



ICAO

Doc 10152

Manual on Testing and Cross-border Risk Management Measures

First Edition, 2020



Approved by and published under the authority of the Secretary General

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AMENDMENTS

Amendments are announced in the supplements to the *Products and Services Catalogue*; the Catalogue and its supplements are available on the ICAO website at www.icao.int. The space below is provided to keep a record of such amendments.

RECORD OF AMENDMENTS AND CORRIGENDA

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FOREWORD

This manual has been prepared by aviation health experts led by the International Civil Aviation Organization (ICAO) with support from the United States Centers for Disease Control and Prevention (CDC), European Centre for Disease Prevention and Control (ECDC) and others, with contributions from the World Health Organization (WHO) as well as aviation medical and health experts from governments and industry. Together they form the Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA). CAPSCA brings together international, regional, national and local organizations to work together to improve preparedness planning and response to public health events that affect the aviation sector.

CAPSCA developed this guidance in close collaboration with the ICAO Council Aviation Recovery Task Force (CART), which requested updated guidance on the inclusion of COVID-19 testing and its interdependencies with other risk mitigation tools for those States that choose to include testing as an element of their overall COVID-19 risk management process.

The CART has published updated recommendations to States in the High-Level Cover Document (HLCD) including Recommendation 13 on testing: "While testing is not universally recommended by public health authorities as a routine health screening method, States contemplating testing in their COVID-19 risk management strategy should apply the approach outlined in the ICAO *Testing and Cross-Border Risk Management Measures Manual*".

Updates to the CART Take-off Guidance for Air Travel through the COVID-19 Public Health Crisis (TOGD) focus on the evolving technological and medical advancements in the fight against COVID-19 and providing targeted guidance to effectively support States in their efforts to control the pandemic while pursuing the restart and recovery of aviation. In this regard, specific attention is being brought to testing as a potential means to alleviate quarantine measures and thus facilitate international movement of people and goods, as part of a multilayer risk management strategy.

This guidance supplements the measures already outlined in the CART HLCD and TOGD and provides a risk management process to facilitate States' assessment of the applicability of a combination of measures available today.

COVID-19 testing, if applied according to the guidance contained in this manual, could reduce reliance on measures that restrict air travel and the movement of persons arriving in a country, such as quarantine, which evidence suggests is a disincentive to several important categories of travel of which the following list is non-exhaustive: pilot certification, pilot simulator training, essential business flights and tourism for some States which are dependent on inbound tourism for economic sustainability.

In implementing testing as a component of their overall COVID-19 risk management strategy, States are advised that an effective application of a multi-layered risk strategy, including testing, is one in which:

- a) States perform a risk assessment using epidemiologic criteria including but not limited to disease prevalence, disease trajectory, national testing strategy, screening capabilities, hospital capacity and robustness of contact tracing;
- b) States share the results of the risk assessments, the local epidemiology and transmission scenarios in the departure and destination countries or areas as well as the public health and health system capacity and performance to detect and care for returning travellers and their contacts; with other States to facilitate the opening of air routes;
- c) States consider their risk tolerance as a part of their risk assessment;

- d) States use their risk assessment and risk tolerance in determining the application of a multi-layered risk management strategy;
- e) States that select to utilize testing for screening purposes apply a cut-off value for sensitivity and specificity as high as possible (with a minimum of 95 per cent) to reduce false positive test results;
- f) States, when addressing higher risk scenarios and applying testing as part of the multi-layer risk management strategy, take into account the test result when considering the need for and duration of isolation or quarantine; and
- g) States harmonize their procedures to the extent possible.

This manual describes the risk management measures which can be applied; how epidemiology can be used to advise States in developing a risk management strategy; possible testing protocols which might be put in place where there is differential prevalence, and therefore risk; and a series of examples to help States in their decision-making process.

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GLOSSARY

LIST OF ACRONYMS

API	Advance Passenger Information
CAPSCA	Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation
CART	Council Aviation Recovery Task Force
ECDC	European Centre for Disease Prevention and Control
HLCD	High-Level Cover Document
ICAO	International Civil Aviation Organization
IHR	International Health Regulations
NPV	Negative predictive value
PCR	Polymerase chain reaction
PHC	Public Health Corridor
PNR	Passenger Name Record
PPE	Personal protective equipment
PPV	Positive predictive value
RT-PCR	Reverse-transcription polymerase chain reaction
TOGD	Take-off Guidance for Air Travel through the COVID-19 Public Health Crisis
WHO	World Health Organization

DEFINITIONS

Epidemiology. The branch of medicine which deals with the incidence, distribution and possible control of diseases and other factors related to health.

False negative test. A result that indicates that the disease is not present when the person actually does have the disease.

False positive test. A result that indicates that the disease is present when the person actually does not have the disease.

Incidence. The number of new cases in a specified population during a specified period of time.

Negative predictive value (NPV). How likely a negative test is a true negative.

Positive predictive value (PPV). How likely a positive test is a true positive.

Prevalence. Disease burden expressed as a percentage or rate with the total population as the denominator; in this context, the number of existing cases in a defined population at a given point in time.

Sensitivity. The likelihood that a test will correctly identify a person with the disease; the “true positive” rate.

Specificity. The likelihood that a test will correctly identify a person without the disease; the “true negative” rate.

Chapter 1

INTRODUCTION

1.1 This guidance is intended for use by State regulators, service providers and other concerned entities, and it addresses cross-border risk management in commercial air transport operations. The objective of the guidance is to inform States about public health risk management strategies to reduce the probability of translocation of the disease from one region to another. Updates will be provided as new scientific evidence becomes available. This document contains guidance for implementing a systemic process to identify risks related to the COVID-19 pandemic and mitigate those risks to an acceptable level as determined by each individual State. The final objective is to create a harmonized and cooperative effort to maintain global connectivity.

1.2 The guidance provides assessment tools that States can use to evaluate and implement measures as part of their decision-making process. For this purpose, an example of the process is presented and applied to a strategy that utilizes a range of risk mitigation measures. This guidance does not constitute a recommendation for application of any specific measure but rather a guideline on how to assess different mitigation strategies and on how they can contribute to public health risk management. As an example of this approach, the document will provide the description of a strategy based on the assessment of epidemiological indicators, testing and quarantine practices. Additional detailed guidance for States will be included as annexes by ICAO and the WHO.

1.3 This manual has been developed using the most recent information as of its publication date. The urgency, rapid development, and observed consequences of the current scenario required an expedited approach based on expert consensus and current scientific evidence. Consequently, regular updates will be required as the evidence evolves and as technology advances. Data-driven adjustments to the guidance will be made as the situation evolves.

1.4 Each State will need to conduct its own assessment and is encouraged to use the processes outlined in this manual as the basis for its assessment. Risk tolerance varies between States and depends on many factors. This has an influence on the amount of residual risk a State can accept. The determination of such level cannot be universal as it depends on specific priorities and the sovereignty of each individual State.

Chapter 2

GENERAL RISK MANAGEMENT PRINCIPLES APPLIED TO AIR TRANSPORT

2.1 The principles of a “generic risk management process” are considered appropriate in the context of a public health risk management framework. The objective of this process is to identify the residual risk, taking into consideration existing risk mitigation measures, of transporting an infectious passenger or translocating COVID-19 from one State to another.

2.2 To support States in developing a risk assessment framework that is adapted to sovereign considerations and integrates with existing national frameworks, ICAO developed a generic decision-making tool (see Attachment A). The tool can be used to determine the inherent and residual risk level of transporting potentially infectious passengers.

2.3 The proposed risk assessment process relies on a circular process that considers risk holistically by defining a risk scenario instead of focusing on a single hazard or threat. The determination of an inherent risk results from evaluating the likelihood of the risk scenario, as well as defining the resulting impact. It is essential to consider risk management measures which are already in place when conducting the initial assessment of the inherent risk. This step of the risk assessment process cannot consider future or potential management measures as it intends to provide the “as is” situational assessment. The result provides States with information relevant to determining if the risk scenario lies within its public health management capacity. As the inherent risk changes, States will need to modify their risk management measures. In addition, States should consult the *Safety Management Manual* (Doc 9859) and the *ICAO Handbook for CAAs on the Management of Aviation Safety Risks related to COVID-19* (Doc 10144).

2.4 The modelling of a risk scenario is the starting point in the use of the tool, based upon the existing situational assessment but considering multi-sector collaboration within the context of the State. A generic baseline example for such a scenario could be “the risk to be assessed is of an infectious person being on board an international flight” or “the risk of translocation of the virus through air transport”. The shape of the risk scenario will need to address a State’s view on what it considers as the most critical aspect of public health management. The tool then progresses through different available management solutions that affect the risk’s likelihood and impact, as defined in Box 1. It is designed in a way that the efficacy of each management measure can be qualitative.

Box 1. Risk management terminology

Risk avoidance. It is often the most powerful tool of risk management and aims at reducing the likelihood of risk by avoiding it. It is, however, also the most limiting tool in terms of environmental continuity.

Risk mitigation. It aims at reducing the impact of the risk (by addressing the likelihood, magnitude, or both when risk cannot be avoided).

Risk transfer. It aims to move the impact of the risk to a different environment. This is complex and should only be used if the risk can be fully measured, addressed and mitigated by the environment it is transferred to (an example could be to transfer risk to a State with better health care capacity).