



1.1. Number of new invasive cancer diagnoses (R-5)

1.1.1. Documentation sheet

Description	Percentage of change in the number of new invasive cancer diagnoses during 2020-2021 compared to pre-COVID period.
Calculation	<p>Percentage of change in new invasive cancer diagnoses per month, from January 2020 to December 2021 relative to the same month in 2017-2019. For each month of the year, the mean number of new cancer diagnoses of the respective months during the period 2017-2019 was calculated. Then, the ratio was calculated between the observed number of new diagnoses in each month of 2020-2021 and the respective monthly mean of 2017-2019. This ratio was multiplied by 100 to have a % of new cancers diagnosed in 2020-2021 compared to the reference period 2017-2019, by month. Then 100 was subtracted from this value to have a % of change of new cancer diagnoses in 2020-2021 compared to the reference period.</p> <p>Results are presented for Belgium, and for each Region separately (based on the patient's official residency at the time of diagnose).</p> <p>New cancer diagnoses are identified from the Belgian Cancer Registry's incidence database, that contains data from the obligatory registration by oncological care programmes in the hospitals as well as from laboratories for pathological anatomy.</p> <p>Analyses include all invasive cancers together, excluding non-melanoma skin cancer (incomplete registration because non-melanoma of the skin are rarely life-threatening and may also be managed outside the hospital context). In addition, results are presented separately for a selection of tumour types.</p>
Rationale	<p>The first wave of the COVID-19 pandemic forced the Belgian hospitals to free up space to prepare for the surge of COVID patients. Belgian hospitals were instructed to stop all elective consultations, investigations and procedures by 14 March 2020.¹ In addition, organised population screening programmes for female breast cancer, cervical cancer, and colorectal cancer were suspended in the week of 16 March 2020.² Regular hospital care could be resumed in a stepwise manner starting 4 May 2020, organised population screening programmes resumed mid-May 2020.^{1,2} Thanks to the data from the laboratories for pathological anatomy (for which the delivery of data was accelerated due to the crisis), the Belgian Cancer Registry was rapidly able to estimate the newly diagnosed cancers during the COVID-19 pandemic, and compare the incidence to what was expected based on the previous incidence year 2019.² An important decrease in the absolute number of new cancer diagnoses was documented during the first wave of the pandemic. Similar results have been documented in other European countries, for instance in Denmark and in The Netherlands.^{3, 4}</p> <p>The delayed diagnoses are expected to impact the stage of the cancer at the time of diagnosis and therefore also the prognosis.⁵⁻⁷ This might increase the burden for both patients and the healthcare system, particularly the cancers that progress more rapidly to a higher stage. These more advanced cancers, harbouring a worse prognosis, may require more extensive treatment, more paramedical care, more psychological guidance, etc.</p>
Data source	Belgian Cancer Registry
Technical definitions	<p>Incidence years: 2017-2021 (of which 2017-2019 as reference period). The incidence date is defined as the date of first microscopic confirmation of malignancy, and if not available, the incidence date is determined in decreasing priority by 1) first hospitalisation for cancer, 2) first consultation because of malignancy, 3) initial clinical or technical diagnosis, 4) start of treatment for cancer and 5) death.</p> <p>Tumour type selection: ICD-10 C00-C43; C45-C96. Specific analyses for some tumour types: Thyroid (C73), Central Nervous System (C70-C72), Stomach (C16), Colorectal (C18-C20), Haematological malignancies (selection based on ICD-O-3 classification available upon request), Sarcomas</p>

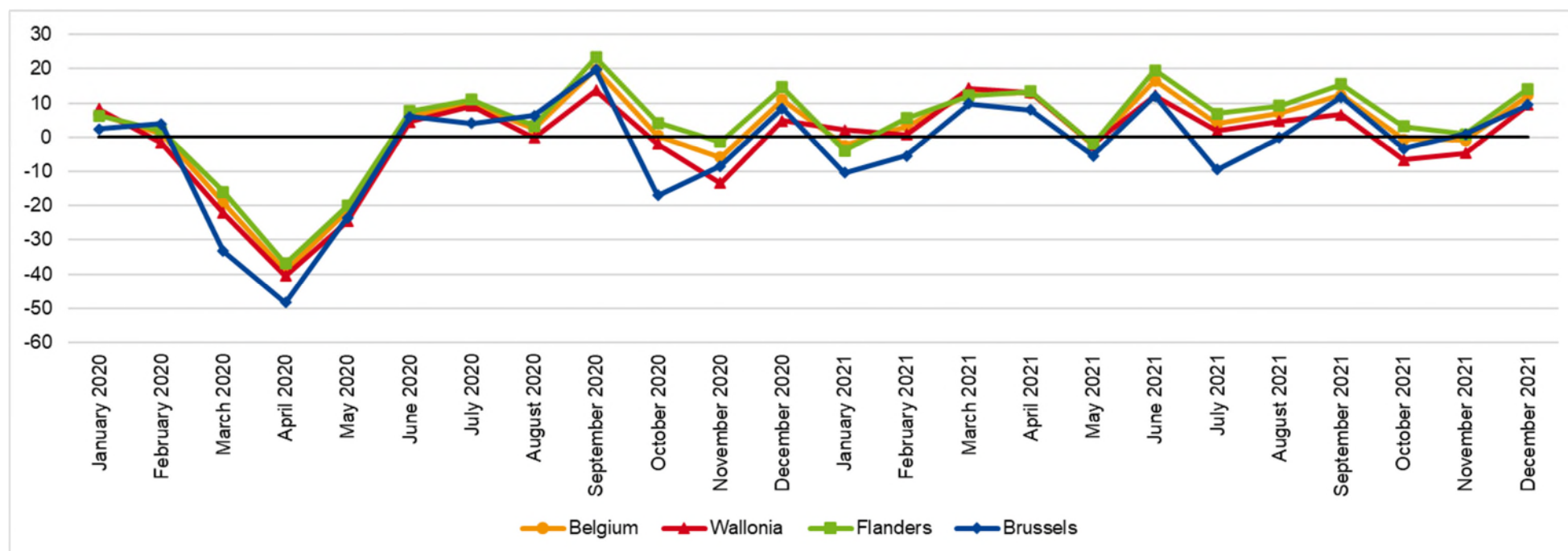


	<p>(selection based on ICD-O-3 classification available upon request), Melanoma of the skin (C43), Breast (women) (C50), Lung (C34), Testis (C62), Ovary (C56).</p> <p>Exclusion criterion: patients without a Belgian residence at time of diagnosis.</p> <p>When a patient was included in an organ specific location and within the “sarcoma” group, the patient was excluded from the sarcoma group.</p> <p>New cancer diagnoses are identified from data from laboratories for pathological anatomy and from oncological care programmes in the hospitals. This differs from the study of Peacock et al. (2021) that used accelerated delivery of data from laboratories for pathological anatomy only.²</p>
International comparability	<p>This indicator is not included in standardised international indicator sets, but anecdotal evidence from other countries is presented.</p>
Limitations	<p>The analysis of the percentage of change in the number of new invasive cancer diagnoses compared to pre-COVID period does not allow to identify at which point the effect of the “missing” diagnoses has been recovered. In particular, an increase in the number of new invasive cancer diagnoses that follows a similar decrease does not necessarily compensate for the decrease. Indeed, first there is no way to identify if the new diagnoses concern the same persons whose diagnoses were “missing”. Second, even if the new diagnoses indeed concern persons whose diagnoses were “missing”, the delays in the diagnose are expected to impact the stage of the cancer at the time of diagnosis and therefore also the prognosis.</p> <p>More recent information (after December 2021) is not yet available. Data on the stage of the cancer were not included.</p>
Dimension	<p>Resilience</p>
Related indicators	<p>P-6 Breast cancer screening (% women aged 50-69); P-7 Breast cancer screening – organised programme (% women aged 50-69); P-8 Cervical cancer screening (% women aged 20-69 years); P-9 Colorectal cancer screening (% pop aged 50-74 years)</p>
Reviewers	<p>Cindy De Gendt (Belgian Cancer Registry); Julie Verbeeck (Belgian Cancer Registry)</p>



1.1.2. Results

Figure 1 – Percentage of change in the number of new invasive cancer diagnoses during 2020-2021 compared to 2017-2019, Belgium and regions



Belgium

Figure 1 shows the percentage of change in the number of new invasive cancer diagnoses per month from January 2020 to December 2021, compared to the average of the same month in 2017-2019. In Belgium, in March 2020, the number of new invasive cancer diagnoses was 19.3% lower than the average of March 2017-2019. This corresponds to a number of 1 222 “missing” cancer diagnoses in March 2020.

In April 2020, the number of new invasive cancer diagnoses was 39.0% lower than the average of April 2017-2019, corresponding to 2 181 cancer diagnoses. In May 2020, the number of diagnoses increased compared to April, but it was still lower (by 21.7%) than in May 2017-2019.

Only in June 2020, the number of new invasive cancer diagnoses reached back its level of 2017-2019. In September 2020, it was higher (by 19.9%) than its level of 2017-2019. After that, the number of new invasive cancer diagnoses decreased and increased following COVID-19 waves, but



remained within the range -5.8%; +16.6% compared to its level of 2017-2019.

Regional comparison

On Figure 1, it can be seen that the percentage of change in the number of new invasive cancer diagnoses followed a similar trend in the three regions of the country. However, the decreases were stronger in Brussels than in the other regions. In particular, in April 2020, the number of new diagnoses was 48.3% smaller than in April 2017-2019 (compared to 40.6% in Wallonia and 36.8% in Flanders). Also in October 2020, the number of new diagnoses in Brussels was 17.1% smaller than its average level of October 2017-2019. During the same period, this number was only 2.0% below its average 2017-2019 level in Wallonia, and was 4.1% above its average 2017-2019 level in Flanders. These strong reductions in Brussels were not compensated by larger increases in other periods.

International comparison

Similar results were also evidenced in other countries. In the Netherlands, the number of cancer diagnoses per week after the start of the pandemic was compared to the average weekly number of cancer diagnoses the first weeks of 2020.^{3, 4} It was estimated that in the week of 30 March 2020, the number of cancer diagnoses (excluding skin cancers) was 75% of its pre-pandemic level. A more important effect was noted for skin cancer (excluding basal cell carcinoma) (39% of its pre-pandemic level). In Denmark, reduction in new cancer diagnoses of 19% was observed in April 2020 compared to April 2019. The reduction was 23% in May 2020 compared to May 2019 and a slight increase of 9% was observed in December 2020 compared to December 2019.^{3, 4} In one large hospital group in France (Paris), it was estimated that new cancer cases were 33% lower in March-May 2020 than in 2018-2019 and 19% lower in June-September 2020.⁸ In the United States, a study including 278 778 patients (including 20 180 during the COVID-19 period), found a decrease in the weekly number of newly identified patients of 46.4% for six cancer types combined (breast cancer, colorectal cancer, lung cancer, pancreatic cancer, gastric cancer, and oesophageal cancer), ranging from 24.7% for pancreatic cancer to 51.8% for breast cancer.⁹ In Northern Ireland, the number of pathology

samples indicating cancer in 2020 fell by 21% compared to the annual average in 2017-2019.¹⁰ The strongest decrease was observed during the week of 18 April 2020.

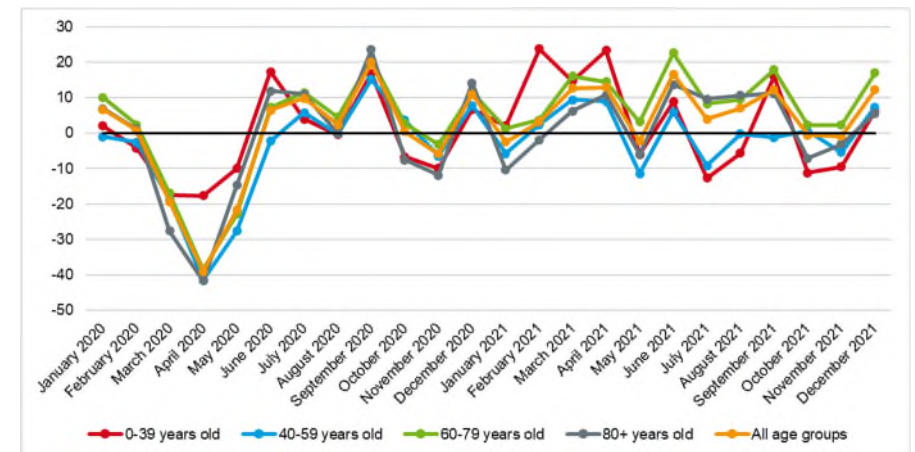
Analysis by age group

When analysed by age group (Figure 2), it can be seen that in April 2020 a stronger decrease was observed for persons aged 40 and above compared to the group of 0-39 years old.

In October-November 2020 however, the decrease was relatively stronger for the youngest group (0-39 years old) and the oldest group (80 years old or more). This was compensated by larger increases in February-April 2021 for the youngest group, but not for the oldest.

From December 2020 onwards, the number of cancer diagnoses for persons aged 60-79 years old was systematically above its 2017-2019 level. This was not the case for other age groups. In particular, the number of cancer diagnoses for persons aged 40-59 years old was repeatedly below its 2017-2019 level.

Figure 2 – Percentage of change in the number of new invasive cancer diagnoses during 2020-2021 compared to 2017-2019, by age groups





Analysis by type of cancer

Figures 3 to 13 show the percentage of change in the number of new diagnoses for specific types of cancer (compared to all types of cancers as in Figure 1). Most cancers follow the same evolution over time, however some differences appear.

The number of new thyroid cancer diagnoses (Figure 3) dropped by 56.7% in April 2020 compared to April 2017-2019 (compared to a decrease of 39.0% when all types of cancer are considered). For colorectal cancer (Figure 6), this gap was 50.0%. Melanoma (Figure 9) and female breast cancer (Figure 10) diagnoses also decreased more in April 2020 than other cancer diagnoses: respectively -47.6% and -45.8% compared to the level of April 2017-2019. On the other hand, ovarian (Figure 13) and central nervous system (Figure 4) cancer diagnoses only decreased by respectively 16.3% and 16.5% compared to their level of April 2017-2019. The number of testicular cancer diagnoses (Figure 12) even increased by 10.1% in April 2020 compared to April 2017-2019. However, the latter should be interpreted with caution because it corresponds to a very small number of diagnoses (29 diagnoses in April 2020, compared to 26 on average in April 2017-2019).

Although during the second half of 2020, the number of other cancer diagnoses was close or above their 2017-2019 level, the number of thyroid cancer diagnoses (Figure 3) remained largely below its 2017-2019 level.

Figure 3 – Percentage of change in the number of new thyroid cancer diagnoses during 2020-2021 compared to 2017-2019

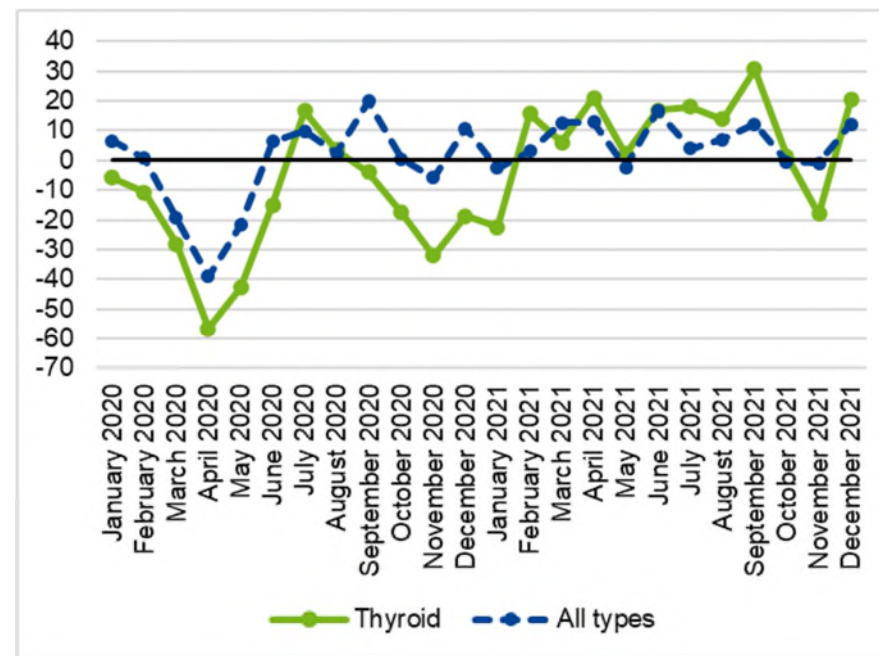




Figure 4 – Percentage of change in the number of new central nervous system cancer diagnoses during 2020-2021 compared to 2017-2019

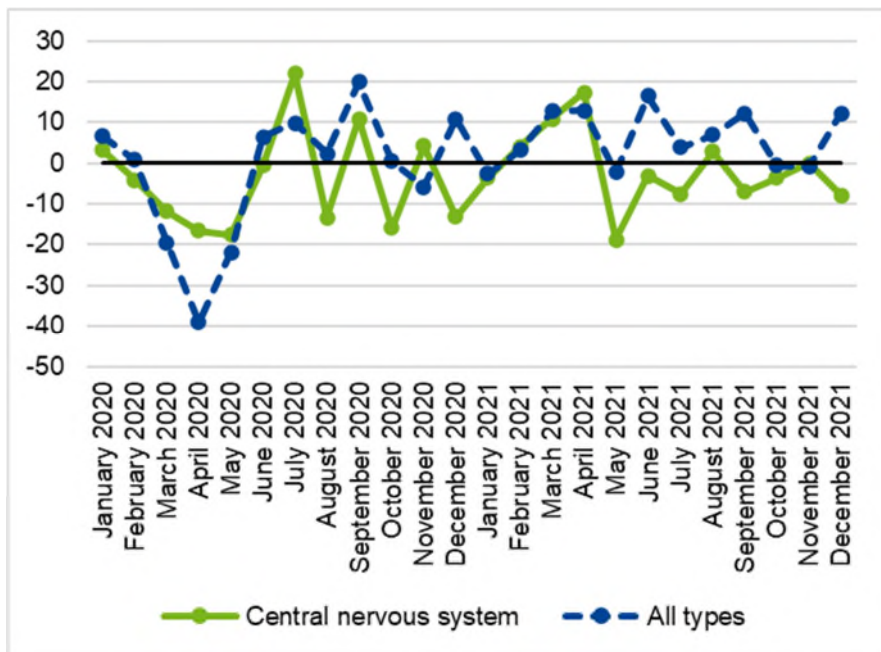


Figure 5 – Percentage of change in the number of new stomach cancer diagnoses during 2020-2021 compared to 2017-2019

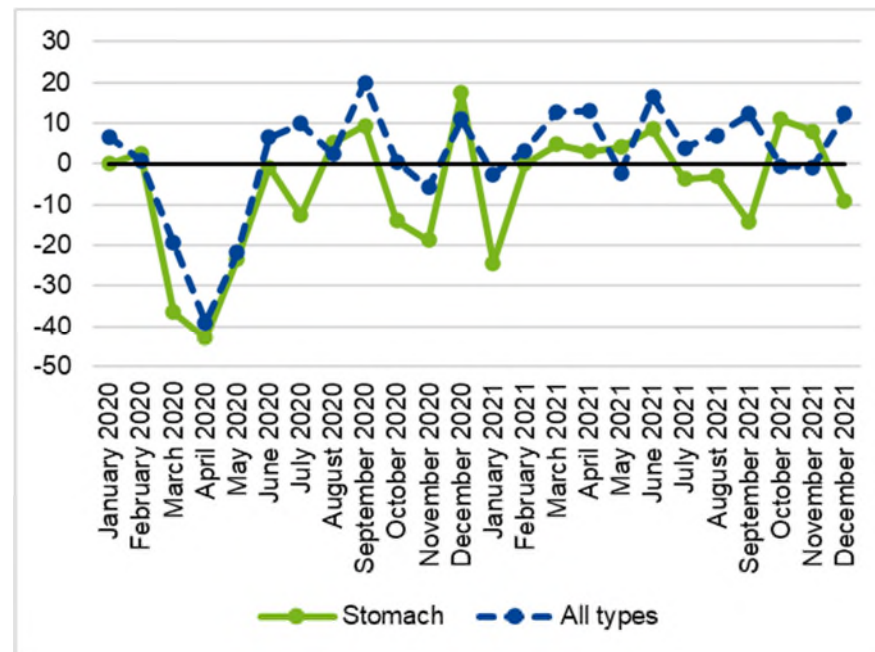




Figure 6 – Percentage of change in the number of new colorectal cancer diagnoses during 2020-2021 compared to 2017-2019

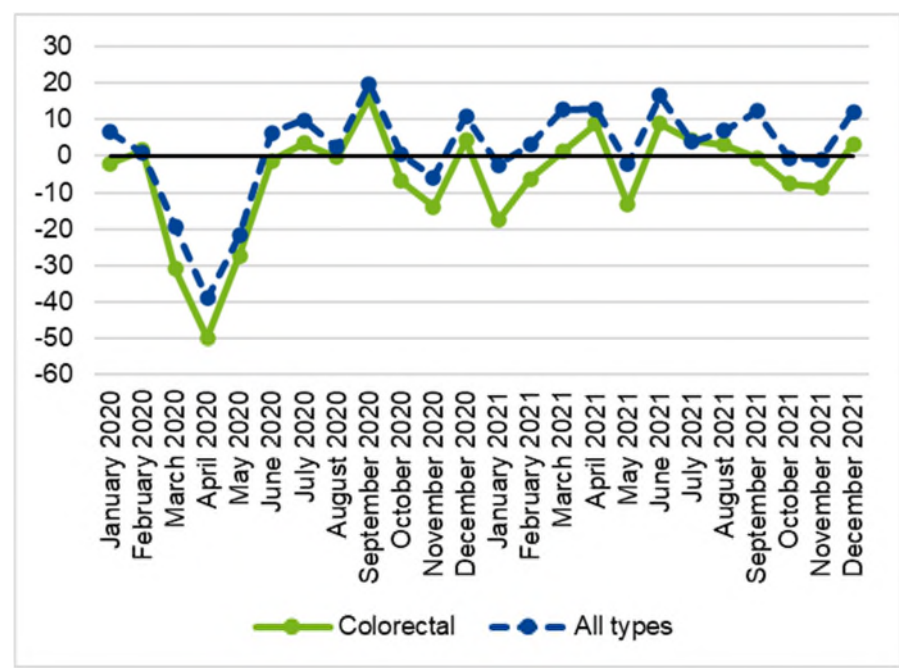


Figure 7 – Percentage of change in the number of new haematological malignancy diagnoses during 2020-2021 compared to 2017-2019

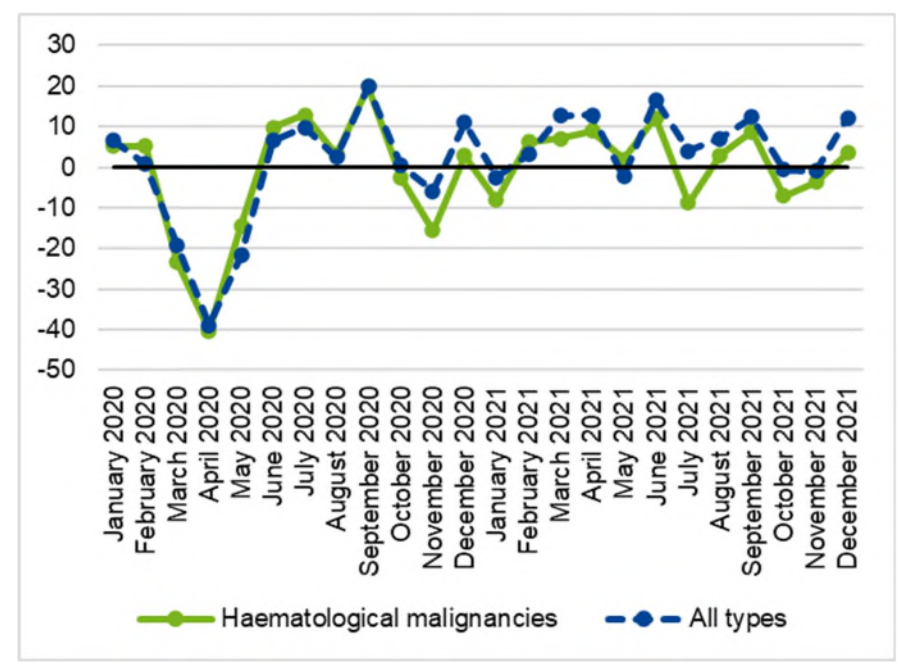




Figure 8 – Percentage of change in the number of new sarcoma cancer diagnoses during 2020-2021 compared to 2017-2019

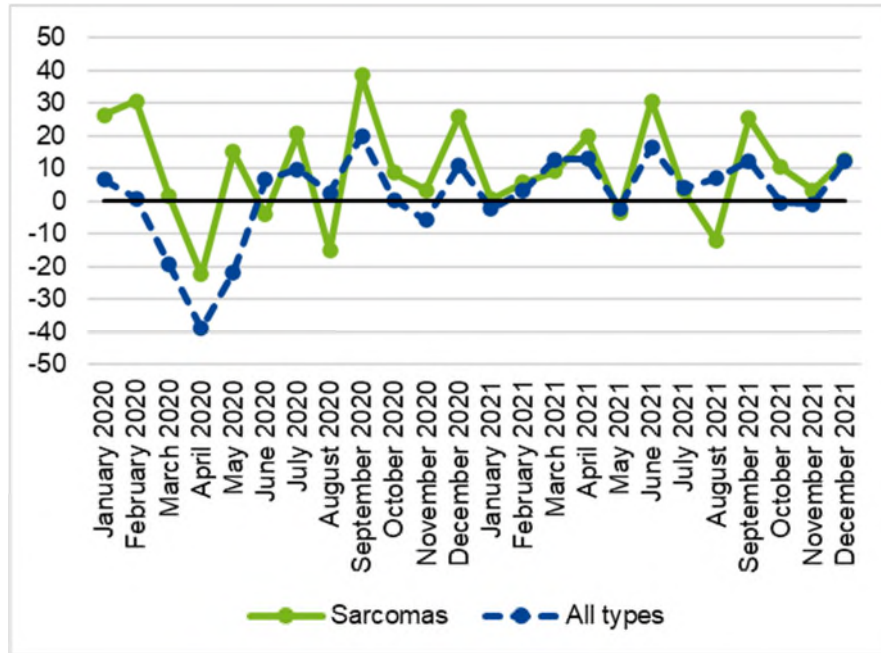


Figure 9 – Percentage of change in the number of new melanoma skin cancer diagnoses during 2020-2021 compared to 2017-2019

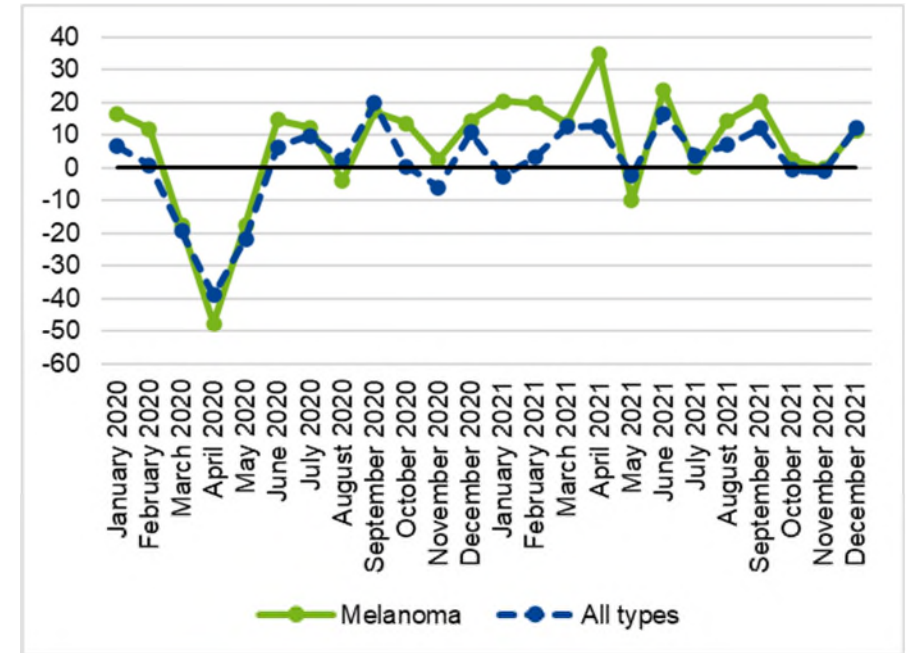




Figure 10 – Percentage of change in the number of new breast cancer diagnoses (women) during 2020-2021 compared to 2017-2019

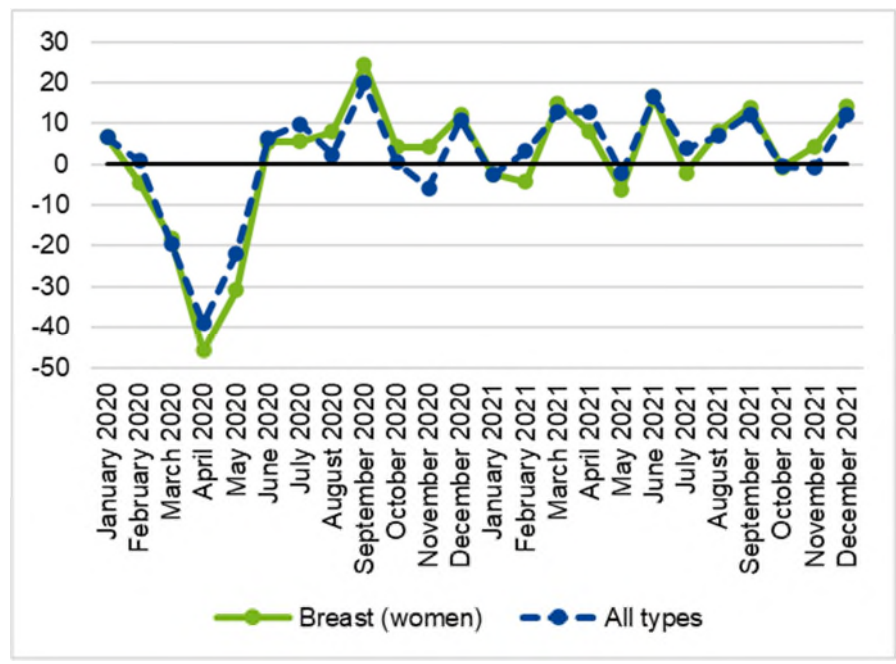


Figure 11 – Percentage of change in the number of new lung cancer diagnoses during 2020-2021 compared to 2017-2019

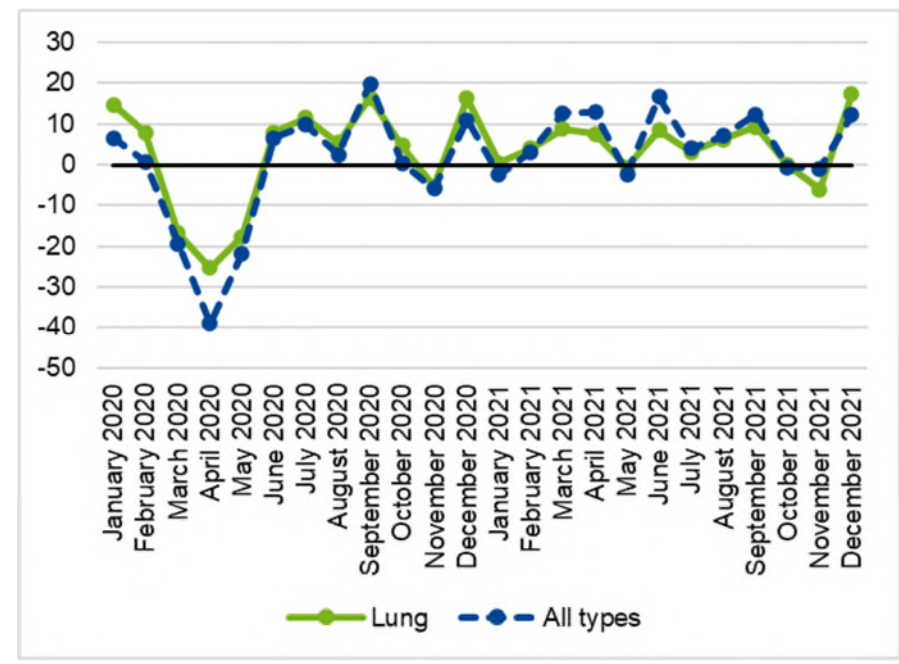




Figure 12 – Percentage of change in the number of new testicular cancer diagnoses during 2020-2021 compared to 2017-2019

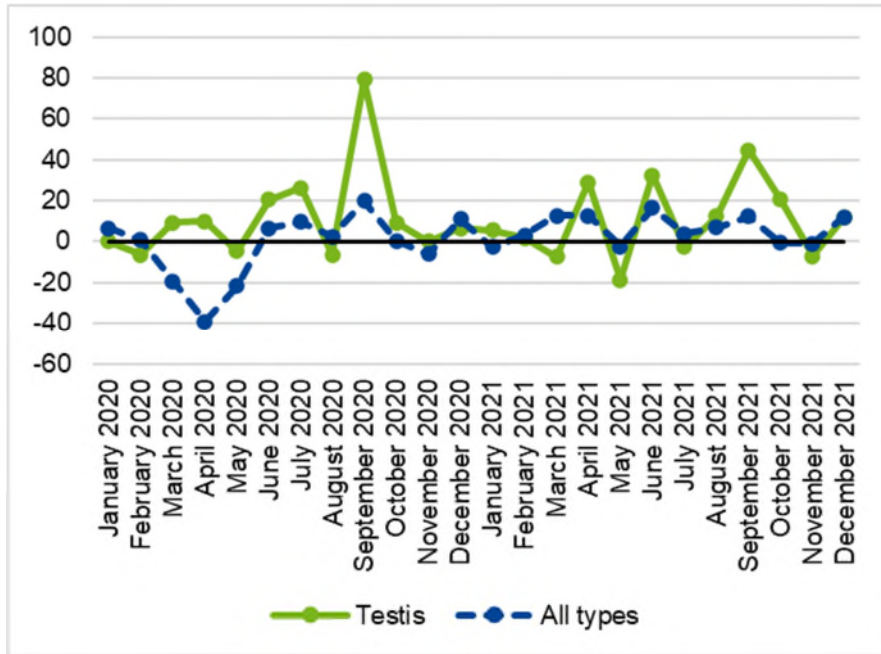
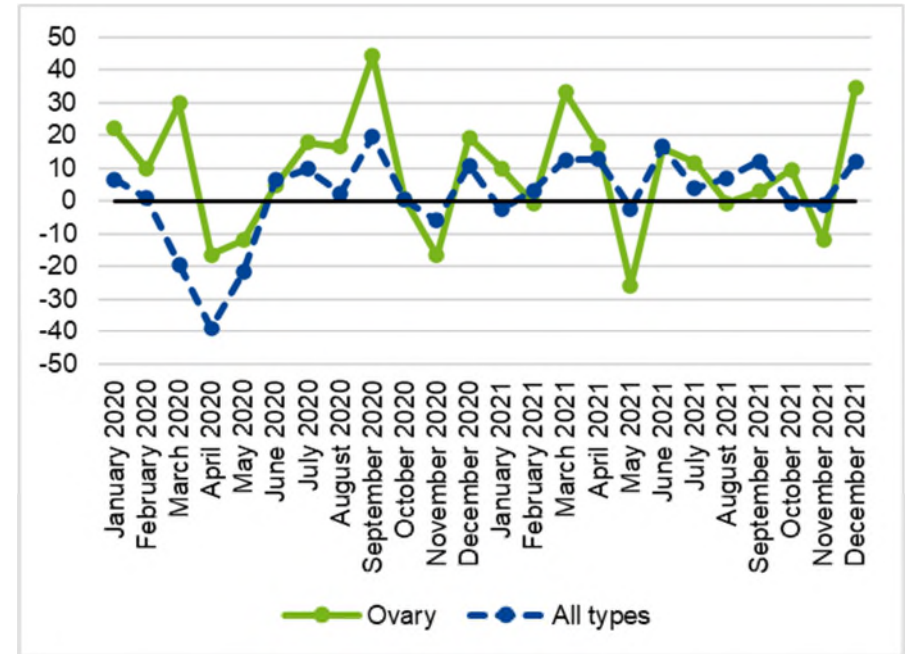


Figure 13 – Percentage of change in the number of new ovarian cancer diagnoses during 2020-2021 compared to 2017-2019





Key points

- In Belgium, in March 2020, the number of new invasive cancer diagnoses was 19.3% lower than the average of March 2017-2019. This corresponds to a number of 1 222 “missing” cancer diagnoses in March 2020.
- In April 2020, the number of new invasive cancer diagnoses was 39.0% lower than the average of April 2017-2019, corresponding to 2 181 “missing” cancer diagnoses.
- In May 2020, the number of diagnoses increased compared to April, but it was still lower (by 21.7%) than in May 2017-2019, corresponding to 1 366 “missing” cancer diagnoses.
- In June 2020, the number of new invasive cancer diagnoses reached back its level of 2017-2019. In September 2020, it was higher (by 19.9%) than its level of 2017-2019. After that, it remained within the range -5.8%; +16.6% compared to its level of 2017-2019.
- The percentage of change in the number of new invasive cancer diagnoses followed a similar trend in the three regions of the country. However, the decreases were stronger in Brussels than in the other regions. This was not compensated by larger subsequent increases.
- The decrease in the number of new invasive cancer diagnoses that occurred in April 2020 was stronger for persons aged 40 and above compared to the group of 0-39 years old
- All types of cancer diagnoses followed similar trends, although some differences appear. The decrease in the number of new invasive cancer diagnoses that occurred in April 2020 was stronger for thyroid cancer, colorectal cancer, melanoma of the skin and female breast cancer, compared to other types of cancers. The decrease was the smallest for testicular, ovarian and central nervous system cancer, compared to other types of cancer. Also, the number of thyroid cancer diagnoses remained

low during the second half of 2020, while it was no longer the case of other types of cancer.

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