Considerations for travel-related measures to reduce spread of COVID-19 in the EU/EEA

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Scope of this document

This document outlines principles for developing more individualised guidance or operating procedures related to travel in European countries.

Target audience

Public health authorities in EU/EEA Member States and the United Kingdom.

Sources of information

This document builds upon existing ECDC documents, including the rapid risk assessment: Coronavirus disease 2019 (COVID-19) in the EU/EEA and the UK– ninth update [1]

and technical documents on:

- Considerations for infection prevention and control measures on public transport in the context of COVID-19 [2],
- Considerations relating to social distancing measures in response to COVID-19 [3],
  Guidelines for the use of non-pharmaceutical measures to delay and mitigate the impact of 2019-nCoV [4],
- Contact tracing: public health management of persons, including healthcare workers, having had contact with COVID-19 cases in the European Union - second update [5],
- Contact tracing for COVID-19: current evidence, options for scale-up and assessment of resources needed [6].

Background

On 31 December 2019, a cluster of pneumonia cases of unknown aetiology was reported in Wuhan, Hubei Province, China. On 9 January 2020, China CDC reported a novel coronavirus as the causative agent of this outbreak. The virus is phylogenetically in the SARS-CoV clade and called 'severe acute respiratory syndrome coronavirus 2' (SARS-CoV-2). The disease associated with the virus is referred to as coronavirus disease 2019 (COVID-19).

The epidemiological situation in the EU/EEA and the UK varies by region and country, but an analysis of the epidemic progression indicates that, before the introduction of community-level physical distancing measures, all countries followed a similar epidemic curve with a few weeks' lag-time between countries/regions. To date, most countries are still experiencing widespread community transmission and, following large-scale interventions, a few countries are transitioning to or have reached a situation where transmission is reduced to localised clusters [7].

At present, measures in Member States should still aim to contain and mitigate further transmission of the virus and its impact, including infection prevention and control, community-level physical distancing, measures in hospital settings, surveillance and testing. A focus on vulnerable groups and populations with defined risk criteria is of paramount importance [1].

Specific travel-related risks

Travel and tourism could lead to an increased risk of SARS-CoV-2 transmission amplification in at least two ways. The first is related to mobility of people and the risk of transmission following arrival at the point of destination, and the second to the gathering of people at various venues such as airports, resorts and similar settings. Public health measures applied specifically to or within the travel sector are intended to minimise the likelihood of COVID-19 transmission on board various conveyances, at sites of embarkation/disembarkation and at destinations.

Travel-related introduction and tourism-related spread within the EU/EEA and the UK contributed substantially to the transmission across and within countries during the early phase of the COVID-19 pandemic [8-13]. However, in an epidemiological situation with significant domestic community transmission, as is the case in all EU/EEA Member States, the relative significance of transmission through tourism and long-distance travel will probably be small compared to ongoing transmission occurring in the local setting and as a result of local transportation.

In a situation where some Member States have decreased transmission to very low levels, while in others the virus is still circulating, the role of tourism and travel-related transmission may become significant due to the possibility of the virus being re-introduced at multiple sites, causing further spread. Furthermore, a high level of tourism-related activities may increase the risk of over-crowding in certain areas or during tourist events, which in turn may increase spread.

Travel advice (or travel recommendations) refers to official government advice that travellers should consider in order to minimise their risk of infection. Travel advice has legal and economic implications. Travel and trade restrictions are regulated under the International Health Regulations (IHR) part III.

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General considerations

SARS-CoV-2 is believed to be transmitted mainly via respiratory droplets and by direct contact. However, indirect contact with contaminated fomites is also believed to play a role in transmission. Moreover, transmission through aerosols cannot be excluded.

Standard non-pharmaceutical countermeasures are the most important approach for controlling the spread of COVID-19 in all settings, including during travel. Such measures include physical distancing, hand hygiene and respiratory etiquette, as well as other infection prevention and control (IPC) measures (e.g. cleaning and disinfection of frequently touched surfaces and toilets, use of face masks, etc.) Information to travellers about the risks and symptoms of COVID-19 and advice to avoid travel if they are experiencing any of the COVID-19 related symptoms is essential.

Although recommended physical distancing of 1.5 to 2.0 metres can often not be guaranteed on board different types of conveyance, travel service providers should still optimise physical distancing to the extent possible (e.g. by leaving an empty seat between passengers). When physical distancing cannot be guaranteed on conveyances, the use of a face mask by all passengers is strongly advised. This approach can reduce the release of potential infectious droplets by pre-symptomatic or asymptomatic passengers. It must be noted that the use of a face mask complements but does not replace other personal protective and IPC measures. Passengers travelling on conveyances where the recommended physical distancing of 1.5–2.0 metres cannot be guaranteed should therefore be aware of the transmission risk even if face masks are used. Overall, the purpose of these measures is to mitigate the risk, however it cannot be fully eliminated.

ECDC's document Considerations for infection prevention and control measures on public transport in the context of COVID19 [2] provides advice on personal protective measures which can be used on public transport (e.g. bus, metro, train, commuter boats) and recommends measures for the cleaning and disinfection of public transport services. This document also provides some examples of advice to travellers to mitigate the risk of spreading COVID-19, and local transport restrictions that can be implemented by EU/EEA countries and the UK to limit physical contact between people [2].

Limiting travel

Travelling facilitates the spread of the SARS-CoV-2. For any destination the population attributable risk associated with importation by travelling individuals will depend on both the level of transmission at the source and destination locations, and the containment measures and capacities in the destination country. In general, travel can result in a net spread of infection from areas with high-level transmission to areas with low-level transmission. However, importation can occur from any point of origin where there is ongoing transmission, and the consequence or impact of importation will be influenced by the containment and mitigation capacities in the destination country. Although there is a lack of evidence on the effectiveness of travel advice, close contact with people increases the risk of disease transmission and spread during travel [14]. The aim of advice against travelling during an epidemic is to reduce the number of people who fall ill while visiting areas or countries where community transmission is ongoing; reduce the risk of importation from affected countries, and reduce transmissions among travellers during transportation (e.g. in airport queues or on planes). Countries may also issue travel advice against unnecessary travel from regions within a country that have high community transmission to other regions within the country or outside the country.

Broad domestic travel restrictions may have a small positive impact on delaying an epidemic but only if they are implemented during the early stages [4]. Such restrictions may be effective in specific, isolated settings, but are unlikely to have a substantial impact on transmission in modern, mainly urban, societies within the EU. They are also expected to have significant economic, legal and ethical implications.

Border closures refer to closing of international borders and aim to reduce the risk of importation from countries with high transmission by implementing travel restrictions to or from an affected area. Based on evidence from modelling studies mainly related to influenza pandemics, border closures can delay the introduction of the virus into a country but only if they are almost complete and are rapidly implemented during the early phases of an epidemic, which is only feasible in specific contexts (e.g. for small, isolated, island nations) [14]. Available evidence therefore does not support recommending border closures, which will cause significant secondary effects and societal and economic disruption in the EU.

Border closures result in substantial challenges to logistics, trade and the movement of people, particularly during a crisis period.

It is therefore also essential that while allowing people to move within or between countries, there are measures in place to minimise the risk of re-introduction or sustained community transmission.

Geographical areas

The European roadmap to lifting coronavirus containment measures [15] states, that 'Restrictions on travel should first be eased between areas with comparably low reported circulation of the virus. ECDC will, in cooperation with Member States, maintain a list of such areas.' ECDC maintains a public map displaying the regional epidemiological situation and transmission level of COVID-19 in the EU/EEA countries and the United Kingdom (UK). The map displays information at regional level and is based on the self-assessment of Member States as to the category of virus transmission in a given area. However, caution should be exercised when using such regional epidemiological data on COVID-19 incidence to guide decisions on accepting or refusing travellers from countries or areas with respectively low or high levels of transmission (based on self-assessment by countries and/or on an arbitrary incidence threshold), for the reasons set out below.

- Reported levels of transmission depend on local, regional or national testing policy and capacity, contact tracing capacity, and surveillance system characteristics, and therefore may reflect the real circulation of the virus to a greater or lesser extent.
- Even if no community transmission is reported in a specific area, this can only be confirmed if extensive, population-based testing of all individuals with COVID-19 compatible symptoms is undertaken (see list of indicators in the ECDC Rapid Risk Assessment 9th update [1]).
- In the absence of a universal approach to testing and case reporting, the underlying epidemiological situation in each EU sub-region is hard to verify and the validity of comparisons based on routine monitoring data may be limited, at this point.
- There is an inherent lag in the time between the detection of cases, collection and reporting of COVID-19 data to the EU database. Additional time is needed for of the collection of data for assessment, and the assessment decision. Therefore, the epidemiological situation at a given time no longer reflects reality and cannot be used for this type of risk management decision. Furthermore, numbers or case rates do not accurately reflect the epidemiological situation at local or regional level. For example, a large cluster in a specific setting with identified chains of transmission may artificially increase the notification rate in a scarcely populated region. Moreover, if a large cluster is investigated, involving contact tracing and isolation measures, this represents an entirely different epidemiological scenario to an area with sporadic community cases without transmission chains.

The use of regional data could, however, be considered to guide testing and contact-tracing practice in relation to suspected cases with a recent history of travel, and could be used within the same country, in which case policies and capacities are more likely to be comparable. Countries could advise their nationals against travelling from

regions that are considered to have high levels of transmission to other regions inside the country, since incidence data and testing practices can be expected to be more homogeneous within the same country.

In addition to the circulation levels of SARS-CoV-2, other factors to take into account when adjusting national COVID-19 control measures include: a robust surveillance strategy based on enhanced testing, a strong framework for contact tracing, sufficient healthcare system capacity and resilience and a strong risk communication strategy.

Vulnerable groups

Due to an increased risk of severe, complicated COVID-19 in vulnerable individuals (e.g. the elderly, those who are immunocompromised, or people with underlying conditions such as hypertension etc.), travellers in these categories should be discouraged from travelling unless physical distancing and personal protective measures can be ensured and maintained during transportation and at the travel destination to reduce the level of risk.

Travellers in these groups should also be made aware that health services at their destination might be more rapidly overwhelmed if high numbers of cases among visitors are added to the existing case load.

Screening of travellers prior to or at entry at destination

Current evidence, including evidence acquired in the early phases of the COVID-19 pandemic in Europe, indicates that entry screening procedures are ineffective in preventing virus introduction. Emphasis should therefore be placed on discouraging symptomatic individuals from travelling.

Health questionnaires

As part of the entry screening procedure, many countries in the EU/EEA and around the world are also collecting health information from passengers in the context of COVID-19, usually by means of questionnaires (passenger health declaration form). These forms can be distributed and filled in before arrival or at the entry terminals. They can target all incoming passengers or only those who have a high body temperature (positive thermal screening). Depending on the protocol/algorithm used, passengers who either have a high body temperature at thermal screening or who report particular symptoms are assessed by a health professional and a decision is made as to whether they need to be tested for COVID-19.

Although adding a health exposure and symptoms questionnaire to temperature screening may improve the sensitivity of the screening process, it also presents further planning, logistical and data protection challenges. As passenger health declaration forms are developed to target a particular disease, they should be kept separate from the passenger locator card or data. They contain sensitive personal health data and should preferably be collected and handled by health personnel and health authorities and stored in a health database. Member States need to ensure that the collection of health declaration forms is covered by a legal framework (or a relevant legal provision should be adopted) and that their handling by airline, airport and public health authorities complies with the requirements of the General Data Protection Legislation (GDPR).

COVID-19 symptoms are common with many respiratory diseases (most notably influenza, but also a variety of respiratory viruses and allergic rhinitis) and no single symptom or combination of symptoms has proven to be diagnostic of the disease.

Temperature screening

Past experience with entry screening using temperature control shows that it is a high-cost, low-efficiency measure. Current evidence, including evidence acquired in the early phases of the COVID-19 pandemic in Europe, indicates that entry screening is ineffective in preventing SARS-CoV-2 virus introductions. In a recent review of the public health response by the US CDC, data from incoming passengers in selected US airports revealed that as of 21 April 2020, the screening of 268 000 returning travellers had detected 14 cases of COVID-19 (approximately 5/100 000 screened passengers) [16]. However, based on existing knowledge of the disease evolution, a relatively large number of cases will be in the incubation phase while travelling. COVID-19 has an incubation period of 2−14 days, with 75% of cases developing symptoms in a period of between four and seven days. These travellers will not be detected by exit or entry screening, even in a scenario assuming high sensitivity detection of symptomatic travellers. This scenario was modelled at the beginning of the outbreak in January 2020, with an estimated 75% of infected passengers exiting or entering the country without being detected [20]. Moreover, since then evidence has been accumulating to indicate that asymptomatic (or pre-symptomatic and mild) cases play a significant role in the transmission of COVID-19 [1]. It is therefore impossible to rely on exit or entry screening to identify all those infected, as only a portion of them will probably be detected by the available screening tools.

The large variety in commercially available screening equipment (contactless thermometers, thermal scanners, etc.) means that particular care needs to be taken in the calibration and setting of thresholds to categorise persons as screen-positive. The performance of devices is difficult to compare due to different targets and modes of operation. In addition, device performance is affected by the choice of the cut-off value set for screening [17].

Many of the COVID-19 symptoms are similar to those of other respiratory diseases. Although fever (body temperature >37.5 or 38°C) is one of the frequent symptoms of COVID-19, it is not consistently reported. In over

100 000 cases reported to ECDC's European Surveillance System (TESSy) by 21 April 2020, only 48.7% reported having fever [1]. In addition, fever is a symptom that can be temporarily masked by using antipyretic drugs.

Implementing entry screening programmes at Points of Entry (PoE) requires public health resources that could be invested in other more efficient measures and preparedness planning.

However, exit or entry screening processes may help dissuade ill persons from travelling and enhance public confidence; communication needs to be carefully balanced in this case, to avoid creating a false impression of security and negatively influence compliance with more important activities, such as physical distancing and hygiene measures [21]. Finally exit or entry screening at PoE offers a direct means of contact with the travellers for providing specific information on the disease, the current situation in the country and where to seek medical advice, if needed.

Immunity certificate

There is currently limited evidence on immunity or protection against COVID-19 disease provided by antibodies detected in the sera of recovered patients. The quantity, quality and duration of the human immune response to SARS-CoV-2 is, as yet, unclear. In addition, we lack validated serology tests that can ascertain immunity to the virus.

This lack of correlation with disease immunity is not expected to be resolved in the coming months and it will take years to establish for long-term immunity. Consequently, it is impossible at present to make statements about immunity, solely based on a serological test result. There is not enough scientific basis for using serology or other immune markers to determine access to public facilities, or take decisions on travel or employment. Given the evidence currently available, any immunity certification for COVID-19 is not supported by ECDC.

Requirement for recent negative RT-PCR test

Some countries have implemented, or are considering implementing requirements for a recent negative RT-PCR test, but the evidence base behind this is unclear. If a PCR test is negative (e.g. 72 hours prior to departure), it could indeed help reduce the risk of asymptomatic, pre- symptomatic or symptomatic COVID-19 cases being introduced. However, a negative test does not exclude the possibility that the person tested may become infectious in the days prior to departure or during travel (on board, or at the destination) since the virus incubation period is known to be 2−14 days.

It is also critical to use well-validated, clinical, diagnostic, molecular detection assays. At the time of writing, no rapid antigen tests have been clinically evaluated. All testing should take into account the quality of the test and specimen as well as the epidemiological situation to exclude the possibility of a false result. Non-validated assays may have low sensitivity (thus giving false negative results) or low specificity (thus giving false positive results). In the event of a false negative test, a person could falsely believe that they are not infected and be less cautious in applying other preventive measures (self-isolation, physical distancing and hygiene measures), while transmitting the virus without knowing. The false negative test may also delay testing, diagnosis, isolation and contact tracing if the person develops symptoms shortly after obtaining the test result. A false positive result would not increase the risk of transmission during travel, as in this situation the case would be required to stay at home and self-isolate. However, a false positive test would also prevent any healthy accompanying persons from travelling and trigger unnecessary contact tracing.

If a country decides to include laboratory testing (e.g. a nucleic acid detection test before departure) as part of the exclusion policy for travellers, this should be communicated to incoming travellers well before their departure date, so that they have sufficient time to plan testing. When deciding whether to include testing as a condition for travel, EU Member States should take into consideration the limitations, including cost, testing policy and the availability of tests in the other EU/EEA countries. In many of the EU/EEA Member States, testing is not readily available or foreseen for asymptomatic persons or for those with mild respiratory symptoms. Finally, the 72-hour window may cause significant logistical issues, due to the laboratory processing time required between sample collection and results becoming available. Even if a country includes travel as a reason for testing, it is expected that the priority for testing such samples will be low, compared to clinical diagnostic samples.

Testing at destination

In order to allow for early detection of cases and clusters, national/regional/local public health authorities need to ensure that all tourist destinations have easy access or clear operating procedures for the sample collection and testing of any person developing symptoms. Local testing capacity should be developed to ensure timely results. Alternatively, if there is limited or no testing capacity in the area, access to a testing facility and shipment of samples for testing should be planned proactively.

Management of travellers with symptoms and contact tracing

People should be advised not to travel if they have symptoms compatible with COVID-19, unless COVID-19 has been excluded by means of a recent negative RT-PCR test. They should also be advised not to travel if they have been in contact with a probable or confirmed COVID-19 case in the 14 days prior to their planned departure (with the exception of healthcare workers wearing appropriate personal protective equipment). This should be part of the risk communication and health promotion activities in each Member State.

During transportation, if a passenger develops symptoms of COVID-19 while on board a conveyance, the following steps should be taken:

- the passenger should immediately put on a mask (if not already wearing one). If a mask cannot be tolerated, the sick person should cover their mouth and nose with tissues when coughing or sneezing. If the passenger is having difficulty breathing, immediate medical assistance should be sought and oxygen supplementation offered if available;
- the passenger should be isolated on board until arrival at the destination;
- upon arrival at the destination, if the isolated passenger is not in distress and/or requiring immediate medical attention, he/she can disembark after the other passengers, and be transferred in accordance with the instructions of the port health authorities and local public health authorities. These authorities will advise on testing, further clinical management and relocation of the case to a place of care (e.g. hospital), if this is considered necessary, and in accordance with local medical care pathways.

Passenger locator cards are necessary to identify persons who may have been exposed to SARS-CoV-2 during travel, particularly on flights. An electronic option should be considered. If this is not possible, aircraft operators, in coordination with the destination airport operators and their local public health authorities, should ensure that the passenger locator cards are always available on board and filled-in before landing.

If, following review by airport medical services, a passenger with symptoms is considered to be a suspected or confirmed COVID-19 case, then local public health authorities at the destination will be notified and will undertake contact tracing activities.

Contact tracing is a core public health measure, which aims to rapidly identify persons who have been in contact with a case, in order to reduce further onward transmission. ECDC's technical report Contact tracing: public health management of persons, including healthcare workers, having had contact with COVID-19 cases in the European Union - second update outlines the key steps of contact tracing [5]. These steps are: i) to identify persons who may have been in contact with an infected person; ii) to trace and communicate with the identified contacts, and to provide information about suitable infection control measures, symptom monitoring and other precautionary measures, such as the need for quarantine; iii) to monitor the contacts regularly for symptoms. Contact tracing data are sensitive health data and appropriate data protection needs to be guaranteed at all stages of contact tracing, as well as during follow-up.

When a traveller develops symptoms upon arrival at the destination or during his/her stay, testing, diagnosis, isolation and contact tracing will take place in accordance with the local practice. Public health authorities will communicate with public health authorities in the country of origin if necessary for the purposes of contact tracing and this can be done via the Early Warning and Response System (EWRS). The follow-up of contacts in the country of origin are the responsibility of the public health authorities in that country. Fellow travellers exposed to a probable or confirmed case during travel should be followed-up by the public health authorities in the country where the traveller is staying.

Information technology tools for contact tracing and monitoring

ECDC's technical report Contact tracing for COVID-19: current evidence, options for scale-up and assessment of resources needed outlines methods that can be used to increase the efficiency of contact tracing, including use of contact tracing management software, web-based applications and mobile contact tracing applications, although these can only support and not replace manual contact tracing [6].

When using mobile apps for contact tracing in a cross-border scenario, there are a few considerations that need to be taken into account to ensure that the apps are effective. For example, apps from different countries must be able to communicate if two people using apps from two different countries are in close proximity with one another. Additionally, if one person is later diagnosed with COVID-19 and uploads that information to the backend server of their app, it must be possible for apps hosted by different countries to detect this information. If a user tests positive in a country they are visiting, he or she must be able to enter the verified lab result into the app from their home country – this may involve communication between public health authorities between the two countries if the process cannot be automated. Finally, the notification sent to the persons who have been in contact with a case of COVID-19 should contain locally appropriate information for follow-up. Work is ongoing with the eHealth Network to ensure such interoperability between apps [18].

Self-isolation and quarantine of travellers

Self-isolation is a measure applied to those with suspected, probable or confirmed COVID-19 infections who do not require hospitalisation and whose care can be managed at home. Quarantine implies that a person should remain in a designated setting or at home for a defined period after exposure to COVID-19 case [4].

ECDC's Guidance for social distancing measures aimed at minimising the spread of SARS-CoV-2 provides a description of these type of measures and the rationale for use, including self-isolation of cases, quarantine of contacts and stay-at-home recommendations [3]. ECDC has also prepared an information leaflet on COVID-19 isolation and quarantine designed for the general public. This leaflet provides basic information on COVID-19 and some specific advice and rules on self-isolation or quarantine when showing mild symptoms of COVID-19 or after contact with confirmed or probable COVID-19 cases [19].

The decision as to whether isolation of cases and quarantine of contacts should be enforced or voluntary is the responsibility of the country, and depends on the current risk assessment. The general principle should be that travellers are treated as local residents and the same recommendations on how to prevent spread should apply to travellers as to local residents, in accordance with local public health guidance.

Countries and regions where there is no community transmission may consider implementing quarantine for travellers entering the country or travelling within the country, if there is community transmission at the traveller's place of origin. ECDC does not consider that national and regional epidemiological data on COVID-19 incidence to be a sufficiently valid evidence-base for decisions on allowing or refusing entry to travellers from countries or areas with respectively low or high levels of transmission (see above). However, the data may be useful for informing testing and contact-tracing practice. When implementing quarantine on entry, the country should provide adequately-equipped quarantine facilities for travellers that have no possibility of home quarantine. Countries should explore options for quarantine monitoring measures, such as daily health checks, or calls from authorities. Quarantine for travellers, as a separate measure to contact tracing, should be communicated to travellers by the country of destination well before their travel date, so that they have the opportunity to prepare.

Provision of information to travellers regarding advice on travel and accessing of services

A comprehensive risk communication strategy should be in place in both the country of origin and destination to inform the population. This should provide information on the risks faced during travel and as control measures are lifted, and the responsibilities of citizens with regard to maintaining firm adherence to whatever remaining measures are authorised by their national authorities and the authorities in the country of their travel destination, including during transportation. A key component should be to encourage people to take action at a personal level as a means of protecting themselves. Easily accessible, accurate, timely and frequent information should be available to travellers in the appropriate languages.

- Travel companies and travel agencies may provide pre-travel information to travellers about health issues with their travel package. Information regarding COVID-19 symptoms, health risks for vulnerable groups and the importance of preventive measures should be provided with the bookings.
- Companies and travel agencies should also inform travellers of the policies of travel operators and/or destination countries (such as testing requirements) and of the fact that they may be denied the right to board a conveyance or enter the country if they are ill, have been exposed to a COVID-19 case, or do not respect local measures for preventing transmission (e.g. use of face masks, physical distancing, etc.). All relevant information should be published on the websites of companies and travel agents and in the electronic reservation systems, with the obligation to read them in order to complete the reservation.
- The following measures should be considered during travel: inform passengers at each stage of the journey (booking, check-in, boarding, during transport, arrival at destination) about the COVID-19 measures and recommendations. Display the information prominently (e.g. screens and stickers on the back of each seat). Include health safety instructions in the on-board safety announcement. Make available information to the public (via website, app or screens) on required time to boarding gate with reduced queuing, recommend a specific arrival time at the airport to take into account the time needed to complete security procedures and reach the departure gate.
- Upon departure, guests are explicitly requested to immediately notify the place of accommodation if they develop symptoms associated with COVID-19 or test positive for COVID-19 within 14 days following departure.
- It should be ensured that the contact details of guests are available in case they are needed for contact tracing.
- Upon arrival, passengers should be informed of the local situation and policy and be told how to access healthcare services (e.g. by providing the contact details of local health services and national hotlines) if they develop symptoms. Travellers should also be informed of the risk that healthcare services at destination may be more rapidly overwhelmed if a high number of cases among visitors are added to the case load.

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