Global data on COVID-19

What did we learn and what do we still need to do
Key questions in a pandemic

• How transmissible is this disease?
• How severe is the disease? And who is most affected?
• What is the impact on our health care system, society?
• How do interventions alter the natural progression?
## COVID surveillance in WHO HQ

1) **Public health intelligence- monitoring media articles**

- Daily aggregated data
- Cumulative and new cases and deaths
- From WHO regional dashboards and ROs:
  - 258 million cases

2) **Continuous collection of data**

- Case Based Data from Case Report Forms
- Data captured from case report forms and entered to regional databases, harmonized using existing systems
- 83 million case reports

- Weekly aggregated reporting
- Data captured from case based or aggregated systems weekly, with age, gender, HCW, hospitalized cases, number of tested case
- 205 million cases reports

- Vaccination data
- Data from RO and added from publicly available sources
- 7.7 Billion vaccine doses administered

### Table

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### Diagram

- WHO dashboard
- Situation reports
- Detailed analysis
- Situations of Concern

- Provides more detailed information for a subset of total cases (PAHO, EMRO, EURO mainly)
- Provides essential epidemiological information on core variables (SEARO, WPRO, EURO)
- Showing which country started vaccination and doses administered
Data Flows Between Countries, Regions, Headquarters

[Diagram showing data flows between countries, regions, and headquarters, involving public data, DAILY-aggregates, Case Report Forms, and WEEKLY aggregates and vaccination data.]

World Health Organization

HEALTH EMERGENCIES programme
Data regularly available during the COVID19 pandemic at global level

We have more info/data than we had ever before: Global Situation as of 24 November 2021

- Cumulative cases: 258,164,425 Cumulative deaths 5,166,192

From classic surveillance:

daily cases and death, weekly aggregated data by age group, hospitalization, Health Worker, Gender
Globally, as of 6:49 pm CET, 24 November 2021, there have been 258,164,425 confirmed cases of COVID-19, including 5,166,192 deaths, reported to WHO. As of 22 November 2021, a total of 7,408,870,760 vaccine doses have been administered.
Public Health measures
COVID-19 Explorer

Growth dynamics plot
Data as of 25 Nov 2021 - Drag to zoom in

1. X-axis: The daily growth rate of reported cases
2. Y-axis: One of two metrics to reflect current levels of infection (select from dropdown menu)
   - "Cases - % of historical peak" - compares current weekly case incidence to the highest reported
   - "Death incidence per 1M inhabitants" - this metric is less sensitive to test and case reporting, but a later signal
3. Color: Deeper red indicates more recent days flagged as above expected, based on trends from the last 6 weeks (as detected by AG/ODEE)
4. Shape: Indication of whether growth rate is significantly different from 0 (circles) or not (triangle)

Notes: The "% of historical peak" option may be incorrect if the country/area/territory's historical peak was within the last 60 days, and may be less informative if it has had a continuous case build-up and no previous "waver". Note also that increases in case incidence may reflect increases in testing/surveillance.

The color of each point represents the net number of days in the past week where the observed number of cases was above expected. Circular and triangular points represent points where growth rate was significant and not significant respectively. Note that not all country/area/territory labels are visible, but can be seen when zoomed in. Countries/areas/territories are excluded if they had very low case or last reporting in the last seven weeks or had a very low historical peak.
Serosurveys for SARS-CoV-2

Summary Statistics

718 seroprevalence studies
In 86 countries and territories
including 7,118,037 participants

SeroTracker is a dashboard and data platform for SARS-CoV-2 serosurveys.

We conduct an ongoing systematic review to track serosurveys (antibody testing-based surveillance efforts) around the world and visualize findings on this dashboard.

Antibodies against SARS-CoV-2, the virus that causes COVID-19, indicate previous infection or vaccination.
Models and advanced analytics use different data

- Models use the different data, applying different algorithms
- Data available for models has different levels of completeness, timeliness and quality
- Modern algorithms and Artificial Intelligence help with data gaps
- Often models come to very different results

- In order to understand the results and be able to compare we need to
  - Understand the context of the data
  - Understand the assumptions
  - Understand the process of how the results have been achieved
Data are available and WHO collaborates with different networks

- Publically available data are used and analysed with local data
- Collaboration with advanced analytic networks
- Expert groups to review results and give advice to WHO
- WHO publishes evidence-based guidelines
While we have never had so many data

- There are over 200,000 publications if you search for COVID-19 on PubMed.
- Daily data on cases and death, vaccination....
- There are a lot of different models that look into different factors
  - Understanding the main drivers of the pandemic
  - Forecasting, what will happen if....

But

- Often local knowledge and the context of the data is not used.
- Data is collected and good analysis is done, but not shared.
- Other aspects that might influence the dynamic of the disease progression are not taken into account.
- Results of models are sometimes contradicting and not transparent/easy to understand.
- Open discussion among experts and with the users are not happening enough.
WHO Hub for Pandemic and Epidemic Intelligence

- While WHO is responding and monitoring the current pandemic
- It is preparing towards

Global need for stronger pandemic & epidemic intelligence

“... we need more meaningful cooperation during and in-between health emergencies; more transparency, more regular detailed exchange of real-time data and experiences at all levels, more reliability of interaction ...”

Review Committee on the Functioning of the IHR, Executive Board Jan 2021

» Detect new events with pandemic potential

» Monitor disease control measures for pandemic and epidemic risk management

» Leverage innovations in data science for public health surveillance
**We cannot continue to prepare for the last pandemic**

**What the Hub is about**

- Embracing complexity.
- Dealing with uncertainty.
- Building learning systems.

*“Complex systems are typically non-linear, changing at different rates depending on their states and their environment.”*

**Collaborative intelligence for preparedness**

- Collaborative approach vs. competitive approach
- Collaborative methods development vs. centralizing expertise
- Collaborative capacities vs. linear exchanges between actors
- Collaborative adaptive systems vs. singular problem focus
### Guiding features of Collaborative Intelligence

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<td><strong>Multidisciplinary collaboration</strong></td>
<td>Interaction across many stakeholders &amp; disciplines, who need intelligence outputs</td>
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<td><strong>Multistakeholder decision-making</strong></td>
<td>Synthesis contextual information about circumstances in which pandemics and epidemics occur</td>
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<td><strong>Distributed insights exchange</strong></td>
<td>Knowledge sharing via distributed adaptive information networks</td>
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<tr>
<td><strong>Trust architecture</strong></td>
<td>Global trust architecture that promotes greater sharing of data, information and insights</td>
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Accelerate existing initiatives & attract innovations

» Semantic networks of distributed data
» Connections across sectors & disciplines

» Collaborative & iterative exploration of data
» Connected analytical solutions

» Multisectoral networks of decision makers & communities of practice
» Intelligence trainings

Underpinned by

» Connecting institutions and networks to find solutions for the present and future
» Education and capacity building for public health intelligence
» Supporting Member States
THANKS