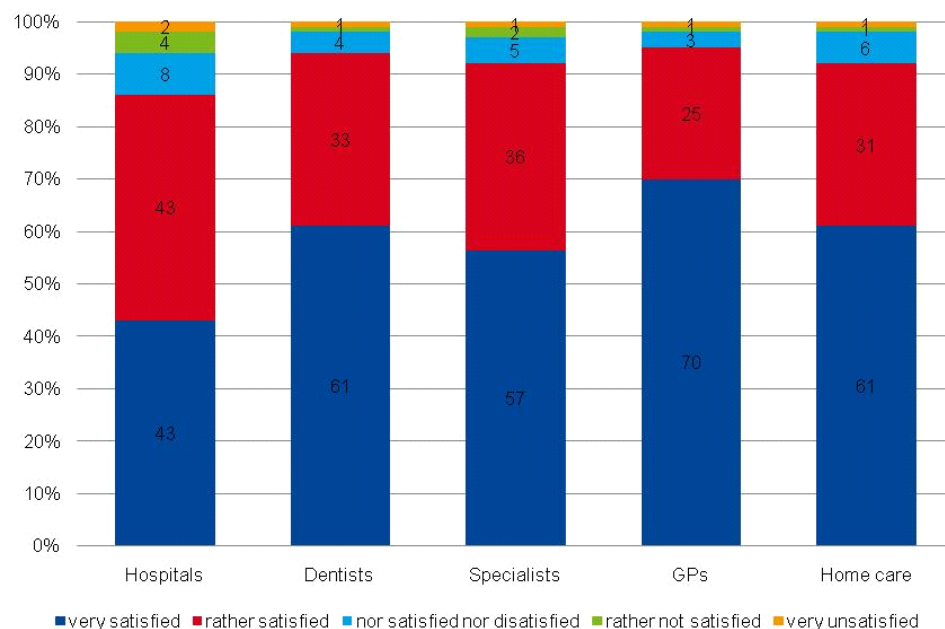
Description	% of population above 15 years old who report to be satisfied with healthcare services		
Calculation	<p>Numerator : population above 15 years old who answer to the HIS and who report to be rather satisfied or very satisfied with health care services</p> <p>Denominator: population above 15 years old who answer to the HIS.</p>		
Rationale	Patient satisfaction is crucial when evaluating quality of care. Patients have often other expectations, wishes and priorities than health care providers. Although patients' satisfaction is only one limited aspect of the patient experience with health care system, it is still a very widely used measure in evaluating patients' care experience. (Davis <i>et al.</i> , 2008, Redman and Lynn, 2005)		
International comparability	European questionnaire EHIS, Eurostat		
Data source	HIS		
Data results	HIS		
Technical definitions and limitations	<p>Item in the HIS 2008=</p> <p>- % population (15 year and over) according to their satisfaction with services provided by :</p> <ul style="list-style-type: none"> • hospitals • dentists, • medical specialists, • general practitioners, • home care services <p>5 categories : Very satisfied / Rather satisfied / Not satisfied and not unsatisfied / Rather unsatisfied / Very unsatisfied.</p> <p>Limitations : memory bias; survey not temporally related to a specific episode of care; relative value of satisfaction (people declare to be unsatisfied only after dramatically negative event); maybe removed in the next HIS.</p>		
Related indicators	Experienced problem with coordination of care/ Perception of communication		
Dimensions	Patient centeredness		

**Keywords**

Outcome satisfaction; Generic

ReferencesReport HIS (Van der Heyden *et al.*, 2010); Eurostat (Eurostat, 2012)**8.1.2. Results**

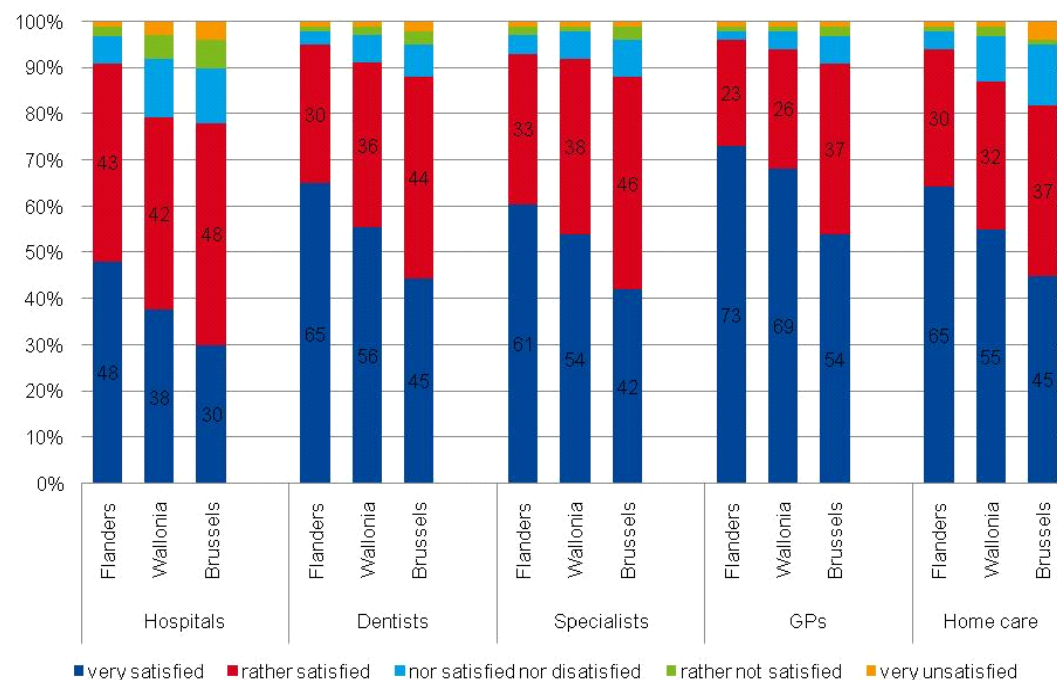
Results from the HIS 2008 showed that patients are in general satisfied with their contact with healthcare system: 95% of population is satisfied or very satisfied with their GP. Results for contacts with dentists, specialists, home care and hospitals are respectively 94%, 92%, 92% and 87%. There are very few (or none) differences between men and women, and limited differences with respect to age. Nevertheless, elderly patients are generally more often satisfied with health care services than young patients. There are also very few or none differences with regard to socio economic status, which is reassuring with regard to the quality of care provided to these groups. Differences are observed with regard to the geographical location of the patient: it is systematically lower in cities than in rural areas. Also, large differences exist between regions, as satisfaction is higher in Flanders than in Brussels and Wallonia. (Van der Heyden *et al.*, 2010)

Figure 54 – Degree of satisfaction with healthcare services, by type of service (2008)

Source: HIS 2008 (Van der Heyden *et al.*, 2010)



Figure 55 – Degree of satisfaction with healthcare services, by type of service and region (2008)



Source: HIS 2008 (Van der Heyden et al., 2010)

Key points satisfaction of patients with healthcare services

- Patients are in general satisfied with their contact with healthcare system: satisfaction level is above 90% for contacts with GP, dentists, specialists, home care services. Only for hospitals does it lower to 87%.
- There are very few (or none) differences between men and women, and limited differences with respect to age. There are also very few or no differences with regard to socio economic status of the patient.
- Large differences are however observed with regard to the geographical location of the patient: satisfaction is systematically lower in cities than in rural areas. Also, large differences exist between regions, as satisfaction is higher always in Flanders than in Wallonia. Lowest satisfaction rates are observed in Brussels.



8.2. Control of pain level for patients hospitalized

8.2.1. Documentation sheet

Description	% adult inpatients who reported how often their pain was controlled
Calculation	Numerator : number of respondents from the denominator who indicated "Always," "Usually," "Sometimes," or "Never" on the two questions regarding their experiences with control of their pain (see the related "Numerator Inclusions/Exclusions" field) Denominator : Hospital inpatients who answered the "Pain Management" questions on the RN4CAST Survey (see below)
Rationale	Pain control or pain assessment is paramount in a patients' perspective. The expert group suggests to change pain control by pain assessment because the control of pain is not always possible. However we could find no data on this topic. Moreover a measurement of pain control that allows valid comparisons across hospitals locally, regionally and nationally was taken by the RN4CAST-project.
International comparability	RN4CAST-project
Data source	RN4CAST-project
Technical definitions and limitations	The RN4CAST-project included a one-off international survey (European countries) of nurses and patients. Sixty Belgian hospitals participated in the patient survey, with 2623 patients surveyed (response rate 2623/3870 or 67.78%)(Aiken <i>et al.</i> , 2012). Among the studied patients outcomes, 3 items were related to the control of pain, using a shortened version of CAHPS survey.(Squires <i>et al.</i> , 2012) Limitations : only in hospital setting; subjective data; only in some participating hospital; only once in the time.
Related indicators	Complaint
Dimensions	Patient centeredness (Acknowledgement of patients needs, wants, preferences, values/ pain management); InstitutionHospital care.
References	(AHRQ)

8.2.2. Results

69% of patients need medicine for pain during their hospital stay and among them 41% declared that their pain was always well controlled and 47% usually well controlled. Less than 2 % said their pain was never controlled. The vast majority of patients considered that the hospital staff do everything they could to help them with their pain (always 71% of patients; usually 23% of patients).


Table 37 – Pain control: Responses to questionnaire: international comparison

Table of countryid by PAT_12					
countryid(Country identifier)	PAT_12(PAT_12. During this hospital stay, did you need medicine for pain?)				
Frequency Row Pct	.	Yes	No	Invalid response	Total
Belgium	125 4.77	1818 69.31	677 25.81	3 0.11	2623
Switzerland	21 2.11	737 73.92	237 23.77	2 0.20	997
Germany	3 1.15	166 63.36	93 35.50	0 0.00	262
Spain	0 0.00	294 62.55	125 26.60	51 10.85	470
Finland	131 6.73	1407 72.27	407 20.90	2 0.10	1947
Greece	34 4.01	409 48.29	394 46.52	10 1.18	847
Ireland	4 1.40	195 68.42	86 30.18	0 0.00	285
Poland	585 14.14	2447 59.16	1096 26.50	8 0.19	4136
Total	903	7473	3115	76	11567

Source: Results from RN4CAST Survey



Table of countryid by PAT_13

countryid(Country identifier)	PAT_13(PAT_13. During this hospital stay, how often was your pain well controlled?)						
Frequency Row Pct	.	Never	Sometimes	Usually	Always	Invalid response	Total
Belgium	25 1.38	26 1.43	170 9.35	851 46.81	746 41.03	0 0.00	1818
Switzerland	12 1.63	5 0.68	34 4.61	118 16.01	391 53.05	177 24.02	737
Germany	1 0.60	1 0.60	5 3.01	69 41.57	90 54.22	0 0.00	166
Spain	0 0.00	9 3.06	28 9.52	99 33.67	154 52.38	4 1.36	294
Finland	42 2.99	16 1.14	169 12.01	615 43.71	561 39.87	4 0.28	1407
Greece	6 1.47	6 1.47	38 9.29	121 29.58	238 58.19	0 0.00	409
Ireland	1 0.51	5 2.56	17 8.72	45 23.08	126 64.62	1 0.51	195
Poland	28 1.14	9 0.37	134 5.48	656 26.81	1616 66.04	4 0.16	2447
Total	115	77	595	2574	3922	190	7473



Table of countryid by PAT_14

countryid(Country identifier)	PAT_14(PAT_14. During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?)						
Frequency Row Pct	.	Never	Sometimes	Usually	Always	Invalid response	Total
Belgium	29 1.60	9 0.50	61 3.36	425 23.38	1294 71.18	0 0.00	1818
Switzerland	6 0.81	0 0.00	21 2.85	87 11.80	444 60.24	179 24.29	737
Germany	1 0.60	1 0.60	5 3.01	38 22.89	121 72.89	0 0.00	166
Spain	0 0.00	1 0.34	25 8.50	73 24.83	193 65.65	2 0.68	294
Finland	45 3.20	8 0.57	72 5.12	355 25.23	926 65.81	1 0.07	1407
Greece	12 2.93	1 0.24	29 7.09	97 23.72	270 66.01	0 0.00	409
Ireland	3 1.54	3 1.54	21 10.77	36 18.46	132 67.69	0 0.00	195
Poland	29 1.19	8 0.33	79 3.23	530 21.66	1797 73.44	4 0.16	2447
Total	125	31	313	1641	5177	186	7473

Key points control of pain for hospitalised patients

- 41% declared that their pain was always well controlled and 47% usually well controlled. Less than 2 % said their pain was never controlled. The vast majority of patients considered that the hospital staff do everything they could to help them with their pain (always 71% of patients; usually 23% of patients).



8.3. Patients dying in their usual place of residence

8.3.1. Documentation sheet

Description	Percentage of patients dying in their usual place of residence (home or institution)
Calculation	Numerator: number of patients dying at home or in institution Denominator: total number of patients dying during a specific year
Rationale	Place of death is considered an important indicator of quality of care. In Belgium: 75% of the population expressed a preference towards natural death, without resuscitation. (Van der Heyden <i>et al.</i> , 2008) This change in attitude towards a more patient-centred approach will also be reflected in the preference of place of death. In the last period nearby death patients will prefer to die in their place of preference (mostly at home or in home-replacing environment, like a home for the elderly). The organization of palliative care services in Belgium is also oriented on a more home-based approach with a maximum of support to patient and relatives to stay at home.
Primary data	Death certificates
Results source	No national data currently. Results are based on published studies
Technical definitions	This indicator was initially developed on the population of palliative patients, but it is not currently possible to identify all palliative patients in administrative databases or in registries. Place of deaths for all deaths is often used as a proxy of place of death for palliative patients.
International comparability	This is not an indicator in international databases.
Performance Dimensions	Quality (patient centeredness); Quality (Effectiveness)
Keywords	End of life care, home setting, care environment
Related indicators	none
References	Source of indicator: Persuelli, 1997 (Persuelli <i>et al.</i> , 1997), Pasman, 2008(Pasman <i>et al.</i> , 2009) This is also a key quality indicator of the UK performance of end of life care set of indicator (http://www.endoflifecare-intelligence.org.uk/data_sources/place_of_death.aspx). Report Federale evaluatiecel: place of death in Flanders and in Brussels-capital region(Federale Evaluatiecel Palliative Zorg, 2008) Report Christian Mutuality: place of death (Gielen <i>et al.</i> , 2008, Gielen <i>et al.</i> , 2010) Place of death in Flemish region (W. Avonds, 1993-2002)(Avonds) Meeussen <i>et al.</i> , 2011 (Meeussen K. <i>et al.</i> , 2011b) ; Cohen <i>et al.</i> , 2006(Cohen J. <i>et al.</i> , 2006) ; Houttekier <i>et al.</i> , 2011(Houttekier <i>et al.</i> , 2011) ; Cohen <i>et al.</i> , 2008(Cohen J. <i>et al.</i> , 2008) ; Houttekier <i>et al.</i> , 2010 (Houttekier <i>et al.</i> , 2010a) ; Cohen <i>et al.</i> , 2010(Cohen J. <i>et al.</i> , 2010a) ; Houttekier <i>et al.</i> , 2009 (Houttekier <i>et al.</i> , 2009) ; Houttekier <i>et al.</i> , 2010 (Houttekier <i>et al.</i> , 2010b) ; Cohen <i>et al.</i> , 2010 (Cohen Joachim <i>et al.</i> , 2010b) ; Gomes <i>et al.</i> , 2012 (Gomes <i>et al.</i> , 2012)



8.3.2. Results

8.3.2.1. Belgium

There are no national data published on the place of death for palliative patients in Belgium. Instead we report results based from several studies, either based on death certificates in Flanders and in Brussels, either based on data from sickness funds linked to data from the cancer registry, either data from smaller specific surveys.

Table 38 – Evolution of place of death over time in Flanders and Brussels (1997-2007)

Period	Home	Hospital	Care Home	Other
1998	23.0%	55.1%	18.3%	3.6%
2007	22.5%	51.7%	22.6%	3.1%

Source: Deaths certificates Flanders and Brussels (Houttekier et al., 2011)

A recent study on all deaths in Flanders and in Brussels (Houttekier *et al.*, 2011.6%10), based on death certificates, analysed the evolution between 1998 and 2007 for place of death. The study showed a clear shift from dying in hospital (55.1% in 98, 51.7% in 2007) to dying in care home (18.3% in 97, 22.6% in 2007). The percentage of home deaths remained stable. The decline in hospital deaths and the increased number of deaths in care homes can be explained by the substitution of residential beds by skilled nursing beds in care homes. The authors also studied projection models to estimate the distribution of death per care setting (in 2040) the number of death in care homes will increase and even exceed the proportion of deaths in hospital.

The shift between hospitals deaths to home care deaths has been confirmed by two other studies based on deaths certificates in Flanders and in Brussels (Federale Evaluatiecel Palliative Zorg, 2008). A specific subpopulation of patients deceased from cancer showed an increase of death at home (+8% between 1993 and 2002). (Avonds)

The Christian Mutuality (Gielen *et al.*, 2008, Gielen *et al.*, 2010) performed a retrospective study of 40 965 members eligible for palliative care and found that almost half of the study population (45%) died in hospital not in specific palliative care unit (in the period 2004-20005), 5% in a palliative care unit in hospitals, 23% in care homes, 12% at home without home nursing and 15% at home with home nursing.

A study on 798 non sudden deaths in Belgium in 2006 examined retrospectively how often GPs were informed about the patient preferences on place of death. (Meeussen K. *et al.*, 2009) GPs were aware of the patient preferred place of death in 46% of all non-sudden death: The authors conclude that the GPs awareness on the preferred place of death is higher if the patient was not hospitalised during the 3 last months, if informal care was involved, if a multidisciplinary palliative team was consulted and if the patient had more than 7 contacts with the GP over the 3 last months of life. The awareness of the GP could increase the number of patients dying in their preferred place of death (or to enhance maximally their wish) and is an important prerequisite for the coordinative role of the GP.



8.3.2.2. International comparison

Cohen et al (Cohen J. *et al.*, 2008) compared the place of death between six countries (Belgium- only data from Flanders, the Netherlands, Sweden, Scotland, Wales, England). The proportion of deaths in care homes ranged from 14.1% in Wales to 33.5% in The Netherlands. Belgium had the second highest rate of deaths in care homes (22.2%). The proportion of deaths in hospital ranged from 33.9% in the Netherlands to 62.8% in Wales. Belgium had the second lowest rate of deaths in hospital (51.6%). The differences between countries are more explicit for death caused by

malignancies: 85.1% of the cancer patients died in hospital in Sweden in contrast to the 30.8% in the Netherlands. Different factors could explain the difference in hospital death between countries, such as the availability of alternatives to hospitals beds, the different admission policies and differences in medical cultures. Future policy planning should take into account the country-specific socio-demographic and economic context in order to decrease the number of hospital deaths without neglecting the required and desired level of institutional palliative care.

Table 39 – Place of death for patients with cancer: results from two studies presenting international comparison

	Flanders 2003	Netherlands 2003	Sweden 2002	Scotland 2003	England 2003	Wales 2003
% who died in hospital (Cohen J. <i>et al.</i> , 2008)	59.5	30.8	85.1	57.4	49.5	59.8
	Flanders 2003	Netherlands 2003	Norway 2003	Italy 2003	England 2003	Wales 2003
% who died at home (Cohen Joachim <i>et al.</i> , 2010b)	27.9	45.4	12.8	35.8	21.1	22.7

Source of results: (Cohen J. *et al.*, 2008) and (Cohen Joachim *et al.*, 2010b)

Key Points Place of death of patients eligible for palliative care

- There are currently no national data published on the place of death of patients eligible for palliative care in Belgium.
- A recent study on death certificates in Flanders and Brussels showed a shift from dying in hospital (55.1% of all deaths in 1998 to 51.7% in 2007) to dying in care home (18.3% in 1998 to 22.6% in 2007). The percentage of deaths at home remained stable.
- There are large differences between countries with regards to the place of death patients with cancer. The % of cancer patients dying at home is very low in Norway (13%), higher in Flanders (28%) and much higher in the Netherlands (45%).



9. INDICATORS ON EFFICIENCY

9.1. One Day surgical hospitalisations

9.1.1. Documentation sheet

Description	Surgical day care admissions as a percentage of all hospital admissions for surgery		
Calculation	Numerator: number of stays in surgical day care		
	Denominator: number of surgical stays		
Rationale	<p>Carrying out elective procedures as day cases where clinical circumstances allow (e.g. inguinal hernia repair, circumcision, cataract surgery, etc.) saves money on bed occupancy and nursing care. It is therefore considered an indicator of efficiency. Since the surgical day case rate has an influence on the system's capacity to provide and maintain infrastructure, it is also considered an indicator of sustainability.</p> <p>Several Belgian hospitals have a dedicated surgical day care unit. The accreditation of these units is regulated by a Royal Decree.</p>		
International comparability	<p>The indicator was presented by the OECD until the Health Data 2010. It does not belong to Health Data 2011 anymore.</p> <p>According to the OECD, a <i>surgical day case</i> was then defined as a patient who is given invasive surgical treatment (elective surgeries only) which is carried out in a dedicated surgical unit or part of a hospital and which leads to discharge on the day of the operation. This definition is also used in Belgium.</p> <p>The OECD provides data on the absolute number of surgical day cases, the proportion of surgical day cases per 1 000 population and the percentage of total surgery cases performed as day cases. For the present report only the last indicator was selected.</p> <p>Data are not available for all OECD countries (e.g. not available in France and the US). Not all OECD countries use the same definition or use data from all hospitals (e.g. the figures of the UK refer to public hospitals only).</p>		
Data source	RCM/MKG and RHM/MZG		
Technical definitions and limitations	<p>Numerator: Surgical day care were selected using the type of hospitalisation. Before 2008, HOSPTYP1 (file STAYHOSP) = "D" (for Day care) and the flag for surgical stay in APR-DRG, RPOFM (file STAYXTRA) = "P" (for procedure). From 2008, A2_HOSPTYPE_FAC (file STAYHOSP) = "D" or "C" and MorS_15 (file STAYXTRA) = "P"</p> <p>Denominator: Stays with a surgical APR-DRG were selected with the flag for surgical APR-DRG.</p>		
Performance dimensions	Efficiency; Sustainability;		



Keywords	Hospital (acute care); Curative; Surgery
Related performance indicators	Number of acute care bed days per inhabitant.
References	OECD Health Data 2010 (OECD, 2010b) Related indicators are measured by the Flemish Community (surgical day case rate for cataract surgery and varicectomy). (Vlaams Agentschap Zorg & Gezondheid, 2006)

9.1.2. Results

The Belgian surgical day case rate grew from 42.1% in 2004 to 46.2% in 2008 (Table 40). The 10 first APR-DRG with the highest percentage in 2008 are presented in Table 41.

The comparison with other countries shows similar increasing trends.

Table 40 – Surgical day case as a proportion of all surgical hospitalisations (2004- 2008)

Year	Nb Surgical Day stays	Nb All Surgical stays (Day & Classic)	%
2004	476501	1131482	42.1%
2005	488666	1139651	42.9%
2006	515791	1164904	44.3%
2007	543933	1196148	45.5%
2008	567237	1227717	46.2%

Source: RCM/MKG-RHM/MZG, KCE calculation

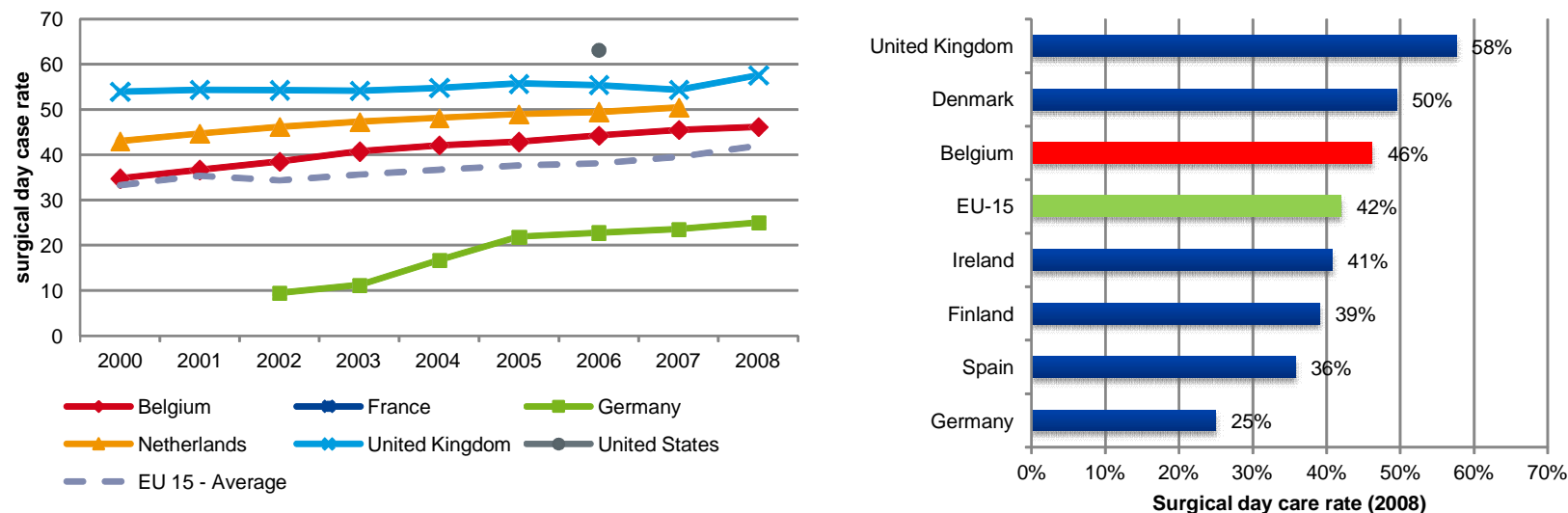
Table 41 – Surgical APR-DRG with highest rates of one day hospitalisations (2008)

Rank	APRDRG	Nb Surgical Day stays	Nb All Surgical stays (Day & Classic)	%
1	073-lens procedures with or without vitrectomy	93484	98626	94.8%
2	094-mouth procedures	29667	31496	94.2%
3	025-nervous system procedures for peripheral nerve disorders	31649	34480	91.8%
4	484-other male reproductive system procedures	19296	21533	89.6%
5	517-dilatation & curettage & conization	11860	13342	88.9%
6	072-extraocular procedures except orbit	17514	19737	88.7%
7	544-abortion with dilatation & curettage, aspiration curettage or hysterotomy	12355	14535	85.0%
8	316-hand & wrist procedures	28655	35060	81.7%
9	850-procedure with diagnoses of other contact with health services	19998	24612	81.3%
10	515-vagina, cervix & vulva procedures	7285	8996	81.0%

Source: RCM/MKG-RHM/MZG, KCE calculation



Figure 56 – Surgical day case as a proportion of all surgical hospitalisations: international comparison (2000 – 2010)



Source: OECD Health data 2010, except KCE calculation for Belgium 2008

Key Points One Day surgical hospitalisations

- The percentage of surgical hospitalisations that were performed in one day hospital grew from 42.1% in 2004 to 46.2% in 2008.
- These increasing trends are observed overall in Europe. Belgium lays above the EU-15 average.



9.2. Length of stay for a normal delivery

9.2.1. Documentation sheet

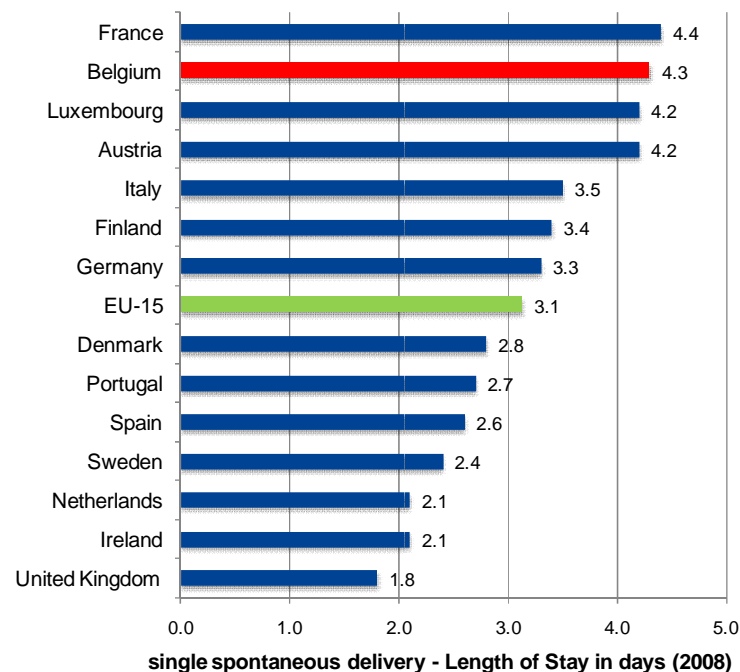
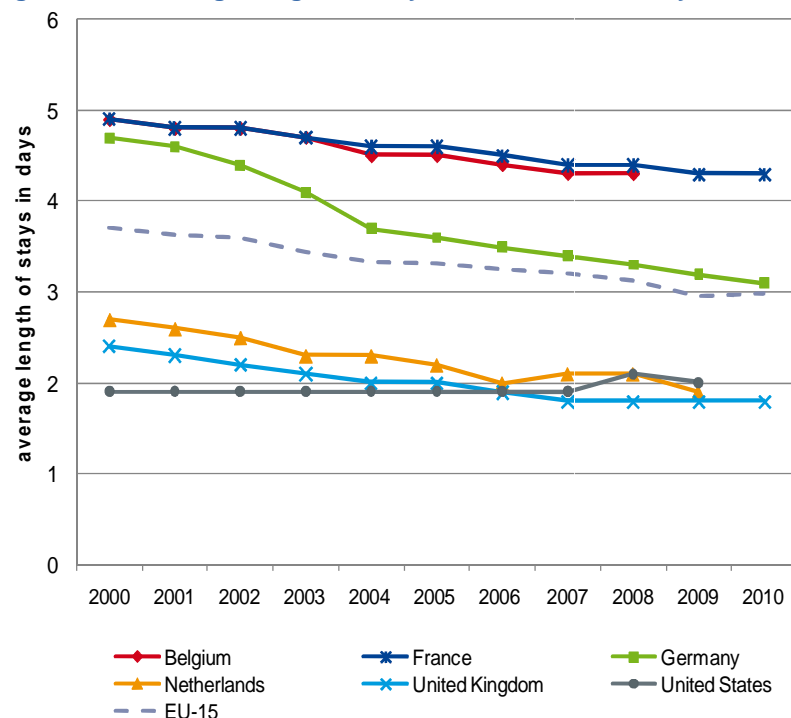
Description	Average Length of stay for single spontaneous delivery
Calculation	<p>Numerator: total length of stay of all hospitalizations for single spontaneous delivery.</p> <p>Denominator: total number of discharges (including deaths) for single spontaneous delivery (See Technical definitions for exclusions).</p>
Rationale	The length of stay after a normal delivery is determined more by factors of organisation and care provider characteristics than clinical patient characteristics only (e.g. severity of illness). It is therefore a good indicator to benchmark efficiency of health care system.
Data source	RCM/MKG-RHM/MZG
Results source	OECD Health Data (OECD, 2011c)
Technical definitions	Average length of stay (ALOS) is calculated by dividing the number of days stayed (from the date of admission in an in-patient institution) by the number of discharges (including deaths). Diagnostic chapters (using principal diagnosis) have been defined according to the International Classification of Diseases, 9th revision and 10th revision. The OECD website offers a mapping list between both classifications. The OECD uses the ICD-9-CM code 650 'Normal Delivery':
International comparability	<p>The OECD definition of single spontaneous delivery was adopted.</p> <p>Several countries included in the OECD comparison use different methodologies to calculate the average length of stay. Some countries may include same day separations (counted either as 0 or 1 day), thereby resulting in an under-estimation of average length of stay compared with countries that exclude them. Also, some countries may only include data related to general hospitals, while others might include data also for specialised hospitals (generally involving higher length of stays than in general hospitals). Caution should be exercised when making international comparisons due to the possibility that countries may provide data for different types of institutions.</p>
Performance dimensions	Efficiency
Key words	Hospital (acute care); Curative; Length of stay
Related performance indicators	Acute care bed days, number per capita.
References	<p>OECD Health Data (OECD, 2011c),</p> <p>Eurostat (Eurostat, 2012)</p> <p>A related indicator is measured by the Flemish Community (average length of stay after uncomplicated vaginal delivery). (Vlaams Agentschap Zorg & Gezondheid, 2006)</p>



9.2.2. Results

In Belgium, the duration of hospitalization for a normal delivery slightly decreased from 5 days in 2000 to 4.3 days in 2008. This is more than 1 day above the EU-15 average of 3.1 days.

Figure 57 – Average length of stay for a normal delivery: international comparison (2000 – 2010)



Source: OECD Health Data 2012

Key Points Length of hospitalisation for a normal delivery

- The duration of hospitalization for a normal delivery slightly decreased from 5 days in 2000 to 4.3 days in 2008, which is, nevertheless, the second longest stay in the EU-15 area.
- This is more than 1 day above the EU-15 average of 3.1 days.



9.3. Prescription of low-cost drugs in ambulatory setting

9.3.1. Documentation sheet

Description	Proportion of low cost drugs (DDD) prescribed on total of drugs (DDD) prescribed in ambulatory setting
Calculation	Numerator: total DDD of low cost drugs delivered in ambulatory care Denominator : Total DDD delivered in ambulatory care
Rationale	<p>Low cost drugs are at minimal 31% less expensive than original drugs. Promoting the prescription of low cost drugs is thus a good way to limit health expenditures, both for the third party payer and for the patient. In Belgium, a reference price system was implemented in 2001 and extended in 2005. With that system, patients have to pay a supplement when they are prescribed original drugs for which a generic alternative exists. As a consequence, several companies lowered the price of original drugs so that patients did not have to incur the financial penalty (Vrijens <i>et al.</i>, 2010).</p> <p>Depending on their specialty, physicians and dentists are required to prescribe a certain minimum percentage of low cost drugs, the so-called "quotas" since 2006, these quotas have been revised in December 2010. Other measures to enforce prescription of low cost drugs have also been progressively introduced.</p>
Data source	INAMI, Pharmanet
Technical definitions	<p>Low cost prescriptions are defined as</p> <ul style="list-style-type: none">(1) original drugs for which a generic alternative exists and which have lowered their public retail price to the reimbursement basis so that there is no supplement to be paid by the patient(2) generic drugs and copies(3) drugs prescribed under the International Common Denomination (ICD or INN: International Non-proprietary Name) because the pharmacist delivers a low cost drug in priority
International comparability	Comparison with other countries is since comparison is based on the use of generic drugs (and not use of low cost drugs in general). (WHO Collaborating Centre for Pharmaceutical Pricing and Reimbursement Policies, 2012)
Performance dimension	Efficiency
Key words	Pharmaceuticals; ambulatory setting, low cost drugs
References	Report INAMI on Pharmanet 2009 (NIHDI, 2011)

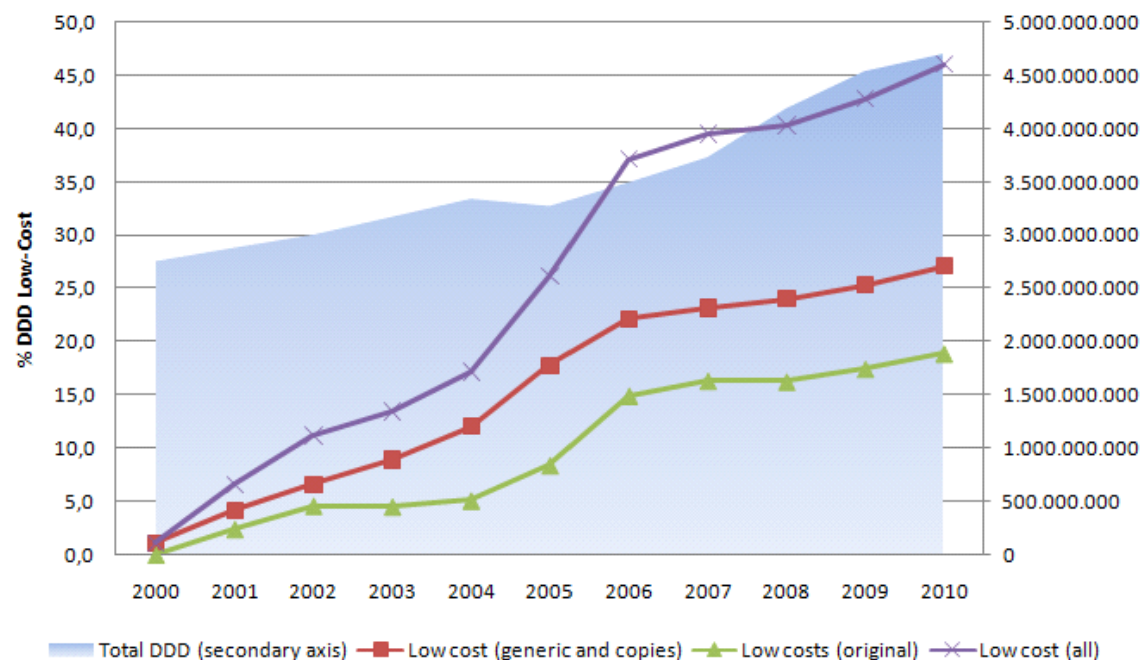


9.3.2. Results

9.3.2.1. Belgium

Between 2000 and 2010, the total number of DDD prescribed in ambulatory setting increased from 2.76 billion to 4.7 billion. On the same period, the proportion of low cost DDD continuously increased to reach 46.0% in 2010 (27.1% from generic drugs and 18.9% as original drugs which lowered their price).

Figure 58 – Percentage of low cost Defined Daily Doses (DDD) and total DDDs prescribed, in ambulatory setting (2000-2010)



Source: RIZIV/INAMI, Pharmanet

Results by province and region are presented below. Highest rate is observed in province of Antwerp (46.9%), lowest rate observed in Brabant Wallon (44.8%).

**Table 42 – Percentage of low cost Defined Daily Doses (DDD) prescribed in ambulatory setting, by province and region (2010)**

Province	% DDD LOW COSTS DRUGS
Anvers	46,9
Brabant flamand	45,9
Brabant wallon	44,8
Bruxelles-Capitale	45,3
Flandre occidentale	45,9
Flandre orientale	46,1
Hainaut	45,6
Liège	46,8
Limbourg	45,5
Luxembourg	44,9
Namur	45,6
Region	% DDD LOW COSTS DRUGS
Flanders	46,2
Wallonia	45,9
Brussels	45,3
Belgium	46,0

Source: RIZIV/INAMI, Pharmanet

Key Points Prescription of low-cost drugs in ambulatory setting

- The percentage of low cost drugs in ambulatory setting increased from 7% in 2001 in 46% in 2010.
- Differences by region are small (Brussels 45.3%, Wallonia 45.9%, Flanders 46.2%).



10. INDICATORS ON SUSTAINABILITY

10.1. Medical graduates becoming GPs

10.1.1. Documentation sheet

Description	Percentage of medical graduates becoming GP.
Numerator	Number of diploma who begin a GP specialisation within 2 years
Denominator	Total diploma within 2 years
Rationale	La proportion de médecins diplômés inscrits dans la filière médecine générale dans les 2 ans après le diplôme est un indicateur de l'attractivité de la médecine générale par rapport aux autres spécialités
Data source	NIHDI (fichier signalétique)
Results source	GP's performance report
Technical definitions and limitations	<p><i>Numérateur : code professionnel 10, code compétence 005-006 after 2 years diploma</i></p> <p><i>Denominator : code professional 10, code competence 0xx and 005-006 <> 0 after 2 years diploma</i></p> <p>Le % de généraliste néo diplômés est calculé en rapportant le nombre diplômés qui s'engagent en médecine générale sur l'ensemble des diplômés qui font une spécialisation dans les 2 années qui suivent le diplôme (autrement dit la fin du cycle de 7 ans d'études).</p>
International comparability	This is not an international indicator
Related performance indicators	Number of physicians and nurses

10.1.2. Results

Le recrutement des médecins généralistes est problématique : le non remplacement des médecins généralistes âgés est directement lié aux nouveaux médecins qui s'engagent dans la profession et parmi ceux-ci au pourcentage de ceux qui s'engagent en médecine générale. Le % de généraliste néo diplômés est calculé en rapportant le nombre diplômés qui s'engagent en médecine générale sur l'ensemble des diplômés qui font une spécialisation dans les 2 années qui suivent le diplôme (autrement dit la fin du cycle de 7 ans d'études). Ce % est actuellement de 30%. Il était de 39% en 1996.



Table 43 – Graduates in medicine per type of specialisation in the 2 years following their diploma (1996-2008)

diplômés < 2 ans	1996	1998	2000	2002	2004	2006	2008
nombre de médecins (après 7 ans)	2.253	2.311	2.198	2.190	1.988	1.541	1.803
médecins non spécialisés	850	855	873	800	750	277	367
% non spécialisés	38%	37%	40%	37%	38%	18%	20%
médecins qui se spécialisent (MG+MS)	1.403	1.456	1.325	1.390	1.238	1.264	1.436
médecins spécialistes	856	898	829	905	763	869	1004
médecins généralistes	547	558	496	485	475	395	432
% GP/ GP +MS	39%	38%	37%	35%	38%	31%	30%

Le % de médecins néo diplômés qui s'engage en médecine générale a baissé régulièrement depuis 2000 au profit des spécialistes : sur la période 1996 - 2008 on observe que le nombre de médecins diplômés (après le cycle de 7 ans) diminue régulièrement jusqu'en 2006, mais ce phénomène est compensé par un nombre relativement constant de médecins qui se spécialisent. Par contre, le nombre de médecins spécialistes en formation croît régulièrement (à part en 2004) et particulièrement entre 2006 et 2008. Enfin, le nombre de médecins généralistes en formation diminue régulièrement avant une amorce de reprise en 2008. Autrement dit, la diminution des médecins généralistes en formation est liée non pas à la limitation du nombre de diplômés (qui a principalement contribué à diminuer le % de médecins néo diplômés non actifs), mais à l'attraction particulière de la médecine spécialisée au détriment de la médecine générale.

Key points GPs medical graduates

- The number of graduates who specialize either in general medicine or in another specialty fluctuates around 1400 each year (1436 in 2008).
- Form these graduates, the % of graduates in general medicine was 39% in 1996 and is actually (2008) 30%.



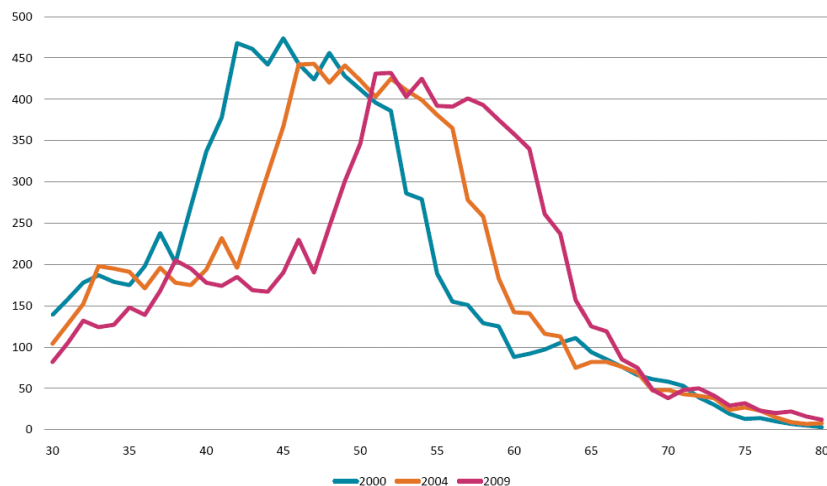
10.2. Age of GPs compared to other specialists

10.2.1. Documentation sheet

Description	Mean age of GPs compared to other specialists .
Rationale	L'évaluation de l'âge moyen des GP en activité est un indicateur relativement sensible du renouvellement des effectifs dans une spécialité et de son attractivité
Numerator	Total ages of active GP
Denominator	All active GP's
Data source	NIHDI (fichier P)
Results source	GP's performance report
Technical definitions and limitations	Active GP's(>1250 and FTE)
International comparability	This is not an international indicator
Related performance indicators	Number of medical practionners Number of medical graduates

10.2.2. Results

L'évolution de la cohorte des médecins actifs approche très rapidement de l'âge de la retraite, comme le montrent les courbes superposées des années 2000, 2004 et 2009 des médecins ayant plus de 1250 contacts. Autrement dit, dès à présent et pendant 10 ans, une cohorte (qui réalise 1/3 de la production) va s'éroder rapidement et ne sera pas immédiatement remplacée par un effectif équivalent (aussi productif).

**Figure 59 – Distribution of the GPs' age (having more than 1250 contacts/year) (2000-2004-2009)**

Source: RIZIV - INAMI

Une autre manière de mesurer cette évolution est de calculer l'âge moyen des médecins généralistes

L'âge moyen des médecins correspond au total des âges rapportés au nombre de médecins. Pour refléter la réalité, on préfère cependant évaluer l'âge moyen des médecins actifs qui ont au moins 1250 contacts par an.

L'âge moyen des ETP est actuellement de 51,8. Cet âge moyen croît très rapidement depuis 2000, où il était de 47,2 ans. Autrement dit, un âge moyen en croissance signifie que la cohorte des nouveaux venus est insuffisante pour remplacer les médecins qui cessent leur activité.



Table 44 – Mean age of GPs compared to other specialists (2000-2010)

age ETP	Année											
spécialités	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	taux d'accr
10.1.MD G	46,2	46,6	47,0	47,5	48,1	48,7	49,2	49,7	50,2	51,3	51,8	1,2%
10.2.MD paediatricians	46,7	46,6	46,9	47,1	47,2	47,2	47,3	47,3	47,4	48,5	48,6	0,4%
10.3.MD obstetric	46,0	46,0	46,2	46,4	46,5	46,8	47,1	47,4	47,5	48,6	48,9	0,6%
10.4.MD psychiatrists	48,7	49,0	49,2	49,6	49,8	50,0	50,1	50,2	50,4	51,5	51,6	0,6%
10.5.MD medical group	45,6	45,9	46,1	46,3	46,6	46,9	47,3	47,5	47,6	48,9	49,2	0,7%
10.6.MD surgical group	45,5	45,7	45,9	46,1	46,3	46,6	46,7	46,8	47,0	48,1	48,3	0,6%

De l'ensemble des spécialités médicales, le médecin généraliste présente l'âge moyen le plus élevé en 2010, alors qu'il était encore dans la moyenne en 2000.

Table 45 – Mean age of GPs, percentage of GPs above 65 years old, percentage of male GPs (>1250 contacts /year) (2000-2009)

Indicateurs		Année				regime ling.		sexe		classe d'âge médecin					
		2000	2004	2008	2009	Fr.	Neerl.	F	M	35-	35-44	45-54	55-64	65-74	
tous M agréé > 1	nb de GP	13270	13984	14241	14285	6666	7619	4624	9660	960	2614	4310	4204	1251	
tous M agréé > 1	Age moyen	48,4	50,4	52,6	53,2	53,8	52,7	45,6	56,9	31,9	39,5	50,2	58,9	69,0	
tous M agréé > 1	% avec patientele	89%	86%	84%	83%	83%	83%	80%	84%	91%	83%	86%	90%	75%	
tous M agréé > 1	% 65+	12%	13%	15%	15%	16%	15%	2%	22%	0%	0%	0%	0%	100%	
tous M agréé > 1	% sexe Masculin	74%	71%	68%	68%	66%	69%			34%	39%	64%	82%	94%	
GP agréé >1250	nb GP 1250 n	9976	9816	9693	9676	4143	5533	2757	6919	638	1728	3194	3305	658	
GP agréé >1250	nb GP ETP Lisse	8515	8472	8336	8642	3554	5088	2367	6275	596	1608	2883	2890	548	
GP agréé >1250	Age moyen	47,2	49,1	51,2	51,8	52,6	51,1	45,2	54,4	31,8	39,6	50,3	58,9	68,2	
GP agréé >1250	% 65+	6%	7%	8%	8%	8%	8%	1%	11%	0%	0%	0%	0%	100%	
GP agréé >1250	% sexe Masculin	78%	75%	72%	72%	72%	71%			39%	46%	70%	86%	98%	

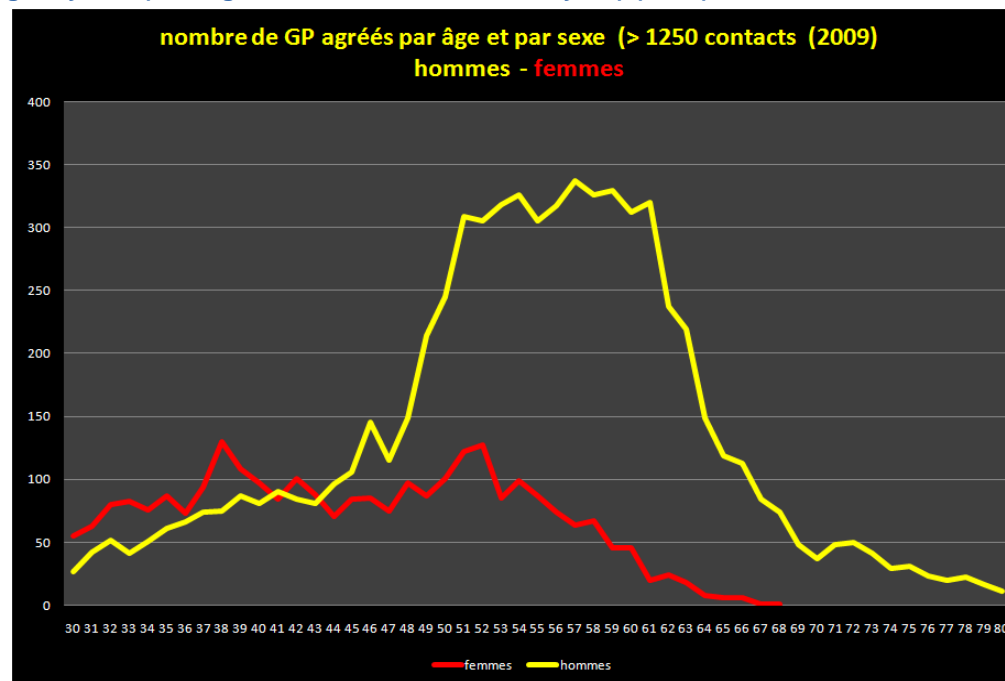
Deux autres phénomènes importants peuvent être observés :

Premièrement les médecins âgés de "65 ans et plus" encore actifs n'est pas négligeable. Cette catégorie est aussi importante que la catégorie des médecins âgés de moins de 35 ans.

Deuxièmement, la différence d'âge moyen entre hommes et femmes : les médecins âgés sont essentiellement masculins, et sont remplacés par une cohorte mixte, majoritairement féminine comme le montre la diminution de la part des hommes dans les classes d'âge plus jeunes. Autrement dit, la féminisation, qui est une réalité, est surtout liée à la disparition des médecins masculins qui ne sont pas remplacés, comme le montre le graphique :



Figure 60 – Distribution of GPs' age, by sex (having more than 1250 contacts/year) (2009)



Key points Age of GPs

- The mean age of FTE GP is actually 51.8 years old. This increases rapidly, since in 2000 mean age of GPs was 47.2 years old. From all medical specialities, GPs have the oldest mean age, while in 2000 it was similar to other specialities.
- Oldest GPs are essentially male, and are being replaced by a cohort comprising with many young women, as shown by the diminution of male proportion in younger age cohorts.
- There are also large differences in the mean GPs age across arrondissements.



10.3. Number of days spent in acute care hospitals

10.3.1. Documentation sheet

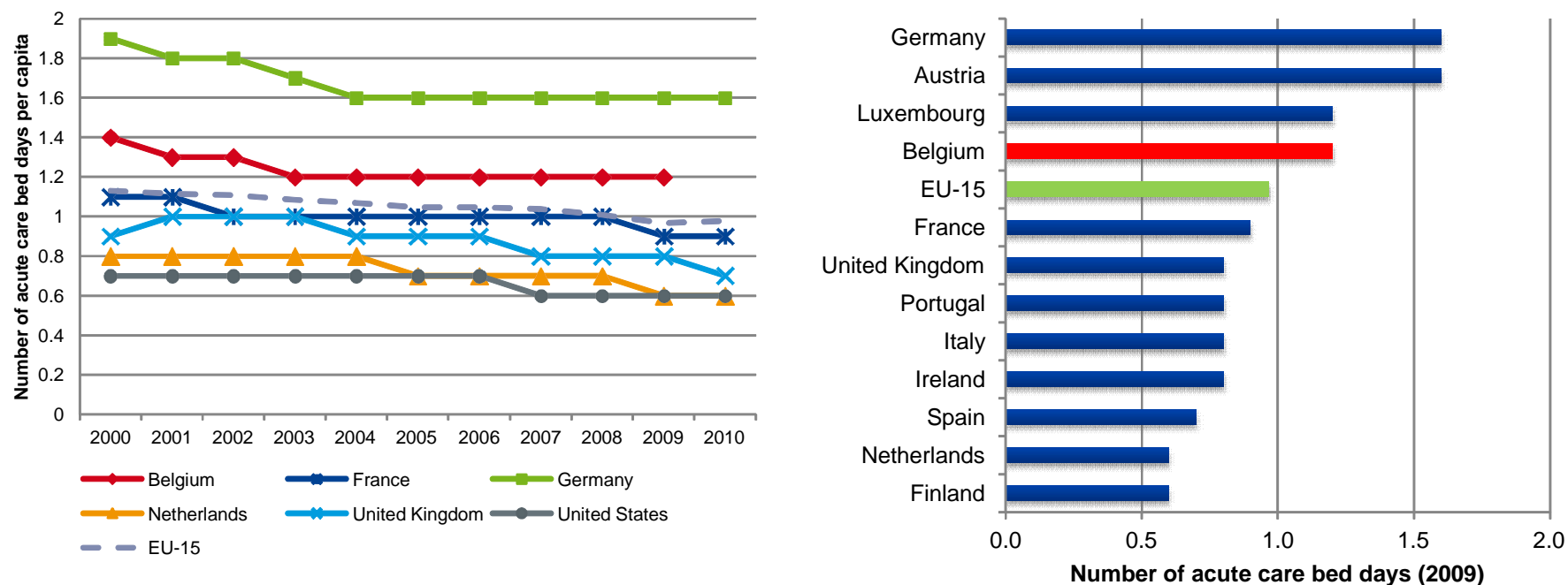
Description	Acute care bed days, number per capita.
Calculation	Numerator: total number of days of inpatient stays spent in acute care beds Denominator: total Belgian population.
Rationale	The number of acute care bed days per capita gives an idea about the population's need for acute care beds, and thus about the needed infrastructure. This indicator gives an idea about how this need is met (sustainability).
Data source	RCM/MKG-RHM/MZG
Results source	FPS Health, Food Chain Safety and Environment
Technical definitions	One day stays are not counted.
International comparability	The OECD definition is adopted. Several countries included in the OECD comparison use different methodologies to calculate the number of acute care bed days (e.g including or not geriatric beds, specialised hospitals...). Comparison is therefore potentially biased.
Dimensions	Sustainability;
Keywords	Hospital (acute care) ;Generic
Related performance indicators	Average length-of-stay after normal delivery . Surgical Day Case Rates..
References	OECD Health Data 2011 (OECD, 2011c)

10.3.2. Results

In 2009, there were 13 million days spent in acute care hospitals (classic hospitalisation only, excluding one day). Per capita, this represents 1.2 acute care bed days in 2009. This figure is stable since 2003. The EU-15 average is a bit lower, around 1 day/inhabitant. Of the neighbouring countries, only Germany has a higher utilisation of acute care hospitals per inhabitant.



Figure 61 – Acute care bed days per capita, international comparison (2000-2010)



Source: OECD Health data 2012

Key points number of days spent in acute care per inhabitant

- In 2009, the number of days spent in acute hospitals was 1.2/inhabitant. This figure is stable since 2003.
- The EU-15 average is a bit lower, around 1 day/inhabitant. Of the neighbouring countries, only Germany has a higher utilisation of a cute care hospitals per inhabitant.



10.4. Healthcare Expenditures (Total, Repartition, %GDP, per capita)

10.4.1. Documentation sheet

Description	Total healthcare expenditures according to the System of Health Accounts (SHA, OECD), expressed for a given year: <ul style="list-style-type: none">- As a whole (€ million)- Per healthcare sector (€ million)- Per capita (€ million/inhabitant)- As a percentage of the gross domestic product (GDP)
Calculation	All calculations are done by OECD on basis of data provided by experts from each country.
Rationale	<p>Trends in health expenditure are an important indicator of affordability, and thus sustainability. For international comparisons, the standard international definitions for healthcare and healthcare expenditure of the OECD's System of Health Accounts (SHA) are classically used. SHA aims at measuring consumption of health and long term care services.</p> <p>The total health expenditure is broken down by healthcare function, providers and funding agents for the purpose of monitoring healthcare consumption.</p> <p>The proportion of GDP devoted to healthcare and how this proportion changes over the course of time are also monitored.</p>
Primary Data source	Total healthcare expenditures: FPS Social Security
Indicator results:	OECD Health Data 2012
Technical definitions	See SHA technical manual (OECD <i>et al.</i> , 2011) and specific technical note for Belgium (under information for country)
International comparability	OECD and EU Member countries are at varying stages of implementing the System of Health Accounts (SHA). Therefore, the data reported in OECD Health Data 2012 are at varying levels of comparability.
Related performance indicators	Out-of-pocket payments
References	OECD Health Data 2012(OECD, 2012b)



10.4.2. Results

The total health expenditures increased from 29.4 billion € in 2003 to 37.3 billion € in 2010. Per capita, this represents an increase from 2828 €/inhabitant in 2000 to 3430 €/inhabitant in 2010. To allow comparisons between countries, these data are also expressed in 2005 US\$ Purchasing Power Parities (PPP). Finally, the share of THE in Belgian GDP accounts for 10.5% of GDP, compared to 8.1% in 2000.

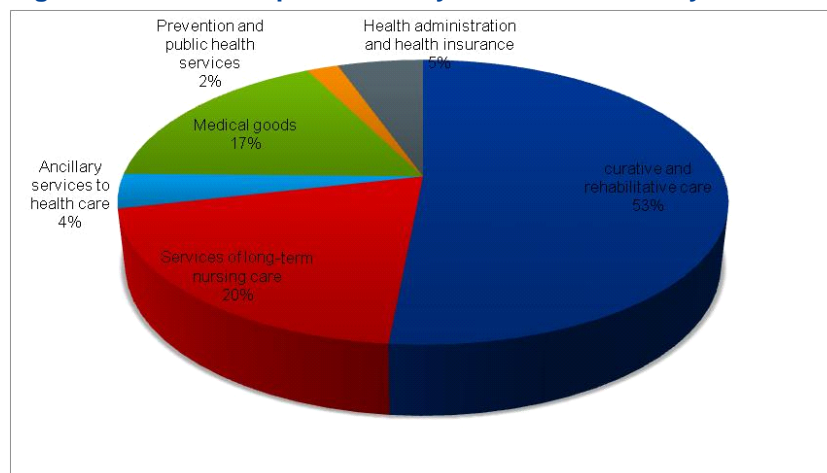
Table 46 – Total health expenditures according to System of Health Accounts (2003-2010)

	2004	2005	2006	2007	2008	2009	2010
Absolute amounts (in millions €)	29481.1	30606.4	30521.4	32242.7	34599.2	36303	37373.7
Per capita	2828.97	2920.84	2893.59	3034.41	3230.56	3362.48	3430.17
Per capita (US\$ PPP)	3155.5	3246.8	3277.6	3423.3	3698.4	3911.4	3968.8
% GDP	10.1	10.1	9.6	9.6	10	10.7	10.5

Source : Health Data 2012

Most than half of the THE (53%) is spent for curative care (HC.1) or rehabilitation care (HC.2). The following two most important contributors are services for long term care (specifically the health component, not the social component, HC.3, 20%) and medical goods (mainly pharmaceuticals products, HC.5, 17%).

Figure 62 – Health expenditures by main function in System of Health Accounts (2010)

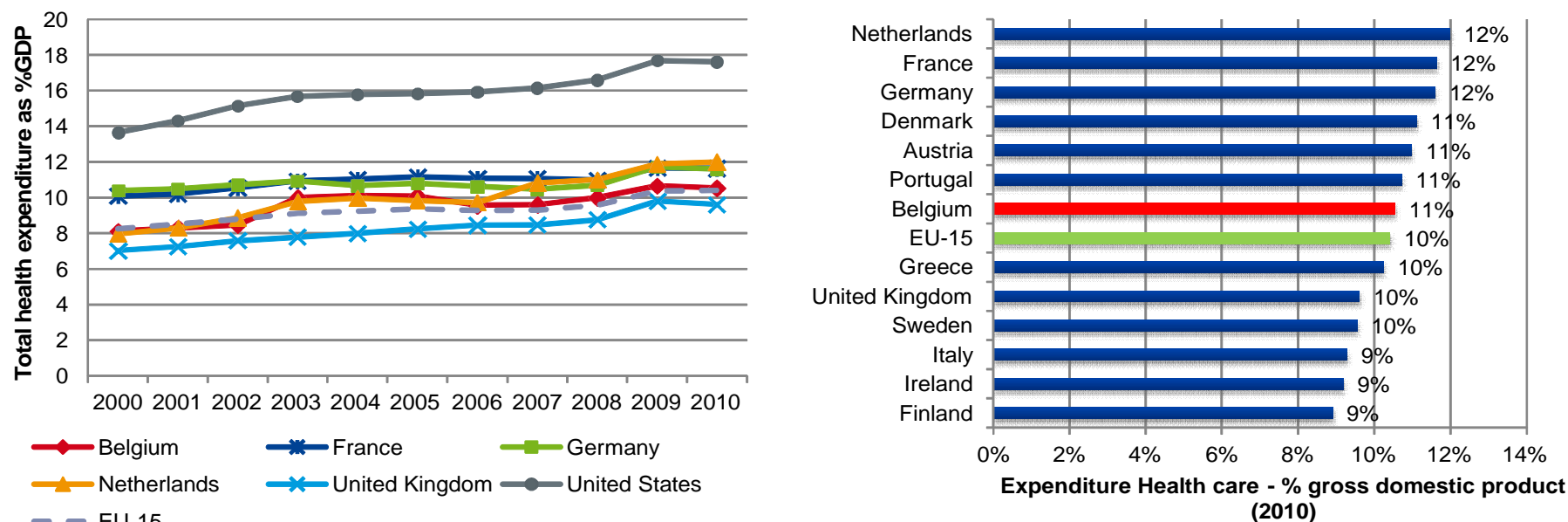


Source : Health Data 2012

Expressed as a % of the GDP, Belgium is very close to the EU-15 average.



Figure 63 – Total health expenditures as a percentage of GDP: international comparison (2000-2010)



Source: OECD Health data 2012

Key Points Total Healthcare expenditures

- The total health expenditures increased from 20.5 billion € in 2000 to 37.3 billion € in 2010. Per capita, this represents an increase from 2000 €/inhabitant in 2000 to 3430 €/inhabitant in 2010.
- The share of THE in Belgian GDP accounts for 1.5% of GDP, compared to 8.1% in 2000, which is very close to the EU-15 average.



11. INDICATORS ON THE PERFORMANCE OF HEALTH PROMOTION

11.1. Overweight and obesity in adults

11.1.1. Documentation sheet

Description	Proportion of adult persons (≥18 years) who are 1."overweight or obese" i.e. whose Body Mass Index (BMI) is ≥ 25 kg/m ² , based on self reported weight and height, and 2."obese", i.e. whose Body Mass Index (BMI) is ≥ 30 kg/m ² .
Calculation	The Body Mass Index (BMI), or Quetelet index, is defined as the individual's body weight (in kilograms) divided by the square of their height (in metres). Weight and height derived from European Health Interview Survey (EHIS) questions BMI01: How tall are you? (cm), and BMI02: How much do you weight without clothes and shoes? (kg). EHIS data will not be age standardized.
Rationale	Excessive body weight predisposes to various diseases, particularly cardiovascular diseases, diabetes mellitus type 2, sleep apnoea and osteoarthritis. Obesity is a growing public health problem. Effective interventions exist to prevent and treat obesity. Many of the risks diminish with weight loss
Primary Data source	IPH: HIS 1997-2001-2004-2008 For international comparisons, Eurostat provides data from EHIS. OECD provides data from several national data sources
Indicator source	idem
Periodicity	Every 3-5 years
Technical definitions and limitations	Data on BMI derived from HIS are subject to some biases; generally, overweight people tend to underestimate their weight. Data derived from HES would be more accurate and therefore preferable.
International comparability	EHIS 2008 provides data for 17 countries. The lack of age-standardization in the international data can hamper the comparability for this indicator, particularly linked to age.
Dimensions	Quality-effectiveness
Key words	Health Promotion; Health outcomes
Related indicators	Link to other lifestyles: consumption of fruits and vegetable and physical activity
References	HIS Belgium (Charafeddine <i>et al.</i> , 2012) (IPH, 2010) ECHI Short list (ECHIM, 2005a)



WHO, 2008 (WHO, 2008a)

EUROSTAT database (Eurostat, 2012)

OECD Health Data 2011(OECD, 2011c); OECD HCQI primary care prevention and health promotion (Marshall *et al.*, 2006)

11.1.2. Results

11.1.2.1. Belgium

Almost half of the population (47%) reported an excess of weight in 2008. Men are often much more overweight than women.

Obesity affects 13.8% of the population. There is no significant gender difference in obesity rates.

The overweight and obesity rates in Belgium are slightly lower than the EU15-average. There was a continuous increase over time in the rate of people being overweight or obese.

Both overweight and obesity increases sharply with age until 65 years, and are strongly associated with the educational level, with an obesity rate in the lowest educational level (19,2%) twice as high than in the higher educational level (9,1%). This is not surprising, given the same fact is observed for two closely related indicators: the lack of physical activity and the insufficient fruits and vegetables consumption.

The percentage of overweight is slightly lower in Brussels (47,1%) than in the other regions (47,1% in the Flemish Region and 48,9% in the Walloon Region). The regional differences in obesity rates are not significant.

In conclusion:

- There is a growing trend in the rates of overweight and obesity over time.
- The social inequalities are important for this indicator and the same is observed for related health habits (lack of physical activity and poor nutritional habits). It is necessary to consider all those facts together and find a strategy to tackle those social inequalities.

Table 47 – Percentage of the adult population (18 years and over) considered as being obese (BMI \geq 30) (1997-2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	1997	10.8	(9.8-11.9)	9.9	(8.9-11.0)	8071
	2001	12.1	(11.2-13.0)	10.6	(9.7-11.6)	9391
	2004	12.7	(11.7-13.6)	11.1	(10.1-12.2)	10319
	2008	13.8	(12.7-14.8)	12.5	(11.4-13.7)	8831

Source: Health Interview Survey, Belgium

Adjusted for age and/or gender (Belgian population of 2001 as reference)



Figure 64 – Percentage of the adult population (aged 18 years or older) considered as being obese (BMI ≥ 30), by region (1997-2008)

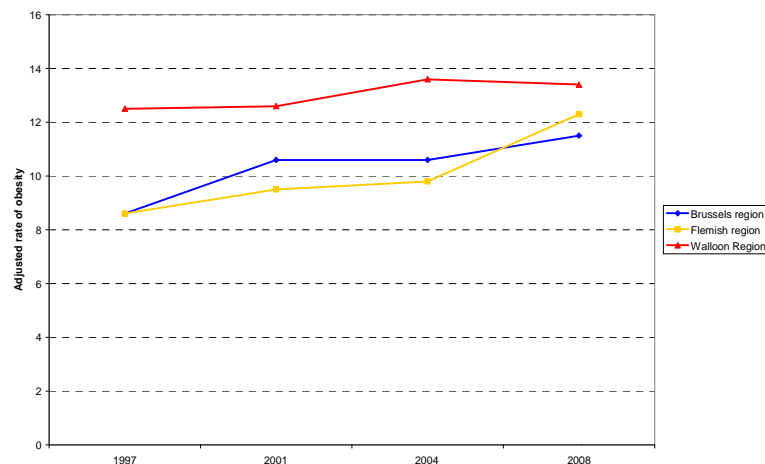


Table 48 – Percentage of the adult population (18 years and over) considered as being overweight or obese (BMI ≥ 25) (1997-2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	1997	41.3	(39.7-42.9)	41.4	(39.6-43.2)	8071
	2001	44.5	(43.1-45.9)	43.2	(41.7-44.7)	9391
	2004	44.1	(42.7-45.5)	42.5	(40.9-44.0)	10319
	2008	46.9	(45.4-48.4)	45.4	(43.7-47.0)	8831

Source: Health Interview Survey, Belgium

*Adjusted for age and/or gender (Belgian population of 2001 as reference)



Table 49 – Percentage of the adult population (aged 18 years or older) considered as being overweight or obese, by year, region and patients characteristics (BMI \geq 25) (2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	46.9	(45.4-48.4)	45.4	(43.7-47.0)	8831
GENDER	Male	53.7	(51.7-55.8)	53.1	(50.9-55.3)	4093
	Female	40.4	(38.4-42.4)	38.4	(36.3-40.5)	4738
AGE GROUP	18 - 24	18.5	(14.7-22.3)	18.0	(14.5-22.0)	837
	25 - 34	36.0	(32.3-39.7)	35.7	(32.0-39.7)	1299
	35 - 44	45.7	(42.2-49.2)	45.3	(41.8-48.9)	1460
	45 - 54	50.3	(46.8-53.7)	50.1	(46.7-53.6)	1359
	55 - 64	61.9	(58.4-65.4)	61.9	(58.3-65.4)	1292
	65 - 74	60.0	(55.4-64.7)	60.7	(55.8-65.3)	848
	75 +	52.2	(48.4-56.0)	53.8	(49.9-57.6)	1736
EDUCATION LEVEL	Primary/no degree	57.8	(53.8-61.8)	54.0	(49.2-58.7)	1292
	Secondary inferior	54.7	(50.8-58.6)	50.7	(46.4-54.9)	1441
	Secondary superior	47.8	(45.1-50.6)	47.6	(44.7-50.4)	2655
	Superior education	40.0	(37.7-42.4)	39.2	(36.7-41.7)	3197
URBANISATION LEVEL	Urban	46.2	(44.1-48.3)	44.9	(42.7-47.2)	4987
	Sub-urban	46.5	(43.0-50.0)	44.7	(41.2-48.4)	1458
	Rural	48.1	(45.4-50.8)	46.5	(43.6-49.4)	2386
REGION	Flemish Region	47.1	(44.8-49.3)	45.0	(42.7-47.4)	3157
	Brussels Region	39.8	(37.5-42.0)	40.0	(37.6-42.5)	2582
	Walloon Region	48.9	(46.6-51.2)	47.8	(45.4-50.2)	3092

*Weighted % - **Adjusted for age and/or gender (Belgian population of 2001 as reference)

Source: Health Interview Survey, Belgium

https://www.wiv-isp.be/scripts92/broker.exe?_service=default&_program=phisia.nutrstat08.sas



Table 50 – Percentage of the adult population (aged 18 years or older) considered as being obese (BMI \geq 30), by year, region and patients characteristics (2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	13.8	(12.7-14.8)	12.5	(11.4-13.7)	8831
GENDER		13.1	(11.8-14.5)	11.9	(10.6-13.4)	4093
	Male					
	Female	14.4	(13.0-15.8)	13.1	(11.7-14.7)	4738
AGE GROUP		4.8	(2.4-7.2)	4.8	(2.9-7.8)	837
	18 - 24					
	25 - 34	8.2	(6.3-10.0)	8.2	(6.5-10.2)	1299
	35 - 44	14.2	(11.7-16.6)	14.2	(11.9-16.8)	1460
	45 - 54	15.1	(12.6-17.7)	15.1	(12.8-17.8)	1359
	55 - 64	21.2	(18.3-24.1)	21.2	(18.5-24.2)	1292
	65 - 74	16.8	(13.6-19.9)	16.7	(13.8-20.1)	848
	75 +	14.3	(11.6-17.1)	14.2	(11.6-17.2)	1736
EDUCATION LEVEL		19.2	(16.0-22.3)	17.3	(14.3-20.8)	1292
	Primary/no degree					
	Secondary inferior	19.9	(16.9-22.9)	17.6	(14.9-20.8)	1441
	Secondary superior	14.5	(12.6-16.3)	13.6	(11.9-15.5)	2655
	Superior education	9.1	(7.7-10.6)	8.4	(7.0-10.0)	3197
URBANISATION LEVEL		13.0	(11.6-14.4)	11.9	(10.6-13.3)	4987
	Urban					
	Sub-urban	14.4	(12.0-16.8)	13.0	(10.9-15.5)	1458
	Rural	14.5	(12.6-16.4)	13.1	(11.3-15.2)	2386
REGION		13.6	(12.1-15.2)	12.3	(10.8-13.9)	3157
	Flemish Region					
	Brussels Region	11.9	(10.4-13.4)	11.5	(10.0-13.2)	2582
	Walloon Region	14.6	(13.1-16.2)	13.4	(11.9-15.0)	3092

*Weighted % - **Adjusted for age and/or gender (Belgian population of 2001 as reference)

Source: Health Interview Survey, Belgium https://www.wiv-isp.be/scripts92/broker.exe?_service=default&_program=phisia.nutrstat08.sas

**Additional information : percentage of overweight and obesity in young people**

Overweight and obesity in children and adolescents (aged 2-17)

- The HIS survey provides information about the overall prevalence of overweight and obesity in young people (2-17 years) (*ref : <https://www.wiv-isp.be/epidmio/epifr/CROSPFR/HISFR/his08fr/9.etat%20nutritionnel.pdf>)

Overweight in young people:

- Overall 18% of the young people (aged 2-17 years) are found to be overweighted . There was no difference between genders.
- There was an increase since 1997.
- The rate was higher in Brusses than in the other region.
- The rate peaks at 5-9 years, and decreases during adolescence (12%). (nb: the differences between the agegroups must be interpreted with caution since the confidence interval are rather large).

Obesity in young people:

- 5% of the young people (aged 2-17) was found to be obese. No increase of the global rate was observed over time.
- There was no gender difference. There was a clear social gradient.
- There was an important difference between the rate in children (8%) and in adolescents (2%).
- This should first been confirmed by other sources (HBSC and data from the Medical School inspection).
- If this was indeed the case, it could be an generation effect (with larger obesity rate emerging in the youngst generations). Th is has to be monitored.

Table 51 – Percentage of youngsters (2-17 years) considered as being overweight, by year, region and patients characteristics (2008)

		Crude mean	95% CI cru	Adj* mean	95% CI adj	N
YEAR	2008	18.4	(15.9-21.0)	18.4	(16.0-21.1)	1517
GENDER	Boys	19.6	(15.9-23.3)	19.7	(16.2-23.7)	776
	Girls	17.1	(13.6-20.7)	17.2	(14.0-21.1)	741
AGE GROUPE	2 - 4	18.5	(13.0-23.9)	18.4	(13.6-24.4)	313
	5 - 9	21.8	(17.0-26.6)	21.7	(17.3-26.9)	427
	10 - 14	19.4	(14.4-24.4)	19.3	(14.7-24.8)	475
	15 - 17	12.4	(7.8-17.1)	12.4	(8.5-17.6)	302
EDUCATION LEVEL	Primary/no degree	24.6	(9.4-39.7)	25.2	(13.6-42.0)	74



	Secondary inferior	32.0	(24.3-39.7)	32.2	(25.6-39.7)	182
	Secondary superior	20.8	(16.3-25.3)	20.9	(16.6-25.9)	495
	Superior education	13.9	(10.5-17.3)	13.7	(10.7-17.5)	736
REGION	Flemish Region	16.9	(13.0-20.7)	16.8	(13.3-21.1)	482
	Brussels Region	27.2	(22.4-32.0)	26.9	(22.4-32.0)	449
	Walloon Region	18.3	(14.6-22.1)	18.4	(14.9-22.5)	586

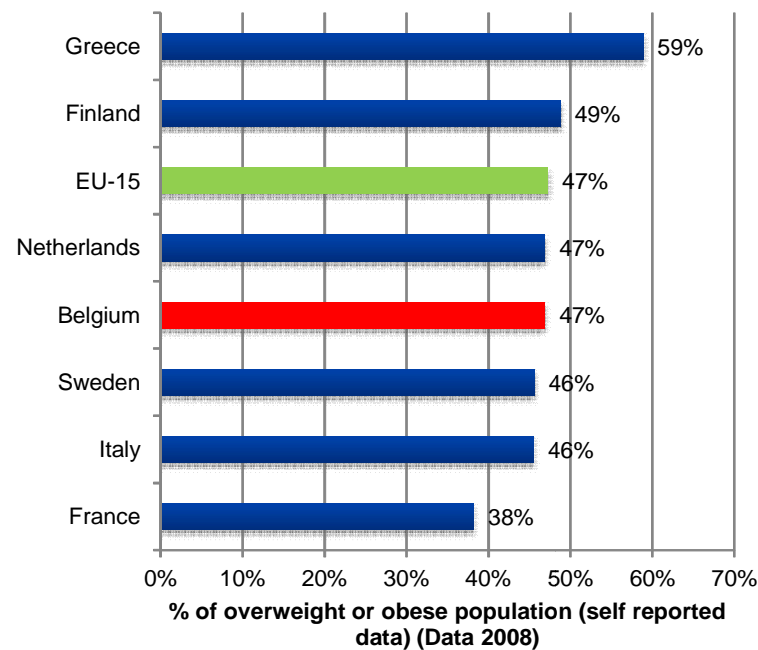
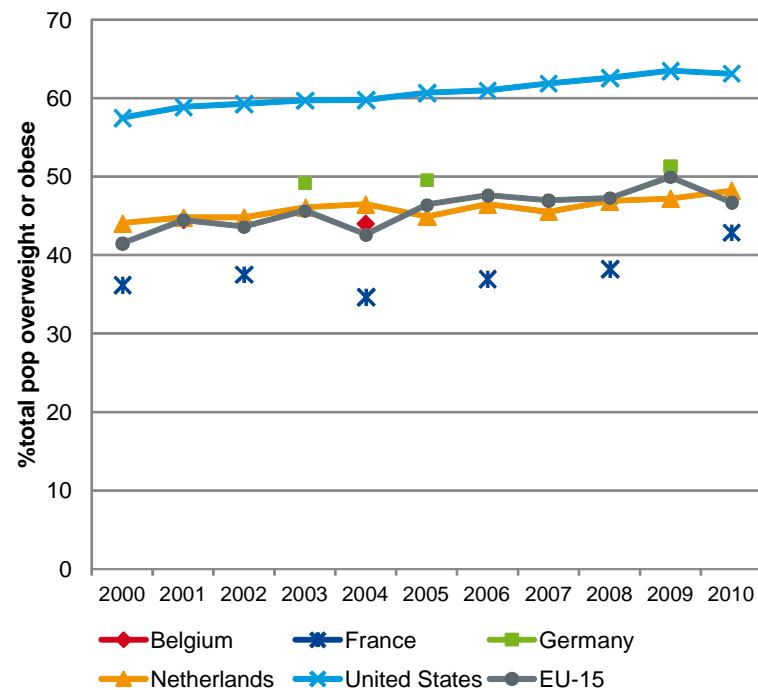

Table 52 – Percentage of youngsters (2-17 years) considered as being obese, by year, region and patients characteristics (2008)

		Crude mean	95% CI cru	Adj* mean	95% CI adj	N
YEAR	2008	5.1	(3.7-6.6)	4.5	(3.4-5.9)	1517
GENDER	Boys	5.7	(3.5-7.9)	4.6	(3.1-6.7)	776
	Girls	4.5	(2.8-6.3)	3.5	(2.3-5.5)	741
AGE GROUPE	2 - 4	8.1	(4.6-11.6)	8.0	(5.1-12.4)	313
	5 - 9	8.9	(5.5-12.3)	8.8	(6.0-12.7)	427
	10 - 14	2.0	(0.7-3.3)	1.9	(1.0-3.8)	475
	15 - 17	1.7	(0.2-3.2)	1.7	(0.7-4.0)	302
EDUCATION LEVEL	Primary/no degree	8.6	(0.0-17.6)	8.3	(3.2-19.7)	74
	Secondary inferior	13.1	(6.4-19.7)	10.8	(6.2-18.0)	182
	Secondary superior	6.4	(4.0-8.8)	4.8	(3.1-7.6)	495
	Superior education	2.6	(0.9-4.3)	1.9	(0.9-3.6)	736
REGION	Flemish Region	4.3	(2.1-6.4)	3.2	(1.9-5.3)	482
	Brussels Region	9.9	(6.3-13.5)	7.9	(5.1-12.1)	449
	Walloon Region	5.2	(3.1-7.2)	4.2	(2.7-6.4)	586

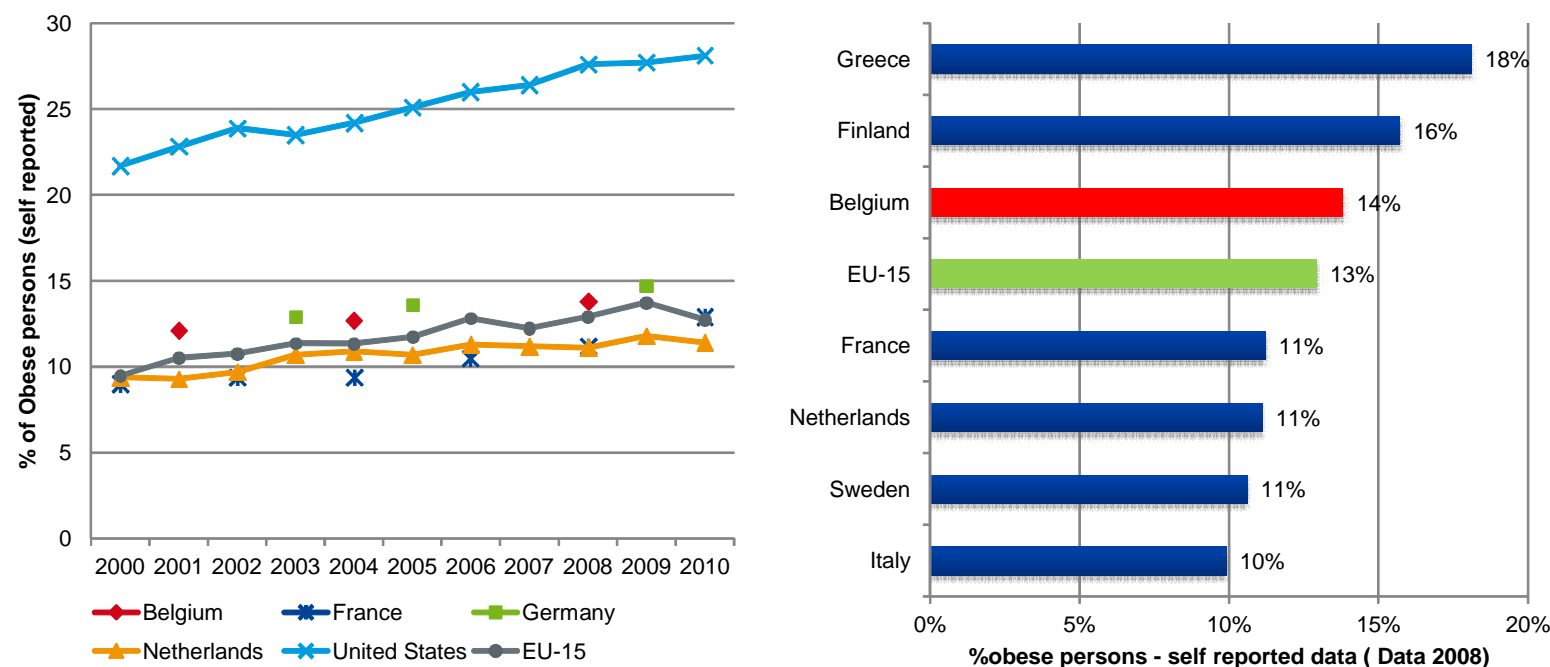


11.1.2.2. International comparison

Figure 65 – Percentage of population considered to be overweight or obese: international comparison (2000-2010)



Source: OECD Health Data 2012 (self reported data)

**Figure 66 – Percentage of population considered to be obese: international comparisons (2000-2010)**

Source: OECD Health Data 2012 (self reported data)

Key Points Overweight and obesity in adults

- In 2008, 47% of the population was in overweight, and 13% was obese. These percentages are increasing trends over time
- Both overweight and obesity increases sharply with age until 65 years, and are strongly associated with the educational level, with an obesity rate in the lowest educational level twice as high as in the higher educational level.
- Differences between regions are small
- Belgium situation is comparable to The Netherlands with regard to overweight persons, but percentage of obese is slightly higher.



11.2. Dental health: decayed, missing, filled teeth at age 12

11.2.1. Documentation sheet

Description	DMFT is an index that is used internationally, which describes the amount - the prevalence - of dental caries in an individual.
Calculation	<p>DMFT is a mean to numerically express the caries prevalence and is obtained by calculating the number of Decayed (D), Missing (M) , Filled (F) teeth (T) in children aged 12. If a tooth has both a caries lesion and a filling it is calculated as D only.</p> <p><i>Numerator: number of decayed, missing and filled teeth in children aged 12 from the survey sample.</i></p> <p><i>Denominator: number of children aged 12 in the survey sample.</i></p>
Rationale	<p>The extent of dental decay is measured using the DMFT index. It gives an idea about the effectiveness of health promotion / preventive measures for dental health.</p> <p>Several studies showed a relationship between a population's level of socio-economic development and dental caries (Armfield, 2007) (Downer <i>et al.</i>, 2008)</p>
Data source	<p>Primary data: System of registration and surveillance of the oral health of the Belgian population 2008-2010; data collection of this national survey in 2009-2010.</p> <p>"Système d'enregistrement et de surveillance de la santé bucco-dentaire de la population belge 2008-2010"</p> <p>"Dataregistratie- en evaluatiesysteem mondgezondheid Belgische bevolking 2008 – 2010"</p> <p>The next data collection should start in 2013.</p> <p>Indicator: WHO, 2012(WHO, 2012b) , OECD, 2011 (OECD, 2011c)</p>
Periodicity	The next data collection should start in 2013.
Technical definitions	<p>DMFT is used to get an estimation illustrating how much the dentition until the day of examination has become affected by dental caries.</p> <p>How many teeth have caries lesions (incipient caries not included)?</p> <p>How many teeth have been extracted?</p> <p>How many teeth have fillings or crowns?</p> <p>The sum of the three figures forms the DMFT-value.</p>
International comparability	<p>The CAPP (oral health country/area profile project) database is established in support of the WHO Global Oral Health Programme for oral health surveillance. According to WHO recommendation, a standardized reporting system is used; data are presented by standard age groups to provide for inter- and intra-country comparisons of oral health status. (See http://www.mah.se/CAPP/.)</p> <p>Measured by survey of a sample of 12-years old children. Data have been obtained from standard surveys assisted by WHO, or from published literature using comparable methods and are working estimates rather than being fully representative. Therefore, the</p>



	international comparability is limited (http://data.euro.who.int/hfadb/).
Dimensions	Quality (Effectiveness)
Keywords	Health outcomes
Related indicators	Check-ups at the dentist for children
References	OECD Health Data 2011 (OECD, 2011c) Rapport final du projet « système d'enregistrement et de surveillance de la santé bucco-dentaire de la population belge 2008-2010 ». Cellule Interuniversitaire d'Epidémiologie. (Cellule Interuniversitaire d'Epidémiologie, 2012)

11.2.2. Results

In 2009-2010, the mean DMFT score was 0.9.

The number of studies performed in Belgium to date still remains limited and are often limited to small selected areas. (Vanobbergen *et al.*, 2001). WHO goals set for the year 2010 of a maximum mean DMFT score below 1.0 for 12-year-olds; this goal seems to have been reached. Nevertheless, 43.3% of the children had sign(s) of dental caries in permanent teeth.

Although the international comparability is limited, the table below gives also estimates for some neighbouring countries and the United States of America.



Table 53 – Average Decayed, Missing, filled Teeth (DMFT) score for 12-year-olds: international comparison

Country	Year	DMFT
Belgium		
Flanders	2001	1.1
	2009-10	0.9
France	2006	1.2
Germany	2000	1.2
	2004	0.98
	2005	0.7
Netherlands		
The Hague	2002	0.8
United Kingdom		
England and Wales	2000-01	0.9
Great Britain	2004-05	0.7
England	2008-09	0.7
United States of America	1999-2004	1.19

Source: <http://www.mah.se/CAPP/>, accessed 9/5/2012

Key Points Dental health: decayed, missing, filled teeth at age 12

- The number of studies performed in Belgium to date still remains limited and are often limited to small selected areas.
- In a 2009-2010, the mean DMFT score was 0.9. WHO goals set for the year 2010 of a maximum mean DMFT score below 1.0 for 12-year-olds; this goal seems to have been reached.
- More data are needed on trends over time, geographic variability and differences by socio economic status.



11.3. Incidence of HIV

11.3.1. Documentation sheet

Description	Incidence of HIV-infected people in a given calendar year, per 100,000 population.
Calculation	The rates are calculated as the number of newly diagnosed cases per 100,000 population, based on the number of cases reported by national surveillance systems to the joint WHO-Euro/ECDC database for HIV/AIDS surveillance in The European Surveillance System (TESSy).
Rationale	HIV is one of the most important communicable diseases in Europe. It is an infection associated with serious morbidity, high costs of treatment and care, significant mortality and shortened life expectancy. It is also a perfectly avoidable infection, since the transmission is largely avoidable by behavioural measures (safe sex, safe injection). Therefore its incidence in a defined population is an indicator of the success/failure of health promotion.
Primary Data source	IPH: National Surveillance Program of HIV/AIDS
Indicator source	IPH for regional comparisons, and & Joint Report of the European HIV/AIDS Surveillance system and the WHO-Europe for international comparisons
Periodicity	Yearly
Technical definitions and limitations	A case of HIV infection is defined following the European AIDS and HIV surveillance case definitions. The HIV infection long remains asymptomatic. It results that people can live a while before being diagnosed. The reported rates are not incidence rates but diagnostic rates. The year of infection is often not known.
International comparability	ECDC and the WHO Regional Office for Europe jointly coordinate HIV/AIDS surveillance in Europe. The surveillance data on HIV and AIDS diagnoses are collected and submitted annually by the national HIV/AIDS surveillance programs in the Member States to The European Surveillance System (TESSy). However, the comparability remains somehow limited. There are differences in the dataflow and in the way to handle with double registration.
Dimensions	Quality-effectiveness of HP
Related indicators	none
References	ECHI Short list (ECHIM, 2005a) Epidémiologie du Sida et de l'infection à VIH en Belgique (Sasse <i>et al.</i> , 2011) HIV / AIDS surveillance in Europe in 2010(ECDC, 2011)



11.3.2. Results

11.3.2.1. Belgium

The diagnostic rate in the whole Belgium and for all cases is around 10 for 100.000.

Belgium has the particularity to have a large proportion of non-Belgian cases (60% of cases with a known nationality), being a mix of resident and non-resident people. A large proportion of the non-Belgian cases originate from countries with a high prevalence.

A part of this large number of non-Belgian cases are imported cases, and as such cannot be interpreted as a failure of health promotion in Belgium. The reasons of the importance of imported cases in Belgium are not well known and should be further explored.

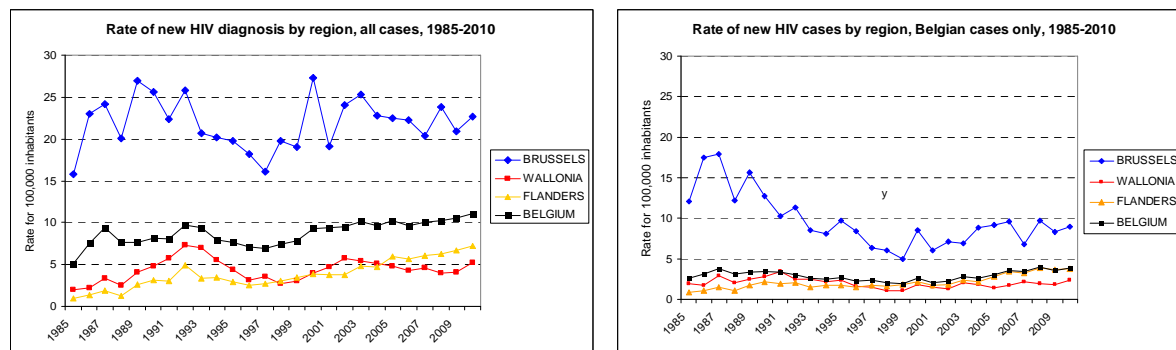
For Belgian cases only, the rate is fluctuating around 3-4 for 100.000.

Figure 67a and b show the evolution of the diagnostic rate of HIV by region from 1985 to 2010, for all cases and for Belgian cases only^c. The rates in Flanders and Wallonia are quite comparable. However, a steady increase is observed in Flanders since 1997.

The rates in Brussels are much higher than in the other regions; the Brussels region is indeed limited to a big city, with the socio-cultural characteristics of an urban context. A high HIV-rate is an usual phenomenon observed in big towns. The HIV-rates in the two other regions represent an average of rates from rural, semi-urban and urban context.

For Belgian patients, the most frequent way of infection was male homosexual contact. (Sasse *et al.*, 2011)

Figure 67a and b – Diagnostic rate of HIV, by region, for all cases (a) and for Belgian cases only (b) (1985 – 2010)



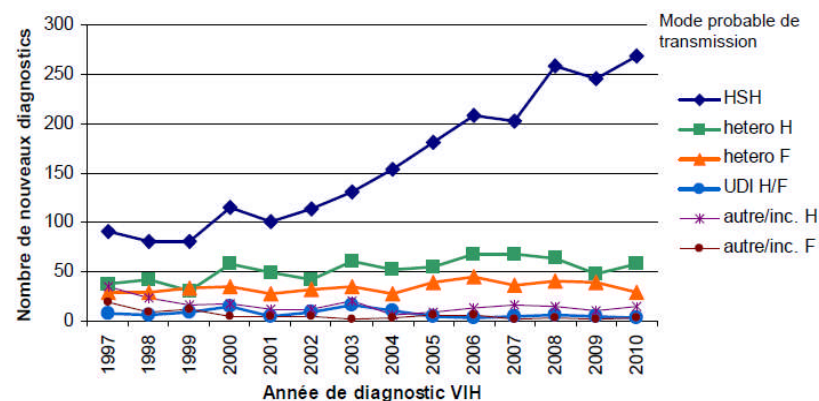
(Sasse *et al.*, 2011)

^c Dr A.Sasse, Responsible of the HIV-STD Belgian surveillance programme at the IPH, personal communication.



Figure 68 – Probable ways of transmission for the HIV Belgian cases (1997-2010)

Figure 5bis: Evolution des diagnostics VIH des patients belges par mode probable de transmission (1997-2010)



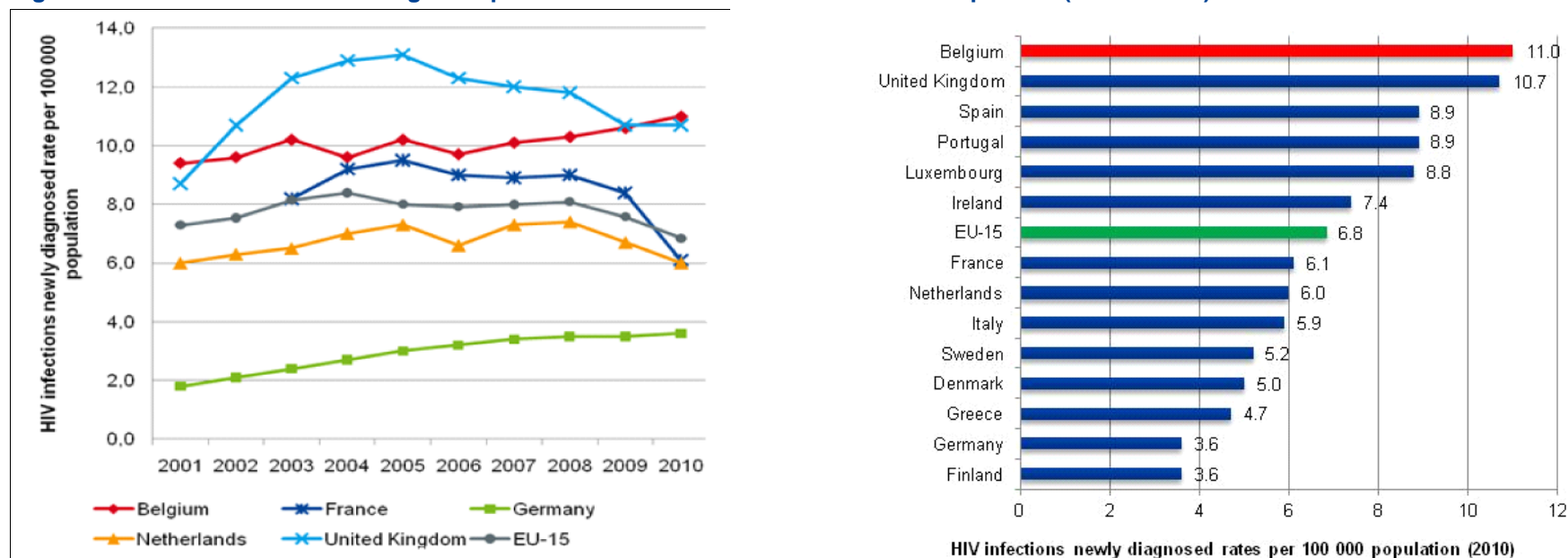
Source: Dr A.Sasse, Responsible of the HIV-STD Belgian surveillance programme at the IPH, personal communication

11.3.2.2. International comparison

Figure 69 shows the annual rates by EU-15 countries between 2001 and 2010. (ECDC, 2011). The observed rate in Belgium is one of the highest observed in Europe (only UK and Portugal shows higher rate). However, the comparability between countries is quite limited. There are differences in the dataflow and in the way to handle double registration. Belgium has set up a laboratory-based surveillance system that allows for a quasi-exhaustivity of the registration. Lower rates in some countries could be imputed in some extent to a lack in exhaustivity.



Figure 69 – Rate of the new HIV diagnosis per 100 000 inhabitants: international comparison (2001 – 2010)



Source: OECD Health Data 2012

Key Points HIV

- the rate of new HIV infection in Belgium is a bit higher than the European (EU15) mean. A large proportion of cases imported cases, with different patterns of transmission.
- The rate in Brussels is higher than in the other regions, representing an urban phenomenon.
- The male homosexual transmission is the main way of transmission for the Belgian cases. The number of cases resulting from this transmission way is increasing. This rate is higher in Flanders (data not shown). The cases transmitted by other ways are not diminishing.
- The possibility to prevent new HIV infection exists and is well known. While the HIV-epidemic has been maintained to a quite stable level in Belgium, the objective of decreasing the infection rate has not been reached up to now. More attention should be paid to the efficiency of the health promotion policies in the field of HIV and more generally, STDs. A behavior monitoring related to HIV-transmission patterns is being set up and could help to define preventive strategies.



11.4. Daily smokers

11.4.1. Documentation sheet

Description	Proportion of the population aged 15 years and older reporting to smoke on a daily basis (smoking includes the consumption of cigarettes, cigars and pipes).
Calculation	Percentage of people aged 15 years and older participating to the health Interview survey (HIS), reporting that they smoke every day.
Rationale	Tobacco use is considered to be one of the biggest public health threats. It is from far the main risk factor for a number of chronic diseases, including lung cancer and cardiovascular diseases. It is also one of the most preventable causes of morbidity and mortality in the world today. Urgent action is necessary; otherwise, according to the WHO, the number of people dying from tobacco use worldwide each year will increase by a quarter by 2030. Therefore, the prevalence of smoking is considered an important indicator of health promotion outcome.
Primary Data source	IPH: Health Interview Survey, 1997-2001-2004-2008
Indicator source	Idem; for international comparison, data come from EUROSTAT (collected from national HIS)
Periodicity	Every 3-5 years
Technical definitions	<p>The indicator is derived from the combination of 2 questions of the HIS; there were slight changes between the different surveys, but those didn't impact the comparability of the indicator over time.</p> <p>1997 and 2001: TA.01: Do you smoke? Yes, every day; Yes, from time to time; No.</p> <p>2004: TA.01: Have you ever smoked at least 100 cigarettes, or the equivalent amount of tobacco, in your lifetime? Only when the answer is 'yes', the next question is asked.TA.02: Do you smoke at the moment? Yes, every day; Yes, from time to time; No.</p> <p>2008: TA01: idem; TA.05: Do you smoke at all nowadays? Yes, daily; Yes, occasionally; Not at all.</p>
International comparability	<p>Availability: yes. The questions are part of the EHIS, and the indicator is published by EUROSTAT and OECD. The indicator definition and the methodology are quite comparable between countries. Many efforts are performed at European level to harmonize the methods and the definitions. Some small differences exists regarding the year of the survey, and sometimes the formulation of the question,</p> <p>Comparability: the year of reporting is not the same in each country, depending when they carried out their national HIS (f.i. last year:2000 in Finland) , which could hamper the comparability.</p>
Dimensions	Quality-effectiveness of Health Promotion
Keywords	Health Promotion; Lifestyle

**Related indicators**

none

References

HIS Belgium, 2008 (Gisle *et al.*, 2008)
ECHI Short list(ECHIM, 2005a)
WHO Tobacco Free Initiative, 2011 (WHO, 2011)
OECD Health Data 2012(OECD, 2012b), Health at a glance(OECD, 2011b)
WHO Health for all Data base(WHO, 2012c)
EUROSTAT(Eurostat, 2012)

11.4.2. Results**11.4.2.1. Belgium**

The percentage of daily smokers was around 20% in Belgium in 2008. It has significantly decreased since 10 years. It is higher in men than in women, in all age groups. However, the rate is decreasing more in men than in women.

The rate of daily smokers in the people aged 15-24 is slightly lower than in the older age groups but still reaches 20% (the rate of all smokers at this age is 25%). This group should be a priority for the health promotion, because habits taken at young age are more difficult to quit, and also because more years are lived with tobacco for people who began young, placing them more at risk of developing a tobacco-related disease.

The Belgian rate is slightly below the EU-15 average rate.

This indicator is one of the most illustrative of socio-economic disparities in health behaviour. The decreasing in the rate is mostly the fact of people of high educational level, in which the level of smoking, after adjusting for age, is 3 times lower than in the lowest educational level.

The expert panel recommends monitoring the specific rate at age 15 years (to see the evolution of the initiation habits). This could rather be done through the HBSC surveys (larger sample for this age group).

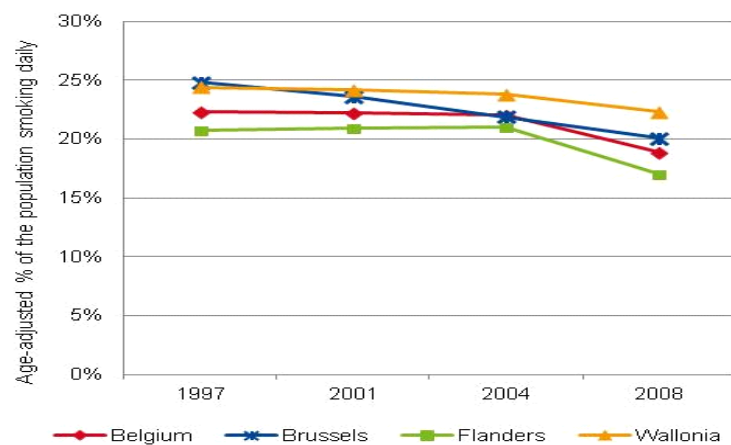
In conclusion: the health promotion should target young people, and people with a low educational level. Appropriate strategies should be examined.


Table 54 – Percentage of the population (aged 15 years or older) that smokes daily (2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	20.5	(19.1-21.9)	18.9	(17.5-20.3)	7593
GENDER	Male	23.6	(21.6-25.5)	21.7	(19.8-23.7)	3504
	Female	17.7	(16.0-19.4)	16.4	(14.9-18.1)	4089
AGE GROUP	15 - 24	18.7	(15.3-22.1)	18.5	(15.3-22.1)	907
	25 - 34	23.4	(19.8-27.1)	23.4	(19.9-27.3)	1095
	35 - 44	24.5	(21.3-27.8)	24.5	(21.3-27.9)	1267
	45 - 54	28.8	(25.3-32.2)	28.6	(25.2-32.2)	1196
	55 - 64	18.4	(15.5-21.2)	18.2	(15.6-21.3)	1153
	65 - 74	12.9	(8.9-17.0)	12.9	(9.4-17.5)	719
	75 +	4.5	(3.0-6.0)	4.6	(3.3-6.4)	1256
EDUCATION LEVEL	Primary/no degree	22.1	(18.1-26.1)	29.4	(24.6-34.7)	957
	Secondary inferior	29.1	(24.7-33.5)	30.0	(25.4-34.9)	1204
	Secondary superior	25.1	(22.5-27.8)	21.9	(19.5-24.5)	2351
	Superior education	13.1	(11.3-14.9)	10.1	(8.6-11.7)	2906
URBANISATION LEVEL	Urban	21.2	(19.3-23.2)	19.7	(17.9-21.6)	4151
	Sub-urban	20.0	(16.8-23.2)	18.3	(15.4-21.5)	1357
	Rural	19.8	(17.2-22.4)	18.1	(15.6-20.8)	2085
REGION	Flemish Region	18.6	(16.6-20.5)	17.0	(15.2-19.0)	2993
	Brussels Region	22.3	(20.0-24.6)	20.1	(17.9-22.4)	1941
	Walloon Region	24.0	(21.6-26.3)	22.3	(20.1-24.7)	2659

Source: Health Interview Survey 2008, Belgium

*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference)

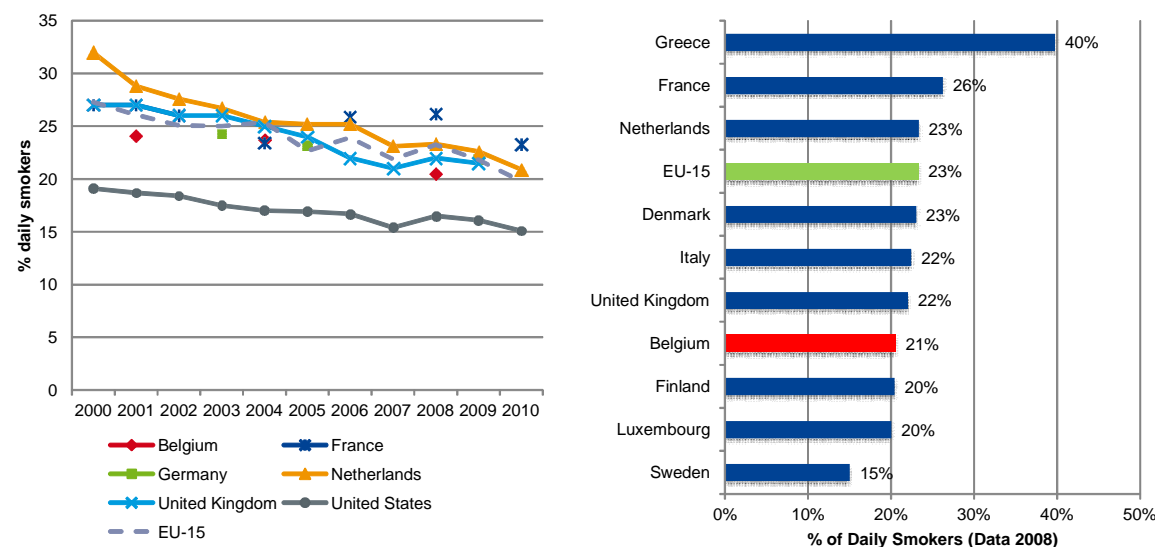
**Figure 70 – Percentage of the population (aged 15 or older) that smokes daily, by region (1997-2008)**

Source: Health Interview Surveys, Belgium



11.4.2.2. International Comparison

Figure 71 – Percentage of the population (aged 15 and older) that smokes daily: international comparison (2000-2010)



Source: OECD Health Data 2012

Key Points Daily smokers

- The percentage of daily smokers was around 20% in Belgium in 2008. It has significantly decreased since 10 years. It is higher in men than in women, in all age groups. However, the rate is decreasing more in men than in women
- The Belgian rate is slightly below the EU-15 average rate
- This indicator is one of the most illustrative of socio-economic disparities in health behaviour. The decreasing in the rate is mostly the fact of the higher educated people, in which the proportion of daily smokers after adjusting for age, is 3 times lower than in the low educated people.
- Young people are a target for health promotion policies
- Monitoring of the initiating habits should be performed by following the successive 15 years cohorts with an appropriate sample



11.5. Hazardous alcohol consumption

11.5.1. Documentation sheet

Description	<p>% of the population 15 years and older with hazardous drinking, defined as:</p> <p>average weekly drinking exceeding a harmful threshold</p> <p>the consumption of 6 or more alcoholic drinks on the same occasion, on a regular basis (called "Risky single occasion drinking")</p> <p>the problematic alcohol consumption</p>		
Calculation	<p>Percentage of 1) men and 2) women aged 15 years and older responding to the HIS who reports consuming more than 1) 21 and 2) 14 drinks per week (respectively more than 210 g and 140 g per week).</p> <p>Percentage of the population aged 15 and older responding to the HIS who reports to drink 6 or more drinks on the same occasion at least once a week.</p> <p>Percentage of the population aged 15 and older responding to the HIS who reports a problematic alcohol consumption as measured by the CAGE questionnaire (tendency to alcohol addiction)</p>		
Rationale	<p>A substantial part of health, social and economic burden is caused by health problems attributable to hazardous alcohol consumption. Reducing this burden is a priority area for public health, which can be reached through the implementation of proven alcohol reduction strategies. Therefore, excessive alcohol consumption is considered an important indicator to monitor.</p>		
Primary Data source	IPH: Health Interview Survey, 2001-2004-2008		
Indicator source	Idem		
Periodicity	Every 3-5 years		
Technical definitions and limitations	<p>The questions on alcohol consumption are quite long and so we refer the reader to the HIS questionnaires at https://www.wiv-isp.be/epidemie/epifr/index4.htm</p> <p>There is no clear consensus on the level of harmful alcohol consumption (the cut-off has changed many times over the past decade). A threshold of harmful weekly alcohol consumption of >21 weekly drinks (containing 10g of alcohol) for men and >14 for women was previously recommended by the WHO. This threshold has been replaced by a new one, that is >28 glasses for men and >14 for women. In the present report, we have still adopted the threshold ">21 - >14" in order to be consistent with the HIS reports. However, it is likely that the ECHIM indicator will adopt the new one. We shall adapt the calculation in the future if necessary.</p>		
Limitation	<p>It is very difficult to measure the consumption of alcohol :</p> <ul style="list-style-type: none"> - The quantity of several types of alcohol is derived from the number of glasses reported, but their volume and the ethanol contain is not always known, and varies between countries - Excessive alcohol consumption is a sensitive topic. Self-reported consumption suffers from social desirability bias. 		



	- People engaging in heavy drinking underestimate their consumption because of the effect of alcohol itself
International comparability	Currently no international comparison is available for the self-reported indicators of consumption (nor harmful nor binge drinking); up to now, international comparisons are made on average per capita consumption, computed on sales. There are plans to standardise the questionnaire in the framework of the EHIS wave II with hopefully the possibility to make international comparisons in the future.
Dimensions	Quality-effectiveness of Health Promotion
Keywords	Health Promotion; Lifestyle
Related indicators	Tobacco consumption
References	HIS Belgium(Gisle <i>et al.</i> , 2008) ECHI Short list(ECHIM, 2005a) English DR et al, 1995(English <i>et al.</i> , 1995) WHO alcohol consumption, 2000(WHO, 2000)

11.5.2. Results

11.5.2.1. Belgium

Because of the difficulties to measure and interpret alcohol consumption, we have looked at 3 indicators together.

- In 2008, the crude proportion of overconsumption of alcohol (defined as >21 g daily for men and >14 g daily for women) was 8% (table 1).

This behaviour was almost twice as frequent in men than in women.

Overconsumption is already common in young people (15-24 year) ; regional differences are seen in this age group, with more young people reported overconsumption in Flanders than in the other regions (data not shown here , see full report https://www.wiv-isp.be/epidemie/epifr/CROSPFR/HISFR/his08fr/r2/7.la%20consommation%20d'alcool_r2.pdf).

At Belgian level, there is a small decrease of the overconsumption over time (graph 1), but it is difficult to interpret as it seems to correspond to inverse regional fluctuations (decrease in Flanders and Brussels, increase in Wallonia).

- - The crude proportion of people that consumed at least 6 drinks on the same occasion at least once a week was 8% (table 2). It appears to be more frequent in men than in women. This behaviour is typically more frequent in young people with regards to the older, mostly in Flanders.
- - The crude rate of problematic drinking (tendency to alcohol dependency, as measured by the CAGE questionnaire) was 10% (table 3). This rate has shown a steady increase with time in all regions, except for Wallonia in 2008 (graph 2). It is more frequent in Brussels.

In conclusion:

Eight percent of the people reported an excessive weekly consumption of alcohol, and 10% of the people declared some problematic consumption (tendency to dependence) . The rate of problematic consumption is increasing over time. It is most frequent in Brussels.

The regular risky excessive consumption on the same occasion among young people is of concern.



Table 55 – Percentage of the population (aged 15 years or older) with a weekly alcohol overconsumption (15+ in women; 22+ in men) (2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	7.9	(7.0-8.8)	7.2	(6.4-8.1)	7295
GENDER	Male	10.1	(8.8-11.4)	9.3	(8.1-10.7)	3354
	Female	5.9	(4.9-7.0)	5.6	(4.7-6.7)	3941
AGE GROUP	15 - 24	7.4	(5.0-9.8)	7.1	(5.1-9.9)	863
	25 - 34	6.4	(4.5-8.4)	6.3	(4.6-8.5)	1061
	35 - 44	6.5	(4.7-8.2)	6.3	(4.8-8.3)	1226
	45 - 54	9.1	(7.0-11.2)	8.9	(7.0-11.2)	1155
	55 - 64	13.5	(10.8-16.2)	13.2	(10.7-16.1)	1100
	65 - 74	6.6	(4.2-9.1)	6.5	(4.5-9.3)	687
	75 +	3.8	(2.2-5.3)	3.8	(2.5-5.8)	1203
EDUCATION LEVEL	Primary/no degree	5.9	(3.9-8.0)	5.8	(4.0-8.3)	908
	Secondary inferior	7.5	(5.2-9.8)	6.6	(4.9-8.9)	1144
	Secondary superior	7.9	(6.3-9.5)	7.2	(5.8-8.9)	2261
	Superior education	8.4	(6.9-9.8)	7.6	(6.3-9.2)	2808
URBANISATION LEVEL	Urban	7.7	(6.4-9.0)	7.1	(6.0-8.4)	4013
	Sub-urban	8.2	(6.2-10.1)	7.5	(5.9-9.5)	1287
	Rural	8.0	(6.4-9.5)	7.2	(5.9-8.8)	1995
REGION	Flemish Region	7.9	(6.6-9.1)	7.1	(6.0-8.4)	2888
	Brussels Region	6.7	(5.4-7.9)	6.3	(5.2-7.6)	1869
	Walloon Region	8.4	(6.8-9.9)	7.7	(6.4-9.2)	2538

Source: Health Interview Survey, Belgium

*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference)



Table 56 – Percentage of the population (aged 15 years or older) with a regular (at least once a week) risky single -occasion drinking (≥ 6 drinks) (2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	8.1	(7.2-9.0)	6.4	(5.5-7.4)	7521
GENDER	Male	12.8	(11.3-14.4)	11.8	(10.4-13.4)	3469
	Female	3.7	(2.8-4.6)	3.4	(2.7-4.4)	4052
AGE GROUP	5 - 24	12.1	(9.1-15.1)	10.4	(7.8-13.6)	895
	25 - 34	8.0	(5.9-10.1)	6.9	(5.2-9.1)	1086
	35 - 44	7.1	(5.3-9.0)	6.0	(4.6-8.0)	1256
	45 - 54	9.3	(7.0-11.6)	7.9	(6.1-10.2)	1189
	55 - 64	10.1	(7.8-12.4)	8.6	(6.7-11.0)	1139
	65 - 74	4.8	(2.7-7.0)	4.1	(2.6-6.5)	715
	75 +	2.1	(0.7-3.5)	1.9	(1.0-3.8)	1241
EDUCATION LEVEL	Primary/no degree	8.3	(5.1-11.5)	8.8	(5.9-13.0)	943
	Secondary inferior	9.0	(6.6-11.4)	7.6	(5.8-10.0)	1196
	Secondary superior	8.1	(6.4-9.7)	6.1	(4.7-7.8)	2322
	Superior education	7.6	(6.3-8.9)	5.5	(4.5-6.8)	2882
URBANISATION LEVEL	Urban	7.4	(6.1-8.6)	5.8	(4.7-7.2)	4112
	Sub-urban	8.2	(6.2-10.1)	6.5	(5.0-8.5)	1335
	Rural	9.0	(7.3-10.8)	7.1	(5.8-8.8)	2074
REGION	Flemish Region	8.9	(7.5-10.2)	7.0	(5.9-8.4)	2965
	Brussels Region	6.2	(4.8-7.5)	4.8	(3.7-6.1)	1916
	Walloon Region	7.0	(5.7-8.3)	5.6	(4.5-6.9)	2640

Source: Health Interview Survey, Belgium

*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference)



Table 57 – Percentage of the population (aged 15 years or older) with problematic alcohol consumption (based on CAGE, 2+ cut off) (2008)

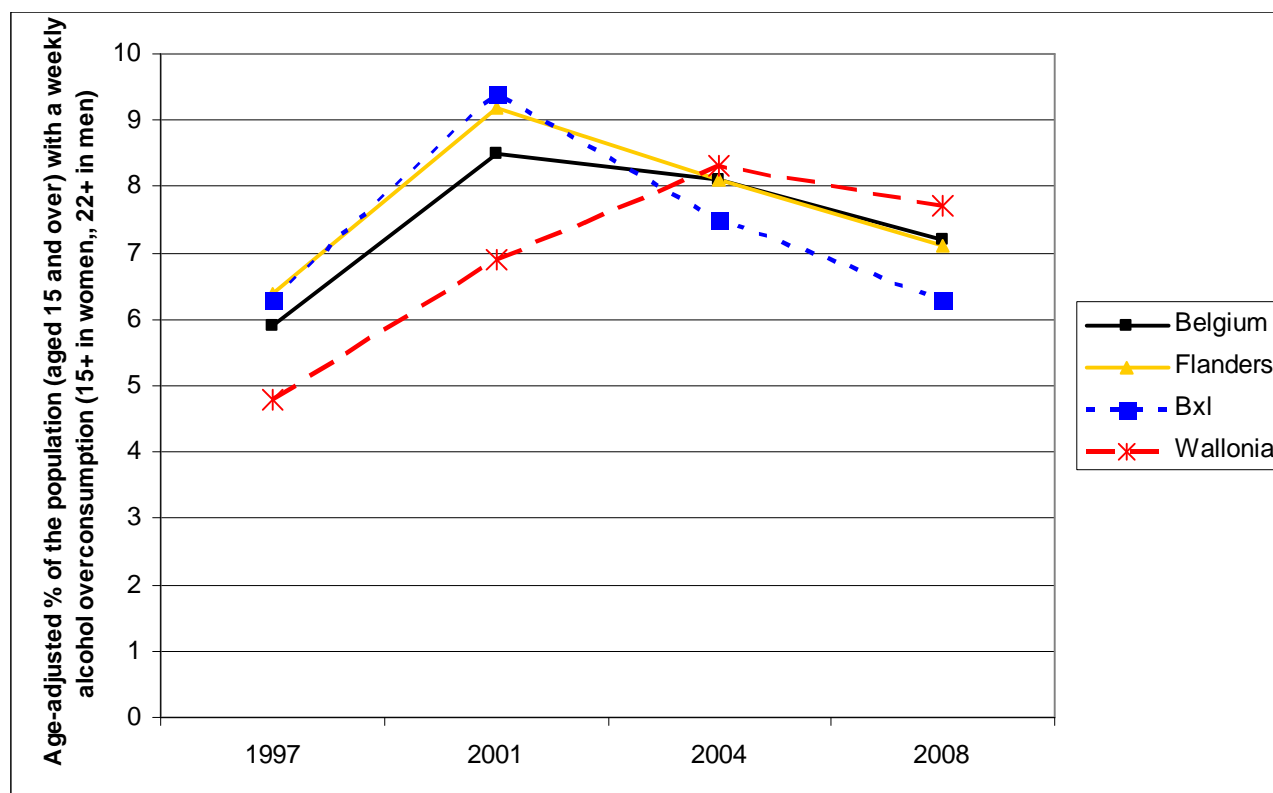
		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	10.2	(9.2-11.3)	8.9	(8.0-9.9)	5739
GENDER	Male	13.1	(11.4-14.7)	12.0	(10.5-13.6)	2846
	Female	7.3	(6.1-8.5)	6.7	(5.6-7.9)	2893
AGE GROUP	15 - 24	7.8	(5.2-10.4)	7.4	(5.3-10.3)	668
	25 - 34	11.8	(9.0-14.7)	11.4	(8.9-14.4)	832
	35 - 44	10.4	(8.0-12.8)	10.0	(7.9-12.6)	996
	45 - 54	13.2	(10.4-16.1)	12.7	(10.1-15.7)	971
	55 - 64	12.1	(9.6-14.7)	11.6	(9.3-14.3)	936
	65 - 74	6.7	(4.4-9.0)	6.4	(4.5-8.9)	525
	75 +	3.2	(1.6-4.8)	3.1	(1.9-5.0)	811
EDUCATION LEVEL	Primary/no degree	11.5	(6.9-16.1)	12.9	(8.7-18.7)	534
	Secondary inferior	7.1	(4.9-9.3)	6.3	(4.5-8.7)	811
	Secondary superior	9.9	(8.0-11.8)	8.4	(6.9-10.3)	1769
	Superior education	11.0	(9.5-12.5)	9.2	(7.9-10.7)	2504
URBANISATION LEVEL	Urban	11.3	(9.7-12.8)	10.0	(8.6-11.5)	3050
	Sub-urban	8.1	(6.1-10.0)	6.9	(5.4-8.9)	1049
	Rural	10.4	(8.4-12.4)	9.0	(7.4-10.8)	1640
REGION	Flemish Region	9.5	(8.1-11.0)	8.3	(7.1-9.7)	2364
	Brussels Region	14.4	(12.2-16.7)	12.7	(10.7-15.0)	1376
	Walloon Region	10.7	(9.1-12.3)	9.3	(7.8-10.9)	1999

Source: Health Interview Survey, Belgium

*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference)



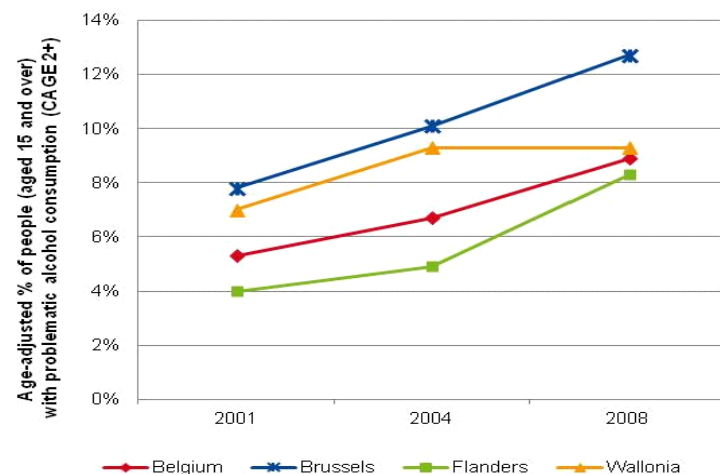
Figure 72 – Percentage of the population (aged 15 years or older) with a weekly alcohol overconsumption (15+ in women; 22+ in men), by region (1997-2008)



Source=Health Interview Surveys, Belgium



Figure 73 – Percentage of the population (aged 15 years or older) with problematic alcohol consumption (based on CAGE, 2+ cut off), by region (2001-2008)



Source=Health Interview Surveys, Belgium

Key Points Hazardous alcohol consumption

- In 2008, 8% of the population was considered to have a weekly alcohol overconsumption. Overconsumption is already common in young people (15-24 year) Regional differences are observed in this age group, with more young people reported overconsumption in Flanders than in the other regions.
- At Belgian level, there is a small decrease of the overconsumption over time, but it is difficult to interpret as it seems to correspond to inverse regional fluctuations (decrease in Flanders and Brussels, increase in Wallonia)
- The problematic alcohol consumption (trends to dependency seems to increase in all regions, and mostly in Brussels)
- The regular risky single-occasion drinking (more than 5 glasses) among young people is of concern



11.6. Consumption of fruits and vegetables

11.6.1. Documentation sheet

Description	<p>Percentage of population reporting to eat:</p> <p>1.a. fruits and 1.b. vegetables at least once a day</p> <p>2. enough according to the nutritional needs (proxy computed from the questions of the HIS: at least 2 portions of fruits and 200g of vegetables each day)</p>
Calculation	<p>Indicator 1.a.: Percentage of people reporting to eat fruits (excluding juice) at least once a day, derived from EHIS question NH01. How often do you eat fruits? 1. Twice or more a day / 2. Once a day / 3. Less than once a day but at least 4 times a week / 4. Less than 4 times a week, but at least once a week / 5. Less than once a week / 6. Never (answering categories 1 and 2 => yes; 3-6 => no). Indicator 1.b.: Percentage of people reporting to eat vegetables (excluding potatoes and juice) at least once a day, derived from EHIS question FV.2. How often do you eat vegetables or salad (excluding juice and potatoes)? 1. Twice or more a day / 2. Once a day / 3. Less than once a day but at least 4 times a week / 4. Less than 4 times a week, but at least once a week / 5. Less than once a week / 6. Never (answering categories 1 and 2 => yes; 3-6 => no).</p> <p>Indicator 2: combines the answers to the 2 previous questions with the questions NH02 (When eating fruit, how much do you eat?: <2; ≥2) and NH04 (When eating vegetables, how much do you eat? <200g; 200g; >200g)</p>
Rationale	The consumption of fruits and vegetables is a good proxy for a healthy diet. Fruits and vegetables are a dietary protective factor for tobacco related and several other cancers as well as for cardiovascular disease. The use of fruit and vegetables decreases in many countries. Amenable to interventions.
Primary Data source	IPH: HIS 2001-2004-2008
Indicator source	idem
Periodicity	Every 3-5 years
Technical definitions	The details of the questions are explained in the Users Manual of the HIS 2008 (p.59)
Limitations	<p>The nutritional recommendations are very much higher than the actual consumption (5 portions a day, or 2 portions fruits & 300 g vegetables) Therefore, this measure alone would not been sensitive enough to changes. To monitor the progress, additional intermediate indicators should also be followed (f.i, eating fruits at least once a day)</p> <p>The current recommendation of the WHO (5 portions a day) cannot be measured as such with the current version of the HIS. Therefore, a proxy is used. Next HIS should allow to compute an indicator better linked to the nutritional recommendations.</p>
International comparability	The results are scarce; the question was asked in the EHIS first wave, and results are available for 2009 for some countries, for indicators 1a and 1b. Only a few countries from the EU-15 answered this question.
Dimensions	Quality-effectiveness of Health Promotion
Keywords	Health Promotion; Lifestyle
Related indicators	Link to obesity and physical activity



References

HIS Belgium (Charafeddine *et al.*, 2012) (IPH, 2010)
ECHI Short list (ECHIM, 2005a)
National Food and Health Plan, 2005-2010 (FPS Health Food Chain Safety and Environment, 2005)
De actieve voedingsdriehoek, Vlaams Instituut voor Gezondheidspromotie and Stichting tegen Kanker (VIGEZ, 2012)
Vlaams Actieplan voeding en beweging 2009-2015 (Vlaams Agentschap Zorg & Gezondheid, 2012)

11.6.2. Results

11.6.2.1. Belgium

In 2008, the HIS revealed that almost two-third of the population ate fruits every day, what is an improvement compared to 2004. The daily vegetables consumption was still higher than that of fruits (84,8%). Within the countries participating to the European Health Interview Survey who sent data for this question (very few EU-15 countries answered this question), Belgium ranked above the average for the fruit daily consumption, and reported the highest consumption of vegetables daily. There was no indicator published related to the quantity.

However, when looking at the indicator related to the quantity, we notice that **only 26% of the people** ate 2 fruits and 200g vegetable daily (this level was chosen as an available proxy of the daily needs, but is still inferior to them).

For all fruits and vegetables related indicators, women have a better consumption than men, there is a clear increasing gradient with a higher educational level, and the prevalence is better in the Flemish Region than in the Walloon Region. The consumption of vegetables is the best in (semi) rural area, as expected.

The consumption of fruits and vegetables is the lowest in young people (15-24 year) for both indicators.

In children, we see a discrepancy between the 2 levels of consumption: while 70% of them eat at least one fruit and 85% vegetables daily, only 12% of the children eat enough fruits and vegetables for their daily needs.

In conclusion: it seems that the policy efforts have allowed to get a good coverage of the daily consumption of fruit and vegetable, but the daily amount is far from being sufficient. The efforts in improving the nutritional habits should now focus on increasing the quantity of fruits and vegetables daily, and especially for children. Given the observed social inequalities, the financial (and cultural) accessibility should be considered.



Table 58 – Percentage of the population that eats fruit (excluding juice) daily (2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	64.3	(62.7-65.8)	62.6	(60.9-64.3)	11179
GENDER	Male	59.8	(57.9-61.8)	60.0	(58.0-62.0)	5197
	Female	68.4	(66.6-70.3)	68.4	(66.5-70.2)	5982
AGE GROUP		69.9	(66.5-73.3)	70.2	(66.6-73.5)	1587
	0 - 14					
	15 - 24	48.9	(44.6-53.2)	49.0	(44.7-53.4)	1198
	25 - 34	57.9	(53.9-61.8)	57.9	(53.9-61.8)	1329
	35 - 44	59.7	(56.1-63.3)	59.9	(56.2-63.4)	1496
	45 - 54	63.9	(60.5-67.3)	64.1	(60.6-67.4)	1400
	55 - 64	71.0	(67.7-74.2)	71.2	(67.9-74.3)	1329
	65 - 74	73.3	(68.4-78.2)	73.2	(68.1-77.8)	874
	75 +	73.9	(70.9-76.9)	73.2	(70.0-76.1)	1966
EDUCATION LEVEL		64.0	(60.1-67.9)	58.2	(53.6-62.7)	1528
	Primary/no degree					
	Secondary inferior	61.9	(57.7-66.1)	59.4	(54.9-63.8)	1719
	Secondary superior	59.8	(57.0-62.7)	60.9	(57.9-63.7)	3395
	Superior education	69.0	(66.7-71.3)	70.8	(68.4-73.1)	4193
URBANISATION LEVEL		64.2	(62.0-66.4)	64.3	(62.1-66.5)	6328
	Urban					
	Sub-urban	65.6	(62.2-69.0)	65.9	(62.4-69.3)	1826
	Rural	63.3	(60.5-66.1)	63.3	(60.4-66.1)	3025
REGION		66.3	(64.0-68.7)	66.4	(64.0-68.7)	3880
	Flemish Region					
	Brussels Region	64.3	(62.0-66.7)	65.1	(62.7-67.5)	3307
	Walloon Region	60.4	(58.2-62.7)	60.5	(58.1-62.8)	3992

*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference)

Source: Health Interview Survey, Belgium <https://www.wiv-isp.be/epidemio/hisia/index.htm>



Table 59 – Percentage of the population that eats vegetables (excluding potatoes and juice) daily (2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	84.8	(83.6-85.9)	84.3	(83.0-85.5)	11190
GENDER	Male	83.0	(81.6-84.5)	83.4	(81.9-84.8)	5197
	Female	86.4	(85.0-87.8)	86.5	(85.1-87.8)	5993
AGE GROUP	0 - 14	84.7	(82.2-87.2)	84.9	(82.1-87.2)	1589
	15 - 24	76.9	(73.3-80.4)	77.0	(73.2-80.4)	1196
	25 - 34	81.6	(78.7-84.6)	81.7	(78.5-84.4)	1333
	35 - 44	83.1	(80.2-86.0)	83.2	(80.1-85.9)	1496
	45 - 54	86.1	(83.6-88.7)	86.2	(83.5-88.5)	1400
	55 - 64	90.2	(88.1-92.2)	90.3	(88.0-92.1)	1332
	65 - 74	88.8	(85.9-91.8)	88.8	(85.5-91.4)	877
	75 +	89.8	(87.6-92.0)	89.6	(87.0-91.6)	1967
EDUCATION LEVEL	Primary/no degree	82.7	(79.6-85.8)	79.3	(75.0-83.0)	1534
	Secondary inferior	82.9	(79.7-86.1)	81.5	(77.8-84.7)	1720
	Secondary superior	83.6	(81.6-85.6)	84.6	(82.5-86.5)	3394
	Superior education	87.3	(85.4-89.2)	88.5	(86.6-90.1)	4197
URBANISATION LEVEL	Urban	81.4	(79.6-83.2)	81.8	(79.9-83.5)	6339
	Sub-urban	87.7	(85.5-89.9)	88.0	(85.6-90.1)	1826
	Rural	87.7	(85.7-89.7)	88.0	(85.9-89.8)	3025
REGION	Flemish Region	87.5	(85.8-89.2)	87.7	(85.9-89.3)	3884
	Brussels Region	75.1	(72.8-77.3)	75.8	(73.6-78.0)	3311
	Walloon Region	83.1	(81.2-84.9)	83.4	(81.5-85.1)	3995

*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference)

Source: Health Interview Survey, Belgium <https://www.wiv-isp.be/epidemiology/hisia/index.htm>



Table 60 – Percentage of the population that eats at least 2 fruits and 200 vegetables a day per day (2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	26.0	(24.7-27.3)	25.1	(23.6-26.6)	11164
GENDER	Male	23.4	(21.7-25.0)	22.3	(20.6-24.1)	5185
	Female	28.5	(26.8-30.3)	27.4	(25.6-29.2)	5979
AGE GROUP		12.1	(9.6-14.5)	12.0	(9.8-14.8)	1585
	0 - 14					
	15 - 24	18.9	(15.6-22.2)	18.9	(15.7-22.4)	1194
	25 - 34	25.9	(22.1-29.7)	25.8	(22.2-29.8)	1328
	35 - 44	29.4	(26.1-32.6)	29.4	(26.2-32.8)	1494
	45 - 54	31.9	(28.5-35.3)	31.9	(28.6-35.4)	1398
	55 - 64	36.8	(33.2-40.3)	36.8	(33.3-40.4)	1329
	65 - 74	35.1	(30.5-39.7)	34.9	(30.5-39.5)	874
	75 +	24.9	(21.8-28.1)	24.2	(21.3-27.4)	1962
EDUCATION LEVEL		21.7	(18.1-25.2)	17.5	(14.5-21.0)	1527
	Primary/no degree					
	Secondary inferior	24.7	(21.4-28.0)	21.0	(18.0-24.3)	1717
	Secondary superior	24.2	(21.9-26.4)	23.0	(20.8-25.4)	3390
	Superior education	29.4	(27.3-31.6)	29.8	(27.5-32.2)	4187
URBANISATION LEVEL		25.9	(24.1-27.8)	24.8	(22.9-26.7)	6319
	Urban					
	Sub-urban	29.7	(26.5-32.8)	28.2	(25.0-31.6)	1822
	Rural	23.5	(21.4-25.7)	22.4	(20.3-24.6)	3023
REGION		30.0	(27.9-32.0)	28.5	(26.4-30.7)	3874
	Flemish Region					
	Brussels Region	25.3	(23.2-27.3)	24.6	(22.5-26.9)	3301
	Walloon Region	19.2	(17.5-20.8)	18.2	(16.6-19.9)	3989

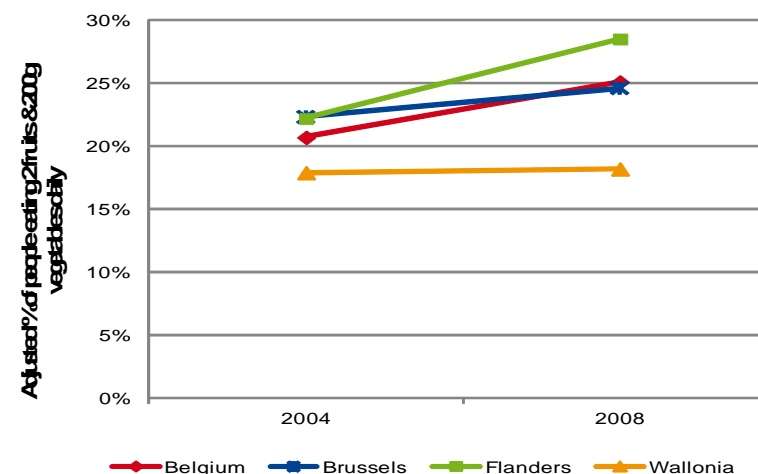
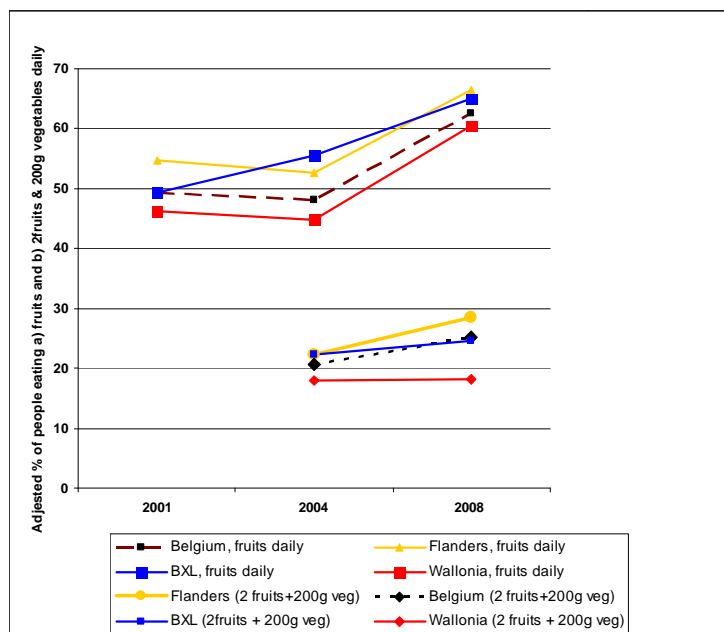
*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference)

Source: Health Interview Survey, Belgium <https://www.wiv-isp.be/epidemio/hisia/index.htm>





Figure 74 – Percentage of the population consuming a) fruit daily and b) at least 2 fruits & 200 vegetables daily, by region (2001-2008)



Source : Health interview survey,

Key Points Consumptions of fruits and vegetables

- In 2008, results from the HIS showed that almost two-third of the population ate every day fruit, what is an improvement compared to 2004. The daily vegetables consumption was still higher than that of fruits (84%). However, only 26% of the people ate 2 fruits and 200g vegetable daily, with even lower rates in Wallonia (F: 28.5%, B: 24.6%, W: 18.2%).
- Especially children and young people consume insufficient amount of fruits and vegetables
- There are some differences by socio economic status: for all indicators, persons with higher education have better nutritional habits.



11.7. Physical activity

11.7.1. Documentation sheet

Description	Proportion of the adult population (15 +) who are sufficiently active
Calculation	Percentage of people aged 15 years or more old responding to the health Interview survey who report to practice 30 minutes of physical activity almost all days (at least 150 min/week).
Rationale	Overall, strong evidence demonstrates that compared to less active adult men and women, individuals who are more active have lower rates of all-cause mortality, coronary heart disease, high blood pressure, stroke, type 2 diabetes, metabolic syndrome, colon and breast cancer, and depression (Pate, WHO, Bouchard) ;
Primary Data source	Health Interview Survey, 2001-2004-2008
Indicator source	Idem
Periodicity	Every 3-5 years
Technical definitions and	<p>All types of physical activity are considered (leisure time, work, commuting) provided that they are moderate to intensive (walking is not considered here). The indicator is derived from the IPAQ (International Physical Activity Questionnaire) included in the HIS:</p> <p>PA01: During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?</p> <p>PA02: How much time did you usually spend doing vigorous physical activities on one of those days?</p> <p>PA 03: During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? (does not include walking)</p> <p>PA04: How much time did you usually spend doing moderate physical activities on one of those days?</p> <p>The chosen indicator meets the WHO recommendations about the beneficial level of physical activity.</p>
Limitations	The amount of physical activity is difficult to measure through surveys, and whether the IPAQ is a good tool is still a matter of discussion. The questionnaire for the next EHIS (wave 2) around this topic has been changed; the ECHIM - indicator is therefore still under construction
International comparability	<p>Availability: currently (June 2012), the availability of data suitable for international comparison is scarce. Normally the data from the first EHIS wave I should soon be made available by Eurstat but it is not the case yet.</p> <p>There are plans to modify the questionnaire related to physical activity in the framework of the EHIS wave II . However, some latitude remains in the wording of the questions, and it is not sure if international comparability will be ensured, nor if the new EU questionnaire will allow time trend analysis with the data collected in Belgium during the previous years.</p>
Dimensions	Quality-effectiveness of Health Promotion



Keywords	Health Promotion; Lifestyle
Related indicators	Obesity and consumption of fruits and vegetables
References	<p>HIS Belgium (Charafeddine <i>et al.</i>, 2012) (IPH, 2010)</p> <p>Pate RR, 1995 (Pate <i>et al.</i>, 1995)</p> <p>WHO Global Strategy on Diet, Physical Activity and Health, 2004 (WHO, 2004b)</p> <p>Bouchard C, 1990 (Bouchard <i>et al.</i>, 1990)</p> <p>WHO Global Programme for Diet, Physical activity and Health, 2010 (WHO, 2010)</p> <p>CDC, 2010 (Centers for Disease Control and Prevention, 2010)</p> <p>Harbers, 2008 (Harbers <i>et al.</i>, 2008)</p> <p>Belgium consensus symposium 'Belgium on the move' 2000</p> <p>Belgium cardiological Ligua (2012)</p>

11.7.2. Results

The global percentage of people (15 years or more) practising at least 30 minutes of any type of (at least moderate) physical activity per day is 38%. There is a lot of room for improving this global level.

This level is almost twice as higher in men than in women. There is an important decreasing gradient with age. The rate is increasing with the educational level. It is also much higher in Flanders than in the two other regions, and especially than in Brussels. Maybe a part of this difference could be explained by a greater facility for cycling. Surprisingly, the percentage of people practising at least 30 minutes of physical activity has declined in Wallonia overtime from 2001 to 2008.

Conclusion: almost two-third of the population doesn't practice enough physical activity. This is more pronounced in Brussels and Wallonia. Health promotion efforts should target the women, and people with a lower educational level.



Table 61 – Percentage of the (aged 15 years or older) practicing at least 30 minutes moderate to intense physical activity per day (2008)

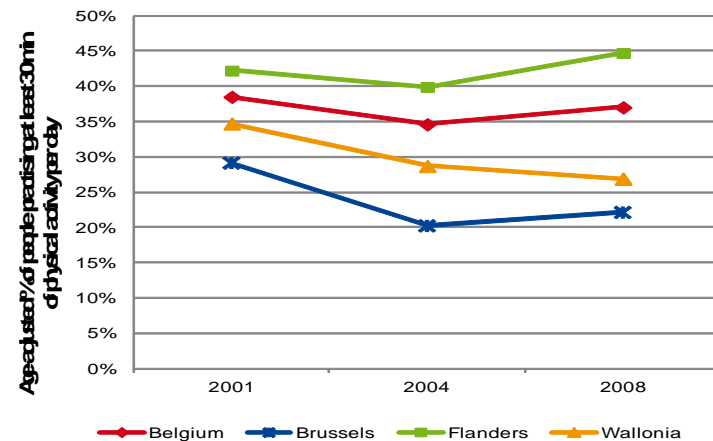
		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	38.1	(36.2-39.9)	37.0	(35.0-39.1)	6126
GENDER	Male	48.7	(46.2-51.2)	48.0	(45.5-50.5)	2810
	Female	28.3	(25.9-30.7)	27.6	(25.2-30.1)	3316
AGE GROUP	15 - 24	54.3	(49.2-59.5)	54.6	(49.2-59.9)	715
	25 - 34	43.9	(39.3-48.4)	44.0	(39.4-48.8)	912
	35 - 44	39.7	(36.0-43.5)	39.7	(36.0-43.6)	1059
	45 - 54	38.2	(33.9-42.5)	37.3	(32.9-41.9)	935
	55 - 64	35.7	(31.4-40.0)	34.7	(30.3-39.3)	911
	65 - 74	32.0	(26.3-37.7)	31.3	(25.6-37.6)	558
	75 +	11.2	(7.6-14.9)	11.4	(8.1-15.9)	1036
EDUCATION LEVEL	Primary/no degree	24.0	(18.8-29.2)	28.8	(22.8-35.7)	755
	Secondary inferior	32.4	(27.3-37.4)	34.3	(29.0-39.9)	918
	Secondary superior	39.1	(35.9-42.2)	37.1	(33.9-40.4)	1852
	Superior education	42.8	(39.8-45.7)	40.1	(36.9-43.3)	2454
URBANISATION LEVEL	Urban	34.9	(32.4-37.5)	34.1	(31.3-37.0)	3541
	Sub-urban	40.7	(36.5-44.9)	39.5	(35.3-43.9)	1003
	Rural	41.1	(37.7-44.5)	39.8	(36.2-43.6)	1582
REGION	Flemish Region	45.1	(42.4-47.8)	44.7	(41.7-47.6)	2297
	Brussels Region	24.7	(22.2-27.2)	22.1	(19.7-24.7)	1694
	Walloon Region	28.4	(25.9-31.0)	26.9	(24.4-29.6)	2135

Source: Health Interview Survey, Belgium

*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference)



Figure 75 – Percentage of the population (aged 15 years or older) performing at least 30 min of physical activity per day, by region (2001-2008)



Source: Health interview survey, Belgium 2008

Key points Physical Activity

- The global percentage of people practising at least 30 minutes of any type of physical activity per day is low, at 38%. It is lower in women
- It is much higher in Flanders (45%) than in the two other regions, and is especially low in Brussels.
- The rate is also surprisingly declining in Wallonia
- The rate is increasing with the educational level.



11.8. Social support

11.8.1. Documentation sheet

Description	Percentage of people aged 15 years and more responding to the health Interview survey (HIS), reporting that they have poor/moderate/high social support. The social support could be defined as help in difficult life situations
Calculation	<p>The quality of the social support is measured with the OSS 3 scale, with 3 questions (included in the HIS).</p> <p>SC04. "How many people are so close to you that you can count on them if you have serious problems?"</p> <p>SC05. "How much concern do people show in what you are doing?"</p> <p>SC06. "How easy can you get practical help from your neighbours if you should need it ?"</p> <p>The total score is calculated by adding up the raw scores for each item. The sum of the raw scores has a range from 3 to 14. A score ranging between 3 and 8 is classified as poor support, a score between 9 and 11 as intermediate support, and a score between 12 and 14 as strong support.</p> <p>see "Manual for the users of the Health Interview Survey.ISP-WIV,2008"</p>
Rationale	Social support is a protective factor in times of stress. It is a resource that helps individuals to deal with the difficulties of the life (according to different modalities, like emotional support, material aid, information,etc...). Low levels of social support have been linked to increased rates of depression, somatic illnesses and mortality.
Primary Data source	IPH: HIS 2008
Indicator source	Idem
Periodicity	Every 3-5 years
Technical definitions and limitations	Internal consistency of the score has been criticised, and it is recommended to use the score for each item as well as the combined score
International comparability	<p>Few recent comparisons are to be found at European level; Oslo-3 has been used in Eurobarometer 58.2 in 2003, in the European Mental Health Indicator Pilot Survey and in some national surveys.</p> <p>There are plans to standardise the questionnaire in the framework of the EHIS wave II with hopefully the possibility to make international comparisons with the OSS 3 scale.</p>
Dimensions	General effectiveness of the whole system (health and outside health)
Related performance indicators	
References	<p>http://ec.europa.eu/health/ph_determinants/life_style/mental_eurobaro.pdf</p> <p>http://info.stakes.fi/NR/rdonlyres/D4B49151-6436-4AF3-86F8-56CD73ACF2E4/0/Annex15RecommendationforEHISDeterminantsModule.pdf</p> <p>http://www.euphix.org/object_class/euph_social_relationships.html</p>



11.8.2. Results

Fifteen percents of the population aged 15 or older reported poor social support in 2008. There is no significant gender difference.

The lack of social support rate is gradually increasing with age. There is also a strong association with educational level (adjusted rate=22% on the lowest educational level versus 10% in the highest). The rate is much lower in Flanders than in the other regions, especially in Brussels.

In conclusion: the lack of social support is mostly affecting people who already have other health disadvantages, like older people or people with a low educational level. The society, and particularly the authority levels close to the citizens (like the municipalities) should pay attention to this feature and try to better integrate the more vulnerable citizens.

Table 62 – Percentage of the population with poor social support (2008)

		Crude %*	95%CI Cru	Adj %**	95%CI Adj	N
YEAR	2008	15.5	(14.4-16.7)	14.9	(13.8-16.1)	7562
GENDER	Male	15.1	(13.6-16.6)	14.6	(13.2-16.1)	3483
	Female	16.0	(14.5-17.4)	15.1	(13.7-16.7)	4079
AGE GROUP	15 - 24	9.2	(6.9-11.5)	9.2	(7.1-11.7)	901
	25 - 34	12.5	(9.8-15.3)	12.5	(10.1-15.5)	1090
	35 - 44	13.6	(11.4-15.9)	13.6	(11.5-16.0)	1257
	45 - 54	14.9	(12.4-17.5)	14.9	(12.6-17.7)	1191
	55 - 64	19.5	(16.2-22.9)	19.5	(16.4-23.1)	1149
	65 - 74	21.0	(16.9-25.2)	21.0	(17.2-25.5)	722
	75 +	22.2	(18.3-26.1)	22.1	(18.5-26.2)	1252
EDUCATION LEVEL	Primary/no degree	24.4	(20.3-28.6)	21.6	(17.7-26.1)	947
	Secondary inferior	19.9	(16.5-23.3)	18.2	(15.1-21.7)	1207
	Secondary superior	16.9	(14.8-19.1)	16.8	(14.7-19.0)	2349
	Superior education	10.1	(8.6-11.5)	10.1	(8.8-11.7)	2888
URBANISATION LEVEL	Urban	16.8	(15.1-18.5)	16.1	(14.5-17.8)	4125
	Sub-urban	13.6	(11.2-16.0)	13.1	(10.9-15.5)	1351
	Rural	15.1	(13.0-17.3)	14.5	(12.5-16.8)	2086
REGION	Flemish Region	12.4	(10.9-13.9)	11.7	(10.3-13.2)	2993
	Brussels Region	22.9	(20.6-25.2)	23.0	(20.7-25.4)	1922
	Walloon Region	20.0	(17.8-22.1)	19.1	(17.1-21.4)	2647

Source: Health Interview Survey, Belgium

*Weighted % - **Adjusted for age and gender (Belgian population of 2001 as reference)



11.9. Tobacco control scale

11.9.1. Documentation sheet

Description	The Tobacco Control Scale (TCS) quantifies the implementation of tobacco control policies at country level.
Calculation	<p>The TCS is the summation of 6 scores, quantifying the intensity of six policies considered by the World Bank and the WHO as priorities for a comprehensive tobacco control programme. Those six policies are:</p> <ul style="list-style-type: none">- price increases through higher taxes on cigarettes and other tobacco products;- bans/restrictions on smoking in public and work places;- better consumer information, including public information campaigns, media coverage, and publicising research findings;- comprehensive bans on the advertising and promotion of all tobacco products, logos and brand names;- large, direct health warning labels on cigarette boxes and other tobacco products;- treatment to help dependent smokers stop, including increased access to medications. <p>The experts of the Association of the European Cancer Leagues computed global scores summarizing the result of the comprehensive strategy. The detailed method of calculation of the scale is explained in the documentation</p>
Rationale	<p>Tobacco use is considered to be one of the biggest public health threats. The concept of multi-pronged and 'comprehensive' tobacco control arose through academic advances, advocacy groups, and government policy initiatives.</p> <p>The interest of such a composite index is to provide a global level of the Tobacco Control Policy in the country.</p> <p>(note that comparisons between the country of the separated elements of the policy is published by the WHO)</p>
Primary Data source	<p>The report of the of the Association of the European Cancer Leagues Association of the European Cancer Leagues collected data from many sources, f.i. :</p> <ul style="list-style-type: none">- Survey among the country-correspondents of the European Network of Smoking Prevention- WHO-Euro tobacco control database- Examination of national laws- EU reports
Indicator source	Report of 2 experts of the Association of the European Cancer Leagues
Periodicity	Every 2-3 years
Technical definitions and limitations	
International comparability	Yes, comparisons of the Tobacco Control Scale are regularly published by the Association of the European Cancer Leagues
Dimensions	Health oriented Governance



Related indicators	performance	Percentage of daily smokers; Composite index on health promotion policies in municipalities
References		Joossens, 2010 (Joossens and Raw, 2010) WHO tobacco control data base (WHO, 2012e) WHO Report on the global tobacco epidemic 2011 (WHO, 2011) Loi du 22 décembre 2009 (BS-MB, 2009)

11.9.2. Results

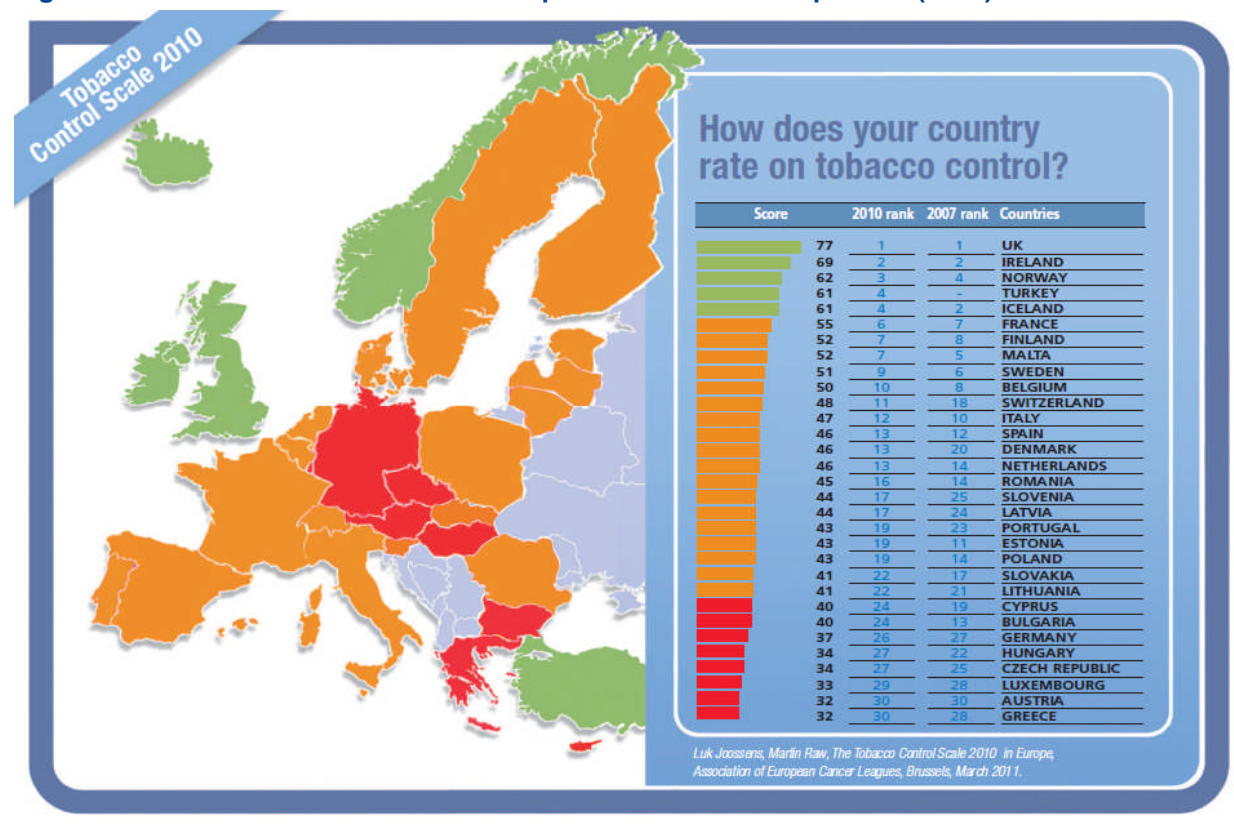
The report by Joossens and Raw (Joossens and Raw, 2010), presents the results of a survey of tobacco control activity in 31 European countries in 2010 using the Tobacco Control Scale. Countries were judged according to a scale of measures considered to be essential components of a comprehensive tobacco control programme. The following six measures were described by the World Bank, which should be prioritised in a comprehensive tobacco control programme:

- price increases through higher taxes on cigarettes and other tobacco products;
- bans/restrictions on smoking in public and work places;
- better consumer information, including public information campaigns, media coverage, and publicising research findings;
- comprehensive bans on the advertising and promotion of all tobacco products, logos and brand names;
- large, direct health warning labels on cigarette boxes and other tobacco products;
- treatment to help dependent smokers stop, including increased access to medications.

Belgium is situated on the 10th place on 32, with a global score of 50/100. The scores of the more extreme countries were respectively 32 (Greece) and 77 (UK). The authors conclude that: "Belgium missed a golden opportunity to adopt comprehensive smoke-free legislation when the parliament modified legislation in December 2009. The new law still permits smoking in bars, discotheques and casinos. Also smoking is still allowed in some public places in smoking-rooms under strict rules. Data from the Ministry of Health show that half of the bars in 2010 don't respect the weak restrictions, which applied to them. On the other side, Belgium was the first EU country to introduce pictorial health warnings in 2006 and to print the number of the quitline on all cigarette packs in 2011".



Figure 76 – Tobacco control scale in Europe: international comparison (2010)



**Additional information: separate components of the comprehensive strategy**

Above the global index (Tobacco Control Scale) described above, partial comparisons have been made in the same report, but they are presented in tables, making their interpretation less straightforward.

Apart from the report on the Tobacco Control Scale, the WHO (WHO, 2011) publishes geographical comparisons for separate components of the global policy, but until now, does not compute a global scale.

- **Tobacco dependence treatment, 2010** : Existence of National quit line, and both Nicotine Replacement Therapy (NRT) and some cessation services cost-covered (Belgian answer ranks highest on 4 categories of answers).
- **Warn about the dangers of tobacco, 2010** : Medium size warnings with all appropriate characteristics OR large warnings missing some appropriate characteristics (Belgian answer ranks 3th on 4 categories of answers).
- **Anti-tobacco mass media campaigns, 2010** : No campaign conducted between January 2009 and August 2010 with duration of at least three weeks (Belgian answer ranks lowest on 4 categories of answers).
- **Enforce bans on tobacco advertising, promotion and sponsorship, 2010** : Ban on national television, radio and print media as well as on some but not all other forms of direct and/or indirect advertising (Belgian answer ranks 3th on 4 categories of answers).
- **Raise taxes on tobacco, 2010** : >75% of retail price is tax (Belgian answer ranks highest on 4 categories of answers).
- **Restrictive laws on tobacco use in public area, transport area and working places** Belgium is not included in the international comparisons in the "Maps on the Global Tobacco Control Policy data" (WHO report of the global Tobacco Epidemic 2011), because the strength of the interdiction is interpreted differently by Belgium and by the WHO. Indeed, the Belgian law tolerates the existence of "smoking areas under strict conditions". The interdiction is considered as partial by the WHO, by total by Belgium.

Key points:

- **Belgium ranks intermediate with her strategy for tobacco control.**
- **More restrictive laws could be adopted (f.i. restriction in casino and bars), and more strict enforcement should be applied. Mass media campaign could reinforce the other measures.**
- **Regarding the taxes and the offer of tobacco dependence treatment, Belgium ranks good**



11.10. Composite index of health promotion policies in the municipalities

11.10.1. Documentation sheet

Description	The indicator is a composite index summarizing health promotion policies/activities related to 3 specific themes (tobacco prevention, nutrition, physical activity) in the municipalities in Belgium
Calculation	For each theme, the score is the sum of partial scores measuring a dimension of the health promotion policy: offer (of healthy food/of physical activity), availability of information, regulation, population participation, networking, budget
Rationale	Those indicators allows to measure some level of intensity of "health promotion", integrating all of the aspects depending of a particular setting , here the municipalities. Such indicators focuses on public health authorities responsibilities (as opposed to the usual measures of health behaviour, limiting the scope to individual behaviours and responsibilities)
Source of primary data and indicator	VIGEZ
Periodicity	3-4 years
Technical definitions and limitations	The indicator are build from the combination of answer to a set of questions sent to the municipalities.
International comparability	No. The work of the VIGEZ is quite innovative, and few countries already use such indicators. Moreover, those indicators are context-dependant, as they are closely linked to the health promotion policies. Therefore, it would be difficult to propose standardised indicators. Currently, international comparisons could hardly be made
Dimensions	Health oriented Governance
Related performance indicators	
References	Buytaert, 2010(Buytaert <i>et al.</i> , 2010)



11.10.3. RESULTS

The results are only available for Flanders. We extracted them from the VIGEZ report 2009 (p391-402)(Buytaert *et al.*, 2010)

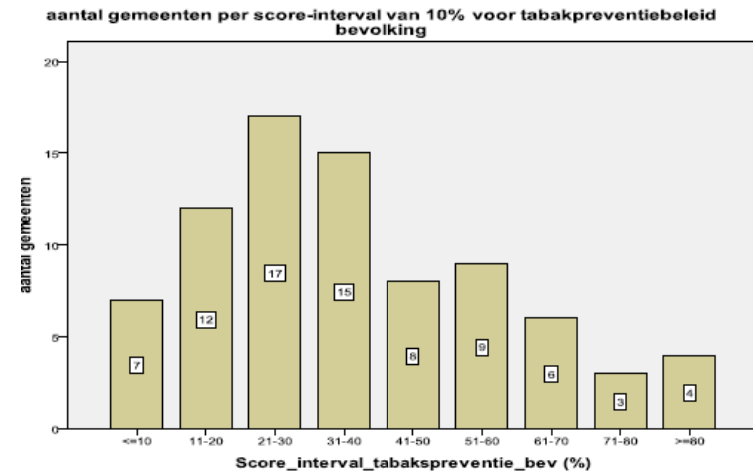
The results are presented by thematic (smoking, healthy eating, physical activity). We extracted the indicator reflecting the municipality policies for the burgers (there are also results of the policies for the staff working at the municipality).

For each of the thematic, a global score is first presented in the report. The global score is the sum of several components scores, around different dimensions of health promotion (sensibilisation, reglementation, participation, offer, networking, and budget). The distribution of the municipalities on a 10% scale of the score is also shown. This global score and its distribution is the indicator we chose in our indicator-set. Much more results useful for the interpretation are to be found in the whole report of the VIGEZ, as the scores by dimension and the detailed results by question.

- Policies around smoking prevention in the municipalities

The global score of smoking prevention policy was 36.7%, what is low and disappointing, since municipalities represent the most close-to-the citizen level of public authority.

The figure 1 shows the distribution of the municipalities on a 10% scaled score. There is a very big dispersion in the strength of the policy between the municipality, some of them doing nothing, other being strong engaged in this thematic.



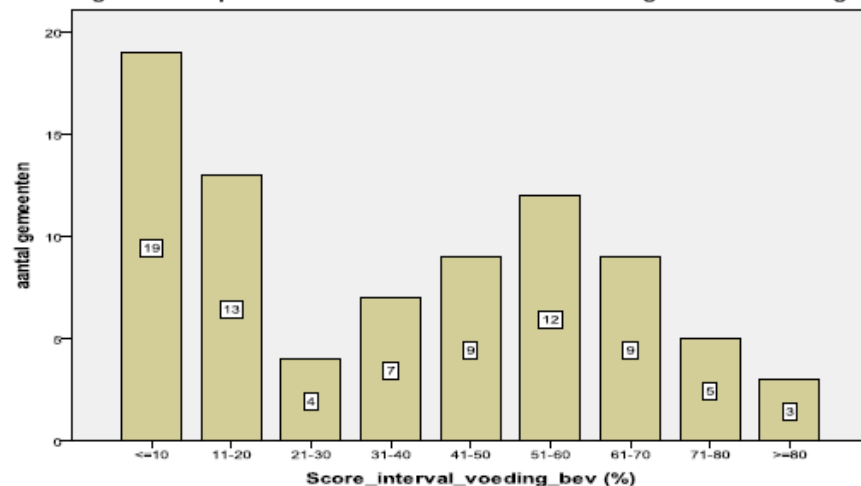
- Policies around healthy eating in the municipalities

The global score was 36.10%, that is still lower than for smoking prevention. 22% of the municipality does nothing at all, and 40% score lower than 20%.

Those results are very disappointing, and there is a large space for improvement !



aantal gemeenten per score-interval van 10% voor voedingsbeleid bevolking

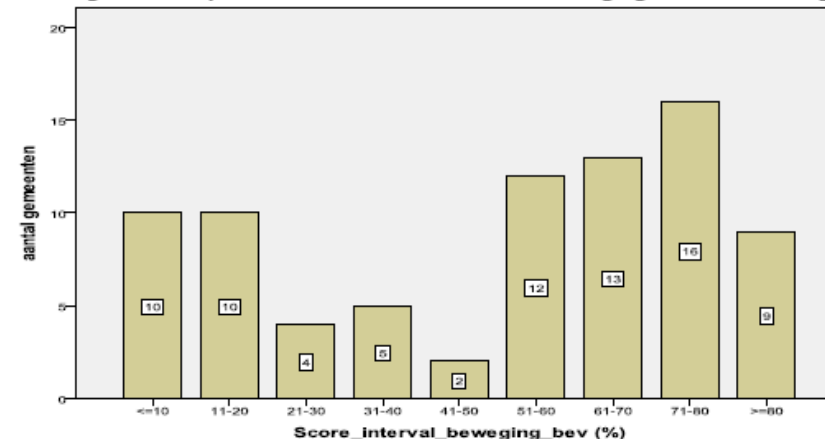


- Policies around physical activity in the municipalities

The global score for physical activity reaches almost 50%; what is better than for the 2 other themes.

We can observe a bimodal distribution, with a quite large proportion of the municipalities doing nothing or very few, and a still larger part of the municipalities having a good score.

aantal gemeenten per score-interval van 10% voor bewegingsbeleid bevolking



Conclusions about the global scores for health promotion policies around the 3 specific themes:

The municipalities score low for tobacco prevention and healthy eating, a bit better for physical activity. Below those average scores, there is a large dispersion of the scores into the municipalities, with some of them doing nothing, and other performing very well.

It is important to analyze further the reason for those differences (budget? Motivation of the local authorities ? Complexity of the theme ? Availability of strategies ?) in order to intervene efficiently.



11.11. Offer of physical activity at secondary school

11.11.1. Documentation sheet

Description	Score of intensity of the offer of physical activity at secondary school
Calculation	<p>The score is calculated as a weighted sum of positive answers to several items related to offer in physical activity. The offer of physical activity encompasses availability/accessibility of infrastructure and sufficient offer in activities. In the VIGEZ questionnaire, the following items were taken into the score:</p> <ul style="list-style-type: none"> • which sport facilities (to choose in a list) are present in your school ? For each of them, an estimation of the dimension is asked. • what is the timetable for accessibility to the students • are there extra schools hours of physical activity foreseen in your school (above the mandatory minimal number?) • are there extra days with special activity foreseen (above the mandatory yearly sport day?) • How often are the following moving activities foreseen: offer of play on sport material during the pauses/ short moving moments between the lessons/organized moving activities during the pauses/ Play and sport after the school hours? <p>The detailed questions of the schools surveys are to be found at the VIGEZ site</p>
Rationale	Physical activity in young people is an important health-enhancing activity. Schools can offer many opportunities to for young people to engage in physical activities
Source (data and indicator)	<p>For Flanders: VIGEZ surveys</p> <p>For Wallonia and Brussels : some data are available in the HBSC study . The best data source for Wallonia and Brussels should be examined through a consultation process within Health promotion and Education administrations</p>
Periodicity	3-4 years (for the VIGEZ surveys, Flanders)
Technical definitions and limitations	While the concept of offer of physical activity is widely recommended, there is not yet a standardize tool to measure it. Other combination of questions could also be made. Relevant items to be included depend to some extent on several national/regional factors (culture, health policies, organisation of the school); therefore, this indicator is largely context-dependant.
International comparability	No
Dimensions	Commitment of the professionals
Related performance indicators	
References	<p>Buytaert, 2010(Buytaert <i>et al.</i>, 2010)</p> <p>Godin, 2010 (Godin and Piette, 2010)</p> <p>Wechsler, 2000(Wechsler <i>et al.</i>, 2000)</p>



11.11.2. Results

11.11.2.1. Flandres

The VIGEZ report (2009)(Buytaert *et al.*, 2010) gives a detailed and refined analysis of the policies on physical activity in the secondary schools in Flanders (page 256-297).

We present here some results from this report to illustrate the indicator chosen in our indicators-set (score of the offer of physical activity). To do this, we have to extract this particular dimension, that is sometimes presented together with other dimensions in the report.

The following table shows

- An overview of the partial scores for several health promotion dimensions. Those scores are calculated as a 0-10 index resulting from the weighted addition of the answer at several questions. The score of 'Offer' ("aanbod") is one of those.
- A global score, called "Total score of the physical activity policy in the secondary schools" (calculated as a percent). This represents a global intensity of the health promotion policies around the theme of physical activity, in all respondent schools.

Componentscores (10) en totaalscore (%) bewegingsbeleid 2009

	N	Minimum	Maximum	Mean	Std. Deviation
Educatie	416	,00	10,00	6,0643	2,08702
Aanbod	416	,00	8,59	5,4758	1,29252
Reglementering	416	1,21	10,00	6,9500	1,74638
Participatie	416	,00	10,00	5,3100	2,31019
Netwerking	416	,00	10,00	4,7332	3,41978
TOTAAL	416	8,74	84,27	56,3475	14,76473

The global score has risen from 42.1 in 2006 to 56.1 in 2009. There are quasi no school with a score lower than 20. The half of the secondary schools have scores between 50 and 70, and 20% of the scores are still higher.

The component "**offer of physical activity in secondary school**" in 2009 has a mean value of 5.47, ranking from 0 to 8.59. When comparing to the other dimensions, the component "Offer" (aanbod) scores lower than some other components (for instance, lower than the component "reglementation").

The component "Offer" is composed of: a) the existence of the infrastructure and b) offer of activities.

Offer of infrastructure:

After analysis of the available facilities, the authors see that:

- 88% of the schools have a gym, and 10% more can have access to a gym. 79% only have an access to a swimming pool. All have a playground, but the average space per student is sometimes too small.
- In only 27% of the schools, the students have access to the sport facilities during the breaks.

Offer of physical activities activities:

Hoe vaak worden volgende bewegingsactiviteiten aangeboden?

	Nooit	≤ 1 x per week	2 tot 3 x per week	4 tot 5 x per week
Spel- en sportmateriaal tijdens de pauzes	12%	9%	22%	57%
Korte bewegingsmomenten tussen of tijdens de lessen (bv. bewegingstussendoortjes)	76%	16%	5%	3%
Begeleide bewegingsactiviteiten tijdens de pauzes	39%	18%	22%	21%
Spel en sport aansluitend op de schooluren georganiseerd door de school	39%	42%	8%	11%
Deelname aan externe naschoolse spel- en sportactiviteiten	14%	75%	5%	6%



Here are the results for other questions about the offer of physical activities:

- In 2009:
 - 88% of secondary schools offer at least once a year a day of physical activity outside the mandatory sport day. This was 75 % in 2006.
 - 31% of the secondary schools provide (one) additional hour(s) of physical activity above the minimum mandatory number of hours

The authors conclude that:

There was a big progress in the implementation of a physical activity policy in secondary schools between 2006 and 2009. Globally, the theme of physical activity is generally integrated in a global school-policy.

The scores in all dimensions are higher in the first degree of secondary schools than in higher degrees. The scores are not linked to the type of instruction.

The score for offer is lower than for the other components of the policy (reglementation and education).

So, the health promotion policies related to physical activity in secondary schools in Flanders:

- is in progress
- scores quite good.
- Is generally integrated in a global school-policy.

- Is better in the lower degree than in the degrees 2 and 3

And when we look at **the component "Offer"**:

- The offer of infrastructure is quite good . Almost 100% of the school have (or at least can access to) a gym, but the area available is sometimes insufficient. The availability of swimming pool is more problematic.
- The accessibility to the facilities could improve
- The offer of activity is good and have increased since 2006

11.11.2.2. Data available in Brussels and Wallonia

The Health Behavior in School-aged Children (HBSC) study is a cross-national research survey conducted in collaboration with the WHO-Europe. The HBSC aims to gain new insight into young people's health, well-being, health behaviours, and their social context. A part of the survey is devoted to the health strategies and environmental context of the school, and is answered by the school Directors.

In the French speaking part of Belgium (Wallonia and Brussels) survey 2010, 44 secondary schools Directors were interviewed regarding the health related projects conducted in the school. Some indicators of the suggested set could be extracted from the report (Godin and Piette, 2010).

20% of the responding schools had no adequate sport facilities.

Another 10% had no sport facilities. In those schools, the children are going to another place to have the sport lessons.



11.12. Existence of a "Health Promotion cell" at school

11.12.1. Documentation sheet

Description	% of schools with a "health promotion" cell in the school, grouping teachers, parents and or students
Calculation	<p>Numerator =Number of secondary schools in which a "health promotion cell" exists, with the participation of teachers, parents and or children, in order to implement health promoting strategies;</p> <p>For instance, In the questionnaire of the VIGEZ, q45, q72, q96 are formulated as so: "is there a working group active around the theme of tobacco prevention (q45), healthy nutrition (q72) physical activity (q96) ?». the answer categories were: A. yes, with participation of parents or students; B. yes, without participation of parents or students; C. Not yet, but we shall start next year; D. No</p> <p>The numerator is the number of school answering A to at least one question, the denominator is the total of schools. Ventilated by region/ type of network/ type of education</p>
Rationale	The promotion of health in schools is important for several reasons. The role of community environment in shaping health behaviours has been focused. Children growing in a school that promote health and wellbeing are more likely to engage in healthy behaviours. Moreover, there is a synergy between health and effective learning. Moreover, the participation of the people to the decisions around their health is a key value in health promotion
Primary Data source	<p>Currently, data available only in Flanders through the VIGEZ surveys;</p> <p>For Wallonia and Brussels : some data are available in the HBSC study . The best data source for Wallonia and Brussels should be examined through a consultation process within Health promotion and Education administrations</p>
Indicator source	idem
Periodicity	3-4 years (for the VIGEZ surveys, Flanders)
Technical definitions and limitations	
International comparability	No
Dimensions	Participation
Related performance indicators	Offer of Physical activity at school
References	<p>St Leger, 2010(St Leger <i>et al.</i>, 2010)</p> <p>Buytaert, 2010(Buytaert <i>et al.</i>, 2010)</p>



11.12.2. Results

Results are currently only available in Flanders. The following results are extracted from the VIGEZ 2009 report (Buytaert *et al.*, 2010).

They are published separately for 3 themes, smoking prevention, healthy eating and physical activity. The existence of a cell working globally on health promotion in general cannot straightforward be deduced from those results. However, they are a good proxy of the situation.

The VIGEZ 2009 results show that:

- The existence of such workgroup is rather good implemented in the secondary schools (42% for smoking prevention, 64% for healthy eating and 64% for physical activity).
- Whatever the theme, in the majority of schools, the working group is composed mostly of teachers.
- However, a feedback is made to students and parents. In almost the half of the schools, the students can take part in the decisions (p284), and in 38% more they can give their opinion or make suggestions.

Conclusion: a workgroup around health promotion is implemented in a majority of schools. While students and parents are seldom part of those groups, other participation mechanism exist. The authors conclude that the participation culture is quite largely implemented.

Is er een werkgroep actief op school waarin gewerkt wordt rond tabakspreventie?

Antwoord	Totaal	% van antwoorden	%
1 Ja, met participatie van leerlingen of ouders	50		11 %
2 Ja, zonder participatie van leerlingen of ouders	136		31 %
3 Neen, maar we starten hiermee vanaf volgend jaar	10		2 %
4 Neen, er is geen werkgroep actief	241		55 %
Totaal aantal respondenten: 437			

Is er een werkgroep actief op school waarin gewerkt wordt rond gezonde voeding?

Antwoord	Totaal	% van antwoorden	%
1 Ja, met participatie van leerlingen of ouders	104		25 %
2 Ja, zonder participatie van leerlingen of ouders	163		39 %
3 Neen, maar we starten hiermee vanaf volgend jaar	15		4 %
4 Neen, er is geen werkgroep actief	137		33 %
Totaal aantal respondenten: 419			

Is er een werkgroep actief op school waarin gewerkt wordt rond beweging?

Antwoord	Totaal	% van antwoorden	%
1 Ja, met participatie van leerlingen of ouders	74		18 %
2 Ja, zonder participatie van leerlingen of ouders	159		38 %
3 Neen, maar we starten hiermee vanaf volgend jaar	10		2 %
4 Neen, er is geen werkgroep actief	173		42 %
Totaal aantal respondenten: 416			



INSPRAAK

Hebben ouders (bv. via ouderwerking of participatieorgaan) inspraak in het uitwerken van het bewegingsbeleid?

Antwoord	Totaal	% van antwoorden	%
1 Ja, ouders hebben inspraak	139		29 %
2 Neen, maar ouders kunnen suggesties of opmerkingen doorgeven	213		44 %
3 Neen, maar we starten hiermee vanaf volgend schooljaar	11		2 %
4 Neen	118		25 %
Totaal aantal respondenten: 481		0% 20% 40% 60% 80%	

Hebben leerlingen (bv. via leerlingenraad) inspraak in het uitwerken van het bewegingsbeleid?

Antwoord	Totaal	% van antwoorden	%
1 Ja, leerlingen hebben inspraak	239		50 %
2 Neen, maar leerlingen kunnen suggesties of opmerkingen doorgeven	182		38 %
3 Neen, maar we starten hiermee vanaf volgend schooljaar	5		1 %
4 Neen	52		11 %
Totaal aantal respondenten: 478		0% 20% 40% 60% 80%	

11.12.2.1. Data available in Brussels and Wallonia

The Health Behavior in School-aged Children (HBSC) study is a cross-national research survey conducted in collaboration with the WHO-Europe. The HBSC aims to gain new insight into young people's health, well-being, health behaviours, and their social context. A part of the survey is devoted to the health strategies and environmental context of the school, and is answered by the school Directors.

In the French speaking part of Belgium (Wallonia and Brussels) survey 2010, 44 secondary schools Directors were interviewed regarding the health related projects conducted in the school. Some indicators of the suggested set could be extracted from the report (Godin and Piette, 2010).

Health project in the (secondary) school: at least 73% of the schools declare to have a project around health this year in the school.

% of secondary schools with a permanent health cell:

Total: 40.0%

With participation of students 7.7%

Almost the half of the schools report they have a permanent health cell. However, it seems that the participation of students is quite poor, since students are implied only in 7.7% of the case. Other mechanism of participation are maybe present, but were not part of this questionnaire. This point could be explored more in the future. Anyway, the participation culture doesn't appear very strong.

As the participation is an essential dimension in the success of health promotion, this dimension should be further improved.



12. INDICATORS ON EQUITY

12.1. Gini Index

12.1.1. Documentation sheet

Description	The Gini index measures the degree of inequality in the distribution of the income in a country. The index is calculated from the Lorenz curve, in which cumulative income is plotted against the cumulative number of individuals arranged from the poorest to the richest. The index is the ratio of (a) the area between a country's Lorenz curve and the 45 degree line to (b) the entire triangular area under the 45 degree line. The more nearly equal a country's income distribution, the closer its Lorenz curve to the 45 degree line and the lower its Gini index. The more unequal a country's income distribution, the farther its Lorenz curve from the 45 degree line and the higher its Gini index. If incomes are distributed with perfect equality, the Lorenz curve coincides with the 45 degree line and the index is zero; if incomes are distributed with perfect inequality, the Lorenz curve coincides with the horizontal axis and the right vertical axis and the index is 100.
Rationale	There is a link between the way to redistribute the incomes (income inequality) in a country and some forms of objective health problems and the perceived health situation or status (Braveman, 2003, Daniels, 2008, Deaton, 2003, Jackson, 2010, Rowlingson, 2011, Van Oyen H, 2010)
Source (data and indicator)	OECD
Periodicity	Yearly
Technical definitions and limitations	Countries with similar incomes and Gini index can still have very different income distributions. This is because the Lorenz curves can have different shapes and yet still yield the same Gini coefficient. Taking income before and after taxes and transfers into account doesn't give a complete picture of the income redistribution in a country. Indeed, free collective goods increase the welfare of the citizens but have no impact on the Lorenz curve and the Gini index. Nevertheless, it is the best we can get because the lack of data about the consumption of free collective goods.

In the data we use, income is defined as household disposable income in a particular year. It consists of earnings, self-employment and capital income and public cash transfers; income taxes and social security contributions paid by households are deducted <http://dx.doi.org/10.1787/factbook-2010-88-en>. The income of the household is attributed to each of its members, with an adjustment to reflect differences in needs for households of different sizes (*i.e.* the needs of a household composed of four people are assumed to be twice as large as those of a person living alone). OECD has used three different equivalent scales: (1) the 'OCDE equivalence scale' which assigns a value of 1 to the first household member, of 0.7 to each additional adult and of 0.5 to each child (Labeled the 'old' OCDE scale), (2) the 'OECD-modified scale' which assigns a value of 1 to the household head, of 0.5 to each additional adult member and 0.3 to each child. (3) the 'Square root scale' which divides the household income by the square root of the household size. <http://www.oecd.org/els/socialpoliciesanddata/35411111.pdf>

Even if we do not present here an indicator of poverty, it is interesting to note that the at-risk-of-poverty rate (defined as the part of the



	population living in households whose total equivalised income is below 60 percent of the median national equivalised household income) is closely correlated with the Gini coefficient and the S80/S20 ratio. The S80/S20 ratio is the ratio of the share of income going to the top 20 per cent of the population to that going to the bottom 20 per cent. Furthermore, the estimates of poverty risk as presented by OECD, EU-SILC (EU Statistics on Income and Living Conditions) and LIS (Luxembourg Income Study) are close even if the three studies are based on different databases and use different methodologies. For instance, the EU-SILC uses the 'OECD-modified scale' and the OECD uses the 'Square root scale' and not the scale bearing its name (Atkinson <i>et al.</i> , 2010, OECD, 2012a, WHO, 2012d)
International comparability	Gini indexes are computed by international organization using the same (or a comparable) methodology and are therefore comparable. Indeed, globally, we observe a large congruence, on one hand, between the results of different sources about the evaluation of the poverty rates and the income inequality and, on the other hand between poverty rates and income inequality indicators.
Dimensions	Equity
Related performance indicators	Contextual indicator of equity
References	<p>Valenduc, 2005(Valenduc, 2005);van Doorslaer, 1999(van Doorslaer <i>et al.</i>, 1999); Wagstaff, 1999(Wagstaff <i>et al.</i>, 1999);Fleurbaey, 2011(Fleurbaey and Schokkaert, 2011) and OECD statistics, Daniels, 2008(Daniels, 2008);Jackson, 2010(Jackson, 2010);Rowlingson, 2011(Rowlingson, 2011);Van Oyen H, 2010(Van Oyen H, 2010);Deaton, 2003(Deaton, 2003);Braveman, 2003(Braveman, 2003); Wang, 2011(Wang and Caminada, 2011); World Health Organization, 2012(WHO, 2012d);OECD, 2012(OECD, 2012a);Atkinson, 2010 (Atkinson <i>et al.</i>, 2010)</p> <p>For methods and figures</p> <p>http://www.oecd.org/els/socialpoliciesanddata/incomedistributionandpovertydatafiguresmethodsandconcepts.htm</p> <p>http://stats.oecd.org/Index.aspx?DataSetCode=INEQUALITY (Income distribution before and after taxes and transfers)</p>

12.1.2. Results

12.1.2.1.1. Belgium and international comparison

We evaluate the inequality of income distribution by the Gini index and the redistribution effect of the taxation and transfers by the difference between the pre-tax & transfers and the post-tax & transfers Gini indexes, a conventional and easy way of measuring the redistributive effect of a tax and transfers system. We observe a quite large inequality in Belgium before taxation and transfers but also a large redistribution after the application of the taxes and transfers. These results are confirmed by analysis using the LIS database (Wang and Caminada, 2011).

Taking the redistributive effects of the tax and transfers system into account gives a truer picture of the potential effects of the 'inequality feeling' on the health population expressed in objective and subjective terms.


Table 63 – Gini index before and after taxation and transfers in the late 2000s and calculation of the redistribution effect

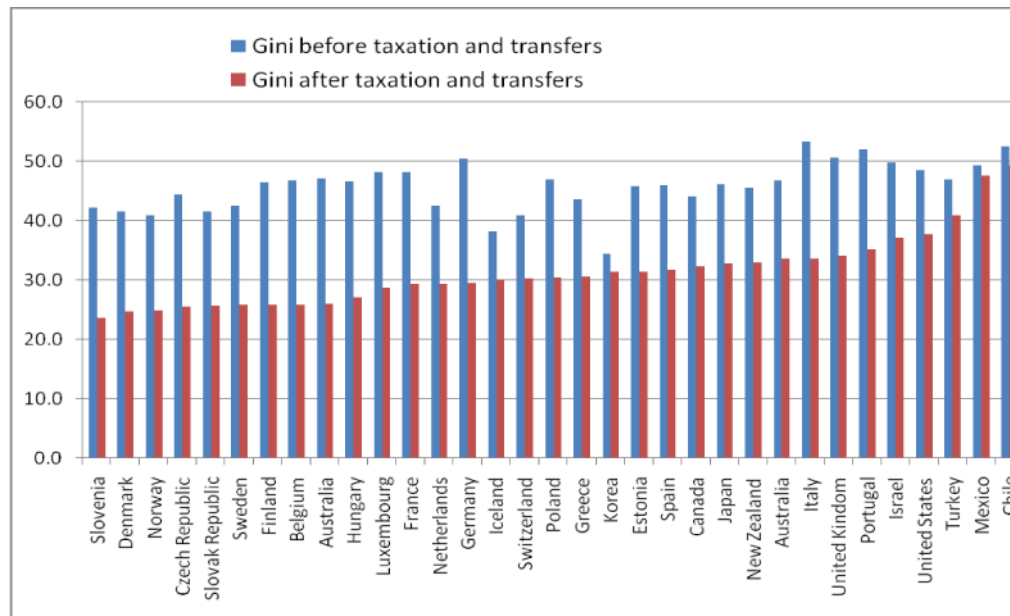
Countries (Late 2000s)	Gini before taxation and transfers	Gini after taxation and transfers	Difference
Slovenia	42,3	23,6	18,7
Denmark	41,6	24,8	16,8
Norway	41,0	25,0	16,0
Czech Republic	44,4	25,6	18,8
Slovak Republic	41,6	25,7	15,9
Sweden	42,6	25,9	16,7
Finland	46,5	25,9	20,6
Belgium	46,9	25,9	21,0
Australia	47,2	26,1	21,1
Hungary	46,6	27,2	19,4
Luxembourg	48,2	28,8	19,4
France	48,3	29,3	19,0
Netherlands	42,6	29,4	13,2
Germany	50,4	29,5	20,9
Iceland	38,2	30,1	8,1
Switzerland	40,9	30,3	10,6
Poland	47,0	30,5	16,5
Greece	43,6	30,7	12,9
Korea	34,4	31,4	3,0
Estonia	45,8	31,5	14,3
Spain	46,1	31,7	14,4
Canada	44,1	32,4	11,7
Japan	46,2	32,9	13,3
New Zealand	45,5	33,0	12,5



Australia	46,8	33,6	13,2
Italy	53,4	33,7	19,7
United Kingdom	50,6	34,2	16,4
Portugal	52,1	35,3	16,8
Israel	49,8	37,1	12,7
United States	48,6	37,8	10,8
Turkey	47,0	40,9	6,1
Mexico	49,4	47,6	1,8
Chile	52,6	49,4	3,2

Source: OECD

Figure 77 – Gini index before and after taxation and transfers (in the late 2000s)



Source: OECD

**Key messages income inequality**

- The income inequality in Belgium is relative high before the redistribution impact of taxes and transfers
- Thanks to the system of taxation and transfers, Belgium is one of the most egalitarian countries
- The high level of income redistribution and the less inegalitarian repartition of disposal incomes should have a positive impact on the different aspects of the Belgian population health

12.2. Indicators of financing of progressivity of public healthcare system*12.2.1. Documentation sheet*

Description	Since 1995, the financing of the Belgian social security system is based on the principle of pooling of receipts (the so-called 'financial global management'). That means that all financial resources are globalized and then transferred to the different branches of the social security in function of their respective financial needs. The financing of the healthcare system is also composed of some 'own receipts'. We consider here these two parts of the financing of the health care system in order to characterize the financing in terms of progressivity.
Calculation	Three ratios are calculated: respectively progressive, proportional and regressive receipts divided by the total receipts (excluded diverse receipts). The 'own receipts' of the health system sector are well defined (personal social contributions, alternative financing and allocated receipts). The transferred receipts from the 'global management' of the two social security systems (employed workers and self-employed) are no longer specific to the health care branch. Therefore, we have calculated the 'transferred social contributions', the 'transferred allocated receipts' and the 'transferred subsidies' using as 'repartition key' the proportion of these three sources of financing in the total receipts of social security in the two systems.
Rationale	Wagstaff and van Doorslaer do not find in the literature a real justification of the ability-to-pay principle but rather a justification for rejecting the benefit principle or in favour to the decoupling of payments from utilization (Wagstaff and Van Doorslaer, 2000). On the other hand, the progressivity of the financing of the health system constitutes an interesting argument to decouple the payment on the 'point of care' from the ability to pay. Moreover, progressivity is a necessary condition for vertical equity (individuals of unequal ability to pay make dissimilar payments to finance the health system) but the average tax rate interacts with it to determine the magnitude of redistribution, since progressivity is defined by the dispersion of tax liabilities, irrespective of their average. Horizontal equity requires equal treatment of equals (individuals of equal ability to pay make similar payments to finance the health system) and departures from horizontal equity may affect vertical equity if the discrepancy between the "contribution base" and the ability to pay is increasing in ability to pay. We can say that we adopt here a 'strong egalitarian perspective' because we examine if the health system is financed according to the ability to pay (egalitarian perspective (Wagstaff and Van Doorslaer, 2000)) not by a proportional way, but by a progressive way ('strong' egalitarian).
Source (data and indicator)	SPF Sécurité sociale, RIZIV - INAMI



Periodicity	Yearly
Technical definitions and limitations	<p>The financing of the health care system can be defined as progressive (regressive) when the average rate of levy is increasing (decreasing) with the income. And the financing system is called proportional if the average rate of levy stays constant whatever the income level.</p> <p>The progressivity of the levy system results not only of the progressivity of the taxation structure. She depends also of all the system of fiscal deductions and of the tax immunisations of some part of the income. We do not calculate the absolute progressivity of each levy system (social contribution, alternative financing, and subsidies). We rather consider the relative progressivity of these sources of financing and we characterize the global financing in terms of progressivity given that direct taxation (subsidies) is more progressive than social contributions and that social contributions are more progressive than the indirect taxes.</p> <p>The allocated receipts for the financial global management of the social security are mainly composed by the 'special contribution for the social security' (Cour des comptes, 2011). This contribution is more progressive than the direct taxation which is also more progressive than the social contributions (Valenduc, 2009). Social contributions are mostly proportional.</p> <p>Globally, the system of direct taxation in Belgium is progressive and this progressivity has been yet amplified since the fiscal reform which has began in 1999. During the period 2000-2009, the progressivity of statutory labour tax schedules has increased in the majority of countries and certainly in Belgium where this progressivity is the highest of the OECD countries just after Ireland (OECD, 2012, p. 193) (OECD, 2012a).</p> <p>Nevertheless, we have to distinguish the progressivity from the redistribution. During the past, we had periods characterized by a stable progressivity and a higher redistribution because the average taxation rate was increasing (Valenduc, 2005). Again, we do not calculate here nor an indicator of absolute progressivity, nor an indicator of redistribution.</p> <p>In our calculation we do not take into account the personal situation of the individual. We characterize only the 'system', in general terms a direct taxation is more progressive than a social contribution and a social contribution is more progressive than an indirect taxation. Thereby, we cannot determine if the personal situation of an individual is characterized by a progressive financing (the proportion of the revenues paid by a richer one is higher than the proportion of the revenues paid by a poorer one).</p> <p>We consider here the financing of the health care system in a restricted view. Indeed, we do not take into account the amounts paid on the 'point of care' (the 'cost sharing') that we consider as a private financing. Wagstaff and van Doorslaer meanwhile present a estimation of progressivity indices for public and private source of financing (Wagstaff and Van Doorslaer, 2000).</p>
International comparability	Not relevant
Dimensions	Contextual indicator of equity - Equity of the financing
Related performance	Ratio proportional receipts/total receipts, progressive receipts/total receipts, regressive receipts/total receipts

**indicators****References**

COUR DES COMPTES, 2011 (Cour des comptes, 2011)
 OECD, 2012 (OECD, 2012a) ; VALENDUC, 2005 (Valenduc, 2005) ; VALENDUC, 2009 (Valenduc, 2009) ; WAGSTAFF, 2000 (Wagstaff and Van Doorslaer, 2000)

12.2.2. Results

If we consider the period 2005-2011, the public financing of the health care system becomes less progressive. The proportional financing represents in 2011, 61.4% of the total receipts (71.1 in 2005). And if the part of the progressive financing (direct taxation and special contribution to social security) stays constant, the part of the regressive receipts (essentially Tax on added value as alternative financing) is substantially increased. The evolution is sufficiently clear to avoid the calculation of a mixed indicator composed by the three sources of financing.

12.2.2.1. Belgium**Table 64 – Structure of the financing of the social security system of employed workers (2005-2011)**

Public financing of the social security system of the employed workers	2005 (final accounts)	2006 (final accounts)	2007 (final accounts)	2008 (provisional accounts)	2009 (provisional accounts)	2010 (budget)	2011 (budget)
Social contributions	33.486.083	34.400.634	36.322.215	38.392.650	39.156.433	39.321.228	40.763.219
Subsidies	5.355.599	5.430.743	5.522.075	5.745.555	5.850.002	8.109.936	8.480.527
Alternative financing	7.014.029	7.715.811	8.465.052	9.297.116	9.261.684	10.774.022	12.648.319
Allocated receipts	1.004.084	1.040.736	1.112.795	1.187.042	1.212.420	1.202.086	1.210.493
Diverse receipts	1.009.610	869.018	1.204.621	1.716.309	1.795.191	2.177.397	2.511.586
Total	47.869.405	49.456.942	52.626.758	56.338.672	57.275.730	61.584.669	65.614.144

Table 65 – Structure of the financing of the social security system of self-employed (2005-2011)

Public financing of the social security system of the self-employed	2005 (final accounts)	2006 (final accounts)	2007 (final accounts)	2008 (provisional accounts)	2009 (provisional accounts)	2010 (budget)	2011 (budget)
Social contributions	2.593.515	2.728.788	2.845.980	3.244.981	3.415.331	3.491.335	3.470.904
Subsidies	1.085.287	1.103.435	1.123.834	1.248.199	1.270.904	1.518.274	1.578.210
Alternative financing	239.788	295.618	484.646	802.976	850.144	942.945	1.096.722
Allocated receipts	15.867	17.733	15.900	16.194	16.728	17.116	17.372
Diverse receipts	15.356	24.874	47.994	104.540	47.672	81.349	130.261
Total	3.949.813	4.170.448	4.518.354	5.416.890	5.600.779	6.051.019	6.293.469



Table 66 – Calculation of the keys to apply to transferred resources from the employed workers system (2005-2011)

Employed workers	2005 (final accounts)	2006 (final accounts)	2007 (final accounts)	2008 (provisional accounts)	2009 (provisional accounts)	2010 (budget)	2011 (budget)
Social contributions	33.486.083	34.400.634	36.322.215	38.392.650	39.156.433	39.321.228	40.763.219
Subsidies and allocated receipts	6.359.683	6.471.479	6.634.870	6.932.597	7.062.422	9.312.022	9.691.020
Total	39.845.766	40.872.113	42.957.085	45.325.247	46.218.855	48.633.250	50.454.239
Social contributions in % of the sub-total	84,0%	84,2%	84,6%	84,7%	84,7%	80,9%	80,8%
Subsidies en allocated resources in % of the sub-total	16,0%	15,8%	15,4%	15,3%	15,3%	19,1%	19,2%

Table 67 – Calculation of the keys to apply to transferred resources from the self-employed system (2005-2011)

Self-employed	2005 (final accounts)	2006 (final accounts)	2007 (final accounts)	2008 (provisional accounts)	2009 (provisional accounts)	2010 (budget)	2011 (budget)
Social contributions	2.593.515	2.728.788	2.845.980	3.244.981	3.415.331	3.491.335	3.470.904
Subsidies and allocated receipts	1.101.154	1.121.168	1.139.734	1.264.393	1.287.632	1.535.390	1.595.582
Total	3.694.669	3.849.956	3.985.714	4.509.374	4.702.963	5.026.725	5.066.486
Social contributions in % of the sub-total	70,2%	70,9%	71,4%	72,0%	72,6%	69,5%	68,5%
Subsidies en allocated resources in % of the sub-total	29,8%	29,1%	28,6%	28,0%	27,4%	30,5%	31,5%



Table 68 – Structure of the financing of the public health care system (2005-2011)

Public financing of the health system of the employed workers (million euros)	2005 (final accounts)	2006 (final accounts)	2007 (final accounts)	2008 (provisional accounts)	2009 (provisional accounts)	2010 (budget)	2011 (budget)
Social contributions transferred from general scheme	12.983	12.981	14.210	15.070	15.952	15.526	15.531
Social contributions transferred from self-employed	719	771	800	1.287	1.324	1.329	1.327
Subsidies transferred from general scheme	2.466	2.442	2.596	2.721	2.877	3.677	3.692
Subsidies transferred from self-employed	305	317	321	502	499	585	610
Alternative financing transferred from general scheme				565	964	1.684	3.001
Alternative financing transferred from self-employed				57	93	168	302
Diverse receipts	101	103	107	278	692	695	123
Own social contributions	668	690	719	790	837	865	920
Own alternative financing	2.012	2.034	2.190	2.322	2.445	2.457	2.556
Own allocated receipts	1.047	1.098	1.022	972	1.126	1.049	1.029
Own diverse receipts	232	259	285	310	338	384	410
Total	20.533	20.696	22.251	24.873	27.148	28.420	29.502

Table 69 – Progressivity indicators of the financing of the public health care system (2005-2011)

[illegible]



12.2.2.2. International Comparison

International comparisons are not pertinent because the part of public/private financing of the total health care expenditures is substantially different in all countries.

Key messages – Equity of the financing

- The public financing of the Belgian health care system becomes less progressive, certainly since 2005.
- The international comparison of the progressivity is not relevant because the great diversity of the systems



13. INDICATORS FOR WHICH DATA WILL BE AVAILABLE IN THE NEXT REPORT

This section details the new indicators for which no data are currently available, but for which data will be available in the next performance report.

13.1. Indicators in Health Promotion

13.1.1. Coverage of the DMG+

Description	Proportion of the persons aged 45-74 years with a Global-Medical-File-Improved (DMG+)
Calculation	Numerator: number of insured persons with DMG+ Denominator: number of insured persons with a DMG
Rationale	The DMG is a medical file centrally managed by the GP. The DMG+, introduced in April 2011, contains an additional component of prevention and health promotion. The GP can play a major role in health promotion. It is the right person to make a state of play of risk factors, organize preventive interventions (vaccination and screening), and counsel for healthy behaviours. The DMG+ is a tool to help the GP in this task.
Primary data source	NIHDI, file N
Indicator source	No data currently, as the measure was introduced in April 2011
Technical definitions	NIHDI billing codes: 102395 : Honoraires complémentaires aux prestations 101032, 101076, 103132, 103412, 103434, 103515, 103530, 103552, 103913, 103935, 103950 et 104370 pour la discussion avec le patient et le suivi de la check-list du module de prévention dans le cadre de la gestion du dossier médical global
Limitation	This information is only available for patients who have a DMG
International comparability	This is not an international indicator
Dimensions	Accessibility of preventive care
Keywords	Health Promotion; Effective health services; Commitment of the professionals
Related indicators	Coverage of DMG ; Influenza vaccination; Breast cancer screening; Cervical cancer screening; Colon cancer screening
References	none



13.2. Indicators in long-term care

13.2.1. Evolution of utilisation of BelRAI over time

Description	Evolution over time in utilisation of BelRAI-HC and BelRAI-LTCF
Calculation	Numerator: number of elderly with BelRAI-assessment Denominator: total number of elderly (65+)
Rationale	<p>The Resident Assessment Instrument (RAI) is originally developed to assess the care needs of the elderly in institutions, but is later extended with instruments for different care settings and subgroups, like: interRAI-LTCF for care homes, interRAI-PAC for post-acute care, interRAI-MH for institutional mental health care, interRAI-CMH for ambulatory mental health care, interRAI-PC for palliative care, interRAI-AC for acute hospital care and the interRAI-ID for persons with mental disabilities. The structured and standardised assessment aims to realise a high-quality care planning and quality monitoring. Different care providers can assess the different items, resulting in a multidisciplinary approach of the care needs of the elderly.</p> <p>In Belgium a pilot project (the BelRAI) is ongoing and is not yet nationally implemented in all care settings. The assessment instruments for home care, for long-term care facilities, for acute care and for palliative care are adapted to the Belgian situation.</p>
Data source	No data currently. Project still in pilot phase.
Technical definitions	Wait for availability of data
International comparability	None (Belgian project)
Performance Dimensions	Quality; effectiveness
Keywords	Long-term care; elderly
Related indicators	Prevalence of malnutrition by elderly (BMI <19) Percentage of residents physically restrained during the last 7 days Percentage of residents who had a fall during the last 30 days
References	Website BelRAI (http://wiki.belrai.org/nl/) Gebruikshandboek BelRAI-HC(Morris <i>et al.</i> , 2006b) + BelRAI-LTCF(Morris <i>et al.</i> , 2006a)



13.2.2. Prevalence of malnutrition by elderly (BMI<19)

Description	Prevalence of malnutrition in elderly (BMI<19)
Calculation	Numerator: number of elderly with an assessment of malnutrition (BMI<19) Denominator: total number of elderly (65+) with an assessment of BelRAI-HC and/or BelRAI-LTCF
Rationale	<p>Older persons are particularly vulnerable to malnutrition due to complications such as changes in appetite and energy level, chewing and swallowing problems, change in nutritional requirements, loss of cognitive function and deteriorating vision (WHO, 2012a). The use of a standardised, validated instrument to assess the factors related to (mal)nutrition facilitates the multidisciplinary collaboration between care providers and care settings and could improve the continuity of care.</p> <p>In Belgium a pilot project on the assessment of the care needs of the elderly (the BelRAI) is ongoing and is not yet nationally implemented in all care settings.</p>
Data source	No data currently (wait for national implementation of BelRAI)
Technical definitions	<p>The assessment of the nutrition of the elderly consists of four items (BelRAI-HC):</p> <ol style="list-style-type: none">1. assessment of length and weight of the elderly2. assessment of nutrition issues, defined as (coding with yes/no)<ul style="list-style-type: none">• weight loss of 5% or more in the last 30 days OR 10% or more in the last 180days• dehydrated OR increased level of Blood ureum nitrogen (BUN)• fluid intake less than 1 litre per day (less than 6-8 cups per day)• fluid output exceeds input3. mode of nutritional intake (coded with normal; modified independent; requires diet modification to swallow solid food; can swallow only pureed or mixed food and thickened liquids; combined oral and parental or tube feeding; nasogastric tube feeding only; abdominal feeding tube: parenteral feeding only; activity did not occur)4. dental or oral (coding with yes/no)<ul style="list-style-type: none">• wears a denture (removable prosthesis)• has broken, fragmented, loose, or otherwise non-intact natural teeth• reports having dry mouth• reports difficulty chewing <p>The assessment of the nutrition of the elderly consists of 6 items (BelRAI-LTCF):</p> <ol style="list-style-type: none">1. assessment of length and weight (similar to BelRAI-HC)2. assessment of nutrition issues (similar to BelRAI-HC)3. mode of nutritional intake (similar to BelRAI-HC)



4. parenteral or enteral intake (coding with no parenteral/enteral feeding, parenteral/tube feeding but no calories, 1-25% of total amount of calories, 26% or more of the total amount of calories)
5. dental and oral (similar to BelRAI-HC) with 2 additional items:
 - reports pain or discomfort in mouth or face
 - shows infected gingival or bleedings of natural teeth or tooth residues
6. evolution of the appetite (during the last months) (coding with appetite has increased, unaltered appetite, appetite has decreased, evolution unknown)

In the OECD long-term care quality project the indicator on prevalence of unplanned weight loss is proposed as example of a quality outcome on care effectiveness.

Limitation	Potential lack of sensibility: elderly with a BMI above 19 can also be malnourished
International comparability	Wait for results of OECD project
Performance dimensions	Quality (effectiveness)
Keywords	Long term care; the elderly; malnutrition
Related indicators	Evolution of BelRAI over time Percentage of residents physically restrained during the last 7 days Percentage of residents who had a fall during the last 30 days
References	ACOVE indicator(Reuben, 2007) Study on nursing home quality indicators(Arling <i>et al.</i> , 2005) Centers for Medicare & Medicaid Services Nursing Home Quality Initiative(Centers for Medicare & Medicaid Services, 2011)



13.2.3. Percentage of residents who were physically restrained during last 7 days

Description	Percentage of residents who were physically restrained during last 7 days
Calculation	Numerator: number of elderly with an assessment of physical restraints during last 7 days Denominator: total number of elderly with an assessment of BelRAI-HC and/or BelRAI-LTCF
Rationale	<p>Restraint-free care should be the aim of high quality nursing care. However in reality physical restraints are commonly used in geriatric long-term care. (Mohler <i>et al.</i>, 2011) The use of physical restraints is justified for safety reasons but several adverse events are also related to this use. A study (De Letter <i>et al.</i>, 2008) on all medico legal cases of unexpected death during hospitalisation or accommodation in rest or nursing homes showed that in the majority of cases the fatal outcome was related to bedrail or restraint. Next to direct injuries and mortality, social and psychosocial adverse events are associated with the use of physical restraints. It is unclear whether institutional aspects, such as staff mix, influence the decisions on the use of physical restraints.</p> <p>In some of the Belgian long-term care facilities the use of physical restraints is assessed but this pilot project (the BelRAI) is ongoing and is not yet nationally implemented in all care settings.</p>
Data source	No data currently (wait for national implementation of BelRAI)
Technical definitions	<p>Within the domain of treatments and procedures in the BelRAI-HC, one subdomain inquires on restricting measures and necessarily aids. The assessment of the frequency of use of aids, within the last 3 days, to restrict or facilitate the mobility of the patient can describe the complexity of care needs. The following items have to be coded with: not used; less than daily use, but only during the night; daily use but only during the night; daily use but only during the day; during day and night used but not constantly; constant 24h use (contains also periodically detachments):</p> <ul style="list-style-type: none">• Siderails on all open sides of the bed• Fixation of upper body (not easily removable)• Chair which restricts the patient getting up• Anti-pressure ulcers material• Supporting pillow• Walking aids: rollator, cane, walking frame, tripod• Wheelchair• Electrical wheelchair or electronic scooter• Support by a person during transfers and/or walking• Mechanical hoist (active/passive)• Compression therapy (right/left)• Incontinence material• Adapted chair



- ...
- Others

The same sub domain and items can also be found in BelRAI-LTCF.

In the OECD long-term care quality project the indicator on incidence of use of physical restraints is proposed as example of a quality outcome on user safety.

International comparability	Wait for results of OECD project
Performance Dimensions	Quality (appropriateness)
Keywords	Long-term care; elderly
Related indicators	Evolution of BelRAI over time Prevalence of malnutrition by elderly (BMI <19) Percentage of residents who had a fall during the last 30 days
References	Website BelRAI (http://wiki.belrai.org/nl/) Gebruikshandboeken BelRAI-HC(Morris <i>et al.</i> , 2006b) + BelRAI-LTCF(Morris <i>et al.</i> , 2006a) Cochrane review on interventions for preventing and reducing the use of physical restraints in long-term geriatric care(Mohler <i>et al.</i> , 2011) Acove-indicator on the care of dementia in vulnerable elderly (Feil <i>et al.</i> , 2007) Arling, 2005(Arling <i>et al.</i> , 2005); CMS(Centers for Medicare & Medicaid Services, 2011)



13.2.4. Percentage of residents who had a fall during the last 30 days

Description			Percentage of residents who had a fall during the last 30 days
Calculation			Numerator: number of elderly with an assessment of a fall incident Denominator: total number of elderly with an assessment of BelRAI-HC and/or BelRAI-LTCF
Rationale			Fall incidents are a common cause of morbidity and mortality in elderly. Persons who fell once, have an increased risk on future fall incidents. The most recent Health Survey Interview of the Scientific Institute of Health (Van der Heyden <i>et al.</i> , 2008) reports that in the 12 months preceding the interview 7% of the Belgian population had an accident resulting in a medical consultation. The most common cause of the accidents were falls (54%) and were common in children and in persons of 65years and older. In more than 40% of the elderly, the fall caused a fracture. The collected data on the incidence of falls is however an underestimation, due to the lack of reporting of falls without medical complications. Due to the ageing of the population, the incidence of falls will increase with the related increase in injuries and costs for health care. The standardized assessment of risk factors related to fall incidents is part of the health promotion and fall prevention. In Belgium a pilot project (the BelRAI) is ongoing but is not yet nationally implemented in all care settings.
Data source			No data currently
Technical limitations	definitions	and	<p>Within the domain of state of health of the BelRAI-LTCF and the BelRAI-HC, a subdomain on fall incidents determines the risk on future fall incidents. The subdomain fall incidents is coded with no fall incidents in the last 90days; no fall incidents in the last 30 days but in the 31-90 days; one fall incident in the last 30 days; two or more fall incidents in the last 30 days.</p> <p>An additional subdomain inquiring on the fall incidents in the last 30 days in the long-term care facility or at home, should be used as a re-evaluation within 30 days after the last assessment. This subdomain is coded with no, no fall incidents in the last 30days; yes, a fall incident in the last 30days.</p> <p>In the OECD long-term care quality project the indicator on the incidence of falls and fall-related fractures is proposed as example of a quality outcome on user safety.</p>
International comparability			Wait for data OECD project
Performance Dimensions			Quality (safety)
Keywords			Long-term care; elderly
Related performance indicators			<p>Evolution of BelRAI over time</p> <p>Prevalence of malnutrition by elderly (BMI <19)</p> <p>Percentage of residents physically restrained during the last 7 days</p>
References			<p>Website BelRAI (http://wiki.belrai.org/nl/)</p> <p>Gebruikshandboeken BelRAI-HC(Morris <i>et al.</i>, 2006b) + BelRAI-LTCF(Morris <i>et al.</i>, 2006a)</p>



References of indicators: Arling, 2005(Arling *et al.*, 2005), Chang, 2007(Chang and Ganz, 2007), CMS(Centers for Medicare & Medicaid Services, 2011)
Acove-indicator(Chang and Ganz, 2007)

13.2.5. Pressure ulcer by the elderly in long-term care facilities

Description	Incidence of pressure ulcer by the elderly in in long-term care facilities
Calculation	Numerator: Number of incident cases of pressure ulcer in long-term facilities Denominator: Total number of individuals residing in long-term facilities
Rationale	The occurrence of a pressure ulcer in a hospitalised patient has a serious negative impact on the individual's health (Gorecki <i>et al.</i> , 2009) and often leads to a much prolonged hospital stay. Pressure ulcers can be prevented with good quality nursing care. (McInnes <i>et al.</i> , 2011) (Reddy <i>et al.</i> , 2006)
Data source	Currently no data, but will be recorded in BelRAI-LTCF (Morris <i>et al.</i> , 2006a) and BelRAI-HC (Morris <i>et al.</i> , 2006b): in the section on the condition of the skin.
Results source	Currently no results
Technical definitions	Coding in BelRai: 1. current most severe pressure ulcer (coded with no pressure ulcer; grade I-any area of persistent skin redness; grade II-partial loss of skin layers; stage III-deep craters in the skin; stage IV- breaks in skin exposing muscle or bone; not codeable, e.g. necrotic eschar predominant) 2. prior pressure ulcer (coded with yes/no) 3.presence of skin ulcer other than pressure ulcer (coded with yes/no) 4. major skin problems (coded with yes/no) 5. skin tears or cuts (not related to surgery) (coded with yes/no) 6. other skin conditions or changes in skin condition (coded with yes/no) 7. foot problems (coded with no foot problems; foot problems no limitation in walking; foot problems limit walking; foot problems prevent walking; foot problems does not walk for other reasons)
International comparability	This indicator is included in the set of OECD indicators in quality of long term care. No results are currently available
Related indicators	Pressure ulcer in patients hospitalized
Dimensions	Safety (quality)
Keyword	Pressure ulcer;



References	References from indicator : Arling, 2005(Arling <i>et al.</i> , 2005), CMMS, 2011(Centers for Medicare & Medicaid Services, 2011), CHSRA, 2006(CHSRA, 2006), RIVM, 2010(RIVM, 2010), Acove, 2007(Bates-Jensen and MacLean, 2007) Gebruikshandboeken BelRAI-LTCF (Morris <i>et al.</i> , 2006a) and BelRAI-HC(Morris <i>et al.</i> , 2006b)
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13.3. Indicators in mental healthcare

13.3.1. Documentation sheet

Description	Percentage of visits to the Emergency Rooms in general hospitals for mental health and/or substance- related problems
Calculation	Numerator: number of emergency room presentations with a mental health and/or substance misuse diagnosis Denominator: total emergency room presentations
Rationale	<p>Although unforeseen and unavoidable emergencies do arise in mental health, mental health related emergency room use is used as an indicator of poor coordination of care and service failures.(Merrick <i>et al.</i>, 2007) The community treatment system to support services for people with mental health related problems is regarded as ineffective when utilization rates of emergency departments of general hospitals are high.(Owens <i>et al.</i>, 2010) Highly accessible outpatient care is considered to help people to enter treatment before reaching the crisis stage and minimize the need for emergency room visits.(Merrick <i>et al.</i>, 2007) In addition, it is assumed that effective liaison between emergency rooms and mental health crisis resources reduce the use of emergency rooms for mental health services/clients. High rates of mental health related emergency room visits are not only a concern for members of the mental health community. It is also a concern that emergency department overcrowding results in decreased quality of care and increased likelihood of medical error.(Owens <i>et al.</i>, 2010)</p> <p>In the US, it has been illustrated that mental health related emergency room visits are on the rise for more than one decade(Larkin <i>et al.</i>, 2005). This stresses the importance of the availability of expertise in the field of mental health in emergency rooms to manage these crises. Depending on the number of visits for psychiatric problems, availability of a mental health specialist in every emergency room may not be practical. Still, there should be a minimum protocol by which mental health expertise is accessible for immediate care for every citizen.(McEwan and Goldner, 2001)</p>
Data source	RHM since 2008 (information not available in RCM/MKG)
Technical definitions	<p>Denominator = number of visit in emergency room.</p> <p>Distinction between type of admission:</p> <ol style="list-style-type: none">1. Ambulatory emergency (A2_HOSPTYPE_FAC = U)2. ONE day (A2_HOSPTYPE_FAC = C & D)3. Classic hospitalization (A2_HOSPTYPE_FAC = all but not (U, C & D))



Definition of visit in emergency room using the RHM: we can identify all emergency room visits as:
All admissions via Emergency service but excluding the admission from another hospital (see codes in table below).

Denominator selection codes

	File	Field number / variable name / description	Code selected
Include	STAYHOSP	Field 24/ A2_CODE_ADM/ Type of admission	A, B, C, D, E
Exclude	STAYHOSP	Field 23/ A2_CODE_PLACE_BEFORE/ location before admission	3,4, 5

Numerator = Number of visit in emergency room (see definition of denominator) with mental health/substance related problem records

Definition of mental health/substance-related problem records in emergency room using the RHM: we can identify the reason of admission for suicide attempt or other intoxication or social or psychological reasons (for both ambulatory as non-ambulatory stays) (see codes in table below). These codes are, however, not specific enough as they also include non-mental health related problems (e.g. social problems).

It is possible to re-fine the analyses by including additional records from the STAYHOSP file (see codes below)

In addition, another possibility is to retrieve the cases admitted via the emergency with an APR-DRG included in the MDC 19 – Mental Diseases and Disorders & 20 – Alcohol/Drug use or induced Mental Disorders (STAYEXTRA).

Numerator selection codes

	File	Field number / variable name / description	Code selected
Include	URGADMIN	Field 6/ M6_TYPE_INFO_URG / Code info Emergency	R
		Field 7/ M6_CODE_INFO_URG / reason for contact with emergency room	F (suicide attempt), S (social mental or



			psychological reasons)
Include	STAYHOSP	Field 29/A2_CODEDIAG_VERIF_ADM/ Verified admission diagnosis	UUUAAA
Include	STAYHOSP	Field 26/A2_CODE_DESTINATIE/ Place after discharge	5 (Other hospital: psychiatric) 7 (PVT or sheltered housing)
Include	STAYHOSP	Field 13/A2_HOSPTYPE_CAT / Category of Stay	P (complete psychiatric stay)
Include	STAYEXTRA	Principal diagnosis	For MDC 19: APR-DRG in (740, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760) FOR MDC 20: APR-DRG in(770, 771, 772, 773, 774, 775, 776)

International comparability This indicator is not internationally standardized. The HCUP gives the most detailed description of this indicator and makes use of a similar data source and coding structure as the MKG/RCM.

References NHS Schotland(Coia *et al.*, 2008)/ HCUP 2007(Owens *et al.*, 2010)



13.4. Indicators to assess continuity of care

13.4.1. Registration in ambulatory pathway for chronic care

Description	% of patients registered in a pathway for chronic care (renal failure or diabetes) = Care Trajectory patients
Calculation	Numerator : Number of diabetic patients and renal failure patients registered in a pathway as assessed by the Sentinel Practice Network Denominator : Population of eligible diabetic patients and renal failure patients assessed by the Sentinel Practice Network (IPH)
Rationale	Pathways for chronic care are set up in Belgium in 2009 (June for renal failure and September for diabetes type 2). The aim of these pathways is to improve follow-up and collaboration between patients with chronic disease, general practitioner, specialist physicians and other healthcare professionals. Because the registration in a pathway is voluntary, the percentage of patients registered in the pathways of care is a indicator of the patients' participation in this public investment. According to the NIHDI, there were 20 176 registered pathways for diabetes and 15 428 for renal failure in October 31, 2011. (NIHDI, 2012c) But the exact denominator was currently unknown. This item will be estimated by the ACHIL project which aims to evaluate the pathways for chronic care. Evaluation will be presented in May 2013.
Data source	GPs Electronic Medical Records (EMR)
Results' source	ACHIL project (on-going evaluation of pathways for chronic care)
Technical definitions	The care trajectory patients are identified on the basis of NIDHI nomenclature codes: 107015, 107030, 107052, 107074, 107096, 107111, 107133, 107155
International comparability	Not applicable (specific to Belgium)
Related indicators	Frequency of physician encounter for patients in pathway for chronic care
Dimensions	Continuity (Management/Coordination);
Keywords	Ambulatory care; Link specialist and GP; Chronic care
References	none



13.4.2. Frequency of physician encounter for patients registered in a pathway for chronic care

Description	% of Care Trajectory patients who meet the target of consulting their Care Trajectory GP or Care Trajectory specialist at least 4 times per year
Calculation	Numerator : Number of patients within a pathway for chronic care who meet their Care Trajectory GP or Care Trajectory specialist at least 4 times in the period 01/01/2010 - 31/12/2010 Denominator : Number of diabetic patients and renal failure patients registered in a pathway
Rationale	Pathways for chronic care are set up in Belgium in 2009 (June for renal failure and September for diabetes type 2). The aim of these pathways is to improve follow-up and collaboration between patients with chronic disease, general practitioner, specialist physician and other healthcare professionals. . According to the NIHDI, there were 20 176 registered pathways for diabetes and 15 428 for renal failure in October 31, 2011. (NIHDI, 2012c) A minimal number of encounters with care providers care is required to ensure quality of care and is a target of these pathways. This item is a part of the ACHIL project which aims to evaluate the pathways for chronic care. Evaluation will be presented in May 2013.
International comparability	Not applicable
Data source	GPs Electronic Medical Records (EMR)
Results' source	ACHIL project (on-going evaluation of pathways for chronic care)
Technical definitions	The care trajectory patients are identified on the basis of NIDHI nomenclature codes: 107015, 107030, 107052, 107074, 107096, 107111, 107133, 107155
Related indicators	% of patients registered in a pathway for chronic care
Dimensions	Continuity (Management/Coordination);
Keywords	Ambulatory care; Link specialist and GP; Chronic care
References	



13.5. Indicators to assess efficiency of care

13.5.1. Dialysis at home

Description			Use of home care technology and proportion of renal dialysis patients using home dialysis
Calculation			Number of individuals using home dialysis divided by all individuals undergoing renal dialysis
Rationale			<p>There are different treatment options for patients whose kidneys fail. The patients can be dialysed, either with HD or with PD. In both cases patients can also receive a kidney transplant, either from a deceased or a living donor. Ultimately, kidney transplantation is considered to be the most preferable option, whenever possible.</p> <p>Substitution of the more expensive haemodialysis in hospital by the less expensive alternatives such as low-care haemodialysis in satellite centres and peritoneal dialysis has been slower in Belgium than in many other countries. This is thought to be partly due to the financing mechanisms for dialysis. Since 1995 the Belgian government has modified the financing system a couple of times, with the explicit goal of introducing incentives for substitution. For this reason, the indicator is categorised in the performance dimension <i>efficiency</i>. Since home dialysis is not indicated for all patients with end-stage renal disease, it is also considered an indicator of <i>appropriateness</i>.</p>
Harmonisation of definition with international organisations			
Data source			EPS
Technical definitions and limitations			<p>Used reimbursement codes:</p> <ul style="list-style-type: none">• Haemodialysis (HD) hospital: 470470, 470481, 761272, 761283• HD satellite: 761515, 761526• Peritoneal Dialysis (PD) hospital or satellite: 470374, 470385 <ul style="list-style-type: none">• HD domicile: 761456, 761493• PD domicile: , 761471, 761530, 761552, 761574, 761655, 761670 <p>The numerator included the following patients:</p> <ul style="list-style-type: none">• Home dialysis: at least 80% of the dialysis duration during the complete period of the dialysis treatment related to home haemodialysis and/or home peritoneal dialyse. <p>Patients were included in the sample in case of chronic dialysis, defined as reimbursement corresponding to 7 consecutive weeks of chronic dialysis treatment in a given year. All patients ≥ 18 years old were included in the denominator. Patients who received a kidney transplantation prior to their dialysis treatment were rejected from the denominator</p>



International comparability	The definition used by the RIVM was adopted. However, technical specifications were not found in the Dutch report.
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Related performance indicators	
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References	KCE HTA report chronic dialysis (Cleemput <i>et al.</i> , 2010) RIVM (the Netherlands) 2008 (RIVM, 2008) (but not in 2010 report)
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13.6. Indicators to assess patient centeredness

13.6.1. Patients experiences with ambulatory healthcare service

Description	Patients experiences of ambulatory care
Calculation	<p>Numerator: population above 15 years old who answer to the HIS and who report they had a good relational experience during the last consultation in ambulatory care.</p> <p>Denominator: population above 15 years old who answer to the HIS:</p>
Rationale	<p>Patient-centered care is supported by good provider-patient communication so that patients' needs and wants are understood and addressed and patients understand and participate in their own care (AHRQ, Bates-Jensen and MacLean, 2007, European Commission, 2008, OECD, 2011c). Unfortunately, a good communication is not easy and requires several competencies (listening, explaining, courtesy...) The measurement of these skills is a challenge and several institutes tackle this issue in their surveys. (AHRQ, 2010, OECD, 2011d, Westert, 2008 #136) In 2011 the OECD has edited a questionnaire on patient experiences with some questions related to the quality of the consultation. (OECD, 2011d) The Belgian Institute of Public Health decided to include in the Health interview survey of 2013 the module of OECD instrument dedicated to the patient experiences with ambulatory care.</p>
International comparability	OECD
Data source	HIS 2013
Technical definitions and limitations	<p>Question based on the OECD module (OECD, 2011d): Now, refer to the last time you had a consultation either with a GP; either with a specialist</p> <p>Q15. Did the doctor/ spend enough time with you?</p> <p>Q16. Did the doctor explain things in a way that was easy to understand?</p> <p>Q17. Did this doctor give you an opportunity to ask questions or raise concerns about recommended treatment?</p> <p>Q18. Did this doctor involve you as much as you wanted to be in decisions about your care and treatment?</p> <p>Limitation : Subjective assessment; definition of understandable; maybe long delay between consultation and survey; focus on ambulatory care only; home visits by GPs excluded.</p>



Related indicators	Satisfaction with health care providers / Experiences problem with coordination of care
Dimensions	Patient centeredness (Providers skill of communication/Explaining ability); Ambulatory care
References	(AHRQ, OECD, 2011d); (Westert <i>et al.</i> , 2008)



14. INDICATORS TO BE DEVELOPED (NO DATA OR MORE RESEARCH IS NEEDED)

This section presents the indicators that were selected as being pertinent by the different expert groups, but for which there are currently no data in Belgium. Documentations sheets include a description, the rationale, and the sources of the indicator. The technical definition will have to be written in function of the new data that will need to be collected, if a decision is made to collect this information.

14.1. Indicators in health promotion

14.1.1. Health literacy related to the dimension of health resources and/risk factors

Description	% of people reporting to a) understand easily information to manage resources for health and wellbeing / b) understand easily information related to risk factors in health
Rationale	<p>Health literacy is a relatively new concept considered as a crucial resource in health. It can be defined as the individual skills necessary to understand and manage factors interacting with his health. This gives the possibility to the individuals to make healthier choices. It has been defined as a priority of action for the 2008-2013 European Union strategy.</p> <p>Health literacy is a. Different tools have been used in the world to measure it. The European project on health literacy (consortium HLS Europe) has developed a comprehensive questionnaire aiming to build and validate 12 indicators. Those intend to measure various aspects of health literacy. A first survey occurred in Europe in 2010-2011 (European Health Literacy Survey). More validation work should be done before the tool can be applied. To measure all of the aspects of health literacy, an ad hoc survey is necessary. It is not yet clear if a part of the questionnaire can be isolated and added to a general survey to measure only one particular dimension of health literacy.</p>
Primary Data source	<p>No data yet in Belgium</p> <p>The calculation of this indicator could be derived from the EU-project questionnaire; this questionnaire contains 48 questions and allows building 12 different health literacy indicators. However, at this time more development and validation is needed</p>
Dimensions	Empowerment
References	<p>Conseil canadien sur l'apprentissage, 2008(Conseil Canadien, 2008)</p> <p>European Commission, 2007(European Commission, 2007)</p> <p>Nutbeam, 2008(Nutbeam, 2008)</p> <p>Consortium HLS-EU (The European Health Literacy Survey)(Consortium HLS-EU)</p>



14.2. Indicators in mental healthcare

Four indicators in mental health care have been identified as being pertinent, but for which there are currently no data in Belgium:

1. Wait-times for needed services
2. Mortality for persons with severe and persistent mental illness
3. Percentage community spend compared to total spend on mental health care
4. Case management

14.2.1. Wait-times for needed services

Description	Mean time in days between (self-)referral to specialized mental health care and initial appointment date
Rationale	Waiting time is one important dimension of accessibility. Prompt intervention can avert mental health crises and avoid the need for more intensive forms of care. Delays in service can result in harm to persons with severe mental illnesses and their families as well as discouraging future treatment seeking behaviour. (McEwan and Goldner, 2001) A MPG/RPM module for the registration of wait-times in residential psychiatric facilities was prepared but not implemented.
International comparability	This indicator is not widespread. In addition, the differences in scope and measures used makes international comparisons difficult. Therefore, international comparisons should focus on broad trends in waiting times.
References	McEwan et al.(McEwan and Goldner, 2001); NHS Scotland(Coia <i>et al.</i> , 2008) Herbstman & Pincus(Herbstman and Pincus, 2009)

14.2.2. Mortality for Persons with severe and persistent mental illness

Description	Standardized Mortality ratio for persons with severe and persistent mental illness
Rationale	Individuals with schizophrenia and other severe mental illnesses have higher age and sex adjusted mortality rates than members of the general population. As there is no a priori biological reason that patients with mental health disorders should die prematurely, a large survival difference could point to shortfalls in the overall medical care, not just the mental health care, for this vulnerable group of patients and provide a starting point for further investigation(Hermann and Mattke, 2004). Studies in some countries have found medical conditions to be under-detected and under-treated among individuals with psychiatric conditions.(OECD, 2011a) The selection of this indicator seeks to encourage the linkage of mortality and mental health databases, perhaps by using the type of approach adopted by cancer registries.(Hermann and Mattke, 2004)
Dimension	Quality(effectiveness); Equity
International comparability	According to a survey, 12 out of 18 surveyed OECD countries could provide this indicator (Armesto <i>et al.</i> , 2008). Belgium was not included in the surveyed countries.
References	OECD(Hermann and Mattke, 2004, OECD, 2011a), NHS Scotland(Coia <i>et al.</i> , 2008)



14.2.3. Percentage community spend compared to total spend on mental health care

Description	Expenditure on community mental health and addiction services as a proportion of total expenditure on mental health and addiction services
Rationale	<p>In the last decades of the previous century, major reforms were introduced in the mental health care sector in Western countries, including Belgium. Where adult MHC had previously been characterized by placement in large isolated institutions, a balanced care model gradually came to the forefront: the care offered is delivered as close as possible to the patient's living environment, and only if necessary in an institution. This model also implies the development of a variety of services that enable care to be provided close to home. Measuring the proportion of the entire mental health budget that is being spend on community resources allows to follow-up this trend.(Eyssen <i>et al.</i>, 2010)</p> <p>Community services and total services can be defined as:</p> <p>COMMUNITY:</p> <p>Out-patient and community mental health services (centres for crisis intervention, mobile community mental health services – outreach, mental health centres –CGG/SSM, rehabilitation centres for persons with a mental disorder, ambulatory centres for medico-social care); ambulatory consultations psychiatrists; psychiatric home nursing Tf,</p> <p>TOTAL:</p> <p>Specialized mental health services are defined as services provided by residential services (Acute: units in psychiatric or a cute hospitals with letters A, a1, a2, K, K1, K2, T, t1, t2, Sp6, T-Vp; Non-acute: initiatives of sheltered living, psychiatric nursing homes, psychiatric home nursing Tf, Therapeutic communities –TC, NIHDI conventions 772 & 773); out-patient and community mental health services (centres for crisis intervention, mobile community mental health services – outreach, mental health centres –CGG/SSM, rehabilitation centres for persons with a mental disorder, ambulatory centres for medico-social care); ambulatory consultations psychiatrists</p> <p>Limitation: no data about psychotherapists and GP's</p>
International comparability	This indicator has limited potential for international comparisons.
Dimension	Quality(appropriateness)
References	NHS Scotland(Coia <i>et al.</i> , 2008)



14.2.4. Case Management

Description	% of persons with a specified severe psychiatric disorder in contact with the health care system who receive case management (all types)
Rationale	Individuals with severe mental illness typically require support services beyond mental health care, such as social assistance and community-based services such as housing, benefits and rehabilitative care. (Hermann and Mattke, 2004, McEwan and Goldner, 2001) Case management services may be provided to assist patients in navigating a potentially complex set of rules and institutions. In its simplest form case management is a means of coordinating services. Each mentally ill person is assigned a 'case manager' who is expected to: (i) assess that person's needs; (ii) develop a care plan; (iii) arrange for suitable care to be provided; (iv) monitor the quality of the care provided; and, (v) maintain contact with the person. Since its introduction in the literature many forms of case management are described, and the complexity and nature of the interventions varies. (Eyssen <i>et al.</i> , 2010) There is moderate quality of evidence that case management can ensure that more people remain in contact with psychiatric services. However, evidence on its effects in improving clinical symptoms or the patient's level of social functioning, is conflicting. (Eyssen <i>et al.</i> , 2010) In Belgium the concept of case management is used in the context of the outreaching / mobile teams that are developed and financed by art.107 of the hospital law to pilot-test a reform in the Belgian Mental Healthcare sector. ^d
International comparability	Many forms of case management exist, and the complexity and nature of the interventions varies. This can hinder its international comparability. Also in Belgium the terminology "case management" is used loosely and no financing criteria (e.g. number in the nomenclature) can be linked to this concept.
Dimension	Accessibility
References	McEwan (McEwan and Goldner, 2001); OECD (Hermann and Mattke, 2004); RAND (Horovitz-Lennon <i>et al.</i> , 2009)

14.3. Indicators in end-of-life care

Four indicators in the domain of end of life care have been identified as being pertinent, but for which there are currently no data in Belgium:

1. Existence of a do-not-resuscitate policy in the care setting
2. Assessment of physical symptoms at the end of life
3. Psychological or social support at the end of life
4. Availability of information about the options in palliative care in care setting
5. Importance of end-of-life care in medical education

^d http://www.kuleuven.be/lucas/pub/publi_upload/2011_7_VDJ_AD_IDC_CVA_Een%20starterskit%20voor%20Betere%20GGZ.pdf



14.3.1. Existence of a do-not-resuscitate policy in the care setting

Description	Existence of a DNR-policy in care setting
Rationale	In the majority of acute geriatric wards in Flemish hospitals (86.1% in a survey in all 94 acute geriatric wards in Flemish hospitals in 2002) a DNR policy is available with institutional guidelines and/or individuals, patient-specific DNR order forms. However these policies were more an expression of institutional defensive attitude rather than a tool to facilitate patient involvement. The results revealed also the lack of communication towards the patient and the physicians outside the ward and the hospital(De Gendt <i>et al.</i> , 2005).
Dimension	Quality(patient centeredness)
References	De Gendt, 2005(De Gendt <i>et al.</i> , 2005)

14.3.2. Assessment of physical symptoms at the end of life

Description	Proportion of patients with an assessment of physical symptoms (at least pain, dyspnea and delirium)
Rationale	In the NICE quality standards for end-of-life care for adults(NICE, 2012) a quality statement on the assement of physical symptoms is formulated as follows: People approaching the end of life have their physical and specific psychological needs safely, effectively and appropriately met at any time of day or night, including access to medicines and equipment. Within this statement not only the treatment plan for current and future symptom management is included but also the referral for specialist palliative care advice. The Belgian experts in our project emphasized the importance of a standardised assessment of the physical symptoms, with a focus on pain, dyspnea and delirium in order to enhance the quality of end-of-life care. However, national or regional data collection on this indicator is still lacking in Belgium
Performance dimension	Quality(effectiveness), appropriateness; centeredness
References	Expert opinion + Pasman, 2008(Pasman <i>et al.</i> , 2009), Lorenz, 2009(Lorenz <i>et al.</i> , 2009), Brandt, 2009(Brandt <i>et al.</i> , 2009), Lorenz, 2007(Lorenz <i>et al.</i> , 2007)

14.3.3. Psychological or social support at the end of life

Description	Psychological or social support is documented in the patient's medical record
Rationale	NICE developed in 2011 quality standards on the end-of-life care for adults. The psychological support is a main item in the quality statements, including a treatment plan for current and future symptom management for specific psychological needs and the referral to specialist psychological advice. Next to the care for the patient, also the health and social care workers need to have the knowledge, skills and attitudes necessary to be competent to provide high-quality care and support for people approaching the end of life and their families and carers(NICE, 2012). A separate quality statement is dedicated on the workforce planning: generalist and specialist services providing care for people approaching the end of life and their families and carers have a multidisciplinary workforce sufficient in number and skill mix to provide high-quality care and support.



In Belgium, the role of the psychologist in end-of-life care is not yet fully implemented, resulting in a lack of data on the quality of care and the needs of the patients and professionals on the psychological and social support. Within the framework of the Cancer Plan in Belgium, several projects on psychosocial support to cancer patients and his family are set up (FPS Health Food Chain Safety and Environment, 2012).

Dimension	Quality (patient centeredness)
References	Pasman, 2008 (Pasman <i>et al.</i> , 2009), Cancer Plan in Belgium (FPS Health Food Chain Safety and Environment, 2012)

14.3.4. Availability of information about the options in palliative care in care setting

Description	Proportion of patients and/or family/relatives who received information about the options in palliative care in homes for the elderly/hospitals
Rationale	The availability of information on palliative care services consists not only of the provision about the treatment options, but also the expression of patient' wishes about the preferred care. Advanced care planning (ACP) consists of a process of communication among patients, their families and health care providers regarding the kind of appropriate care when the patient is unable to make decisions. (Meeussen K. <i>et al.</i> , 2011a)
Performance dimension	Quality (patient centeredness)
Key words	End of life care; communicate with patient/family/relatives
References	<p>The availability of information on palliative care services consists not only of the provision about the treatment options, but also the expression of patient' wishes about the preferred care. Advanced care planning (ACP) consists of a process of communication among patients, their families and health care providers regarding the kind of appropriate care when the patient is unable to make decisions. In 33.6% of the patients (total n= 1072), monitored in the national Sentinel Networks of GPs in Belgium and the Netherlands (Meeussen K. <i>et al.</i>, 2011a), any type of ACP in consensus with the patient was made. A smaller amount of the patients had a written ACP in consensus with the patients (7.7%) and in 22.7% the family had made an ACP without the involvement of the patient. The ACP to withhold or withdraw a potentially life-prolonging treatment was mostly related to hospital transfers and cardiopulmonary resuscitation. In the ACP to perform a medical end-of-life decision, patients choose in general mostly to forgo potential life-prolonging treatments. Determinants related to the more often use of ACP are having contact with their GP in the last week of life, being capable to make decisions in the last three days of life, having palliative treatment, having cancer and patients who died at home. The use of ACP starts to get known in Belgium and the Netherlands, but the documentation and timely incorporation in palliative care is still shortcoming. The earlier use of ACP enhances the knowledge on patients preferences and could improve the quality of care.</p> <p>Study of Meeussen <i>et al.</i>, 2011 (advanced care planning) (Meeussen K. <i>et al.</i>, 2011a)</p>



14.3.5. Importance of end-of-life care in medical education

Description	Proportion of universities and colleges with a course on palliative care in the basic training of caregivers and/or a chair for palliative care
Rationale	<p>One of the options to improve the end-of-life practice, is the integration of courses in end-of-life care in the graduate education of the physicians. A study of Gruber et al, 2007 (Gruber <i>et al.</i>, 2008) showed a change in medical students' attitude towards end-of-life decision during medical training (including ethics training relating to end-of-life care) and differed significantly from non-medical students: discontinuing of life-support therapy and of cardiopulmonary resuscitation were more accepted, whereas euthanasia was less accepted.</p> <p>International comparison indicate the relationship between lack of training and the poorly rank in the Quality of End-of-Life Care category of the Index, with China and India among the poor performers. But even in the developed countries, the training in end-of-life care is insufficiently established (Economist Intelligence Unit, 2010).</p>
Dimension	Sustainability
References	Economist Intelligence Unit, 2010 (Economist Intelligence Unit, 2010)

14.3.6. End of life care: proportions of care settings with a clear policy on euthanasia

Description	Proportion of care settings with a clear policy on the therapeutic approach of palliative care and euthanasia
Calculation	<p>Numerator: Number of care settings with a clear policy on the therapeutic approach of palliative care and euthanasia.</p> <p>Denominator: total number of care settings for palliative care services</p>
Rationale	<p>Since 2002, the administration of a lethal drug by a physician at the explicit request of the patient has been legal in Belgium. Euthanasia does not belong to what is commonly comprised as palliative care: according to the WHO "palliative care should neither postpone nor hasten death", and the ethics taskforce of the European Association of Palliative Care states that "euthanasia is not part of the responsibility of palliative care" (Van den Block <i>et al.</i>, 2009). The euthanasia law and emerging palliative culture have substantially affected the occurrence and decision making for end-of-life in Belgium, with a increased implication of patients in end of life decision making (Chambaere <i>et al.</i>, 2011). The incidence of euthanasia in is well known and described, but whether this information is available to all patients in all care settings is not know.</p>
Performance dimension	Quality (patient centeredness)
Key words:	End of life care; information to patient, euthanasia
References	Several studies on end of life decision in Belgium: Van de Block, 2009 (Van den Block <i>et al.</i> , 2009), Bilsen et al, 2012 (Bilsen <i>et al.</i> , 2012), Van Wesemael et al, 2011 (Van Wesemael <i>et al.</i> , 2011), Cohen et al, 2007 (Cohen J. <i>et al.</i> , 2007), Smets et al, 2010 (Smets T. <i>et al.</i> , 2010b), Smets et al, 2010 (Smets Tinne <i>et al.</i> , 2010a), Van Wesemael et al, 2012 (Van Wesemael <i>et al.</i> , 2012), Chambaere et al, 2011 (Chambaere <i>et al.</i> , 2011)



14.4. Indicators to assess continuity of care

Four indicators on continuity of care have been identified as being pertinent, but for which there are currently no data in Belgium:

1. General practice with access to hospital data
2. Patients who experienced problem with the coordination of care
3. Availability of Information on medication
4. Women with abnormal mammograms who are followed-up within 2 months after communication of their screening result

14.4.1. General practices with access to hospital data

Description	% of general practices with access to hospital data.
Rationale	<p>The availability of the patient's information at all care levels improves the continuity of care. A mutual access to an electronic medical record is a ideal to ensure communication and information exchange between different providers of care. In Belgium, the project of data exchange between providers exists with current 5 health networks. The basis of the network is the DMP, a longitudinal electronic record of an individual patient that contains or virtually links records together from multiple Electronic Medical Records shared (interoperable) across health care settings. It aims at containing a history of contact with the health care system for individual patients. Participation to these networks is depending on the integration of a connector in the medical software. This integration is in progress for GPs. But it will take several months before we can assess the process of the system. Moreover, the 5 networks use different technologies with difficult interpretations.</p> <p>Several indicators are foreseen, notably :</p> <p>Number of subscriber GPs to the health networks.</p> <p>Number of subscriber GPs who have requested to consult the DMP</p> <p>Number of successful consultations of a document during the month of reference</p> <p>Number of subscriber GPs who have made available at least one information to the network (Sumehr)</p> <p>Number of subscriber patients to the health networks (currently available)</p>
Dimensions	Continuity (Informational); Link GP-hospital; Curative
References	<p>SPF site web (https://www.ehealth.fgov.be/fr/enregistrement-des-logiciels-medicaux)</p> <p>Réseau santé wallon site web: (http://www.awt.be/web/dem/index.aspx?page=dem,fr,b11,000,000)</p>



14.4.2. Availability of Information on medication

Description	% patients for which information on medication prescribed at outpatient clinics, hospital wards, and outside the hospital is accessible at outpatient clinics, hospital wards, the hospital pharmacy and outside the hospital.
Rationale	Information about medications prescribed for a patient by one provider should be available to all providers taking care of that patient. This is paramount to ensure safety and continuity of care. In the Dutch healthcare performance report, the Health Care Inspectorate examined on-line access to medication data at the hospital pharmacy, hospital wards and outpatient clinics but the availability of data appeared to be limited considering the technical possibilities. (Westert <i>et al.</i> , 2008) Unfortunately, no project are currently finalized in Belgium. Moreover, several projects are under way without a coordination between them: Vitalink in Flanders and only in ambulatory care; Sumehr provided by GPs; the Walloon Care Network in Wallonia with a link between ambulatory and hospital care; ABP files for dispensary and with a partial access for GPs.
Dimensions	Continuity (Informational) & Safety; Link GP-specialist; Link hospital-ambulatory care; Curative.
References	Dutch performance report (Westert <i>et al.</i> , 2008)

14.4.3. Patients who experienced problem with the coordination of care

Description	% chronically ill people who reported that they experienced problems with the coordination of care: test results not available at time of doctor's appointment, or duplication of tests.
Rationale	Diagnostic tests are an integral part of the medicine. A good coordination of care is required to avoid a needless and sometimes deleterious (radiation exposure) duplication of tests. This is particularly meaningful in chronic care. However we are unable to find an objective indicator allowing the identification of duplicated tests in Belgium. And we don't have either current data on physicians' or patients' experience (as the 8 countries from the survey presented by Schoen).
Dimensions	Quality: Continuity (Informational) & Safety; Curative; Chronic care
References	Dutch performance report (Westert <i>et al.</i> , 2008); 2008 Commonwealth Fund International Health Policy Survey in 8 countries (Schoen <i>et al.</i> , 2009)



14.4.4. Women with abnormal mammograms who are followed-up within 2 months after communication of their screening result

Description	Proportion of women with class (3,) 4 or 5 abnormal mammograms who have at least one of the following procedure within 2 months after communication of the screening result: mammography, ultrasound, fine-needle aspiration or percutaneous biopsy
Rationale	<p>This indicator is a reformulation of the AHRQ indicator ‘If a palpable breast mass has been detected, at least one of the following procedures should be completed within 3 months: fine-needle aspiration, mammography, ultrasound, biopsy and/or a follow-up visit’. No other sources were found using the same indicator. AHRQ (AHRQ, 2006a) This indicator is also part of the indicator set developed by the KCE and BCR. (Cardoso <i>et al.</i>, 2012) (Stordeur <i>et al.</i>, 2010)</p> <p>Women with abnormal mammograms detected after a screening mammography have to be referred to a specialized breast center for diagnosis. The diagnosis of breast cancer relies on the so-called triple assessment, including clinical examination, imaging (comprising mammography and ultrasonography [US]) (Park <i>et al.</i>, 2003, Shoma <i>et al.</i>, 2006) and sampling of the lesion with a needle for histological/cytological assessment (Kreienberg <i>et al.</i>, 2003, Scottish Intercollegiate Guidelines Network (SIGN), 2003). The choice between core biopsy and/or a fine needle aspiration cytology (FNAC) depends on the clinician’s, radiologist’s and pathologist’s experience. The priority aim addressed by this indicator is to reduce the length of time between first knowledge of a breast abnormality and a diagnostic confirmation.</p> <p>Each region annually publishes an activity report of the organized breast cancer screening program. Information is available on how many women are referred for additional exams after an abnormal mammogram. However, details on the exact type of additional exam or the time frame are not available. (Van Limbergen <i>et al.</i>, 2010). Hence this indicator is currently not measurable.</p>
Dimensions	Quality: Continuity; Curative;
References	(AHRQ, 2006a); (Stordeur <i>et al.</i> , 2010); (Van Limbergen <i>et al.</i> , 2010)



14.5. Indicators to assess patient centeredness

14.5.1. Existence of process for filling complaints

Description	% health services with process to analyse the patients complaints
Rationale	<p>Complaint should translate a lack of acknowledgment of patients' needs, wants, preferences, values or patients' right. In Belgium, an ombudsman service exists for public hospital since 2003. This service records the number and the motive of complaints each year but doesn't assess the justification and the follow-up of the complaints. In 2010, 16907 records were registered versus 9026 in 2006. However, this amount cannot be interpreted : more registered complaints can show declining services but also more effective ombudsman services in terms of visibility, availability, comprehensiveness of the recording... or a change in the patients culture of complaints.</p> <p>Otherwise, there is an international trend in general practice to develop a similar indicator for assessing the existence of a complaint resolution process (European Practice Assessment - EPA, 2008, The Royal Australian College of GPs, 2011, The Royal New Zealand College of General Practitioners, 2011). In Belgium, this is not yet operational.</p>
Dimensions	Patient centeredness (Acknowledgement of patients needs, wants, preferences, values/Patient's right); Hospital Care & General Practice.
References	<p>Commission fédérale "Droits du patient ; Rapports annuels des médiateurs</p> <p>http://www.health.fgov.be/eportal/Healthcare/Consultativebodies/Commissions/Patientsrights/Analysisannualreportslocalombu/index.htm</p> <p>(European Practice Assessment - EPA, 2008, Groene <i>et al.</i>, 2009, Lombarts <i>et al.</i>, 2009, The Royal Australian College of GPs, 2011, The Royal New Zealand College of General Practitioners, 2011)</p>

14.5.2. Hospitals with internal quality improvement including monitoring patients view

Description	% hospitals with internal quality improvement including monitoring patients views		
Calculation	% hospitals with internal quality improvement including monitoring patients views among hospitals participating to the survey		
Rationale	<p>The role of the patients' involvement is essential in patient-centered care. However, contrary to patients' right and informed choice, patients' involvement in decision concerning their disease, or in the design of new services, seems poorly implemented in hospital quality management systems in Belgium. (Groene <i>et al.</i>, 2009) Some pilot projects are recently launched in Flanders: in 2013, several public hospitals will allow the participation of patients' representatives in their board of governors.</p>		
Technical limitations	definitions	and	Limitation: Only for hospital setting
Dimensions	Patient centeredness (Patients and carers involvement in management & decision of care); Hospital; Generic		
References	Groene, 2009 (Groene <i>et al.</i> , 2009) Lombarts, 2009 (Lombarts <i>et al.</i> , 2009); ICURO (http://icuro.be/themas/quality-safety/welkom.html)		



14.5.3. Linguistic services in hospitals

Description	% health services with access to the intercultural mediation internet support
Rationale	Linguistic and cultural barriers have a negative impact on access and quality of care. To manage this problem, general and psychiatric Belgian hospitals can ask since 1999 for a financial support to create a post of intercultural mediator or intercultural mediation coordinator. In 2009, intercultural mediators have done more than 80 000 interventions in 17 languages. The mode of organization is hospital depending: one or several mediator(s); availability during office hours (and very exceptionally during out-of-hours if emergency). The coordination cell of the Federal Public Service Health ensures the follow-up and the assessment of the requests. The assessment encompasses patients encounters, care providers training, booklet editing... However, an assessment of real patients' (or physicians') needs and responses quality is yet lacking. Moreover, it remains difficult to answer to all language translation (until 170 different nationalities are care in some hospitals). In this context, a pilot project is started recently in 2012 to allow mediation support by internet (video conferences). In this pilot project, a network is set up between hospitals with intercultural support and also local medical home or health centres. This project will be evaluated each year.
Dimensions	Patient centeredness (Providers' skill of communication/Language need); Hospital care
References	FPS Health http://www.health.belgium.be/eportal/Myhealth/PatientrightsandInterculturalm/Interculturalmediation/index.htm AHRQ(AHRQ), Goldberg(Goldberg and Kuzel, 2009)



■ BIBLIOGRAPHY

1. Abarshi E, Echteld MA, Van den Block L, Donker G, Bossuyt N, Meeussen K, et al. Use of palliative care services and general practitioner visits at the end of life in the Netherlands and Belgium. *Journal of pain and symptom management*. 2011;41(2):436-48.
2. AHRQ. Effectiveness of Noninvasive Diagnostic Tests for Breast Abnormalities. Rockville: Agency for Healthcare Research and Quality; 2006a.
3. AHRQ. Asthma Care Quality Improvement: a Resource Guide for State Action. National Quality Measure Clearinghouse; 2006b. 12 October 2011 Available from: <http://www.ahrq.gov/qual/asthgguide.pdf>.
4. AHRQ. National Healthcare Quality Report 2010 Agency for Healthcare Research and Quality; 2010. 12 october 2011
5. AHRQ. Patient Safety Indicators Resources. Agency for Healthcare Research and Quality; 2011a. 2012, 21 Feb Available from: http://www.qualityindicators.ahrq.gov/Modules/psi_resources.aspx
6. AHRQ. Inpatient Quality Indicators Technical Specifications. Agency for Healthcare Research and Quality; 2011b June 2011. Available from: http://www.qualityindicators.ahrq.gov/Modules/IQI_TechSpec.aspx
7. Aiken LH, Sermeus W, Van den Heede K, Sloane DM, Busse R, McKee M, et al. Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *BMJ*. 2012;344:e1717.
8. Annemans L, Closon J-P, Closon M-C, Heymans I, Lagasse R, Mendes da Costa E, et al. Comparaison du coût et de la qualité de deux systèmes de financement des soins de première ligne en Belgique. Brussels: Belgian Health Care Knowledge Centre (KCE); 2008. KCE reports 85B
9. Arbyn M, Simoens C, Van Oyen H, Foidart J-M, Goffin F, Simon P, et al. Analysis of 13 million individual patient records pertaining to Pap smears, colposcopies, biopsies and surgery on the uterine cervix (Belgium, 1996–2000). *Preventive Medicine*. 2009;48(5):438-43.



10. Arbyn M, Simoens C, Fabri V. Analysis of individual health insurance data pertaining to pap smears, colposcopies, biopsies and surgery on the uterine cervix (Belgium, 2002-2006). Scientific Institute of Public Health; 2011. Available from: http://www.nic-ima.be/library/documents/health_monitoring/Cerv%202011%20report.pdf
11. Arling G, Kane RL, Lewis T, Mueller C. Future development of nursing home quality indicators. *Gerontologist*. 2005;45(2):147-56.
12. Armesto SG, Medeiros H, Wei L. Information Availability for measuring and comparing quality of mental health care across oecd countries. Paris: OECD; 2008. OECD Health Technical Papers
13. Armfield JM. Socioeconomic inequalities in child oral health: a comparison of discrete and composite area-based measures. *J Public Health Dent*. 2007;67(2):119-25.
14. Atkinson AB, Marlier E, Montaigne F, Reinstadler A. Income poverty and income inequality. In: Atkinson AB, Marlier E, editors. *Income and living conditions in Europe*. Luxembourg: European Commission; 2010. p. 101-31.
15. Avonds W. Plaats van overlijden in het Vlaams Gewest, evolutie van 1993 tem 2002. Vlaams Agentschap Zorg en Gezondheid.
16. Bates-Jensen BM, MacLean CH. Quality indicators for the care of pressure ulcers in vulnerable elders. *Journal of the American Geriatrics Society*. 2007;55(2).
17. Beupre LA, Jones CA, Saunders LD, Johnston DW, Buckingham J, Majumdar SR. Best practices for elderly hip fracture patients. A systematic overview of the evidence. *J Gen Intern Med*. 2005;20(11):1019-25.
18. Belgian Cancer Registry. *Cancer Incidence in Belgium, 2008*. Brussels: Belgian Cancer Registry; 2011.
19. Bilsen J, Vander Stichele RH, Mortier F, Bernheim J, Deliens L. The incidence and characteristics of end-of-life decisions by GPs in Belgium. *Family Practice*. 2012;21(3):282-9.
20. Bossuyt N, Van den Block L, Cohen J, Meeussen K, Bilsen J, Echteld M, et al. Is individual educational level related to end-of-life care use? Results from a nationwide retrospective cohort study in Belgium. *Journal of Palliative Medicine*. 2011;14(10):1135-41.
21. Bouchard C, Shephard R, Stephens T, Sutton J, McPherson B. Exercise, Fitness, and Health. A Consensus of Current Knowledge. In: IL C, editor. *Human Kinetics Books*; 1990. p. 3-28.
22. Boutsen M, Laasman JM, Maron L. Antidepressie: evolution de la prescription. Bruxelles: UNMS-Direction Etudes; 2012.
23. Brandt HE, Francke AL, Pasman HRW, Claessen SJJ, van der Putten MJA, Deliens L. Indicatoren voor Palliatieve Zorg. Ontwikkeling en toetsing van een set kwaliteitsindicatoren voor de palliatieve zorgverlening. Utrecht: NIVEL; 2009.
24. Braveman PA. Monitoring Equity in Health and Healthcare: A Conceptual Framework. *Journal of Health Population and Nutrition*. 2003;31(3):181-92.
25. Bronzwaer SL, Cars O, Buchholz U, Molstad S, Goettsch W, Veldhuijzen IK, et al. A European study on the relationship between antimicrobial use and antimicrobial resistance. *Emerg Infect Dis*. 2002;8(3):278-82.
26. Arrêté royal du 10 novembre 2006 modifiant l'arrêté royal du 25 avril 2002 relatif à la fixation et à la liquidation du budget des moyens financiers des hôpitaux, 10 november 2006. — Koninklijk besluit van 10 november 2006 tot wijziging van het koninklijk besluit van 25 april 2002 betreffende de vaststelling en de vereffening van het budget van financiële middelen van de ziekenhuizen, 2006.
27. Loi du 22 décembre 2009 instaurant une réglementation générale relative à l'interdiction de fumer dans les lieux fermés accessibles au public et à la protection des travailleurs contre la fumée du tabac (Mon. 29.XII.2009), 2009. Available from: http://www.sante.belgique.be/eportal/Myhealth/Healthylife/Tobacco/Hospitalitysector/index.htm?ssUserText=type_IE2Law



28. Buytaert B, Moens O, Tambuyzer J, Wouters E, Vauhouwaert E. Verslag van de indicatorenmeting 2009 van het gezondheidsbeleid (tabak, voeding, beweging) in Vlaamse bedrijven, scholen en gemeenten. Vlaams Instituut voor Gezondheidspromotie en Ziektepreventie; 2010. Available from: <http://www.vigez.be/uploads/documentenbank/f9c7c6490988b8b449de67cf9835b9a1.pdf>
29. Cabana MD, Jee SH. Does continuity of care improve patient outcomes? *Journal of Family Practice*. 2004;53(12):974-80.
30. Cardoso F, Stordeur S, Vlayen J, Bourgain C, Carly B, Christiaens M-R, et al. Scientific support of the College of Oncology : update of the national guidelines on breast cancer. Brussels: Belgian Health Care Knowledge Centre (KCE); 2012. KCE Reports 143C
31. Casteels M, Danckaerts M, De Lepeleire J, Demyttenaere K, Laekman G, Luyten P, et al. Het toenemend gebruik van psychofarmaca: visietekst werkgroep metaforum Leuven. Leuven: KULEuven; 2010. Metaforum
32. Cellule Interuniversitaire d'Epidémiologie. Rapport final du projet « système d'enregistrement et de surveillance de la santé bucco-dentaire de la population belge 2008- 2010 ». 2012. Available from: <http://www.inami.fgov.be/information/fr/studies/study53/index.htm>
33. Centers for Disease Control and Prevention. State Indicators Report on Physical Activity. Atlanta: U.S. Department of Health and Human Services; 2010.
34. Centers for Medicare & Medicaid Services Nursing Home Quality Initiative [2011 [cited 16th of May]. Available from: <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/index.html?redirect=/NursingHomeQualityInits/>
35. Chambaere K, Bilsen J, Cohen J, Onwuteaka-Philipsen BD, Mortier F, Deliens L. Trends in medical end-of-life decision making in Flanders, Belgium 1998-2001-2007. *Medical Decision Making*. 2011;31(3):500-10.
36. Chang JT, Ganz DA. Quality indicators for falls and mobility problems in vulnerable elders. *Journal of the American Geriatrics Society*. 2007;55(2).
37. Charafeddine R, Demarest S, Drieskens S, Gisle L, Tafforeau J, Van der Heyden J. Highlights of the Belgian Health Interview Survey 2008. Brussels: Scientific Institute of Public Health; 2012.
38. CHSRA Quality indicators domains and descriptions [Center for Health Systems Research & Analysis; 2006 [cited 31th of Mai].
39. CIHI Health Indicators 2011 [Ottawa: Canadian Institute for Health Information; 2011 [cited 20 september]. Available from: http://secure.cihi.ca/indicators/2011/tables_f.html
40. Cleemput I, Beguin C, de la Kethulle Y, Gerkens S, Jadoul M, Verpooten G, et al. Organisation and financing of chronic dialysis in Belgium. Brussels: Belgian Health Care Knowledge Centre (KCE); 2010. KCE reports 124C
41. Cohen J, Bilsen J, Hoof P, Deboosere P, van der Wal G, Deliens L. Dying at home or in an institution using death certificates to explore the factors associated with place of death. *Health Policy*. 2006;78:319-29.
42. Cohen J, Bilsen J, Fischer S, Löfmark R, Norup M, van der Heide A, et al. End-of-life decision-making in Belgium, Denmark, Sweden and Switzerland: does place of death make a difference? *J Epidemiol Community Health*. 2007;61:1062-8.
43. Cohen J, Bilsen J, Addington-Hall J, Löfmark R, Miccinesi G, Kaasa S, et al. Population-based study of dying in hospital in six European countries. *Palliative Medicine*. 2008;22:702-10.
44. Cohen J, Chambaere K, Bilsen J, Houttekier D, Mortier F, Deliens L. Influence of the metropolitan environment on end-of-life decisions: a population-based study of end-of-life decision-making in the Brussels metropolitan region and non-metropolitan Flanders. *Health & Place*. 2010a;16:784-93.
45. Cohen J, Houttekier D, Onwuteaka-Philipsen B, Miccinesi G, Addington-Hall J, Kaasa S, et al. Which patients with cancer die at home? A study of six European countries using death certificate data. *Journal of Clinical Oncology*. 2010b;28(13):2267-73.



46. Cohen J, Houttekier D, Chambaere K, Bilsen J, Deliëns L. The use of palliative care services associated with better dying circumstances. Results from an epidemiological population-based study in the Brussels metropolitan region. *Journal of pain and symptom management*. 2011;42(6):839-51.
47. Coia D, Anderson K, Dutta S, al. e. Mental health project final report: national benchmarking project. Report 2. Edinburgh (GB): NHS Scotland; 2008.
48. Commission on Dignity in Care for Older People. Delivering Dignity. Securing dignity in care for older people in hospitals and care homes. A report for consultation. NHS Confederation, the Local Government, Association and Age UK; 2012.
49. Conseil Canadien. Conseil Canadien sur l'apprentissage. La littératie en santé au Canada: une question de bien-être 2008.
50. Consortium HLS-EU. The European Health Literacy Survey.
51. Counties Manukau District Health Board. The Key Performance Indicator Framework for New Zealand Mental Health and Addiction Services. Manukau: Counties Manukau District Health Board; 2007.
52. Cour des comptes. Cahier 2011 relatif à la sécurité sociale. Les Gestions globales et les institutions publiques de sécurité sociale. Rapport de la Cour des comptes transmis à la chambre des représentants. Bruxelles: 2011.
53. Daniels N. Just Health. Meeting Health Needs Fairly. Cambridge: Cambridge University Press; 2008.
54. Davis S, Byers S, Walsh F. Measuring person-centred care in a sub-acute health care setting. *Aust Health Rev*. 2008;32(3):496-504.
55. De Gendt C, Bilsen J, Vander Stichele R, Lambert M, Den Noortgate N, Deliëns L. Do-not-resuscitate policy on acute geriatric wards in Flanders, Belgium. *Journal of the American Geriatrics Society*. 2005;53(12):2221-6.
56. De Letter EA, Vandekerckhove BNW, Lambert WE, Van Varenbergh D, Piette MHA. Hospital bed related fatalities: a review. *Medicine, Science & the Law*. 2008;48(1):37-50.
57. De Maeseneer JM, De Prins L, Gosset C, Heyerick J. Provider continuity in family medicine: does it make a difference for total health care costs? *Ann Fam Med*. 2003;1(3):144-8.
58. Deaton A. Health, Inequality, and Economic Development. *Journal of Economic Literature*. 2003;XLI(March):113-58.
59. Deboosere P, Gadeyne S, Van Oyen H. L'évolution des inégalités sociales en espérance de vie. In: Van Oyen H. DP, Lorant V., Charafedinne R., editor. *Les inégalités sociales de santé en Belgique*. Brussels: Academia Press; 2010.
60. Deguerry M, Mazina D, De Spiegelaere M. Troisième rapport d'évaluation du programme de dépistage organisé du cancer du sein en Région bruxelloise (2003-2010). Observatoire de la Santé et du Social de Bruxelles-Capitale, Commission communautaire commune; 2012. Available from: <http://www.observatbru.be/documents/graphics/dossiers/dossier-2012-cancer-sein.pdf?lang=fr>
61. Delaere B. Antibioticaresistentie in de Huisartsengeneeskunde / La résistance aux antibiotiques en médecine générale. NIHDl. Available from: <http://www.inami.fgov.be/care/nl/doctors/promotion-quality/guidelines-antibiotics/objectif-doelstelling/pdf/resistance.pdf> (Nl.) / <http://www.inami.fgov.be/care/fr/doctors/promotion-quality/guidelines-antibiotics/objectif-doelstelling/pdf/resistance.pdf> (Fr.)
62. Demarest S, Charafeddine R, Puddu M, Van Oyen H. L'évolution des inégalités sociales en comportements associés à la santé et en états de santé. In: Van Oyen H. DP, Lorant V., Charafedinne R., editor. *Les inégalités sociales de santé en Belgique*. Brussels: Academia Press; 2010.
63. Desai RA, Dausey DJ, Rosenheck RA. Mental health service delivery and suicide risk: the role of individual patient and facility factors. *Am J Psychiatry*. 2005;162(2):311-8.
64. Downer MC, Drugan CS, Blinkhorn AS. Correlates of dental caries in 12-year-old children in Europe: a cross-sectional analysis. *Community Dent Health*. 2008;25(2):70-8.



65. ECDC. HIV / AIDS surveillance in Europe in 2010. Conrtol ECfDPa, editor. Stockholm: ECDC;; 2011.
66. ECDC EARS-Net Database [European Centre for Disease Prevention and Control;2012 [cited February 10th]. Available from: <http://ecdc.europa.eu/en/activities/surveillance/EARS-Net/database/Pages/database.aspx>
67. ECHIM ECHI (European Community Health Indicators and Monitoring) shortlist [European Community Health Indicators and Monitoring;2005a. Available from: http://www.healthindicators.eu/object_document/o4962n28314.html
68. ECHIM ECHI (European Community Health Indicators and Monitoring) long list [European Community Health Indicators and Monitoring;2005b [cited 21th of February]. Available from: http://www.healthindicators.eu/object_document/o5415n28314.html
69. ECHIM Infant Mortality [2010. Available from: http://www.healthindicators.eu/object_document/o6138n29136.html
70. Economist Intelligence Unit. The quality of death. Ranking end-of-life care across the world. Economist Intelligence Unit; 2010.
71. English DR, Holman CDJ, Milne E, Winter M, Hulse GK, Codde G. The Quantification of Drug Caused Morbidity and Mortality in Australia. Canberra: Commonwealth Department of Human Services and Health; 1995.
72. EURO-PERISTAT Project. European Perinatal Health Report: data from 2004. SCPE, EUROCAT & EURONEOSTAT; 2008. Available from: <http://www.europeristat.com/images/doc/EPHR/european-perinatal-health-report.pdf>
73. European Commission. Together for health: a strategic approach for the EU 2008-2013. Brussels: European Commission; 2007.
74. European Commission. Cancer screening in the European Union - Report on the implementation of the Council Recommendation on cancer screening. 2008. Available from: http://ec.europa.eu/health/archive/ph_determinants/genetics/document/s/cancer_screening.pdf
75. European Commission HEIDI data tool: health status indicators [2012. Available from: http://ec.europa.eu/health/indicators/indicators/index_en.htm
76. European Practice Assessment - EPA. Easy to use and scientifically developed quality management for general practice. 2008.
77. Eurostat. Eurostat database. EUROSTAT; 2012. Available from: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
78. EUSOMA (European Society for breast cancer specialists). The requirements of a specialist breast unit in the European guidelines for quality assurance in breast cancer screening and diagnosis. 2010. Available from: <http://www.eusoma.org/Engx/BreastUnits/Guideline.aspx?cont=breast>
79. Eyssen M, Leys M, Desomer A, Arnaud S, Léonard C. Organisatie van geestelijke gezondheidszorg voor mensen met een ernstige en persisterende mentale aandoening. Wat is de wetenschappelijke basis? Brussel: Belgian Health Care Knowledge Centre (KCE); 2010. KCE Reports 144
80. Federale Evaluatiecel Palliative Zorg. Evaluatierapport Palliatieve Zorg. Brussels: Federal Public Service Health, Food Chain Safety and Environment; 2008.
81. Feil DG, MacLean C, Sultzer D. Quality indicators for the care of dementia in vulnerable elders. Journal of the American Geriatrics Society. 2007;55(2).
82. Fleurbaey M, Schokkaert E. Equity in Health and Health Care - Chapter Sixteen. In: Mark V. Pauly TGM, Pedro PB, editors. Handbook of Health Economics: Elsevier; 2011. p. 1003-92. Available from: <http://www.sciencedirect.com/science/article/pii/B9780444535924000165>
83. FPS Health Food Chain Safety and Environment. National Food and Health Plan for Belgium 2005-2010. Brussels: FPS Health Food Chain Safety and Environment; 2005. Available from: <http://www.health.belgium.be/internet2Prd/groups/public/@public/@dg4/@consumerproducts/documents/ie2divers/19061891.pdf>



84. FPS Health Food Chain Safety and Environment. Feedback multidimensionnel. Federal Public Service Health, Food Chain Safety and Environment; 2008.
85. FPS Health Food Chain Safety and Environment. Feedback des Patient Safety Indicators : la Sécurité des Patients dans les Hôpitaux Belges. . FPS Health Food Chain Safety and Environment, ; 2011 April 2011.
86. FPS Health Food Chain Safety and Environment Cancer plan, overview of projects on psychosocial support for cancer patients and his family [Brussels;2012. Available from: <http://www.health.belgium.be/eportal/Myhealth/Risksanddiseases/Healthrisks/Cancer/NationalCancerPlan/index.htm?&fodnlang=nl>
87. Ganju V, Adams N, Bartels S, Callahan N, Carpinello S, Gonzalez O, et al. Recommended Operational Definitions and Measures to Implement the NASMHPD Framework of Mental Health Performance Indicators. Alexandria (VA): NASMHPD President 's Task; 2000.
88. Gerkens S, Merkur S. Belgium: Health system review. Health Systems in Transition. 2010;12(5):1-266.
89. Gielen B, Remacle A, Mertens R. De CM neemt het levenseinde onder de loep: de cijfers. Christian Sickness Fund; 2008.
90. Gielen B, Remacle A, Mertens R. Patterns of health care use and expenditure during the last 6 months of life in Belgium: differences between age categories in cancer and non-cancer patients. Health Policy. 2010;97:53-61.
91. Gillet P, Kolh P, Sermeus W, Vleugels A, Jacques J, Van den heede K, et al. Detection of adverse events in administrative databases. Health Services Research (HSR). Brussels: Belgian Health Care Knowledge Centre (KCE); 2008. KCE reports 93C (D/2008/10.273/75)
92. Gisle L, Hesse E, Drieskens K, Demarest S, J VdH, Tafforeau J. Health Interview Survey Belgium, 2008 Report II- Lifestyle and prevention. Brussels: Wetenschappelijk Instituut Volksgezondheid; 2008. Available from: https://www.wiv-isp.be/epidemiology/EPINL/CROSPNL/HISNL/his08nl/r2/bronvermelding_r2.pdf
93. Gnanadesigan N, Fung CH. Quality indicators for screening and prevention in vulnerable elders. Journal of the American Geriatrics Society. 2007;55(2).
94. Godin I, Piette D. Etude écoles liées aux enquêtes HBSC Communauté française de Belgique, rapport à paraître. 2010.
95. Goldberg DG, Kuzel AJ. Elements of the patient-centered medical home in family practices in Virginia.[Erratum appears in Ann Fam Med. 2009 Sep-Oct;7(5):467]. Ann Fam Med. 2009;7(4):301-8.
96. Gomes B, Higginson IJ, Calanzani N, Cohen J, Deliens L, Daveson BA, et al. Preferences for place of death if faced with advances cancer: a population survey in England, Flanders, Germany, Italy, the Netherlands, Portugal and Spain. Annals of Oncology. 2012.
97. Goossens H, Ferech M, Vander Stichele R, Elseviers M. Outpatient antibiotic use in Europe and association with resistance: a cross-national database study. Lancet. 2005;365(9459):579-87.
98. Gorecki C, Brown JM, Nelson EA, Briggs M, Schoonhoven L, Dealey C, et al. Impact of pressure ulcers on quality of life in older patients: a systematic review. J Am Geriatr Soc. 2009;57(7):1175-83.
99. Groene O, Lombarts MJ, Klazinga N, Alonso J, Thompson A, Sunol R. Is patient-centredness in European hospitals related to existing quality improvement strategies? Analysis of a cross-sectional survey (MARQuIS study). Quality & Safety in Health Care. 2009;18(1).
100. Gruber PC, Gomersall CD, Joynt GM, Lee A, Tang PYG, Young AS, et al. Changes in medical students' attitudes towards end-of-life decisions across different years of medical training. Journal of General Internal Medicine. 2008;23(10):1608-14.
101. Hanquet G, Jonckheer P, Vlayen J, Vrijens F, Thiry N, Beutels P. Seasonal influenza vaccination : priority target groups – Part I. Brussels: Belgian Health Care Knowledge Centre (KCE); 2011. KCE reports 162
102. Harbers MM, Van der Wilk EA, Kramers PGN, Kuunders MMAP, Verschuuren M, Ellyahu N, et al. Dare to compare! Benchmarking Dutch health with the European Community Health Indicators (ECHI). Bilthoven: National INstitute for Public Health and Environment (RIVM); 2008.



103. Haute Autorité de Santé (HAS) Indications de la césarienne programmée à terme [2012. Available from: http://www.has-sante.fr/portail/upload/docs/application/pdf/2012-03/reco2clics_indications-cesarienne.pdf
104. Health Protection Agency (HPA). European Guidance on Estimating Population Doses from Medical X-Ray Procedures. Health Protection Agency, Centre for Radiation, Chemical and Environmental Hazards, Radiation Protection Division; 2008.
105. Herbstman BJ, Pincus HA. Measuring mental healthcare quality in the United States: a review of initiatives. *Curr Opin Psychiatry*. 2009;22(6):623-30.
106. Hermann RC, Matke S. Selecting indicators for the quality of mental health care at the health systems level in OECD countries. Paris: OECD; 2004. OECD Health Technical Papers 17 (17)
107. Hoppenbrouwers K, Vandermeulen C, Roelants M, Boonen M, Vandamme P, Theeten H, et al. Studie van de vaccinatiegraad bij jonge kindere en adolescenten in Vlaanderen in 2008. Vlaams Agentschap Zorg en Gezondheid; 2009.
108. Horovitz-Lennon M, Watkins KE, Pincus HA, Shugarman LR, Smith B, Mattox T, et al. Veterans Health Administration Mental Health Program Evaluation Technical Manual. RAND; 2009.
109. Houttekier D, Cohen J, Bilsen J, Deboosere P, Verduyck P, Deliens L. Determinants of the place of death in the Brussels metropolitan region. *Journal of pain and symptom management*. 2009;37(6):996-1005.
110. Houttekier D, Cohen J, Bilsen J, Addington-Hall J, Onwuteaka-Philipsen B, Deliens L. Place of death in metropolitan regions: Metropolitan versus non-metropolitan variation in place of death in Belgium, The Netherlands and England. *Health & Place*. 2010a;16:132-9.
111. Houttekier D, Cohen J, Bilsen J, Addington-Hall J, Onwuteaka-Philipsen B, Deliens L. Place of death of older persons with dementia. A study in five European countries. *Journal of American Geriatric Society*. 2010b;58:751-6.
112. Houttekier D, Cohen J, Van den Block L, Bossuyt N, Deliens L. Involvement of palliative care services strongly predicts place of death in Belgium. *Journal of Palliative Medicine*. 2010c;13(12):1461-8.
113. Houttekier D, Cohen J, Surkyn J, Deliens L. Study of recent and future trends in place of death in Belgium using death certificate data: a shift from hospitals to care homes. *BMC Public Health*. 2011;11:228-38.
114. Hulstaert F, Ramaekers D, Puddu M, Vinck I, Huybrechts M, Arbyn M. Dépistage du cancer du col de l'utérus et recherche du Papillomavirus humain (HPV). Brussels: Belgian Health Care Knowledge Centre (KCE); 2006. KCE Reports 38
115. IMA-AIM. Vaccination contre la grippe pendant l'hiver 2004-2005. 2006a. Available from: <http://www.nic-ima.be/fr/projects/influenza/>
116. IMA-AIM. Recours à la césarienne en Belgique : évolution générale et disparités. 2006b. Available from: <http://www.nic-ima.be/fr/projects/caesar/>
117. IMA-AIM. Programme de Dépistage du Cancer du Sein. Périodes 2002-2003 et 2004-2005. 2007 2007, September.
118. IMA-AIM. Griepvaccinatie tijdens de winter van 2006-2007. 2008. Available from: <http://www.nic-ima.be/fr/projects/influenza/>
119. IMA-AIM. Programme de Dépistage du Cancer du Sein. Comparaison des trois premiers tours 2002-2003, 2004-2005 et 2006-2007. 2010 2010, September. Available from: <http://www.nic-ima.be/library/documents/quality%20projects/MA%207%20FR%20rapport.pdf>
120. IMA-AIM. Vaccination contre la grippe au cours des hivers 2007-2008 et 2008-2009. 2011. Available from: http://www.nic-ima.be/library/documents/health_monitoring/Grippe%20FR%20Rapport%20hivers%202007-2008%202008-2009%20AIM.pdf
121. IPH. Enquête de santé par interview Belgique 2008, rapports. 2010. Available from: <https://www.wiv-isp.be/epidemio/epifr/crospfr/hisfr/table08.htm>
122. Jackson T. Prospérité sans croissance. La transition vers une économie durable. Bruxelles; 2010.



123. Jans B, Denis O. Surveillance van MRSA in de Belgische acute ziekenhuizen: tweede semester 2010. 2010. Available from: http://www.nsih.be/surv_mrsa/download_fr.asp and http://www.nsih.be/surv_mrsa/download_nl.asp
124. Jee SH, Cabana MD. Indices for continuity of care: a systematic review of the literature. *Med Care Res Rev*. 2006;63(2):158-88.
125. Jevons M. 'Celbenin'-resistant Staphylococci. *BMJ*. 1961;1:124-5.
126. Joossens L, Raw M. The Tobacco Control Scale 2010 in Europe. Brussels: Association of the European Cancer Leagues; 2010. Available from: http://www.ensp.org/sites/default/files/TCS_2010_in_Europe_FINAL.pdf
127. Joseph KS, Liu S, Rouleau J, Lisonkova S, Hutcheon JA, Sauve R, et al. Influence of definition based versus pragmatic birth registration on international comparisons of perinatal and infant mortality: population based retrospective study. *BMJ*. 2012;344:e746.
128. Keirse E, Beguin C, Desmedt M, Deveugele M, Menten J, Simoens S, et al. Organisation of palliative care in Belgium. Brussels: Belgian Health Care Knowledge Centre (KCE); 2009. KCE Reports 151
129. Kreienberg R, Kopp I, Lorenz W, Budach W, Dunst J, Lebeau A, et al. Interdisciplinary S3 Guidelines for the Diagnosis and Treatment of Breast Cancer in Women. Frankfurt: German Cancer Society; 2003.
130. Larkin G, Claassen C, Emond J, al. e. Trends in US emergency department visits for mental health conditions, 1992 to 2001. *Psychiatric Services*. 2005;56(6):671-7.
131. Lombarts MJ, Rupp I, Vallejo P, Sunol R, Klazinga NS. Application of quality improvement strategies in 389 European hospitals: results of the MARQuIS project. *Qual Saf Health Care*. 2009;18 Suppl 1:i28-37.
132. Lorant V, Depuydt C, Gillain B, Guillet A, Dubois V. Involuntary commitment in psychiatric care: what drives the decision? *Soc Psychiatry Psychiatr Epidemiol*. 2007;42(5):360-5.
133. Lorenz KA, Rosenfeld K, Wenger N. Quality indicators for palliative and end-of-life care in vulnerable elders. *Journal of the American Geriatrics Society*. 2007;55(2).
134. Lorenz KA, Dy SM, Naeim A, Walling AM, Sanati H, Smith P, et al. Quality measures for supportive cancer care: the Cancer Quality-ASSIST Project. *J Pain Symptom Manage*. 2009;37(6):943-64.
135. Mambourg F, Robays J, Camberlin C, Vlayen J, Gailly J. Dépistage du cancer du sein entre 40 et 49 ans. Brussels: Belgian Health Care Knowledge Centre (KCE); 2010. KCE Reports 129
136. Mambourg F, Robays J, Gerkens S. Dépistage du cancer du sein entre 70 et 74 ans. Brussels: Belgian Health Care Knowledge Centre (KCE); 2012. KCE Reports 176B
137. Marshall M, Klazinga N, Leatherman S, Hardy C, Bergmann E, Pisco L, et al. OECD Health Care Quality Indicator Project. The expert panel on primary care prevention and health promotion. *International Journal for Quality in Health Care*. 2006;18:Suppl-5.
138. McEwan KL, Goldner E. Accountability and Performance Indicators for Mental Health Services and Supports. Ottawa (ON): Health Canada; 2001.
139. McInnes E, Jammali-Blasi A, Bell-Syer SE, Dumville JC, Cullum N. Support surfaces for pressure ulcer prevention. *Cochrane Database Syst Rev*. 2011(4):CD001735.
140. Meeussen K, Van den Block L, Bossuyt N, Bilsen J, Echteld M, Van Casteren V, et al. GPs' awareness of patients' preference for place of death. *British Journal of General Practice*. 2009;59:665-70.
141. Meeussen K, Van de Block L, Echteld M, Bossuyt N, Bilsen J, Van Casteren V, et al. Advance care planning in Belgium and the Netherlands: a nationwide retrospective study via sentinel networks of general practitioners. *Journal of Pain and Symptom Management*. 2011a;42(4):565-77.
142. Meeussen K, Van den Block L, Echteld M, Boffin N, Bilsen J, Van Casteren V, et al. End-of-Life care and circumstances of death in patients dying as a result of cancer in Belgium and the Netherlands: a retrospective comparative study. *Journal of Clinical Oncology*. 2011b;29(32):4327-34.
143. Merrick EL, Hodgkin D, Horgan CM, Garnick DW, McLaughlin TJ. Changing mental health gatekeeping: effects on performance indicators. *J Behav Health Serv Res*. 2007;35(1):3-19.



144. Mintzer J, Burns A. Anticholinergic side-effects of drugs in elderly people. *J R Soc Med*. 2000;93(9):457-62.
145. Mohler R, Richter T, Kopke S, Meyer G. Interventions for preventing and reducing the use of physical restraints in long-term geriatric care. *Cochrane Database of Systematic Reviews*. 2011(2):CD007546.
146. Morgan C, Mallett R, Hutchinson G, Leff J. Negative pathways to psychiatric care and ethnicity: the bridge between social science and psychiatry. *Soc Sci Med*. 2004;58(4):739-52.
147. Morris J, Berg K, Fries B, Hawes C, Phillips CM, Mor V, et al. *Gebruikshandboek voor de InterRAI-LTCF (BelRAI-LTCF)*. Washington, D.C.: InterRAI; 2006a.
148. Morris J, Fries B, Bernabei R, Steel K, Ikegami N, Carpenter I, et al. *Gebruikshandboek voor de interRAI-HC (BelRAI-HC)*. Washington, D.C.: InterRAI; 2006b.
149. National Quality Forum. National voluntary consensus standards for symptom management and end-of-life care in cancer patients. 2006.
150. NHS Routine Quarterly Mental Health Minimum Dataset Reports: Q3 2010/2011 Mental Health Service Performance Indicators [Department of Health; 2011].
151. NICE. Quality standards for end of life care for adults. Manchester: National Institute for Health and Clinical Excellence; 2012. Available from: <http://publications.nice.org.uk/quality-standard-for-end-of-life-care-for-adults-qs13>
152. NIHDI. Farmaceutische kengetallen, Farmaceutische verstrekkingen, Ambulante praktijk. Brussel: National Institute for Health and Disability Insurance; 2009.
153. NIHDI. Tableaux de bord pharmaceutiques, Délivrances pharmaceutiques dans le secteur ambulatoire. Brussels: National Institute for Health and Disability Insurance; 2011.
154. NIHDI. Guidelines for referral to medical imaging. Brussels: National Institute for Health and Disability Insurance; 2012a. Available from: <http://www.riziv.fgov.be/care/nl/doctors/promotion-quality/guidelines-rx/pdf/guidelinesnl.pdf>
155. NIHDI. GP performance report. National Institute for Health and Disability Insurance; 2012b.
156. NIHDI. Evaluer les trajets de soins: accord sur la façon de récolter et d'évaluer les données. Bruxelles: National Institute for Health and Disability Insurance; 2012c. Communiqué de presse
157. NSIH Surveillance Nationale de Staphylococcus aureus Multi-Résistant (MRSA) [Brussels: Scientific Institute of Public Health; 2012 [cited May 15]. Available from: http://www.nsih.be/surv_mrsa/inleiding_fr.asp,
158. Nutbeam D. The evolving concept of health literacy. *Soc Sci Med*. 2008;67(12):2072-8.
159. OECD HCQI Patient Safety Indicators [Organisation of Economic Co-operation and Development; 2009 [cited 21 Feb]. Available from: http://www.oecd.org/document/34/0,3343,en_2649_33929_37090539_1_1_1_1,00.html
160. OECD. *Sickness, Disability and Work Breaking the Barriers*. Organisation for Economic Co-operation and Development; 2010a.
161. OECD. *Health Data 2010. Statistics and indicators for OECD countries*. In: Organisation for Economic Co-operation and Development; 2010b.
162. OECD. *Health Care Quality Indicators: background paper to the mental health subgroup meeting*. Paris: Organisation for Economic Co-operation and Development; 2011a.
163. OECD. *Health at a Glance 2011, OECD Indicators*. Organisation for Economic Co-operation and Development; 2011b.
164. OECD. *Health Data 2011. Statistics and indicators for OECD countries*. In: Organisation for Economic Co-operation and Development; 2011c.
165. OECD. *Health Care Quality Indicators. OECD pilot questions on patient experiences*. Paris: Organisation for Economic Co-operation and Development; 2011d.
166. OECD, EUROStat, WHO. *A System of Health Accounts*. Organisation for Economic Co-operation and Development; 2011.
167. OECD. Reducing income inequality while boosting economic growth: Can it be done? Chapter 5. In: *Economic Policy Reforms*; 2012a. p. 191-202.



- 168.OECD. Health Data 2012. Statistics and indicators for OECD countries. In: Organisation for Economic Co-operation and Development; 2012b.
- 169.Owens PL, Mutter R, Stocks C. Mental Health and Substance Abuse-Related Emergency Department Visits among Adults. AHRQ, HEALTHCARE COST AND UTILIZATION PROJECT; 2010. Statistical Briefs
- 170.Park JM, Yoon GS, Kim SM, Ahn SH. Sonographic detection of multifocality in breast carcinoma. *J Clin Ultrasound*. 2003;31(6):293-8.
- 171.Pasman HRW, Brandt HE, Deliens L, Francke AL. Quality indicators for palliative care: a systematic review. *Journal of pain and symptom management*. 2009;38(1):145-56.
- 172.Pate RR, Pratt M, Blair SN, Haskell WL, Macera CA, Bouchard C, et al. Physical activity and public health. A recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA*. 1995;273(5):402-7.
- 173.Paulus D, Bonneux L, Mambourg F. Dépistage du cancer du sein. Brussels: Belgian Health Care Knowledge Centre (KCE); 2005. KCE Reports 11
- 174.Peeters M, Ramaekers D, Dargent G, Haelterman M, Van Belle S, De Greve J, et al. National Clinical Practice Guidelines of the College of Oncology : clinical practice guideline for colorectal cancer. Brussels: Belgian Health Care Knowledge Centre (KCE); 2006. KCE Reports 142
- 175.Persuelli C, Marinari M, Brivio B. Evaluating a home palliative care service: development of indicators for a continuous quality improvement program. *Journal of Palliative Care*. 1997;13(3):34-42.
- 176.Priebe S, Badesconyi A, Fioritti A, Hansson L, Kilian R, Torres-Gonzales F, et al. Reinstitutionalisation in mental health care: comparison of data on service provision from six European countries. *BMJ*. 2005;330(7483):123-6.
- 177.Project PUMap. Studie van de decubitusprevalentie in de Belgische ziekenhuizen 2008. 2008. Available from: http://www.decubitus.be/downloads/PUMAP_NL.pdf
- 178.Reddy M, Gill SS, Rochon PA. Preventing pressure ulcers: a systematic review. *JAMA*. 2006;296(8):974-84.
- 179.Redman RW, Lynn MR. Assessment of patient expectations for care. *Res Theory Nurs Pract*. 2005;19(3):275-85.
- 180.Reid R, Haggerty J, McKendry R. Defusing the confusion : Concepts and measures of continuity of healthcare. March 2002. Final report. Canadian Health Services Research Foundation. 2002.
- 181.Reuben DB. Quality indicators for the care of undernutrition in vulnerable elders. *Journal of the American Geriatrics Society*. 2007;55(2).
- 182.RIVM. Zorgbalans 2008. De prestaties van de Nederlandse gezondheidszorg. 2008 22 May 2008. Available from: <http://www.rivm.nl/dsresource?objectid=rivmp:11938&type=org&disposition=inline>
- 183.RIVM. Zorgbalans-decubitusprevalentie. Rijksinstituut voor Volksgezondheid en Milieu, Ministerie van Volksgezondheid, Welzijn en Sport; 2010.
- 184.Robert E, Swennen B. Enquête de couverture vaccinale des enfants de 18 à 24 mois à Bruxelles en 2006. 2006.
- 185.Robert E, Swennen B. Enquête de couverture vaccinale des enfants de 18 à 24 mois en Communauté Française (Bruxelles excepté). 2009.
- 186.Rowlingson K. Does income inequality cause health and social problems? Joseph Rowntree Foundation; 2011.
- 187.Sabbe M, Hue D, Hutse V, Goubau P. Measles resurgence in Belgium from January to mid-April 2011: a preliminary report. *Euro Surveill*. 2011;16(16).
- 188.Salisbury C, Sampson F, Ridd M, Montgomery AA. How should continuity of care in primary health care be assessed? *Br J Gen Pract*. 2009;59(561):e134-41.
- 189.Salize HJ, Dressing H. Epidemiology of involuntary placement of mentally ill people across the European Union. *British Journal of Psychiatry*. 2004;184:163-8.



190. Sasse A, Verbrugge R, Van Beekhoven D. *Epidémiologie du Sida et de l'infection à VIH en Belgique; situation au 31 décembre 2010*. Brussels: IPH, surveillance of communicable diseases; 2011.
191. Saultz JW. Defining and measuring interpersonal continuity of care. *Ann Fam Med*. 2003;1(3):134-43.
192. Saultz JW, Lochner J. Interpersonal continuity of care and care outcomes: a critical review. *Ann Fam Med*. 2005;3(2):159-66.
193. Schoen C, Osborn R, How SK, Doty MM, Peugh J. In chronic condition: experiences of patients with complex health care needs, in eight countries, 2008. *Health Aff (Millwood)*. 2009;28(1):w1-16.
194. Scottish Intercollegiate Guidelines Network (SIGN). *Management of breast cancer in women. A national clinical guideline*. Edinburgh: Scottish Intercollegiate Guidelines Network (SIGN); 2003.
195. Shiga T, Wajima Z, Ohe Y. Is operative delay associated with increased mortality of hip fracture patients? Systematic review, meta-analysis, and meta-regression. *Can J Anaesth*. 2008;55(3):146-54.
196. Shoma A, Moutamed A, Ameen M, Abdelwahab A. Ultrasound for accurate measurement of invasive breast cancer tumor size. *Breast J*. 2006;12(3):252-6.
197. Smets T, Bilsen J, Cohen J, Rurup ML, Deliens L. Legal euthanasia in Belgium: characteristics of all reported euthanasia cases. *Medical Care*. 2010a;48(2):187-92.
198. Smets T, Bilsen J, Cohen J, Rurup ML, Mortier F, Deliens L. Reporting of euthanasia in medical practice in Flanders, Belgium: cross sectional analysis of reported and unreported cases. *BMJ*. 2010b.
199. Spaeth-Rublee B, Pincus HA, Huynh PT, Brown P, Rosen A, Durbin J, et al. Measuring quality of mental health care: A review of initiatives and programs in selected countries. *Can. J. Psychiatry*. 2010;55(9):539-48.
200. Squires A, Bruyneel L, Aiken LH, Van den Heede K, Brzostek T, Busse R, et al. Cross-cultural evaluation of the relevance of the HCAHPS survey in five European countries. *Int J Qual Health Care*. 2012.
201. St Leger L, Young I, Blachard C, Perry M. *Promoting health in schools, from evidence to action*. UIHPE; 2010.
202. Stakes. *European mental health indicators. Proposed set of mental health indicators; definitions, description and sources*. Helsinki: National Research and Development Centre for Welfare and Health (STAKES); 2001.
203. Stordeur S, Vrijens F, Vlayen J, Beirens K, Devriese S, Van Eycken E. *Quality indicators in oncology: breast cancer*. Brussels: Belgian Health Care Knowledge Centre (KCE); 2010. KCE reports 150
204. Superior Health Council. *Richtlijnen voor de beheersing en preventie van overdracht van methicilline-resistente staphylococcus aureus (MRSA) in Belgische ziekenhuizen*. 2005.
205. Superior Health Council. Publication n° 8080: *Assessment of the increasing exposure of patients to radiation through the use of computer tomography (CT) and optimization of radiation protection*. Brussels: Superior Health Council; 2007a. Available from: <http://contrib.health.belgium.be/internet/groups/public/@public/@shc/documents/ie2divers/10820441.pdf>
206. Superior Health Council. *Vaccination contre la grippe saisonnière. Saison hivernale 2007 – 2008*. In: Publication du Conseil Supérieur de la santé n° 8354.; 2007b.
207. Superior Health Council. *De impact van psychofarmaca op de gezondheid met een bijzondere aandacht voor ouderen*. Brussel: Hoge Gezondheidsraad; 2011. nr. 8571
208. The Royal Australian College of GPs *Standards for General Practices, 4th Edition - 2010*, [2011 [cited November]. Available from: <http://www.racgp.org.au/Content/NavigationMenu/PracticeSupport/StandardsforGeneralPractices/Standards4thEdition.pdf>
209. The Royal New Zealand College of General Practitioners *Aiming for Excellence – RNZCGP Standard for New Zealand General Practice 2011-2014* [2011 [cited November]. Available from: <http://www.rnzcgp.org.nz/quality-standards>
210. Valenduc C. *La progressivité de l'impôt des personnes physiques*. Bulletin de documentation. 2005;65(1):281-304.
211. Valenduc C. *Analyse du financement alternatif de la sécurité sociale*. Service Public Fédéral des Finances - Bulletin de documentation. 2009;69(4):275-94.



212. Van den Block L, Deschepper R, Bilsen J, Bossuyt N, Van Casteren V, Deliens L. Euthanasia and other end of life decisions and care provided in final three months of life: nationwide retrospective study in Belgium. *BMJ*. 2009;1-8.
213. Van den Bosch K, Willemé P, Geerts J, Breda J, Peeters S, Van de Sande S, et al. Residential care for older persons in Belgium: Projections 2011-2025. Brussels: Belgian Health Care Knowledge Centre (KCE); 2011. KCE Reports 169
214. Van der Heyden J, Gisle L, Demarest S, Drieskens S, Hesse E, Tafforeau J. Gezondheidsenquête België, 2008. Wetenschappelijk Instituut Volksgezondheid; 2008.
215. Van der Heyden J, Gisle L, Demarest S, Drieskens S, Hesse E, Tafforeau J. Enquête de santé, 2008. Rapport I - Etat de santé. Direction Opérationnelle Santé publique et surveillance, 2010; Bruxelles, Institut Scientifique de Santé Publique; 2010.
216. van Doorslaer E, Wagstaff A, van der Burg H, Christiansen T, Citoni G, Di Biase R, et al. The redistributive effect of health care finance in twelve OECD countries. *Journal of Health Economics*. 1999;18(3):291-313.
217. van Eijk ME, Bahri P, Dekker G, Herings RM, Porsius A, Avorn J, et al. Use of prevalence and incidence measures to describe age-related prescribing of antidepressants with and without anticholinergic effects. *J Clin Epidemiol*. 2000;53(6):645-51.
218. van Eijk ME, Avorn J, Porsius AJ, de Boer A. Reducing prescribing of highly anticholinergic antidepressants for elderly people: randomised trial of group versus individual academic detailing. *BMJ*. 2001;322(7287):654-7.
219. Van Hoof E, Remue E, Lenaerts L, De Wandeler E, Mores B, Goolaerts J. Evaluatie van het Kankerplan 2008-2010. Brussel: Wetenschappelijk Instituut Volksgezondheid, Kankercentrum; 2012.
220. Van Limbergen E, Beyltens P, Vande Putte G, Coelst ME, Martens P, Goossens M, et al. Bevolkingsonderzoek naar borstkanker in Vlaanderen. Jaarrapport 2010. 2010.
221. Van Oyen H, Charafeddine R, Deboosere P, Cox B, Lorant V, Demarest S. L'évolution des inégalités en espérance de vie en santé. In: Van Oyen H. DP, Lorant V., Charafedinne R., editor. Les inégalités sociales de santé en Belgique. Brussels: Academia Press; 2010.
222. Van Oyen H CB, Nusselder W, Jagger C, Cambois E, Robine JM. Gender gaps in life expectancy and expected years with activity limitations at age 50 in the European Union: Associations with macro-level structural factors. *Eur J Ageing*. 2010;7:229-39.
223. van Walraven C, Oake N, Jennings A, Forster AJ. The association between continuity of care and outcomes: a systematic and critical review. *J Eval Clin Pract*. 2010;16(5):947-56.
224. Van Wesemael Y, Cohen J, Bilsen J, Smets T, Onwuteaka-Philipsen B, Deliens L. Process and outcomes of euthanasia requests under the Belgian Act on euthanasia: a nationwide survey. *Journal of pain and symptom management*. 2011;42(5):721-33.
225. Van Wesemael Y, Cohen J, Bilsen J, Smets T, Onwuteaka-Philipsen B, Distelmans W, et al. Implementation of a service for physicians' consultation and information in euthanasia requests in Belgium. *Health Policy*. 2012;104:272-8.
226. Vanobbergen J, Martens L, Declerk D. Caries prevalence in Belgian children: a review. *Int J Paediatr Dent*. 2001;11(3):164-70.
227. Vergote I, Vlayen J, Robays J, Stordeur S, Stemkens D, Smit Y, et al. Een nationale praktijkrichtlijn voor de aanpak van cervixkanker. Brussels: Belgian Health Care Knowledge Centre (KCE); 2011. KCE Reports 168
228. Verleye L, Desomer A, Gailly J, Robays J. Dépistage du cancer du sein : comment identifier les femmes exposées à un risque accru - Quelles techniques d'imagerie utiliser ? Brussels: Belgian Health Care Knowledge Centre (KCE); 2012. KCE Reports 172
229. VIGEZ De actieve voedingsdriehoek [Vlaams Instituut voor Gezondheidspromotie; 2012. Available from: <http://vig.kanker.be/content/category/categorycontent.aspx?CategoryGUID=025d941e-6a63-4540-a522-b3c208832529>



230. Vlaams Agentschap Zorg & Gezondheid Klinische performantie-indicatoren [2006 [cited 2012, Feb 22]. Available from: http://www.zorg-en-gezondheid.be/v2_default.aspx?id=21867&linkidentifier=id&itemid=21867
231. Vlaams Agentschap Zorg & Gezondheid Vlaams actieplan voeding en beweging 2009-2015 [2012 [cited 17th of September]. Available from: <http://www.zorg-en-gezondheid.be/Beleid/Gezondheidsdoelstellingen/Vlaams-actieplan-voeding-en-beweging-2009---2015/>
232. Vlayen J, Vanthomme K, Camberlin C, Piérart J, Walckiers D, Kohn L, et al. A first step towards measuring the performance of the Belgian healthcare system. Brussels: Belgian Health Care Knowledge Centre (KCE); 2010. KCE Reports 128
233. Vrijens F, Van de Voorde C, Farfan-Portet M-I, le Polain M, Lohest O. The reference price system and socioeconomic differences in the use of low cost drugs. Brussels: Belgian Health Care Knowledge Centre (KCE); 2010. KCE reports 126C
234. Wagstaff A, van Doorslaer E, van der Burg H, Calonge S, Christiansen T, Citoni G, et al. Equity in the finance of health care: some further international comparisons. *Journal of Health Economics*. 1999;18(3):263-90.
235. Wagstaff A, Van Doorslaer E. Equity in Health Care Finance and Delivery. In: Culyer AJ, Newhouse JP, editors. *Handbook of health Economics*: North-Holland; 2000. p. 1804-62.
236. Wang C, Caminada K. Disentangling Income Inequality and the Redistributive Effect of Social Transfers and Taxes in 36 LIS Countries. In: *LIS Working Paper Series*. Luxembourg: Luxembourg Income Study (LIS); 2011.
237. Wechsler H, Devereaux RS, Davis M, Collins J. Using the school environment to promote physical activity and healthy eating. *Preventive Medicine*. 2000;31(2):S121-S37.
238. Westert G, van den Berg M, Koolman X, Verkleij H. Dutch health care performance report 2008. Bilthoven. The Netherlands: National Institute for Public Health and the Environment; 2008.
239. WHO. Emerging and other communicable diseases: antimicrobial resistance. World Health Organization; 1998. World Health Assembly (fifty-first) WHA51.17
240. WHO. International guide for monitoring alcohol consumption and related harm. Geneva: World Health Organization; 2000.
241. WHO. Prevention and Control of Influenza Pandemics and Annual Epidemics,. World Health Organization; 2003. Resolution of the Fifty-Sixth World Health Assembly (WHA56.19) Available from: http://apps.who.int/gb/archive/pdf_files/WHA56/ea56r19.pdf
242. WHO. International Statistical Classification of Diseases and Related Health Problems. 2nd ed. Geneva: World Health Organization; 2004a.
243. WHO. WHO Global Strategy on Diet, Physical Activity and Health. Recommendations for Physical Activity for Health. Geneva: World Health Organization; 2004b.
244. WHO. Global Strategy on Diet, Physical Activity and Health. A Framework to Monitor and Evaluate Implementation. Geneva: World Health Organization; 2008a.
245. WHO. Policies and practices for mental health in Europe: meeting the challenges. Copenhagen: World Health Organization; 2008b.
246. WHO. Global Strategy on Diet, Physical Activity and Health. Recommendations for Physical Activity for Health. World Health Organization; 2010.
247. WHO. WHO report on the Global Tobacco Epidemic, 2011: Warnings about the dangers of tobacco. World Health Organization; 2011.
248. WHO Nutrition for older persons [World Health Organization;2012a [cited 30th of Mai].
249. WHO. Oral Health Database. In: World Health Organization; 2012b.
250. WHO European health for all database (HFA-DB) [World Health Organization;2012c. Available from: <http://data.euro.who.int/hfad/>
251. WHO. Developing indicators for the health 2020 targets. First meeting of the expert group (18-19 June). Utrecht: World Health Organization; 2012d.
252. WHO. WHO Tobacco Control Database. In: World Health Organization; 2012e.



253.WHO Collaborating Centre for Pharmaceutical Pricing and Reimbursement Policies. Pharmaceutical Health Information system database. In: World Health Organization; 2012.

254.Wilkinson J, Bywaters J, Simms S, Chappel D, Glover G. Developing mental health indicators in England. Public Health. 2007;122(9):897-905.

