

Country report Belgium – February 2016



Report by **Professor Johan De Sutter *et al.***

National CVD Prevention Coordinator for Belgium
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Contact: [email](#)

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I. Structure of Health care in Belgium

Structure

Belgium is a federal state with three official languages (Dutch, French and German). Decision-making is based on a complex three-level structure. At the top is the federal state and in parallel the entities made up of three regions (the Flemish region, the Brussels capital region and the Walloon Region) and three communities (the Flemish community, the French community and the German community). Next, there are 10 Provinces, followed by local authorities of cities and towns (1).

Overall, Belgium counts 11.2 million inhabitants (January 2015), of which 49% are males. About, 6.4 million are living in the Flemish region; 3.6 million in the Walloon region and 1.2 million in the Brussels capital region (2).

In 2014, life expectancy at birth amounted to 81.1 years (83.5 years for women and 78.6 years for men). Some variation is seen across the regions. Mean life expectancy is the highest in Flanders (82.0 years), followed by the Brussels capital region (80.9 years) and the lowest in the Walloon region (79.5 years) (3). About 18% of the total Belgian population is 65 years of age or older (16% of the males and 20% of the females) (2). The average number of years that a person can expect to live in "good health" is 72 years for females and 69 years for males (4).

The Belgian health care system is largely based on solidarity and equity. Health care services are freely accessible with short waiting periods. A mandatory health insurance aims to provide equal access for every citizen. Hence, everyone has to join a sickness fund of his/her choice. There are 79 sickness funds (non profit organisations) divided over 7 umbrella organisations. These sickness funds receive a prospective budget from the National Institute for Health and Disability Insurance (NIHDI), based on the risk profile of their members (1). These are used to reimburse health care expenses including outpatient care from health care providers (direct payment with refund by sickness funds) and allowances for hospitalisation (third-payer system). Depending on the patient statute (invalidity, income, family situation) there is a co-payment for medical services and medication. In addition the sickness funds provide additional insurance options to reimburse medical services that are not covered by the mandatory insurance.

In Belgium, health policy is organised by the federal authority as well as by the different communities. In the course of the 6th state reform, the health care sector is currently being reshaped. Several responsibilities are being transferred from the federal state to the different communities and regions. Broadly, primary care, hospital care, long term rehabilitation, psychiatric care, elderly care, disability and prevention will become community responsibilities, whereas tariffing, vaccination, pharmaceuticals, medical aids and regulations concerning the exercise of medical and paramedical professions will remain federal responsibilities (1,5).

Belgium counts 47.024 physicians, of which 1144 cardiologists. Per 100.000 inhabitants there are 10.2 cardiologists (6).

Finances

Health care expenses (curative and preventive) in Belgium account for 10.9% of the gross domestic product. During the latest decades, health care spending has increased substantially, although a slowdown of the healthcare spending was seen in the recent years (7). The increases in health care expenses are limited by a fixed growth rate (maximum growth of expenditure). Until 2011 the growth rate was 4.5%, in 2013 and 2014 the growth rate was lowered to 2% and 3% respectively (8). Currently the growth rate is set at 1.5%. In total, about 41 billion € is being spend on health care every year (9). About 75% is publicly financed, 20% is financed by the patient (out of pocket expenses), and the rest is privately funded (private insurance and sickness funds) (9).

In 2009, the health care expenses due to cardiovascular disease were estimated at a total cost of € 2,374,817,000 annually or a cost per capita of 221€, making up 6% of the total health care expenditures (10). This concerns mainly curative expenses. About half of the health care costs (1.232.872.000€) are due to inpatient care and 989.200.000€ to medication costs. Furthermore, cardiovascular disease (CVD) is associated with 1.386.989.000€ production losses and 802.999.000€ informal care. The overall yearly cost of cardiac rehabilitation in Belgium was estimated at 8.8 million euro (in 2011; see details below).

References

1. Gerkens S, Merkur S. Belgium: Health system review. Health Systems in Transition. 2010. Report No.: 12(5).
2. Statistics Belgium. 2015
http://economie.fgov.be/nl/binaries/PB-Bevolking%201%20januari%202015_v2_tcm325-269408.pdf (in Dutch only)
3. Statistics Belgium. 2015.
http://statbel.fgov.be/nl/binaries/PERSBERICHT%20Levensverwachting%202014_tcm325-270847.pdf (in Dutch only)
4. World Health Organisation. 2015.
<http://apps.who.int/gho/data/view.main.680>
5. CM. 2015. http://www.cm.be/binaries/CM-255-NL-Staats hervorming_tcm375-137078.pdf (in Dutch only)
6. NIHDI. 2015.
http://www.inami.fgov.be/SiteCollectionDocuments/akkoord_weigeringen_speciale_sme_2015.pdf (in Dutch only)
7. OECD. 2015.
<http://www.oecd.org/belgium/Briefing-Note-BELGIUM-2014.pdf>
8. Federale Overheid Sociale Zekerheid. De sociale zekerheid in een oogopslag: kerncijfers 2011. 2012. www.socialsecurity.fgov.be/docs/nl/publicaties/brochure-kerncijfers-2011-nl.pdf (in Dutch only)
9. ASSURALIA. De nationale uitgaven in de gezondheidszorg. 2015.
http://www.assuralia.be/fileadmin/content/stats/03_Cijfers_per_tak/05_Gezondheid/06_Nationale uitgaven gezondheidszorg/NL/AI_2015_cijfers2012.pdf (in Dutch only)
10. Nichols M, Luengo-Fernandez R, Leal J, et al. European Cardiovascular Disease Statistics 2012. European Heart Network, Brussels, European Society of Cardiology, Sophia Antipolis; 2012.

II. Risk factor statistics

CVD Mortality

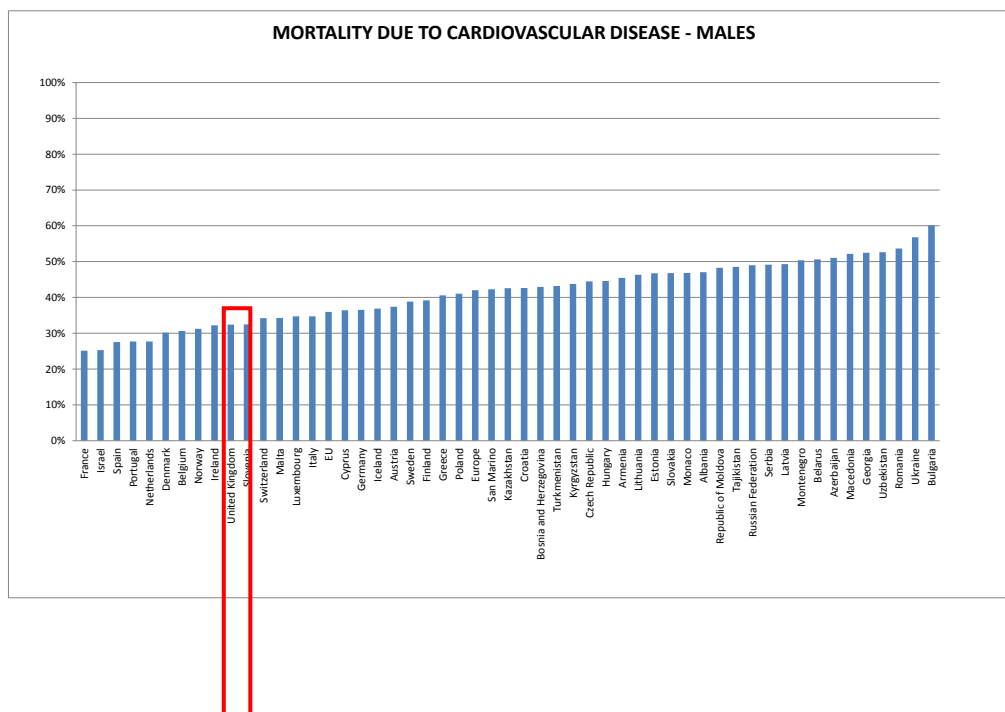
In 2012, about 109.034 Belgians died of which 53.800 were males and 55.234 were females. According to the official national mortality statistics, CVD is still the overall main cause of death, responsible for 28.8% of the total mortality. In males, CVD is the second most important cause of death, after cancer, accounting for 26.6% of mortalities and in females; CVD is the number one cause of death accounting for 31.1% of all mortalities. Of all CVD deaths about 9% occur before the age of 65 years (14,3% in men, 4.9% in women); another 12% of all CVD deaths occur in the age group 65-74 years (table 1). Until the age of 80, most CVD deaths are males, but in later life more females die because of CVD (1).

Table 1. CVD mortality by age class and gender in 2012

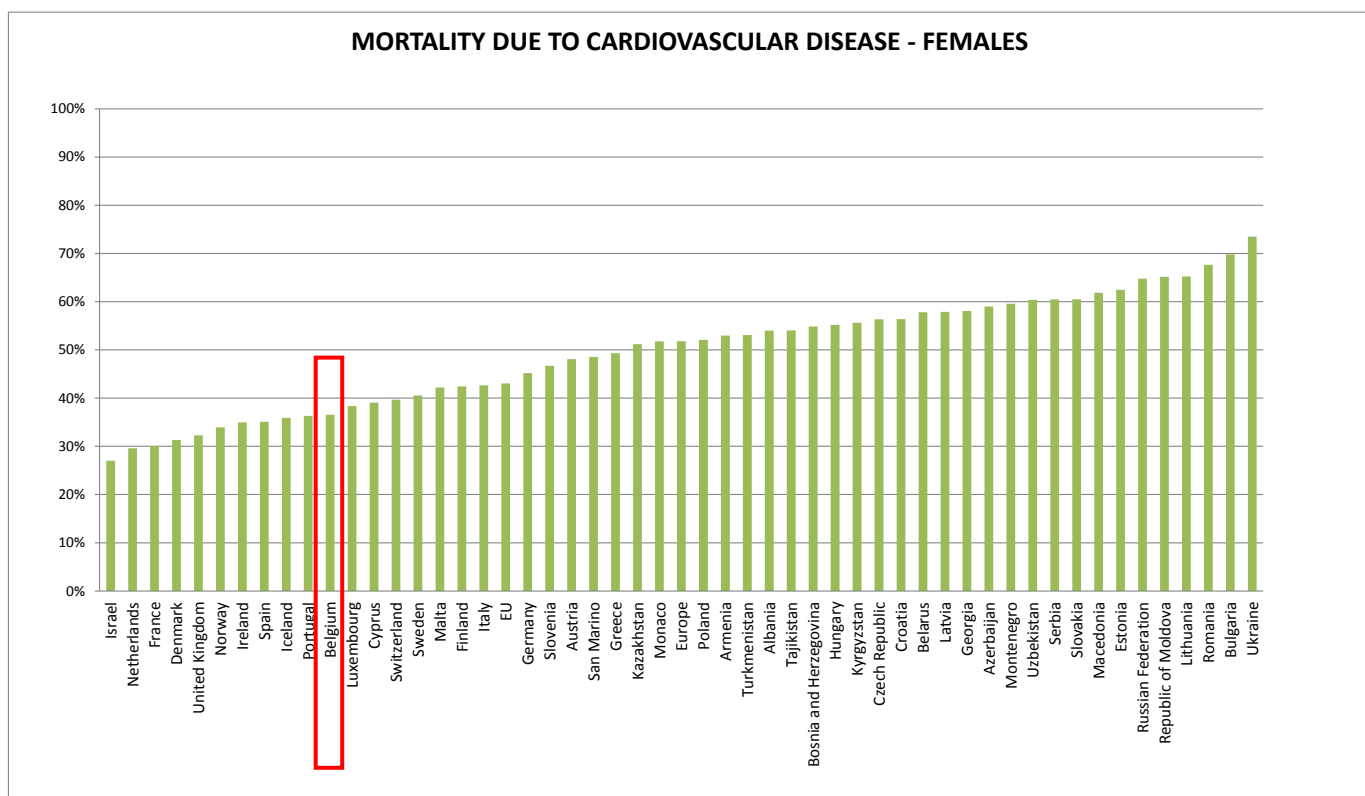
	Overall CVD deaths(n=31446)	Male CVD deaths (n=14290)	Females CVD deaths (n=17156)
<45 years	0.9% (273/31446)	1.3% (185/14290)	0.5% (88/17156)
≥45 and <65	8.3% (2614/31446)	13.0% (1853/14290)	4.4% (761/17156)
≥65 and <75	11.7% (3681/31446)	16.5% (2361/14290)	7.69% (1320/17156)
≥75 and <85	32.1% (10086/31446)	35.9% (5128/14290)	28.9% (4958/17156)
≥85	47.0% (14792/31446)	33.3% (4763/14290)	58.5% (10029/17156)

Source: Statistics Belgium. Cause of death. 2015. (1)

CVD mortality in Belgium is at the lower end of what is observed in the WHO-Europe region both in men and in women (figures 1 and 2) (2).



Source: World Health Organisation. Cardiovascular mortality. (2)



Source: World Health Organisation. Cardiovascular mortality. (2)

In addition to the mortality burden, CVD is also associated with a high morbidity burden accounting for about 561,300 DALYs in 2012, of which two thirds are caused by stroke or ischaemic heart disease (3). The incidence of all fatal and non-fatal acute myocardial infarction (AMI) is registered in the population aged between 25 and 69 years of the city of Ghent; age-standardised attack rates in men and women declined respectively from around 40 and 12/10,000 person-years in the early eighties to 20 and 6/10,000 person-years in 2007-09 (4).

PCI resources

In Belgium, virtually all acute hospitals can perform non-invasive diagnostic tests or non-invasive treatments (5). Of those, there are 47 PCI centres, corresponding with 4 centres per one million inhabitants (6).

Main CVD risk factors

Numerous observational and intervention studies on the epidemiology and prevention of CVD have been conducted in different Belgian study groups in the past (7).

The most recent information on CV risk factor prevalence is based on the Health Interview Surveys (HIS), gathering self-reported information on approximately 10.000 inhabitants. These surveys are repeated every five years, the latest survey was performed in 2013 (8). Information on the health of the general population, their medical consumption, their lifestyle and on some socio-economic parameters is gathered.

The number of smokers has decreased substantially in Belgium over the latest decades from 30% in 1997 to 23% in 2013 with 19% daily smokers in the population of 15 years

or older. These daily smokers consume on average 16 cigarettes per day. Smoking is still more prevalent in males (26%) than in females (20%). About 71% of the current smokers have attempted to quit smoking. The smoking habit in the younger population is still disturbing (15-19 years: 18% smokers; 20-24 years 26% smokers) (8).

Only 35.8% of the Belgian population (15 years or older) performs at least 30 min of moderate physical activity per day. Males are more physically active than females (respectively 48% and 24%) and younger persons are more physically active than elderly persons (51% is physically active in those between 15 and 24 years versus 12% in those ≥ 75 years) (8).

The mean self-reported body mass index (BMI) of the Belgian population (18 years or older) is estimated at 25.4 kg/m². Overweight (BMI ≥ 25 kg/m² and < 30 kg/m²) is seen in 48% of the adult population, whereas 14% is obese (BMI ≥ 30 kg/m²). Furthermore, 20% of the youth (2 years to 17 years old) is overweight and 7% is obese. An increasing trend in overweight is seen in this group. The prevalence of obesity is the highest in very young children (2-4 years) (8). The aggregated WHO data indicate a mean BMI of 26.78 kg/m² in males over 20 years of age and 25.19 kg/m² in females over 20 years of age (9).

With regard to dietary habits, 56% of the total population consumes fruit daily, whereas 78% consumes vegetables daily. No more than 12% of the Belgian population (6 years or older) meets the guidelines by eating 5 portions of fruit and vegetables daily. About 64% of the children between 0 and 14 years eat at least one portion of fruit daily. In contrast, only 39% of the young adults (15-24 years) consume fruit daily. Finally, Only 8% of children and young adults consume at least 5 portions of fruit and vegetables daily (8).

The last national food consumption survey performed in 2014 (in the population aged between 3 and 64 years old) showed that only 9% of patients with hypercholesterolaemia followed a low fat and low cholesterol diet. Of those patients with hypertension only 3% indicated to follow a low salt diet. In diabetes patients, 36% indicated to follow a modified diet (10).

About 5.3% of the respondents to the latest HIS (in 2013) indicated to suffer from diabetes (8). The diabetes atlas published by the international diabetes federation reports a prevalence of 6.3% (20-79 years old) (in 2014) (11) whereas the aggregated WHO data show a prevalence of 9.3% in males and 6.4% in females (25 years or older) (in 2008) (12).

During the HIS, 16.5% of the population (15 years and older) reported to have an elevated blood pressure, and 91% of interviewed persons reported that their blood pressure had been measured during the latest 5 years (self-reported data). The therapeutic approach did not differ between genders. The likelihood of having their blood pressure measured in the last 5 years, increased with the age, ranging between 70% in those between 15 and 24 years and 99% in those ≥ 75 years of age (8).

Likewise, within the cross-sectional ASKLEPIOS survey in 2524 individuals free of cardiovascular disease (35-55 years old), examined between 2002 and 2004, an elevated blood pressure ($> 140/90$ mmHg) was found in 28.8% (13). About 13.6% were

previously identified as hypertensive. Aggregated data from the WHO mention a mean blood pressure of 128.52 mmHg in males and 121.82 mmHg in females (in 2008) (25 years and older) (14).

In the HIS an elevated total cholesterol level was reported by 16.8% of the respondents (15 years and older) of which 87.6% was under medical observation, 30.7% was following a diet and 74.6% was taking medication. The prevalence of hypercholesterolaemia (self-reported data) ranges between 1.8% in young adults to 35.5% in persons aged over 65 years. Therapeutic approach did not differ between genders. Blood cholesterol measurements during the previous 5 years were reported by 73% of the participants; this percentage increased with age, ranging between 29% in those between 15 and 24 years old to 94% in those 75 years of age or older (8).

Within the ASKLEPIOS survey, elevated cholesterol levels (TC \geq 190mg/dl or LDL-C \geq 115mg/dl or active use of lipid lowering drugs) were found in 80.4% of individuals (35-55 years old), with about half not previously identified and 6.3% on drug treatment (13). Aggregated data from the WHO mention a mean total cholesterol of 5.40 mmol/L in males and 5.33 mmol/L in females (25 years and older) (15).

Daily alcohol consumption was reported by 14% of the participants in HIS. Excessive alcohol use (>14 unit per week in women and > 21 units per week in men) was seen in 6% of the population and binge drinking in nearly 5% (8).

According to the EUROASPIRE surveys smoking prevalence in CHD patients has decreased from 22.7% (in 2002) to 10.0% (in 2013), the proportion of patients with an elevated blood pressure (SBP/DBP \geq 140/90 mmHg (\geq 140/80 mmHg for diabetics) decreased from 45.4% (in 2002) to 38.6% (in 2014); LDL-cholesterol decreased from 3.76 mmol/L (in 2002) to 2.43 mmol/L (in 2013). The proportion of patients with diabetes with a controlled fasting glucose (<6.1mmol/L) rose from 7.1% (in 2002) to 15.4% (in 2013). In contrast the number of patients with obesity remained more or less the same (from 27.3% to 29.3%). Also, an increase in medication use in coronary patients is seen over the latest decade. About 96% of patients are on antiplatelets, 80.3% are on beta-blockers, 45.0% are on ACE/ARBs and 92.85% are on statins.

References:

1. Statistics Belgium. Cause of death. 2015.
http://statbel.fgov.be/nl/binaries/NL_Tab4%2E7_Evolutie_Groep%20en%20Gewest_tcm325-80258.xls
2. World Health Organisation. Cardiovascular mortality.
<http://www.who.int/mediacentre/factsheets/fs317/en/>
3. World Health Organisation. Disease burden. 2015.
http://www.who.int/healthinfo/global_burden_disease/estimates/en/index2.html
4. Van Herck K, Alvarado Hernandez W, Gevaert S, et al. Acute coronary events in men and women aged 25-74 years in the MONICA registers in Flanders: age-standardized time trends (1983-2009) and main observations in 2009. Poster presentation at the Annual Congress (EuroPrevent 2015) of the European Association for Cardiovascular Prevention and Rehabilitation (EACPR). Lisbon, Portugal, 14/05/2015-16/05/2015.

5. Van Brabandt H, Camberlin C, Vrijens F, et al. Variaties in de ziekenhuispraktijk bij acuut myocardinfarct in België. KCE Reports vol. 14A. 2005.
6. ESC atlas of Cardiology. Country profile: Belgium. 2016.
7. De Backer G, Kornitzer M. Belgian contribution to the epidemiology and to the primary prevention of cardiovascular diseases. 2012.
8. Health Interview Survey. 2013. <https://his.wiv-isp.be/NL/SitePages/Introductiepagina.aspx>
9. WHO. Body mass index.
http://wwwf.imperial.ac.uk/medicine/apps/ezzati/metabolic_risks/bmi/
10. Ost C, afforeau J. Voedselconsumptiepeiling 2014-2015. WIV-ISP. 2015.
11. International Diabetes Federation. https://www.idf.org/sites/default/files/Atlas-poster-2014_EN.pdf
12. WHO. Diabetes.
http://wwwf.imperial.ac.uk/medicine/apps/ezzati/metabolic_risks/diabetes/
13. Rietzschel ER, De Buyzere ML, Bekaert S, et al. Rationale, design, methods and baseline characteristics of the Asklepios Study. Eur J Cardiovasc Prev Rehabil 2007 Apr;14(2):179-91.
14. WHO. Blood pressure.
http://wwwf.imperial.ac.uk/medicine/apps/ezzati/metabolic_risks/blood_pressure/
15. WHO. Cholesterol.
http://wwwf.imperial.ac.uk/medicine/apps/ezzati/metabolic_risks/cholesterol/

III. Main actors and Prevention methods

Who delivers?

The main actors in cardiovascular prevention are the VIGEZ (Flemish institute for health promotion and disease prevention) in Flanders and the CSPS (Conseil Supérieur de promotion à la santé) in the Walloon region, the ISP (Institut Scientifique de Santé Publique), the Superior Health Council, the Federal public service Health, Food chain safety and environment and other federal and local agencies as well as Sickness funds, the Belgian Heart League and general practitioners and specialists including cardiologists, endocrinologists, nephrologists etc.

General practitioners have an important role in the early detection of cardiovascular risk factors within the primary care setting. If needed, they refer patients with a particular CVD risk profile to specialists for more detailed diagnosis and treatment advice. With regard to secondary prevention, both general practitioners and cardiologists play an important role in the follow-up of their patients.

Where?

Primary care physicians are situated in individual practices or in group practices (financed by a fee for service system). In addition, patients have also access to community health centres. These centres are being financed in a fixed per capita payment with the aim to offer qualitative, accessible and continuous care (1). Nursed based programmes are not available in primary prevention. There are however care trajectories for diabetes and chronic kidney disease patients (2). These care trajectories are based on a cooperation between three parties, the patient, the general practitioner and the specialist. The aim is to improve the quality of care through a coordinated approach, treatment and follow up of the patient stimulation the cooperation between the physicians and other healthcare professionals. A personalised care plan helps the patient to get a better insight in his or her disease and in the treatment plan. Until now, there is no financial incentive for physicians to achieve goals.

Hospital based specialised rehabilitation centres provide outpatient rehabilitation to cardiac patients who have been hospitalised for coronary heart disease, heart failure of cardiac surgery. These rehabilitation programmes focus on supervised physical activity as well as educational sessions on smoking cessation and dietary advice.

Furthermore occupational health services aim to improve the health at work and to tackle psychosocial problems such as stress, anxiety and burn out associated with a higher cardiovascular risk. Also a focus is placed on healthy food at work, avoidance of alcohol and drugs, and adequate physical activity.

Guidance

The guidelines of the European Society of Cardiology are endorsed by the Belgian Society of Cardiology. In addition the ESC guidelines are supported by the WONCA-Europe council (academic and scientific society for general practitioners in Europe). The guidelines are generally accepted by the general practitioners with some regional adaptations and modifications.

Furthermore the ESC guidelines are included in the education of medical students and the postgraduate training of general practitioners, cardiologists and other specialists.

Quality control

A national feedback system is set up in order to allow benchmarking between individual hospitals providing acute care. The 'multidimensional feedback' and 'patient safety feedback' focus on clinical performance, economic performance, capacity and innovation, and patient safety.

Furthermore, the Flemish indicator project (VIP²) is developed to assess the quality of general hospitals. Several quality indicators are defined in order to allow for comparison between hospitals. The results for the quality indicators for cardiology are not available yet, but they include mortality in patients hospitalised for an acute myocardial infarction; the proportion of patients with left ventricle systolic dysfunction who were prescribed an ACE or ARB therapy; the proportion of patients with an AMI who were prescribed aspirin, the proportion of AMI patients who were prescribed beta-blockers. Hospitals themselves can decide whether or not to participate and whether or not to publish the results (3). Parallel with this a smaller scale indicators project was developed called NAVIGATOR, including indicators on 16 domains providing hospitals (both in the Flemish and Walloon region) with quarterly feedback on their performance (4).

A quality control project in ST elevation myocardial infarction (STEMI) is initiated by the Belgian Interdisciplinary Working Group on Acute Cardiology. A minimal data base registry was set up with the aim to identify more accurately factors of mortality in STEMI patients in Belgium and to help hospitals to adhere to guidelines by providing on-line benchmark reports to all individual centres (5).

Furthermore the EUROASPIRE surveys also serve as a quality control mechanism by providing a more general view of how cardiac patients and other patients at high cardiovascular risk are being treated compared to other European countries.

Also, the national HIS, based on about 10000 Belgian inhabitants gives information on the efforts made in CVD prevention, such as information on the evolution in the prevalence of risk factors and on the monitoring of risk factors by physicians (7).

References

1. <http://www.vwgc.be/index.php?page=7&titel=Waar> (in Dutch only)
2. <http://www.zorgtraject.be/NL/index.asp> (in French and Dutch)
3. <http://www.zorg-en-gezondheid.be/beleid/campagnes-en-projecten/vip2-zh> (in Dutch only)
4. <http://www.navigator.czv.be/> (in Dutch only)
5. Belgian Interdisciplinary Working Group on Acute Cardiology. <http://biwac.be/site/stemi-project/>
6. Health Interview Survey. <https://his.wiv-isp.be/NL/SitePages/Introductiepagina.aspx>

IV. Main Prevention activities

Campaigns

Several preventive actions are implemented in order to diminish the cardiovascular burden. Some of them are initiated by cardio-specific organisations such as the Belgian Heart League, others are set up within the broader aim of healthy living. Examples include:

“Week of the heart”. For over 35 years, every year a campaign is launched, initiated by the Belgian Heart League with the aim to fight against CVD and to raise awareness among the Belgian population by encouraging them to change their daily life. Within each campaign a specific focus is chosen. In 2014 the focus was: “Do you know the numbers of your heart? Prevention starts with measurement.” In 2015 the focus was: “Women and the Heart” (1).

“Week of the heart rhythm”. Campaign supported by the Belgian Heart Rhythm Association to raise awareness about atrial fibrillation. Participants have the possibility to monitor their heart rhythm (2).

“Restart a heart day”. Campaign supported by the European resuscitation council, the Belgian Heart League and the Belgian resuscitation council aiming to raise cardiac arrest awareness and to educate the wider public how to resuscitate (3).

“BELCHOL” initiative, with the aim to identify and inform persons with familial hypercholesterolaemia (4).

“My heart-lets work together”. Initiative developed by the Belgian working group on cardiovascular prevention and rehabilitation, with the aim to inform patients who are recovering from a myocardial infarction or unstable angina pectoris (5)

“Action plan food and physical activity 2009-2015” initiated by the Flemish government with the aim to achieve health goals. The action plan includes 6 strategies to eat healthier and to perform physical activity in the local community, in the environment of very young children, at school, at the workplace, with a range of support for health care providers and through information and communication (6).

The smoking legislation in Belgium has taken several years. In 2005, smoking was prohibited in all public places such as shops, schools, workplaces, hospitals, public transport etc. In 2007, the smoking ban was expanded to restaurants. As from 2010 all smoking is prohibited in all places serving food. Since 2011 smoking is also prohibited in bars not serving any food (7). Furthermore several smoking cessation campaigns exist to help people at the community level to quit smoking or at the school-level to prevent to start smoking (8). In order to help smokers to quit smoking, they are entitled to partial refund for 8 consultations by physician or tabacoloog. These sessions can be given in group or on individual level. Furthermore, some smoking cessation medication (e.g. Champix) is being reimbursed.

“10000 steps” campaign supported by the Flemish Institute for Health Promotion and Disease Prevention with the aim to encourage the Flemish citizens to exercise by walking

10.000 steps a day. The campaign is set up at a local level such as the community, workplace, schools etc. (9)

“Tutti frutti” campaign supported by the Flemish Institute for Health Promotion and Disease Prevention initiated at primary and secondary schools with the aim to encourage young people to consume more fruit and vegetables (10).

“Jobfit” campaign supported by the Flemish Institute for Health Promotion and Disease Prevention initiated at the workplace. The aim is to promote healthy nutrition and physical activity behaviour among employees (11).

Just recently (2015) a sugar tax was introduced, as an initial step in a broader food plan, with the aim to convince the Belgian population to adopt a healthier lifestyle.

Furthermore, the SCORE risk calculator to assess the coronary risk was calibrated and validated for Belgium.

The health Guide developed by Domus Medica (association of Flemish physicians) is a tool that helps the practitioner in preparing a personalised prevention plan for the patient (12). A patient questionnaire allows the general practitioner to set up a personalised prevention plan with priorities providing the physician with an overview of the guidelines for the preventive approach for a specific patient.

Projects

In 2005 the Federal Public Health Service launched a National Food and Health plan aiming at problems related to obesity and associated non-communicable chronic diseases (13). It had the aim to inform the general population about campaigns to increase their physical activity level and to improve their eating habits. The results regarding dietary advice are available in the national food consumption survey. In January 2015, the responsibility of the national plan was transferred to the communities.

The 10.000 steps Ghent community based intervention was set up with the aim to promote physical activity in adults. An 8% increase in the number of people reaching the 10.000 steps was seen. Due to its positive outcome the intervention was adopted by several municipalities, supported by VIGEZ (9,14).

Education

Prevention is included in the training of medical students, occupational physicians, and nurses. Furthermore, classes on prevention strategies and preventive measures are largely embedded in the Master of Science in Health Education and Health Promotion, the Master of Science in Health Care Management and Policy and the Master of Science in Nursing and Midwifery. Also postgraduate training focuses on prevention. Up to date information on prevention guidelines are distributed to physicians in local professional journals.

References

1. Belgische Cardiologische Liga. Week van het Hart. 2015.
2. Belgian Heart Rhythm Association. Week of the Heart Rhythm. 2015.

3. Belgian resuscitation council. Restart a Heart day. 2015.
4. BELCHOL. 2015. <http://www.belchol.be> (in French and Dutch)
5. Belgian Working Group on Cardiovascular Prevention and Rehabilitation. 2016.
6. Vlaams actieplan voeding en beweging. 2015.
7. Smoking Legislation. 2015.
8. VIGEZ. 2015. <http://www.vigez.be/projecten> (in Dutch only)
9. VIGEZ. 10 000 Stappen. 2015. <http://www.10000stappen.be/> (in Dutch only)
10. VIGEZ. Tutti Frutti. 2015. <http://www.fruit-op-school.be/> (in Dutch only)
11. VIGEZ. Jobfit. 2015. <http://www.jobfit.be/> (in Dutch only)
12. Domus Medica. Health Guide. 2015.
13. Nationaal voedings- en gezondheidsplan. 2015.
14. De Cocker KA, De Bourdeaudhuij IM, Brown WJ, et al. Effects of "10,000 steps Ghent": a whole-community intervention. *Am J Prev Med* 2007 Dec;33(6):455-63.

V. Cardiac rehabilitation

For whom

Only phases 1 and 2 of cardiac rehabilitation are regulated by law in Belgium (KB/AR 10/05/1996, Belgisch Staatsblad/Moniteur Belge 20/06/1996). The indications giving right to reimbursement for cardiac rehabilitation include patients after acute myocardial infarction, coronary artery surgery, therapeutic percutaneous endovascular intervention on the heart and/or the coronary arteries, surgical intervention for a congenital or acquired malformation of the heart or valves, heart and/or lung transplantation and cardiomyopathy with dysfunction of the left ventricle. The indication "resistant angina pectoris" was deleted from the list in 2006 for financial reasons. Data from EUROASPIRE IV for Belgium (Ghent region, 2012-13) indicate that 78% of patients aged < 80years who were hospitalised for a coronary event were advised to follow cardiac rehabilitation; 91% of those advised actually participated and 83% attended more than half of all sessions (unpublished data). These participation rates are probably an overestimation of the clinical reality in Belgium, especially in areas where fewer cardiac rehabilitation centers are available (1). Recent data indicate that after hospitalisation for heart failure, only 9% of these patients participate in cardiac rehabilitation, a figure comparable to other European and American registries (2).

By whom and how

Belgian law stipulates the legal requirements for cardiac rehabilitation centers and specialists. Minimal requirements of personnel are a cardiologist (or a specialist in physical medicine, assisted by a cardiologist) specialised in cardiac rehabilitation, a physical therapist, a psychologist and a social nurse or social worker. A dietician and occupational therapist should also be available. A maximum of 30 "in-hospital" sessions of at least 30 minutes, and a maximum of 45 group sessions (max 8 patients in one group) of at least 60 minutes in the first 6 months after admission (10 months for transplant patients) is reimbursed. After heart or lung transplantation, 90 ambulatory sessions are reimbursed. At this moment, 51 hospital-based centres (1 centre/215.000 inhabitants) are officially recognised as cardiac rehabilitation centre. The start of participation in an ambulatory cardiac rehabilitation programme is usually between 1-2 weeks after an acute coronary syndrome or hospitalisation for heart failure and between 4-6 weeks after cardiac surgery.

Audit and costs

In 2011, the overall yearly cost of cardiac rehabilitation in Belgium was calculated at 8.8 million euro. There is currently no structured quality or outcome control organised for cardiac rehabilitation by the government. In 2008, the Belgian Working Group on Cardiovascular Prevention and Rehabilitation (BWGCPR) published a position paper, based on ESC guidelines, regarding requirements and quality control of cardiac rehabilitation (1). Recently, the BWGCPR collected outcome data in over 2000 patients from 6 cardiac rehabilitation centers. The average age of these patients was 62 years

(20% women) of whom 29% entered cardiac rehabilitation after acute coronary syndrome, 46% after cardiac surgery, 13% after elective PCI, 7% after hospitalisation for heart failure and 5% for other reasons. Peak VO₂ increased from 18.9 ml/kg/min to 22.6 ml/kg/min (20% increase) after a mean number of 32 training sessions. The improvement of peak VO₂ was comparable between the 6 centers after correction for baseline characteristics (Unpublished data). Currently the BWGCPR is performing an audit for quality control in several cardiac rehabilitation centers. Data will become available by the end of 2016.

References

1. Dendale P, Dereepe H, De SJ, et al. Position paper of the Belgian Working Group on Cardiovascular Prevention and Rehabilitation: cardiovascular rehabilitation. *Acta Cardiol* 2008 Dec;63(6):673-81.
2. Pardaens S, Willems A, Vande Kerckhove B, et al. Participation in cardiac rehabilitation after hospitalization for heart failure: a report from the BIO-HF registry. *Acta Cardiologica* 2015; 70(2):141-147.

VI. The Future

Needs

Despite a substantial decrease in CVD morbidity and mortality during the last decades, CVD is still associated with a major burden in Belgium, in terms of premature mortality, DALY's and health care costs. With the ageing population and the increase in the prevalence of obesity and diabetes this burden is likely to continue. This poses a challenge for the health care system, especially with the restricted financial resources. The main challenge of the upcoming decade will be to maintain a high quality, payable and accessible health care system.

Possibilities & Obstacles

The last 2 decades, health care expenses are growing faster than the growth of wealth in Belgium (3 fold increase versus a 2 fold increase) which is unsustainable on the long term (1). Furthermore, overpopulation and migration will increase the pressure on the financial means. The scarce resources complicate the decision about the allocation of the budget to prevention and medical treatment.

Especially with an ageing, less economic active population, resource use allocation will be a huge challenge in the upcoming years. Furthermore, population ageing is also associated with increased morbidity. The actions and treatments targeting CVD are often a way to delay the onset of the disease in most instances, therefore in the long term CVD is not always prevented. Hence, elderly are at high risk to develop CVD. Appropriate treatment will be needed in order to minimalise the associated burden.

Another issue which will have to be further targeted consists of patient non-compliance and non-adherence, not only with regard to medication, but also for lifestyle changes.

Ideally these lifestyle changes should be targeted at the broader population, however whereas communities are already making effort to promote healthy lifestyle habits, prevention is not always a priority for medical doctors, nor for the health insurance systems.

Also, environmental changes such as the rise of particulate matter air pollution and noise pollution and its possible effect on cardiovascular risk will have to be taken into account when setting priorities.

Furthermore a debate is being held on the use of trans fatty acids in industrial prepared food.

Plans

The VIP² quality indicator project will be further elaborated. Cardiology indicators will be brought into use, which is a first step to improve the health care quality. Furthermore the reform of the health care system, in particular the changes in the hospital landscape and hospital funding will make the healthcare more efficient, equitable, accessible, producing better quality of care taking into account the patient needs.

- ✓ Increased efficiency and quality of care with intelligent use of the available resources
- ✓ Hospital reinvented, tailored to the patient today, including networks of hospitals
- ✓ New financing system with correctly reimbursed patient care.
- ✓ Rewarding quality of care based on foreign pay for performance practices
- ✓ Transparency in financing of specific projects (innovation/ academic assignment)
- ✓ Simplifying the financing rules with less administrative burden
- ✓ The physician has the key role in the functioning of hospitals and retains control about the honorarium
- ✓ Maintain the strengths (accessibility, supply of care, proximity, no significant waiting lists, high perceived quality, affordable, strong commitment of health care providers and facilities) and eliminate weaknesses (underfunding of responsible care, complex financing system, administrative burden, inefficient resource deployment, performance driven not quality driven, fragmentation of care)

In addition, a continuous monitoring of the population's health is planned every five year, investigating the risk profile and chronic disease prevalence.

In the upcoming years, the risk factors for chronic diseases will be further targeted by initiating campaigns and by educating the population about healthy lifestyle and the risk of unhealthy habits.

References

1. Itinera.
http://www.itinerainstitute.org/sites/default/files/articles/pdf/20130215gezondheidszorguitgaven_jk_nl.pdf (in Dutch only)