

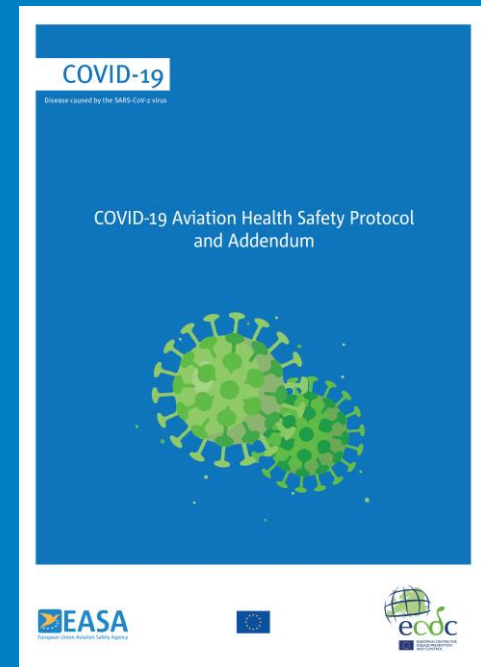
Wastewater testing strategies and guidelines

CAPSCA EUR-MID/10 meeting

15.02.2023

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EASA Medical Expert



Your safety is our mission.

An Agency of the European Union 

Guidelines development

Article 91 – “EASA shall, within its field of competence, contribute to a timely response to and mitigation of aviation crises, in coordination, with other appropriate stakeholders”

Participation in specialised bodies

- ICAO CAPSCA
- MEG

Crisis planning and management

- EACCC
- EC response to PHEs
- EU Healthy Gateways

Institutional relations

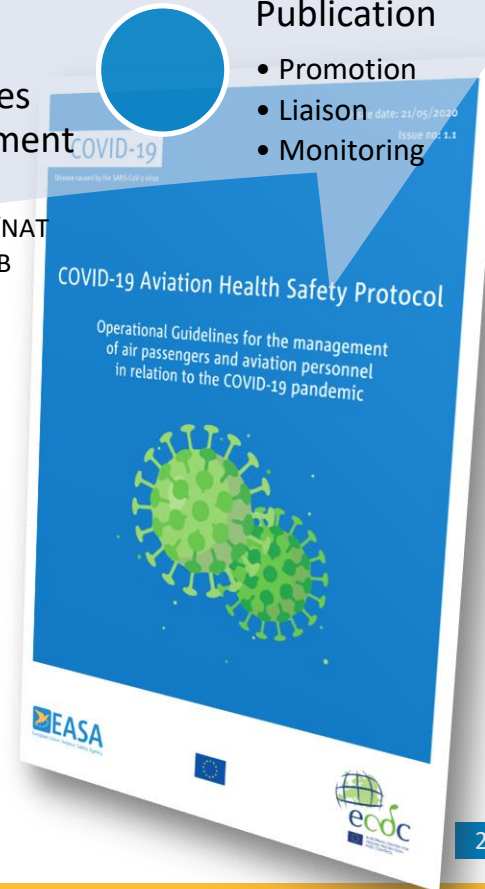
- EASA visit to DG SANTE
- DG SANTE visit to MAB
- Health Security Committee
- Integrated Political Crisis Response (IPCR)

Guidelines development

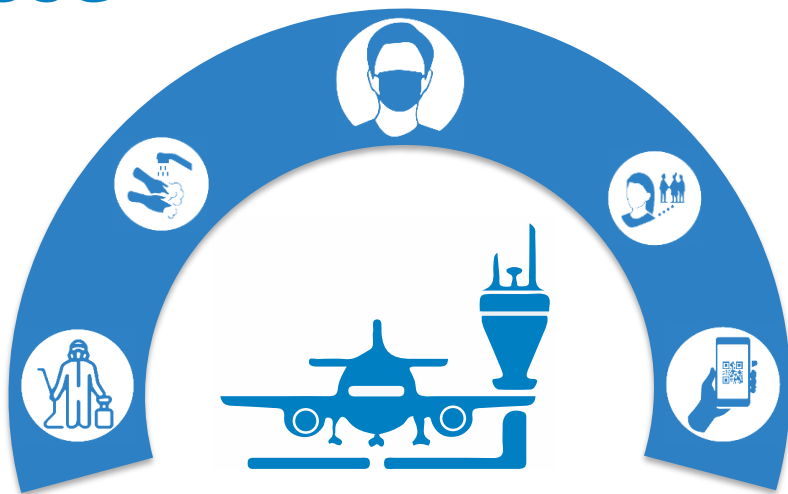
- ECDC
- ICAO EUR/NAT
- MAB & SAB
- MEG

Publication

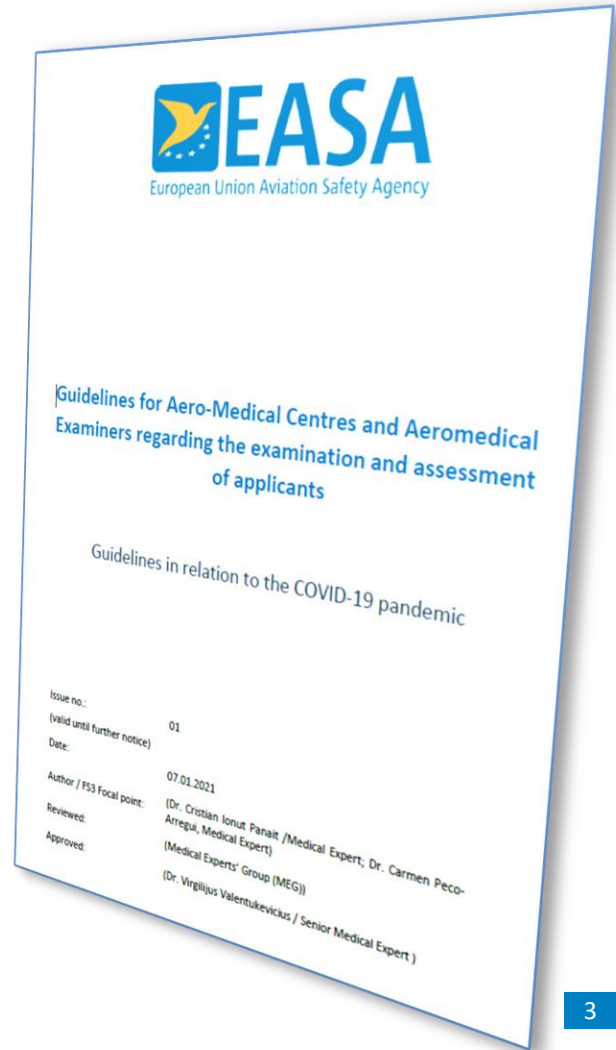
- Promotion
- Liaison
- Monitoring



Purpose

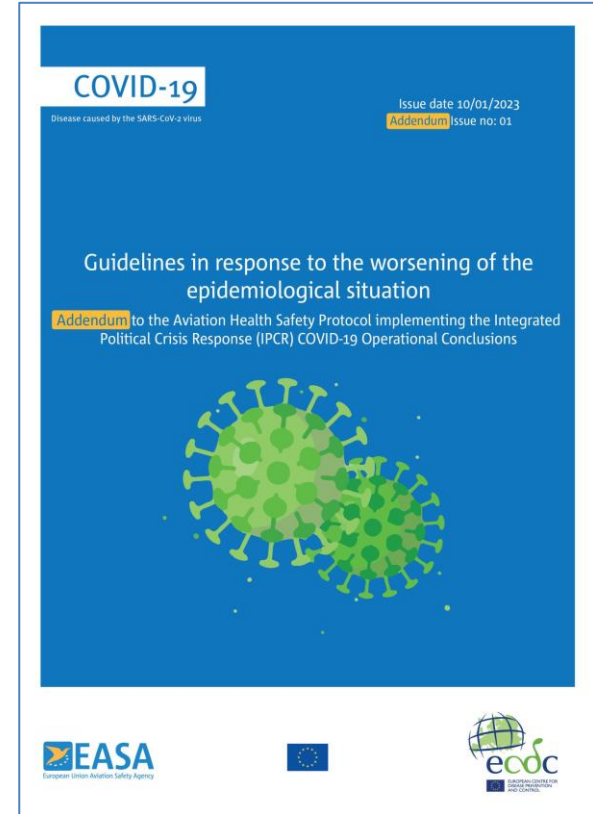


- ➔ Need to ensure **safe and secure operations** and **restore public confidence**
- ➔ Need to ensure a **harmonised EU-wide approach** to reduce complexity for operators and travellers
- ➔ **Coordination, communication** and **planning** essential



The Addendum to the Aviation Health Safety Protocol

Coordinated and proportionate measures to be applied in aviation in response to the recent developments in China



Objectives



Reduce the likelihood of transmission during air travel

Reduce the risk of geographical spread of a potential new variant

Facilitate the early detection of new variants

Temporary Measures targetting flights between China and EU

Pre-departure testing
of passengers
from direct or indirect
flight to the EU



Medical facemasks
on board of the aircraft



Hygiene measures



Enhance cleaning
and disinfection
of aircraft



Random testing of
passengers at arrival
and sequencing
of positive results

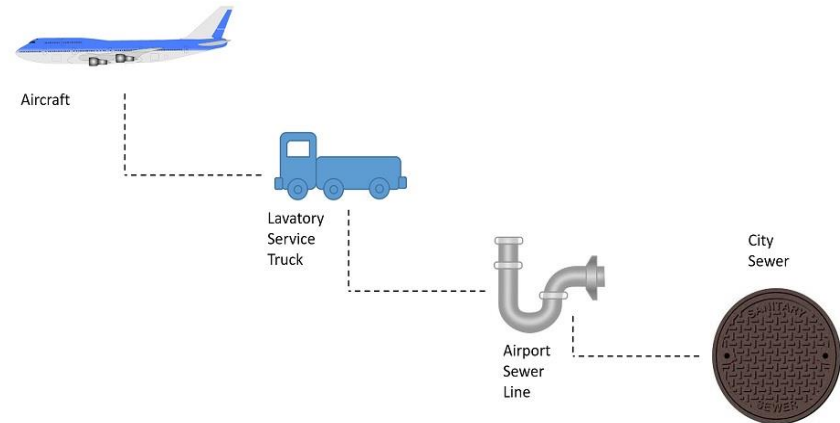
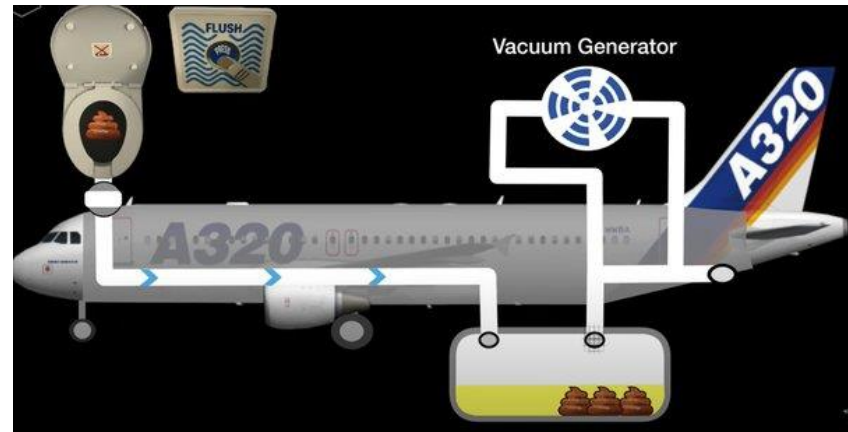


Monitoring of waste water
as an early warning
tool to detect
new variants



Wastewater testing principles

- wastewater sampling at airports in the least disruptive way to aviation stakeholders.
- ensure a coordinated response across Europe and internationally
- sampling and testing is carried out under the responsibility of the competent public health authorities
- coordination between the airport operator and health authorities to allow access and accompany unauthorised persons to specific restricted areas of the aerodrome
- selection of the sampling method should be done by the competent public health authorities in cooperation with the airport operator and ground handling service provider considering
 - Aircraft types
 - Wastewater management system
 - Protection of the sampling crew
 - Potential contamination of the tarmac



JRC wastewater sampling guidance

- EC JRC Ad-hoc guidance on wastewater sampling of aircrafts for SARS-CoV-2 surveillance
- Studying the sampling options and the advantages and disadvantages of each method
- Considered other models and studies performed at global level - e.g. Australia, Dubai



Ad-hoc guidance

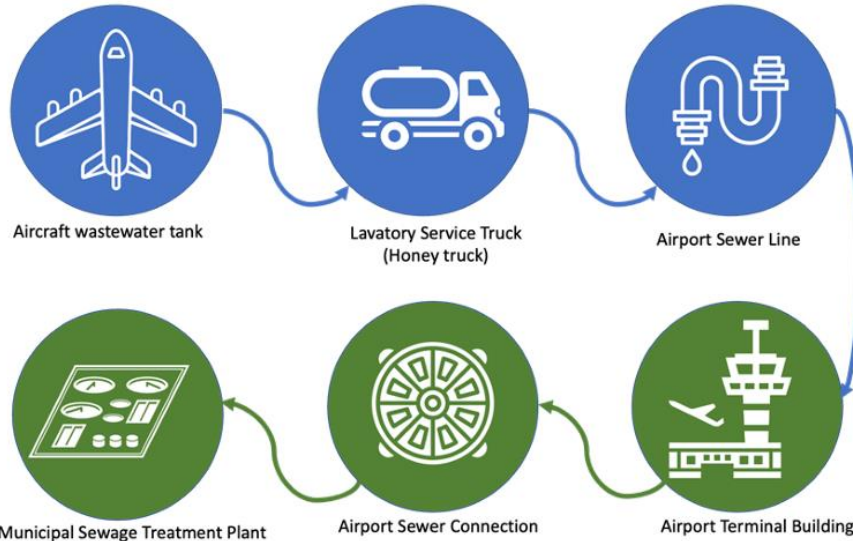
Wastewater sampling of aircrafts for SARS-CoV-2 surveillance

*A guidance document for
Member States*

Status 09 Jan 2023

Deere DA, Jones DL, Ahmed W, Mederna G,
Kreuzinger N, Remmonay I, Lacroix S, Hewitt J,
Tavazzi S, Gawlik BM

2023



Sampling options

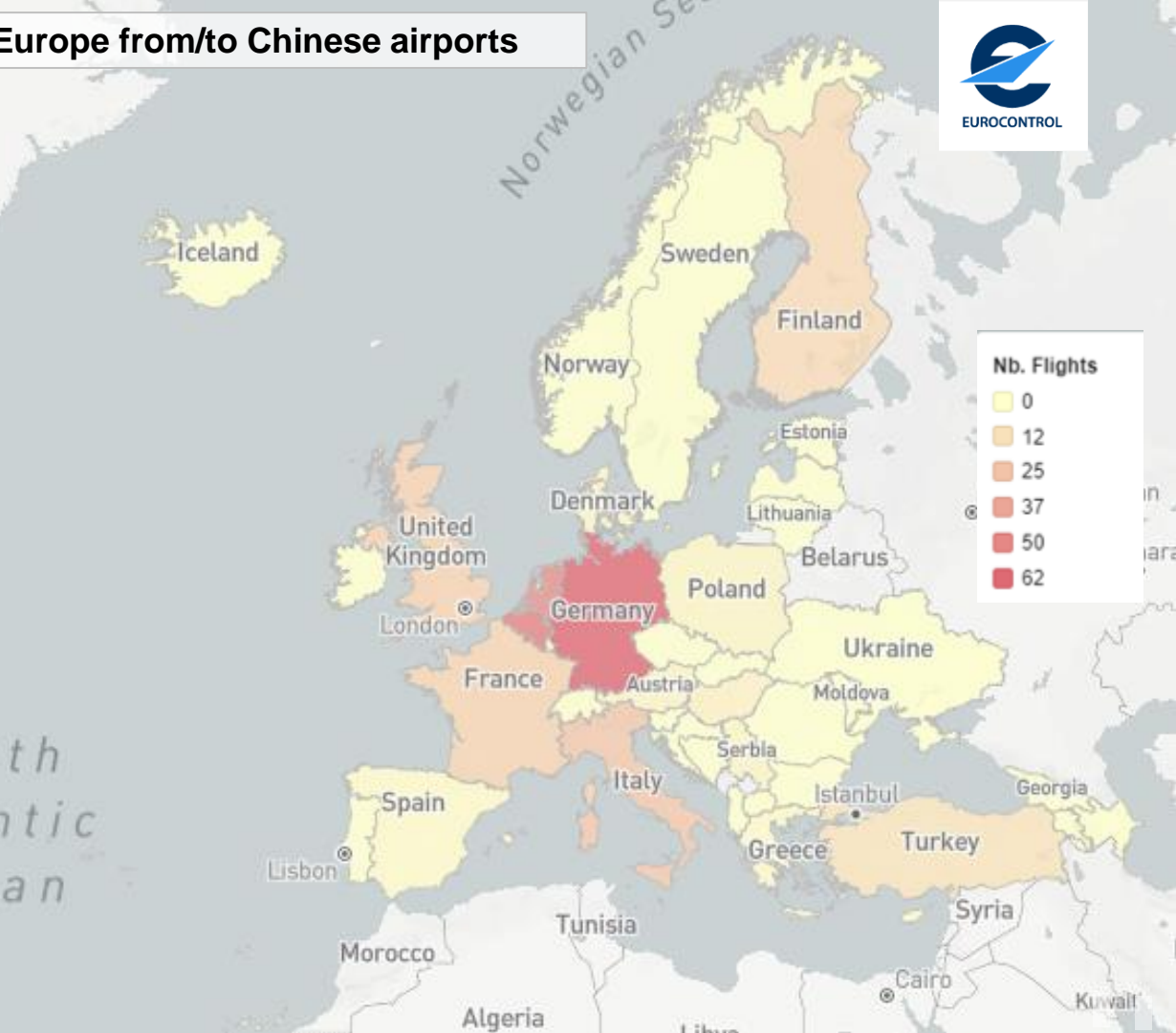
Sampling approach	advantages	disadvantages
Option 1. Aircraft – interception sampling	provides the most reliable epidemiological information positive results can be associated with a specific flight and provenance with the highest likelihood	Greatest logistical challenge: requires the construction, delivery, and training in the use of suitable customised interception fittings
Option 2. Aircraft – vacuum lavatory service truck sampling	Simpler logistic than interception sampling	Higher risk of cross-contamination between flights, unless lavatory waste trucks are cleaned between each use
Option 3. Airport sampling	Simpler logistic than aircraft sampling. Capture both the wastewater from the aircraft and that from the airport itself, i.e. more people are captured ¹	Cannot distinguish between passengers, airport local users and staff, i.e. positive results cannot be associated to a specific flight or provenance
Option 4. Airport receiving wastewater treatment plant	Simplest logistic	Lowest resolution. Cannot distinguish between community and airport users. Positive results cannot be associated to airport activity.

Flights In and Out of Europe from/to Chinese airports

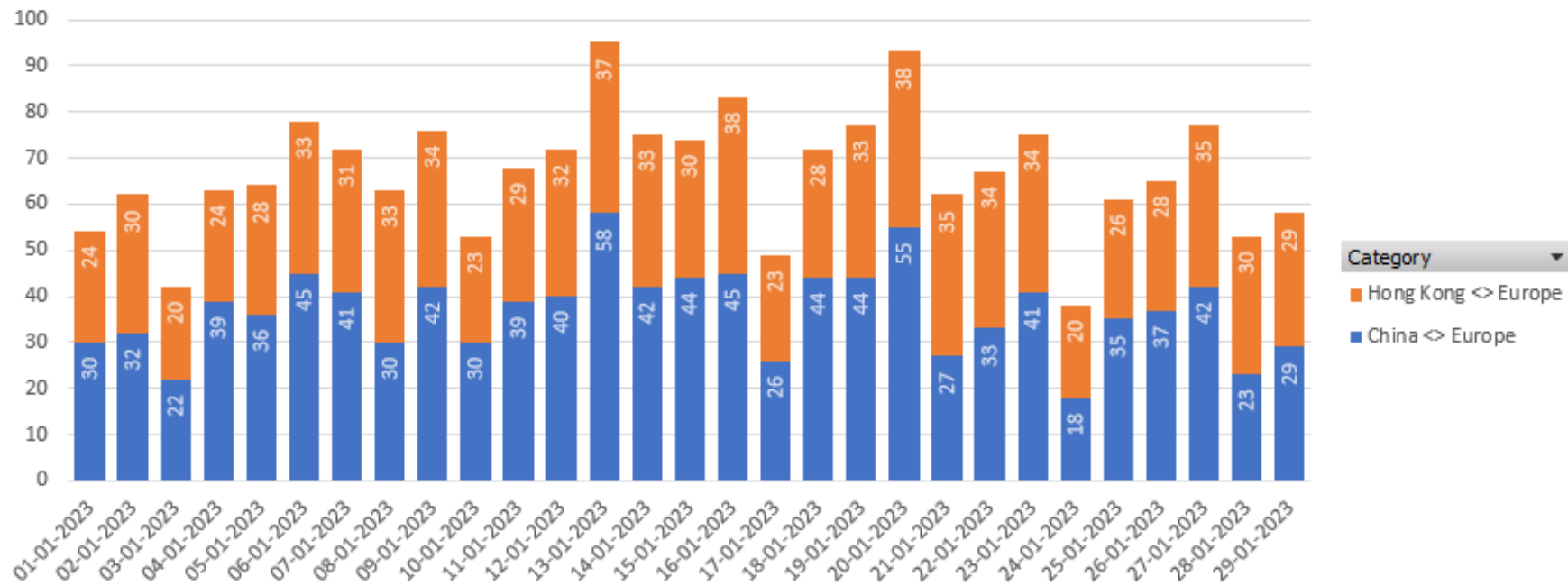


Blue = EU

Country	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	Total
Albania	0	0	0	0	0	0	0	0
Armenia	0	0	0	0	0	0	0	0
Austria	2	0	0	1	1	0	0	4
Azerbaijan	0	0	0	0	0	0	0	0
Belgium	5	7	7	8	12	6	7	52
Bosnia and Herzegovina	0	0	0	0	0	0	0	0
Bulgaria	0	0	0	0	0	0	0	0
Croatia	0	0	0	0	0	0	0	0
Cyprus	0	0	0	0	0	0	0	0
Czech Republic	0	0	0	0	0	0	0	0
Denmark	1	1	0	0	2	0	0	4
Estonia	0	0	0	0	0	0	0	0
Finland	1	0	3	2	5	0	4	15
France	1	1	4	2	6	1	3	18
Georgia	0	0	0	0	0	0	0	0
Germany	12	6	8	12	10	6	8	62
Greece	0	0	0	2	0	0	0	2
Hungary	0	0	2	0	2	0	2	6
Iceland	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	0
Italy	5	1	4	8	3	2	0	23
Latvia	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0
Luxembourg	0	0	0	0	0	0	0	0
Malta	0	0	0	0	0	0	0	0
Moldova	0	0	0	0	0	0	0	0
Monaco	0	0	0	0	0	0	0	0
Netherlands	8	5	8	6	7	7	6	47
North Macedonia	0	0	0	0	0	0	0	0
Norway	0	0	0	0	0	0	0	0
Poland	2	0	1	0	1	0	0	4
Portugal	0	0	0	0	0	0	0	0
Romania	0	0	0	0	0	0	0	0
Serbia and Montenegro	0	0	0	0	1	2	1	4
Slovakia	0	0	0	0	0	0	0	0
Slovenia	0	0	0	0	0	0	0	0
Spain	0	2	0	0	0	0	0	2
Sweden	0	0	0	0	0	0	0	0
Switzerland	0	0	1	0	0	0	0	1
Turkey	0	3	2	2	2	0	2	11
Ukraine	0	0	0	0	0	0	0	0
United Kingdom	8	0	4	1	3	3	0	19
Total	45	26	44	44	55	27	33	274



Total movements summary



Preliminary operational feedbacks on wastewater testing

Operational

In BE, DE, DK, NL at airports with flights from China

Pilot sampling

Initiated in GR and FR at airports with flights from China

Identifying possibilities

Airports & airlines in IT, AT, ES in contact with National Public Health Authorities to discuss aircraft wastewater processing and identify sampling opportunities



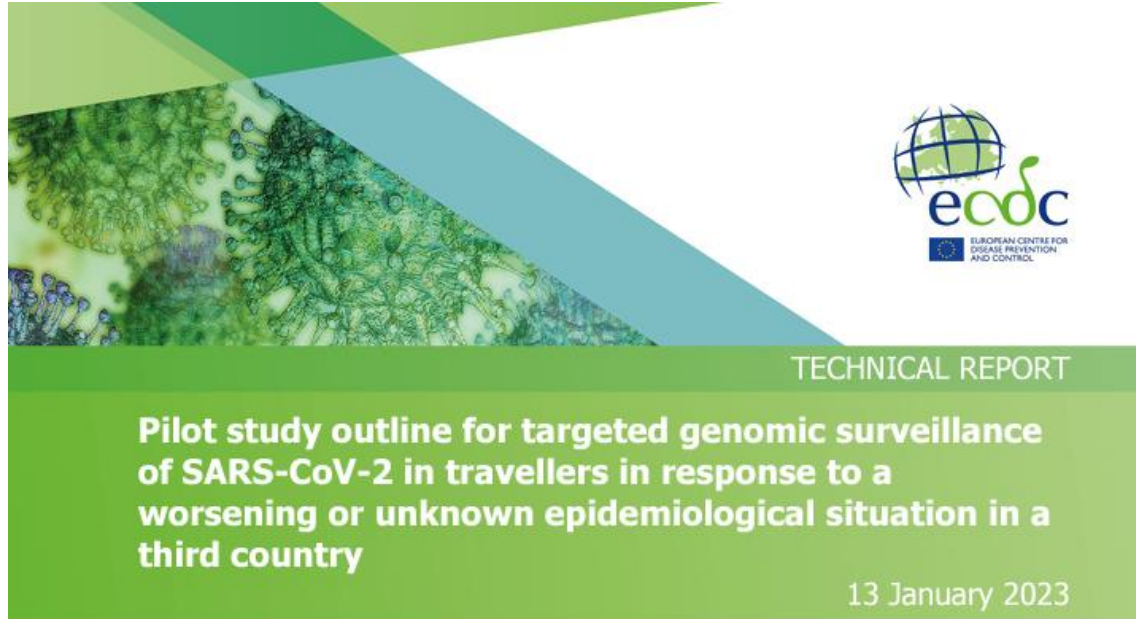
Impact on operations:

Reported to be minor with limited sampling (pilot cases; random sampling; once per week).

Extensive sampling could create operational delays at the airports and require more detailed coordination with Health authorities.

Pilot study on genomic surveillance

- ECDC recommended a pilot study for genomic surveillance
- To obtain information on the distribution of SARS-CoV-2 variants in a third country
- To determine if a rapidly deteriorating epidemiological situation outside of the EU/EEA may be variant-driven
- To identify new variants and assess their possible growth advantage over already dominant variants
- The study should last for 8 weeks
- Should include passengers arriving from China and have tested positive for SARS-CoV-2



Pilot study on genomic surveillance(II)

- Passengers, over 12 years old should be randomly selected for testing by reverse transcription polymerase chain reaction (RT-PCR) only or with rapid antigen detection tests (RADT) followed by RT-PCR in case of positive RADT.
- If RT-PCR is used, one respiratory specimen suitable for RT-PCR is sufficient for both testing and sequencing at nationally appointed laboratories.
- If a RADT is performed first and the result is positive, an additional respiratory sample should be taken for RT-PCR testing at nationally appointed laboratories.
- All positive RT-PCR specimens from the travellers should be processed for whole genome sequencing, provided the Ct value is within the range for successful sequencing.

What's next?

- Situation in China not as severe as feared
- Seasonal influenza decreasing in numbers

What comes next?

- Genomic surveillance enhanced
- Enhanced sequencing
- Preparedness planning & Facilitation
- Cultivating cross-domain and international harmonisation of measures
 - ICAO public health corridors
 - ICAO-WHO and EASA-ECDC agreements for exchange of information
 - Mutual recognition of measures
- Research & innovation – aiming to further reduce the risk of contamination during travel
- Did everything work out well? Learning from our mistakes

→ **Coordinated and harmonised de-escalation of measures**



Thank you for your attention!



Questions

For further information:
<https://www.easa.europa.eu/the-agency/coronavirus-covid-19>

<https://www.ecdc.europa.eu/en/covid-19>

LATEST AVIATION HEALTH RECOMMENDATIONS

Recommendations apply for flights arriving in the EU from China

COVID-19 TESTING

- Aircraft operators to introduce pre-departure testing for passengers on direct and indirect flights to the EU.

PROTECTION OF CREW MEMBERS AND PASSENGERS

- Wear medical face masks on board the aircraft for both passengers and crew on flights to and from China.
- Implement personal hygiene and health measures.
- Wherever possible, consider the vaccination status of crew members before assigning staff for duty on routes to China.
- Enhance cleaning and disinfection of aircraft serving these routes.

MONITORING

- Random testing may also be carried out on a sample of arriving passengers. Such positive tests should be sequenced, so as to gain early information on any new variants emerging in the region of origin.
- Monitor waste water at airports with international flights and aircraft arriving from China to monitor the level of infection and detect any new variants.

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