

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

— RESULTS OF 24/11/2021

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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 November 24th 2021:

- At the national level: The number of covered areas for which the indicators High circulation and Increasing trend are fulfilled are still high this week. However, a strong decrease in the number of areas for which the indicator fast increase is fulfilled was observed. This may indicate that the concentrations are not increasing exponentially anymore in a consequent number of area.
- At the provincial level: Antwerpen, Brabant Wallon, Hainaut, Liège, Limburg, Luxembourg, Namur, Oost-Vlaanderen, Vlaams-Brabant, and West-Vlaanderen are the provinces positive to at least one of the three alerting indicators. The provinces of Antwerpen, Brabant Wallon and Luxembourg are of particular concern as respectively 3 indicators are fulfilled in these provinces. This week, only the region of Brussels shows a decreasing trend.
- At the covered areas level: among the 41 areas covered¹, the number of treatment plants with at least one alerting indicator positive is 37, 30 belonging to the High circulation indicator, 8 belonging to the “Fast increase” indicator, and 27 belonging to the “Increasing trend” indicator. Last week (results of November 17th 2021), 40 areas had at least one alerting indicator positive.
- Attention point for the covered areas of Antwerpen-North, Arlon, Mechelen-Noord, Tessenderlo, Turnhout, and Vallée du Hain (L’Orchis), where all three indicators are fulfilled.

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 \(access online\)](#).
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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, 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 1 by province (see also Tables 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.

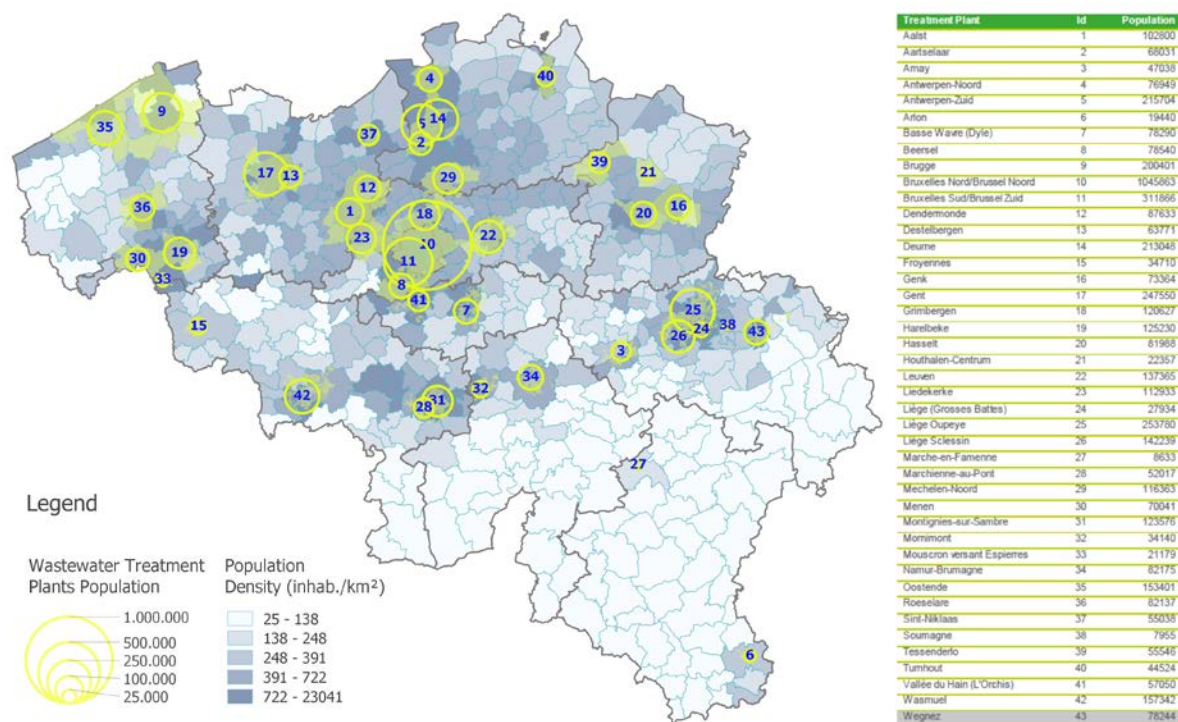


Figure 1: The population located in the areas covered by the wastewater treatment plants (highlighted in yellow) and the population density for each municipality (indicated by the blue scale). Note that due to the recent flooding, the treatment plant of Wegnez is out of order. This area is, hence, not 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 for estimating the limit of quantification of the analytical method at 20 copies/ml.

3.3. ALERTING INDICATORS

To highlight the areas of possible concerns, 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 has increased during more than 6 days.

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 an 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 clinically 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

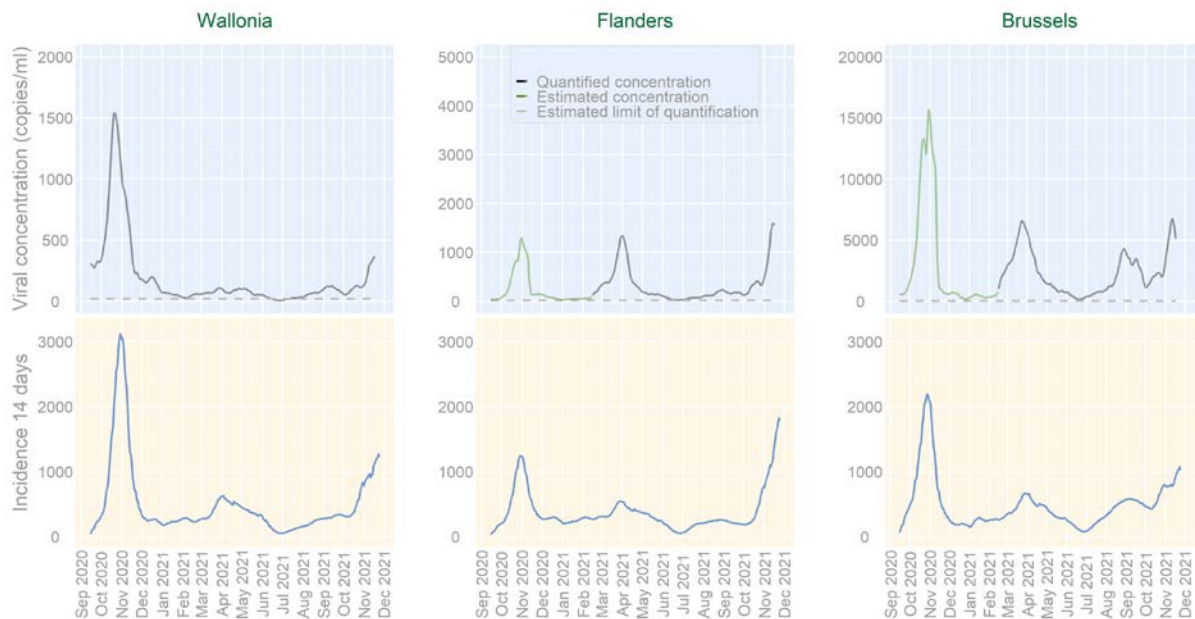
4.1. REGIONS

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 may have reached a peak, and that they are in a decreasing trend 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.



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.

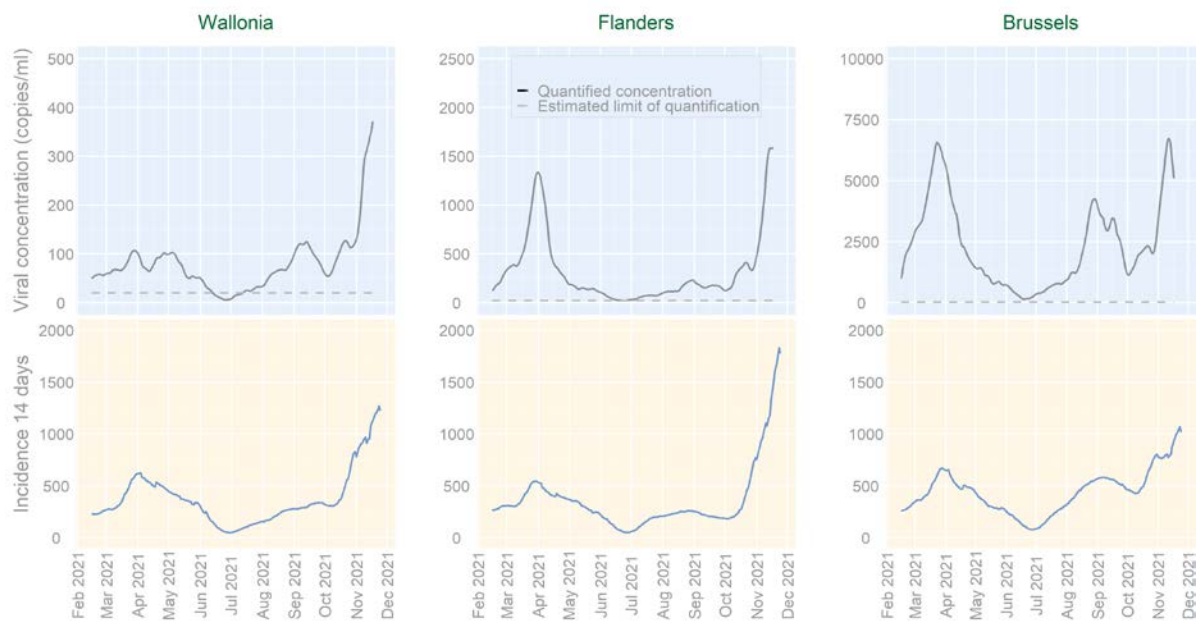


Figure 2: The SARS-CoV-2 RNA estimated and quantified concentrations expressed as copies/ml (two weeks centered moving average applied on the linear interpolation), the estimated limit of quantification of 20 SARS-CoV-2 RNA copies/ ml, and the 14 days incidence in the population covered by the wastewater 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 November 24th 2021, for the three alerting indicators:

- Last week on Wednesday November 17th 2021, 11 provinces had at least one alerting indicator positive: Antwerpen, Brabant Wallon, Brussels, Hainaut, Liège, Limburg, Luxembourg, Namur, Oost-Vlaanderen, Vlaams-Brabant, and West-Vlaanderen.
- This week on Wednesday November 24th 2021, 10 provinces had at least one alerting indicator positive: Antwerpen, Brabant Wallon, Hainaut, Liège, Limburg, Luxembourg, Namur, Oost-Vlaanderen, Vlaams-Brabant, and West-Vlaanderen. The provinces of Antwerpen, Brabant Wallon and Luxembourg are of particular concern as respectively 3 indicators are fulfilled in these provinces.
- Note that an erratum of the wastewaters weekly report on the 17th November 2021 has been published on Sciensano's webpage. The values for the indicator Fast increase for the provinces of Antwerpen, Brussels and Limburg were miscalculated. The change in threshold value for the Fast increase indicator (70 % increase per week) was not correctly applied. While this is an unfortunate mistake, it does not affect the overall conclusion of this report.

Table 1 allows to track the changes between the situation as of today (November 24th 2021) and the situation as of last week (November 17th 2021). Hereby, three 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 1: Alerting indicators fulfilled (1) or not (0) on November 24th 2021 and the percentage of population covered by 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	39%	1	1	1	82	806	113	17
Brabant Wallon	33%	1	1	1	337	437	81	25
Brussels	100%	0	0	0	35	2910	-55	0
Hainaut	29%	1	0	1	132	269	-10	19
Liège	43%	1	0	1	343	764	12	19
Limburg	26%	1	0	1	114	304	6	7
Luxembourg	10%	1	1	1	245	474	92	19
Namur	23%	1	0	1	108	269	-42	9
Oost-Vlaanderen	38%	1	0	1	125	2065	-5	22
Vlaams-Brabant	49%	1	0	1	71	2202	-39	9
West-Vlaanderen	52%	1	0	1	74	1822	-53	17

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 37 (out of 41 areas covered). Last week (results of November 17th 2021), 40 areas had at least one alerting indicator positive.

- The indicator High circulation is fulfilled in 30 covered areas. The full list of these areas 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 full list of these areas can be found in the different tables in the appendices.
- The indicator "Fast increase" is fulfilled in 8 covered areas: Mechelen-Noord (220% increase per week), Vallée du Hain (L'Orchis) (156% increase per week), Arlon (143% increase per week), Aartselaar (139% increase per week), Tessenderlo (123% increase per week), Antwerpen-North (107% increase per week), Antwerpen-South (101% increase per week), and Turnhout (101% increase per week). Further details can be found in Appendix A2.
- The indicator "Increasing trend" is fulfilled in 27 covered areas. The full list of these areas can be found in Appendix A3.
- Attention point for the covered areas of Antwerpen-North, Arlon, Mechelen-Noord, Tessenderlo, Turnhout, and Vallée du Hain (L'Orchis), where 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 November 24th 2021.

Table 2 allows to track the changes between the situation as of today (November 24th 2021) and the situation as of last week (November 17th 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 November 24th 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
Oost-Vlaanderen	Aalst	1	0	1	148	3015	-40	21

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%) ¹	Mean viral cc (c./ml) ²	Norm evol. (%/w) ³	Incr days ⁴
Antwerpen	Aartselaar	0	1	0	13	76	139	0
Liège	Amay	1	0	0	69	102	-18	2
Antwerpen	Antwerpen-North	1	1	1	91	287	107	44
Antwerpen	Antwerpen-South	0	1	0	38	778	101	2
Luxembourg	Arlon	1	1	1	298	575	143	21
Brabant Wallon	Basse Wavre (Dyle)	1	0	1	341	470	27	7
Vlaams-Brabant	Beersel	0	0	1	32	2086	-28	21
West-Vlaanderen	Brugge	1	0	1	115	1088	-58	21
Oost-Vlaanderen	Dendermonde	1	0	1	76	273	41	30
Antwerpen	Deurne	0	0	1	23	1337	62	28
Hainaut	Froyennes	1	0	0	134	174	-27	0
Limburg	Genk	1	0	0	112	421	-45	0
Oost-Vlaanderen	Gent	1	0	1	180	2969	-12	21
Vlaams-Brabant	Grimbergen	1	0	0	96	2507	-30	0
West-Vlaanderen	Harelbeke	1	0	0	69	1684	-49	0
Limburg	Hasselt	1	0	0	138	160	-18	0
Vlaams-Brabant	Leuven	1	0	0	56	1694	-74	0
Vlaams-Brabant	Liedekerke	1	0	1	90	2576	-15	21
Liège	Liège Oupeye	1	0	1	244	553	4	21
Liège	Liège Sclessin	1	0	1	617	1347	35	21
Luxembourg	Marche-en-Famenne	1	0	1	124	247	-23	16
Hainaut	Marchienne-au-Pont	1	0	1	165	366	-19	16
Antwerpen	Mechelen-Noord	1	1	1	272	700	220	9
West-Vlaanderen	Menen	0	0	1	12	2568	-45	21
Hainaut	Montignies-sur-Sambre	1	0	1	157	398	-18	16
Namur	Mornimont	1	0	1	102	165	-33	30
Hainaut	Mouscron versant Espierres	1	0	1	75	138	34	16
Namur	Namur-Brumagne	1	0	0	111	313	-46	0
West-Vlaanderen	Oostende	1	0	1	82	2183	-47	21
West-Vlaanderen	Roeselare	0	0	1	18	2516	-62	21
Oost-Vlaanderen	Sint-Niklaas	0	0	1	39	432	49	44
Liège	Soumagne	1	0	1	222	966	23	21

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	1	1	121	475	123	30
Antwerpen	Turnhout	1	1	1	175	687	101	42
Brabant Wallon	Vallée du Hain (L'Orchis)	1	1	1	331	392	156	49
Hainaut	Wasmuel	1	0	1	108	173	-3	28

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 Brussels-North, Brussel-South, Destelbergen, and Houthalen-Centrum 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 covered areas for which the indicators High circulation and Increasing trend are fulfilled are still high this week. However, a strong decrease in the number of areas for which the indicator fast increase is fulfilled was observed. This may indicate that the concentrations are not increasing exponentially anymore in a consequent number of area.

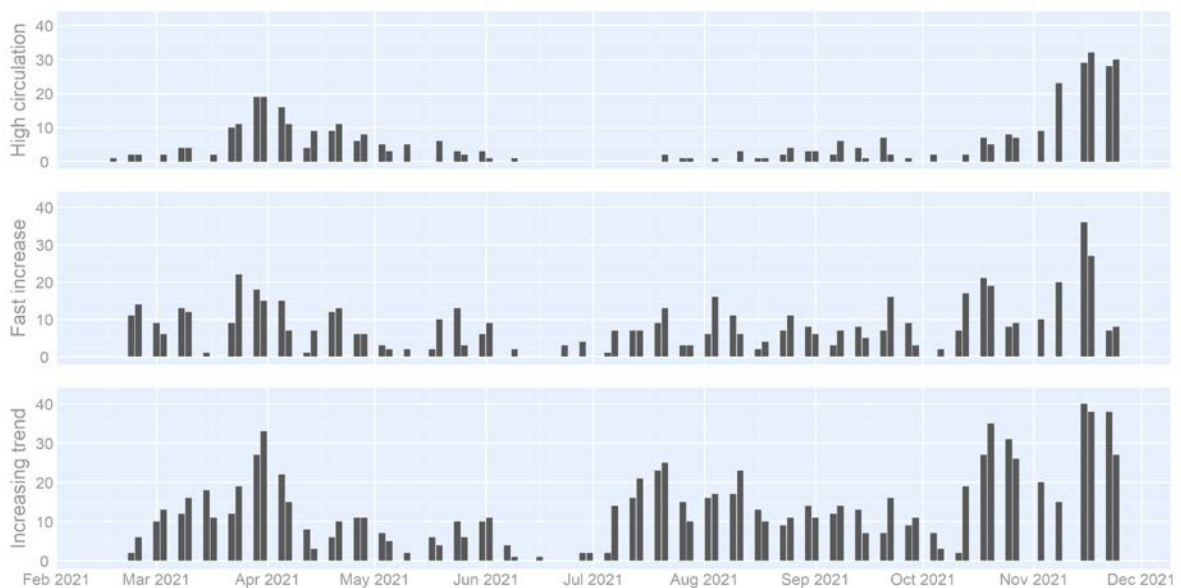


Figure 3: The number of areas (among the 41 covered by the wastewater surveillance this week and the 42 normally considered), with positive alerting indicators (latest results on November 24th 2021).

5. Appendix – Areas classified by alerting indicator

A 1: Covered areas (30 out of 41 on November 24th 2021) 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	1	617	1347	35	21	24/11/2021
Brabant Wallon	Basse Wavre (Dyle)	1	0	1	341	470	27	7	24/11/2021
Brabant Wallon	Vallée du Hain (L'Orchis)	1	1	1	331	392	156	49	24/11/2021
Luxembourg	Arlon	1	1	1	298	575	143	21	22/11/2021
Antwerpen	Mechelen-Noord	1	1	1	272	700	220	9	24/11/2021
Liège	Liège Oupeye	1	0	1	244	553	4	21	15/11/2021
Liège	Soumagne	1	0	1	222	966	23	21	15/11/2021
Oost-Vlaanderen	Gent	1	0	1	180	2969	-12	21	17/11/2021
Antwerpen	Turnhout	1	1	1	175	687	101	42	24/11/2021
Hainaut	Marchienne-au-Pont	1	0	1	165	366	-19	16	15/11/2021
Hainaut	Montignies-sur-Sambre	1	0	1	157	398	-18	16	15/11/2021
Oost-Vlaanderen	Aalst	1	0	1	148	3015	-40	21	15/11/2021
Limburg	Hasselt	1	0	0	138	160	-18	0	08/11/2021
Hainaut	Froyennes	1	0	0	134	174	-27	0	15/11/2021
Luxembourg	Marche-en-Famenne	1	0	1	124	247	-23	16	15/11/2021
Limburg	Tessenderlo	1	1	1	121	475	123	30	22/11/2021
West-Vlaanderen	Brugge	1	0	1	115	1088	-58	21	17/11/2021
Limburg	Genk	1	0	0	112	421	-45	0	15/11/2021
Namur	Namur-Brumagne	1	0	0	111	313	-46	0	15/11/2021
Hainaut	Wasmuel	1	0	1	108	173	-3	28	15/11/2021
Namur	Mornimont	1	0	1	102	165	-33	30	15/11/2021
Vlaams-Brabant	Grimbergen	1	0	0	96	2507	-30	0	15/11/2021
Antwerpen	Antwerpen-North	1	1	1	91	287	107	44	22/11/2021
Vlaams-Brabant	Liedekerke	1	0	1	90	2576	-15	21	3 rd wave
West-Vlaanderen	Oostende	1	0	1	82	2183	-47	21	17/11/2021
Oost-Vlaanderen	Dendermonde	1	0	1	76	273	41	30	22/11/2021
Hainaut	Mouscron versant Espierres	1	0	1	75	138	34	16	3 rd wave

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	0	69	102	-18	2	27/10/2021
West-Vlaanderen	Harelbeke	1	0	0	69	1684	-49	0	18/10/2021
Vlaams-Brabant	Leuven	1	0	0	56	1694	-74	0	17/11/2021

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 (8 out of 41 on the November 24th 2021) 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
Antwerpen	Mechelen-Noord	1	1	1	272	700	220	9	24/11/2021
Brabant Wallon	Vallée du Hain (L'Orchis)	1	1	1	331	392	156	49	24/11/2021
Luxembourg	Arlon	1	1	1	298	575	143	21	22/11/2021
Antwerpen	Aartselaar	0	1	0	13	76	139	0	22/11/2021
Limburg	Tessenderlo	1	1	1	121	475	123	30	22/11/2021
Antwerpen	Antwerpen-North	1	1	1	91	287	107	44	22/11/2021
Antwerpen	Antwerpen-South	0	1	0	38	778	101	2	3 rd wave
Antwerpen	Turnhout	1	1	1	175	687	101	42	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 3: Covered areas (27 out of 41 on the November 24th 2021) 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
Brabant Wallon	Vallée du Hain (L'Orchis)	1	1	1	331	392	156	49	24/11/2021
Antwerpen	Antwerpen-North	1	1	1	91	287	107	44	22/11/2021
Oost-Vlaanderen	Sint-Niklaas	0	0	1	39	432	49	44	3 rd wave
Antwerpen	Turnhout	1	1	1	175	687	101	42	24/11/2021
Oost-Vlaanderen	Dendermonde	1	0	1	76	273	41	30	22/11/2021
Namur	Mornimont	1	0	1	102	165	-33	30	15/11/2021
Limburg	Tessenderlo	1	1	1	121	475	123	30	22/11/2021
Antwerpen	Deurne	0	0	1	23	1337	62	28	3 rd wave
Hainaut	Wasmuel	1	0	1	108	173	-3	28	15/11/2021
Oost-Vlaanderen	Aalst	1	0	1	148	3015	-40	21	15/11/2021
Luxembourg	Arlon	1	1	1	298	575	143	21	22/11/2021
Vlaams-Brabant	Beersel	0	0	1	32	2086	-28	21	3 rd wave
West-Vlaanderen	Brugge	1	0	1	115	1088	-58	21	17/11/2021
Oost-Vlaanderen	Gent	1	0	1	180	2969	-12	21	17/11/2021
Vlaams-Brabant	Liedekerke	1	0	1	90	2576	-15	21	3 rd wave
Liège	Liège Oupeye	1	0	1	244	553	4	21	15/11/2021
Liège	Liège Sclessin	1	0	1	617	1347	35	21	24/11/2021
West-Vlaanderen	Menen	0	0	1	12	2568	-45	21	3 rd wave
West-Vlaanderen	Oostende	1	0	1	82	2183	-47	21	17/11/2021
West-Vlaanderen	Roeselare	0	0	1	18	2516	-62	21	3 rd wave
Liège	Soumagne	1	0	1	222	966	23	21	15/11/2021
Luxembourg	Marche-en-Famenne	1	0	1	124	247	-23	16	15/11/2021
Hainaut	Marchienne-au-Pont	1	0	1	165	366	-19	16	15/11/2021
Hainaut	Montignies-sur-Sambre	1	0	1	157	398	-18	16	15/11/2021
Hainaut	Mouscron versant Espierres	1	0	1	75	138	34	16	3 rd wave
Antwerpen	Mechelen-Noord	1	1	1	272	700	220	9	24/11/2021
Brabant Wallon	Basse Wavre (Dyle)	1	0	1	341	470	27	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.

A4: Covered areas (4 out of 41 on the November 24th 2021) in which no alerting indicator are 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
Brussels	Brussels-North	0	0	0	35	2766	-57	0	08/11/2021
Brussels	Brussel-South	0	0	0	32	3393	-45	0	3 rd wave
Oost-Vlaanderen	Destelbergen	0	0	0	17	901	-32	0	3 rd wave
Limburg	Houthalen-Centrum	0	0	0	13	28	-28	0	08/11/2021

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.