

Postcovid Surveillance - Lessons learnt from COVID-19 surveillance and other epidemics

14-2-2023



NIVEL
Research for better care



National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport



RCSI

EUHealthSupport consortium; contact 5.1.2e @rivm.nl

Background of the study

- EUHealthSupport – consortium since 2018
- Experiences from implementing surveillance during the response to the COVID-19 crisis and earlier public health emergencies
- Parameters for the creation of integrated digital surveillance systems, collecting data real-time and using artificial intelligence, where appropriate
- Deliverables:
 - Scoping review / background paper
 - Survey
 - Webinars
 - Discussion paper



Lessons learnt from COVID-19 surveillance and other epidemics

Scoping review results



NIVEL
Research for better care



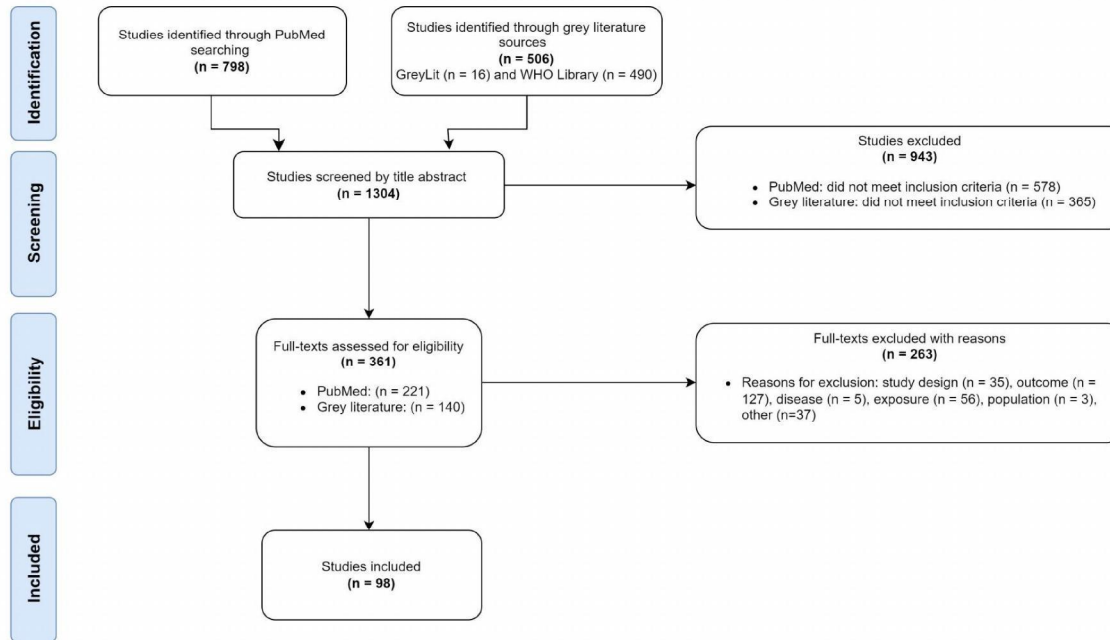
National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport



RCSI

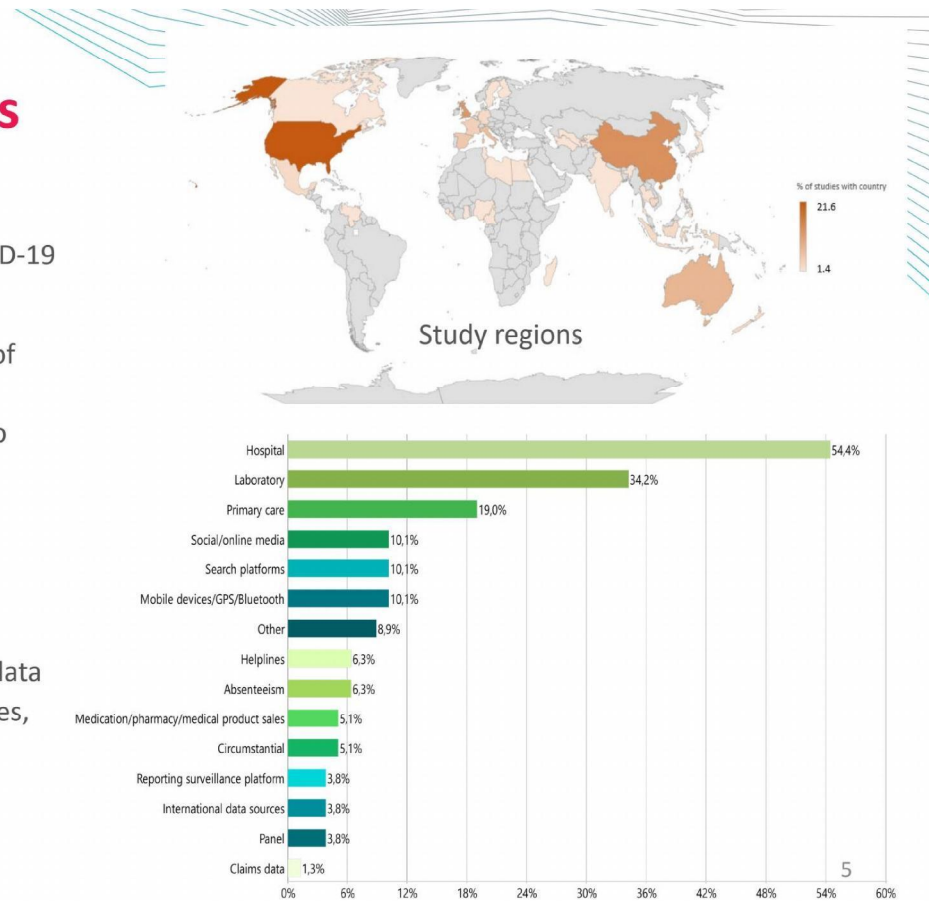
EUHealthSupport consortium; contact 5.1.2e @rivm.nl

Flowchart of included literature



Characteristics of studies

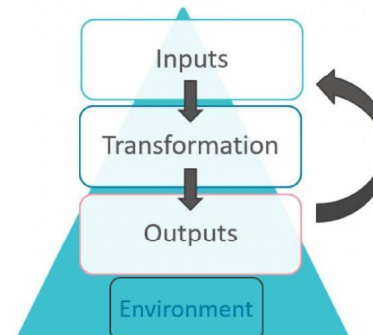
- Mostly non-EU countries (US and China)
- Disease: Mostly influenza (44.8%) or COVID-19 (33.3%)
- Early detection is main objective (60.5%) of studied systems, other objectives like monitoring outbreaks and viral strains also mentioned
- Syndromic (44.9%) and/or sentinel surveillance (33.9%) are most commonly reported designs
- Hospital, laboratory and/or primary care data reported as primary data sources by studies, new data sources like social media are emerging



Conclusions scoping review

Great majority of included studies include/focus on:

- Non-EU countries (US, China)
- Disease: COVID-19 or influenza
- Early detection
- Syndromic and/or sentinel surveillance
- Hospital, laboratory or primary care data



Parameters identified for creating and sustaining surveillance systems

- Environment: Policy and legal factors to consider; collaborations to enable systems
- Inputs: Protocols, human and technical resources, data considerations
- Transformations: Engagement of health care professionals, digitalisation, interoperability, data quality & modeling techniques
- Outputs: Exploring dashboards; can support with integration of data and communication

Lessons learnt from COVID-19 surveillance and other epidemics

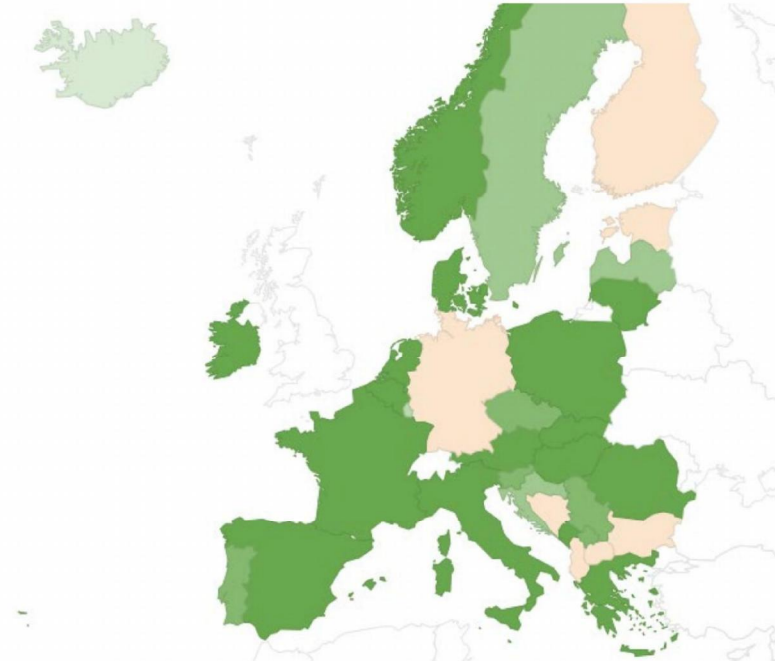
Survey results



EUHealthSupport consortium; contact 5.1.2e @rivm.nl

Background information on the respondents

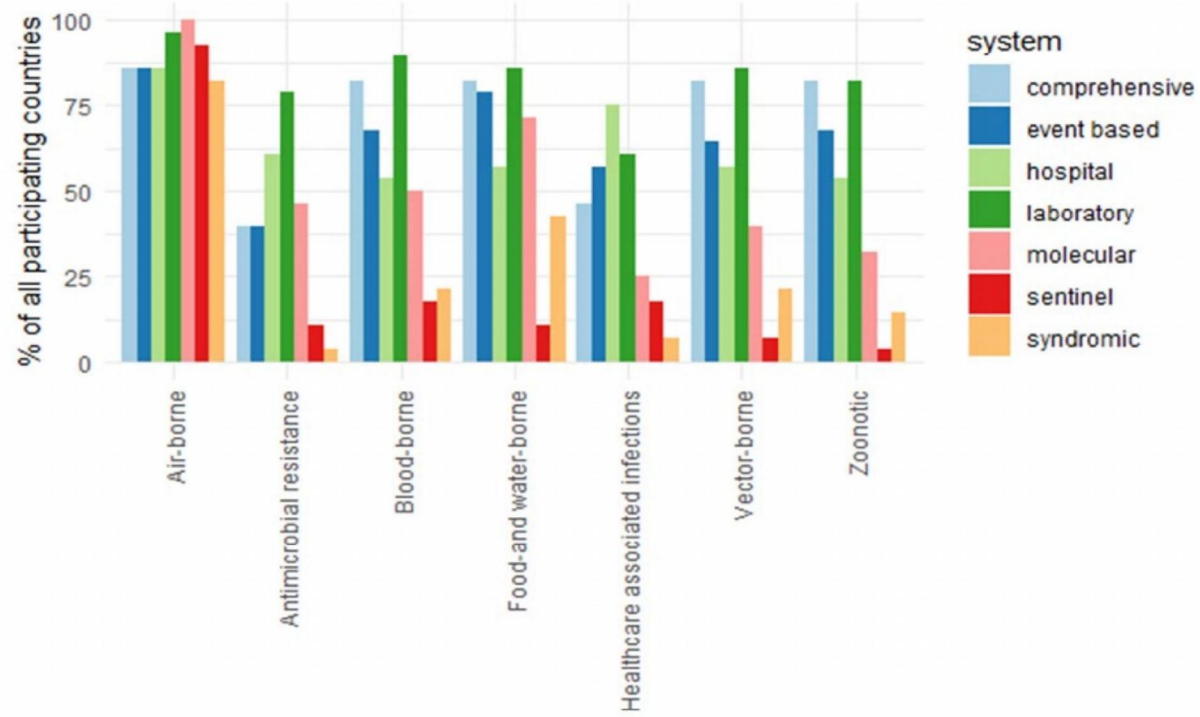
- 48 valid responses
- 28 EU/EEA and associated countries and regions
- 68.8% government employed
- 39.6% more than 20 years experience



Type of surveillance systems per country and recent changes in relation to COVID-19

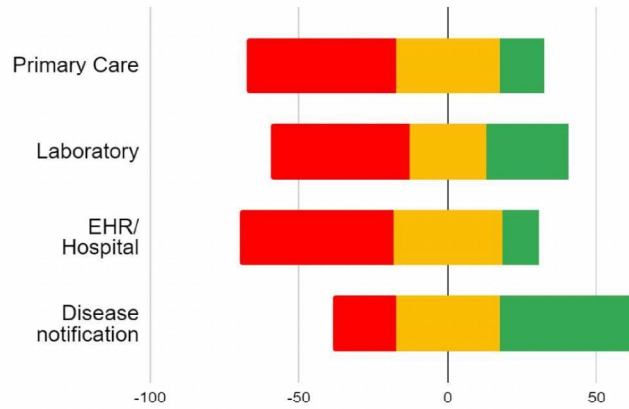
	Sentinel surveillance	Comprehensive surv.	Hospital surveillance	Primary care surveillance	Laboratory surveillance	Molecular surveillance	Syndromic surveillance
Austria	Green	Green	Green	Green	Green	Green	Green
Belgium	Green	Green	Green	Green	Green	Green	Green
Croatia	Red	Green	Red	Green	Green	Green	Green
Czechia	Green	Green	Green	Green	Green	Green	Red
Denmark	Green	Green	Green	Green	Green	Green	Green
France	Green	Green	Green	Green	Green	Green	Green
Greece	Green	Green	Green	Green	Green	Green	Green
Hungary	Green	Green	Green	Green	Green	Green	Green
Iceland	Red	Red	Red	Red	Green	Green	Green
Ireland	Green	Green	Green	Green	Green	Green	Green
Italy	Green	Green	Green	Green	Green	Green	Green
Kosovo	Green	Red	Green	Green	Green	Green	Green
Latvia	Green	Green	Red	Red	Green	Green	Green
Liechtenstein	Green	Green	Green	Green	Green	Green	Red
Lithuania	Green	Green	Green	Green	Green	Green	Green
Luxembourg	Green	Green	Green	Red	Red	Green	Red
Malta	Green	Green	Green	Green	Green	Green	Green
Montenegro	Green	Green	Green	Green	Green	Green	Green
Netherlands	Green	Green	Green	Green	Green	Green	Green
Norway	Green	Green	Green	Green	Green	Green	Green
Poland	Green	Green	Green	Green	Green	Green	Green
Portugal	Green	Green	Green	Green	Green	Green	Red
Romania	Green	Green	Green	Green	Green	Green	Green
Serbia	Green	Green	Green	Green	Green	Red	Green
Slovak Republic	Green	Green	Green	Green	Green	Green	Red
Slovenia	Green	Green	Green	Green	Green	Green	Red
Spain	Green	Green	Green	Green	Green	Green	Green
Sweden	Green	Red	Green	Red	Green	Green	Green

Use of surveillance system for disease groups



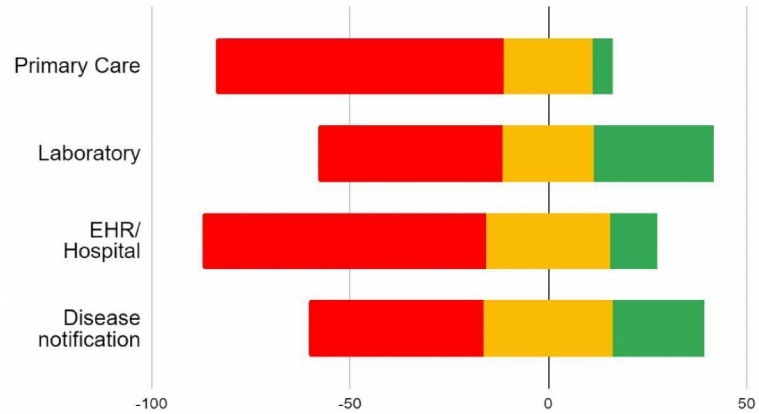
Standardisation of information systems & Data extraction at the national level

Extent of standardisation of systems in...



To what extent is the software used for the following information systems in your country of reference standardised? Please indicate from not standardised (1 star) to fully standardised (5 stars).

Extent of automated data extraction in systems in...



To what extent is data extraction/reporting to the national competent authorities done using manual data extraction/reporting (1 star) to automatic extraction/reporting (5 stars) for the following information systems?



Legal context: barriers & facilitators regarding surveillance

Barriers

National law

- Rigidity of wording and ambiguity
- Laws implemented before surveillance type
- Strict interpretation on personal identifiers
- Reliance on other national actors

International law

- GDPR
- Interplay with national implementation
- Discrepancy between answers
- Differences in interpretations of same law

Facilitators

Legislative solutions

- Notifiable disease law
- Law as response to COVID-19
- Avoid use of personal data

Political leadership

- Increased emphasis on surveillance by executives
- Special authorisation of data use
- Ad-hoc solutions acceptable to all stakeholders

Lessons learnt from COVID-19 surveillance and other epidemics

Webinars



NIVEL
Research for better care



National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport



RCSI

EUHealthSupport consortium; contact 5.1.2e @rivm.nl

Webinars

Target group

- Key stakeholders and experts at EU level.

Objectives

- To feed back on results of scoping review and survey (plus mentimeter)
- To facilitate an exchange of practices and lessons learnt on the following main topics (break out sessions):
 1. *Legal barriers and legal solutions* for data sharing
 2. *Digitalisation*, including the use of new data sources
 3. *Data integration*, such as technical aspects to data linking and standardisation of case definition

Lessons learnt from COVID-19 surveillance and other epidemics

Integrating all results – *discussion paper*



NIVEL
Research for better care



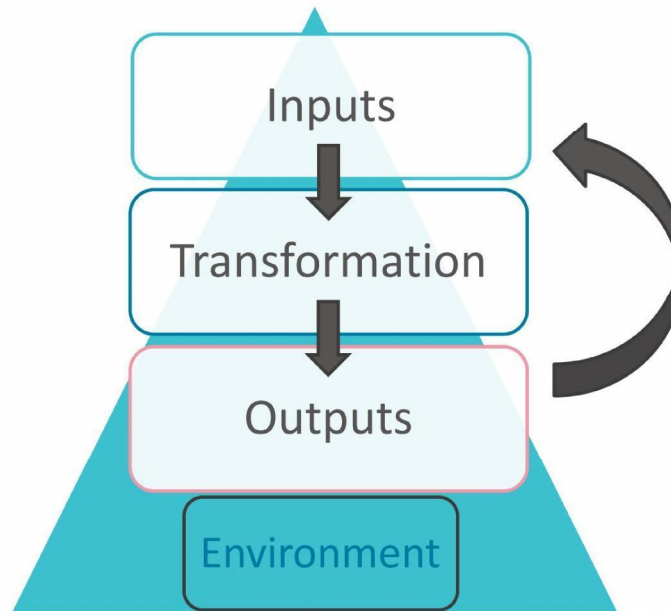
National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport



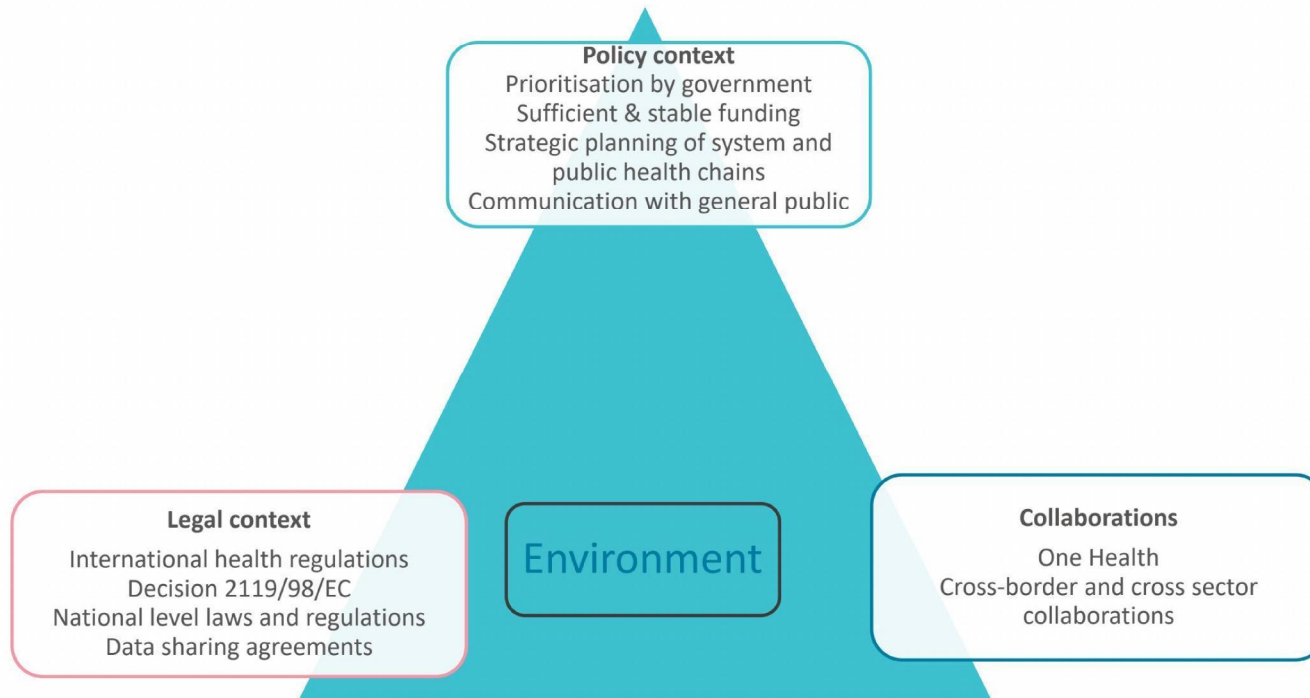
RCSI

EUHealthSupport consortium; contact 5.1.2e @rivm.nl

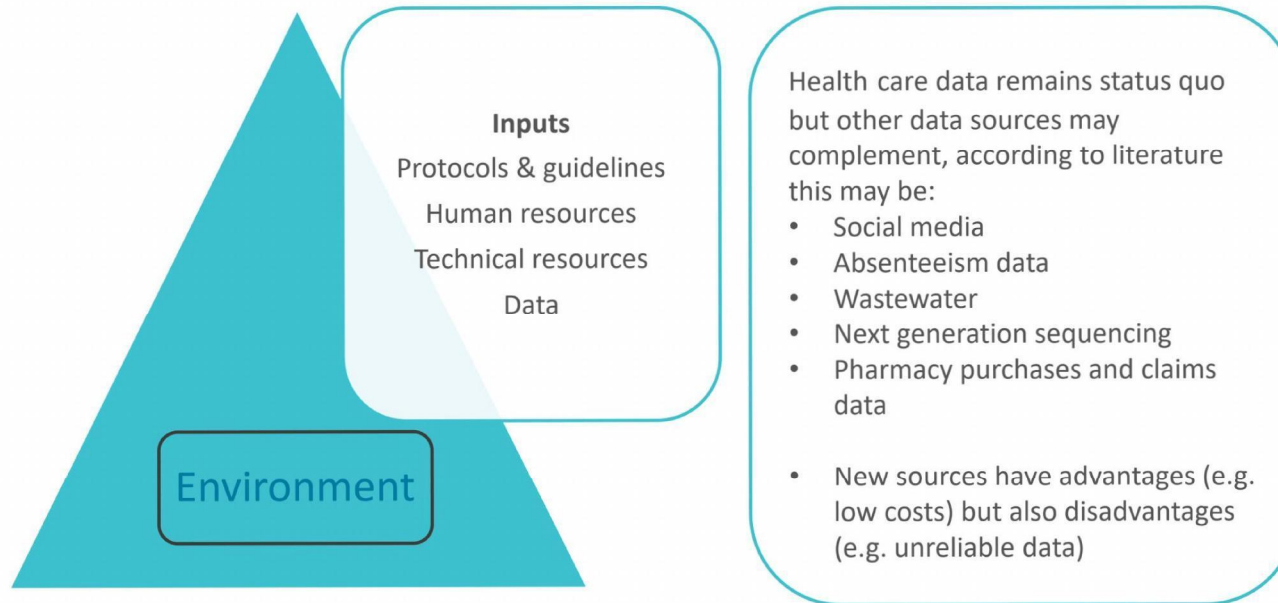
Systems thinking approach to understanding the parameters of a surveillance system



Which environmental factors were identified?



Which inputs were identified?



Transforming inputs into outputs

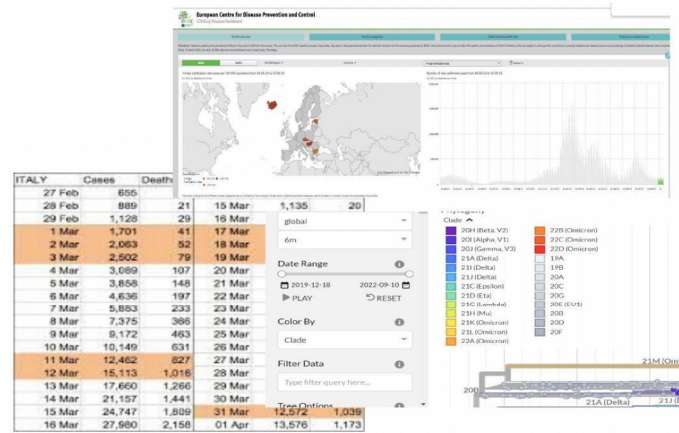
Transformations

- Engagement of health care professionals
- Reducing manual workflow through digitalisation
- Addressing interoperability
- Improving data quality and reporting
- Using (innovative) modelling techniques and AI

Environment

Outputs

Using open-source dashboards for integrating data and communicating about data



Recommendations – *Discussion paper*

- Environment**
1. Prioritisation and planning of surveillance systems by government
 2. Sufficient and stable funding
 3. Support from the general public
 4. National level laws on data protection and privacy
 5. Prioritisation of sustained cooperation between strategic actors
 6. Cultural, demographic, geographic and sectoral contexts

Inputs

1. Develop protocols that define roles & responsibilities
2. Keep staff members motivated and trained on latest technologies/methods
3. When using new data sources, carefully align with the goal of the system, legal & policy constraints
4. Establish multi-disciplinary teams (e.g. epidemiology, privacy law, IT)
5. Invest in technology, but carefully choose the tools appropriate for users

Transformation

1. Make surveillance data/information beneficial for health care staff
2. Standardise case definitions, indicators, protocols & measurements
3. Create central databases & registries using unique identifiers
4. Use innovative technologies (e.g. AI) to address poor data quality
5. Explore complementary data sources that can fill data gaps

Outputs

1. Ensure surveillance information is presented in an attractive and (for a broad audience) accessible manner with an accurate overview of key indicators
2. Use open-source software for developing dashboards
3. Use one main dashboard per disease area operated by the national institute

Thank you



EUHealthSupport consortium; contact 5.1.2e [@rivm.nl](mailto:5.1.2e@rivm.nl)