ECDC Meeting Report

Joint Meeting for National Focal Points for Preparedness and Response & National Focal Points for Threat Detection, EWRS and IHR

Agenda

10 December 2020, Thursday, 13.00-14.40

13:00-13:05	5.1.2e 5.1.2e 5.1.2e
13:05-13:30	**Session 1:** Lessons learned from the establishment of the Greek dPLF and the implementation of an integrated platform (EVA project) for targeted testing of travellers and early warnings – 5.1.2e 5.1.2e
13:30-14:00	**Session 2:** Joint ECDC-EASA Guidelines for COVID-19 testing and quarantine of air travellers - 5.1.2e (EASA) and 5.1.2e (ECDC)
14:00-14:30	**Session 3:** Third update of the contact tracing guidance – 5.1.2e and 5.1.2e 5.1.2e, ECDC Experts
14:30- 14:40	**AOB and updates**

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Acronyms

CT – Contact Tracing

EASA – European Union Agency Safety Agency

ECDC – European Centre for Disease Prevention and Control

EU – European Union

MoH – Ministry of Health

MS – Member States

PLF – Passenger Locator Form

PoE – Point of Entry

WHO – World Health Organization

Session 1: Lessons learned from the establishment of the Greek dPLF and the implementation of an integrated platform (EVA project) for targeted testing of travellers and early warning

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Passenger Locator Forms

Several transmission events have occurred during the course of the COVID-19 pandemic connected to transportation, such as on transmission during flights, among train passengers, and during travel by bus. Compared to previous years, international contact tracing (CT) events have occurred much more frequently in 2020 due to the COVID-19 pandemic. According to EU Healthy Gateways partner in Poland (5.1.2e , IHR Focal point) 50 aviation events were reported in 2019 compared to 215 aviation events in 2020, with 96 transport events between July to mid-September 2020.

Passenger locator forms (PLFs) are an effective tool and supporting efficient contact tracing (CT) and interrupting further spread of COVID-19 through the identification of contacts of infectious persons. During the COVID-19 pandemic, the EU Healthy Gateways Joint Action developed PLFs for the maritime sector and ground crossings, by updating the Passenger Locator Cards originally developed by WHO, which was limited to passengers on airplanes (see https://www.healthygateways.eu/Translated-Passenger-Locator-Forms). Greece has adopted the EU Healthy Gateways PLF for all transport sectors and developed an online system (https://travel.gov.gr/#/), which has been online since 1 July 2020. The Greek digital PLF system is used for CT and links to the testing and quarantine processes for travellers.

EVA Project – Integrated platform for targeted testing of travellers and early warning

The Greek approach utilizes digital PLFs and an integrated platform (machine learning component – EVA project) for targeted testing of travellers and early warning:

- PLF is required at least 24 hrs prior to travel (applies to every point of entry (PoE))
- Travellers submit digital PLF with CT-relevant information and additional information on origin, demographics, destination and contact details
- No test: machine learning component (EVA) uses prior testing results to allocate available tests optimally at PoE.

For every test performed, a QR code is created to associate sample with PLF information and the labs submit positive results in a central database, which feeds back into the EVA system. Through this approach, dynamic risk profiles are created and the tests are allocated accordingly. This provides a real-time picture of the actual positivity of a typical traveler from a given country.

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Expectations, goals and levers of EVA

EVA provides a real-time, data-driven solution to allocated limited testing resources by recommending who to test, and supporting decision-making by the government on travel restrictions by identifying hot-spots with high confidence. This approach cannot identify all infected travelers. Over the summer, approximately 16% of true arrivals were tested. The testing budget at PoE is defined by the Greek government and the service for downstream CT is provided by the Civil Protection Services.

Tradeoffs and constraints

- There is an exploration-exploitation tradeoff to the EVA approach;
- There is a given max. number of tests that can be performed at every PoE;
- For each PoE on any given day, there is a different mix of arrivals, which creates a mathematical matching problem.

Process

- Estimation of positivity for every dynamically generated profile resulting in profiles with very high and very low risk;
- Allocation based on multi-arm bandit algorithm with intuitive results.

Contribution and effectiveness of EVA

With EVA, the effectiveness of testing is doubled or even tripled (2-3x improvement) compared to random testing. Performing 7500 tests at PoE in a targeted way had the same impact as performing 15,000 – 22,500 tests at random, which, at that time, would have been more than the overall capacity of the country. As arrivals decrease and a more passengers are tested, the effectiveness of targeting decreases. Targeting is most effective when the number of arrivals is much higher than the number of tests.

Through EVA, it is possible to detect the exponential phase at an early stage (2 – 3 weeks before reporting in the country) in any given country. In addition, it is possible to detect the true spread within the population, which might diverge from the public case-time series profile of a country. This information and early warning system supported decision-making on travel restrictions by the government. Taking into account the early warning component, targeted testing at the borders through EVA results in a 2-4x improvement and in an effective capacity of 15,000 – 30,000 tests at PoE.

Based on the available information, it was possible to create maps with hotspots of added risk for each ZIP code in Greece, which allowed for the allocation of testing units to potentially risky areas linked to tourism. To identify if there was spread between tourists and the local population, tourists and employees of the tourism industry were tested. Small-scale spread among tourists was identified, but there was no spill over to the local population.

The use of public data (e.g. number of cases and deaths), without using the EVA algorithm, to categorize risk areas based on true positivity is as effective as flipping a coin (<=) 0.005.

Discussion

What were the main challenges in implementing the system in Greece? How and for how long do you plan to continue? Are there any additional challenges related to the winter season?

The use of PLFs will be continued, because they are supporting CT and in setting requirements for PCR testing before entering Greece. The continuation of the EVA project will depend on the developments regarding vaccination and on the need for testing during the next summer period. The main challenges encountered were associated with dissemination of information to the passengers and travellers, as well as organisational and logistical challenges, such as when organizing testing at many PoE. In addition, there was difficulty in identifying human resources to perform the tests and in the general coordination and logistics associated with the testing and analysis of tests.

What proportion of testing capacity available during the period was allocated to travellers? What was the proportion of imported cases during the period? What proportion of travellers tested positive? What was return on investment?

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Approximately 30 – 50% of total tests performed were allocated to the PoE, corresponding roughly to the total testing capacity of the country, since border samples were analysed in pools of five. Pooling was not used for the majority of tests in the rest of the country. During early summer, the proportion of imported cases was up to 20% and by the end of the summer approximately 2%, in general a very small proportion. The average positivity among travellers was small (1.5 in 1000 including both the ones missed and caught), but in addition to catching infected travellers and regardless of the small positivity, the real-time tracking of true incidence of all the countries was beneficial in supporting decision-making on travel restrictions (PCR test requirements). Greece received almost 4 million tourists; therefore, the PLFs and EVA project were crucial.

What thresholds did you use to target (note: categorize?) high, medium and low countries?

The thresholds do not have to be defined when using the multi-arm bandit algorithm, as the allocation is not threshold-based but rather based on the relationship between the confidence intervals of the estimates and the mean of the estimates. The proportion to be allocated for each country is produced automatically and there is no need to set thresholds "by hand".

Is it correct that the EVA algorithm (adjusted by using the PLF data) is 50% accurate (flip coin example) on whether the can be used to assess positivity?

No, the exact opposite: the statement about the coin flip refers to public data. The use of public data (e.g. number of cases and deaths), meaning not using the EVA algorithm, to categorize risk areas based on true positivity is as effective as flipping a coin. On the other hand, using EVA and the measured data can result in extremely high accuracy (upwards of 90% depending on the country) multiplication of the testing effectiveness.

When testing 16% of PLF and tourists, do you think you may face a selection bias, assuming that tourists going to Greece are not "typical citizens" from a country?

Yes, there is a selection bias, but the aim of the PLF and EVA was to protect the borders and therefore the biased sample was important and by design.

Given that many countries have travel restrictions currently, would this affect the representation of the results in order to inform opening borders (e.g. country specific tourists)?

Yes, travel restrictions affect the results since the inferred positivity is smaller. On the other hand, with the summer data at hand, the counterfactual positivity (if a restriction had not been imposed) can be performed in order to inform the opening of borders. In other words, by using the available data on the true positivity of a country before travel restrictions change, there are statistical methods available to train the public data to predict the true positivity when the borders re-open. Furthermore, even now samples of those arriving with a RT-PCR result are tested in order to evaluate the accuracy of the PCR tests. When the borders re-open to tourism, the PLF and EVA process will be used again to inform decision-making on testing requirements.

Session 2: Joint ECDC-EASA Guidelines for COVID-19 testing and quarantine of air travellers

5.1.2e

Under the EC leadership, ECDC and EASA issued on 2 Dec 2020 Guidelines for COVID-19 testing and quarantine of air travellers as an Addendum to the Aviation Health Safety Protocol. The documents are based on scientific evidence and provide recommendations to the MS. The ECDC-EASA Guidelines were launched in the context of the Council Recommendation 2020/1475 of 13 October and are complementary to the EC Communication on additional COVID-19 response measures of 28 October and the more recent European Commission Recommendation on COVID-19 testing strategies.

Objectives

The purpose of the EASA-ECDC Operational Guidelines, and the recent addendum to those guidelines, is not to recommend for or against air travel, but to set out options for proportionate measures, based on a review of the latest available evidence and modelling studies, to manage the risks associated with air travel for those who need or want to travel.

Main principles

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Under the current epidemiological situation (widespread community transmission), imported cases account for a very small proportion of all detected cases in the EU/EEA and UK, and are unlikely to significantly increase the rate of transmission. The prevalence of SARS-CoV-2 in travellers is lower than the prevalence among contacts of confirmed cases and estimated that it could possibly lower than among the general population.

Member States (MS) should always admit their own nationals and Union citizens and their family members resident in their territory, and should facilitate swift transit through their territories. Persons with COVID-19 compatible symptoms – or contacts of a confirmed or probable case – should be discouraged from travelling.

Considerations for testing

- No testing method perfect and testing in asymptomatic low prevalence populations such as travellers is expected to result in a number false negative and false positive results.
- RADTs perform best in cases with high viral load. In many member states, RADTs and RT-LAMP tests have not been validated for use in screening of asymptomatic low prevalence populations.
- Where testing is being considered, tests with high performance (95% sensitivity, 98% specificity) should be used. However, where RT-PCR are not readily available or prioritised for other groups, then RADTs or RT-LAMP could be considered subject to acceptability by national local health authorities.
- Testing at PoE should not be prioritised over community and healthcare needs.
- Testing recommendations are technology-neutral.

Guidelines for travel-related measures in air travel

The ECDC-EASA Guidelines provide options according to modelling studies with different travel-related measures that can be implemented, based on criteria set out in the Council Recommendation. See the document for more details.

Evidence on effectiveness

The available evidence on effectiveness of quarantine and testing comes from mathematical modelling studies and not from observational studies. No measure can reduce the risk of importation entirely. For example, according to modelling evidence, a test upon arrival and quarantine until the test result is available showed the lowest effectiveness of around 40%, leaving a residual risk of about 60%. Modelling studies show similar or better effectiveness of 10-day quarantine and test compared with 14-day quarantine. A combination of 7-day quarantine and testing seems to be the most balanced option in terms of effectiveness and socio-economic impact. Effectiveness of test on arrival, quarantine and test at the end of quarantine brings low added value. The added value of a test performed upon arrival decreases with increasing quarantine length.

Recommendations for operational implementation

- For short haul flights, a pre-flight test and a test upon arrival are estimated to have similar effectiveness – with a bit lower for the pre-flight test depending on the time of the sample collections;
- If a MS is considering the introduction of pre-departure testing, it should also provide travellers with the possibility to undertake a test upon arrival;
- A pre-flight test has additional effectiveness in preventing transmission during travel – this could be considered for traffic from an area with very high incidence;
- Transiting passengers should not be tested in the country of transfer, with the exception of cases developing COVID-19-compatible symptoms during travel;
- Children of 2 years or younger should not be tested; children older than 2 years alternative validated sample collection methods should be considered;
- MS may consider exemptions from quarantine and/or SARS-CoV-2 testing for people travelling for short periods (<72 hours) and where contacts with local population are limited, unless they exhibit COVID-19-compatible symptoms;
- Organise testing facilities to ensure physical distancing and the protection of staff and travellers at all times;
- Develop policies for the management of positive cases describing the processes for a confirmation test, quarantine and transport to the quarantine location;
- Develop policies and procedures relating to the denial of boarding for travellers who test positive in accordance with the relevant EU requirements;
- Aircraft operators should enable refund or free rebooking for those travellers who have tested positive and their close contacts/travel companions.

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Discussion

What do the guidelines recommend for contact persons of symptomatic, SARS-CoV-2 positive travellers tested by PCR, if the person shows no symptoms during the 10 days since the positive result? Is it possible to clarify case definition for symptomatic and asymptomatic persons?

Case definitions for symptomatic and asymptomatic persons are not part of this guidance document. A contact of a laboratory-confirmed case, whether the case was symptomatic or not, must follow the guidance and rules on contacts of cases. The ECDC-EASA Guidelines refer to travellers only.

Norway has sent comments on the ECDC-EASA Guidelines to ECDC. Ideally, discussions should have taken place before publication, as there are several comments on the analysis of the data. Although options for testing and quarantine were presented in this presentation, the main conclusion of the document is that testing and quarantine are not recommended. This is not in line with observations made in Norway during the fall, where a larger proportion of imported cases has resulted in a big burden on several municipalities, which had no prior cases before importation. Given that the conclusions of this document is very strong and that the epidemiological conclusions are based on data from eight countries, these countries should have been consulted prior to publication.

ECDC will provide answers to all questions. ECDC has not changed its advice about testing travellers since the beginning of the pandemic, although we have acknowledged that there are areas in the EU/EEA and UK with very low incidence, which may be more affected by imported or re-introduced infections. Therefore, the document outlines different options for testing and quarantine.

The value and benefits of consultation before publication have been recognized. The document does state that where a country has achieved consistent and sustained control of the virus, all individuals should be tested before travelling. We recognize that there is a public health value of testing and quarantine for those areas that have managed to eliminate sustained community transmission. Our understanding is that for most of Europe, community transmission is ongoing. Evidence from mathematical modelling shows that where there is ongoing community transmission, measures targeting travellers are unlikely to have a significant effect on reducing transmission.

Thank you for the explanation. These nuances should be better reflected in the summary section of the document.

Why shouldn't children younger than 2 years be tested?

First, they have a different anatomy, which is important when taking a nasopharyngeal swab. Even with an oropharyngeal swab vomiting, yelling, screaming might occur. Second, children younger than 2 have different behavioural patterns compared to older children, which require more expertise to manage. Finally, this age group makes up the least affected age group in the COVID-19 case series, although there is considerable bias in the testing policies as regards very young children

What are the main concerns (if any) of the Member States (with ongoing transmission in the community) against the recommendations to not apply quarantine or systematic testing? Have they expressed any counter arguments?

Several MS do not consider the recommendations feasible and have communicated their concerns to the ECDC, to which ECDC will respond accordingly. The main concerns include the best management of introductions expected when travel is from high and very high incidence areas to lower incidence areas. ECDC will work with the Advisory Forum to make the necessary updates.

Do you think there is a bias in literature published on in-flight transmission? Apart from some super-spreader events, there is not a lot of literature on transmission risks; but some repatriation flights early on with wide testing showed transmission low (and no masks, full flights). Might your guidance of full section plane tracing be over cautious?

There is indeed some bias in peer-reviewed publications regarding in-flight transmission. However, we have some well documented studies accompanied by genomic data, which indicate that flights which are long-haul, where the index case(s) was symptomatic and where the NPIs were not comprehensively implemented are riskier. Evidence suggests that it is important to assess the behaviour in the cabins (if NPIs are being followed).

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For ending quarantine with a negative test, is the recommendation to end quarantine with a PCR test and not RADT?

Yes, at this point only RT-PCR testing is recommended for ending quarantine. There is a need for more validation of rapid tests.

Session 3: Third update of the contact tracing guidance.

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The third update of the ECDC guidance on contact tracing was published on 18 November. The most important message is to test early and trace contacts rapidly. Therefore, resources should be focussed to shorten the time between exposure and reaching out to the contact. Anything done to shorten this time will be beneficial, including public messaging and increasing access to testing.

Definition of a contact

The definition of a contact has not changed in this update. A contact is defined as a person who was exposed to a confirmed case in the two days prior to symptom onset of the case up to 10 days after symptom onset of the case. Contacts are classified based on the level of exposure: high-risk exposure contacts and low-risk exposure contacts (see guidance).

Asymptomatic cases

It is difficult to determine when asymptomatic cases became infectious. The advice is to ask the asymptomatic case about any possible symptoms and treat them as a symptomatic case if applicable. The second option is to ask if they had a known exposure to a case recently and, if this applies, trace contacts from two days after that exposure. Otherwise, it is recommended to trace contacts from two days before sample was taken until 10 days after.

Persons previously infected

The evidence is still emerging and reinfections appear uncommon. Recent studies have demonstrated more durable serum antibody responses, including after mild or asymptomatic infection, for three to five months following a SARS-CoV-2 infection. The recommendation here is that, if within 3 months of initial COVID-19 diagnosis there is a high-risk exposure, the case can be handled as low-risk exposure, unless they work with vulnerable populations or live in a high-risk setting.

Contact follow up

High-risk exposure contacts: active follow-up by public health authorities and quarantine. Low-risk exposure contacts: self-monitor for symptoms and physical distancing measures, masks, avoiding travel. As soon as symptoms occur: immediate self-isolation and seek medical advice.

Testing contact persons

The recommendation is to test contact persons as soon as they have been traced. The purpose is to identify new cases for further contact tracing. The recommendation is to test:

- All symptomatic contacts
- Asymptomatic contacts
    - Applies to all high-risk exposure (close) contacts
    - Applies to some low-risk exposure contacts:
        - Settings with vulnerable populations
        - Settings in which transmission is likely, such as health and social care settings, prisons, certain occupational settings and social events such as choirs or weddings

Either PCR or RADT can be used. RADT are less sensitive but have the advantage of speed. However, if more than seven days have passed since the exposure, it is recommended that negative RADT are confirmed by RT-PCR. In this case it is important to communicate that even if the initial RADT is negative, quarantine is still necessary.

Quarantine & testing to end quarantine

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It is important to differentiate early testing for the identification of cases from testing to end quarantine early. Based on the available evidence, a quarantine duration of 14 days is recommended. However, a negative RT-PCR test at day 10 can be used to discontinue quarantine earlier than the recommended 14 days. Testing capacity may be limited and it is important that testing contact persons for the purpose of ending quarantine early should not adversely impact test accessibility and test turnaround time for symptomatic people.

There is variation between the quarantine guidance in the MS and some MS are inclined to shorten quarantine duration, for example, based on the assumption that compliance with quarantine rules may improve if quarantine duration is shortened. ECDC has not found any evidence to support these assumptions – **there is a need for data from countries that have shortened quarantine!** If data is available, ECDC would welcome MS to share it to answer the following questions:

- Does shortened quarantine improve compliance?
- Does shortened quarantine result in people naming more contacts?
- Does shortened quarantine result in contacts being more likely to pick up the phone?

Considerations for household contacts

The days of quarantine are counted since last exposure to case, but this is challenging in the household. If the household case is managed in hospital or is able to be isolated within the home, quarantine for the household contact should be counted since last exposure to the case. If the household case is managed at home and is not able to isolate from other household members, quarantine for the household contacts should be counted from the last day the case is infectious. However, it is also possible to start counting quarantine of the contact from day five after symptom onset of the case.

Options for enhanced contact tracing

Enhanced CT is subject to resource availability but can include the following:

- backward/retrospective cluster based CT to identify super-spreader events;
- CT of possible/probable cases and interviewing the case about contacts while awaiting test results;
- quarantine contacts of contacts ('secondary contacts').

Prioritisation

If resources are very limited, prioritise:

- household contacts and other contacts with prolonged exposure;
- contacts that work with vulnerable populations or who are healthcare workers;
- contacts in specific settings (long-term care facilities, prisons etc.);
- contacts that are part of known clusters;
- contacts that are at risk of severe disease due to age/co-morbidities.

Monitoring and evaluation

Several indicators that can be used to measure the performance and effectiveness of CT operations are included in the ECDC Monitoring and evaluation framework for COVID-19 response activities in the EU/EEA and UK. These indicators are currently not reported to ECDC.

Data and analysis

ECDC is collaborating with some countries and EPIET fellows to explore CT data. In addition to the first priority of informing individuals at risk, a lot could be learned on transmission from CT data; therefore ECDC encourages MS to share any available data, especially related to quarantine duration and compliance.

Discussion

Would you recommend testing at the end of quarantine even for cases where the quarantine duration is of 14 days, considering the big variation in the incubation period?

There are cases for which the incubation period is longer than 14 days so a small proportion of cases will be missed. However, testing at the end of quarantine is currently not recommended; but it could be considered.

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With regards to ending quarantine early, do you recommend testing on day 10, or to have the result available by day 10 (e.g. test on day 8 or 9)?

ECDC trying to work with countries which have shortened quarantine duration and, for example, test on day seven to have more empirical evidence on this topic, but the current guidance is to test on day 10.

Concluding remarks (ECDC)

These webinar series will be continued in 2021 to provide a platform for sharing experiences, with three to four short (5min) country presentations at each webinar. NFPs are invited to contact 5.1.2e @ecdc.europa.eu to share ideas or topic suggestions for the webinars. The 2021 webinars will take place every last Thursday of the month, starting on 28 January 2021. A face-to-face meeting could take place in the second half of 2021, depending on the development of the pandemic.

The Emergency Preparedness and Response Section wishes everyone Safe and Happy Holidays!

Upcoming ECDC publications December 2020

In-Action Review protocol

Following the In-Action Review online training workshop organised by ECDC, a one-day protocol for implementing In-Action Reviews has been developed to support MS, which is expected to be published before the holidays and will be shared with the NFPs.

Updated ECDC document on COVID-19 in children and school settings

The document, which incorporates survey data from different MS, is expected to be published in a week's time and will be shared with the NFPs for their review and comments within the next days.

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