

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

— RESULTS OF 15/12/2021

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In collaboration with:



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1. Summary

The circulation of the SARS-CoV-2 virus in the environment is assessed in the present work 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 is a source of complementary information to the infection cases number as the populations represented are different. 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 December 15th 2021:

- At the national level: the viral concentrations in the wastewater had been increasing since the beginning of October, illustrating the fourth wave. The last results indicate that the viral concentrations in Wallonia and Flanders are decreasing, while the concentrations are fluctuating around a high level in Brussels.
- At the provincial level: Brabant Wallon, Brussels, Hainaut, Liège, Limburg, Luxembourg, Namur, Oost-Vlaanderen, and Vlaams-Brabant are the provinces positive to at least one of the three alerting indicators. Also, the provinces of Brabant Wallon and Namur are of particular concern as the conditions for 2 indicators are met in these provinces.
- At the covered areas level: among the 41 areas covered¹, the number of treatment plants with at least one alerting indicator positive is 32, 29 meet the “High circulation” indicator, 4 the “Fast increase” indicator, and 11 the “Increasing trend” indicator. Last week (results of December 08th 2021), 31 areas (out of 41 areas) had at least one alerting indicator positive.
- An alarming situation is noticed for the covered area of Mornimont as all three indicators are fulfilled.
- The appearance of the Omicron Variant of Concern is unlikely to have a substantial impact on the wastewater surveillance (see 4.4 Variants). Deeper investigation of the impact of this variant is currently performed.

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 \(access online\)](#).

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 the SARS-CoV-2 national wastewater surveillance project started. 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, alerting indicators were developed to highlight areas of concern regarding the high circulation, the fast evolution, or 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 1 by province (see also Table A1 in the [Appendix Methodology document \(access online\)](#)) 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.

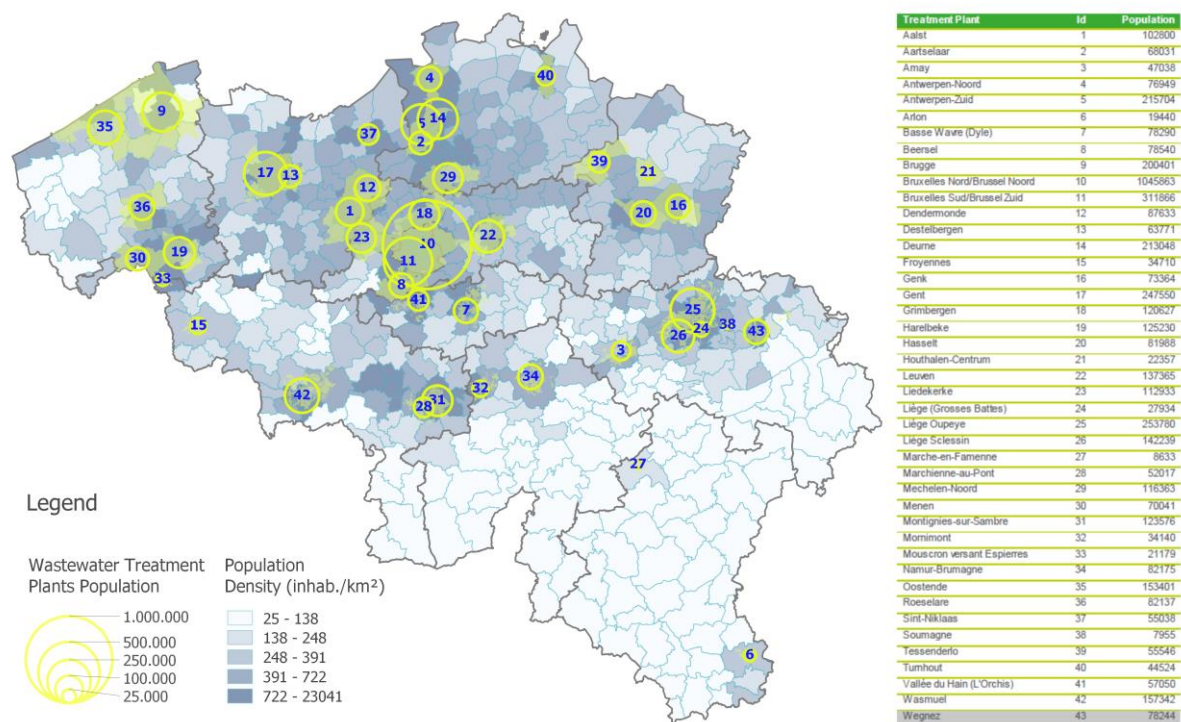


Figure 1: The population located in the areas covered by the wastewater treatment plants (highlighted in yellow) and the population density for each municipality (indicated by the blue scale). Note that due to the recent flooding, the treatment plant of Wegnez is out of order. This area is, hence, not considered anymore in the wastewater surveillance and has been 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 to estimate 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 start to increase in an area, the indicator Increasing trend will be the first fulfilled. If the concentrations increase quickly, the Fast increase indicator will then be fulfilled. Finally, after the initial increasing phase, the concentrations in an area will 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. Absolute values should not be compared as the concentration values differ from one WWTP to another, notably due to the differences in population sizes covered. 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 include only the persons 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 (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 at an undetermined concentration.

4. Results

4.1. REGIONS

Figure 2 presents the quantitative SARS-CoV-2 RNA concentration 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 remains true for the third wave, but to a lower extent 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)

Recently, the viral concentrations in the wastewater were increasing since the beginning of October, illustrating the fourth wave (Figure 2). The last results indicate that the viral concentrations in Wallonia and Flanders are decreasing, while the concentrations are fluctuating around a high level in Brussels. It should be noted that the last viral concentrations in wastewaters are not displayed in the figure as the regional corresponding trends are still to be validated with the next week results². For a correct assessment of the last trends, refer to sections 4.2 and 4.3.

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.

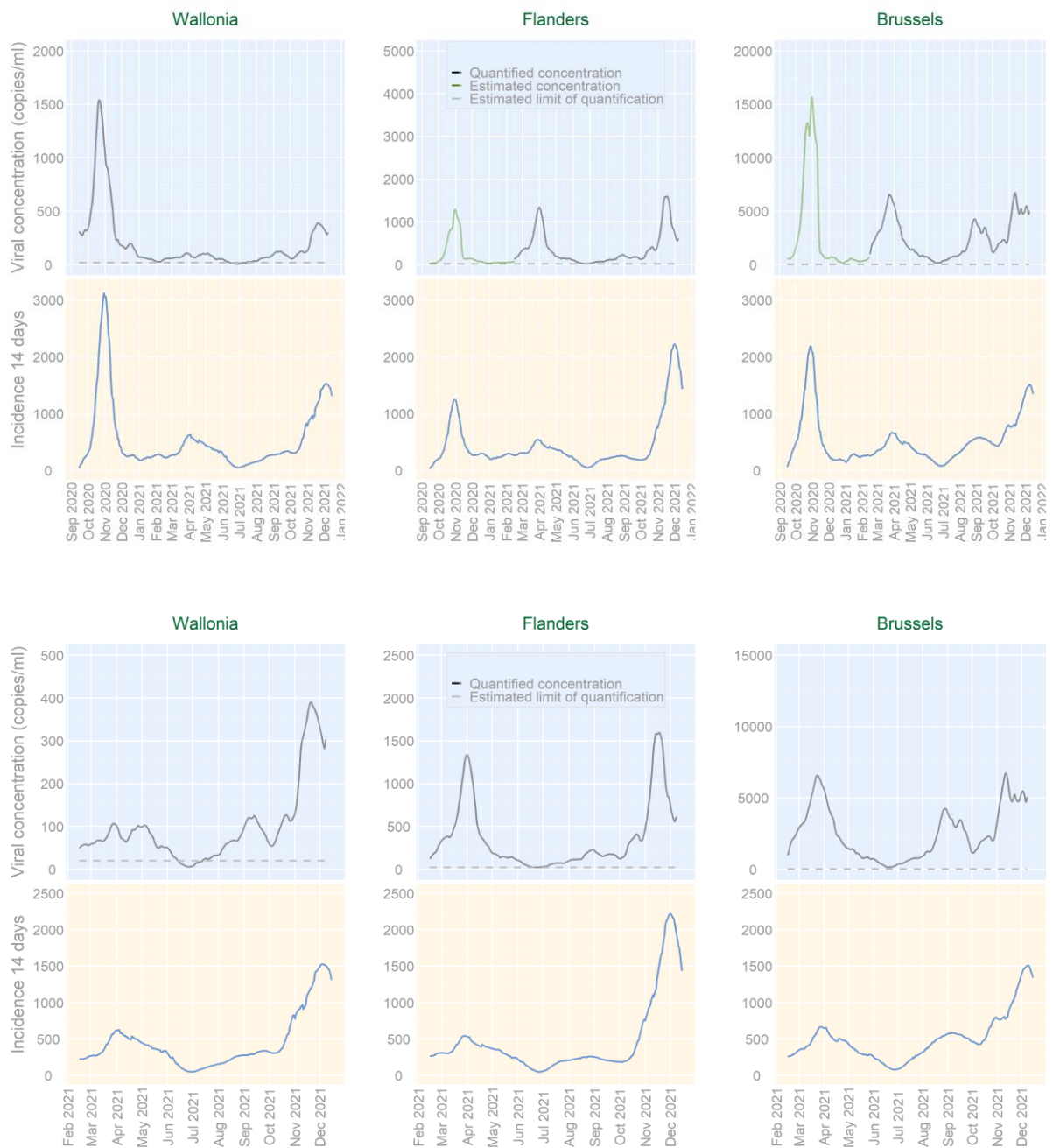


Figure 2: The SARS-CoV-2 RNA estimated and quantified concentrations expressed as copies/ml (two weeks centered moving average applied on the linear interpolation), the estimated limit of quantification of 20 SARS-CoV-2 RNA copies/ ml, and the 14 days incidence in the population covered by the wastewater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

4.2. PROVINCES

Table 1 shows, for each Province, the results associated with the samples of Wednesday December 15th 2021, for the three alerting indicators:

- Wednesday December 08th 2021, 10 provinces had at least one alerting indicator positive: Brabant Wallon, Brussels, Hainaut, Liège, Limburg, Luxembourg, Namur, Oost-Vlaanderen, Vlaams-Brabant, and West-Vlaanderen.
- Wednesday December 15th 2021, 9 provinces had at least one alerting indicator positive: Brabant Wallon, Brussels, Hainaut, Liège, Limburg, Luxembourg, Namur, Oost-Vlaanderen, and Vlaams-Brabant. The provinces of Brabant Wallon and Namur are of particular concern as 2 indicators are fulfilled in these provinces.
- It should be noted that although the 50% threshold of viral circulation is not exceeded (in comparison of the highest level observed since the 3rd wave), the viral concentrations in the provinces of Antwerpen are still high (respectively 48%).

Table 1 allows to track the changes between the situation as of today (December 15th 2021) and the situation as of last week (December 08th 2021). Hereby, two distinct situations 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 this 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 1: Alerting indicators fulfilled (1) or not (0) on December 15th 2021 and the percentage of population covered in the provinces. Columns represent the population coverage of the WWTP within the Province (Pop. coverage), the High Circulation indicator (High), the Fast increase indicator (Fast) and the Increasing trend indicator (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	48	380	-2.3	2
Brabant Wallon	33%	1	1	0	534	703	140.4	2
Brussels	100%	1	0	0	81	6843	19.0	2
Hainaut	29%	1	0	0	135	256	9.4	6
Liège	50%	1	0	0	234	516	22.6	4
Limburg	26%	1	0	0	100	219	-9.4	4
Luxembourg	10%	1	0	0	154	299	68.9	2
Namur	23%	1	1	0	86	173	74.2	2
Oost-Vlaanderen	38%	1	0	0	52	805	-25.7	2
Vlaams-Brabant	61%	1	0	0	70	2085	-0.7	2
West-Vlaanderen	52%	0	0	0	37	815	7.7	5

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 2 shows, for each catchment area, the values of the three alerting indicators obtained based on the results of last Wednesday's sample. The number of treatment plants with at least one alerting indicator positive is 32 (out of 41 areas covered). Last week (results of December 08th 2021), 30 areas (out of 41 area covered) had at least one alerting indicator positive.

- The indicator High circulation is fulfilled in 29 covered areas. The full list of these stations can be found in Table 2 and in Appendix A1. In several areas, the measured viral concentration exceeded the maximal concentration registered during the 3rd wave. The list of these stations can be found in the tables of the different Appendices.
- The indicator "Fast increase" is fulfilled in 4 covered areas: Basse Wavre (Dyle) (168% increase per week), Mornimont (127% increase per week), Vallée du Hain (L'Orchis) (103% increase per week) and Arlon (94% increase per week). Further details can be found in Appendix A2.
- The indicator "Increasing trend" is fulfilled in 11 covered areas. Among these areas, the viral concentration is continually increasing since two weeks in 2 covered areas: Amay (23 days) and Froyennes (14 days). Further details can be found in Appendix A3.
- An alerting situation is noted for the covered area of Mornimont as all three indicators are fulfilled.

The wastewater results can be accessed online for each area on the [COVID-19 dashboard](#).

Table 2 is a snapshot of the number of areas highlighted by the indicators for the last results obtained, which correspond to the 24h-representative samples of last Wednesday December 15th 2021.

Table 2 allows to track the changes between the situation as of today (December 15th 2021) and the situation as of last week (December 08th 2021). 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 1.

Table 2: Alerting indicators fulfilled (1) or not (0) on December 15th 2021 for the catchment areas covered by the wastewater treatment plants. Columns represent the population coverage of the WWTP within the Province (Pop. coverage), the High circulation indicator(High), the Fast increase indicator (Fast) and the Increasing trend indicator (Incr.). The specifications of the four last columns are explained in the footnotes 1-4 below the table.

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%) ¹	Mean viral cc (c./ml) ²	Norm evol. (%/w) ³	Incr days ⁴
Antwerpen	Aartselaar	1	0	0	55	332	-5	2
Liège	Amay	1	0	1	132	194	-15	23
Antwerpen	Antwerpen-North	1	0	0	99	315	54	2
Luxembourg	Arlon	1	1	0	180	346	94	2
Brabant Wallon	Basse Wavre (Dyle)	1	1	0	624	861	168	2
West-Vlaanderen	Brugge	1	0	1	59	559	25	7
Brussels	Brussels-North	1	0	0	82	6443	9	2
Brussels	Brussel-South	1	0	0	78	8185	52	2
Oost-Vlaanderen	Dendermonde	1	0	0	58	207	18	2
Hainaut	Froyennes	1	0	1	324	422	-4	14
Limburg	Genk	1	0	0	55	206	-25	2
Oost-Vlaanderen	Gent	1	0	0	69	1137	-43	2
Vlaams-Brabant	Grimbergen	1	0	0	132	3451	11	2
Limburg	Hasselt	1	0	0	164	190	-20	2
Limburg	Houthalen-Centrum	1	0	1	68	144	33	9
Vlaams-Brabant	Leuven	1	0	0	76	2316	-43	2
Liège	Liège Oupeye	1	0	0	238	539	36	2
Liège	Liège Sclessin	1	0	0	269	587	14	2
Luxembourg	Marche-en-Famenne	1	0	0	97	193	13	2
Hainaut	Marchienne-au-Pont	1	0	0	59	131	-19	2
Antwerpen	Mechelen-Noord	1	0	0	115	296	14	2
West-Vlaanderen	Menen	0	0	1	5	1166	21	7
Hainaut	Montignies-sur-Sambre	1	0	0	143	363	4	2
Namur	Mornimont	1	1	1	195	317	127	7
Hainaut	Mouscron versant Espierres	1	0	0	97	178	-29	2
West-Vlaanderen	Oostende	0	0	1	29	758	6	7
Oost-Vlaanderen	Sint-Niklaas	0	0	1	40	442	43	7
Liège	Soumagne	1	0	0	99	431	-26	2

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%) ¹	Mean viral cc (c./ml) ²	Norm evol. (%/w) ³	Incr days ⁴
Limburg	Tessenderlo	1	0	1	79	309	9	7
Antwerpen	Turnhout	1	0	1	87	342	11	7
Brabant Wallon	Vallée du Hain (L'Orchis)	1	1	0	411	488	103	2
Hainaut	Wasmuel	1	0	1	118	188	31	9

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 Destelbergen, Harelbeke, and Roeselare 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 indicators over time. For further insights on the dynamic of the different indicators, see Section 3.3. The number of "High circulation" areas is high and fluctuating since five weeks. Taking the Fast increase and Increasing trend indicators into account, the overall situation is assessed to have an decreasing trend.



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 (latest results on December 15th 2021).

4.4. VARIANTS

Mutations are present in the Omicron variant on the N1 and E genes which could potentially lead to a drop out of those two genes leading to an underestimation of the viral concentrations in wastewaters. However, as the Omicron variant only represented a very small proportion of all sequences reported in Belgium³ and as the correlations between the measured concentrations on the N1, E and N2 genes remain high and significant over the last two weeks, it is unlikely that this variant causes substantial impact on the wastewater surveillance this week. A regular investigation of the possible impact of Omicron is done in order to screen the evolution in time.

³ Source : <https://datastudio.google.com/embed/u/0/reporting/c14a5cfc-cab7-4812-848c-0369173148ab/page/urrUC>

5. Appendix – Areas classified by alerting indicator

A 1: Covered areas (29 out of 41 on December 15th 2021) characterized as High circulation sorted in descending order of magnitude.

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	0	624	861	168	2	29/11/2021
Brabant Wallon	Vallée du Hain (L'Orchis)	1	1	0	411	488	103	2	15/12/2021
Hainaut	Froyennes	1	0	1	324	422	-4	14	08/12/2021
Liège	Liège Sclessin	1	0	0	269	587	14	2	24/11/2021
Liège	Liège Oupeye	1	0	0	238	539	36	2	15/11/2021
Namur	Mornimont	1	1	1	195	317	127	7	15/11/2021
Luxembourg	Arlon	1	1	0	180	346	94	2	22/11/2021
Limburg	Hasselt	1	0	0	164	190	-20	2	08/11/2021
Hainaut	Montignies-sur-Sambre	1	0	0	143	363	4	2	15/11/2021
Liège	Amay	1	0	1	132	194	-15	23	06/12/2021
Vlaams-Brabant	Grimbergen	1	0	0	132	3451	11	2	15/11/2021
Hainaut	Wasmuel	1	0	1	118	188	31	9	15/11/2021
Antwerpen	Mechelen-Noord	1	0	0	115	296	14	2	24/11/2021
Antwerpen	Antwerpen-North	1	0	0	99	315	54	2	29/11/2021
Liège	Soumagne	1	0	0	99	431	-26	2	15/11/2021
Luxembourg	Marche-en-Famenne	1	0	0	97	193	13	2	29/11/2021
Hainaut	Mouscron versant Espierres	1	0	0	97	178	-29	2	06/12/2021
Antwerpen	Turnhout	1	0	1	87	342	11	7	24/11/2021
Brussels	Brussels-North	1	0	0	82	6443	9	2	29/11/2021
Limburg	Tessenderlo	1	0	1	79	309	9	7	22/11/2021
Brussels	Brussel-South	1	0	0	78	8185	52	2	29/11/2021
Vlaams-Brabant	Leuven	1	0	0	76	2316	-43	2	17/11/2021
Oost-Vlaanderen	Gent	1	0	0	69	1137	-43	2	17/11/2021
Limburg	Houthalen-Centrum	1	0	1	68	144	33	9	08/11/2021
West-Vlaanderen	Brugge	1	0	1	59	559	25	7	17/11/2021
Hainaut	Marchienne-au-Pont	1	0	0	59	131	-19	2	15/11/2021
Oost-Vlaanderen	Dendermonde	1	0	0	58	207	18	2	22/11/2021

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	Aartselaar	1	0	0	55	332	-5	2	29/11/2021
Limburg	Genk	1	0	0	55	206	-25	2	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 (4 out of 41 on the December 15th 2021) characterized as Fast increase sorted in the descending order of magnitude.

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	0	624	861	168	2	29/11/2021
Namur	Mornimont	1	1	1	195	317	127	7	15/11/2021
Brabant Wallon	Vallée du Hain (L'Orchis)	1	1	0	411	488	103	2	15/12/2021
Luxembourg	Arlon	1	1	0	180	346	94	2	22/11/2021

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 3: Covered areas (11 out of 41 on the December 15th 2021) characterized as Increasing trend sorted in the descending order of magnitude.

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	Amay	1	0	1	132	194	-15	23	06/12/2021
Hainaut	Froyennes	1	0	1	324	422	-4	14	08/12/2021
Limburg	Houthalen-Centrum	1	0	1	68	144	33	9	08/11/2021

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	0	1	118	188	31	9	15/11/2021
West-Vlaanderen	Brugge	1	0	1	59	559	25	7	17/11/2021
West-Vlaanderen	Menen	0	0	1	5	1166	21	7	3 rd wave
Namur	Mornimont	1	1	1	195	317	127	7	15/11/2021
West-Vlaanderen	Oostende	0	0	1	29	758	6	7	17/11/2021
Oost-Vlaanderen	Sint-Niklaas	0	0	1	40	442	43	7	3 rd wave
Limburg	Tessenderlo	1	0	1	79	309	9	7	22/11/2021
Antwerpen	Turnhout	1	0	1	87	342	11	7	24/11/2021

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 4: Covered areas (9 out of 41 on the December 15th 2021) in which no alerting indicator is fulfilled.

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	37	766	-51	2	15/11/2021
Antwerpen	Antwerpen-South	0	0	0	27	550	-5	2	3 rd wave
Vlaams-Brabant	Beersel	0	0	0	21	1378	34	2	3 rd wave
Oost-Vlaanderen	Destelbergen	0	0	0	13	711	-38	2	3 rd wave
Antwerpen	Deurne	0	0	0	5	300	-31	2	3 rd wave
West-Vlaanderen	Harelbeke	0	0	0	49	1201	-30	2	18/10/2021
Vlaams-Brabant	Liedekerke	0	0	0	29	835	14	2	3 rd wave
Namur	Namur-Brumagne	0	0	0	40	113	52	0	15/11/2021
West-Vlaanderen	Roeselare	0	0	0	5	660	14	2	3 rd wave

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.