



## Corrigendum

## Corrigendum to “Cancer mortality by migrant background in Belgium during the 2000s: Patterns and social determinants” [Cancer Treat. Res. Commun. (2017) 19–24]



Wanda Monika Johanna Van Hemelrijck<sup>a,b</sup>, Helga A.G. de Valk<sup>b</sup>, Hadewijch Vandenneede<sup>a</sup>

<sup>a</sup> Vrije Universiteit Brussel, Belgium

<sup>b</sup> Netherlands Interdisciplinary Demographic Institute/KNAW/Population Research Centre, University of Groningen, The Netherlands

The authors regret to inform that an error was made in the above-mentioned manuscript during the lexis expansion of the original dataset. This expansion was performed in order to correct the dataset for attained age during follow-up (2001–2011), rather than working with age at census (2001) to calculate cancer mortality rates and rate ratios.

The number of site-specific cancer cases have been affected by this oversight, and as a result the rates and rate ratios in [Tables 2–5](#) are changed (see below for the correct numbers). None of the mortality rate ratios changed direction after recalculation, but some differences between migrant background groups and Belgian natives are statistically significant in the corrected tables where they were not in the original manuscript (i.e. the 95% confidence interval of the mortality rate ratio no longer includes value ‘1’).

Overall interpretation and conclusions in the paper do not change, only some minor changes to the text apply which we outline below. Numbers listed in the results section of the paper should be updated in line with the corrected tables, and we kindly refer the reader to these in order to obtain the right results.

We hereby list corrections to the results section:

- p.20 – 3.2 Cancer mortality by migrant background: patterns  
‘FG Moroccans and Turks of both sexes have the lowest ISMRs for all-cancer, colorectal cancer and cancer of the head and neck. Among women, their lung and breast cancer mortality is also lowest.’
- p.20 – 3.2 Cancer mortality by migrant background: patterns  
‘FG Italians also have a high liver cancer ISMR (men: 15.6 [12.2–19.6]; women: 5.6 [3.5–8.5]) but a low ISMR for cancer of the head and neck (men: 7.8 [5.4–10.9]; women: 1.9 [0.7–3.9]).’
- p.23 – 3.3 Cancer mortality by migrant background: determinants  
‘Male MRRs show sharper decreases, as do FG Moroccan and Turkish MRRs compared with MRRs for females and individuals from more industrialised countries.’

The authors would like to apologise for any inconvenience caused.

**Table 2**  
Men aged 40–69: All-cancer, lung, colorectal, stomach, head and neck, liver, and prostate cancer indirectly standardized mortality rate (ISMR) per 100 000 person years, 95% confidence interval (CI) and observed number of deaths (N) by migrant background.  
Source: authors' calculations

	All cancers		Lung cancer		Colorectal cancer		Stomach cancer		Cancer of the head and neck		Liver cancer		Prostate cancer	
	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N
<i>Belgian</i>	301.4 [298.8–304.1]	50,752	109.4 [107.8–111.0]	18,420	25.2 [24.4–26.0]	4,243	9.0 [8.5–9.4]	1,512	21.6 [20.9–22.3]	3,632	8.8 [8.3–9.2]	1,477	11.0 [10.5–11.5]	1,846
<i>Italian, FG</i>	253.2 [238.8–268.3]	1,147	97.2 [88.4–106.7]	446	23.6 [19.3–28.5]	108	9.2 [6.6–12.4]	41	7.8 [5.4–10.9]	34	15.6 [12.2–19.6]	72	5.1 [3.2–7.5]	24
<i>Italian, SG</i>	271.4 [246.0–298.7]	419	99.0 [83.4–116.7]	142	24.5 [16.9–34.3]	34	9.2 [5.1–15.2]	15	11.2 [7.1–16.8]	23	10.3 [5.6–17.3]	14	15.4 [8.4–25.9]	14
<i>French, FG</i>	357.5 [332.4–384.0]	751	137.9 [122.5–154.7]	290	23.0 [17.0–30.6]	48	7.6 [4.4–12.4]	16	34.3 [27.0–43.1]	74	20.9 [15.2–28.0]	44	10.4 [6.4–15.8]	21
<i>French, SG</i>	413.6 [360.5–472.4]	218	153.7 [121.5–191.9]	78	29.8 [16.6–49.3]	15	11.1 [4.0–24.2]	6	36.6 [22.9–55.5]	22	14.0 [5.6–29.1]	7	9.4 [2.4–24.2]	4
<i>Dutch, FG</i>	230.9 [210.8–252.5]	481	70.2 [59.3–82.5]	147	25.2 [18.9–33.0]	53	6.3 [3.3–10.8]	13	11.4 [7.2–17.1]	23	6.6 [3.6–11.2]	14	11.2 [7.1–16.6]	24
<i>Dutch, SG</i>	276.3 [238.8–318.1]	194	97.2 [75.3–123.5]	67	23.2 [13.2–37.8]	16	11.2 [4.8–22.2]	8	16.1 [8.3–28.3]	12	1.5 [0.0–8.4]	1	14.0 [6.3–26.6]	9
<i>Moroccan, FG</i>	208.7 [190.2–228.1]	487	90.9 [79.0–104.1]	209	10.4 [6.6–15.5]	24	17.3 [12.4–23.5]	41	5.0 [2.6–8.8]	12	9.2 [5.7–14.1]	21	8.9 [5.5–13.8]	20
<i>Moroccan, SG</i>	475.0 [215.4–905.6]	9	366.6 [115.7–862.3]	5	No deaths	0	No deaths	0	No deaths	0	No deaths	0	No deaths	0
<i>Turkish, FG</i>	214.0 [187.5–243.3]	234	93.9 [76.4–114.3]	100	6.6 [2.6–13.7]	7	8.9 [4.3–16.5]	10	4.2 [1.3–9.8]	5	6.7 [2.6–13.9]	7	8.3 [3.6–16.5]	8
<i>Turkish, SG</i>	458.2 [119.0–1184.8]	4	No deaths	0	No deaths	0	94.9 [0.0–544.0]	1	No deaths	0	No deaths	0	No deaths	0

FG: First generation; SG: Second generation

**Table 3**  
Women aged 40–69: All-cancer, lung, colorectal, stomach, head and neck, liver, and breast cancer indirectly standardized mortality rate per 100 000 person years (ISMR), 95% confidence interval (CI) and observed number of deaths (N) by migrant background.  
Source: authors' calculations

	All cancers		Lung cancer		Colorectal cancer		Stomach cancer		Cancer of the head and neck		Liver cancer		Breast cancer	
	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N	ISMR [95% CI]	N
<i>Belgian</i>	201.0 [198.8–203.1]	34,529	36.8 [35.9–37.7]	6,317	16.3 [15.7–16.9]	2,795	3.6 [3.3–3.9]	613	4.1 [3.8–4.4]	707	3.5 [3.2–3.8]	602	51.9 [50.8–53.0]	8,915
<i>Italian, FG</i>	157.5 [145.1–170.1]	594	19.7 [15.5–24.8]	74	14.9 [11.3–19.3]	58	6.8 [4.4–10.0]	26	1.9 [0.7–3.9]	7	5.6 [3.5–8.5]	22	31.6 [26.1–37.9]	116
<i>Italian, SG</i>	203.0 [182.4–225.2]	355	37.2 [28.9–47.2]	68	15.2 [9.6–22.8]	23	7.4 [3.8–12.9]	12	6.0 [3.0–10.8]	11	3.5 [1.1–8.2]	5	54.9 [45.0–66.4]	107
<i>French, FG</i>	206.9 [189.2–225.7]	505	36.5 [29.4–44.9]	90	14.4 [10.1–20.1]	35	3.3 [1.4–6.5]	8	6.9 [4.0–11.0]	17	5.4 [2.9–9.3]	13	52.9 [44.2–62.8]	130
<i>French, SG</i>	264.3 [226.3–306.9]	172	73.4 [54.1–97.4]	48	25.5 [14.5–41.5]	16	3.1 [0.3–11.5]	2	6.1 [1.6–15.8]	4	1.6 [0.0–9.3]	1	58.2 [41.4–79.6]	39
<i>Dutch, FG</i>	187.3 [168.9–207.0]	382	46.2 [37.4–56.6]	94	14.6 [9.8–20.8]	30	4.4 [2.0–8.4]	9	2.9 [1.1–6.4]	6	2.9 [1.0–6.4]	6	43.5 [34.9–53.6]	88
<i>Dutch, SG</i>	177.1 [143.4–216.3]	96	37.0 [22.6–57.3]	20	11.4 [4.1–25.0]	6	3.7 [0.4–13.7]	2	3.7 [0.4–13.7]	2	1.9 [0.0–10.9]	1	52.3 [35.0–75.1]	29
<i>Moroccan, FG</i>	136.4 [120.3–154.1]	260	11.9 [7.6–17.9]	23	12.7 [8.0–19.0]	23	8.6 [4.9–14.0]	16	1.6 [0.3–4.6]	3	7.8 [4.3–13.1]	14	31.3 [24.0–40.2]	62
<i>Moroccan, SG</i>	240.3 [95.2–497.8]	7	80.4 [7.6–295.6]	2	51.0 [0.0–292.1]	1	No deaths	0	No deaths	0	53.9 [0.0–308.9]	1	54.8 [5.2–201.6]	2
<i>Turkish, FG</i>	123.8 [103.8–146.6]	135	13.6 [7.6–22.5]	15	3.9 [1.0–10.0]	4	10.4 [5.2–18.6]	11	0.9 [0.0–5.2]	1	5.9 [2.1–12.9]	6	20.2 [12.8–30.4]	23
<i>Turkish, SG</i>	No deaths	0	No deaths	0	No deaths	0	No deaths	0	No deaths	0	No deaths	0	No deaths	0

FG: First generation; SG: Second generation

**Table 4**  
Men aged 40–69: All-cancer, lung, colorectal, stomach, head and neck, and prostate cancer mortality rate ratio (MRR) and 95% confidence interval (CI) by migrant background.  
Source: authors' calculations

	Belgian	Italian, FG	Italian, SG	French, FG	French, SG	Dutch, FG	Dutch, SG	Moroccan, FG	Moroccan, SG	Turkish, FG	Turkish, SG
<b>All cancers</b>	Model 1	1.00 (Ref.)	0.83 [0.78–0.88]	0.94 [0.86–1.04]	1.21 [1.12–1.30]	1.41 [1.23–1.61]	0.77 [0.70–0.84]	0.92 [0.80–1.06]	0.69 [0.63–0.75]	0.73 [0.64–0.82]	2.04 [0.76–5.44]
	Model 2	1.00 (Ref.)	0.70 [0.66–0.74]	0.85 [0.77–0.94]	1.03 [0.96–1.10]	1.19 [1.04–1.36]	0.82 [0.75–0.90]	0.90 [0.78–1.04]	0.47 [0.43–0.52]	1.47 [0.77–2.83]	1.53 [0.57–4.08]
<b>Lung cancer</b>	Model 1	1.00 (Ref.)	0.88 [0.80–0.96]	0.95 [0.80–1.12]	1.28 [1.14–1.44]	1.43 [1.15–1.79]	0.65 [0.55–0.76]	0.89 [0.70–1.14]	0.83 [0.72–0.95]	0.88 [0.72–1.07]	No deaths
	Model 2	1.00 (Ref.)	0.70 [0.64–0.77]	0.84 [0.71–0.99]	1.04 [0.93–1.17]	1.17 [0.94–1.47]	0.70 [0.60–0.82]	0.86 [0.68–1.10]	0.52 [0.45–0.60]	2.91 [1.21–7.02]	No deaths
<b>Colorectal cancer</b>	Model 1	1.00 (Ref.)	0.93 [0.80–1.09]	1.00 [0.77–1.31]	0.90 [0.73–1.12]	1.34 [0.94–1.91]	0.97 [0.78–1.20]	0.88 [0.58–1.34]	0.55 [0.42–0.74]	No deaths	No deaths
	Model 2	1.00 (Ref.)	0.89 [0.76–1.04]	0.98 [0.75–1.27]	0.84 [0.68–1.04]	1.27 [0.89–1.80]	0.98 [0.79–1.22]	0.87 [0.57–1.33]	0.47 [0.35–0.63]	No deaths	No deaths
<b>Stomach cancer</b>	Model 1	1.00 (Ref.)	1.28 [1.00–1.63]	1.38 [0.94–2.02]	0.86 [0.58–1.29]	1.10 [0.55–2.21]	0.86 [0.57–1.31]	1.30 [0.70–2.42]	2.17 [1.67–2.83]	No deaths	No deaths
	Model 2	1.00 (Ref.)	1.14 [0.89–1.46]	1.34 [0.91–1.96]	0.76 [0.51–1.14]	1.01 [0.50–2.02]	0.91 [0.60–1.38]	1.28 [0.69–2.39]	1.59 [1.21–2.09]	No deaths	No deaths
<b>Cancer head &amp; neck</b>	Model 1	1.00 (Ref.)	0.39 [0.29–0.54]	0.69 [0.49–0.97]	1.56 [1.27–1.92]	1.65 [1.12–2.43]	0.57 [0.39–0.82]	0.87 [0.51–1.46]	0.27 [0.16–0.45]	No deaths	No deaths
	Model 2	1.00 (Ref.)	0.32 [0.24–0.44]	0.58 [0.42–0.82]	1.17 [0.95–1.43]	1.25 [0.85–1.84]	0.58 [0.41–0.84]	0.83 [0.49–1.40]	0.15 [0.09–0.25]	No deaths	No deaths
<b>Liver cancer</b>	Model 1	1.00 (Ref.)	1.77 [1.44–2.18]	1.19 [0.75–1.87]	2.09 [1.61–2.72]	1.19 [0.59–2.38]	0.79 [0.51–1.10]	1.42 [1.01–1.98]	No deaths	No deaths	No deaths
	Model 2	1.00 (Ref.)	1.64 [1.33–2.02]	1.11 [0.71–1.76]	1.86 [1.43–2.42]	1.07 [0.53–2.14]	0.80 [0.51–1.24]	0.27 [0.07–1.07]	1.08 [0.77–1.52]	No deaths	No deaths
<b>Prostate cancer</b>	Model 1	1.00 (Ref.)	0.49 [0.33–0.73]	1.53 [0.90–2.59]	0.89 [0.58–1.38]	0.74 [0.28–1.98]	1.04 [0.70–1.56]	1.47 [0.76–2.82]	0.96 [0.62–1.49]	No deaths	No deaths
	Model 2	1.00 (Ref.)	0.48 [0.32–0.73]	1.54 [0.91–2.61]	0.82 [0.54–1.27]	0.70 [0.26–1.88]	1.05 [0.70–1.57]	1.44 [0.75–2.78]	0.86 [0.55–1.34]	No deaths	No deaths

Model 1: controlled for age; Model 2: controlled for age, urbanisation and SEP  
FG: First generation; SG: Second generation

**Table 5**  
Women aged 40–69: All-cancer, lung, colorectal, stomach, head and neck, liver, and breast cancer mortality rate ratio (MRR) and 95% confidence interval (CI) by migrant background.  
Source: authors' calculations

	Belgian	Italian, FG	Italian, SG	French, FG	French, SG	Dutch, FG	Dutch, SG	Moroccan, FG	Moroccan, SG	Turkish, FG	Turkish, SG
<b>All cancers</b>	Model 1	1.00 (Ref.)	0.77 [0.71–0.84]	1.05 [0.95–1.17]	1.04 [0.96–1.14]	1.34 [1.16–1.56]	0.94 [0.85–1.04]	0.89 [0.73–1.09]	0.68 [0.61–0.77]	0.63 [0.53–0.74]	No deaths
	Model 2	1.00 (Ref.)	0.69 [0.63–0.75]	0.96 [0.87–1.07]	0.93 [0.85–1.02]	1.22 [1.05–1.42]	0.93 [0.84–1.03]	0.86 [0.70–1.05]	0.49 [0.43–0.55]	1.35 [0.64–2.84]	No deaths
<b>Lung cancer</b>	Model 1	1.00 (Ref.)	0.53 [0.42–0.67]	1.05 [0.83–1.34]	1.01 [0.82–1.24]	2.04 [1.53–2.71]	1.27 [1.03–1.55]	1.02 [0.66–1.58]	0.33 [0.22–0.49]	0.38 [0.23–0.63]	No deaths
	Model 2	1.00 (Ref.)	0.42 [0.33–0.53]	0.88 [0.69–1.12]	0.81 [0.66–1.00]	1.69 [1.27–2.25]	1.27 [1.04–1.56]	0.94 [0.61–1.46]	0.18 [0.12–0.27]	2.00 [0.50–8.04]	No deaths
<b>Colorectal cancer</b>	Model 1	1.00 (Ref.)	0.90 [0.70–1.17]	0.97 [0.65–1.47]	0.90 [0.65–1.26]	1.59 [0.98–2.61]	0.90 [0.63–1.29]	0.71 [0.32–1.57]	0.78 [0.52–1.18]	0.24 [0.09–0.65]	No deaths
	Model 2	1.00 (Ref.)	0.86 [0.66–1.12]	0.95 [0.63–1.43]	0.84 [0.60–1.17]	1.51 [0.92–2.46]	0.91 [0.63–1.30]	0.70 [0.31–1.55]	0.63 [0.42–0.96]	0.20 [0.08–0.54]	No deaths
<b>Stomach cancer</b>	Model 1	1.00 (Ref.)	1.88 [1.27–2.78]	2.12 [1.19–3.77]	0.94 [0.47–1.88]	0.89 [0.22–3.58]	1.25 [0.64–2.47]	1.06 [0.26–4.23]	2.41 [1.47–3.97]	2.95 [1.62–5.36]	No deaths
	Model 2	1.00 (Ref.)	1.64 [1.10–2.44]	2.02 [1.13–3.59]	0.84 [0.42–1.68]	0.83 [0.21–3.32]	1.28 [0.66–2.47]	1.04 [0.26–4.17]	1.69 [1.01–2.82]	2.11 [1.15–3.88]	No deaths
<b>Cancer head &amp; neck</b>	Model 1	1.00 (Ref.)	0.45 [0.21–0.94]	1.52 [0.83–2.76]	1.69 [1.04–2.73]	1.51 [0.56–4.03]	0.72 [0.32–1.61]	0.91 [0.23–3.66]	0.38 [0.12–1.19]	No deaths	No deaths
	Model 2	1.00 (Ref.)	0.38 [0.18–0.79]	1.27 [0.70–2.32]	1.28 [0.79–2.07]	1.18 [0.44–2.17]	0.68 [0.31–1.53]	0.84 [0.21–3.37]	0.20 [0.06–0.63]	0.23 [0.03–1.60]	No deaths
<b>Liver cancer</b>	Model 1	1.00 (Ref.)	1.57 [1.03–2.41]	1.07 [0.44–2.58]	1.57 [0.90–2.72]	0.47 [0.07–3.36]	0.83 [0.37–1.85]	0.55 [0.08–3.92]	2.25 [1.32–3.82]	1.71 [0.77–3.83]	No deaths
	Model 2	1.00 (Ref.)	1.39 [0.90–2.14]	0.98 [0.41–2.39]	1.39 [0.80–2.41]	0.43 [0.06–3.06]	0.84 [0.38–1.88]	0.53 [0.08–3.80]	1.53 [0.89–2.65]	1.23 [0.55–2.78]	No deaths
<b>Breast cancer</b>	Model 1	1.00 (Ref.)	0.60 [0.50–0.72]	1.09 [0.90–1.32]	1.03 [0.87–1.23]	1.15 [0.84–2.57]	0.85 [0.69–1.04]	1.02 [0.71–1.47]	0.61 [0.47–0.78]	0.40 [0.26–0.60]	No deaths
	Model 2	1.00 (Ref.)	0.57 [0.47–0.68]	1.05 [0.86–1.27]	0.97 [0.82–1.15]	1.09 [0.80–1.50]	0.84 [0.68–1.04]	1.01 [0.70–1.45]	0.49 [0.38–0.64]	0.33 [0.22–0.50]	No deaths
	Model 3	1.00 (Ref.)	0.59 [0.49–0.71]	1.04 [0.86–1.26]	0.97 [0.82–1.16]	1.08 [0.79–1.48]	0.81 [0.66–1.00]	0.98 [0.68–1.42]	0.54 [0.42–0.70]	0.37 [0.24–0.56]	No deaths

Model 1: controlled for age; Model 2: controlled for age, urbanisation and SEP; Model 3: controlled for age, urbanisation, SEP, number of children and age at first childbearing  
FG: First generation; SG: Second generation