

INDICATORS AND THRESHOLDS FOR AN INTEGRATED MANAGEMENT TOOL

RAG - February 2023

CONTEXT

In December 2021, the RAG provided an advice to update the management tool used to characterize the COVID-19 epidemiological situation at national and provincial levels. This tool is mainly based on indicators reflecting pressure on the healthcare system (number of hospital admissions, ICU occupancy and number of consultations at GP practices for suspicion of COVID-19), supported by other indicators (positivity rate for symptomatic patients, Rt and 14-day incidence of cases). This tool distinguishes three levels: Epidemiological situation under control (Level 1); Increasing viral circulation potentially leading to pressure on health care system (Level 2) and High viral circulation with possible health care system overload (Level 3).

In the current context of co-circulation of SARS-CoV-2 and other respiratory viruses, the RAG was asked to provide a management tool that would consider not only SARS-CoV-2 but also the other respiratory viruses. Such tool could be used to guide the implementation of generic measures effective on most respiratory viruses. For instance recommendations regarding mask wearing in health care settings could be associated to the different levels defined.

RECOMMENDATIONS

1. Integration of the “GP consultations for flu-like symptoms: weekly incidence /100,000 population” (source: Sentinel GPs network), to the weekly epidemiological evaluation. Following thresholds are proposed:

- Level 1: < 128 GP consultations for flu-like symptoms /100 000¹
- Level 2: 128-783 GP consultations for flu-like symptoms /100 000¹
- Level 3: >783 GP consultations for flu-like symptoms /100 000¹

2. Integrated management tool:

	7-d inc hospitalizations for COVID-19	ICU occupancy COVID-19	GP consultations for suspicion COVID-19	PR sympto (COVID-19)	Rt	GP consultations for ILI
Level 1	<4 (<65 nh/d)	<15 % (< 300 beds national)	< 50/100 000	0 – 9,9 %	0 - 1	<128/100 000
Level 2	4 – 9,9 (65 – 149 nh/d)	15 – 25 %	50 - 99/100 000	10 – 19,9 %	1 – 1,299	128-783/100 000
Level 3	> 10 (>150 nh/d)	> 25 %(> 500 beds national)	> 100/100 000	>= 20 %	>= 1,300	>783/100 000

3. The management level will be assessed weekly by the group of experts at the RAG epidemiology meeting. As previously, the assessment will be based on the above-mentioned indicators, but other relevant elements could be included when appropriate (for instance emergence of new SARS-CoV-2 variants of concern, ..)². Until the *incidence of hospitalization for SARI* is part of the management tool, the hospital incidence for both overall SARI and specific respiratory pathogens such as RSV will be monitored and included in the broader qualitative assessment.

4. An evaluation of the management tool will be performed in the coming months to assess:

- a. the relevance of the used indicators
- b. the possibility of including additional indicators :
 - i. The weekly incidence of hospital admissions for severe acute respiratory infections/100,000 population (from the sentinel hospitals network)
 - ii. Data from the Infectieradar.be platform

¹ Based on the most recent thresholds provided by ECDC for Belgium for the evaluation of ILI incidence.

² 20211215_Advice_RAG_Thresholds riskmanagement_Update_FR.pdf (sciensano.be)

DISCUSSION

New possible indicators

Possible indicators allowing for monitoring the pressure on first and second line healthcare settings by respiratory infections in general include:

- The incidence of GP consultations for flu-like symptoms (data source: sentinel GP network)
- The workload estimated by GPs (data source: sentinel GP network)
- The incidence of hospital admissions for severe acute respiratory infections (data source: sentinel hospital network)
- Data collected via the infectieradar.be platform

GPs consultation for flu-like-symptoms (Sentinel GP network)

- The weekly incidence of the GPs consultation for flu-like-symptoms (ILI) seems a good indicator to reflect the circulation of the other respiratory viruses. This indicator is already used in the *Weekly bulletin acute respiratory infections* and is characterized by five levels of activity (pre-epidemic, low activity, medium activity, high activity and very high activity). Each of those activities is defined by specific thresholds which are calculated by the ECDC every year, using the moving epidemic method³. This method, applied independently for each of the Member states every year, provides a mathematical and robust way for defining thresholds. In Belgium, the number of consultations for flu-like symptoms at GP practices is collected via the sentinel GP network which is in place since 1979⁴. These data are **timely** and **stable**.
- To be in line with the tool used to evaluate the COVID-19 situation and its three distinct levels, we recommend to group some of the ILI epidemic activity levels in three distinct levels :
 - Level 1 = Pre-epidemic activity: <128 consultations for flu-like symptoms/100 000 population
 - Level 2 = Low activity + Medium activity: 128-783 consultations for flu-like symptoms/100 000 population
 - Level 3 = High activity + Very high activity: >783 consultations for flu-like symptoms/100 000 population

GPs workload (Sentinel GP network)

- From February 8th, the proportions reflecting the GPs workload will not only concern COVID-19 but also all other respiratory infections. This indicator will not be included in the management tool, but will be monitored weekly via the RAG epidemiology.

³ Vega T, Lozano JE, Meerhoff T, Snacken R, Mott J, Ortiz de Lejarazu R, Nunes B. Influenza surveillance in Europe: establishing epidemic thresholds by the moving epidemic method. *Influenza Other Respir Viruses*. 2013 Jul;7(4):546-58)

⁴ <https://www.sciensano.be/en/health-topics/acute-respiratory-tract-infection/role>

Hospital admissions for severe acute respiratory infections

- The weekly incidence of hospital admissions for severe acute respiratory infections (SARI) is collected via the sentinel hospital network⁵.
- The **weekly incidence of hospital admissions for severe acute respiratory infections (SARI)** would be an interesting indicator to include to the weekly epidemiological evaluation. As for the weekly incidence of the GPs consultation for flu-like-symptoms (ILI), it is also characterized by five distinct phases of activity, defined by specific thresholds. However, this indicator depends on the reporting of sentinel hospitals which is, at the moment, delayed and does not cover the entire country. Hence, the representativeness and timeliness of the incidence of hospitalizations for SARI is currently limited.
- Therefore, we recommend not to integrate this indicator until it becomes timely, stable and representative enough. The SARI network will be enhanced in 2023, including the recruitment of 4 extra hospitals and the provision of a study coordinator to each participating hospital, in order to increase the timeliness and quality of the data. The expanded SARI network is expected by the end of 2023.
- Some respiratory infections such as RSV are better reflected by the incidence of hospitalizations for SARI than by the incidence of consultations for ILI. Those could be missed in the proposed management tool (which includes an ILI indicator but not yet SARI). Until the incidence of hospitalization for SARI is part of the management tool, the hospital incidence for both overall SARI and specific respiratory pathogens such as RSV will be monitored and included in the broader qualitative assessment.

Data collected via the infectieradar.be platform

- Infectieradar.be⁶ is active since 29 March 2021; it is part of Influenzanet, a European partnership between various universities and public authorities. The aim of Influenzanet is to map and monitor symptoms of infections, such as COVID-19 and influenza among European citizens. The participation of citizens is on a voluntary basis.
- Data from infectieradar.be could be included in the management tool in the future. As a first step, however, a comparison of data available through infectieradar.be will be performed with other available data.

Existing COVID-19 related indicators

- The current management tool, used for evaluation of the COVID-19 epidemiological situation, is based on 6 indicators (7 day incidence of hospitalizations for COVID-19, ICU occupancy, incidence of GP consultations for suspicion of COVID-19, positivity rate for COVID-19 symptomatic patients, Rt and the 24-day incidence of number of cases).

⁵ <https://www.sciensano.be/en/health-topics/acute-respiratory-tract-infection/role#sentinel-hospitals-sari-network->

⁶ <https://survey.infectieradar.be/welcome>

- The 7 day incidence of hospitalizations for COVID-19, the ICU occupancy and the number of consultations of GPs for suspicion of COVID-19 will be maintained in the integrated management tool as they provide an indication of the pressure due to COVID-19 on health care. The positivity rate for COVID-19 symptomatic patients and the Rt are proposed to be maintained as well, as early indicators.
- The 14-day incidence of the number of COVID-19 cases will not be part anymore of the management tool as positivity rate and Rt will already provide sufficient early signals of SARS-CoV-2 circulation.

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