WEEKLY REPORT – WASTEWATER-BASED EPIDEMIOLOGICAL SURVEILLANCE OF THE SARS-COV-2
–
RESULTS OF 17/11/2021

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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 17th 2021:

- At the national level: The numbers of areas for which all the indicators are fulfilled have reached their highest values since the beginning of the measurements (see Figure 3 and Table 2). On the 08th of November, the number of areas in which the High circulation is fulfilled, has reached its highest level since the beginning of the measurements. This number keeps on increasing since then, reaching the value of 32 this week.
- At the provincial level: all provinces had at least one alerting indicator positive. The provinces of Hainaut, Liege, Luxembourg, Namur, Oost-Vlaanderen, Vlaams-Brabant, and West-Vlaanderen are of particular concern as 3 indicators are fulfilled in these provinces.
- At the covered areas level: Amongst the 41 areas covered[1], the number of treatment plants with at least one alerting indicator positive is 40, 32 belonging to the High circulation indicator, 27 belonging to the Fast increase indicator, and 38 belonging to the Increasing trend indicator[2].
- In 22 covered areas, all three indicators are fulfilled. The full list of these areas can be obtained from Table 2.

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] No samples were taken on the 10th of November. Hence, the data presented here (for which the most recent results are from the 17th of November) cannot be compared to data from entire last week (i.e. Monday and Wednesday results) but only to the results of last week's Monday (15th of November)

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.
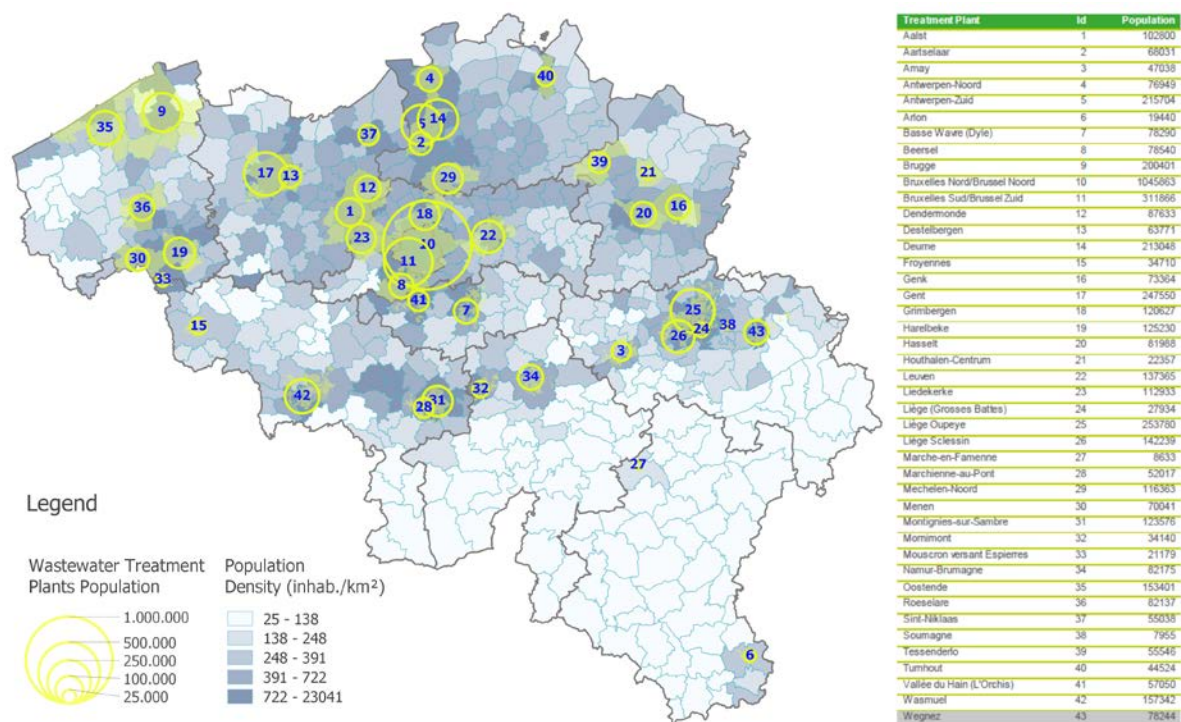
In this report, the weekly wastewater-based epidemiological situation is presented and discussed at the above-mentioned levels based on the three categories of alerting indicators. Moreover, the remaining sources of uncertainties are discussed together with their expected impacts on the wastewater results 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, A2, A3, and A4) and on the Sciensano public dashboard.

In practice, 24-hour composite samples are collected twice a week on Mondays and Wednesdays from the influent of WWTP and are analysed for the presence of SARS-CoV-2 RNA by three different laboratories. The resulting SARS-CoV-2 concentrations (3 targeted genes) are delivered to Sciensano within 2 days for data analysis purpose. Concretely, the results which are representative of Mondays and Wednesdays are respectively available on Wednesdays and Fridays.

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

Figure 1: The population located in the areas covered by the wastewater treatment plants (highlighted in yellow) and the population density for each municipality (indicated by the blue scale). Note that due to the recent flooding, the treatment 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 to beginning of May 2021).
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. We take as reference the moving average on the past two weeks of the viral concentrations.

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 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)

Recently, the viral concentrations in the wastewater were increasing since the beginning of October, illustrating the fourth wave (Figure 2). The results indicate that the viral concentrations in Wallonia, Flanders and Brussels are still quickly increasing.

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 results[3].

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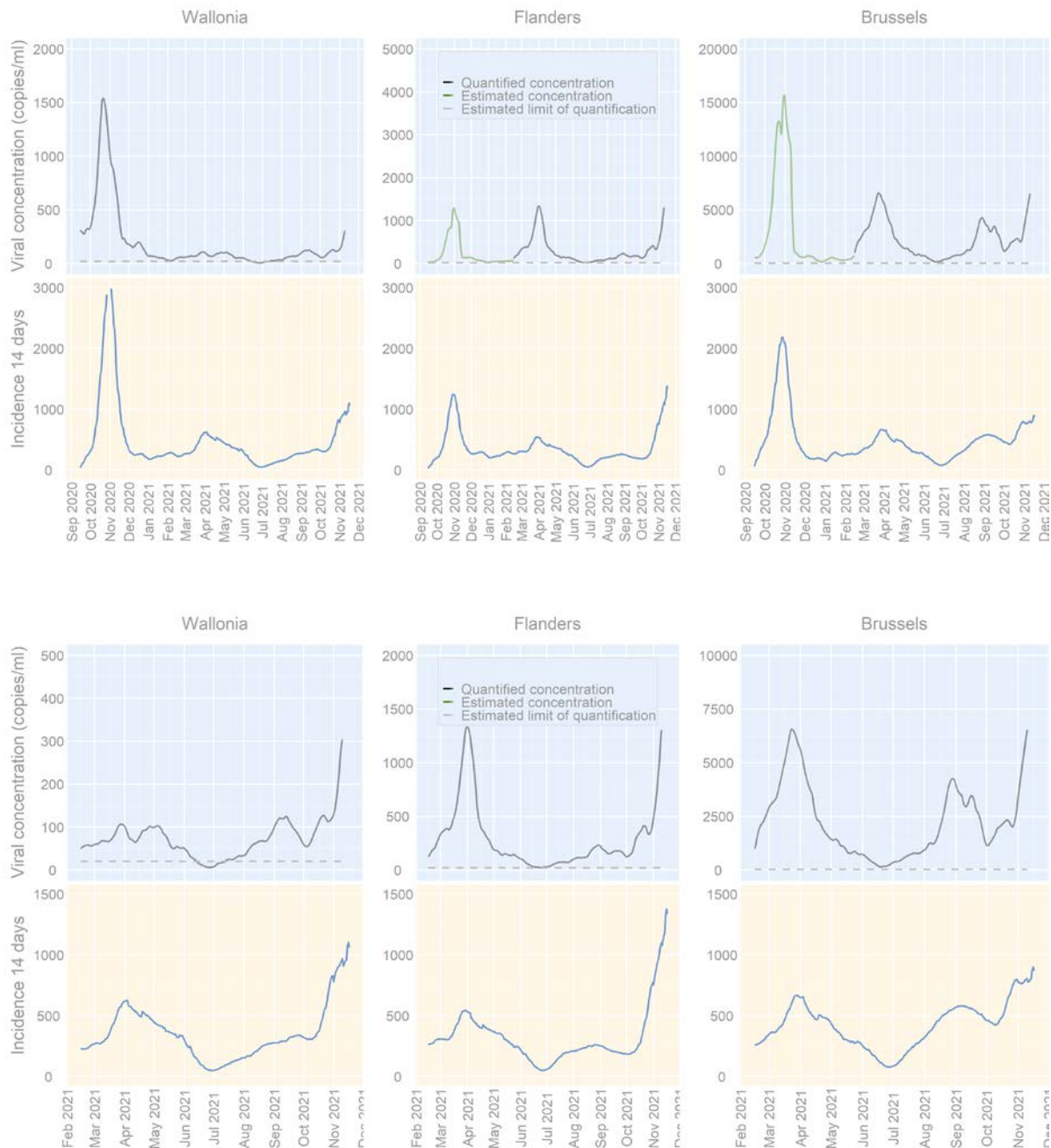
[3] The trends of SARS-CoV-2 circulation in wastewater, given by the dark line on the graphs, corresponds to a 14 days centred mean of the concentrations measured.

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 17th 2021, for the three alerting indicators:

- This week on Wednesday November 17th 2021, all provinces had at least one alerting indicator positive. The provinces ofHainaut, Liege, Luxembourg, Namur, Oost-Vlaanderen, Vlaams-Brabant, and West-Vlaanderen are of particular concern as 3 indicators are fulfilled in these provinces.
- Erratum: the values for the indicator Fast increase for the provinces of Antwerpen, Brussels and Limburg were miscalculated in the first version of this document. 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: Alerting indicators fulfilled (1) or not (0) on November 17th 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%	0	0	1	31	412	53	28
Brabant Wallon	33%	0	1	1	40	48	255	18
Brussels	100%	1	0	1	67	5570	25	14
Hainaut	29%	1	1	1	109	220	166	16
Liège	43%	1	1	1	103	228	164	13
Limburg	26%	1	0	1	144	280	50	28
Luxembourg	10%	1	1	1	97	189	375	12
Namur	23%	1	1	1	122	305	223	17
Oost-Vlaanderen	38%	1	1	1	141	2435	234	18
Vlaams-Brabant	49%	1	1	1	149	4624	186	14
West-Vlaanderen	52%	1	1	1	129	3490	317	14

[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 40 (out of 41 areas covered).

- The indicator High circulation is fulfilled in 32 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 27 covered areas. Amongst these covered areas, an increase of more than 300% per week of the normalized viral concentration is observed for 9 areas (i.e. the measured concentrations have more than quadrupled during last week): Marche-en-Famenne (639% increase per week), Basse Wavre (Dyle) (460% increase per week), Mornimont (453% increase per week), Roeselare (439% increase per week), Brugge (412% increase per week), Marchienne-au-Pont (411% increase per week), Dendermonde (347% increase per week), Aalst (328% increase per week) and Leuven (326% increase per week). Further details can be found in Appendix A2.
- The indicator Increasing trend is fulfilled in 38 covered areas. Among these areas, the viral concentration is continually increasing since two weeks in 34 covered areas. The full list of these areas can be found in Appendix A3.
- In 22 covered areas, all three indicators are fulfilled. The full list of these stations can be obtained from Table 2.

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 17th 2021.

Table 2: Alerting indicators fulfilled (1) or not (0) on November 17th 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	1	1	144	2944	328	14
Antwerpen	Aartselaar	0	0	1	27	160	-37	35
Antwerpen	Antwerpen-North	1	0	1	66	209	-32	37
Antwerpen	Antwerpen-South	0	0	1	13	259	1	42
Luxembourg	Arlon	1	1	1	87	168	257	14
Brabant Wallon	Basse Wavre (Dyle)	0	1	0	8	11	460	0
Vlaams-Brabant	Beersel	0	1	1	43	2807	200	14
West-Vlaanderen	Brugge	1	1	1	202	1914	412	14
Brussels	Brussels-North	1	0	1	71	5544	23	14
Brussels	Brussel-South	1	0	1	54	5657	31	14
Oost-Vlaanderen	Dendermonde	1	1	1	120	430	347	23

Province	WWTP	High	Fast	Incr.	Norm. viral cc (%)[1]	Mean viral cc (c./ml)[2]	Norm evol. (%/w)[3]	Incr days[4]
Oost-Vlaanderen	Destelbergen	1	1	1	63	3326	76	14
Antwerpen	Deurne	0	1	1	15	888	197	21
Hainaut	Froyennes	1	0	1	126	164	65	28
Limburg	Genk	1	1	1	61	230	94	21
Oost-Vlaanderen	Gent	1	1	1	191	3155	237	14
Vlaams-Brabant	Grimbergen	1	0	1	109	2854	64	14
West-Vlaanderen	Harelbeke	1	1	1	138	3358	176	14
Limburg	Hasselt	1	0	1	275	319	-35	35
Limburg	Houthalen-Centrum	1	0	1	72	153	-15	42
Vlaams-Brabant	Leuven	1	1	1	290	8830	326	14
Vlaams-Brabant	Liedekerke	1	1	1	93	2662	139	14
Liège	Liège Oupeye	1	1	1	74	167	203	14
Liège	Liège Sclessin	1	1	1	180	394	136	14
Luxembourg	Marche-en-Famenne	1	1	1	119	236	639	9
Hainaut	Marchienne-au-Pont	1	1	1	91	203	411	9
Antwerpen	Mechelen-Noord	1	0	0	59	152	-4	2
West-Vlaanderen	Menen	0	1	1	20	4309	259	14
Hainaut	Montignies-sur-Sambre	1	1	1	135	343	140	9
Namur	Mornimont	1	1	1	108	176	453	23
Hainaut	Mouscron versant Espierres	1	1	1	68	125	165	9
Namur	Namur-Brumagne	1	1	1	128	359	127	14
West-Vlaanderen	Oostende	1	1	1	116	3085	269	14
West-Vlaanderen	Roeselare	1	1	1	56	7593	439	14
Oost-Vlaanderen	Sint-Niklaas	0	0	1	37	402	52	37
Liège	Soumagne	0	1	1	42	181	196	14
Limburg	Tessenderlo	1	1	1	86	339	143	23
Antwerpen	Turnhout	1	0	1	75	296	54	35
Brabant Wallon	Vallée du Hain (L'Orchis)	1	0	1	84	100	-25	42
Hainaut	Wasmuel	1	1	1	96	154	127	21

[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.

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 numbers of areas for which all the indicators are fulfilled have reached their highest values since the beginning of the measurements (see Figure 3). On the 08th of November, the number of areas in which the High circulation is fulfilled, has reached its highest level since the beginning of the measurements. This number keeps on increasing since then, reaching the value of 32 this week.
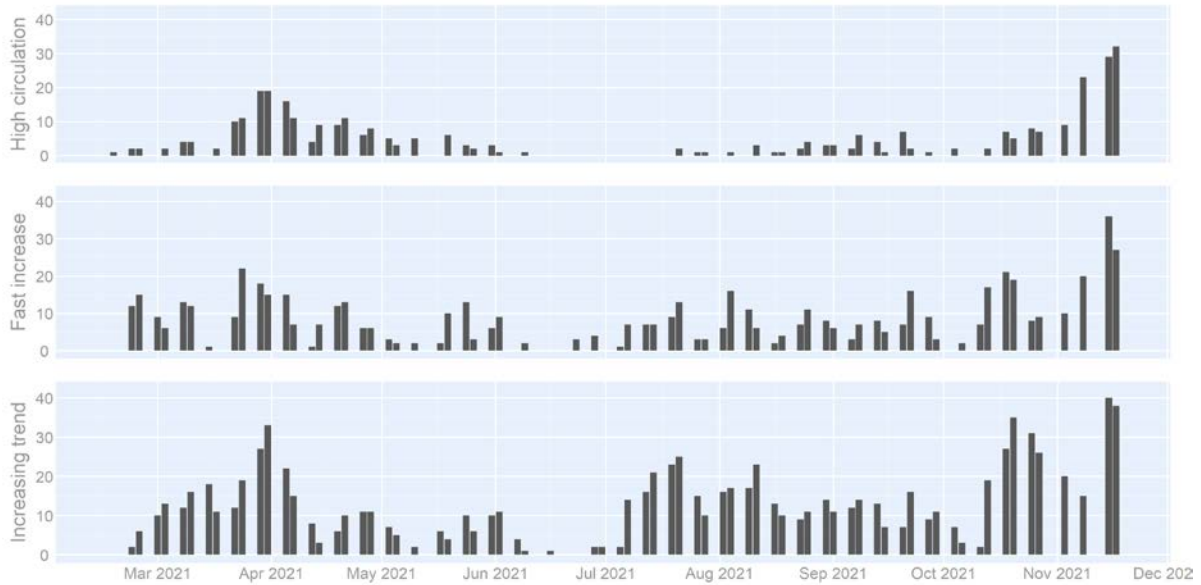
Figure 3: The number of areas (among the 41 covered by the wastewater surveillance this week and the 42 normally considered), with positive alerting indicators (latest results on November 17th 2021).

5. Appendix – Areas classified by alerting indicator

A 1: Covered areas (32 out of 41 on November 17th 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]
Vlaams-Brabant	Leuven	1	1	1	290	8830	326	14	17/11/2021
Limburg	Hasselt	1	0	1	275	319	-35	35	08/11/2021
West-Vlaanderen	Brugge	1	1	1	202	1914	412	14	17/11/2021
Oost-Vlaanderen	Gent	1	1	1	191	3155	237	14	17/11/2021
Liège	Liège Sclessin	1	1	1	180	394	136	14	15/11/2021
Oost-Vlaanderen	Aalst	1	1	1	144	2944	328	14	15/11/2021
West-Vlaanderen	Harelbeke	1	1	1	138	3358	176	14	18/10/2021
Hainaut	Montignies-sur-Sambre	1	1	1	135	343	140	9	15/11/2021
Namur	Namur-Brumagne	1	1	1	128	359	127	14	15/11/2021
Hainaut	Froyennes	1	0	1	126	164	65	28	15/11/2021
Oost-Vlaanderen	Dendermonde	1	1	1	120	430	347	23	17/11/2021
Luxembourg	Marche-en-Famenne	1	1	1	119	236	639	9	15/11/2021
West-Vlaanderen	Oostende	1	1	1	116	3085	269	14	17/11/2021
Vlaams-Brabant	Grimbergen	1	0	1	109	2854	64	14	15/11/2021
Namur	Mornimont	1	1	1	108	176	453	23	15/11/2021
Hainaut	Wasmuel	1	1	1	96	154	127	21	15/11/2021
Vlaams-Brabant	Liedekerke	1	1	1	93	2662	139	14	3rd wave
Hainaut	Marchienne-au-Pont	1	1	1	91	203	411	9	15/11/2021
Luxembourg	Arlon	1	1	1	87	168	257	14	15/11/2021
Limburg	Tessenderlo	1	1	1	86	339	143	23	3rd wave
Brabant Wallon	Vallée du Hain (L'Orchis)	1	0	1	84	100	-25	42	08/11/2021
Antwerpen	Turnhout	1	0	1	75	296	54	35	3rd wave
Liège	Liège Oupeye	1	1	1	74	167	203	14	15/11/2021
Limburg	Houthalen-Centrum	1	0	1	72	153	-15	42	08/11/2021
Brussels	Brussels-North	1	0	1	71	5544	23	14	08/11/2021
Hainaut	Mouscron versant Espierres	1	1	1	68	125	165	9	3rd wave
Antwerpen	Antwerpen-North	1	0	1	66	209	-32	37	3rd 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]
Oost-Vlaanderen	Destelbergen	1	1	1	63	3326	76	14	3rd wave
Limburg	Genk	1	1	1	61	230	94	21	15/11/2021
Antwerpen	Mechelen-Noord	1	0	0	59	152	-4	2	19/05/2021
West-Vlaanderen	Roeselare	1	1	1	56	7593	439	14	3rd wave
Brussels	Brussel-South	1	0	1	54	5657	31	14	3rd 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 third wave.

A 2: Covered areas (27 out of 41 on the November 17th 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]
Luxembourg	Marche-en-Famenne	1	1	1	119	236	639	9	15/11/2021
Brabant Wallon	Basse Wavre (Dyle)	0	1	0	8	11	460	0	15/11/2021
Namur	Mornimont	1	1	1	108	176	453	23	15/11/2021
West-Vlaanderen	Roeselare	1	1	1	56	7593	439	14	3rd wave
West-Vlaanderen	Brugge	1	1	1	202	1914	412	14	17/11/2021
Hainaut	Marchienne-au-Pont	1	1	1	91	203	411	9	15/11/2021
Oost-Vlaanderen	Dendermonde	1	1	1	120	430	347	23	17/11/2021
Oost-Vlaanderen	Aalst	1	1	1	144	2944	328	14	15/11/2021
Vlaams-Brabant	Leuven	1	1	1	290	8830	326	14	17/11/2021
West-Vlaanderen	Oostende	1	1	1	116	3085	269	14	17/11/2021
West-Vlaanderen	Menen	0	1	1	20	4309	259	14	3rd wave
Luxembourg	Arlon	1	1	1	87	168	257	14	15/11/2021
Oost-Vlaanderen	Gent	1	1	1	191	3155	237	14	17/11/2021
Liège	Liège Oupeye	1	1	1	74	167	203	14	15/11/2021
Vlaams-Brabant	Beersel	0	1	1	43	2807	200	14	3rd wave
Antwerpen	Deurne	0	1	1	15	888	197	21	3rd 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	Soumagne	0	1	1	42	181	196	14	15/11/2021
West-Vlaanderen	Harelbeke	1	1	1	138	3358	176	14	18/10/2021
Hainaut	Mouscron versant Espierres	1	1	1	68	125	165	9	3rd wave
Limburg	Tessenderlo	1	1	1	86	339	143	23	3rd wave
Hainaut	Montignies-sur-Sambre	1	1	1	135	343	140	9	15/11/2021
Vlaams-Brabant	Liedekerke	1	1	1	93	2662	139	14	3rd wave
Liège	Liège Sclessin	1	1	1	180	394	136	14	15/11/2021
Namur	Namur-Brumagne	1	1	1	128	359	127	14	15/11/2021
Hainaut	Wasmuel	1	1	1	96	154	127	21	15/11/2021
Limburg	Genk	1	1	1	61	230	94	21	15/11/2021
Oost-Vlaanderen	Destelbergen	1	1	1	63	3326	76	14	3rd 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 third wave.

A 3: Covered areas (38 out of 41 on the November 17th 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]
Antwerpen	Antwerpen-South	0	0	1	13	259	1	42	3rd wave
Limburg	Houthalen-Centrum	1	0	1	72	153	-15	42	08/11/2021
Brabant Wallon	Vallée du Hain (L'Orchis)	1	0	1	84	100	-25	42	08/11/2021
Antwerpen	Antwerpen-North	1	0	1	66	209	-32	37	3rd wave
Oost-Vlaanderen	Sint-Niklaas	0	0	1	37	402	52	37	3rd wave
Antwerpen	Aartselaar	0	0	1	27	160	-37	35	3rd wave
Limburg	Hasselt	1	0	1	275	319	-35	35	08/11/2021
Antwerpen	Turnhout	1	0	1	75	296	54	35	3rd wave
Hainaut	Froyennes	1	0	1	126	164	65	28	15/11/2021
Oost-Vlaanderen	Dendermonde	1	1	1	120	430	347	23	17/11/2021

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]
Namur	Mornimont	1	1	1	108	176	453	23	15/11/2021
Limburg	Tessenderlo	1	1	1	86	339	143	23	3rd wave
Antwerpen	Deurne	0	1	1	15	888	197	21	3rd wave
Limburg	Genk	1	1	1	61	230	94	21	15/11/2021
Hainaut	Wasmuel	1	1	1	96	154	127	21	15/11/2021
Oost-Vlaanderen	Aalst	1	1	1	144	2944	328	14	15/11/2021
Luxembourg	Arlon	1	1	1	87	168	257	14	15/11/2021
Vlaams-Brabant	Beersel	0	1	1	43	2807	200	14	3rd wave
West-Vlaanderen	Brugge	1	1	1	202	1914	412	14	17/11/2021
Brussels	Brussels-North	1	0	1	71	5544	23	14	08/11/2021
Brussels	Brussel-South	1	0	1	54	5657	31	14	3rd wave
Oost-Vlaanderen	Destelbergen	1	1	1	63	3326	76	14	3rd wave
Oost-Vlaanderen	Gent	1	1	1	191	3155	237	14	17/11/2021
Vlaams-Brabant	Grimbergen	1	0	1	109	2854	64	14	15/11/2021
West-Vlaanderen	Harelbeke	1	1	1	138	3358	176	14	18/10/2021
Vlaams-Brabant	Leuven	1	1	1	290	8830	326	14	17/11/2021
Vlaams-Brabant	Liedekerke	1	1	1	93	2662	139	14	3rd wave
Liège	Liège Oupeye	1	1	1	74	167	203	14	15/11/2021
Liège	Liège Sclessin	1	1	1	180	394	136	14	15/11/2021
West-Vlaanderen	Menen	0	1	1	20	4309	259	14	3rd wave
Namur	Namur-Brumagne	1	1	1	128	359	127	14	15/11/2021
West-Vlaanderen	Oostende	1	1	1	116	3085	269	14	17/11/2021
West-Vlaanderen	Roeselare	1	1	1	56	7593	439	14	3rd wave
Liège	Soumagne	0	1	1	42	181	196	14	15/11/2021
Luxembourg	Marche-en-Famenne	1	1	1	119	236	639	9	15/11/2021
Hainaut	Marchienne-au-Pont	1	1	1	91	203	411	9	15/11/2021
Hainaut	Montignies-sur-Sambre	1	1	1	135	343	140	9	15/11/2021
Hainaut	Mouscron versant Espierres	1	1	1	68	125	165	9	3rd 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 third wave.

A 4: Covered areas (1 out of 41 on the November 17th 2021) in which no alerting indicator are fullfilled.

Province	WWTP	High	Fast	Incr.	Norm . viral cc (%)[1]	Mean viral cc (c./ml) [2]	Norm evol. (%/w) [3]	Incr days[4]	Date Max cc[5]
Liège	Amay	0	0	0	41	60	33	0	27/10/2021

[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 third wave.