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RESPI-RADAR
A TOOL TO MONITOR RESPIRATORY INFECTIONS

SSID – 16/05/2024

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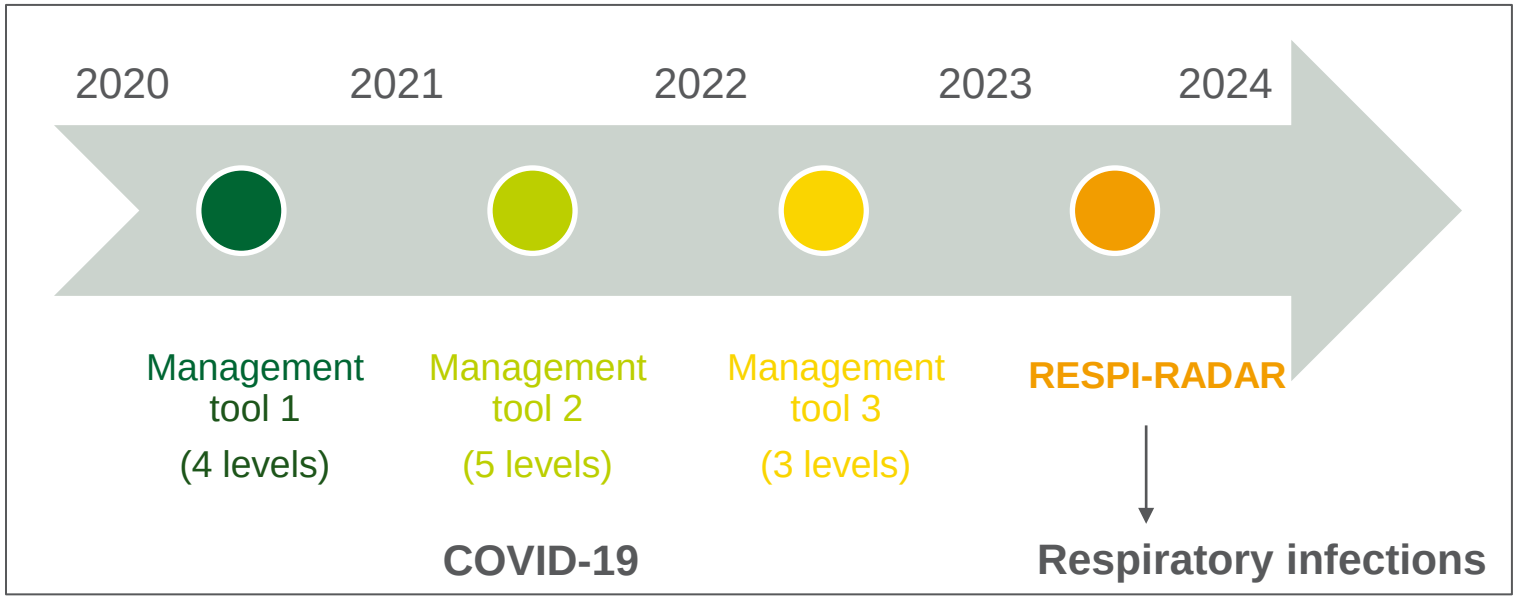
Context

- Management tools developed during COVID-19 crisis to help decision making
- Management tools divided into risk levels based on indicators reflecting viral circulation and pressure on health care
- August 2023: management tool to monitor respiratory infections in general -> RESPI-RADAR



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RESPI-RADAR

Aim : Assess the severity of the epidemiological situation of respiratory infections and inform public health preparedness and response

- *Design* : 4 levels
  - Green : baseline situation
  - Yellow : low circulation, pressure on healthcare system limited
  - Orange : moderate circulation, some pressure on healthcare system
  - Red : high circulation, high risk of overwhelming healthcare system

- *Who* : Risk Assessment Group RAG
  - coordinated by Sciensano
  - composition:
    - regional and federal health authorities
    - experts (epidemiologists, clinicians, microbiologists, hygienists, biostatisticians,…).
- *How :*
  - The RAG proposes a risk level that reflects the epidemiological situation and provides recommendations on potential measures
  - The Risk Management Group (RMG) validates the assessment and proposed measures

Indicators and thresholds

1. Incidence of consultations at GP practices for ILI symptoms (weekly incidence/100 000 inhabitants; source: sentinel network of GPs)
2. Incidence of consultations at GP practices for ARI (weekly incidence/100 000 inhabitants; source: sentinel network of GPs)
3. ILI in nursing homes (weekly incidence/1000 nursing home residents; source: sentinel network of nursing homes)
4. Incidence of hospitalisations for SARI (weekly incidence/100 000 inhabitants; source: sentinel network of hospitals)
5. Severe complications after SARI hospitalisations (weekly incidence/100 000 inhabitants that present ECMO, invasive ventilation, ICU stay or death ; source: sentinel network of hospitals)
6. SARS-CoV-2 concentrations in wastewater (number of treatment plants positive for the indicator "high circulation"; source: wastewater surveillance)

Level	GP consultation for ILI*	GP consultation for ARI*	ILI in nursing homes**	Hospitalizations for SARI*	Severity SARI$	Wastewater$$
Green	< 128	< 1208	< 7	< 4,4	< 0,68	< 5
Yellow	128-507	1208-1293	7-13	4,4-9,8	0,68 - 1,4	5 – 10 stations +
Orange	508-783	1294-1984	14-20	9,9-33,7	1,41 - 3,03	11-15 stations +
Red	>783	>1984	>20	>33,7	> 3,03	> 15 stations +

Additional indicators feeding assessment

- Pathogen-specific data
  - Genomic surveillance SARS-CoV-2
  - Data from sentinel laboratories
- Vaccination
- Mortality
- Modeling
- International and European situation
- Feedback from experts of the RAG (qualitative assessment)

Overview Respi-Radar Sept 2023 – March 2024

Week	Consultations GPs for ILI symptoms*	Consultations GPs for ARI*	ILI in nursing homes**	Hospital admissions for SARI*	Complications after hospitalisation for SARI***	Concentration SARS-CoV-2 in wastewater****	Evaluation RAG
2023w29	31	373	3	1,3	0,5	0	green
2023w30	36	435	3	2,3	0,1	0	green
2023w31	58	456	3	2,9	0,7	3	green
2023w32	29	425	2	2,0	0,3	7	green
2023w33	83	424	3	3,9	0,6	5	green
2023w34	85	477	5	5,1	0,7	8	green
2023w35	79	567	7	6,1	0,5	10	green
2023w36	140	718	6	6,4	0,0	14	green
2023w37	148	686	4	4,9	0,0	7	green
2023w38	147	859	5	6,2	0,0	9	green
2023w39	143	1066	8	8,2	0,4	14	green
2023w40	149	1061	7	6,6	0,4	10	green
2023w41	146	1025	4	6,7	0,3	15	green
2023w42	153	1098	6	8,5	0,4	11	green
2023w43	113	928	7	7,3	1,2	8	green
2023w44	156	889	8	11,3	0,7	9	green
2023w45	179	1314	5	12,1	0,3	10	green
2023w46	184	1087	13	11,1	2,7	14	yellow
2023w47	213	1107	10	12,7	1,8	19	yellow
2023w48	240	1332	11	13,6	1,3	20	yellow
2023w49	254	1468	15	12,6	2,3	24	yellow
2023w50	399	1426	5	16,7	1,4	22	yellow
2023w51	458	1515	9	14,5	1,4	27	yellow
2023w52	161	1262	8	15,4	1,8	19	yellow
2024w01	216	971	11	13,9	2,0	11	yellow
2024w02	298	1059	13	11,2	1,5	11	yellow
2024w03	325	1200	13	12,5	2,7	13	yellow
2024w04	636	1444	11	12,7	1,1	11	orange
2024w05	588	1623	12	14,8	1,8	9	orange
2024w06	557	1252	16	15,9	1,9	3	orange
2024w07	289	1061	7	11,6	1,2	4	orange
2024w08	330	1190	6	11,5	1,2	6	yellow
2024w09	228	921	8	11,5	0,6	4	yellow
2024w10	127	975	7	9,1	0,4	1	yellow
2024w11	153	813	7	9,2	0,8	2	green
2024w12	76	865	4	9,9	0,3	0	green
2024w13	81	901	2	6,7	0,0	0	green

Measures

- Sept 2023: communication guidelines
- Oct 2023: maintain basic protective measures; importance vaccination
- Nov 2023: ref to advice SSC for recommendations to the general population. Recommendations to healthcare sector from RMG
- Jan 2024: no additional measures but increased communication

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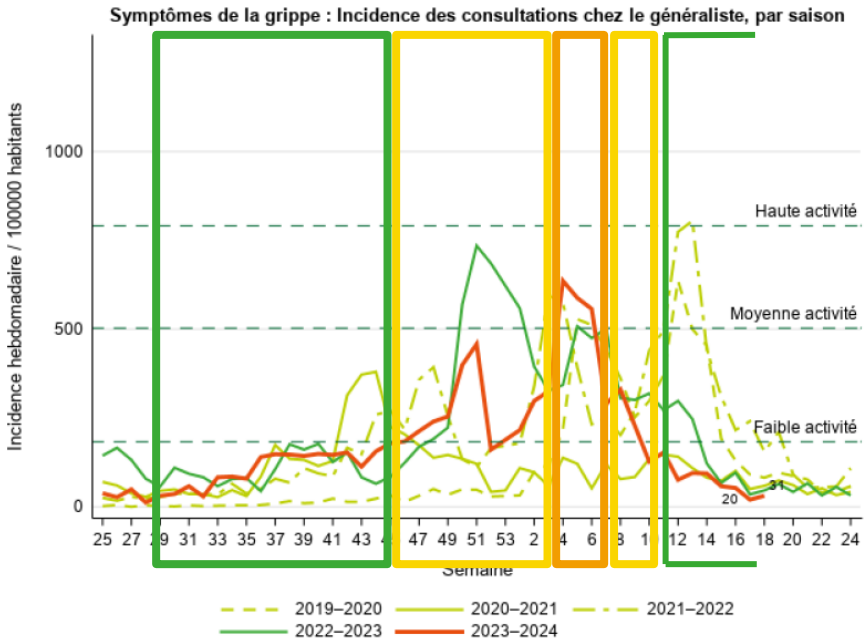
Evaluation of Respi-Radar

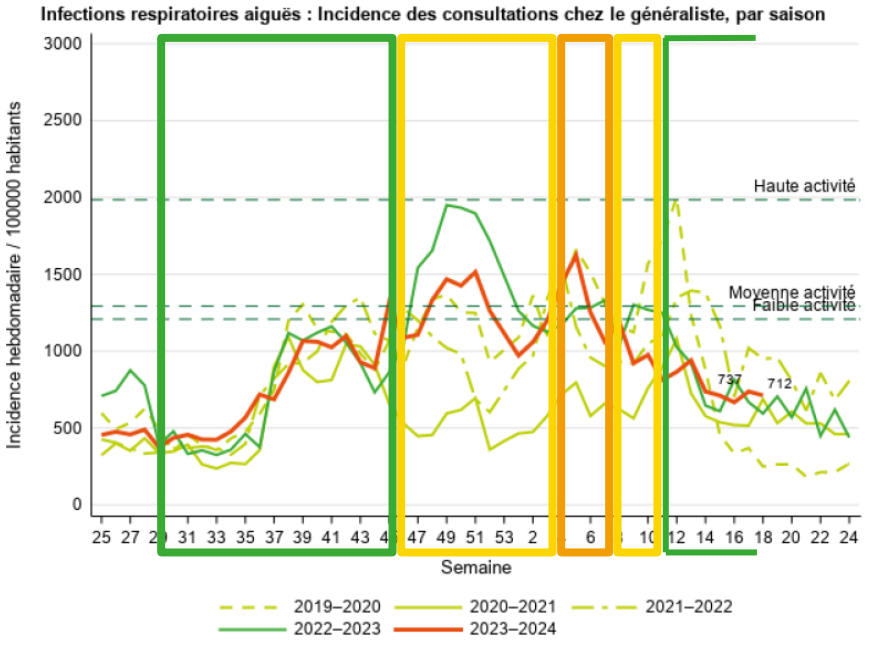
- On going..

- Evaluation indicators
- Completeness of the data
- Feedback experts RAG

Evaluation indicators

Sentinel network GP





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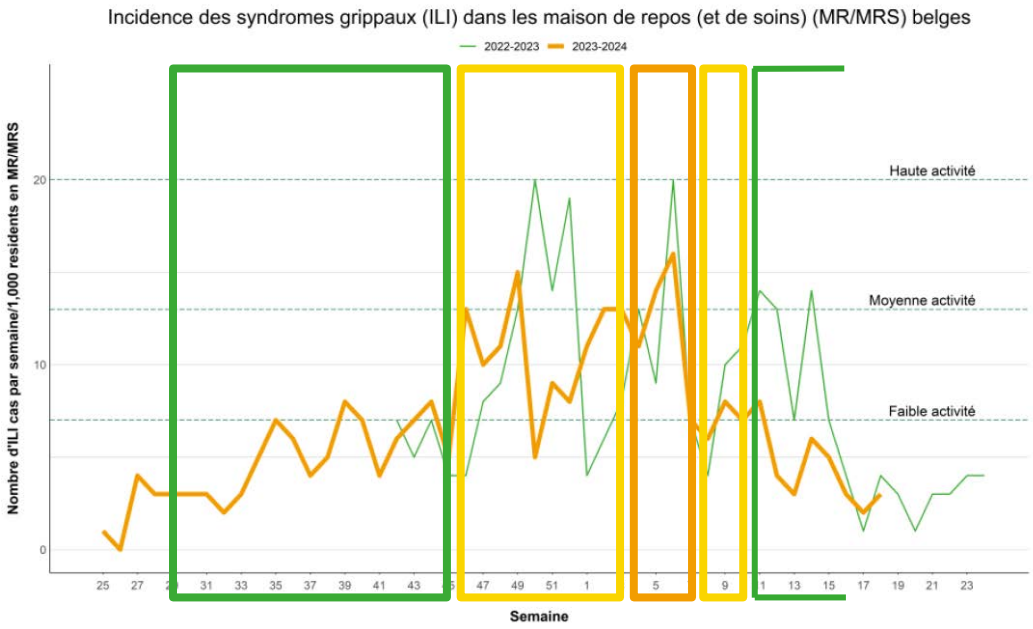
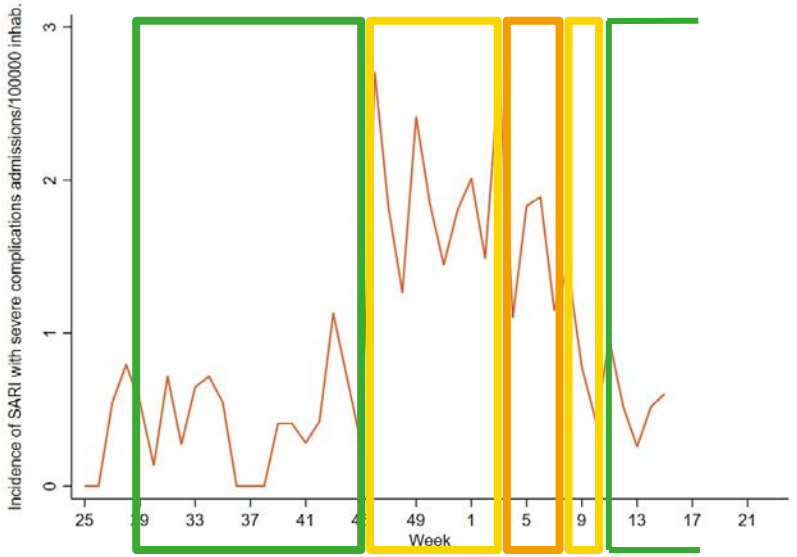
Evaluation indicators

Sentinel network nursing homes



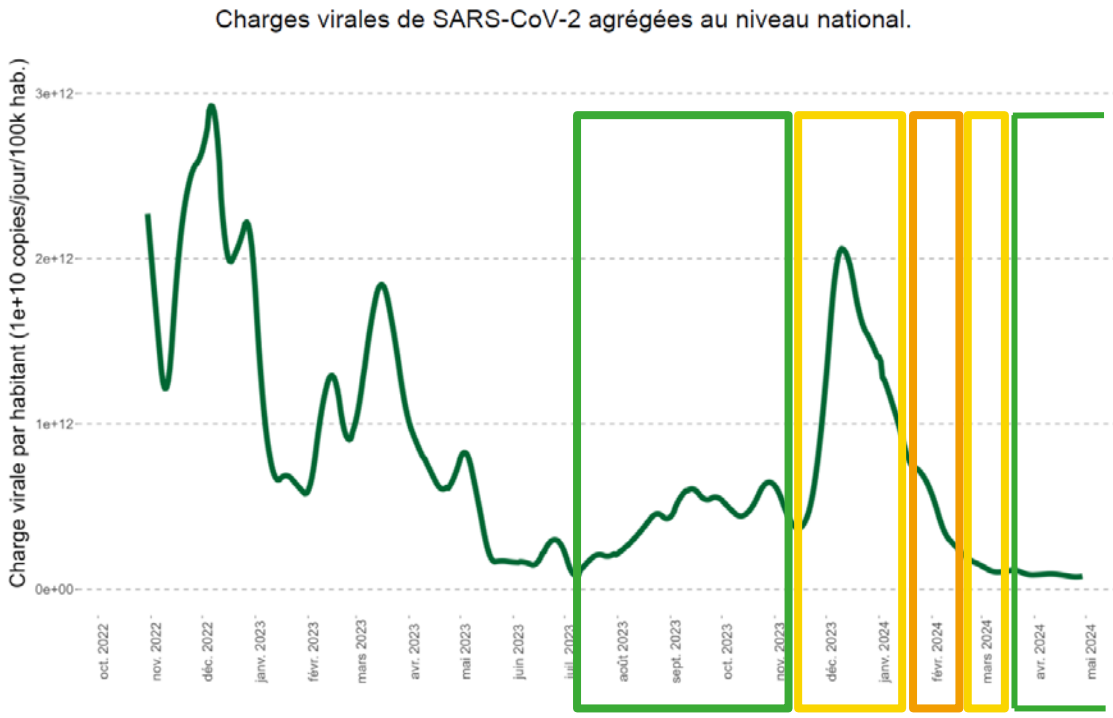
Evaluation indicators

Sentinel network hospitals



Evaluation indicators

Wastewater surveillance



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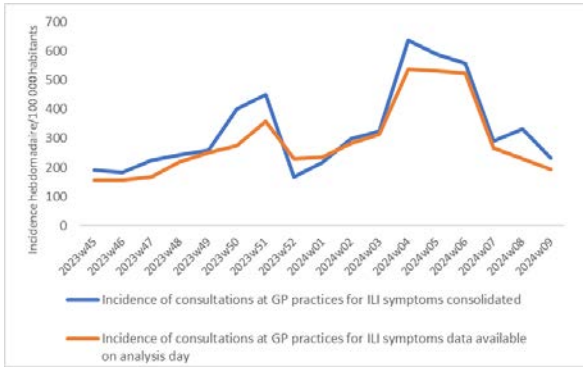
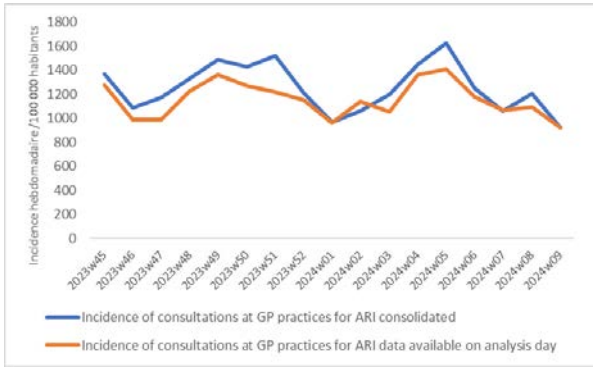
Data completeness

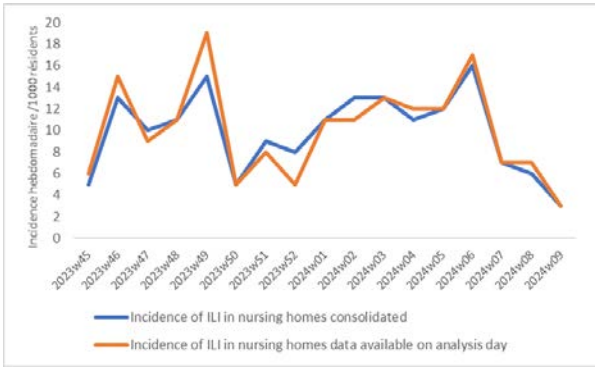
Incidence GP consultations for ILI



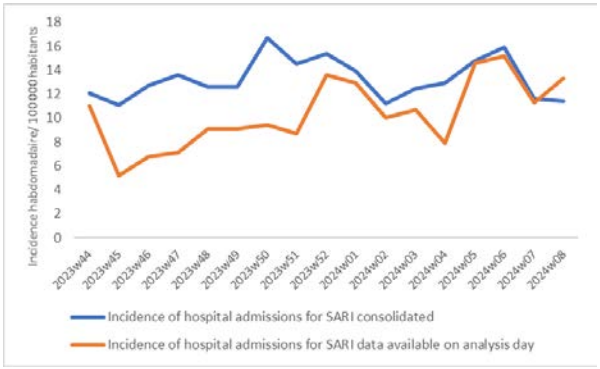
Incidence GP consultations for ARI



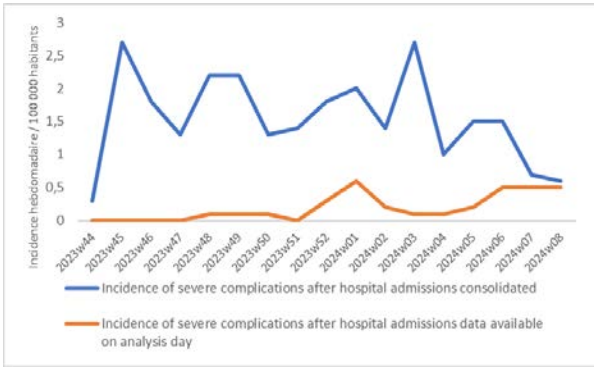
Incidence ILI nursing homes



Incidence hospitalizations for SARI



Incidence complications after hospitalizations for SARI



consolidated data

data available on the day of analysis

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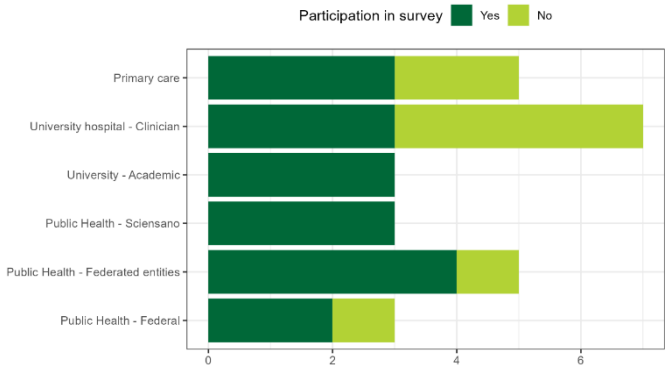
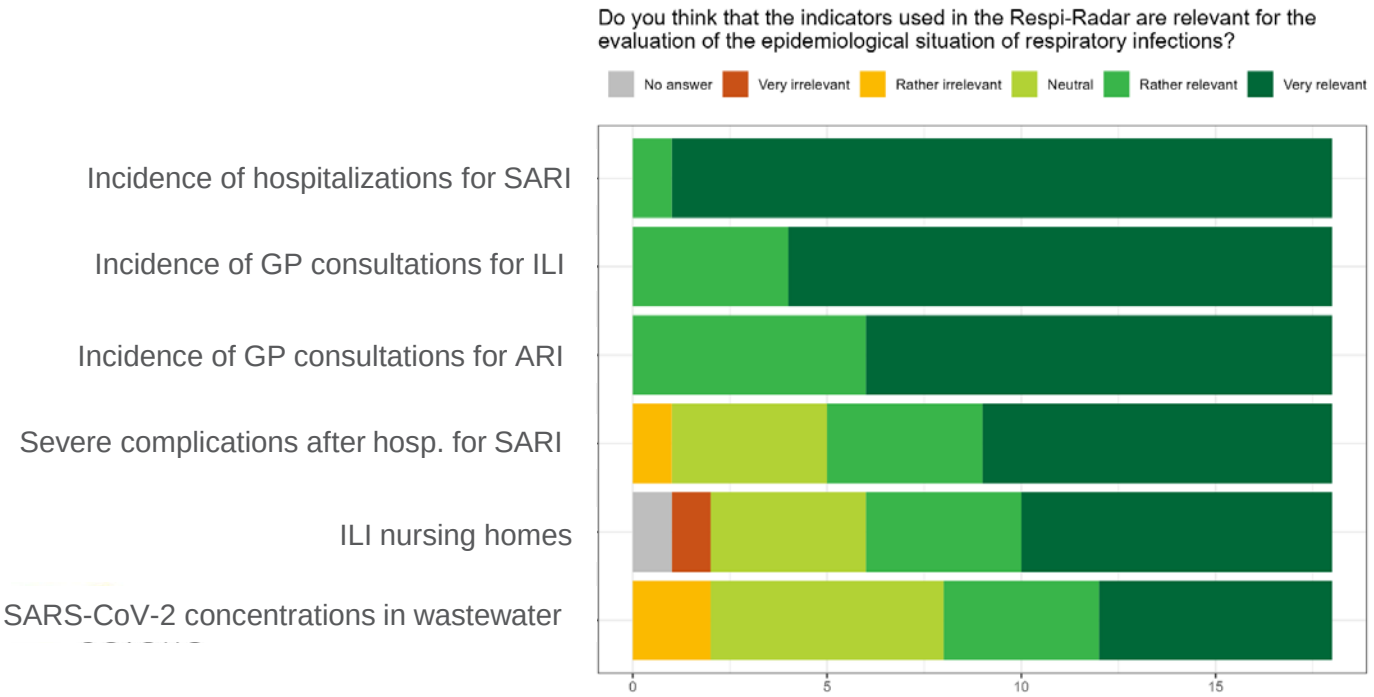
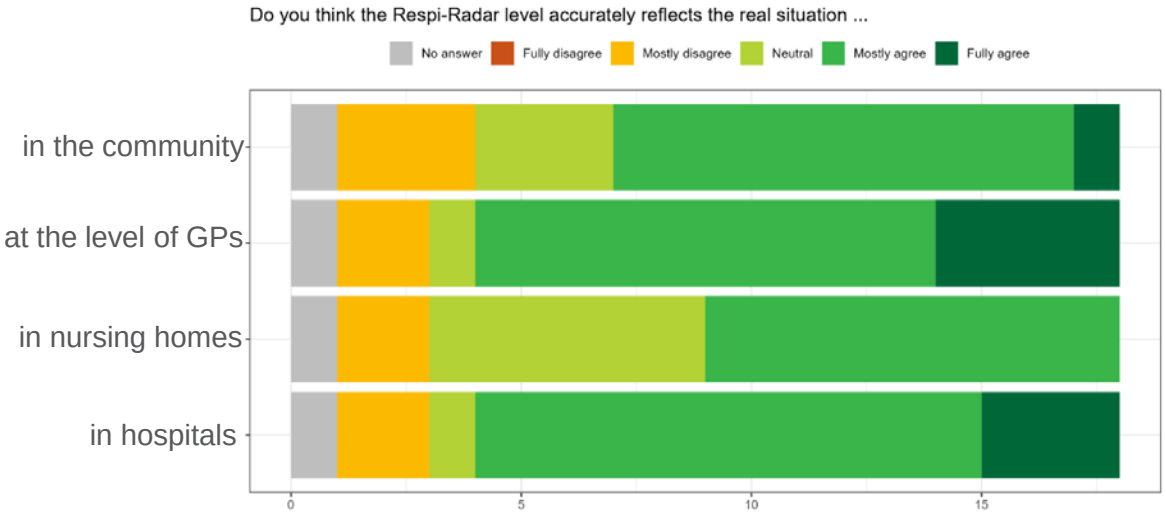
Feedback from RAG experts

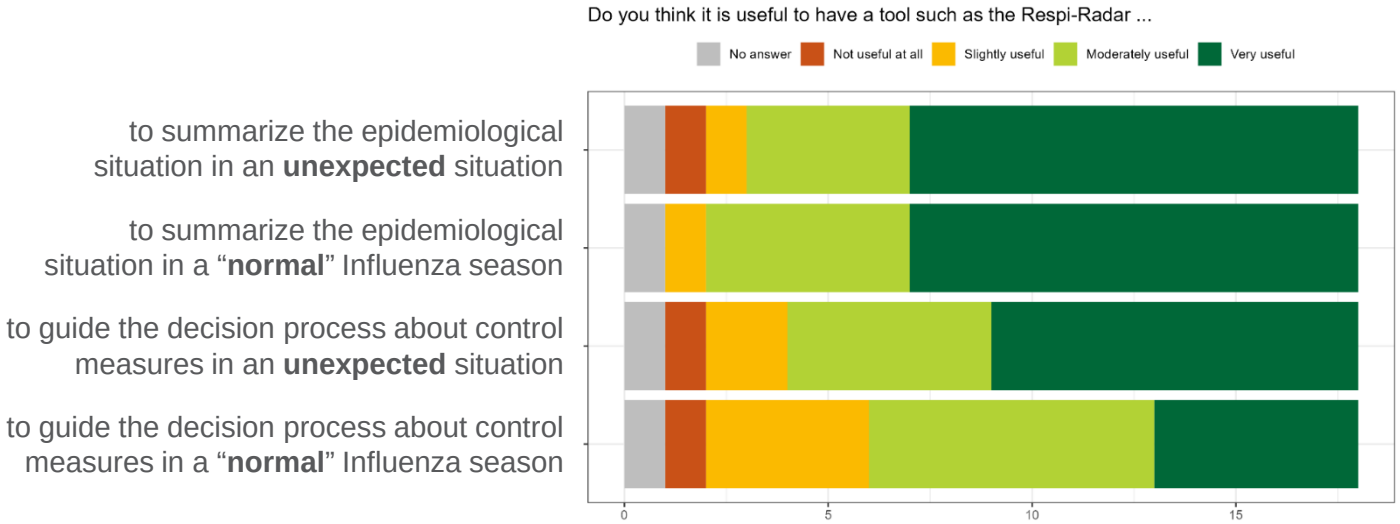
- Survey sent to experts from the RAG in April 2024
- 17/25 participated





Feedback from RAG experts





Conclusions (1)

- Respiratory season 2023-2024
  - ***RSV***: peak week 45 (Nov 2023) -> Respi-Radar yellow
  - ***SARS-CoV-2***: peak week 51 (Dec 2023) -> Respi-Radar yellow
  - ***Influenza*** : peak week 5 (Feb 2024) -> Respi-Radar orange (flu epidemic medium intensity but relatively long – 11 weeks)

- The RMG approved the evaluation of the RAG and the color code attributed. Measures were recommended (but not imposed) to the healthcare sector and the general population.

- Indicators Respi-Radar
  - Incidence consultations GPs for ILI : relevant
  - Incidence consultations GPs for ARI : relevant
  - Incidence hospitalizations for SARI : relevant
  - Incidence ILI in nursing homes : rather relevant (not representative of all regions)
  - Incidence severity after hospitalization : rather relevant (too long delay)
  - Viral concentration in wastewater : rather relevant (only for SARS-CoV-2)

Conclusions (2)

- Respi-Radar is a useful tool to monitor the epidemiological situation of respiratory infections, helpful for communication
    - In an expected situation -> yes
    - In an unexpected situation -> delays, sensitivity

- Respi-Radar as a tool to help decision-making?

Perspectives

- Evaluation of the Respi-Radar tool by the experts of the RAG : ongoing
- Recommendations to the RMG for the assessment and management of the epidemiological situation in the next respiratory seasons : end of June

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