Session 7: Use of modelling in the next season

Respiratory Virus Meeting
October 5 - 7, 2022

Session 7: Use of modelling in the next season

Chair: Rene Niehus, ECDC

Talk 1 : "Connecting Forecasting Research to Decision-making Needs: Lessons
Learned from CDC-organized Activities" - Matthew Biggerstaff, US-CDC

Talk 2 : "The European COVID-19 Modelling Hubs" - Rene Niehus, ECDC

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European COVID-19 Modelling Hubs

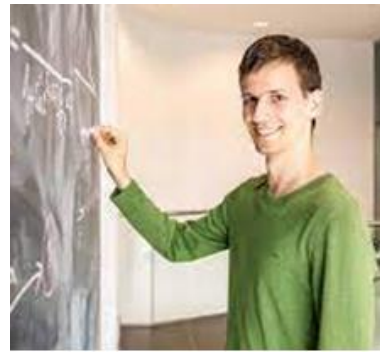Respiratory Virus Meeting
October 5 - 7, 2022

Overview

- Background

- Setting up COVID-19 Modelling hubs

- Outputs and Importance

- Lessons learned and Outlook

ECDC Modelling Team
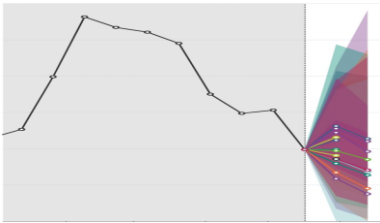
René Niehus

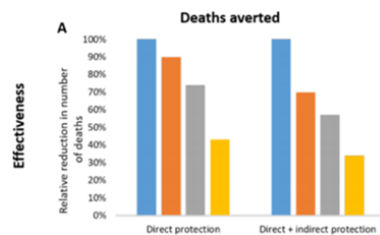Rok Grah

Bastian Prasse

Frank Sandmann

Background

Dynamic models have very different **purposes**.

- **Short-term forecasts**
  - Provide **accurate** near term projections (1 to 4 weeks)
  - Goal: **Situational awareness**

- **Longer-term scenarios**
  - Predict **magnitude** of burden for larger time window (several months)
  - **Explicit about conditions** for every important factor
  - Often projections for different **"possible futures"**
  - Goal: Allow planning and anticipatory action, help understand relative **importance** of different factors and to act strategically, gain insights

Context and set-up of the hubs
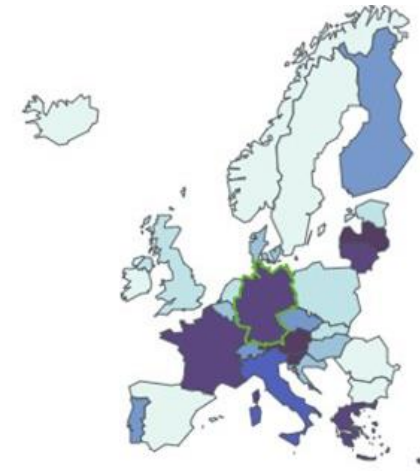
Forecast hub

Started **March 2021**:

- EU/EEA Member States relaxing NPIs, Delta variant, vaccine roll-out
- ECDC collaboration with LSHTM contractors, building on US hub

Hub activities:

- Collects weekly short-term forecasts from global modelling teams
- Validation and performance reports
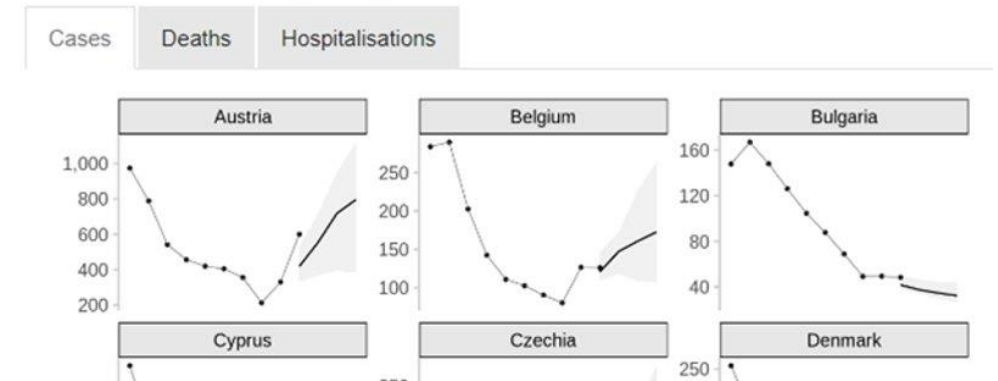- Regular meetings of the network of modelling teams

Aims:

- Insights into epi situation
- Situational awareness for decision makers and public

https://covid19forecasthub.eu/

Context and set-up of the hubs

Scenario hub

Started **March 2022**:

- Few NPIs, Omicron variant, booster shots
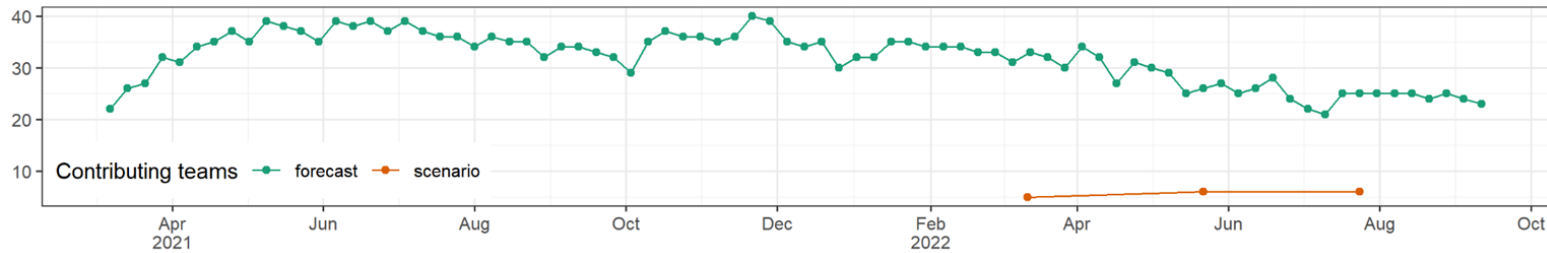- ECDC collaboration with LSHTM contractors, building on US hub

Hub activities:

- Defining policy-relevant and feasible modelling scenarios
- Round-based collection of quantitative long-term scenarios from global modelling teams
- Result analysis and communication

Aims:

- Support preparedness and anticipatory actions
- Support strategic planning (surveillance systems, vaccination programmes, protecting vulnerable populations)

Outputs and importance of the hubs

Forecast hub

- >80 weeks of forecasts, between 20 and 40 different teams
- Go to source for epi updates in the EU/EEA
- Are part of ECDC weekly surveillance report on COVID-19
- Inform the ECDC policy brief to the European Commission
- Internal assessment of the current situation (raising the red flag, generating questions)
- Media and social media attention
- 1 joint authorship paper, >5 team-authored papers

Scenario hub

- 1 Pilot round + 3 full Rounds
- Impact of new variants, immunity waning, next generation vaccines, etc.
- Specific models only and more team effort needed
- Supporting strategic analysis team at ECDC
- Assessment of autumn 2022 vaccine strategies and burden risk
- Informs risk assessment, strategic planning, advising European Commission Communication
- Community of Modellers that is able to respond to infectious disease threats in the future

Lessons learned and outlook

- Modelling hubs and a Modelling community require a lot of time investment as well as long-term funding (running the hubs & for modelling teams)
- Setting up a new Modelling Hub can draw on experience from and collaboration with existing hubs

Outlook

- Extend to other infectious diseases (influenza, West Nile virus)
- Modelling Hubs can help Europe be better prepared for the next season, for the next pandemic, and for infectious diseases with slowly increasing burden

Questions or comments?

We are extremely grateful to all our collaborators and our contractor on these hubs, for the open source code, and most of all to all the teams and their active participation in these hubs.