9. BREAST CANCER SCREENING (P-6; P-7)

9.1. Documentation sheet

Description	Proportion of women aged 50-69 having received at least one mammogram within the last two years 1. Within the context of the organised screening programme (mammogram with a specific billing code for screening) 2. Within or outside the context of the organised screening programme (all mammograms)
Calculation	Numerator: number of women aged 50-69 in a given year, having received a (screening) mammogram within the year or the preceding year. Denominator: Total number of women aged 50-69 affiliated to a Sickness fund in a given year
Rationale	In Belgium, breast cancer is by far the first female cancer in incidence (10 962 cases in 2019),[h] and is also one of the leading cause of death in females (34.6 deaths per 100 000 population in 2017)[i]. Mammographic screening is considered an efficient mean to improve the prognosis. Therefore, since 2001 in Flanders and 2002 in Brussels and Wallonia, a national breast cancer screening programme exists for women aged 50-69 years[j]. Each woman aged 50 to 69 years receives every 2 years an invitation to participate in the screening programme. The mammograms realised in the programme follow a specific procedure to insure the quality and effectiveness, and have their own RIZIV-INAMI billing codes. The examination is free of charge for the women. Mammograms having the specific reimbursement code are referred to as "organised screening mammograms" in this report in order to distinguish them from the opportunistic screening using mammogram (i.e. outside the programme). **The first indicator** measures the proportion of **women aged 50-69 undergoing a mammogram in the framework of the organised screening**, whereas the **second measures the proportion of women aged 50-69 undergoing a mammogram within or outside the organised programme** (all mammograms). The first indicator measures the success of the organised programme, the second the whole coverage of mammographic screening in Belgium. There is a generally accepted target of 75% for the breast cancer screening coverage.[1]
Data source	IMA-AIM atlas (population results); IMA-AIM data (results by chronic status)
Technical definitions	RIZIV-INAMI billing codes: 450192-450203 (mammogram within the screening programme: organised screening mammograms), 450096, 461090 (other mammography). In the IMA-AIM database only the year of birth is available and not the exact date of birth. The age is the difference between the calendar year and the year of birth (snapshot on the 30th of June or the 31st of December). If the woman's age falls between 50 and 69 years, she enters the denominator. A distinction is made between chronic versus non-chronic patients. Status for persons with a chronic illness in IMA-AIM database: entitlement is observed through data from the InterMutualistic Agency (IMA-AIM), variables pp3015, pp3016 or pp3017. If the value for one of these 3 variables is equal to 1 or 2, the individual has an entitlement and is assumed to suffer from a chronic illness.

h http://www.kankerregister.org/Statistiques_tableaux%20annuelle (last access: 28 October 2021)

i https://www.healthybelgium.be/en/health-status/mortality-and-causes-of-death/overall-mortality-by-cause (last access: 28 October 2021)

j http://www.zorg-en-gezondheid.be/Ziektes/Vlaams-bevolkingsonderzoek-naar-borstkanker/ and http://www.sante.cfwb.be/index.php?id=cancerdusein0 (last access: 21 October 2021)

Limitations	It is impossible to distinguish opportunistic screening mammograms (i.e. mammogram made for screening purposes but outside the organised programme) from diagnostic mammograms (i.e. mammogram made for diagnostic reasons, e.g. in women with symptoms or at high risk). Since the fraction of diagnostic mammograms among all mammograms is quite low, the rate of mammograms outside the screening is an acceptable proxy of the opportunistic screening.[2] Women with a bilateral mastectomy and women with a breast cancer have not been excluded from the target population. For all those reasons, the total coverage is likely to be slightly overestimated. The RIZIV-INAMI chronic illness status is allocated on the basis of health expenditure. Some people may be entitled to the status even though they do not actually suffer from a chronic disease and some patients who do suffer from a chronic disease may not be entitled to the status.
International comparability	The OECD publishes the proportion of women aged 50-69 having had a bilateral mammography within the past two years (for the majority of countries), preferably from programme (administrative billing) data, otherwise from survey data; the OECD thus warns for a limited comparability. For Belgium, OECD results are available from IMA-AIM data under the label "programme data". [3]
Dimension	Accessibility of preventive care
Related indicators	Breast Cancer 5-year survival rate (**not calculated** in this report, see [4]) Breast cancer screening mammography in women aged 40-49 (**not calculated** in this report, see [4]))

9.2. Results

9.2.1. Belgium

The total coverage of breast cancer screening was 59.7% in 2019.[5] This coverage has improved at the early 2000s (it was 43% in 2003) but slightly decreased since 2016 (62%). From 2003 to 2019, the organised screening programme coverage has risen from 21.5% to 33.0% (see Figure 20) . Despite these increases, the overall coverage is still lower than the 75% European target screening rate.[6]

The total breast cancer screening coverage (organised screening mammograms and other mammograms) is higher for younger women (50-54 years) within the target age group (50-69 years) (see Table 14).

In both organised and global screening, vulnerable women (those entitled to increased reimbursement) have lower coverage than the remaining population (respectively 22.4% versus 34.6% and 45.5% versus 63.1% in 2019) (see Table 14). This is in line with evidence from other countries: several countries have income inequalities in breast cancer screening (e.g. Czech Republic, Denmark, France, New Zealand and Poland).[7] The breast cancer screening coverage by level of income is considered by the OECD as an indicator of access of care; see also the *equity and inequalities* section in Devos et al., 2019 [4].

The organised screening coverage was still higher in Flanders (50.1%) than in Brussels (10.4%) and Wallonia (4.7%) in 2019 (see Table 14, Figure 20).

9.2.2. By RIZIV-INAMI status for persons with chronic illness

In 2019, the **patients with chronic illness status participated less frequently** in the organised **screening mammograms** than the patients without chronic disease status (chronic status: 28.2% vs not chronic status: 33.0%, difference: 4.8%). This is also the same conclusion for the total breast cancer screening coverage (organised screening mammograms and other mammograms) (chronic status: 58.8% vs not chronic status: 59.9%, difference: 1.1%), but the difference is less important (see Table 14).

Looking at the results by age group, we observed that **women aged 65-69 with chronic illness status still participated more frequently in the organised** screening mammograms than women of the same age but without chronic status. However, this is no longer the case when looking at the total number of mammograms. In this case, it is mainly younger women

(50-59 years) with chronic status who are more frequently covered than patients of the same age without chronic status. In other words, young women with chronic disease are more frequently covered by mammography than young women without chronic disease (see Table 14). Analyses of the breast cancer screening coverage by age group and by region have also been performed to further explore these important observations.

In the women entitled to the chronic illness status in Flanders, the youngest women (50-54 years) are the most frequently covered by the organised breast cancer screening program. In Brussels and Wallonia, the organised breast screening coverage increases with age. When looking at the patients not entitled to the chronic status, the observation is the same as in the chronic patients in Brussels and Wallonia but in Flanders, this is the women aged 60-64 years who are the most frequently covered by breast cancer screening (see Table 15). In Flanders, the patients who are not entitled to the chronic illness status are more frequently covered by the organised breast screening program than the patients with the chronic status whatever the age group. In Brussels, the observation is the opposite, women with chronic illness status are more frequently covered by the breast screening the women without the chronic status. In Wallonia, the results by chronic status are more heterogenous, in the age-group 55-65 years, chronic patients are more frequently covered by the organised breast screening than the non-chronic patients and in the other age-groups, this is the women entitled to the chronic status who are less frequently covered by the breast screening than the non-chronic patients (see Table 15).

When looking at the total mammograms, **the youngest women (50-54 years) are the most frequently covered by breast screening whatever the region** (Wallonia, Brussels or Flanders) **and the chronic status** (entitled or not). In Brussels and Wallonia, the women entitled to the chronic illness status are more frequently covered by mammograms in every age group. In Flanders, results are the opposite, the women entitled to the chronic status are less frequently covered than the women without chronic illness status (see Table 15).

In both organised screening mammograms and total mammograms groups, vulnerable women (those entitled to increased reimbursement) with chronic status have a lower coverage than the women without chronic illness status. However, by looking at the total mammograms, **vulnerable women with chronic illness status are more covered than the women with vulnerable status but without chronic illness** (vulnerable and chronic status: 47.8% vs not vulnerable and chronic status: 44.4%) (see Table 14).

In Brussels and Flanders, the women without chronic illness status are more frequently covered by the organised screening program than the women with chronic illness status. In Wallonia, the proportions are the same whatever the chronic status. By looking at the **total mammograms**, conclusions are quite different. In this case, **women who suffer from a chronic illness and live in Brussels and Wallonia are more covered** than the women without chronic illness from the same regions. **In Flanders**, the **women with chronic illness status are less covered** than women without chronic illness status (chronic status: 63.0% vs not chronic status: 65.7%) (see Table 14).

Since 2014, the coverage rate does not vary much, either for chronic or non-chronic patients and among the organised screening mammograms or total mammograms.

Among non-chronic patients and total mammograms, we observe that **Flanders maintains a better coverage rate than the other regions over time** with a coverage that remains around 68%, while a slight decrease in coverage is observed in Wallonia and Brussels. In 2019, a better coverage rate is observed in Wallonia, which was not the case in 2014. Among patients with chronic status, the coverage trend remains almost identical since 2014. The coverage rate is better in Flanders than in Brussels and Wallonia.

Among screening organised mammograms, Flanders maintains a rate of around 50% in non chronic patients and of 45% in chronic patients, whereas Brussels and Wallonia report rates around 12 and 8% whatever the chronic status (see Figure 22 and Figure 24).

Table 14 – Coverage (in %) of breast cancer screening in women 50-69 years old (organised screening mammograms and total mammograms coverage) (2019), by chronic disease status

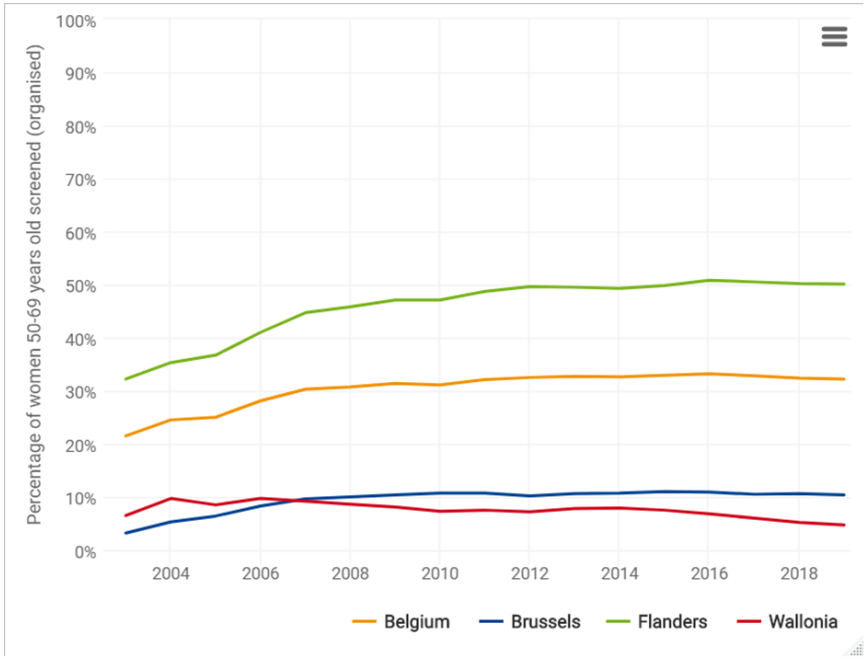
Variable	Category	Organised screening mammograms	Organised screening mammograms	Organised screening mammograms	Total coverage	Total coverage	Total coverage
		Chronic status	Not chronic status	Total	Chronic status	Not chronic status	Total
Age (years)	50-54	29.9	33.8	33.3	64.5	64.3	64.3
	55-59	26.2	29.5	29.0	56.7	56.0	56.1
	60-64	30.1	35.8	34.8	59.9	61.2	60.9
	65-69	27.0	33.4	32.0	55.8	57.5	57.1
	Total (50-69)	**28.2**	**33.0**	**32.2**	**58.8**	**59.9**	**59.7**
Entitlement to increased reimbursement	No	31.7	35.0	34.6	65.2	62.8	63.1
	Yes	22.1	22.6	22.4	47.8	44.4	45.5
Region of residence	Brussels	12.0	10.0	10.4	55.5	50.0	51.0
	Flanders	45.6	50.9	50.1	63.0	65.7	65.3
	Wallonia	4.7	4.7	4.7	53.2	51.1	51.5
Province of residence	Bruxelles-Capitale	12.0	10.0	10.4	55.5	50.0	51.0
	Antwerpen	43.1	48.8	47.9	61.0	64.6	64.1
	Limburg	54.3	60.4	59.3	67.0	69.1	68.8
	Oost-Vlaanderen	46.5	52.1	51.2	64.0	66.8	66.3
	Vlaams Brabant	39.0	42.8	42.3	63.0	64.7	64.4
	West-Vlaanderen	46.5	53.1	52.1	61.3	64.7	64.1
	Hainaut	6.9	7.0	4.9	59.4	57.3	52.2
	Liège	5.0	4.9	3.1	53.9	51.8	49.2
	Luxembourg	3.0	3.1	7.3	51.5	48.8	46.8
	Namur	7.6	7.2	4.7	49.0	46.4	51.8
	Brabant Wallon	4.9	4.7	7.0	52.2	51.8	57.5

Source: IMA Atlas 2019

Table 15 – Coverage (in %) of breast cancer screening in women (organised screening mammograms and total mammograms coverage), by chronic disease status, by age and by region (2019)

Chronic - organised				
	Brussels	**Wallonia**	**Flanders**	**Belgium**
50-54	10.3	3.7	49.1	29.9
55-59	12.0	4.7	41.5	26.2
60-64	12.5	5.2	48.6	30.1
65-69	12.9	5.0	44.0	41.5
Total (50-69)	12.0	4.7	45.6	28.2
Not chronic - organised				
	Brussels	**Wallonia**	**Flanders**	**Belgium**
50-54	8.8	3.8	52.8	33.8
55-59	10.0	4.5	44.9	29.5
60-64	10.9	5.1	55.1	35.8
65-69	10.8	5.7	51.1	33.4
Total (50-69)	10.0	4.7	50.9	33
Chronic - total				
	Brussels	**Wallonia**	**Flanders**	**Belgium**
50-54	63.1	58.3	68.6	64.5
55-59	55.0	54.1	58.5	56.7
60-64	52.9	52.7	65.5	59.9
65-69	52.5	49.5	60.6	55.8
Total (50-69)	55.5	53.2	63.0	65.2
Not chronic - total				
	Brussels	**Wallonia**	**Flanders**	**Belgium**
50-54	54.3	55.6	70.2	64.3
55-59	48.6	51.2	59.4	56.0
60-64	48.4	49.3	69.1	61.2
65-69	47.4	47.5	64.1	57.5
Total (50-69)	50.0	51.1	65.7	59.9

Figure 20 – Coverage of breast cancer screening (all mammograms) in women 50-69 years old, by region, year (organised left side; total right side)



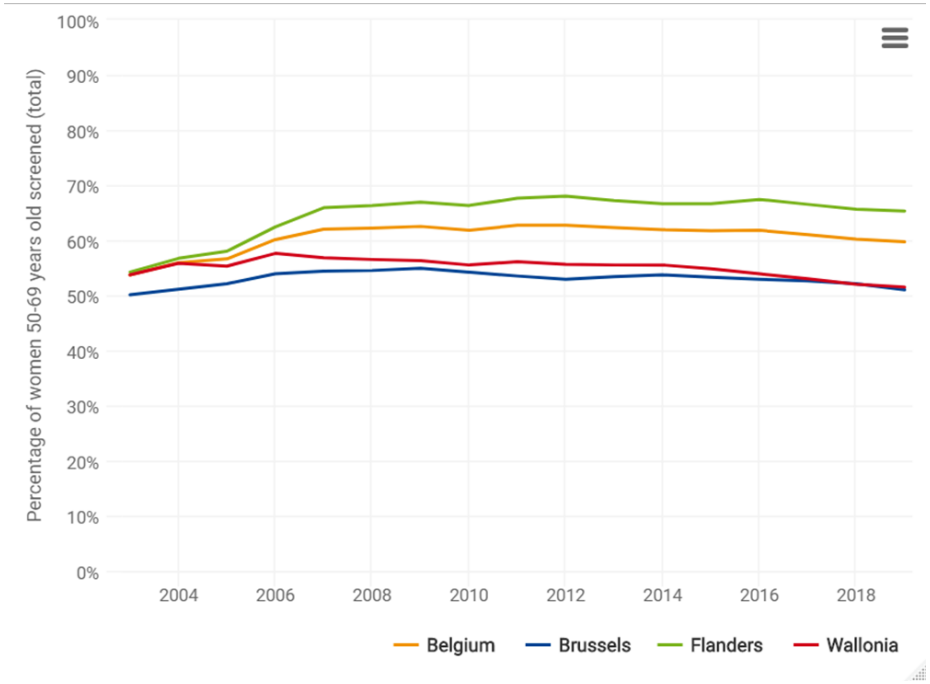
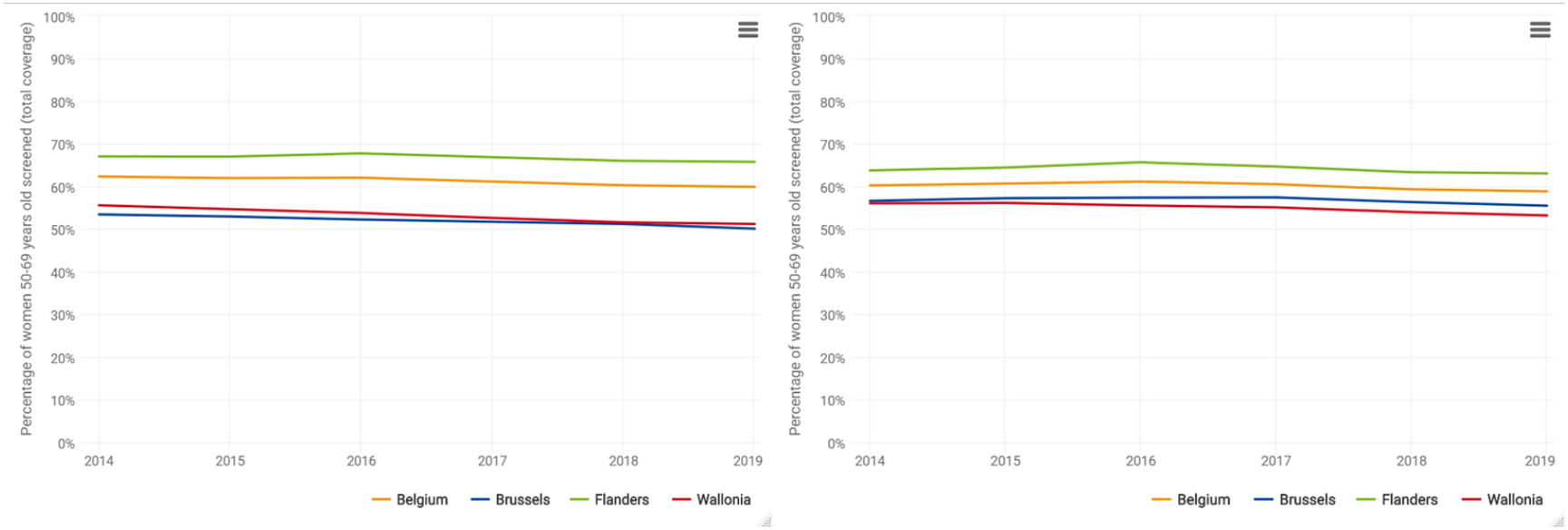


Figure 21 – Coverage of breast cancer screening (all mammograms) in women 50-69 years old, by region, year and NIDHI chronic disease status (not chronic disease status left side; chronic disease status right side)



Data: IMA – AIM (2014-19); figure: KCE

Figure 22 – Coverage of breast cancer screening (organised mammograms) in women 50-69 years old, by region, year and NIDHI chronic disease status (not chronic disease status left side; chronic disease status right side)

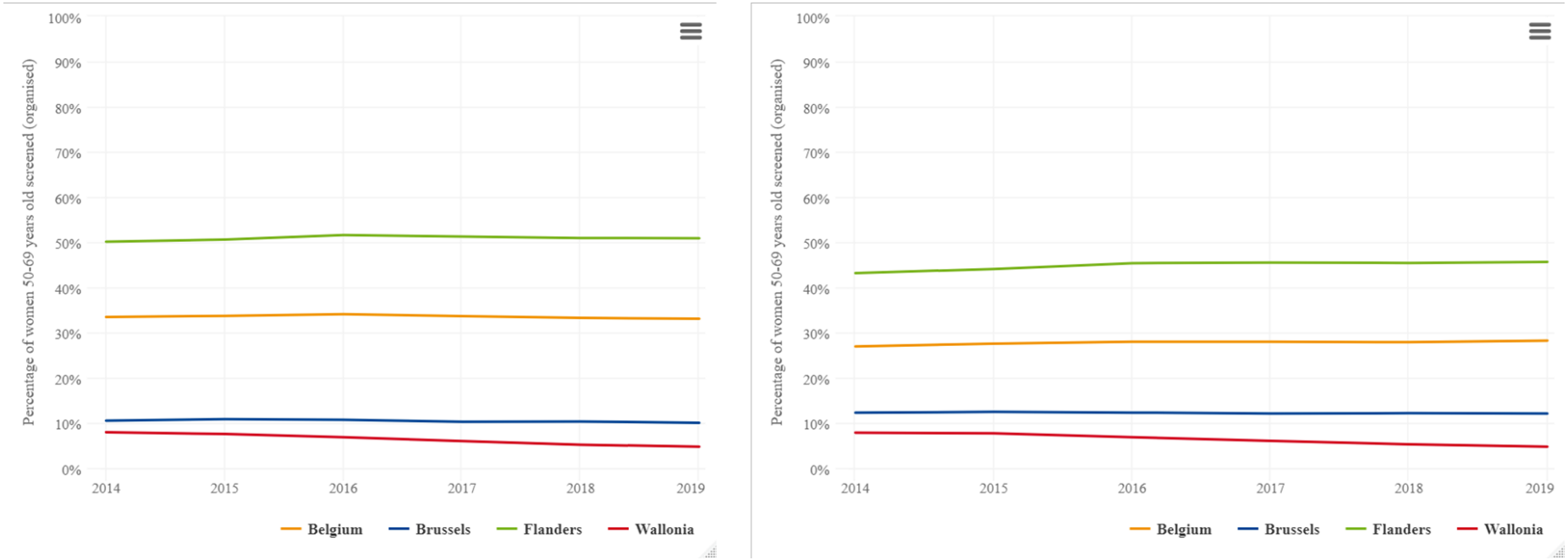
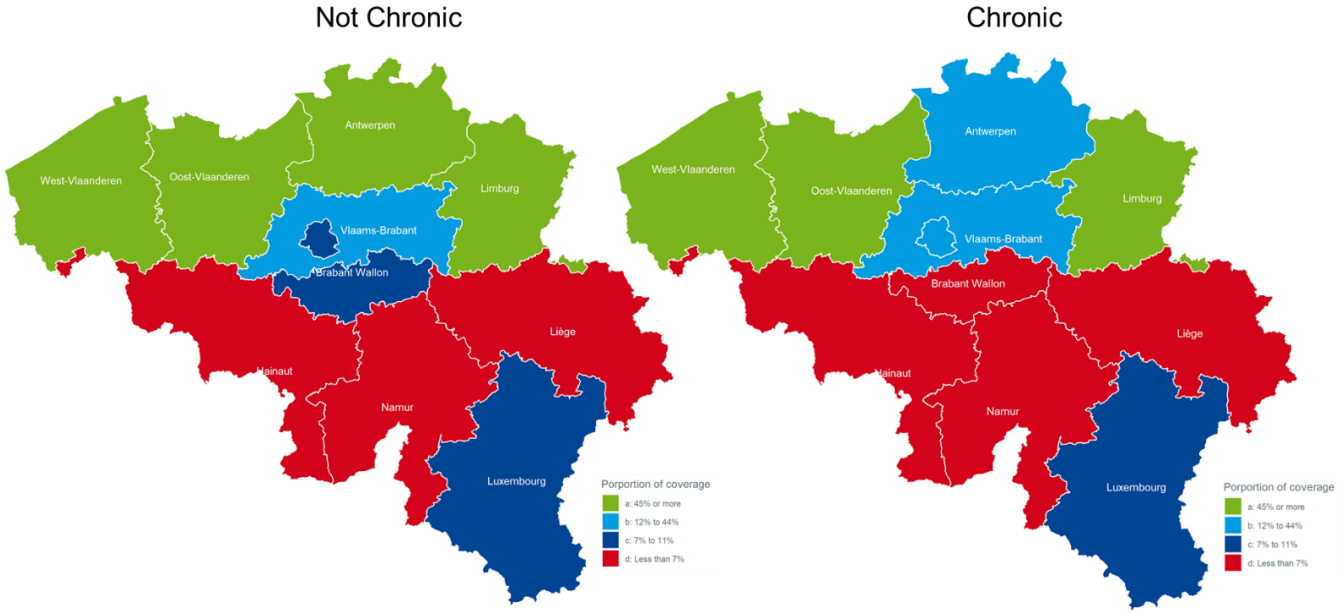
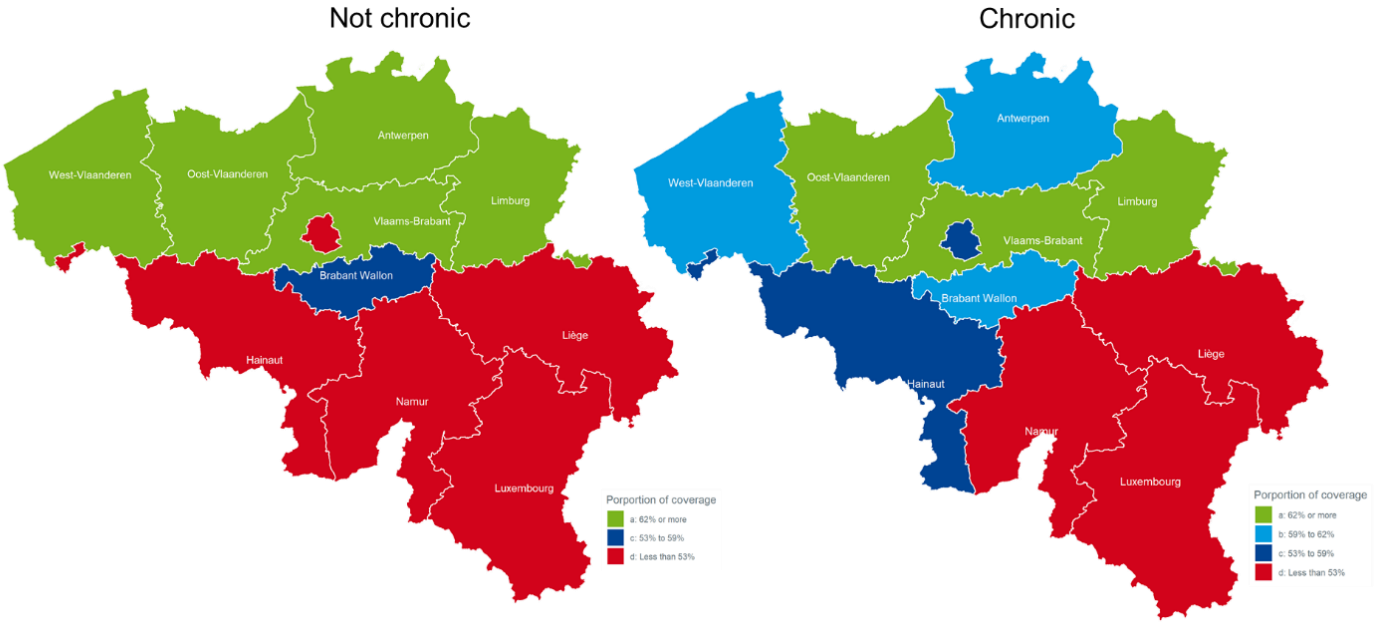


Figure 23 – Coverage of breast cancer screening (organised) in women 50-69 years old, by province (2019) and by chronic status (not chronic: left side; chronic right side)



Data: IMA – AIM 2019, figure KCE

Figure 24 – Coverage of total mammograms in women 50-69 years old, by province (2019) and by chronic status (not chronic: left side; chronic right side)

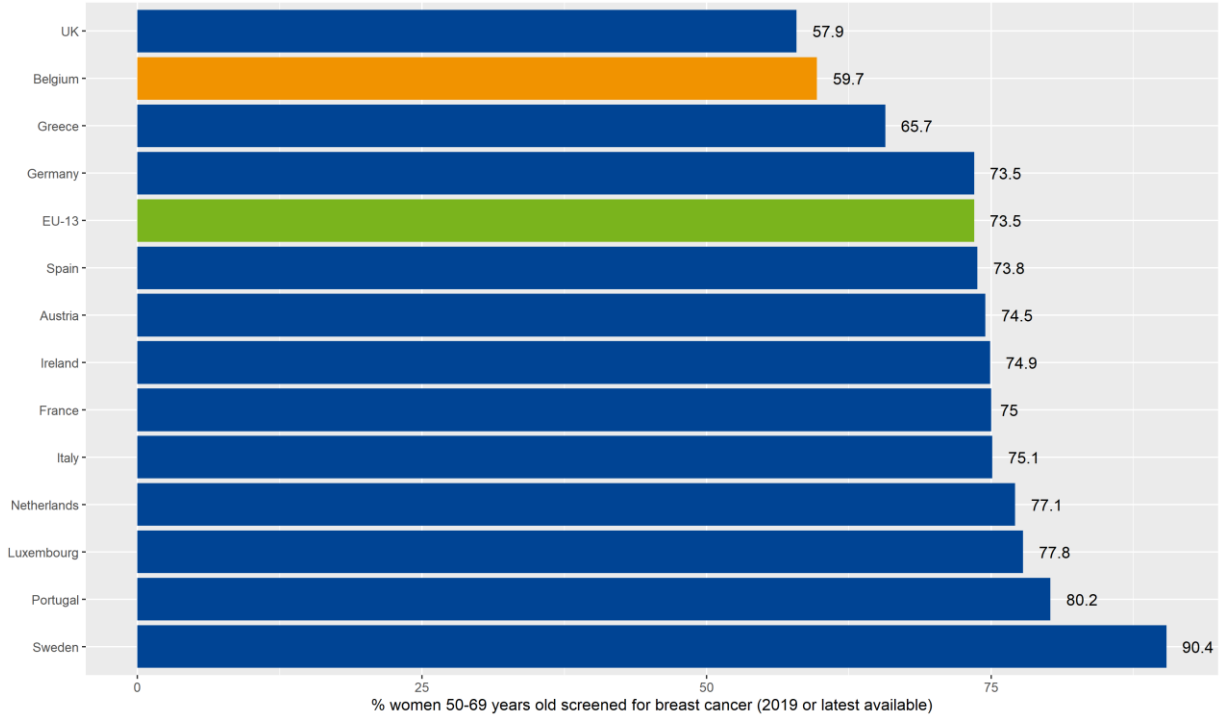


Data: IMA – AIM 2019, figure KCE

9.2.3. International comparison

Only the total mammogram coverage can be compared with other countries; comparisons should be taken with caution, as they mix survey and programme data. The Belgian coverage is below the EU-13 average (59.7% vs 73.5%). In 2019, six countries reach the 75% target coverage: France, Italy, Netherlands, Luxembourg, Portugal and Sweden (Figure 25).

Figure 25 – Coverage of breast cancer screening: international comparison (2019 (or latest available year))



Source: OECD Health statistics 2021, for Belgium IMA atlas, Figure KCE, 2014= UK, Sweden, Germany, France; 2015=Ireland; 2019: Austria, Belgium, Greece, Italy, Luxembourg, Netherlands, Portugal; 2020: Spain

Key points

- **The total coverage of breast cancer screening was 59.7% in 2019. This coverage has improved in the early 2000s (it was 43% in 2003) but slightly decreased since 2016 (62%). In 2019, Flanders reached the highest rate at 65.3% while the lowest rate of 51.0% was achieved in Brussels (51.5% in Wallonia).**
- **The breast cancer screening coverage in Belgium fails to achieve the commonly accepted target of 75%, which is reached by France, Italy, the Netherlands, Luxembourg, Portugal and Sweden in 2019. It is also lower than the EU average (73.5%).**
- **Overall patients with RIZIV-INAMI chronic illness status are less covered by a mammogram than non-chronic patients (organised or total mammograms). However, this result varies according to age group, vulnerable status (entitled to increased reimbursement) and region. Younger women (50-59 years) with chronic illness status are more frequently covered by breast cancer screening (total mammograms) than women of the same age without chronic illness.**

References

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