

WASTEWATER-BASED SURVEILLANCE IN BELGIUM

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Epidemiology of infectious diseases
Epidemiology and public health (Sciensano)

Belgian OH workshop – January 2024

When you hear

« wastewater-based surveillance »

« surveillance des eaux usées »

« afvalwater surveillance »

what comes to your mind ?

When you hear

« wastewater-based surveillance »

« surveillance des eaux usées »

« afvalwater surveillance »

what comes to your mind ?

Used for polio

Cocaine

Diluted by rain

No added value

Genomic maybe

Asymptomatic

New variant detection ?

Magic bullet

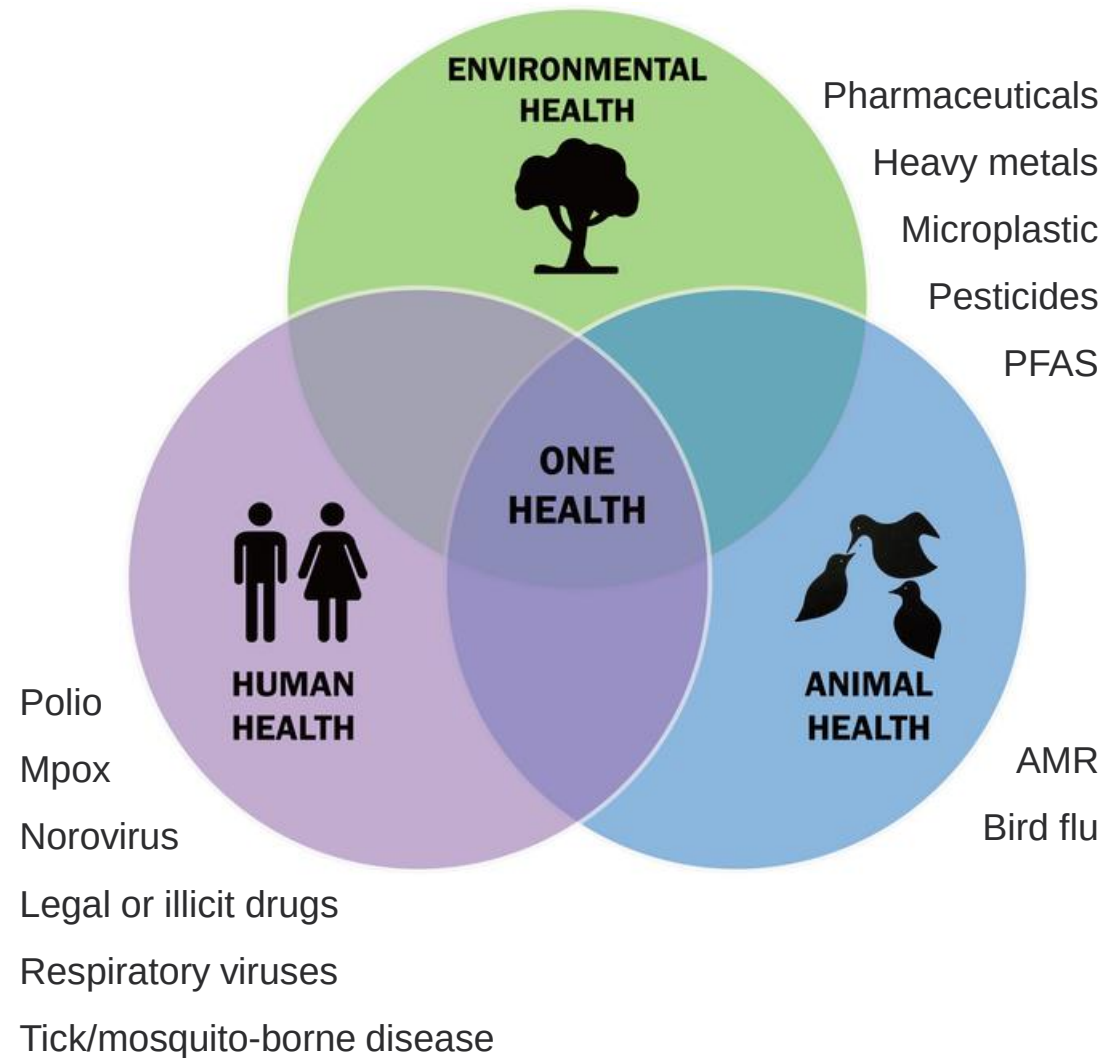
General population

The future ?

Not ethic ?

COVID-19

Expensive



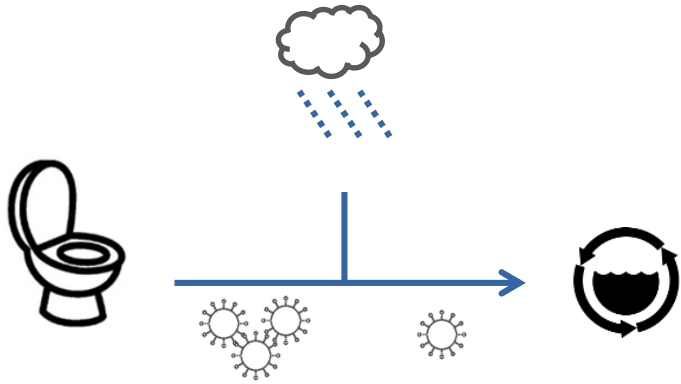
Back in times

- Poliovirus in sewage of New York in 1940s (Hovi et al. 2012)
- Illicit drug consumption in 2005 (Zuccato et al. 2005)
- H1N1 in the Netherlands (Heijnen & Medema 2011)

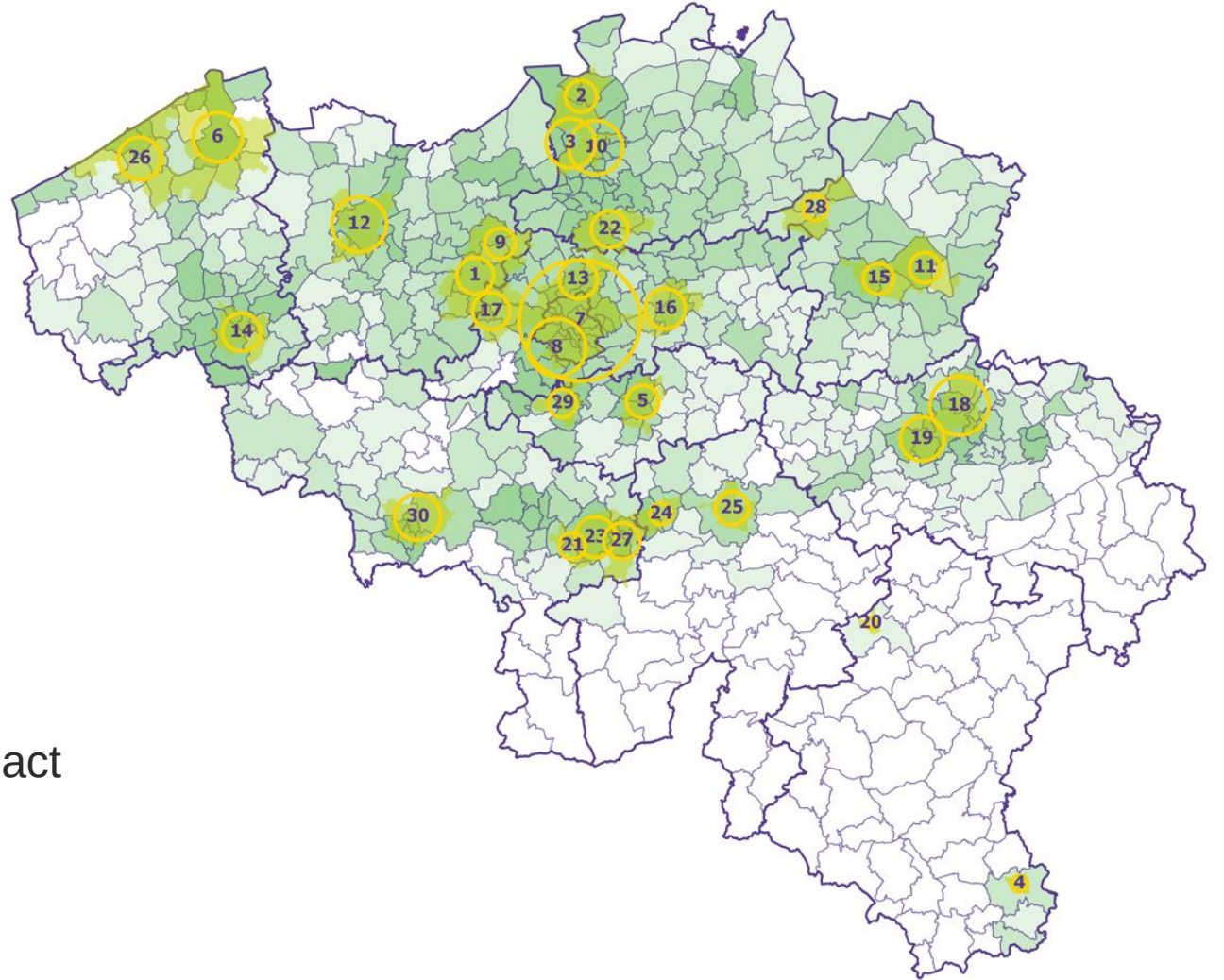
Robins et al. 2022

And in Belgium ...

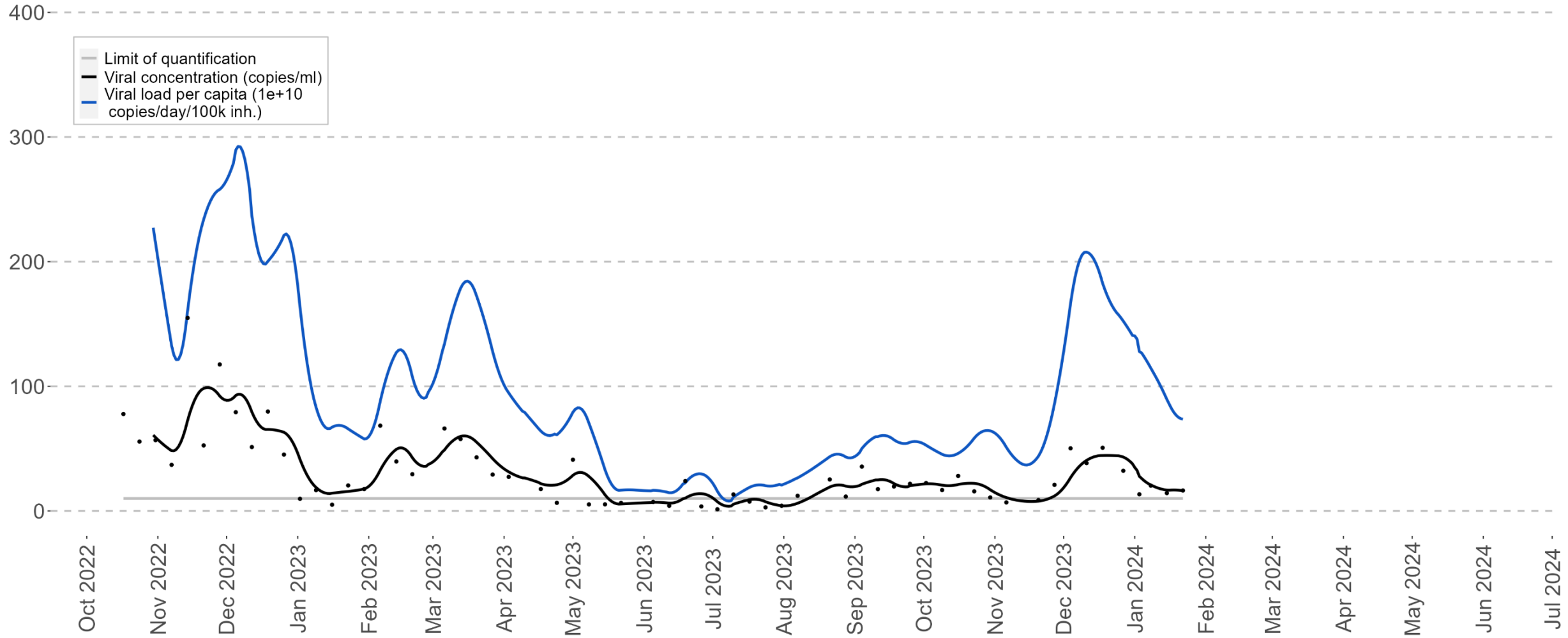
- COVID-19 surveillance
- Started in September 2020
- Constant method improvement
- 30 treatment plants covering 40% of Belgian population



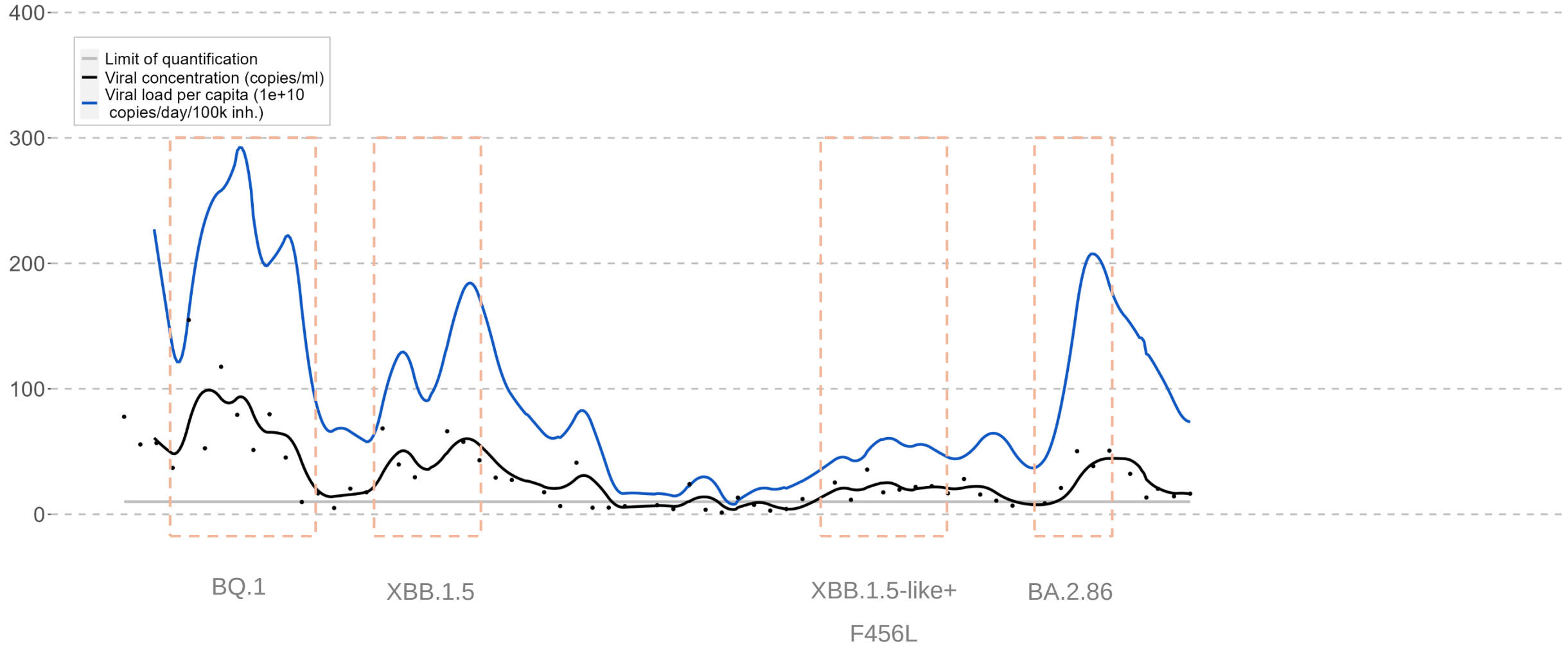
- Plants in highly populated areas
- Sampled once per week
- Around 13 500 samples analyzed
- SARS-CoV-2 viral cc. corrected for the rain impact

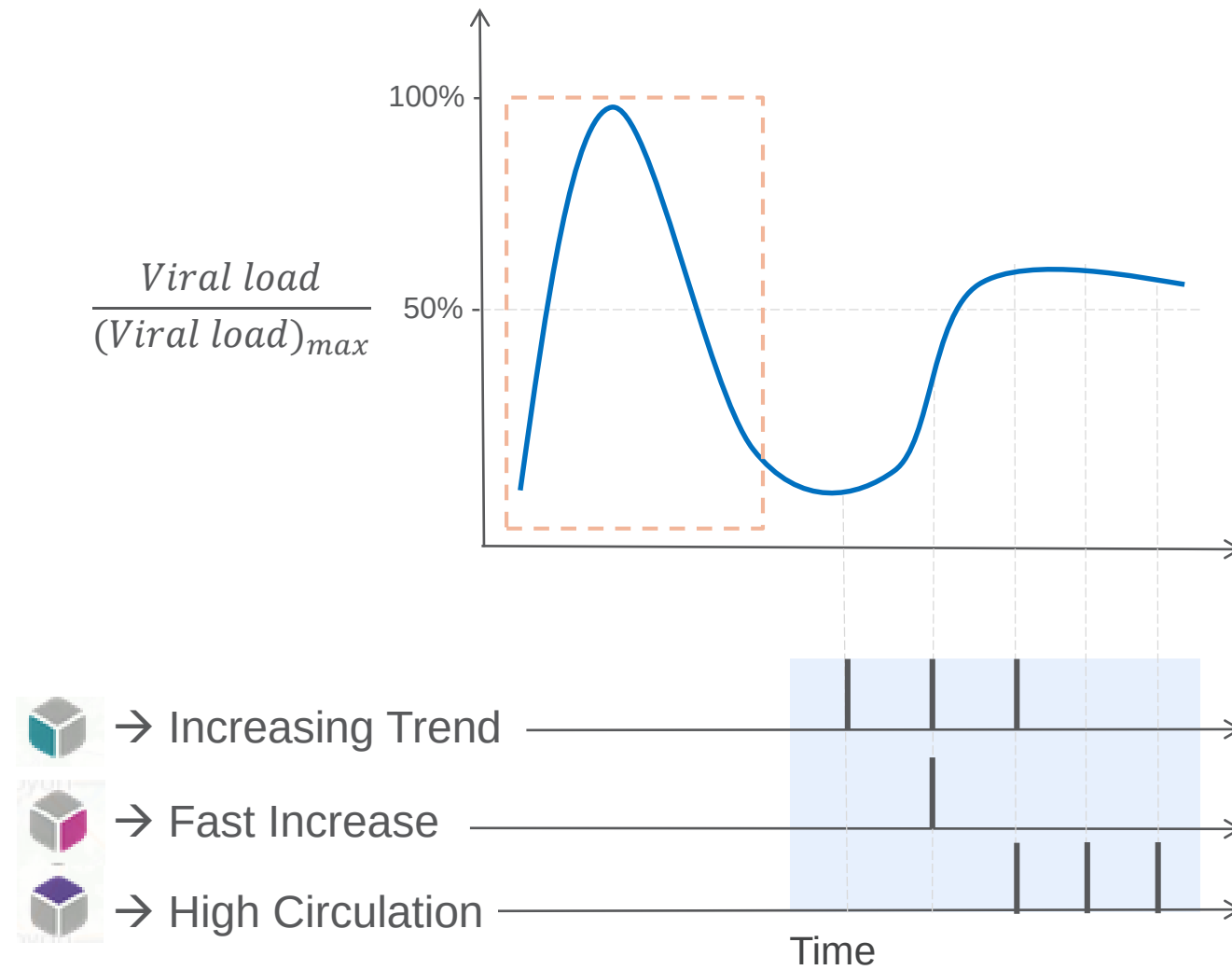


SARS-CoV-2 in wastewater at national level

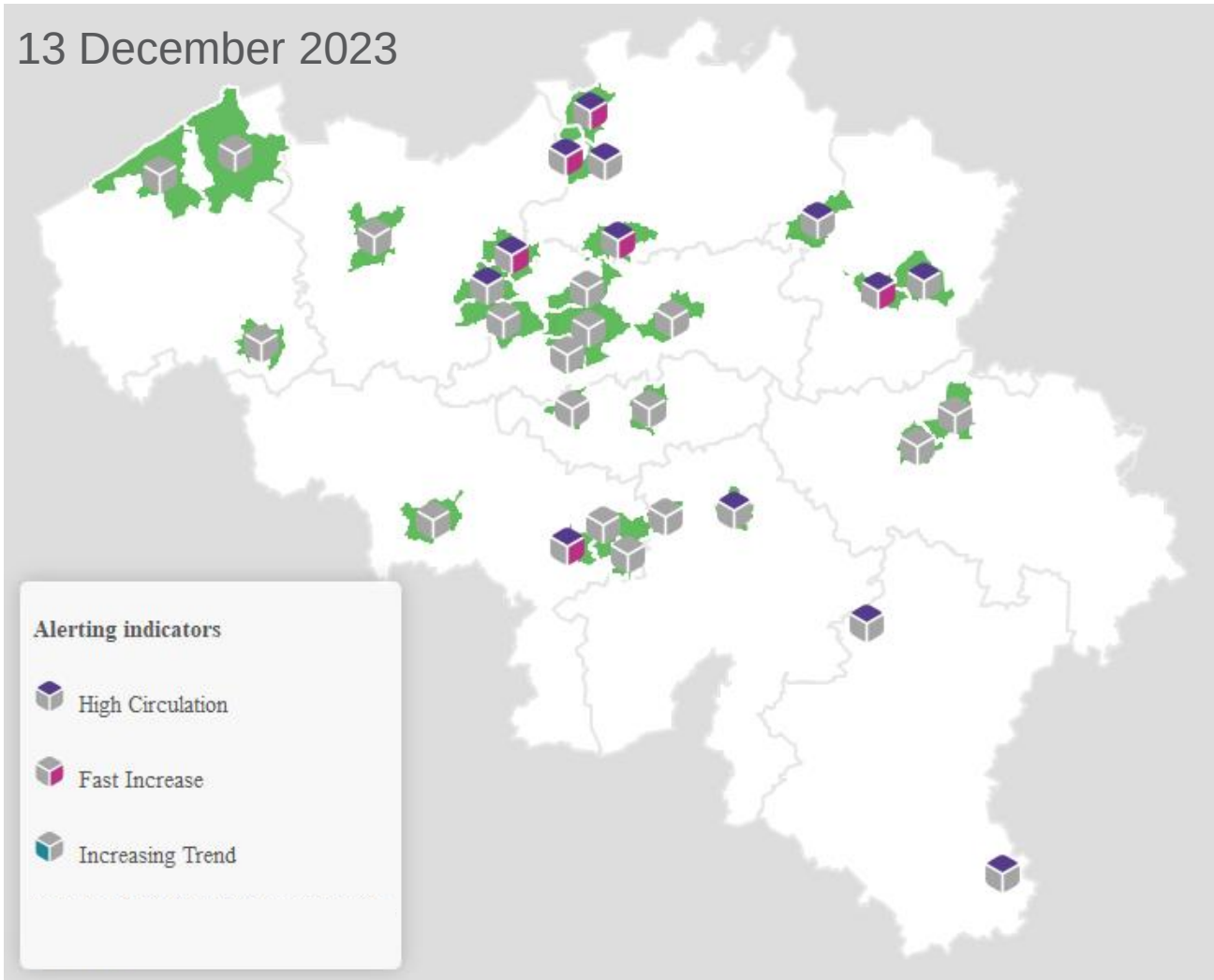


SARS-CoV-2 in wastewater at national level

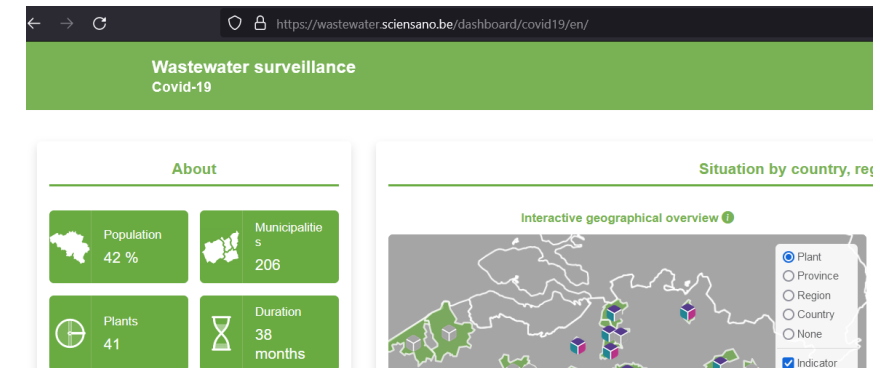




13 December 2023



Dashboard



Weekly report

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



Respiratory bulletin

Scientific publications

Janssens et al., 2022 ; Bertels et al., 2023 ; Van Poelvoorde et al., 2021

Wastewater only ?

Existing surveillances

- General practitioner
- Case-based
- Nursing home
- Hospitalization
- Mortality
- Vaccination
- Wastewater

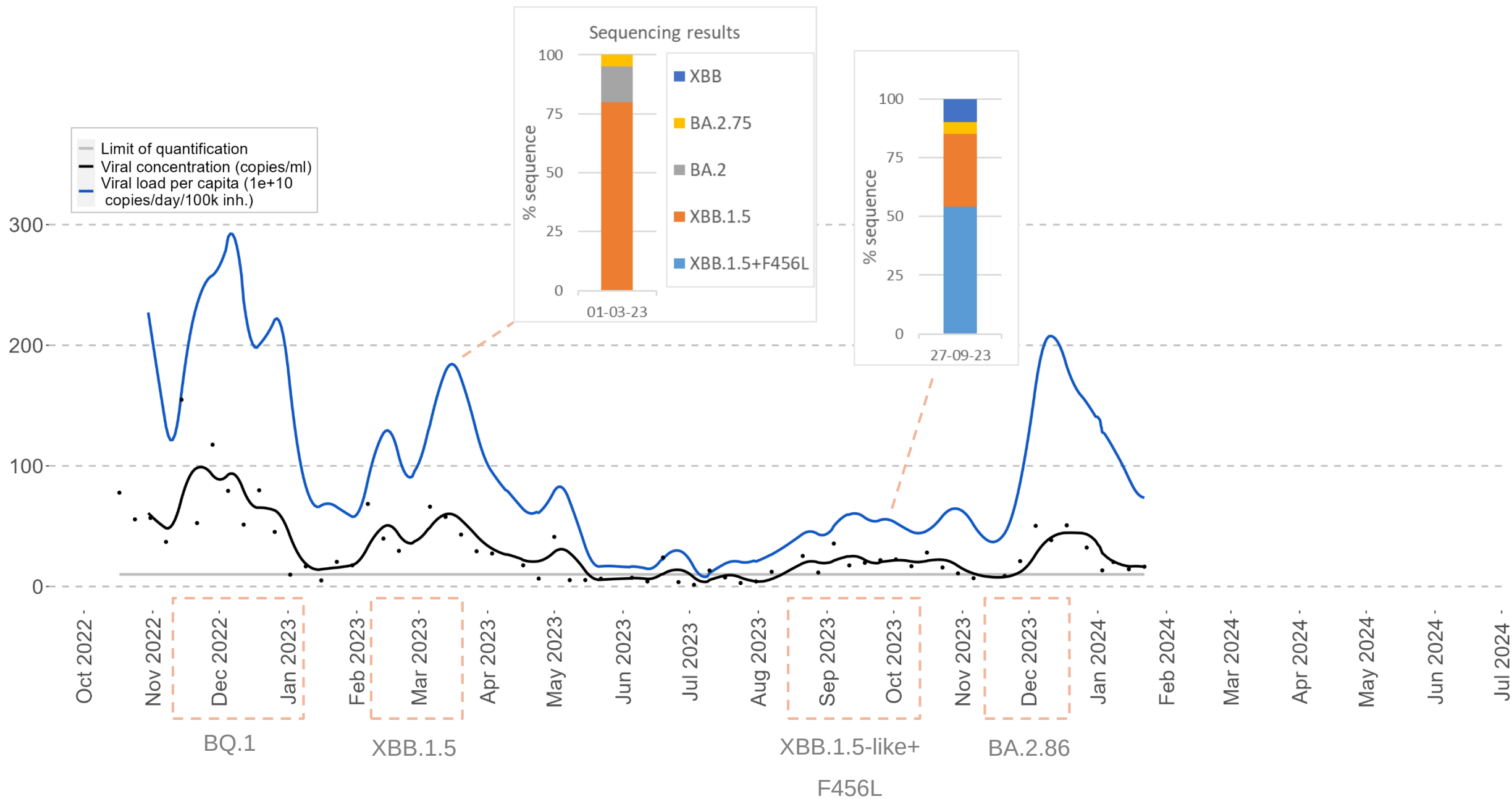
Risk Assessment Group

gives advice

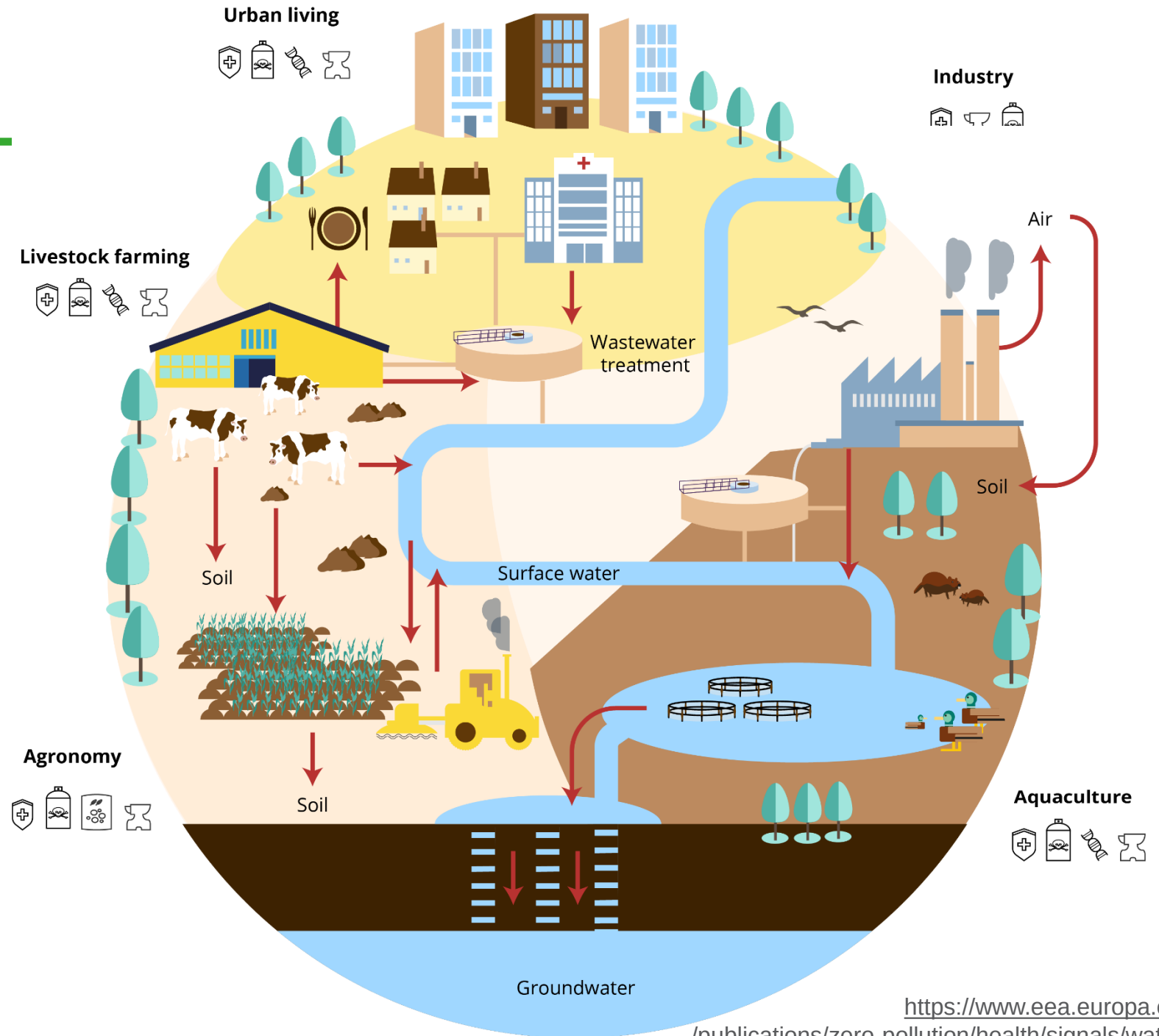
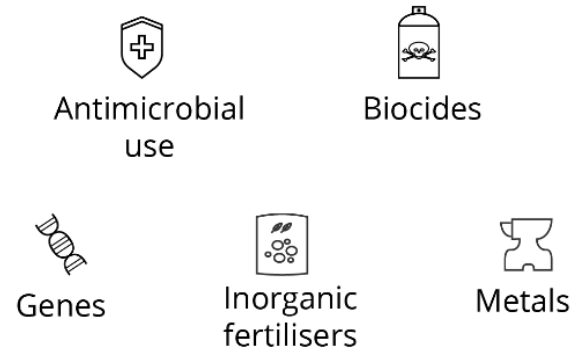


Risk Management Group

takes the decision

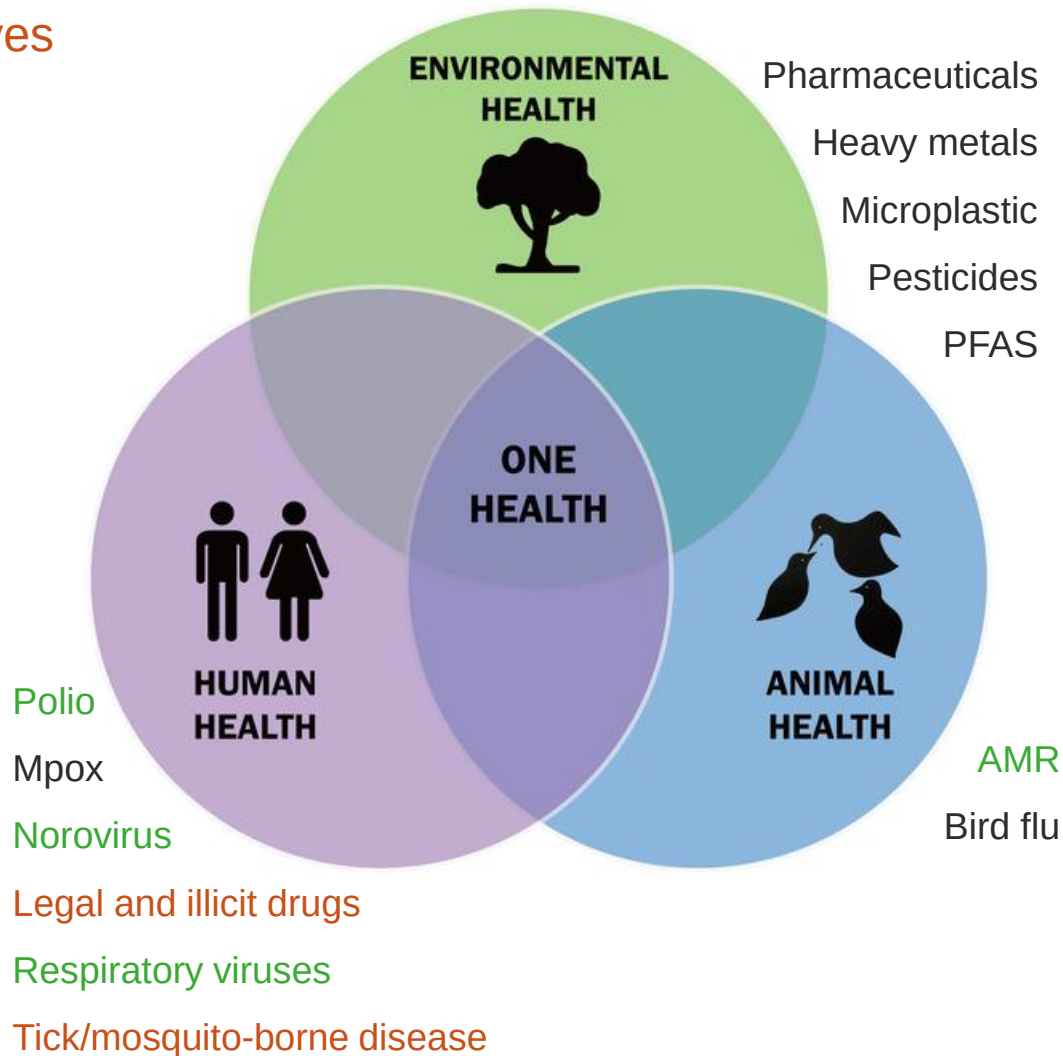


Sample sites



Ongoing at Sciensano

Perspectives



Conclusions

- Infrastructure in place
- Stable population covered
- Surveillance with indicators
- Genomic capacity
- EU funding – Join Action
- Ready to be extended...

Contact

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Epidemiology of infectious diseases service

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Raphael Janssens – Hadrien Maloux

Sven Hanoteaux

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Koenraad Van Hoorde – Lab coordinator / head of service

Bavo Verhaegen

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- https://www.google.com/search?client=firefox-b-d&sca_esv=598580145&q=wastewater+on+health&tbm=isch&source=lnms&sa=X&ved=2ahUKEwi7pKbOxN-DAxWFhf0HHUTODIYQ0pQJegQIBxAB&biw=1920&bih=955&dpr=1#imgsrc=aPX-5PsxM4pfqM&imgdii=cr7gtfQLxSyiLM
- <https://www.eea.europa.eu/publications/zero-pollution/health/signals/water>
- https://www.rivm.nl/sites/default/files/2023-11/De%20mogelijkheden%20van%20rioolwateronderzoek_TG.pdf
- <https://www.rivm.nl/rioolwateronderzoek/toekomstige-mogelijkheden-voor-rioolwateronderzoek>

OHEJP

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ECDC

<https://www.ecdc.europa.eu/sites/default/files/documents/BGawlik.pdf>

Quadripartite

<https://www.woah.org/app/uploads/2022/04/one-health-joint-plan-of-action-final.pdf>

OHHLEP – One Health High Level Expert Panel

<https://cdn.who.int/media/docs/default-source/one-health/ohhlelep/ohhlelep--one-health-theory-of-chance.pdf>

PREZODE

<https://www.biodiversity.be/6011/>