European Centre for Disease Prevention and Control

Digital advances in disease surveillance and extended remit of ECDC

Pasi Penttinen

ERS presidential summit - 4 June 2020

I have no financial conflicts of interest on this topic, other than being staff of ECDC

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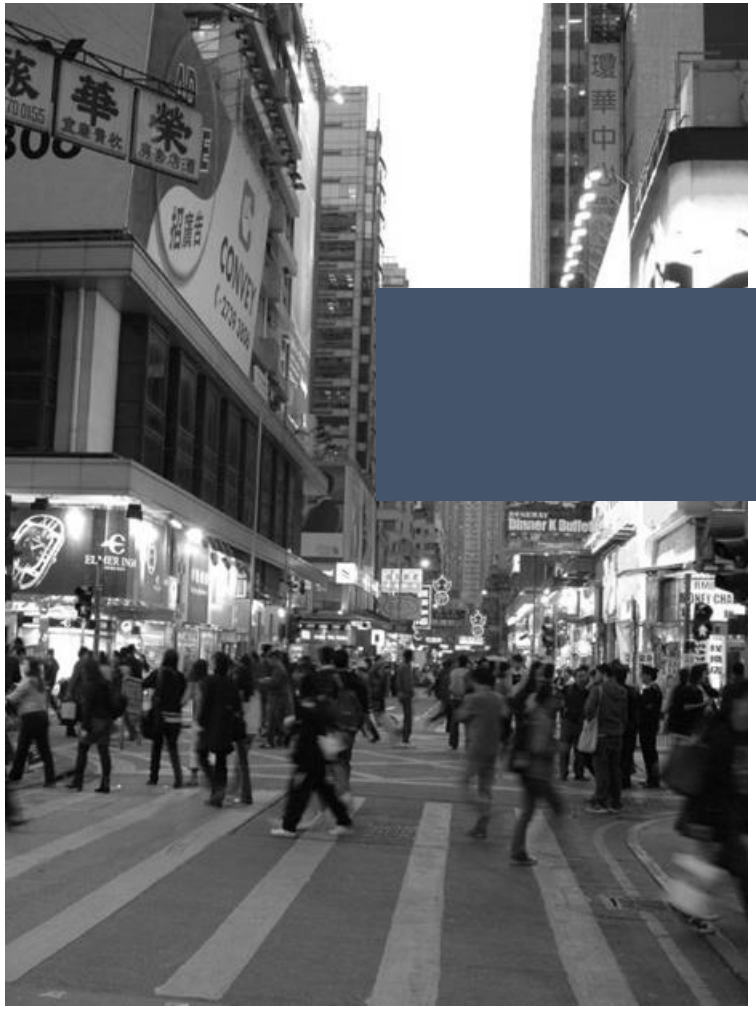

(cc) milolovitch69, via flickr.com

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SARS Coronavirus

ECDC – current mission and mandate

To identify, assess and communicate current and emerging threats to human health posed by infectious diseases.

Disease Surveillance & Epidemic intelligence

Response support & Risk assessments

Preparedness & capacity strengthening

Scientific advice & guidance

EU and external stakeholders & Country support

Public health training

Communication

Vaccine-preventable diseases and Immunisation

Sexually transmitted infections, Blood-Borne Viruses and Tuberculosis

Antimicrobial resistance and healthcare-associated infections

Emerging, Food and vector-borne diseases

Continuous threat monitoring (Round Table meeting)

Public Health Event level 2

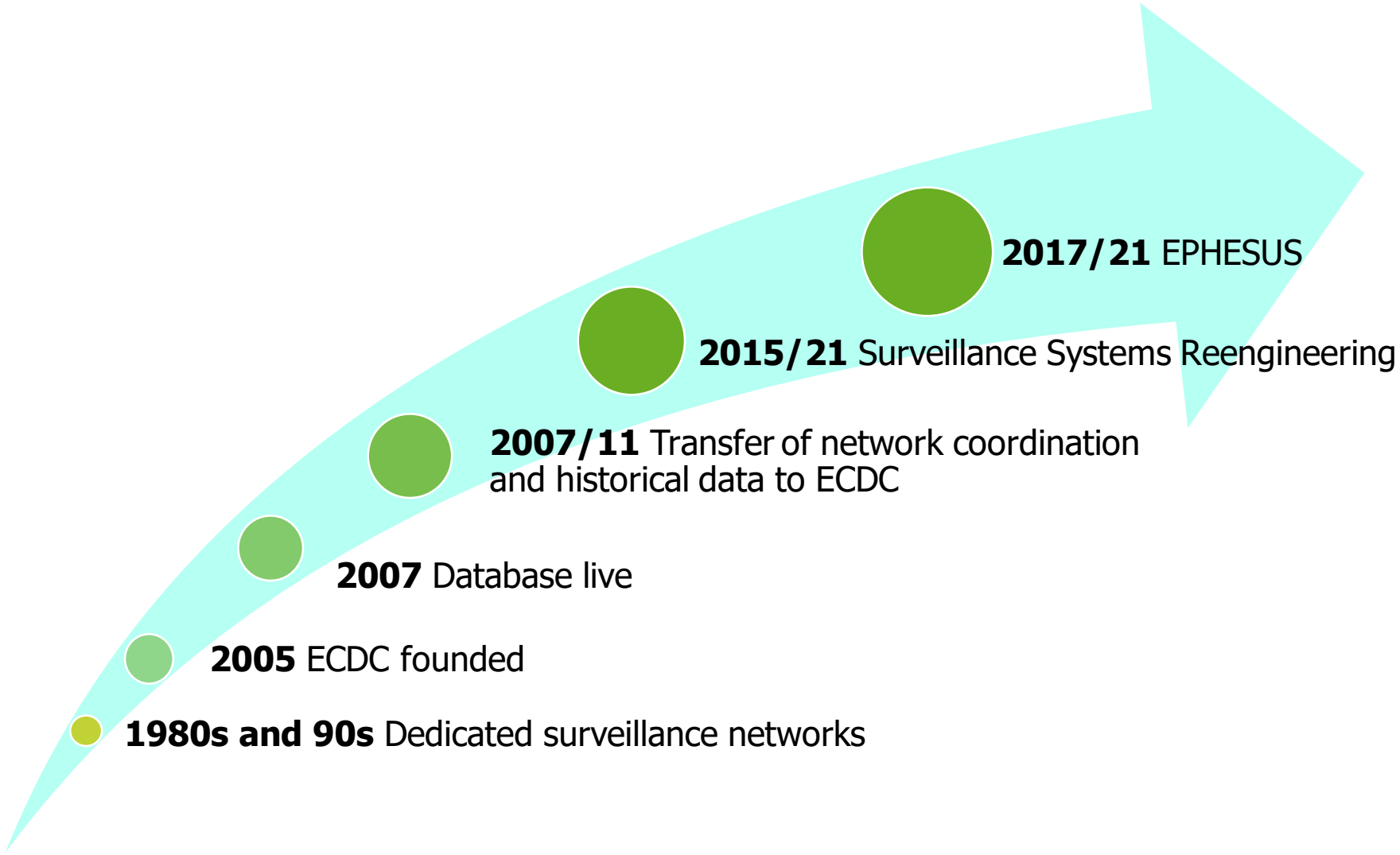
as of 31 January 2020

ECDC works 24/7 during PHE 2

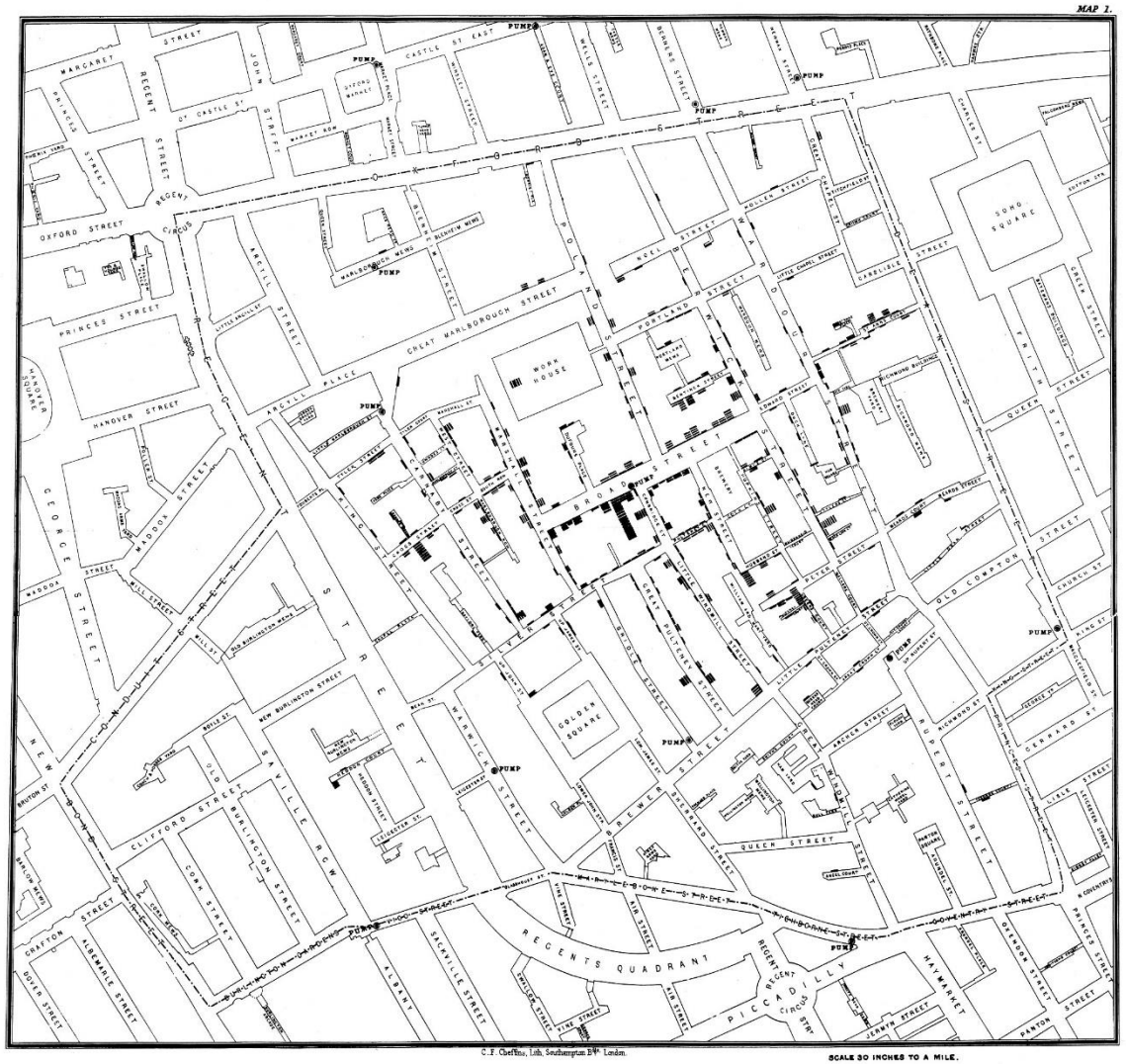
Proposed new mandate for ECDC:

- **Epidemiological surveillance** enabling real-time surveillance;
- **Preparedness and response** planning, reporting and auditing;
- Provision of **non-binding recommendations** for risk management;
- Monitoring and assessing **health systems capacity** for diagnosis, prevention and treatment of specific communicable diseases as well as patient safety.
- Capacity to mobilise and deploy **EU Health Task Force** to assist local response in Member States;
- Build a network of **EU reference laboratories** and a network for **substances of human origin**.
- Reinforce the contribution to the EU commitment to **global health security preparedness**

History of surveillance solutions at ECDC

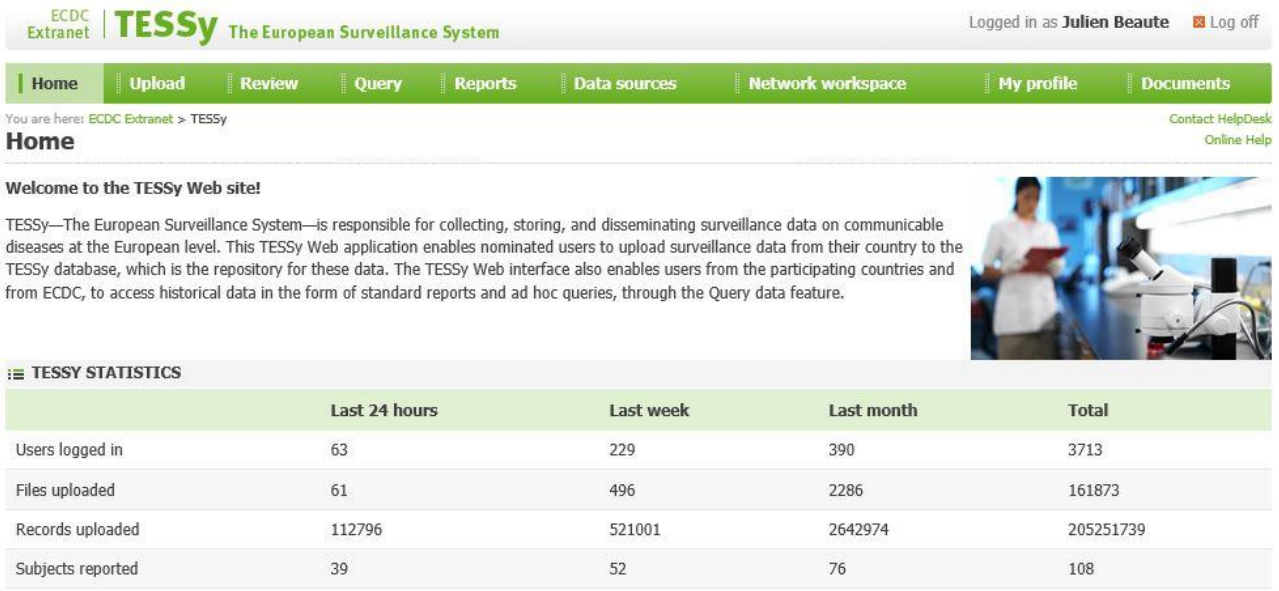


Epidemiology in surveillance: Describe time, place and personal characteristics



The European Surveillance System (TESSy)

- Purpose-built integrated database for all diseases under EU surveillance
- Web interface, password protection
- Functions:
  - Data upload and validation
  - Customised data download
  - Cluster search

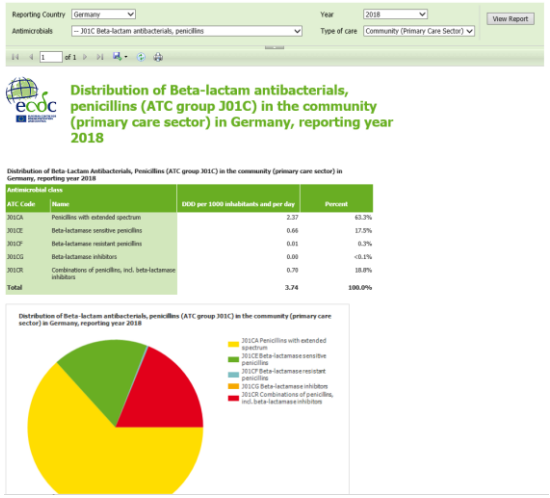


	Last 24 hours	Last week	Last month	Total
Users logged in	63	229	390	3713
Files uploaded	61	496	2286	161873
Records uploaded	112796	521001	2642974	205251739
Subjects reported	39	52	76	108

Automated surveillance outputs

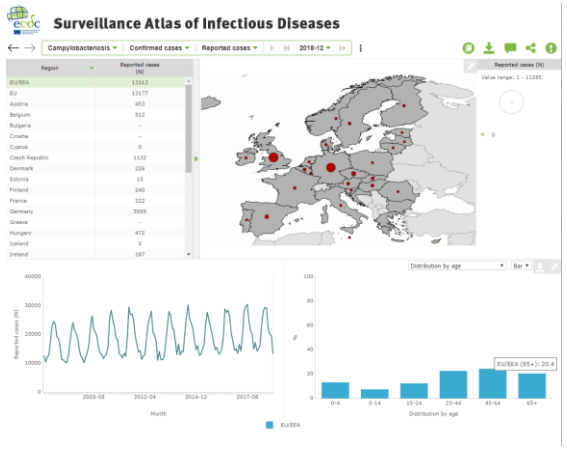
TESSy reports

- Restricted
- Static
- Costly customization



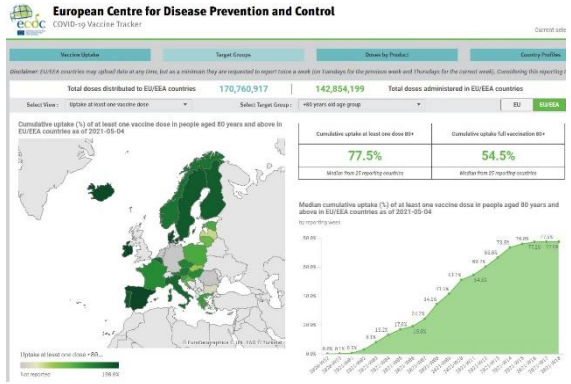
Surveillance atlas

- Public
- Limited interactivity
- Costly customization

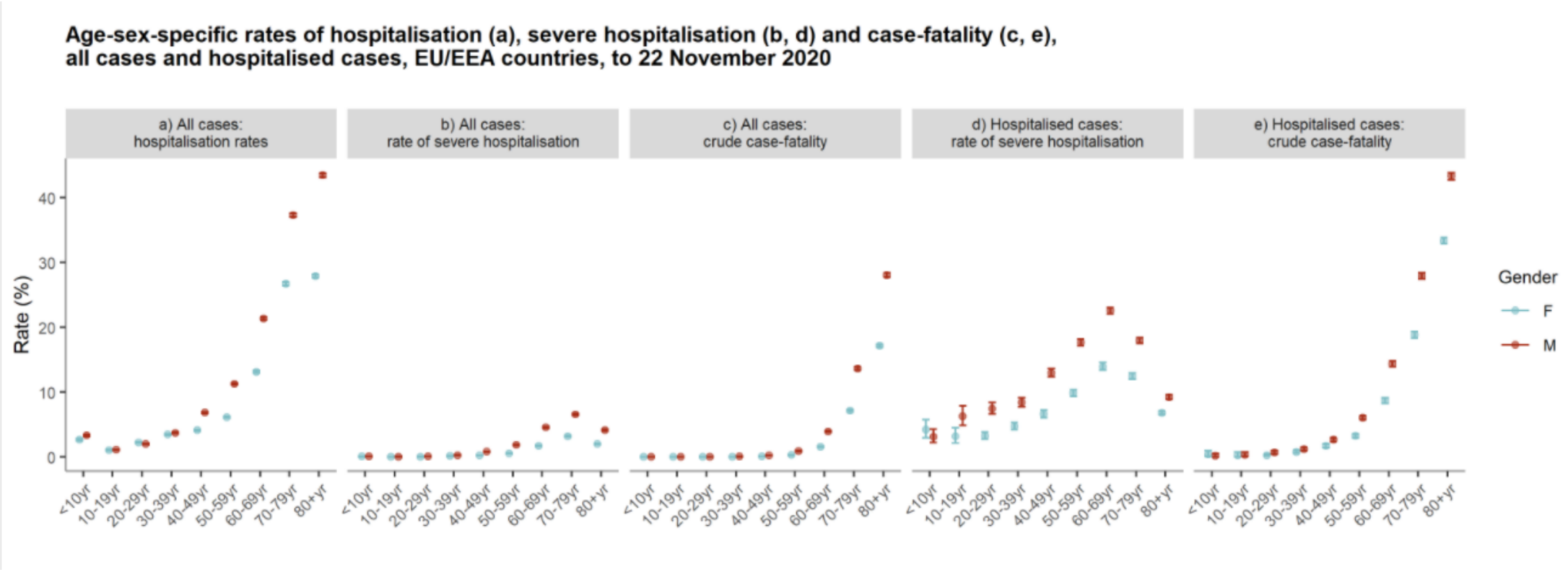


Dashboards

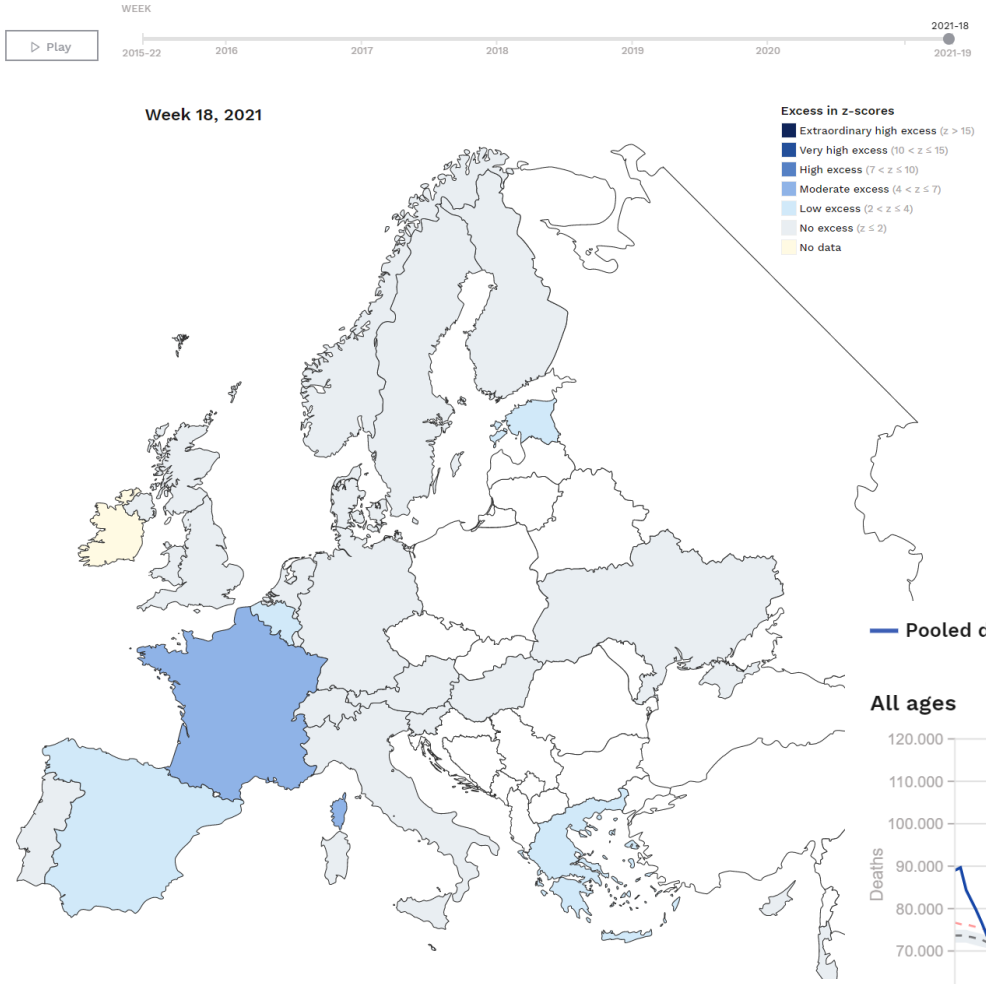
- Public
- Interactive
- Easy customization

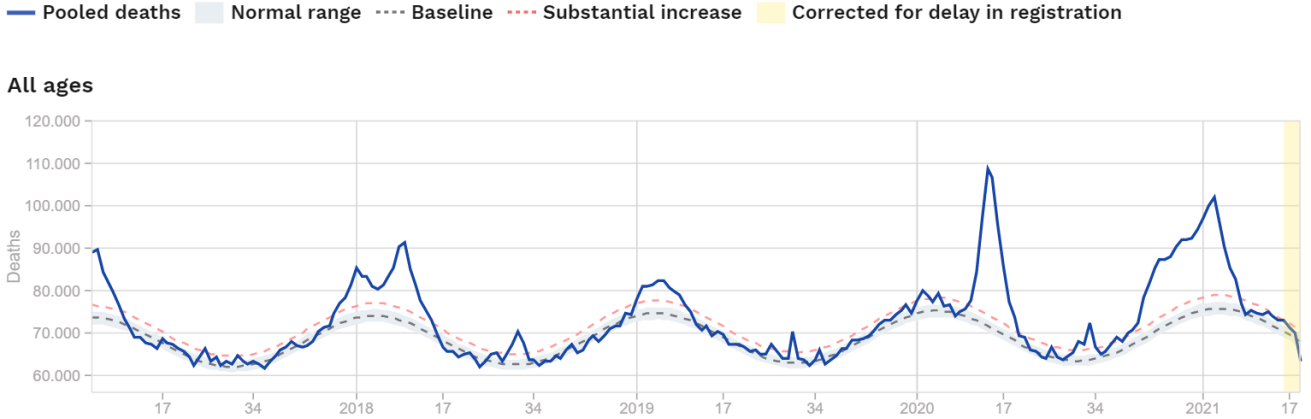


Customisation of automated outputs: Risk factor analysis for COVID-19

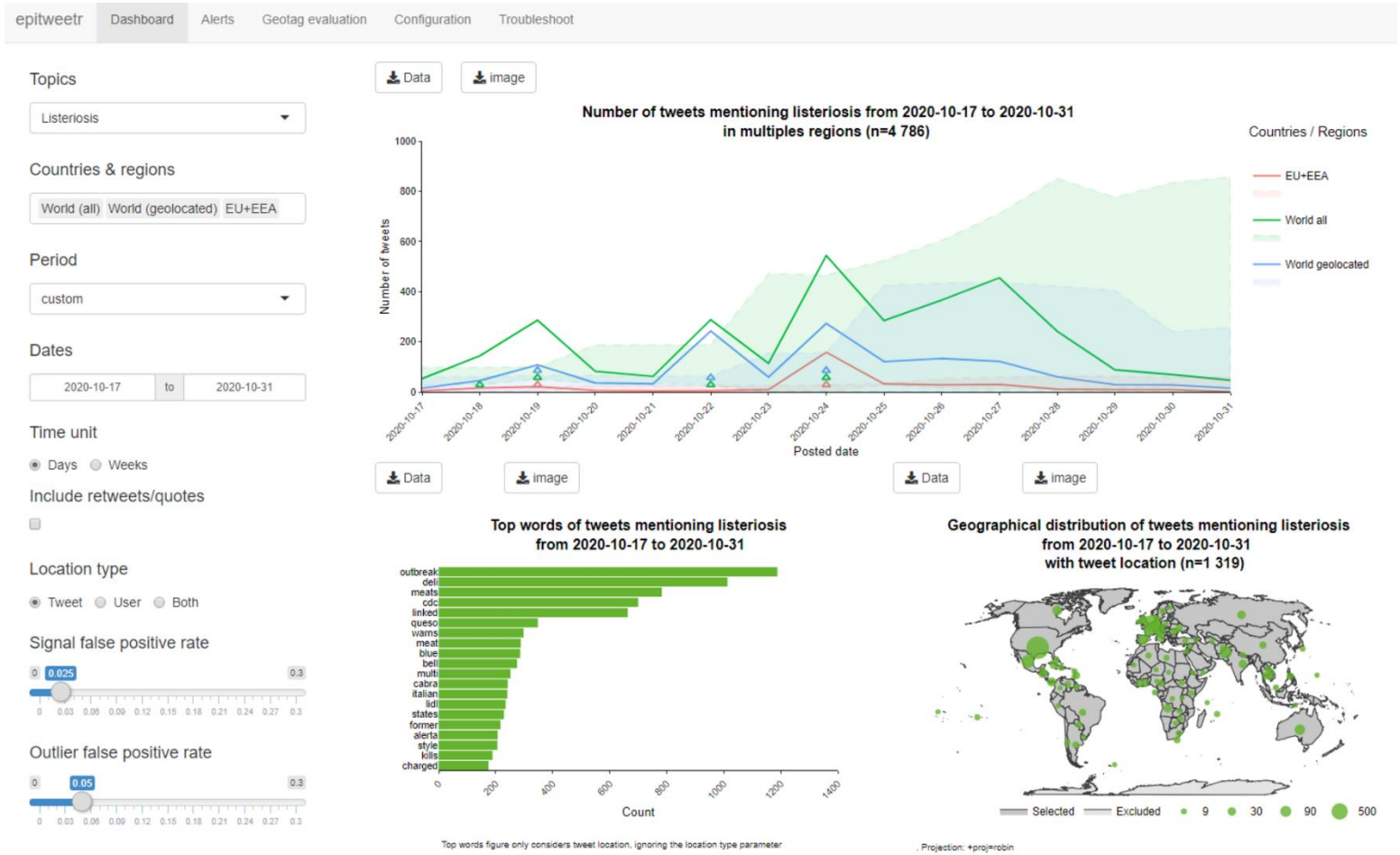


EuroMoMo.eu – dynamic mapping of excess mortality





Epitweetr – monitoring social media

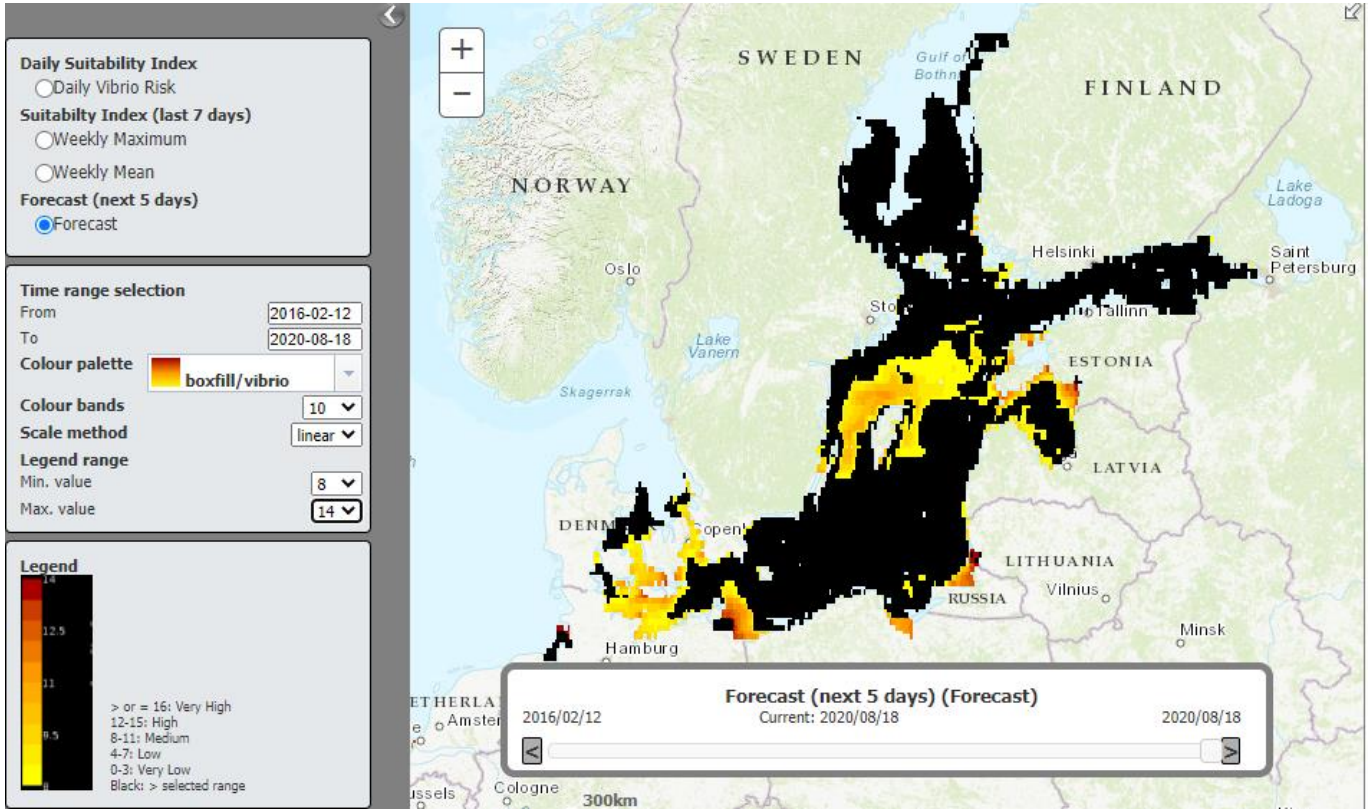


Vibrio monitoring in the Baltic sea

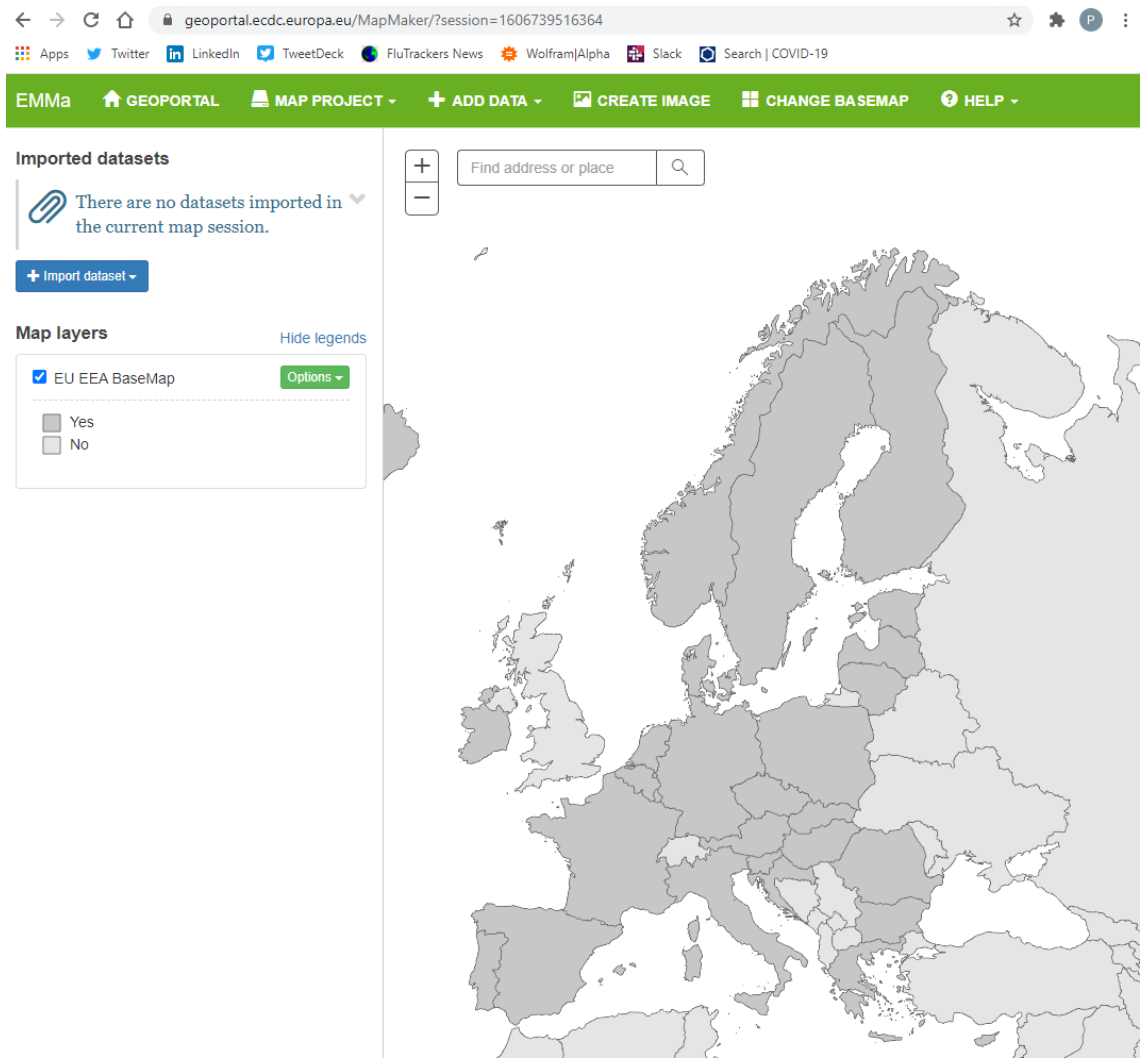
Evaluation of the suitability conditions for some *Vibrio* species in the Baltic sea

Few cases a year

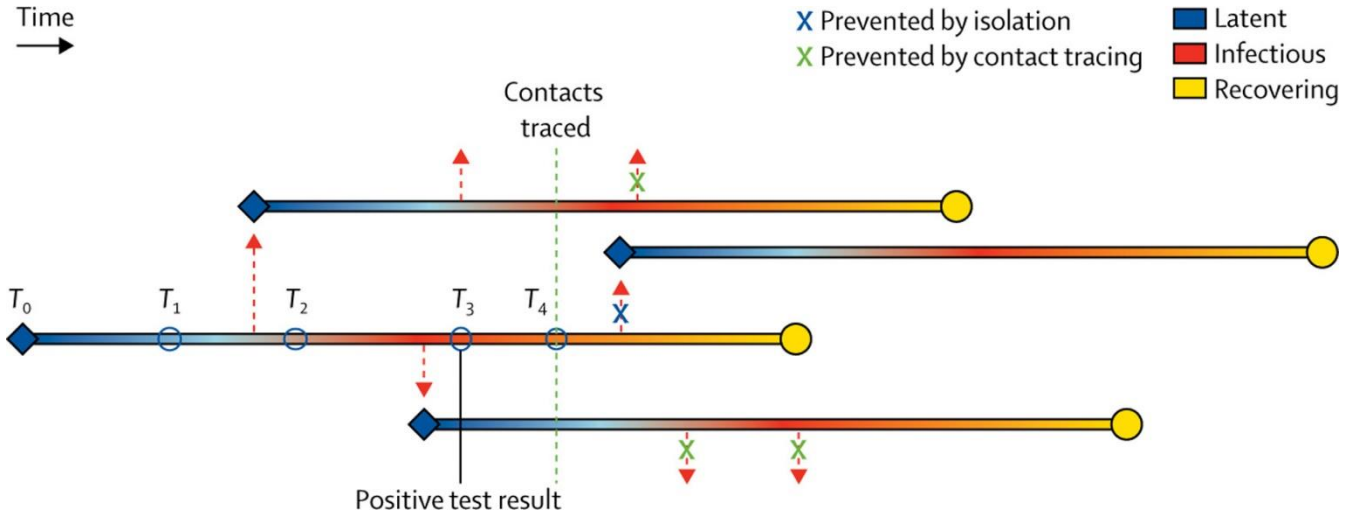
Tool with salinity and water temperature



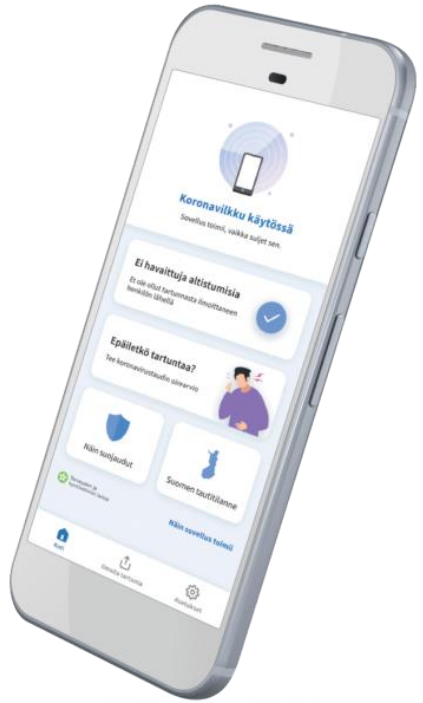
Providing map creation tools for stakeholders: ECDC EMMA



Digital proximity tracing complements conventional contact tracing

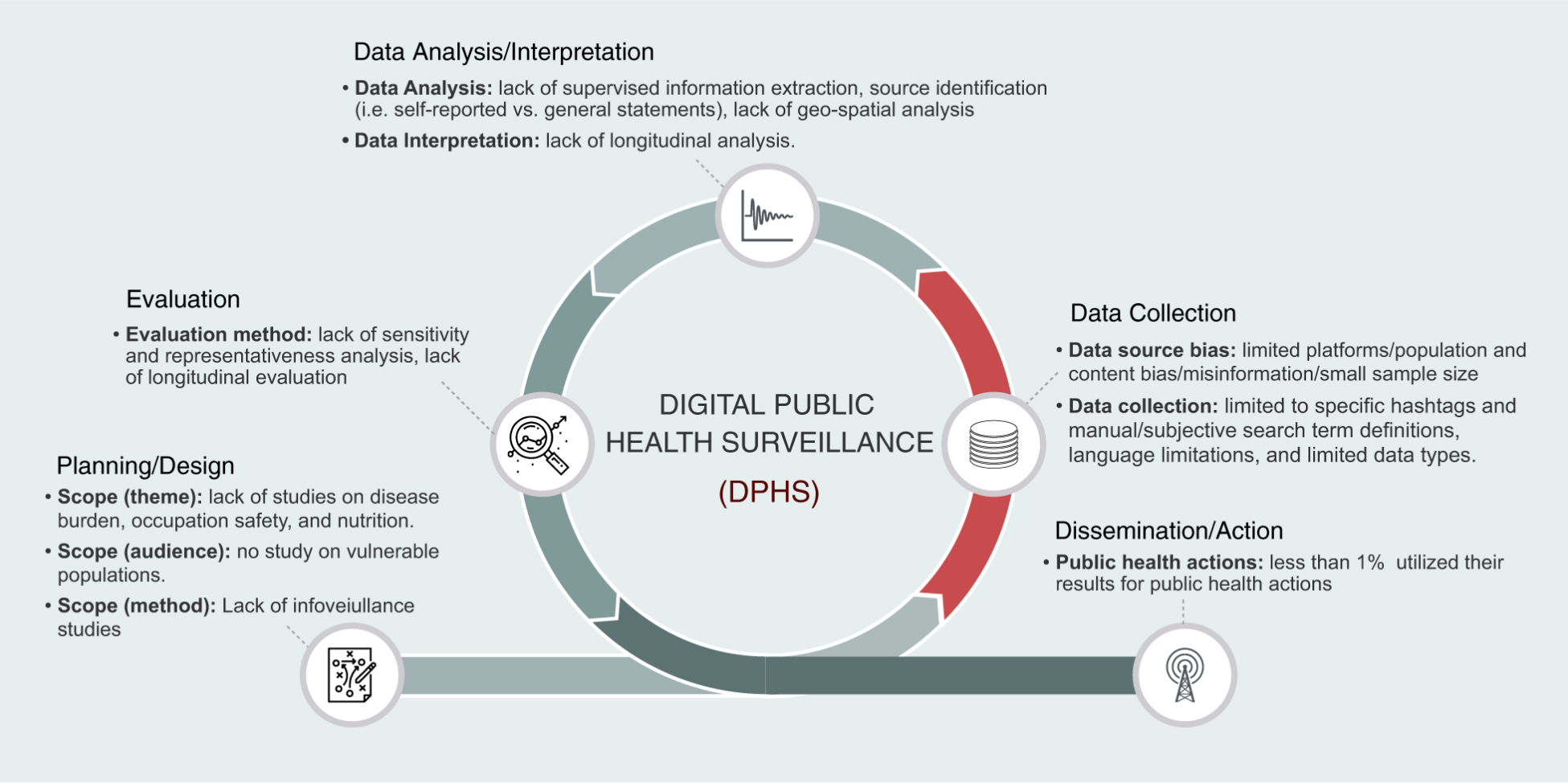


Kretzschmar et al. The Lancet Public Health.



Koronavilkku.fi

The overall iterative process of a public health surveillance system



Shakeri Hossein Abad, Z., Kline, A., Sultana, M. *et al.* Digital public health surveillance: a systematic scoping review. *npj Digit. Med.* **4,** 41 (2021). https://doi.org/10.1038/s41746-021-00407-6

Thank you for notifying infectious diseases!

Thank you for your attention!

Thank you for providing support with slides and content to ECDC colleagues:
Julien Beauté, Antonis Lanaras, Lina Nerlander and co

ecdc.europa.eu