COVID-19 Rail Protocol

Recommendations for safe resumption of railway services in Europe

Version 1.4

Date: 21 July 2020

Contents

Disclaimer

This protocol is the result of a fruitful collaborative effort among experts from the European Union Agency for Railways (ERA), the European Commission, National Safety Authorities, railway sector representatives, and the European Centre for Disease Prevention and Control (ECDC). It reflects the current status of knowledge about the COVID-19 disease and its pandemic effect. It summarises preventive measures considered effective at the date of publication.

While the herein proposed COVID-19 mitigating measures are not legally binding, they represent harmonising measures and may serve as reference for the European railway sector**.** It is fully acknowledged that railway undertakings assume their legal responsibility in the context of national regulations, and may use the proposed measures at their own discretion and risk.

For questions and feedback, please contact COVID-RAIL@era.europa.eu.

1.   Scope and purpose

On 13 May 2020, as called for in a Joint European Roadmap[1], the European Commission proposed guidelines[2] on how to progressively restore transport services, connectivity and free movement in line with the improving health situation. Furthermore, the Commission recommended that Member States remove border restrictions by 15 June 2020.

The Commission guidelines on the progressive restoration of transport services and connectivity[3] invited the European Union Agency for Railways to ensure the sharing of good practices through its network of communication channels, while the rail sector associations and worker organisations are working towards common rules.

Excerpts from the Commission Guidelines[2] on the progressive restoration of transport services and connectivity:

> 21. It should be ensured that transport operators and service suppliers that provide equivalent services for the same route are subject to equivalent measures. The objective should be to provide the same level of safety, clarity and predictability for passengers, to avoid discrimination and to preserve the level playing field.
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> 22. To ensure that measures at departure and arrival on any transport mode are comparable, thus avoiding that travel becomes either overly cumbersome or even impossible, it is crucial to **ensure that equivalent measures**, that are based on shared principles and that each mitigate in an adequate way the relevant health risks, **are mutually accepted at the point of departure and of arrival**. Coordination between Member States and with non-EU countries should facilitate this.
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> 40. […] [Common] principles should guide the overall progressive re-start and increase of passenger transport across the EU for all modes of transport during the exit from COVID-19 restrictions and the subsequent recovery. These common principles should facilitate the mutual acceptance of implemented measures within the EU, but also vis-à-vis non-EU countries, to enable effective continuation of transport services.

In line with this, the European Union Agency's for Railways (ERA), the European Commission and the European Centre for Disease Prevention and Control (ECDC) have developed the following COVID-19 railway protocol, outlining the operational guidelines for the safe resumption of railway operations in Europe. It thereby complements measures taken by the European Commission to support Member States in re-launching safe mobility and tourism across Europe, such as the 'Re-open EU' platform launched on 15 June 2020.[4]

This protocol is a collaborative and dynamic process featuring regular information updates through dedicated information bulletins, providing detailed non-binding advice in specific topics identified suitable to safeguard the health and safety of passengers, transport workers and staff, or to re-establish trust in rail services. Work is ongoing.

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[1] European Commission, Joint European Roadmap to lifting coronavirus containment measures, at: Joint European Roadmap to lifting coronavirus containment measures

[2] Communication from the European Commission: Communication from the Commission Guidelines on the progressive restoration of transport services and connectivity – COVID-19 2020/C 169/02, at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020XC0515(04)

[3] EUR-Lex, Access the European Union law. Communication from the Commission Guidelines on the progressive restoration of transport services and connectivity Published 15/5/2020 C169/17 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020XC0515(04)

[4] European Commission 'Re-open EU' platform webpage: www.reopen.europa.eu/en

The good practice measures recommended in this protocol are not stand-alone solutions without alternative. However, if largely adhered to and applied in a harmonised manner, they will improve the international passenger experience with a single set of rules and conventions within the EU, while assisting operators of cross border services by ensuring coherent requirements across Member States.

These operational guidelines reflect the current state of knowledge surrounding the COVID-19 pandemic and the effectiveness of preventive measures being implemented. The recommended measures will be regularly evaluated and updated in line with the improvements in knowledge of the risk of transmission as well as with the development of other diagnostic or preventive (including technological) measures and according to the evolution of the pandemic.[5]

This protocol is conceived as non-binding catalogue of measures. Updated versions of the protocol will introduce mitigating measures with greater efficiency whenever they become available, in order to alleviate the burden on passengers, rail staff, and railway operators whilst keeping the level of health and safety in accordance with the level of risk.[6]

1.1 Objectives

› Objective 1: To discourage persons with symptoms compatible to COVID-19 from travelling and staff members from presenting themselves for work.
› Objective 2: Implement good practices to reduce the risk of transmission of COVID-19 within stations and trains.

1.2 Target audience

In the spirit of cross-border collaboration, this protocol for **railway undertakings, station managers, infrastructure managers and competent national authorities,** provides guidance and serves as a source of good practice in the context of COVID-19.

2.   Action taken by ERA in response to COVID-19

As a first reaction to the COVID-19 pandemic, ERA materialised its coordination role in relation to national authorities and the rail sector by setting up a dedicated ERA COVID-19 information exchange platform. This platform consists of IT tools and communication within the networks of railway representative bodies (NRB) and National Safety Authorities (NSA). In some cases, NSAs have acted as contact points for disseminating this information within their Member States, particularly to the competent authorities with the competences on these measures, and communicating amendments proposed by national competent authorities.

3.   Guiding principles

Despite the fact that most EU/EEA countries and the UK are currently observing declining trends and low incidence of COVID-19 due to the strong public health response measures adopted, it is expected that SARS-CoV-2 will continue to circulate.[7] In order to minimise the risk of resurgence of cases of COVID-19, ECDC advises that Member States adopt a set of actions including enhanced community-based surveillance with comprehensive testing of possible cases, systematic contact tracing, continuation of certain non-pharmaceutical interventions, and reintroduction of additional measures in case of transmission upsurges.[8]

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[5]The average 14-day case notification rate for the EU/EEA and the UK as of 10 July 2020 was 12 (country range: 1–102) per 100 000 population. The rate has been stable for the last one day. (week 27/2020 - https://www.ecdc.europa.eu/en/covid-19/surveillance/weekly-surveillance-report).

[6] See annex 1

[7] European Centre for Disease Prevention and Control (ECDC), Country Overviews https://www.ecdc.europa.eu/en/covid-19/country-overviews

[8] ECDC, Rapid Risk Assessment: Coronavirus disease 2019 (COVID-19) in the EU/EEA and the UK – tenth update at: https://www.ecdc.europa.eu/en/publications-data/rapid-risk-assessment-coronavirus-disease-2019-covid-19-pandemic-tenth-update

The aim of this protocol is to assist the safe and speedy recovery of the European rail sector through a harmonised approach.

Railway operations present a number of challenges to the response of the COVID-19 pandemic. These include but may not be limited to:

- In many European countries rail represents the most frequently used commuting means of transportation and trains transport millions of passengers annually. In contrast to aviation, railways continued to operate throughout the national lockdown measures.
- Railway stations are essential public places and entrance to them cannot be strictly controlled like airports, unless national distancing measures are enforced. The same is largely true for trains.
- The majority of train tickets are not nominal as in the aviation sector and in addition, commuting passengers use frequent traveller cards, which do not allow for passenger identification. On the other hand, contact tracing after an identified COVID-19 case is one of the most important public health response tools and railway stakeholders should be able to facilitate this process as much as possible.

General advice about health and safety at the workplace in response to the COVID-19 pandemic are available at the website of the European Agency for Safety and Health at Work (EU-OSHA).[9]

The following guiding principles form the basis of the proposed measures:

a. Preparedness

Railway stakeholders should develop preparedness plans if not already available, or standard operational procedures according to existing plans, for the response to the COVID-19 pandemic. It is recommended to appoint one preparedness coordinator to monitor the implementation of the adopted measures and to be the liaison person with the local/regional/national/international public health authorities. Hot spot analyses and review of passenger flows could be applied by railway companies and authorities to support preparedness planning by enabling identification of critical points on the passenger journey or sites in hubs where transmission risk is potentially increased, therefore relevant measures need to be prioritised.[10] Cross-border aspects should be taken into consideration in the planning and development of COVID-19-specific protocols, including plans for cross-border contact tracing, which should be developed in consultation with the relevant authorities in the countries operating international trains (see section 5.1).

b. Training

Training of station, train, and all railway employees is needed on the adopted measures and applied procedures. This should include information on how COVID-19 is transmitted, physical distancing measures, hand and respiratory hygiene, the appropriate use of the recommended personal protective equipment (PPE) and the management of a possible COVID-19 suspected case in route and any new procedures they need to put in practice. Employees should be allowed and advised to stay at home if they have symptoms compatible with COVID-19.

c. Coordination

Coordination ensures effectiveness of response. Competent national authorities, railway undertakings, station managers, infrastructure managers and other railway stakeholders should coordinate their actions in sufficient detail. Especially for cross-border and international rail services, measures need to be well coordinated among national authorities responsible for public health as well as for transport, of

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[9] EU-OSHA resources: https://osha.europa.eu/en/themes/covid-19-resources-workplace, https://oshwiki.eu/wiki/COVID-19:_Back_to_the_workplace_-_Adapting_workplaces_and_protecting_workers
[10] PANDHUB Project - Prevention and Management of High Threat Pathogen Incidents in Transport Hubs https://trimis.ec.europa.eu/entityprint/node/12392

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the different Member States, and the rail company/ies operating the rail service in question in order to be effective.

In particular, when adapting recommended measures affecting the common situation of travel companions and passengers with specific needs to local requirements, railway companies should ensure that this is done without unnecessarily affecting the passenger experience. Some specificities of railway assets (e.g. historical or small stations, old rolling stocks) may compromise application of these measures. In that case, alternative solutions should be explored. The implementation of public health and safety measures should be delivered in close cooperation between rail companies and all involved public authorities (including public health) to the best of passengers' welfare.

d. Pro-active communication

Recommended measures not only need to be effective but also properly communicated and visible. Rail companies should therefore communicate to their staff and passenger clear rules and procedures, through a variety of channels, in clear and easily accessible language(s). The information flow should reach all levels of railway staff and as regards the passengers start well before the journey, and stay with them throughout, and a procedure in place to keep all stakeholders updated.

Health promotion information should be prominently displayed in stations and on trains. Special attention should be given to passengers with special needs and people who do not speak the local mother tongue; pictograms are strongly encouraged. It is strongly advised for railway competent authorities and companies to adopt the same messages as communicated at the national and international levels to avoid duplication of efforts. Moreover, it is advised that rail companies and travel agencies provide information to (potential) passengers that contain a [reference](#) to the 'Re-open EU' platform[11].

e. Promoting responsible behaviour

Given the high number of passengers transported daily and the number of stations served, compliance with the general rules for safe behaviour to protect public health, depends on the diligence and sense of responsibility of transport and public health authorities, railway stakeholders and each passenger. The effectiveness of the measures recommended and implemented in trains and stations has to be aligned with those implemented at national, regional and local levels. Promoting responsible behaviour and mutual respect in times of crisis will create trust among customers and staff alike (see section 5.2).

f. Inclusiveness

The transport of persons with disabilities and/or reduced mobility should receive particular attention during the COVID-19 pandemic. Rail companies should appropriately instruct staff who, in line with the EU rules on passenger rights, assist persons with needs and provide their staff with adequate health protection equipment.

g. Efficient operations for health and safety

The measures herein should create a healthy and safe environment for railway workers and customers and help build confidence, complicity and trustiness. A culture of compliance with the necessary behavioural etiquette should be promoted by railway companies through available communication channels. At the same time, it is important to enable the railway companies to run their system in a robust and well-functioning way.

The movement of people increases the risk of SARS-CoV-2 re-introduction into areas with low transmission or where only sporadic cases are being observed. For the EU/EEA countries and the UK, the

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[11] European Commission 'Re-open EU' platform webpage: www.reopen.europa.eu/en

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movement of people refers not only to tourists, but also to commuters, business travellers and migrant or seasonal workers. However, virus re-introduction would not necessarily lead to widespread community transmission if strong surveillance, extensive testing and robust contact tracing measures are in place, together with ongoing risk communication about the importance of staying at home if travellers or staff have symptoms, physical distancing, hand and respiratory hygiene.

h. Balancing risk factors vs. practical implementation

Preventive measures should be implemented in such a way as to consider both the actual risk factors and the practical implementation of mitigation measures in different circumstances, and should be updated according to the evolving situation of the pandemic and the accumulating scientific evidence.

4.   Method and consultation

This protocol is the result of the ERA's close collaboration with the European rail sector, the European rail supply industry, the National Safety Authorities, the European Commission and the ECDC[12]. The joint European Union Aviation Safety Agency (EASA)–ECDC Operational Guidelines have been consulted[13].

ERA will continue to monitor development and impact of the COVID-19 pandemic and consult with the Commission, other European institutions and agencies such ECDC, the EU Occupational Safety and Health Administration (EU-OSHA), EASA, European Maritime Safety Agency (EMSA), NRB and NSA Networks. In some Member States, NSAs could act as contact points within the competent authorities in each Member State.

Relevant information will be published on the ERA website, on the Agency's Extranet, on the European Commission *Corona Virus Response* website and national governmental websites.

5.   COVID-19 mitigating measures at stations and on-board trains

5.1.   Tasks and co-responsibilities

It is the responsibility of individual EU Member States together with the railways companies to adopt and implement countermeasures to COVID-19, especially concerning rules imposed to reduce the risk of spreading the virus. Railway undertakings can therefore assume that passengers are aware of the main facts regarding to COVID-19 and to a certain extent of the preventive measures and rules.

However, the railway companies are responsible to train their employees and ensure they have a safe command of the regulations and can therefore inform and advise passengers appropriately. In addition, railway companies are responsible as employers to provide training and face masks for their staff and the implementation of physical barriers as needed.[14] Disposable gloves for staff, including ticket collectors, are not considered an effective measure for the prevention of COVID-19.[15]

When required by national authorities during phases of community transmission of COVID-19, equally to all transport modes, rail passenger locator data should be collected **where passenger data is available**, such as

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[12] ECDC webpage 'Scientific advice on COVID-19': https://www.ecdc.europa.eu/en/coronavirus/guidance-and-technical-reports
[13] EASA-ECDC document: 'COVID-19 Aviation Health Safety Protocol: Operational guidelines for the management of air passengers and aviation personnel in relation to the COVID-19 pandemic; Issue No: 02' ECDC webpage: https://www.ecdc.europa.eu/en/publications-data/covid-19-aviation-health-safety-protocol; EASA webpage: https://www.easa.europa.eu/sites/default/files/dfu/EASA-ECDC_COVID-19_Operational%20guidelines%20for%20management%20of%20passengers_v2.pdf
[14] ECDC, Micro-learning 2. Which are the non-pharmaceutical countermeasures liked to personal protection? At: https://eva.ecdc.europa.eu/mod/scorm/view.php?id=10162
[15] ECDC, Use of gloves in healthcare and non-healthcare settings in the context of the COVID 19 pandemic. At: https://www.ecdc.europa.eu/en/publications-data/gloves-healthcare-and-non-healthcare-settings-covid-19

for passengers in intercity and high-speed railway routes. The availability of such data is extremely important for the success and effectiveness of contact tracing operations for communicable diseases.

Mobile contact tracing applications (apps) are being introduced in many countries including a majority of EU Member States. Contact tracing apps can contribute to preventing new chains of transmission and further spread in the community by early tracing and alerting contacts unknown to the case and identifying a higher number of contacts, as they do not rely on recall of the case. Apps can also facilitate cross-border contact tracing provided they are interoperable, something currently being worked on by the European Commission and the eHealth Network[16]. Apps are complementary to regular contact tracing and the use of apps should be voluntary.

In the context of the ongoing COVID-19 pandemic and in particular in this adjustment phase, contact tracing is one of the most important public health activities which, in conjunction with testing and active case finding, can help to minimise the risk of cases being introduced into new areas or areas with low incidence.

All passenger information gathered in hard copy or electronic way including mobile applications must be compliant with the European General Data Protection (Regulation (EU) 2016/679) as well as national data protection regulations.

5.2. Operational measures

This section for rail companies includes recommended operational measures regarding passengers and staff, regarding maintenance and cleaning of railway coaches and stations, and regarding the rail system and its equipment.

In order to achieve the main objectives of this protocol (see 1.1.) the operational measures are outlined in three main sections: general measures that should be in place all the time, measures applicable for stations/platforms and on board trains, referring to both staff and passengers, and measures applicable for train stations and on board trains.

Railway station managers and railway undertakings should take appropriate actions to ensure that passengers and railway staff follow the measures described below.[17]

Measures that should be in place at all times

Passengers and railway staff entering stations or boarding platforms or trains should respect public health instructions to reduce the risk of spreading SARS-CoV-2.

Health promotion messages: should be displayed prominently throughout stations and on board trains emphasising the main public health advice including:

- Physical distancing (at least 1.5 metres, ideally 2 metres);
- Respiratory etiquette;
- Meticulous hand hygiene;
- Appropriate use of face masks, in areas where physical distancing cannot be maintained due to structural or functional impediments.
- Recommending the use of mobile contact tracing applications (apps).

Information should also outline instructions for any person, who develops **symptoms compatible with COVID-19** while at railway stations or travelling by train. [18]

Strategies to reduce overcrowding are advisable, particularly in areas with on-going community transmission of SARS-CoV-2, in collaboration with the local/national public health authorities. Floor markings indicating the appropriate distance are advisable, where crowding is expected (e.g. ticketing, platforms, restaurants). Encourage and request that passengers purchase tickets in advance before departure (online or at ticket machines). For passengers that travel cross-border electronic tools may be available to directly collect passenger locator data for contact tracing purposes. Railway operators should ensure that passengers are informed about this requirement before their travel. Moreover, station managers should liaise with retail providers within stations, to ensure that the same principles are applied throughout the station area and to coordinate social distancing measures, e.g. the location of queues.

Facilitation of hand hygiene, with the maintenance of working handwashing stations in public toilets and the availability of hand sanitiser dispensers throughout the stations and on board trains. Hand sanitizers must be clearly visible for passengers and accessible for people with reduced mobility. They must also provide enough amount of fluid to perform a correct hand hygiene. In the toilets, ensure the availability of soap and disposable tissues to dry hands. Further information and scientific evidences have been included in the ECDC annex.

Enhance the cleaning of public areas in terms of depth and frequency: Procedures are needed to ensure that cleaning and disinfection is performed in a consistent manner and following the principles and the ECDC guidance in stations, platforms and on board trains, subject to train schedules [19]. Equipment of common use used by railways personnel such as computers, tablets, radio stations, headsets, etc. should also be disinfected before being used by another staff member. The maintenance of toilets in stations and inside vehicles may need to be adapted to ensure the proper cleaning and disinfection. Open or "no-touch" bins should be available at stations and on board trains for the safe disposal of used face masks and tissues.

Heating, Ventilation and Air conditioning (HVAC) system: Train operators and station operators should **consult with the manufacturers of the HVAC systems** in place in stations and on each of their train types on proper maintenance and applying COVID-19 related revisions, if needed, to minimise a potential risk of contributing to the spread of small droplets or aerosols containing SARS-CoV-2[20]. It includes ensuring the cleaning of HVAC system parts and changing or replacing of filters according to recommendations of the manufacturer. Increasing the number of air exchanges per hour will reduce the risk of transmission in closed spaces. This may be achieved by natural or mechanical ventilation of indoor or carriage air, depending on the setting. Direct airflow should be diverted away from passengers or staff to avoid potential pathogen dispersion from asymptomatic persons. There is currently no scientific evidence that airborne SARS-CoV-2 would be effectively inactivated by means of electrostatic air purifiers. The application of the above guidance should be achieved based on information provided by the manufacturer or, if not available, to seek advice from the manufacturer. All COVID-19-related revisions should be performed in accordance with national and local regulations (e.g. health and safety regulations, technical recommendations of respective national or supranational associations) and appropriate to local conditions.

Risk communication strategies for passengers and railway staff should be adapted locally, if necessary, and aligned with ongoing national and local risk communication efforts to remind citizens that the pandemic is ongoing. Information should be easily accessible, accurate, timely, frequent and available to all travellers through different channels (e.g. websites, travel apps, screens, announcements, leaflets, posters).[21,22] Passengers should be regularly informed via visual and audio messaging, as well as other appropriate means,

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[19] ECDC, Disinfection of environments in healthcare and non-healthcare settings potentially contaminated with SARS-CoV-2
https://www.ecdc.europa.eu/en/publications-data/disinfection-environments-covid-19
[20] ECDC, Heating, ventilation and air-conditioning systems in the context of COVID-19
https://www.ecdc.europa.eu/en/publications-data/heating-ventilation-air-conditioning-systems-covid-19
[21] ECDC, Rapid Risk Assessment: Coronavirus disease 2019 (COVID-19) in the EU/EEA and the UK – tenth update;
https://www.ecdc.europa.eu/sites/default/files/documents/RRA-COVID19-update10-2020-06-11.pdf
[22] ECDC, Considerations for travel-related measures to reduce spread of COVID-19 in the EU/EEA;
https://www.ecdc.europa.eu/sites/default/files/documents/Considerations-related-to-measures-for-travellers-reduce-spread-COVID-19-in-EUEEA.pdf

about the preventive measures in place at the station and on the trains and should be reminded about the importance of hand and respiratory hygiene, of staying at home if experiencing any COVID-compatible symptoms, and of complying with any other recommendations from the national/local public health authorities. Fixed visual messages should preferably be in the form of pictograms wherever possible. In addition, if travelling cross-border, passengers should be made aware of the measures in place in the destination country.

Thermal screening as exit or entry screening in stations and trains is not supported by scientific evidence as an effective or efficient measure to detect COVID-19 cases and prevent the spread of the virus in areas with low transmission[23]. Further information and scientific evidence have been included in the ECDC annex 1.

Rail operators should liaise with national authorities regarding the current protocols for the provision of **general first aid**, including cardiopulmonary resuscitation, applicable to passengers in the context of the COVID-19 pandemic.

Measures applicable to Train Stations

In addition to the measures stated in the section "Measures that should be in place at all times":

Wherever staff members interact with passengers from a fixed location such as, but not limited to, ticketing and information counters, protective screens should be installed in such a way as to allow the handover of the required documents but provide protection to the staff member from the respiratory droplets of passengers, and vice versa.

To reduce overcrowding in stations dedicated lanes or otherwise separate passenger flows at the station and on the platforms are advisable. In addition, remove, where possible, facilities that encourage crowding (e.g. benches, tables) at stations or, re-arrange them to ensure adequate distancing; allow seating in every other seat in stations. Moreover, liaise with the retail providers in stations to apply the same principles and coordinate physical distancing measures.

Implement adequate measures at embarking, at eventual security checks, disembarking (e.g. openings of doors without passenger intervention if possible, disinfection of surfaces) and other measures that help to minimise contact.

Station managers could ensure availability of face masks for purchase in the stations (e.g. through vending machines or in station shopping areas).

Measures applicable on board Trains

In addition to the measures stated in the section "Measures that should be in place at all times":

Overcrowding on board trains should be avoided as much as possible. Where possible, passengers should be encouraged to travel off peak hours to prevent overcrowding of trains. Where operational capacity exists, increasing the number of trains serving popular routes and/or limiting the number of passengers in each train car is advisable by allowing seating in every other seat. When possible, minimising passenger crossing between carriages and queuing in the galleys or in front of toilets.

Where physical distancing cannot be ensured on board trains, use of face masks is recommended.

Limit contact with compartment surfaces to the extent possible, not reducing safety functions (e.g. decrease the need for use of push buttons and door handles by central door opening where it is safe and feasible).

Ensure safe and hygienic on-board services, including restaurant car/bar services.

Ensure functioning public toilets in the train cars; frequent water level checks to ensure the functionality of as many toilet facilities as possible inside the train for the entire journey.

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[23] ECDC, Considerations relating to passenger locator data, entry and exit screening and health declarations in the context of COVID-19 in the EU/EEA and the UK, at: https://www.ecdc.europa.eu/en/publications-data/passenger-locator-data-entry-exit-screening-health-declaration

Reduce staff-passenger interactions and physical contact to the sheer minimum necessary. Adapt assistance and on-board service for persons of reduced mobility to ensure their comfort and wellbeing giving proper consideration to the duration of the travel on the train.

Preferably, ticket control should be organised such that no exchange of documents between passengers and train staff will be needed. Electronic solutions can be explored.

Table 1. Overview of proposed operational measures per main group of stakeholders in the rail sector

Measure[a]	Station operators[a]	Train operators (incl. on-board staff) [a]	Service providers / contractors[b]	Passengers
Provision of standard health promotion information	Yes, prominent display in various formats	Yes, prominent display in various formats	n/a	n/a
Specific local risk communication[c]	Yes	Yes	Yes	Pay attention and comply
Implement strategies to avoid overcrowding	Yes	Yes	Yes	Yes, comply with instructions
Keep physical distancing	Yes	Yes	Yes	Yes
Use of face masks	Yes, if physical distancing not maintained	Yes, if physical distancing not maintained	Yes, if physical distancing not maintained	Yes, if physical distancing not maintained
Respiratory etiquette	Yes	Yes	Yes	Yes
Hand hygiene	Yes	Yes	Yes	Yes
Enhanced cleaning	Yes	Yes	Yes	n/a
HVAC systems[d]: apply proper maintenance and COVID-19 related revisions if needed	Yes	Yes	n/a	n/a

a- *Entry screening measures, such as thermal screening, are not recommended for implementation, due to the poor evidence for their effectiveness at prevention and control of COVID-19[24].*
b- *Examples include personnel who provide security, restaurant and cleaning services*
c- *Maintain awareness of current specific local risks communicated by health authorities*
d- *Heating, Ventilation and Air Conditioning systems*
n/a - not applicable

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[24] ECDC and EASA, COVID-19 Aviation Health Safety Protocol: Guidance for the management of airline passengers in relation to the COVID-19 pandemic. https://www.ecdc.europa.eu/en/publications-data/covid-19-aviation-health-safety-protocol

Annex 1 — Available scientific evidence and additional considerations on COVID-19

07 July 2020, by ECDC

The movement of people increases the risk of SARS-CoV-2 virus re-introduction into areas with low transmission or where only sporadic cases are being observed. For the EU/EEA countries and the UK, the movement of people refers to all passengers including regular and non-regular commuters, business travellers, tourists and migrant workers. However, virus re-introduction would not necessarily lead to widespread community transmission if strong surveillance, extensive testing and robust contact tracing measures are in place in the country of arrival, together with ongoing risk communication about the importance of personal protective measures, physical distancing, and hand and respiratory hygiene.

Disease background

For more information and latest evidence on coronaviruses, epidemiology, transmission, clinical characteristics, diagnostic testing and screening, immune response, immunity, vaccine and treatment and transmission in different settings, please visit the page on COVID-19 disease background on ECDC's website.

Detailed epidemiological information based on the laboratory-confirmed cases reported to The European Surveillance System (TESSy) is published in ECDC's weekly COVID-19 surveillance report. Overview of the epidemiological situation globally and in the EU/EEA countries and the UK is updated weekly at the ECDC website.

Physical distancing

Current scientific studies and articles[25,26,27,28] confirm that, in general, the distance that large respiratory droplets can travel in the air is 1.5 metres for normal speech and up to 2 metres when coughing and sneezing. Further evidence[29] indicates that the physical distancing should be of at least 1.5 metres and ideally 2 metres. For this reason, during the journey and during the waiting time at the platform, passengers and staff should ensure that 1.5-metre physical distancing is maintained wherever this is operationally feasible. In whatever situation, risk-mitigating measures are essential, and should be emphasized thus meaning hand hygiene and respiratory etiquette. If because of operational constraints physical distancing cannot be guaranteed, the use of face mask should be implemented.

Use of face masks

- A **medical face mask** (also known as surgical or procedure mask) is a medical device to cover the mouth, nose and chin ensuring a barrier that limits the transmission of an infective agent between hospital staff and patients. It is used to prevent large respiratory droplets and splashes from reaching the mouth and the nose of the wearer and help reduce and/or control at source the spread of large respiratory droplets from the person wearing the medical face mask. Medical face masks should comply with the requirements defined in European Standard EN 14683:2019+AC:2019.
- **Non-medical face masks** (or community masks) include various forms of self-made or commercially available masks or face covers made of cloth, other textiles or other materials (such as paper). They are not standardised and do not offer a consistent level of protection. For these reasons, non-medical face masks are not recommended for use where a minimal physical distance of 1.5 meters between individuals is not guaranteed. A recently published European standard for community masks was published outlining the minimum requirements.[30]

Face masks are recommended mainly as a means of source control for persons who are symptomatic in order to prevent the spread of the respiratory droplets produced by coughing or sneezing.[31] There is increasing evidence that persons with mild or no symptoms at the pre-symptomatic and early stages of the infection can contribute to the spread of COVID-19. A face mask may help reduce the

[25] Nicas M, Nazaroff WW, Hubbard A. Toward understanding the risk of secondary airborne infection: emission of respirable pathogens. Journal of occupational and environmental hygiene. 2005 Mar 1;2(3):143-54.
[26] Anfinrud P, Stadnytskyi V, Bax CE, Bax A. Visualizing speech-generated oral fluid droplets with laser light scattering. New England Journal of Medicine. 2020 Apr 15.
[27] Huang S. COVID-19: Why we should all wear masks—there is a new scientific rationale. Medium. March 26, 2020. https://medium.com/@Cancerwarrior/covid-19-why-we-should-all-wear-masks-there-is-new-scientific-rationale-280e08ceee71
[28] Wan, M. P., & Chao, C. Y. (2007). Transport characteristics of expiratory droplets and droplet nuclei in indoor environments with different ventilation airflow patterns. Journal of biomechanical engineering, 129(3), 341–353. https://doi.org/10.1115/1.2720911
[29] Chu DK, Akl EA, Duda S, Solo K, Yaacoub S, Schünemann HJ, El-harakeh A, Bognanni A, Lotfi T, Loeb M, Hajizadeh A. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. The Lancet. 2020 Jun 1.
[30] Community face coverings - Guide to minimum requirements, methods of testing and use http://pr.euractiv.com/pr/cen-publishes-free-workshop-agreement-community-face-coverings-204399
[31] Chu DK, et al, Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis Lancet 2020; 395: 1973–87 https://doi.org/10.1016/ S0140-6736(20)31142-9

spread of the infection in the community by minimising the discharge of respiratory droplets from infected individuals who may not know they are infected and before they develop any symptoms.[32-33]

ECDC advises that the use of face masks outside health or social care settings can be considered, especially when visiting busy, confined spaces, or when using public transport — conditions that apply in the context of train transport. The use of face masks should, therefore, be strongly recommended for both staff and passengers on trains and at the train platforms, with particular emphasis when the ideal 1.5 to 2-metre physical distancing is not feasible.

The use of face masks should be considered only as a complementary measure and not replace the preventive measures put in place, mainly respiratory etiquette, physical distancing, meticulous hand hygiene, and avoiding touching the face, nose, eyes and mouth.

In general, face masks should be replaced when they become wet or soiled, or after being worn for 4 hours. For long distance travels, passengers should be reminded that they should ensure they have a sufficient supply of masks for the entire duration of their travel.

There are three main caveats associated with the use of face masks. Their correct use (how to wear and remove them, and how to manage the face mask while wearing it), the proper disposal of the used face mask, and the false sense of security that the use of a face mask can give:

- A face mask should completely cover the face from the bridge of the nose down to the chin. Before wearing and removing the face mask, hand hygiene with soap and water or alcohol-based hand sanitiser should be observed. When removing the face mask, it should be removed from behind, avoiding touching the front side.
- The false sense of safety that can be given by wearing a face mask should be considered: the face mask works mainly as a means of control for exhaled droplets, and not as a means of protection for the wearer. Passengers should be informed about this and about the importance of observing physical distance and frequent hand hygiene, together with the proper respiratory etiquette, to reduce the risk of infection.
- A used face mask as well as other waste from symptomatic patients can be treated as regular waste.

Respiratory etiquette

- Strict respiratory etiquette should be advised: nose and mouth should be covered with a paper tissue when sneezing or coughing. If tissues are not available, coughing or sneezing into the elbow is recommended.
- Paper tissues should be disposed of immediately after use, ideally into bins with covers, and hands should be washed/sanitised immediately after disposal of the used tissue.
- Health promotion material that promote the importance of respiratory etiquette should be available in different areas of the train.

Hand hygiene

SARS-CoV-2 is believed to be transmitted mainly via respiratory droplets and by direct contact. However, indirect contact with contaminated fomites is also playing a role in transmission. Therefore, frequent and meticulous hand washing and disinfection plays a key role in mitigating the risk of SARS-CoV-2 transmission.

- Health promotion material (e.g. posters, videos, etc.) that promote the importance of hand hygiene and explain how to perform effective hand hygiene should be available in different areas of the train.
- Easy access to hand washing facilities with soap for passengers and staff, single use paper towels, and alcohol-based hand rub solutions (containing at least 70% of alcohol).
- Rigorous hand hygiene should be advised; especially after contact with frequently touched surfaces, before eating, drinking, and after using the toilet.

Case management on board a train

Railway staff with COVID-19 compatible symptoms should be allowed to stop work, self-isolate and follow the local recommendations for possible COVID-19 cases, in accordance with the labour legislation on sick leave.

Information should also outline instructions for any person who develops symptoms compatible with COVID-19 while at railway stations or travelling by train. In addition, they should:

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[32] ECDC, Using face masks in the community — Reducing COVID-19 transmission from potentially asymptomatic or pre-symptomatic people through the use of face masks (https://www.ecdc.europa.eu/en/publications-data/using-face-masks-community-reducing-covid-19-transmission).

[33]WHO Advice on the use of masks in the context of COVID-19 https://apps.who.int/iris/bitstream/handle/10665/332293/WHO-2019-nCov-IPC_Masks-2020.4-eng.pdf?sequence=1&isAllowed=y

- reinforce the recommended measures to reduce the likelihood of transmitting SARS-CoV-2: ensure physical distance, wear a face mask, and practice meticulous respiratory and hand hygiene
- notify the railway staff about feeling sick, suddenly.

Railway staff being notified about a sick passenger should:

- assess the potential need for immediate medical assistance;
- instruct the passenger to avoid as much as possible moving through the train;
- make sure that they have adequate supply of face mask(s) to last through the trip and they are wearing them properly, they have access to hand sanitizer and a simple garbage bag for the used masks or tissues, and finally they have access to a designated toilet;
- try to relocate the sick passenger in an area of the coach or train, where at least two seats in all directions are free;

For more information on the case management on board, you may also refer to Preliminary advice for preparedness and response to cases of COVID-19 at ground crossings (trains and rail stations) in the European Union (EU)/European Economic Area (EEA) Member States (MS).[34]

Contact Tracing

Contact tracing is an essential measure to limit the spread of COVID-19 and the most important public health tool along with testing and isolation of cases, particularly in this phase of adjustment of measures and increasing movement of persons at the regional, national and international levels. The purpose of identifying and managing the contacts of probable or confirmed COVID-19 cases is to rapidly identify secondary cases and prevent further spread.

In most situations, contact tracing starts only after a COVID-19 case has been laboratory-confirmed. The assessment of whether persons are high- or low-risk exposure contacts is performed by public health professionals through a case-by-case assessment of risk. ECDC guidance on contact tracing defines high-risk and low-risk exposure contacts and gives advice for follow up.[35] Each country will need to adapt their response to the local epidemiological situation and according to available resources. Member states and international public health organization (WHO, ECDC, etc.) are exploring the use of mobile applications (apps) to complement regular contact tracing efforts.[36]

For contact tracing operations to be successful and effective, it is important that the public health professionals have prompt access to passenger locator data, particularly if transportation has taken place between regions or countries. This enables public health authorities to identify promptly and notify contacts of an infected case for active follow-up and the provision of relevant advice. Although the railway sector presents particular challenges (see section 3.), it is important that transport authorities and railway stakeholders collaborate with public health authorities to identify the most efficient and feasible way to collect and communicate passenger locator data, particularly for inter-regional and cross border routes to assist public health professionals. Electronic means of collection and transfer of data should be considered. Transport authorities, railway operators and member states should handle this information complying with the requirements under the General Data Protection Legislation (GDPR), taking into account the legal requirements under their national law. ECDC has proposed a limited set of data for passenger location, which allows for the identification of contact with minimum completion of fields.[37]

The Joint Action EU-Healthy Gateways has also proposed a modified passenger locator form for ground crossings, which can be used as a reference.[36]

Thermal Screening

Thermal screening of passengers, particularly at international points of entry (PoE), is frequently considered as the go-to measure to implement for health safety in order to safeguard regions or countries from the introduction of a communicable disease. These

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[34] EU Healthy Gateways Joint Action, Preliminary advice for preparedness and response to cases of COVID-19 at ground crossings (trains and rail stations) in the European Union (EU)/European Economic Area (EEA) Member States (MS). https://www.healthygateways.eu/Portals/0/plcdocs/EU_HEALTHY_GATEWAYS_COVID-19_Rail_Preliminary_4_3_V1_F.pdf?ver=2020-03-04-161909-247

[35] ECDC, Contact tracing: Public health management of persons, including healthcare workers, having had contact with COVID-19 cases in the European Union - second update at: https://www.ecdc.europa.eu/en/covid-19-contact-tracing-public-health-management

[36] ECDC, Mobile applications in support of contact tracing for COVID-19 - A guidance for EU EEA Member States, at: https://www.ecdc.europa.eu/en/publications-data/covid-19-mobile-applications-support-contact-tracing

[37] ECDC, Considerations relating to passenger locator data, entry and exit screening and health declarations in the context of COVID-19 in the EU/EEA and the UK, at: https://www.ecdc.europa.eu/en/publications-data/passenger-locator-data-entry-exit-screening-health-declaration

procedures usually include some type of thermal screening (contactless thermometers, thermal scanners/cameras and others) to detect exiting or entry passengers with fever (e.g. body temperature >38°C). Additional (secondary) screening is frequently added to this procedure using a health declaration form or a health questionnaire, potentially administered and assessed by a health professional to determine the need to test for the particular pathogen.

Historically, reports reviewing entry screening procedures based on temperature screening from several countries at the time of the SARS outbreak (2003), the A(H1N1) pdm09 influenza pandemic (2009) and the Ebola virus disease (EVD) in West Africa (2014-2016) consistently show that screening using temperature control is a high-cost, low-efficiency measure.

As regards COVID-19 available scientific knowledge, several of its characteristics make it unlikely that temperature screening alone, will be an effective and/or efficient procedure to promptly detect COVID-19 on board. This assessment is based on the following:

- Many individuals who have been infected with the virus could be in the incubation phase when travelling and not yet showing symptoms; SARS-CoV-2 has an incubation period of 2-14 days, with 75% of cases developing symptoms after 4-7 days. These passengers will not be detected by temperature screening, even in a scenario assuming high sensitivity equipment.
- Since the beginning of the pandemic, evidence has accumulated indicating that asymptomatic (or pre-symptomatic and mild) cases play a significant role in the transmission of COVID-19 (maybe up to 40%) and it is currently established that transmission starts before the onset of symptoms (peaking 0.7 days before).[38]
- In the case of COVID-19, fever is frequently, but not consistently, reported in symptomatic cases. According to ECDC's weekly epidemiological report for week 26/2020, fever was reported in 53% of over 160 000 laboratory-confirmed COVID-19 cases entered in The European Surveillance System (TESSy).[39] In addition, fever is a symptom that can be temporarily concealed by using antipyretic drugs.
- The large variety of screening equipment (contactless thermometers, thermal scanners, etc.) commercially available requires that particular care is taken in calibration and the setting of thresholds for categorising people as screen-positive. The performance of devices is difficult to compare because of different targets and modes of operation. In addition, their performance is affected by the choice of the cut-off value set for screening (e.g. 37.5 or 38.0°C). In general, performance is reported as follows:
  - Sensitivity: 80–99%, meaning that between 1 and 20% of febrile passengers will not be detected (false negative).
  - Specificity: 75–99%, meaning that between 1 and 25% of non-febrile passengers will be incorrectly detected (false positive).

Some reports suggest that taking the average of several readings improves accuracy; however, this increases the resources necessary to perform the task.[40]

Nevertheless, temperature screening processes may help dissuade those who are sick from travelling or entering public places and enhance the confidence of healthy travellers. In addition, they offer a further means for providing specific information to passengers on the disease, the current epidemiological situation and where to seek medical advice, if needed.

Due to the currently ongoing community transmission levels in all EU/EEA countries and the UK, if temperature screening is adopted by the national health or transport authorities, it should be performed using a specific protocol for primary and secondary screening, testing and follow-up. This entails huge human, laboratory, logistical (PPE, sample transport, passenger transit and quarantine, etc.) and monetary resources, which will be reduce the amount available for preparedness planning for a potential second wave of the COVID-19 pandemic.

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[38] He X, Lau EH, Wu P, Deng X, Wang J, Hao X, et al. Temporal dynamics in viral shedding and transmissibility of COVID-19. Nature medicine. 2020;26(5):672-5.
[39] ECDC, Weekly surveillance report. https://www.ecdc.europa.eu/en/covid-19/surveillance/weekly-surveillance-report
[40] ECDC, Infection prevention and control measures for Ebola virus disease: Entry and exit body temperature screening measures. Available from: https://www.ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/Ebola-outbreaktechnicalreport-exit-entry-screening-13Oct2014.pdf

Annex 2 — Table of measures (version 15 July)

A regularly updated table of the proposed measures is available on the ERA website.

Topic	Chapter of the Protocol	In Stations	In trains	Suggested measure	Responsibility
Equipment and supplies					
Protective screens for staff	5.2	X	X	Wherever staff members interact with passengers from fixed locations such as, but not limited to, ticketing and information counters, **protective barriers and/or screens** should be installed to facilitate safe interaction, such as the handover of the required documents .	Railway undertakings; station managers
Hand sanitizers	5.2	X	X	**Provide sufficient equipment to facilitate hand hygiene** and clearly mark the location of the dispensers in frequently used areas, clearly visible for passengers and accessible for people with reduced mobility. The output of hand sanitizers must be sufficient for thorough hand disinfection.	Railway undertakings; station managers
Hand washing facilities	5.2	X	X	Ensure the availability of **handwashing facilities, stocked with soap and disposable tissues** to dry hands.	Railway undertakings; station managers
Face masks for passengers	5.2	X		**Ensure that face masks are available for purchase**, e.g. through vending machines or in station shopping areas.	Railway undertakings; station managers
Measures for train drivers	5.2		X	For **train drivers** that work in a cabin where air conditioning is shared with the passengers, direct the airflow away from directly at the driver, increase the air exchanges with outside air and ensure the presence of a physical barrier between the driver and passengers.	Railway undertakings
Face masks for staff	5.2	X	X	Provide **face masks for staff**. Disposable gloves for staff, including ticket collectors, are **not** considered an effective measure for the prevention of COVID-19.	Railway undertakings; station managers
Reduce over-crowding	5.2	X		**Implement dedicated lanes or otherwise separate passenger flows** at stations, including on platforms, wherever operationally feasible.	Railway undertakings; station managers
Reduce over-crowding	5.2	X	X	**Remove or move items that may increase over-crowding**, e.g. benches, tables.	Railway undertakings; station managers
Appropriate disposal	5.2	X	X	For safe disposal of used face masks and tissues, **open or "no-touch" bins** should be available at the station and single-use waste bags should be available on board trains.	Railway undertakings; station managers
Provision of information					
Health information	5.1	X	X	**Ensure that travel recommendations for symptomatic passengers and other health information are displayed in stations and trains, including specific measures at that particular location.** Information should be easily accessible, accurate, timely, frequent and available to all travellers through different channels (e.g. websites, travel apps, screens, announcements, leaflets, posters).	Railway undertakings; station managers; local public health authorities
Appropriate disposal of face masks	5.2	X	X	Provide information to passengers regarding the available container for **disposal** of used face masks and tissues.	Railway undertakings; station managers
Touching of surfaces	5.2	X	X	**Recommend practices to passengers that minimise touching** of train and platform surfaces and recommend the use of electronic ticket and contactless payments.	Railway undertakings; station managers

Respiratory etiquette	5.2	X	X	Disseminate information on **respiratory etiquette** (e.g. cover mouth and nose with a tissue or a flexed elbow when sneezing or coughing, even when wearing a face mask).	Railway undertakings; station managers
Providing information	5.2		X	Recommend that **passengers minimise crossing** between carriages and queuing in galleys or in front of toilets.	Railway undertakings.
Maintenance routines					
Cleaning	5.2	X	X	Ensure **increased frequency of environmental cleaning schedules appropriate for COVID-19,** including commonly accessed and frequently touched areas of stations, platforms, offices and trains.	Railway undertakings; station managers; local public health authorities
Hand sanitizers	5.2	X	X	**Ensure that hand sanitizers** are stocked and functional.	Railway undertakings; station managers
Rest rooms, toilets and hand washing stations	5.2	X	X	The **maintenance of toilets** in stations and inside vehicles may need to be adapted to ensure the proper cleaning, disinfection, and the presence of soap and tissues. The maintenance of vehicles may include frequent water level check to ensure the functionality of as many toilet facilities as possible inside the train for the entire journey.	Railway undertakings; station managers
Heating-, ventilation-, and air-conditioning systems	5.2		X	**Maintenance of heating-, ventilation-, and air-conditioning systems** in trains should be performed according to the manufacturer's instructions.	Railway undertakings; station managers
Operational measures					
Staff-passenger interactions	5.2	X	X	**Reduce staff-passenger interactions** and physical contact to the minimum necessary.	Railway undertakings
Ticket purchase	5.2	X	X	Ticket control should be organised such to **cease or minimise exchange of documents** between passengers and train staff.	Railway undertakings; station managers
Reduce over-crowding	5.2	X	X	**Permit occupancy of every other seat**, wherever operationally feasible.	Railway undertakings; station managers
Reduce over-crowding	5.1	X		Ensure coordination between vendors, retail outlets and station offices for queuing that achieve physical distancing.	Station managers
Reduce over-crowding	5.2	X	X	Implement adequate measures at embarking, security checks, disembarking (e.g. automatic openings of doors by default if possible).	Railway undertakings; station managers
Training employees	5.1	X	X	It is essential that staff is aware how to **adopt appropriate hygienic behaviour**. Infection control measures with proven evidence to reduce the risk of COVID-19 transmission should be emphasised. Railway companies are responsible as employers to **provide training and face masks**. Disposable gloves for staff, including ticket collectors, are not considered an effective measure for the prevention of COVID-19 transmission. Rail operators should liaise with national public health authorities regarding the current protocols for the provision of general first aid, including cardiopulmonary resuscitation, applicable to passengers in the context of the COVID-19 pandemic. Railway companies are responsible to **train their employees** and ensure they have a **safe command of the regulations** and can therefore inform and advise passengers appropriately. Instruct train staff about specific optimal settings for **air distribution** systems.	Railway undertakings; station managers; local public health authorities
Assistance and on-board service for persons of reduced mobility	5.2	X	X	**Adapt assistance and on-board service for persons of reduced mobility** (PRM) to ensure their comfort and wellbeing, giving proper consideration to the duration of the travel.	Railway undertakings; station managers
Safe and hygienic on-board services	5.2		X	**Ensure safe and hygienic services**, including restaurant car/bar services, applying appropriate distancing measures.	Railway undertakings
Avoid direct contact with surfaces	5.2	X	X	**Take measures to limit contact** with compartment surfaces to the extent possible, not reducing safety functions (e.g. non-	Railway undertakings; station managers

				contact ticket checks, decrease the need for use of push buttons and door handles by central door opening).	
Ventilation system settings	5.1		X	Consult with the manufacturers of the **ventilation system** for every train type to **implement the functioning of the system that results in the maximum exchanges with fresh air**, reducing re-circulation of carriage air as far as possible. Optimal settings for air distribution systems should be identified. Ensure that the ventilation system is functioning whenever there are passengers are on board, according to the manufacturers' recommendations.	Railway undertakings; station managers
Facilitate contact tracing	5.1		X	When required by national authorities, and applied equally to all transport modes, **the availability of passenger locator data**, particularly for passengers in intercity and cross border railway routes, is **extremely important for the success and effectiveness of contact tracing operations.**	Railway undertakings; Local public health authorities.