WEEKLY REPORT – WASTEWATER-BASED EPIDEMIOLOGICAL SURVEILLANCE OF THE SARS-COV-2

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RESULTS OF 09/02/2022

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In collaboration with:

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1. Summary

In the present work, the circulation of the SARS-CoV-2 virus in the environment is assessed based on three indicators. The analysis of wastewater samples collected in 42 wastewater treatment plants covers 45% of the Belgian population, with increased accuracy in the urban areas. The results of the wastewater surveillance are a source of complementary information to the infection cases number. Indeed, the wastewater results do notably include all asymptomatic persons, and are independent of the testing strategy.
Here are the conclusions based on the latest results of February 09th 2022:

- At the national level: The general decreasing trend in the viral concentrations observed since two weeks has continued this week. Hence, the number of covered areas, in which the Increasing trend and the Fast increase indicators are fulfilled, is only 1 for both indicators. Oostende is newly showing an Increasing trend. For the High circulation indicator, the number of areas in which the indicator is fulfilled has dropped from 28 last week (Wednesday 2nd of February) to 16 this week (Wednesday 09th of February).
- At the provincial level: In all provinces, the Increasing trend indicator is not fulfilled anymore. Last week, the provinces of Luxembourg and Liège were still in Increasing Trend, which is not the case anymore. The decrease of the viral concentrations in wastewaters is observed in the 5 following provinces: Brussels, Limburg, Namur, Vlaams-Brabant and West-Vlaanderen; while it was already the case for the province of Antwerpen. That decrease in the viral circulation is highlighted by the High circulation indicator not being fulfilled anymore for these provinces. It remains however fulfilled in the provinces of Brabant-Wallon, Hainaut, Liège, Luxembourg and Oost-Vlaanderen.
- The risk of underestimating the Omicron variant in wastewater was assessed to be negligible.

The wastewater situation can be followed on a weekly basis on:

- The graphics available on the public COVID-19 dashboard
- The Risk Assessment Group (RAG) updating the weekly epidemiological situation through a report validated by the Risk Management Group (RMG) and published every Friday in French and Dutch.
- Further details on the methodology applied for the wastewater surveillance can be found in the Appendix Methodology document (access available online).

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2. Introduction

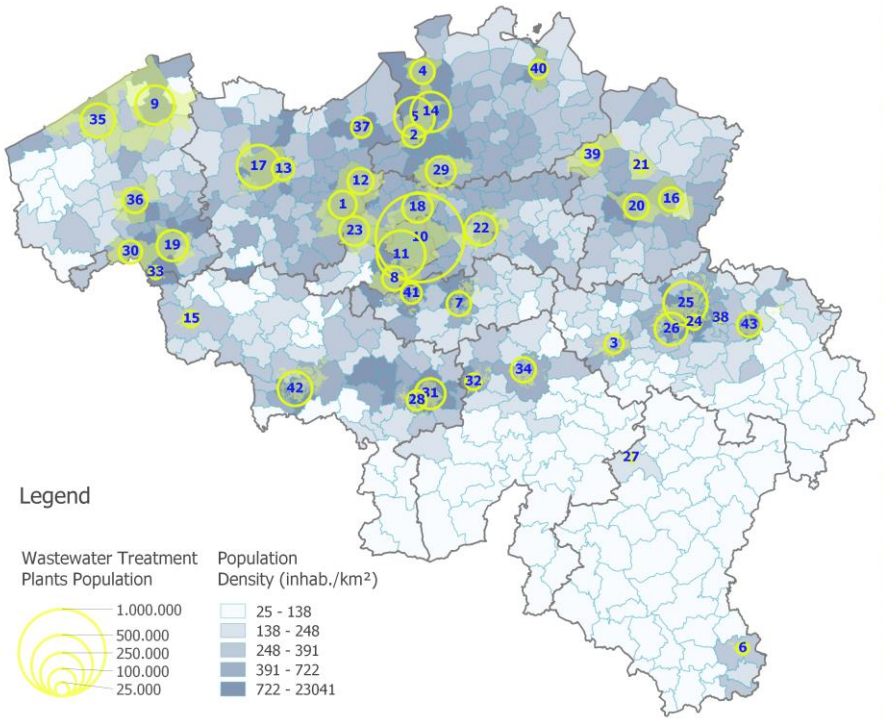
In mid-September 2020 started the SARS-CoV-2 national wastewater surveillance project. The present report is an outcome of this project aiming to assess weekly the wastewater-based epidemiological situation of Belgium.
The surveillance is based on the analysis of water samples collected twice per week from the influent of 42 WasteWater Treatment Plants (WWTPs) spread over Belgium. The evolution of the SARS-CoV-2 viral concentrations measured over time in the different treatment plants is analyzed at different levels: regional, provincial, and the catchment area covered by the individual treatment plants. Also, three alerting indicators were developed to highlight areas of concern regarding the high circulation, the fast evolution, and the increasing trend of the observed viral concentrations.

In this report, the weekly wastewater-based epidemiological situation is presented and discussed at the above-mentioned levels based on the three categories of alerting indicators. Moreover, the remaining sources of uncertainties are discussed together with their expected impacts on the wastewater results interpretation.

3. Methodology

3.1. SAMPLE COLLECTION AND ANALYSIS

The surveillance project, which started in mid-September 2020 covers around 45% of the Belgian population. The population covered is 40% in the Flemish region, 35% in the Walloon region, and nearly 100% in the Brussels region. Figure 1 shows the catchment areas covered by the 42 WWTPs included in the project, which are located in high population density areas. A catchment area is defined by the area delimiting the population covered by a specific wastewater sample, collected at the inlet of the WWTPs. Further coverage details can be found in Table 2 by province (see also Table A1 in the Appendix Methodology document (access available online)) and on the Sciensano public dashboard.
In practice, 24-hour composite samples are collected twice a week on Mondays and Wednesdays from the influent of WWTP and are analysed for the presence of SARS-CoV-2 RNA by three different laboratories. The resulting SARS-CoV-2 concentrations (3 targeted genes) are delivered to Sciensano within 2 days for data analysis purpose. Concretely, the results which are representative of Mondays and Wednesdays are respectively available on Wednesdays and Fridays.



Treatment Plant	Id	Population
Aalst	1	102800
Aartselaar	2	68031
Amay	3	47038
Antwerpen-Noord	4	76949
Antwerpen-Zuid	5	215704
Arlon	6	19440
Basse Wavre (Dyle)	7	78290
Beersel	8	78540
Brugge	9	200401
Bruxelles Nord/Brussel Noord	10	1045863
Bruxelles Sud/Brussel Zuid	11	311866
Dendermonde	12	87633
Destelbergen	13	63771
Deurne	14	213048
Froyennes	15	34710
Genk	16	73364
Gent	17	247550
Grimbergen	18	120627
Harelbeke	19	125230
Hasselt	20	81988
Houthalen-Centrum	21	22357
Leuven	22	137365
Liedekerke	23	112933
Liège (Grosses Battes)	24	27934
Liège Oupeye	25	253780
Liège Sclessin	26	142239
Marche-en-Famenne	27	8633
Marchienne-au-Pont	28	52017
Mechelen-Noord	29	116363
Menen	30	70041
Montignies-sur-Sambre	31	123576
Mornimont	32	34140
Mouscron versant Espierres	33	21179
Namur-Brumagne	34	82175
Oostende	35	153401
Roeselare	36	82137
Sint-Niklaas	37	55038
Soumagne	38	7955
Tessenderlo	39	55546
Turnhout	40	44524
Vallée du Hain (L'Orchis)	41	57050
Wasmuel	42	157342
Wegnez	43	78244

Figure 1: The population located in the areas covered by the wastewater treatment plants (highlighted in yellow) and the population density for each municipality (indicated by the blue scale). Note that due to the recent flooding, the treatment plants of Wegnez and Liège (Grosses Battes) are out of order. These areas are, hence, not considered anymore in the wastewater surveillance and has been partially replaced by the treatment plant of Soumagne.

3.2. WASTEWATER RESULTS

The quantification of SARS-CoV-2 in RNA copies/ ml (concentration) was generalized in mid-February 2021 to all the treatment plants investigated. Before this date, the quantitative values were estimated based on the retrospective application of the quantification method (see details in Appendix) from mid-September 2020 to mid-February 2021 for Flanders and Brussels. In Wallonia, the quantitative results were available since the start.

Preliminary results allowed for estimating the limit of quantification of the analytical method at 20 copies/ml.

3.3. ALERTING INDICATORS

To highlight the areas of possible concern, the three following types of alerting indicators are assessed twice a week, based on the viral concentration (RNA copies/ml) measured for the three targeted gene fragments (E, N1, and N2):

1. The **High circulation** indicator highlights the catchment areas where the viral concentrations are high. It corresponds to a situation where the viral concentrations exceed half of the highest value recorded during the third wave (i.e. from mid-February 2021 till begin of May).
2. The **Fast increase** indicator highlights the catchment areas where the viral concentrations have rapidly increased for the last week. It corresponds to a situation where the moving average on the past 7 days of the viral concentration has increased faster than 70% per week if being above the estimated limit of quantification. The increasing slope is normalized for each treatment plant.
3. The **Increasing trend** indicator highlights the catchment areas where the viral concentrations have been increasing for more than 6 days. The indicator is computed based on the moving average on the past two weeks of the viral concentration.

The indicators were developed in order to be able to track the different phases of an outbreak. Typically, when the viral concentrations in wastewaters in an area start to increase, the indicator Increasing trend will be the first fulfilled. If the concentrations increase quickly, the Fast increase indicator will be fulfilled. Finally, after the initial increasing phase, the concentrations in an area may be sufficiently high to result in the High circulation to be fulfilled.

3.4. CASES RESULTS

The cases number data presented in this report come from the COVID-19 laboratory-confirmed cases database centralized by Sciensano. The cases number, used to compute the 14 days-incidence, only accounts for the physical areas covered by the wastewater project (see Figure 1).

3.5. CAUTION POINTS FOR THE RESULTS INTERPRETATION

Only the trends, observed through the alerting indicators, should be assessed for the comparison of different areas. As the concentration values differ from an WWTP to another, notably due to the differences in population sizes covered, absolute values should not be compared. Additionally, the situation comparison between the regions should be considered with caution. The degree of comparability is not yet known and depends on the comparability of the results between the different laboratories performing the analysis (see the Appendix Methodology document (access online)).
Moreover, the wastewater concentrations and the cases numbers presented in this report do not originate from the same population, even though the positive cases are selected only for the municipalities covered by the wastewater surveillance. For instance, the wastewater results account for all infected persons (whatever age or symptomatic condition) while the cases numbers include only the persons clinically tested positive. Likewise, an infected person covered by the wastewater results could be associated with another area in the clinical surveillance as the person's postal code is used for clinical statistics, i.e. mobility bias. Therefore, the correlation between the wastewater concentrations and the cases number varies according to the area considered. The wastewater results are thus complementary and independent information to the results of the cases.

The correlation between the wastewater viral concentrations and the cases numbers could also be influenced by the vaccination campaign and the circulation of variants.

Finally, all values below the limit of quantification (< 20 RNA copies/ml) should be considered as non-quantitatively reliable values. A reported value lower than 20 copies/ml only shows that SARS-CoV-2 has been detected in the sample but at an undetermined concentration.

4. Results

4.1. REGIONS

Figure 2 represents the quantitative SARS-CoV-2 RNA concentrations in the wastewaters and the 14 days incidence for each region, compiling the incidence data of the area covered by the wastewater surveillance. The estimated viral concentrations can also be seen for the period before mid-February (see 2.2. in the Appendix Methodology document (access online) for more details).
Several waves can be seen in Figure 2:

- The 2nd wave occurring in November 2020
- The 3rd wave occurring in March 2021. In Wallonia, several hypotheses could explain the lower viral concentration measured compared to the ones in Flanders and Brussels: (1) the sizes of the treatment plants in Wallonia are smaller than the ones located in the two other regions, affecting the viral concentrations measured; (2) the extent to which the results are comparable between the different laboratories is unknown (see Methodology for more details)
- The 4th wave occurring in December 2021
- The 5th wave starting at the beginning of January 2022 when a fast and steep increase in the viral concentrations was observed.

It should be noted that the last viral concentrations in wastewaters are not displayed in the Figure 2 as the regional corresponding trends are based on centred moving averages, and therefore will be validated with the next week results[2].
Table 1 shows, for each region, the results associated with the samples of Wednesday January 26th 2022.

Table 1 allows to track the changes between the situation as of today (February 09th 2022) and the situation as of last week (February 02th 2022). Hereby, two distinct cases are taken into account:

1. If a region has at least one indicator fulfilled this week and it was not the case last week, its **name is displayed in bold** in the table.
2. If a region has at least one indicator fulfilled this week and if it also was the case last week, any change in indicator fulfilment (i.e. if the value for any indicator has changed from 0 to 1 or from 1 to 0) is indicated in **coloured bold text**.

The last trends were analysed based on the alerting indicators presented in Table 1. The viral concentrations in wastewaters are still decreasing in the three regions (Figure 2A and 2B). This is translated by the Fast increase and Increasing trend indicators not being fulfilled in all three regions. The High circulation indicator is only fulfilled in Wallonia.

[2] The trends of SARS-CoV-2 circulation in wastewater, given by the dark line on the graphs, corresponds to a 14 days centred mean of the concentrations measured.

Table 1: Alerting indicators fulfilled (1) or not (0) on February 09th 2022. Columns represent the population coverage of the regions (Pop. coverage) and the three alerting indicators High Circulation (High), Fast increase (Fast) and Increasing trend (Incr.). The specifications of the four last columns are explained in the footnotes 1-4 below the table. Missing data is indicated with a "/".

Region	Pop. coverage	High	Fast	Incr.	Norm. viral cc. (%)[1]	Mean viral. cc. (c./ml)[2]	Norm. evol. (%/w)[3]	Incr. days[4]
Brussels	100%	0	0	0	33	2895	-75	0
Flanders	41%	0	0	0	38	755	-16	1
Wallonia	31%	1	0	0	150	299	17	0

[1] : the viral concentration normalized with the maximum viral concentration measured in the corresponding catchment area during the third wave (i.e. from mid-February 2021 till begin of July).
[2] : the viral concentration computed on the replicate of the three targeted gene fragments.
[3] : the slope (%/week) of the past 7 days moving average of the viral concentration if being above the estimated limit of quantification.
[4] : the cumulative number of days of increase of the past 14 days moving average of the viral concentration

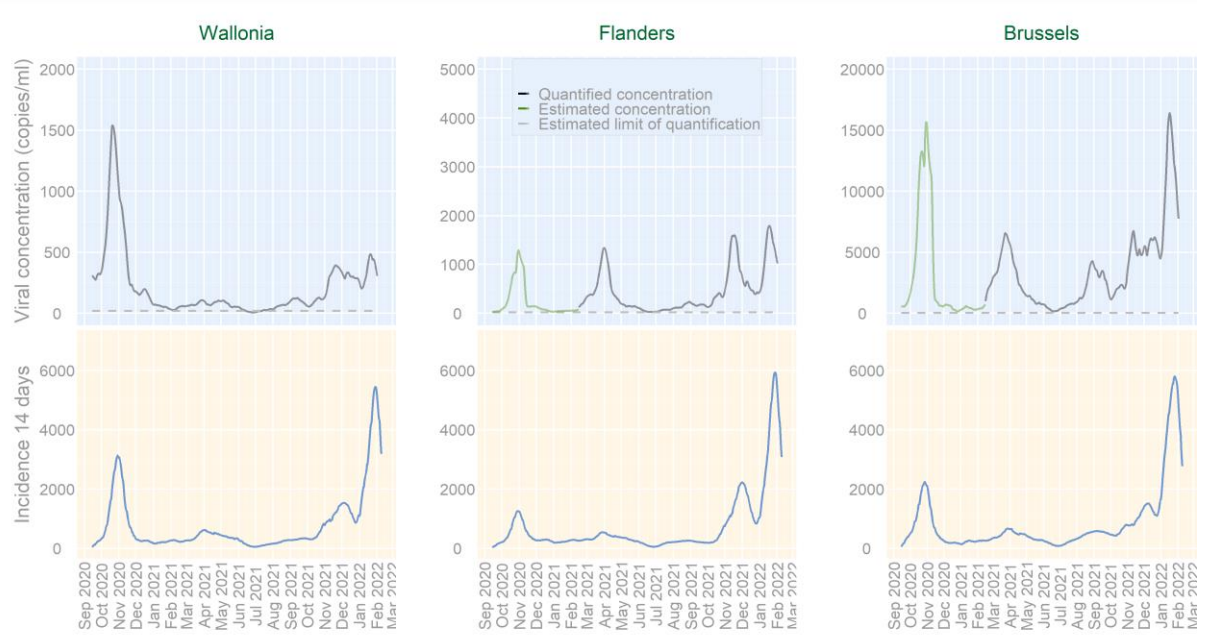


Figure 2A: The SARS-CoV-2 RNA estimated and quantified concentrations expressed as copies/ml (based on the two weeks centered moving average applied on the linear interpolation) and the estimated limit of quantification of 20 SARS-CoV-2 RNA copies/ml (dashed line) (Top), and the 14 days incidence in the population covered by the wastewater surveillance since the surveillance starting date (bottom)..

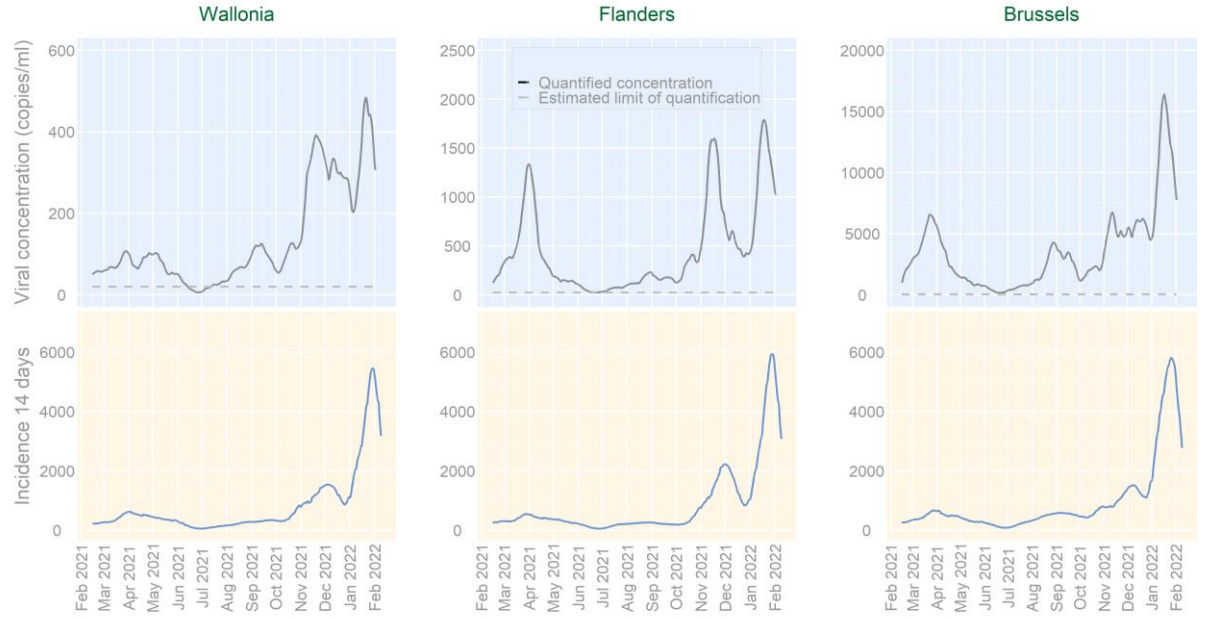


Figure 2B: The SARS-CoV-2 RNA estimated and quantified concentrations expressed as copies/ml (based on the two weeks centered moving average applied on the linear interpolation) and the estimated limit of quantification of 20 SARS-CoV-2 RNA copies/ml (dashed line) (Top), and the 14 days incidence in the population covered by the wastewater surveillance since mid-February 2021 (bottom).

4.2. PROVINCES

Table 2 shows, for each Province, the results associated with the samples of Wednesday February 09th 2022.
Table 2 allows to track the changes between the situation as of today (February 09th 2022) and the situation as of last week (February 02th 2022). Hereby, two distinct cases are taken into account:

1. If a province has at least one indicator fulfilled this week and it was not the case last week, its **name is displayed in bold** in the table.
2. If a province has at least one indicator fulfilled this week and if it also was the case last week, any change in indicator fulfilment (i.e. if the value for any indicator has changed from 0 to 1 or from 1 to 0) is indicated in **coloured bold text**.

Table 2 shows, for each Province, the results associated with the samples of Wednesday February 09th 2022, for the three alerting indicators:

- In all provinces, the Increasing trend indicator is not fulfilled anymore.
- The Fast increase indicator is only fulfilled in the province of Hainaut.
- The decrease of the viral concentrations in wastewaters is observed in the 5 following provinces: Brussels, Limburg, Namur, Vlaams-Brabant and West-Vlaanderen; while it was already the case for the province of Antwerpen. That decrease in the viral circulation is highlighted by the High circulation indicator not being fulfilled anymore for these provinces. It remains however fulfilled in the provinces of Brabant-Wallon, Hainaut, Liège, Luxembourg and Oost-Vlaanderen.
- It should be noted that although the 50% threshold of viral circulation is not exceeded (in comparison to the highest level observed during the 3rd wave), the viral concentrations in the provinces of Namur and West-Vlaanderen remain high (with 48% and 43% respectively).

Table 2: Alerting indicators fulfilled (1) or not (0) on February 09th 2022. Columns represent the population coverage of the WWTPs within the Province (Pop. coverage) and the three alertng indicators High circulation (High), Fast increase (Fast) and Increasing trend (Incr.). The specifications of the four last columns are explained in the footnotes 1-4 below the table. Missing data is indicated with a "/".

Province	Pop. coverage	High	Fast	Incr.	Norm. viral cc. (%)[1]	Mean viral. cc. (c./ml)[2]	Norm. evol. (%/w)[3]	Incr. days[4]
Antwerpen	41%	0	0	0	19	145	-8	0
Brabant Wallon	33%	1	0	0	192	249	-46	0
Brussels	100%	0	0	0	33	2895	-75	0
Hainaut	29%	1	1	0	127	247	137	1
Liège	50%	1	0	0	181	401	-48	0
Limburg	26%	0	0	0	19	62	8	0
Luxembourg	10%	1	0	0	176	342	4	0
Namur	23%	0	0	0	48	126	-61	0
Oost-Vlaanderen	38%	1	0	0	77	1362	-28	1
Vlaams-Brabant	61%	0	0	0	25	871	-21	0
West-Vlaanderen	52%	0	0	0	43	1104	-19	2

[1] : the viral concentration normalized with the maximum viral concentration measured in the corresponding catchment area during the third wave (i.e. from mid-February 2021 till begin of July).
[2] : the viral concentration computed on the replicate of the three targeted gene fragments.
[3] : the slope (%/week) of the past 7 days moving average of the viral concentration if being above the estimated limit of quantification.
[4] : the cumulative number of days of increase of the past 14 days moving average of the viral concentration

4.3. CATCHMENT AREAS

Table 3 shows, for each catchment area, the values of the three alerting indicators obtained based on the results of last Wednesday's sample. Table 3 is a snapshot of the number of areas highlighted by the indicators for the last results obtained.
Table 3 allows to track the changes between the situation as of today (February 09th 2022) and the situation as of last week (February 02th 2022). Hereby, three distinct cases are taken into account:

1. If an area has at least one indicator fulfilled this week and it was not the case last week, its **name is displayed in bold** in the table.
2. If an area has at least one indicator fulfilled this week and if it also was the case last week, any change in indicator fulfilment (i.e. if the value for any indicator has changed from 0 to 1 or from 1 to 0) is indicated in **coloured bold text**.
3. Any area which had at least one indicator fulfilled last week but not this week is listed below Table 3.

Here are the results associated with the samples of February 09th 2022:

- The indicator High circulation is fulfilled in 16 covered areas. Last week, this indicator was fulfilled in 28 covered area. The full list of these areas can be found in Table 3 and in Appendix A1. In several areas, during the 4th and 5th wave, the measured viral concentration exceeded the maximal concentration registered during the 3rd wave. More details can be found in the different tables of the appendices.
- The indicator "Fast increase" is fulfilled in only 1 covered area. Montignies-sur-Sambre (485% increase per week). Last week, this indicator was also fulfilled in 1 covered area: Oostende.
- The indicator "Increasing trend" is fulfilled in 1 covered area: Oostende (7 days). Last week, this indicator was fulfilled in 3 covered areas.

The wastewater results at the level of the local covered areas can be accessed online for each area on the COVID-19 dashboard.

Table 3: Alerting indicators fulfilled (1) or not (0) on February 09th 2022. Columns represent the provinces, different WWTPs within the Provinces and the three alerting indicators High circulation (High), Fast increase (Fast) and Increasing trend (Incr.). The specifications of the four last columns are explained in the footnotes 1-4 below the table. Missing data is indicated with a "/".

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%)[1]	Mean viral cc (c./ml)[2]	Norm evol. (%/w)[3]	Incr days[4]
Luxembourg	Arlon	1	0	0	218	421	-1	0
Brabant Wallon	Basse Wavre (Dyle)	1	0	0	189	261	-68	0
Hainaut	Froyennes	1	0	0	188	245	-27	0
Oost-Vlaanderen	Gent	1	0	0	144	2368	-49	2
Liège	Liège Oupeye	1	0	0	147	333	-53	0
Liège	Liège Sclessin	1	0	0	296	647	-28	0
Luxembourg	Marche-en-Famenne	1	0	0	82	163	17	0
Hainaut	Marchienne-au-Pont	1	0	0	92	205	-58	0
Antwerpen	Mechelen-Noord	1	0	0	71	182	-51	0
Hainaut	**Montignies-sur-Sambre**	1	1	0	130	331	485	0
Hainaut	Mouscron versant Espierres	1	0	0	122	224	-34	0
Namur	Namur-Brumagne	1	0	0	57	159	-54	0
West-Vlaanderen	Oostende	1	0	1	91	2401	-31	7
Liège	Soumagne	1	0	0	57	250	-69	0
Brabant Wallon	Vallée du Hain (L'Orchis)	1	0	0	195	231	-15	0
Hainaut	Wasmuel	1	0	0	124	198	-12	2

[1] : the viral concentration normalized with the maximum viral concentration measured in the corresponding catchment area during the third wave (i.e. from mid-February 2021 till begin of July).
[2] : the viral concentration computed on the replicate of the three targeted gene fragments.
[3] : the slope (%/week) of the past 7 days moving average of the viral concentration if being above the estimated limit of quantification.
[4] : the cumulative number of days of increase of the past 14 days moving average of the viral concentration.

The covered areas of Aalst, Amay, Brugge, Brussels-North, Brussel-South, Destelbergen, Genk, Grimbergen, Harelbeke, Hasselt, Leuven, Menen, Mornimont, and Tessenderlo had at least one indicator fulfilled last week but not this week. Details on covered area without fulfilled indicators can be found in Table A4.

Figure 3 was developed to offer a dynamic view of the three alerting indicators over time. For further insights on the dynamic of the different indicators, see Section 3.3.

The general decreasing trend in the viral concentrations observed since two weeks has continued this week. Hence, the number of covered areas, in which the Increasing trend and the Fast increase indicators are fulfilled, is only 1 for both indicators. Oostende is newly showing an Increasing trend. For the High circulation indicator, the number of areas in which the indicator is fulfilled has dropped from 28 last week (Wednesday 2nd of February) to 16 this week (Wednesday 09th of February).

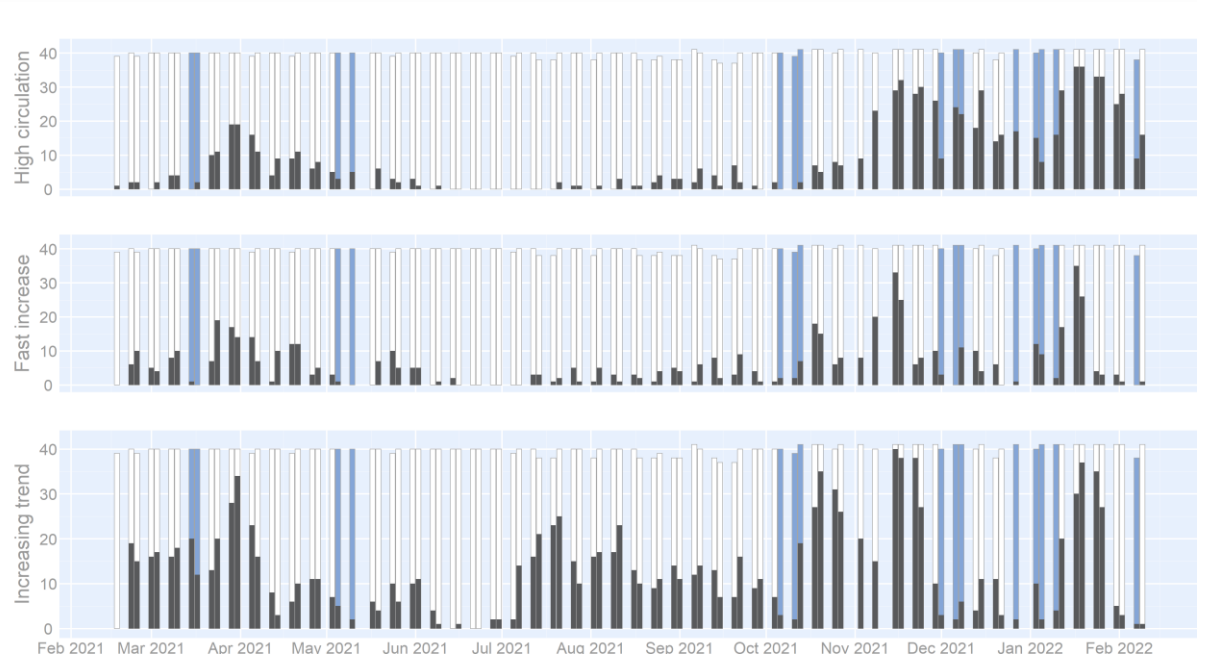


Figure 3: The number of areas (among the 41 covered by the wastewater surveillance this week and the 42 normally considered), with positive alerting indicators (black) compared to total number of areas considered every week in the wastewater surveillance (white). Latest results (last bar) from February 09th 2022. The white bars represent the total number of areas considered every week in the wastewater surveillance. The blue bars indicate dates at which an underestimation of the number of areas in which indicators are fulfilled due to dilution in the wastewaters.

4.4. VARIANTS

The Omicron variant represents a high proportion of all reported cases in Belgium[3]. The impact of the variant of concern Omicron was assessed to be negligible for the following reason: mutations present in the Omicron variant on the N1 and E genes could have potentially led to a drop out of those two genes leading to an underestimation of the viral concentrations in wastewaters. Preliminary experimental lab results indicate that no drop out of the genes should be expected. Hence, the sensitivity of the analytical lab methods used was not impacted. Therefore, the circulation of the Omicron variant is not underestimated in wastewaters.
However, the Omicron variant might have an impact on the faecal shedding load if infected people would excrete less in their faeces than for Delta. That stays hypothetical as we do not have strong evidence on it yet.

A regular investigation of the possible impact of variants of concern is done in order to screen their evolution in time.

[3] Source :Molecular surveillance of SARS-CoV-2

5. Appendix – Areas classified by alerting indicator

A 1: Covered areas (16 out of 41 on February 09th 2022) characterized as High circulation sorted in the descending order of importance.

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%)[1]	Mean viral cc (c./ml)[2]	Norm evol. (%/w)[3]	Incr days[4]	Date Max cc[5]
Liège	Liège Sclessin	1	0	0	296	647	-28	0	17/01/2022
Luxembourg	Arlon	1	0	0	218	421	-1	0	24/01/2022
Brabant Wallon	Vallée du Hain (L'Orchis)	1	0	0	195	231	-15	0	26/01/2022
Brabant Wallon	Basse Wavre (Dyle)	1	0	0	189	261	-68	0	29/11/2021
Hainaut	Froyennes	1	0	0	188	245	-27	0	24/01/2022
Liège	Liège Oupeye	1	0	0	147	333	-53	0	15/11/2021
Oost-Vlaanderen	Gent	1	0	0	144	2368	-49	2	02/02/2022
Hainaut	Montignies-sur-Sambre	1	1	0	130	331	485	0	24/01/2022
Hainaut	Wasmuel	1	0	0	124	198	-12	2	24/01/2022
Hainaut	Mouscron versant Espierres	1	0	0	122	224	-34	0	26/01/2022
Hainaut	Marchienne-au-Pont	1	0	0	92	205	-58	0	17/01/2022
West-Vlaanderen	Oostende	1	0	1	91	2401	-31	7	19/01/2022
Luxembourg	Marche-en-Famenne	1	0	0	82	163	17	0	26/01/2022
Antwerpen	Mechelen-Noord	1	0	0	71	182	-51	0	17/01/2022
Namur	Namur-Brumagne	1	0	0	57	159	-54	0	17/01/2022
Liège	Soumagne	1	0	0	57	250	-69	0	17/01/2022

[1] : the viral concentration normalized with the maximum viral concentration measured in the corresponding catchment area during the third wave (i.e. from mid-February 2021 till begin of July).
[2] : the viral concentration computed on the replicate of the three targeted gene fragments.
[3] : the slope (%/week) of the past 7 days moving average of the viral concentration if being above the estimated limit of quantification.
[4] : the cumulative number of days of increase of the past 14 days moving average of the viral concentration.
[5] : date at which the measured viral concentration was the highest since the beginning of the measurements. If the date was between 15th February and 15th May 2021, the date is considered to be during the third wave and mentioned as such.

A 2: Covered areas (1 out of 41 on the February 09th 2022) characterized as Fast increase sorted in the descending order of importance.

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%)[1]	Mean viral cc (c./ml)[2]	Norm evol. (%/w)[3]	Incr days[4]	Date Max cc[5]
Hainaut	Montignies-sur-Sambre	1	1	0	130	331	485	0	24/01/2022

[1] : the viral concentration normalized with the maximum viral concentration measured in the corresponding catchment area during the third wave (i.e. from mid-February 2021 till begin of July).
[2] : the viral concentration computed on the replicate of the three targeted gene fragments.
[3] : the slope (%/week) of the past 7 days moving average of the viral concentration if being above the estimated limit of quantification.
[4] : the cumulative number of days of increase of the past 14 days moving average of the viral concentration.
[5] : date at which the measured viral concentration was the highest since the beginning of the measurements. If the date was between 15th February and 15th May 2021, the date is considered to be during the third wave and mentioned as such.

A 3: Covered areas (1 out of 41 on the February 09th 2022) characterized as Increasing trend sorted in the descending order of importance.

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%)[1]	Mean viral cc (c./ml)[2]	Norm evol. (%/w)[3]	Incr days[4]	Date Max cc[5]
West-Vlaanderen	Oostende	1	0	1	91	2401	-31	7	19/01/2022

[1] : the viral concentration normalized with the maximum viral concentration measured in the corresponding catchment area during the third wave (i.e. from mid-February 2021 till begin of July).
[2] : the viral concentration computed on the replicate of the three targeted gene fragments.
[3] : the slope (%/week) of the past 7 days moving average of the viral concentration if being above the estimated limit of quantification.
[4] : the cumulative number of days of increase of the past 14 days moving average of the viral concentration.
[5] : date at which the measured viral concentration was the highest since the beginning of the measurements. If the date was between 15th February and 15th May 2021, the date is considered to be during the third wave and mentioned as such.

A 4: Covered areas (25 out of 41 on the February 09th 2022) in which no alerting indicator are fullfilled.

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%)[1]	Mean viral cc (c./ml)[2]	Norm evol. (%/w)[3]	Incr days[4]	Date Max cc[5]
Oost-Vlaanderen	Aalst	0	0	0	33	671	0	0	15/11/2021
Antwerpen	Aartselaar	0	0	0	17	100	0	0	29/11/2021
Liège	Amay	0	0	0	35	52	-83	0	26/01/2022
Antwerpen	Antwerpen-North	0	0	0	16	51	0	0	29/11/2021
Antwerpen	Antwerpen-South	0	0	0	4	78	0	0	3rd wave
Vlaams-Brabant	Beersel	0	0	0	26	1674	0	0	19/01/2022
West-Vlaanderen	Brugge	0	0	0	46	439	-6	0	17/11/2021
Brussels	Brussels-North	0	0	0	30	2330	-79	0	12/01/2022
Brussels	Brussel-South	0	0	0	46	4789	-63	0	19/01/2022
Oost-Vlaanderen	Dendermonde	0	0	0	14	50	0	0	17/01/2022
Oost-Vlaanderen	Destelbergen	0	0	0	26	1371	-51	0	3rd wave
Antwerpen	Deurne	0	0	0	4	240	0	0	3rd wave
Limburg	Genk	0	0	0	42	156	26	0	15/11/2021
Vlaams-Brabant	Grimbergen	0	0	0	33	858	-79	0	17/01/2022
West-Vlaanderen	Harelbeke	0	0	0	23	558	-50	0	18/10/2021
Limburg	Hasselt	0	0	0	12	14	0	0	17/01/2022
Limburg	Houthalen-Centrum	0	0	0	0	0	0	0	24/01/2022
Vlaams-Brabant	Leuven	0	0	0	26	788	0	0	17/11/2021
Vlaams-Brabant	Liedekerke	0	0	0	15	426	0	0	3rd wave
West-Vlaanderen	Menen	0	0	0	6	1420	0	0	3rd wave
Namur	Mornimont	0	0	0	29	46	-77	0	26/01/2022
West-Vlaanderen	Roeselare	0	0	0	6	870	0	0	3rd wave
Oost-Vlaanderen	Sint-Niklaas	0	0	0	19	210	0	0	17/01/2022
Limburg	Tessenderlo	0	0	0	8	31	0	0	17/01/2022
Antwerpen	Turnhout	0	0	0	39	154	0	0	17/01/2022

[1] : the viral concentration normalized with the maximum viral concentration measured in the corresponding catchment area during the third wave (i.e. from mid-February 2021 till begin of July).

[2] : the viral concentration computed on the replicate of the three targeted gene fragments.

[3] : the slope (%/week) of the past 7 days moving average of the viral concentration if being above the estimated limit of quantification.

[4] : the cumulative number of days of increase of the past 14 days moving average of the viral concentration.

[5] : date at which the measured viral concentration was the highest since the beginning of the measurements. If the date was between 15th February and 15th May 2021, the date is considered to be during the third wave and mentioned as such.