WEEKLY REPORT – WASTEWATER-BASED EPIDEMIOLOGICAL SURVEILLANCE OF THE SARS-COV-2
–
RESULTS OF 19/01/2022

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In collaboration with:

TABLE OF CONTENTS

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 January 19th 2022:

- At the national level: The results of this week continue to show a significant increase in the number of areas for which the indicators are fulfilled: from 29, 17, 20 areas on Monday the 12th of January 2022 to 36, 26, 37 on Monday the 19th of January 2022 respectively for the High circulation, Fast increase and Increasing trend indicators. The numbers of areas in which the High circulation (on Wednesday the 19th of January 2022) and the Fast increase (on Monday the 17th of January 2022) indicators are fulfilled were the highest since the beginning of the surveillance in wastewaters.
- At the provincial level: all the provinces had at least one alerting indicator positive. The provinces of Antwerpen, Hainaut, Limburg, Namur, Oost-Vlaanderen and Vlaams-Brabant are of particular concern as 3 indicators are fulfilled in these provinces.
- At the covered areas level: among the 41 areas covered[1], the number of treatment plants with at least one alerting indicator positive is 41, 36 belonging to the High circulation indicator, 26 belonging to the "Fast increase" indicator, and 37 belonging to the "Increasing trend" indicator. Last week (results of January 12th 2022), 37 areas (out of 41) had at least one alerting indicator positive.
- An alerting situation is evidenced for the covered areas of Aartselaar, Amay, Basse Wavre (Dyle), Brussel-South, Dendermonde, Destelbergen, Froyennes, Genk, Grimbergen, Hasselt, Liège Sclessin, Marche-en-Famenne, Marchienne-au-Pont, Mechelen-Noord, Montignies-sur-Sambre, Mornimont, Mouscron versant Espierres, Namur-Brumagne, Oostende, Sint-Niklaas, Soumagne, Tessenderlo, Turnhout, and Wasmuel as all three indicators are fulfilled.
- 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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[1] Due to the recent flooding events, the treatment plants from Wegnez (Verviers) and Grosses-Battes (Liège) are temporarily out of order. These two areas had therefore not been screened for SARS-CoV-2. Liège is still well represented within this surveillance, however Verviers is not. Since the 13th of October, the covered area of Soumagne is added to the surveillance.

2. Introduction

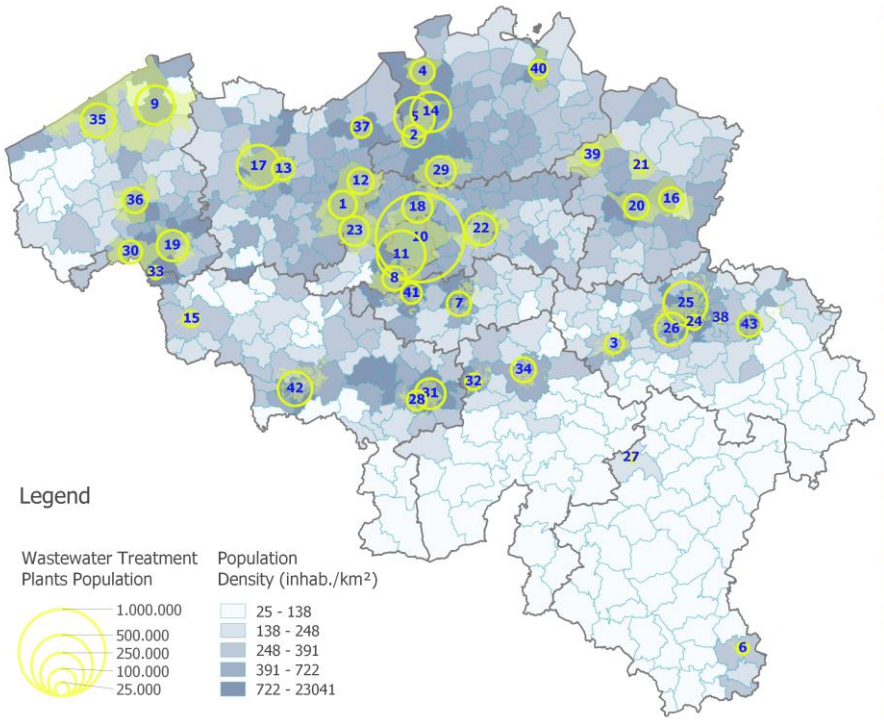
In mid-September 2020 started the SARS-CoV-2 national wastewater surveillance project. The present report is an outcome of this project aiming to assess weekly the wastewater-based epidemiological situation of Belgium.
The surveillance is based on the analysis of water samples collected twice per week 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 WWTPs 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 a 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).
The second wave peak occurring in November 2020 can be seen in the three regions in Figure 2 below. This is also true for the third wave, but to a lower extend in Wallonia. Several hypotheses could explain this: (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). Since the beginning of October 2021, the viral concentrations in the wastewater have been increasing, illustrating the fourth wave (Figure 2).

The fifth wave started at the beginning of January 2022 when a fast and steep increase in the viral concentrations in wastewaters has been observed. The last results indicate that the viral concentrations are still increasing in Wallonia, Brussels and Flanders.

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].

The last trends were analysed based on the alerting indicators presented in Table 1. In the three regions, a high level of viral concentration is recorded with an rising trend. The rising trend is illustrated by the positivity of the Fast increase and/or Increasing trend indicator in Table 1.

Table 1: Alerting indicators fulfilled (1) or not (0) on January 12th 2022. Columns represent the population coverage of the WWTPs within 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%	1	0	1	213	18269	22	14
Flanders	40%	1	1	1	129	2050	202	13
Wallonia	35%	1	1	0	204	396	206	6

[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.

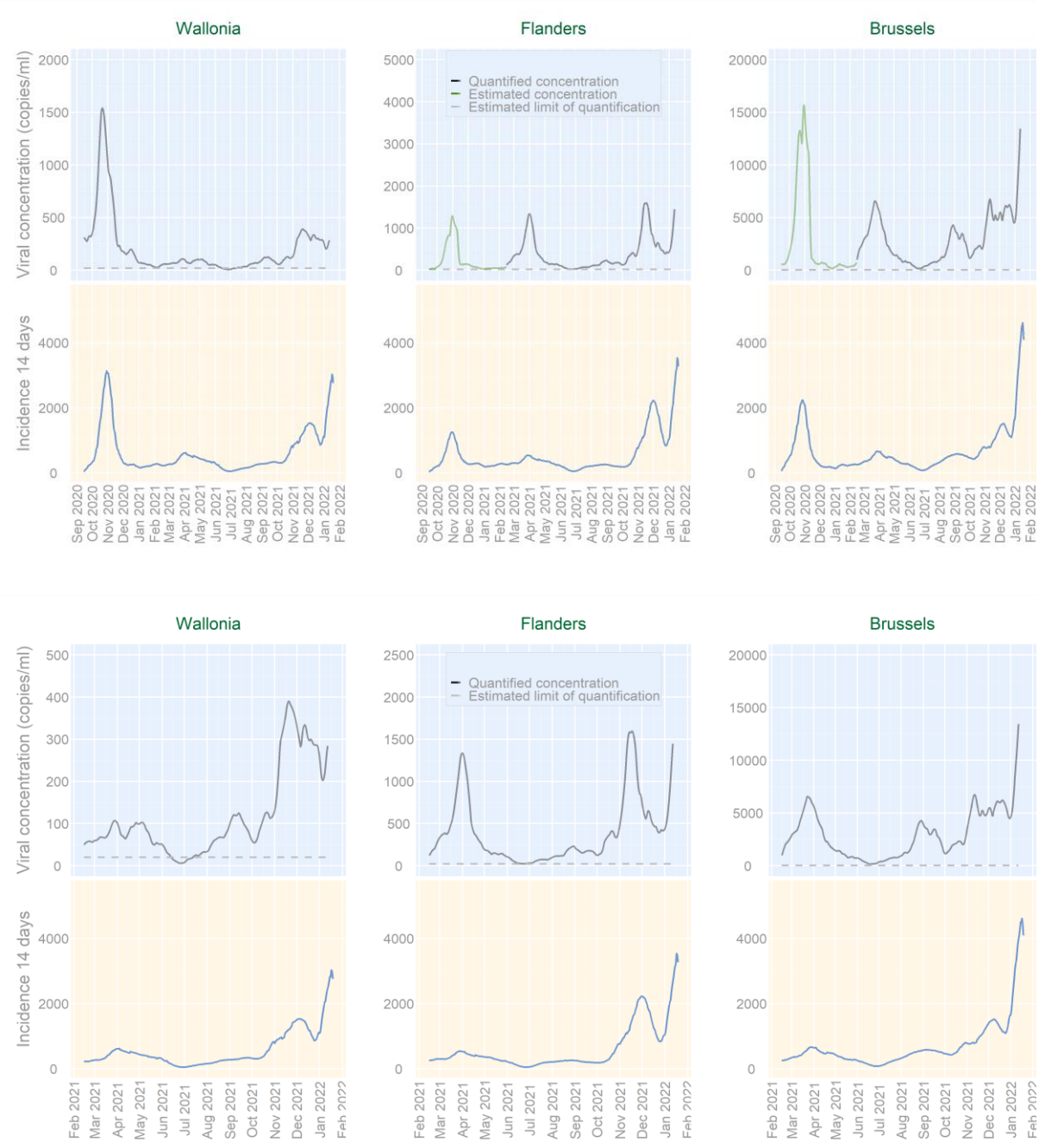


Figure 2: The SARS-CoV-2 RNA estimated and quantified concentrations expressed as copies/ml (based on the two weeks centered moving average applied on the linear interpolation), the estimated limit of quantification of 20 SARS-CoV-2 RNA copies/ ml (dashed line), and the 14 days incidence in the population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

4.2. PROVINCES

Table 2 shows, for each Province, the three alerting indicators. This table allows to track the changes between the situation as of today (January 19th 2022) and the situation as of last week (January 12th 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;**

Here are the results associated with the samples of Wednesday January 19th 2022:

- Last week on Wednesday January 12th 2022, all provinces had at least one alerting indicator positive.
- This week on Wednesday January 19th 2022, all the provinces had at least one alerting indicator positive. The provinces of Antwerpen, Hainaut, Limburg, Namur, Oost-Vlaanderen and Vlaams-Brabant are of particular concern as 3 indicators are fulfilled in these provinces.
- In a significant number of provinces, at least one indicator became positive this week.

Table 2: Alerting indicators fulfilled (1) or not (0) on January 19th 2022. Columns represent the population coverage of the WWTPs within the Provinces (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 "/".

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%	**1**	**1**	1	99	799	367	14
Brabant Wallon	33%	1	1	0	394	538	113	4
Brussels	100%	1	**0**	1	213	18269	22	14
Hainaut	29%	1	**1**	**1**	158	313	294	9
Liège	50%	1	**1**	0	214	458	77	3
Limburg	26%	1	1	**1**	264	560	399	12
Luxembourg	10%	1	**1**	0	167	323	871	4
Namur	23%	1	**1**	**1**	108	283	357	8
Oost-Vlaanderen	38%	1	1	**1**	128	2209	169	13
Vlaams-Brabant	61%	1	1	1	133	4413	73	15
West-Vlaanderen	52%	1	**0**	**1**	111	2231	60	13

[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 (January 19th 2022) and the situation as of last week (January 12th 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 Wednesday January 19th 2022. The number of treatment plants with at least one alerting indicator positive is 41 (out of 41 areas covered). Last week (results of January 12th 2022), 37 areas (out of 41 area covered) had at least one alerting indicator positive.

- The indicator High circulation is fulfilled in 36 covered areas. The full list of these stations can be found in Table 3 and in Appendix A1. In several areas, the measured viral concentration exceeded the maximal concentration registered during the 3rd wave. The list of these areas can be found in the tables of the different Appendices.
- The indicator Fast increase is fulfilled in 26 covered areas. Further details can be found in Appendix A2.
- The indicator "Increasing trend" is fulfilled in 37 covered areas. Among these areas, the viral concentration is continually increasing since two weeks in 19 covered areas: Deurne (23 days), Genk (16 days), Liedekerke (16 days), Aalst (14 days), Aartselaar (14 days), Antwerpen-South (14 days), Beersel (14 days), Brugge (14 days), Brussels-North (14 days), Brussel-South (14 days), Destelbergen (14 days), Gent (14 days), Grimbergen (14 days), Harelbeke (14 days), Houthalen-Centrum (14 days), Leuven (14 days), Menen (14 days), Montignies-sur-Sambre (14 days), and Roeselare (14 days). Further details can be found in Appendix A3.
- An alerting situation is evidenced for the covered areas of Aartselaar, Amay, Basse Wavre (Dyle), Brussel-South, Dendermonde, Destelbergen, Froyennes, Genk, Grimbergen, Hasselt, Liège Sclessin, Marche-en-Famenne, Marchienne-au-Pont, Mechelen-Noord, Montignies-sur-Sambre, Mornimont, Mouscron versant Espierres, Namur-Brumagne, Oostende, Sint-Niklaas, Soumagne, Tessenderlo, Turnhout, and Wasmuel as all three indicators are fulfilled.

The wastewater results can be accessed online for each area on the COVID-19 dashboard.

Table 3: Alerting indicators fulfilled (1) or not (0) on January 12th 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]
Oost-Vlaanderen	Aalst	0	0	1	48	971	65	14
Antwerpen	Aartselaar	1	1	1	64	381	226	14
Liège	Amay	1	1	1	232	339	443	7
Antwerpen	Antwerpen-North	1	0	0	138	438	25	2
Antwerpen	Antwerpen-South	0	1	1	44	913	202	14
Luxembourg	Arlon	1	0	0	203	391	48	2
Brabant Wallon	Basse Wavre (Dyle)	1	1	1	632	871	194	7
Vlaams-Brabant	Beersel	1	0	1	113	7277	45	14
West-Vlaanderen	Brugge	1	0	1	187	1771	62	14
Brussels	Brussels-North	1	0	1	200	15725	1	14
Brussels	Brussel-South	1	1	1	255	26804	90	14
Oost-Vlaanderen	**Dendermonde**	1	1	1	103	369	576	9
Oost-Vlaanderen	Destelbergen	1	1	1	80	4274	194	14
Antwerpen	Deurne	0	1	1	16	917	604	23
Hainaut	Froyennes	1	1	1	233	304	443	7
Limburg	Genk	1	1	1	117	440	197	16
Oost-Vlaanderen	Gent	1	0	1	183	3024	37	14
Vlaams-Brabant	Grimbergen	1	1	1	243	6341	159	14
West-Vlaanderen	Harelbeke	1	0	1	103	2526	42	14
Limburg	Hasselt	1	1	1	457	530	541	9
Limburg	Houthalen-Centrum	1	0	1	143	305	-24	14
Vlaams-Brabant	Leuven	1	0	1	103	3129	17	14
Vlaams-Brabant	Liedekerke	1	0	1	68	1926	69	16
Liège	Liège Oupeye	1	0	0	52	118	-50	0
Liège	Liège Sclessin	1	1	1	500	1092	164	7
Luxembourg	**Marche-en-Famenne**	1	1	1	85	170	2,724	7
Hainaut	**Marchienne-au-Pont**	1	1	1	112	247	772	7
Antwerpen	Mechelen-Noord	1	1	1	263	675	323	9

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%)[1]	Mean viral cc (c./ml)[2]	Norm evol. (%/w)[3]	Incr days[4]
West-Vlaanderen	Menen	0	0	1	15	3364	0	14
Hainaut	Montignies-sur-Sambre	1	1	1	187	475	330	14
Namur	**Mornimont**	1	1	1	63	103	851	7
Hainaut	Mouscron versant Espierres	1	1	1	203	372	118	9
Namur	Namur-Brumagne	1	1	1	127	357	152	9
West-Vlaanderen	Oostende	1	1	1	121	3197	133	9
West-Vlaanderen	Roeselare	0	0	1	1	138	0	14
Oost-Vlaanderen	Sint-Niklaas	1	1	1	127	1390	280	9
Liège	Soumagne	1	1	1	153	667	397	9
Limburg	Tessenderlo	1	1	1	221	867	627	9
Antwerpen	Turnhout	1	1	1	324	1276	952	9
Brabant Wallon	Vallée du Hain (L'Orchis)	1	0	0	69	81	2	0
Hainaut	Wasmuel	1	1	1	127	202	99	7

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

The results of this week continue to show a significant increase in the number of areas for which the indicators are fulfilled: from 29, 17, 20 areas on Monday the 12th of January 2022 to 36, 26, 37 on Monday the 19th of January 2022 respectively for the High circulation, Fast increase and Increasing trend indicators. The numbers of areas in which the High circulation (on Wednesday the 19th of January 2022) and the Fast increase (on Monday the 17th of January 2022) indicators are fulfilled were the highest since the beginning of the surveillance in wastewaters.

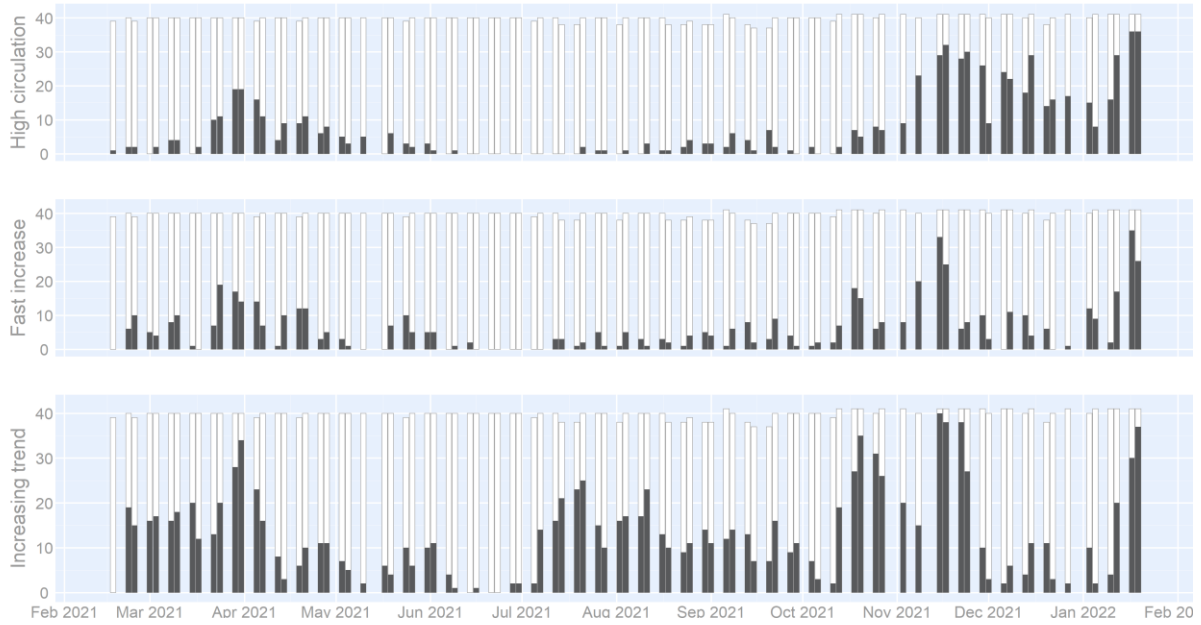


Figure 3: The number of areas (among the 41 covered by the wastewater surveillance this week and the 42 normally considered), with positive alerting indicators (black) compared to total number of areas considered every week in the wastewater surveillance (white). Latest results (last bar) from January 12th 2022. The white bars represent the total number of areas considered every week in the wastewater surveillance.

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 :Variant page of the COVID-19 dashboard

5. Appendix – Areas classified by alerting indicator

A 1: Covered areas (36 out of 41 on January 19th 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]
Brabant Wallon	Basse Wavre (Dyle)	1	1	1	632	871	194	7	29/11/2021
Liège	Liège Sclessin	1	1	1	500	1092	164	7	17/01/2022
Limburg	Hasselt	1	1	1	457	530	541	9	17/01/2022
Antwerpen	Turnhout	1	1	1	324	1276	952	9	17/01/2022
Antwerpen	Mechelen-Noord	1	1	1	263	675	323	9	17/01/2022
Brussels	Brussel-South	1	1	1	255	26804	90	14	19/01/2022
Vlaams-Brabant	Grimbergen	1	1	1	243	6341	159	14	17/01/2022
Hainaut	Froyennes	1	1	1	233	304	443	7	08/12/2021
Liège	Amay	1	1	1	232	339	443	7	19/01/2022
Limburg	Tessenderlo	1	1	1	221	867	627	9	17/01/2022
Luxembourg	Arlon	1	0	0	203	391	48	2	22/11/2021
Hainaut	Mouscron versant Espierres	1	1	1	203	372	118	9	19/01/2022
Brussels	Brussels-North	1	0	1	200	15725	1	14	12/01/2022
West-Vlaanderen	Brugge	1	0	1	187	1771	62	14	17/11/2021
Hainaut	Montignies-sur-Sambre	1	1	1	187	475	330	14	17/01/2022
Oost-Vlaanderen	Gent	1	0	1	183	3024	37	14	17/11/2021
Liège	Soumagne	1	1	1	153	667	397	9	17/01/2022
Limburg	Houthalen-Centrum	1	0	1	143	305	-24	14	19/01/2022
Antwerpen	Antwerpen-North	1	0	0	138	438	25	2	29/11/2021
Namur	Namur-Brumagne	1	1	1	127	357	152	9	17/01/2022
Oost-Vlaanderen	Sint-Niklaas	1	1	1	127	1390	280	9	17/01/2022
Hainaut	Wasmuel	1	1	1	127	202	99	7	27/12/2021
West-Vlaanderen	Oostende	1	1	1	121	3197	133	9	19/01/2022
Limburg	Genk	1	1	1	117	440	197	16	15/11/2021
Vlaams-Brabant	Beersel	1	0	1	113	7277	45	14	19/01/2022
Hainaut	Marchienne-au-Pont	1	1	1	112	247	772	7	17/01/2022
Oost-Vlaanderen	Dendermonde	1	1	1	103	369	576	9	17/01/2022

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	Harelbeke	1	0	1	103	2526	42	14	18/10/2021
Vlaams-Brabant	Leuven	1	0	1	103	3129	17	14	17/11/2021
Luxembourg	Marche-en-Famenne	1	1	1	85	170	2,724	7	29/11/2021
Oost-Vlaanderen	Destelbergen	1	1	1	80	4274	194	14	3rd wave
Brabant Wallon	Vallée du Hain (L'Orchis)	1	0	0	69	81	2	0	15/12/2021
Vlaams-Brabant	Liedekerke	1	0	1	68	1926	69	16	3rd wave
Antwerpen	Aartselaar	1	1	1	64	381	226	14	29/11/2021
Namur	Mornimont	1	1	1	63	103	851	7	15/11/2021
Liège	Liège Oupeye	1	0	0	52	118	-50	0	15/11/2021

[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 (26 out of 41 on the January 19th 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]
Luxembourg	Marche-en-Famenne	1	1	1	85	170	2,724	7	29/11/2021
Antwerpen	Turnhout	1	1	1	324	1276	952	9	17/01/2022
Namur	Mornimont	1	1	1	63	103	851	7	15/11/2021
Hainaut	Marchienne-au-Pont	1	1	1	112	247	772	7	17/01/2022
Limburg	Tessenderlo	1	1	1	221	867	627	9	17/01/2022
Antwerpen	Deurne	0	1	1	16	917	604	23	17/01/2022
Oost-Vlaanderen	Dendermonde	1	1	1	103	369	576	9	17/01/2022
Limburg	Hasselt	1	1	1	457	530	541	9	17/01/2022
Liège	Amay	1	1	1	232	339	443	7	19/01/2022
Hainaut	Froyennes	1	1	1	233	304	443	7	08/12/2021
Liège	Soumagne	1	1	1	153	667	397	9	17/01/2022

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	1	187	475	330	14	17/01/2022
Antwerpen	Mechelen-Noord	1	1	1	263	675	323	9	17/01/2022
Oost-Vlaanderen	Sint-Niklaas	1	1	1	127	1390	280	9	17/01/2022
Antwerpen	Aartselaar	1	1	1	64	381	226	14	29/11/2021
Antwerpen	Antwerpen-South	0	1	1	44	913	202	14	3rd wave
Limburg	Genk	1	1	1	117	440	197	16	15/11/2021
Brabant Wallon	Basse Wavre (Dyle)	1	1	1	632	871	194	7	29/11/2021
Oost-Vlaanderen	Destelbergen	1	1	1	80	4274	194	14	3rd wave
Liège	Liège Sclessin	1	1	1	500	1092	164	7	17/01/2022
Vlaams-Brabant	Grimbergen	1	1	1	243	6341	159	14	17/01/2022
Namur	Namur-Brumagne	1	1	1	127	357	152	9	17/01/2022
West-Vlaanderen	Oostende	1	1	1	121	3197	133	9	19/01/2022
Hainaut	Mouscron versant Espierres	1	1	1	203	372	118	9	19/01/2022
Hainaut	Wasmuel	1	1	1	127	202	99	7	27/12/2021
Brussels	Brussel-South	1	1	1	255	26804	90	14	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 3: Covered areas (37 out of 41 on the January 19th 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]
Antwerpen	Deurne	0	1	1	16	917	604	23	17/01/2022
Limburg	Genk	1	1	1	117	440	197	16	15/11/2021
Vlaams-Brabant	Liedekerke	1	0	1	68	1926	69	16	3rd wave
Oost-Vlaanderen	Aalst	0	0	1	48	971	65	14	15/11/2021
Antwerpen	Aartselaar	1	1	1	64	381	226	14	29/11/2021

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]
Antwerpen	Antwerpen-South	0	1	1	44	913	202	14	3rd wave
Vlaams-Brabant	Beersel	1	0	1	113	7277	45	14	19/01/2022
West-Vlaanderen	Brugge	1	0	1	187	1771	62	14	17/11/2021
Brussels	Brussels-North	1	0	1	200	15725	1	14	12/01/2022
Brussels	Brussel-South	1	1	1	255	26804	90	14	19/01/2022
Oost-Vlaanderen	Destelbergen	1	1	1	80	4274	194	14	3rd wave
Oost-Vlaanderen	Gent	1	0	1	183	3024	37	14	17/11/2021
Vlaams-Brabant	Grimbergen	1	1	1	243	6341	159	14	17/01/2022
West-Vlaanderen	Harelbeke	1	0	1	103	2526	42	14	18/10/2021
Limburg	Houthalen-Centrum	1	0	1	143	305	-24	14	19/01/2022
Vlaams-Brabant	Leuven	1	0	1	103	3129	17	14	17/11/2021
West-Vlaanderen	Menen	0	0	1	15	3364	0	14	3rd wave
Hainaut	Montignies-sur-Sambre	1	1	1	187	475	330	14	17/01/2022
West-Vlaanderen	Roeselare	0	0	1	1	138	0	14	3rd wave
Oost-Vlaanderen	Dendermonde	1	1	1	103	369	576	9	17/01/2022
Limburg	Hasselt	1	1	1	457	530	541	9	17/01/2022
Antwerpen	Mechelen-Noord	1	1	1	263	675	323	9	17/01/2022
Hainaut	Mouscron versant Espierres	1	1	1	203	372	118	9	19/01/2022
Namur	Namur-Brumagne	1	1	1	127	357	152	9	17/01/2022
West-Vlaanderen	Oostende	1	1	1	121	3197	133	9	19/01/2022
Oost-Vlaanderen	Sint-Niklaas	1	1	1	127	1390	280	9	17/01/2022
Liège	Soumagne	1	1	1	153	667	397	9	17/01/2022
Limburg	Tessenderlo	1	1	1	221	867	627	9	17/01/2022
Antwerpen	Turnhout	1	1	1	324	1276	952	9	17/01/2022
Liège	Amay	1	1	1	232	339	443	7	19/01/2022
Brabant Wallon	Basse Wavre (Dyle)	1	1	1	632	871	194	7	29/11/2021
Hainaut	Froyennes	1	1	1	233	304	443	7	08/12/2021
Liège	Liège Sclessin	1	1	1	500	1092	164	7	17/01/2022
Luxembourg	Marche-en-Famenne	1	1	1	85	170	2,724	7	29/11/2021
Hainaut	Marchienne-au-Pont	1	1	1	112	247	772	7	17/01/2022
Namur	Mornimont	1	1	1	63	103	851	7	15/11/2021

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	Wasmuel	1	1	1	127	202	99	7	27/12/2021

[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 (0 out of 41 on the January 19th 2022) in which no alerting indicator are fullfilled.

This week, no covered area has no alerting indicator fulfilled.