Resuming non-essential international travel in the context of the COVID-19 pandemic – Advice on the use of COVID-19-related testing

5 October 2020

Summary: This document was developed by the Pan American Sanitary Bureau in compliance with Resolution *"COVID-19 pandemic in the region of the Americas"*, adopted by the 58th PAHO Directing Council, 2020.

The document summarizes considerations for the decision-making process for resuming non-essential international travel in the context of the COVID-19 pandemic and key actions for accepting and mitigating the risk of SARS-CoV-2 virus international spread which cannot be eliminated. It expands on the potential use of COVID-19-related testing, highlighting primary biological, technical, and epidemiological challenges; as well as secondary constraints of a legal, operational, and resources-related nature.

Key recommended actions

- Individuals under isolation, quarantine, and community-wide movement restrictions (e.g. lockdown) should not be allowed to undertake international travel;
- Sick individuals should be discouraged from undertaking any international travel, and health care-seeking behaviour should be promoted;
- Countries/cities from which authorizing direct incoming international traffic can be dynamically selected as a tool to mitigate the risk of SARS-CoV-2 virus importation;
- Mechanisms should be in place to collect information about arriving travellers' prospective travel plans for the first 14 days of their stay;
- Points of entry should have visual screening, of both outgoing and incoming travellers, for symptoms compatible with COVID-19;
- Mechanisms should be in place to monitor the health status of incoming international travellers for the first 14 days upon arrival at their destination.

Actions NOT recommended

- International travellers should not be regarded and managed as contacts of COVID-19 cases and, hence, not be subjected to quarantine measures in the destination country;
- International travellers should not be regarded and managed as suspect COVID-19 cases and, hence, not be subjected to sampling and isolation in the destination country;

Interventions which might generate a false sense of security – body temperature screening, completion by the traveller of forms/declarations focused on symptoms, COVID-19-related testing – are not warranted.

- Conducting or requiring COVID-19-related testing of prospective or incoming international travellers as a tool to mitigate the risk of international spread is not supported by current available testing technology and test performance.

1. Mandate

This document was developed by the Pan American Sanitary Bureau, in collaboration with the Secretariat of the World Health Organization (WHO) and pursuant to the provisions of the International Health Regulations (IHR) *(1)*, thus complying with Resolution *"COVID-19 pandemic in the region of the Americas"*, [1,2] adopted by the Directing Council of the Pan American Health Organization (PAHO) in its 58th Session, 28-29 September 2020.

2. Objective

This document is intended to inform the decision-making process of national authorities in relation to resuming non-essential international traffic. While it summarizes and complements the WHO document *"Public health considerations while resuming international travel" (2)*, and the PAHO document *"Considerations for resuming non-essential international traffic in the Caribbean in the context of the COVID-19 pandemic" (3)*, it expands on the potential use of COVID-19-related testing. This document is based on available evidence at the time of the writing – and it will be updated as new evidence emerges –, and it is tailored to countries and territories in the Region of the Americas, taking into consideration the overall status of their current capacities, as well as the rational and sustainable use of resources in those contexts.

3. Introduction

In response to the COVID-19 pandemic, authorities in some countries and transport sector stakeholders are considering the implementation of, or are already implementing, COVID-19-related testing of international travelers prior to travel, at points of entry (PoE), and after travel. However, there are limitations that must be critically assessed as part of the decision-making process regarding the potential introduction of requirements for COVID-19-related testing for prospective or incoming international travelers in the context of the overall national and sub-national COVID-19 response strategies.

At present, the risk of SARS-CoV-2 virus spread is inherent to international travel. Although it cannot be eliminated, this risk can be mitigated if accepted. In relation to essential international travel (e.g. crews' mobility and crew changes to maintain the global supply chain; repatriations; personnel on duty for national security or essential services purposes), such risk is managed according to controlled procedures,

[1] Resolution *"COVID-19 pandemic in the region of the Americas"* was adopted by the 58th PAHO Directing Council on 29 September 2020. At the time of this writing the text of the adopted Resolution was not available on the PAHO Governing Bodies webpage at: https://www.paho.org/en/governing-bodies/directing-council/58th-directing-council. While it will be accessible shortly through that link, it can be obtained by emailing governing.bodies@paho.org.

[2] *"The 58th Directing Council* […] *resolves* […] *to request the Director to:* […] *provide support to Member States, in the framework of the IHR and in coordination with the World Health Organization, through the development and Publication of regional guidelines and recommendations on the management of international travelers, especially the effectiveness of traveler screening tools, among others, in order to allow Member States to undertake the corresponding risk management activities."*

applied to a relatively limited number of individuals, under the oversight of national authorities of one or more countries.

However, it is understood that the need to reactivate economies may result in national authorities deciding to resume non-essential international travel (e.g. tourism, business). This decision entails restoring consumer confidence, as well as the fluid mobility of large numbers of individuals, all while mitigating the risk of international spread – exportation and importation of cases of SARS-CoV-2 infection.

4. Risk mitigation approach

The risk mitigation approach recommended by PAHO for resuming non-essential international travel revolves around the following ten elements:

- Countries' capacity to prevent individuals under isolation, quarantine, and community-wide movement restrictions (e.g. lockdown) to undertake international travel *(4)*. This encompasses the capacity to exchange information between health and migration authorities.

  Hence,

  - The **prevalence** of SARS-CoV-2 virus infection **among international travellers** is expected to be **lower** with respect to that of the general population in their location at origin;
  - **International travellers** should **not** be regarded and managed as **contacts** of COVID-19 cases in the country of destination, **and should not** be subjected to **quarantine** measures upon arrival;
  - **International travellers** should **not** be regarded and managed as **suspect COVID-19 cases** in the country at destination, **and should not** be subjected to **sampling and isolation** measures upon arrival.

- Mechanisms should be in place to monitor the health status of incoming international travellers for 14 days after arrival, or until they depart the country. Such mechanisms should ideally be based on the collection of information prior to departure, possibly online, allowing for the location of incoming international travellers for the duration of their stay at destination.[3]

- Capacity of the public health and health services capacity to manage imported cases and, possibly, subsequent chains of local transmission *(4)*.

- Countries' capacity to selectively and dynamically determine from which countries/cities authorizing direct incoming traffic, based on the epidemiological situation experienced at origin *(3)*.

[3] These include, and are not limited to: self-health monitoring *(2)* and reporting of symptoms compatible with SARS-CoV-2 virus infection to health authorities; self-health monitoring, with daily measurement of body temperature, and daily reporting on health status to health authorities; daily proactive contact by hospitality operators and further reporting to health authorities; daily visits by hospitality operators and further reporting to health authorities; daily proactive contact by health authorities to the travelers; daily visits by health authorities to the traveler. Telephone and other digital applications should be considered for making the health monitoring process more agile.

- Availability of protocols to manage potential COVID-19-related events occurring on conveyances or at points of entry (PoE). These include the visual screening of travellers for symptoms compatible with COVID-19.
- Capacities to maintain a fluid flow of travellers and workers within PoE premises.
- Countries' capacity to communicate to different audiences, including the general public; incoming and outgoing travellers; operators of the transport and hospitality sectors; the diplomatic network; the health authorities' network, locally and internationally. Discouraging sick individuals from undertaking any international travel and promoting health care-seeking behaviour are critical components of risk communication.
- Adherence by the individual traveller to personal protective and hygiene measures, and respect of physical distance. Notwithstanding the limited number of documented instances of in-flight SARS-CoV-2 virus transmission, the use of medical surgical masks by crew members and passengers is recommended throughout the duration of the flight, as well as at PoE. The rationale for this recommendation is the:
    - Universal control of the potential source of infection;
    - Easier monitoring of compliance and proper use of medical surgical masks;
    - Low cost and market accessibility of medical surgical masks.
- Capacity of national authorities and operators of the transport sector to maintain safe environmental conditions, which are also conducive for adherence to personal protective and hygiene measures, and respect of physical distance.
- Avoiding the adoption and implementation of international travel-related interventions which might generate a false sense of security, such as: body temperature screening *(2)*; completion by the traveller of forms/declarations focused on symptoms; and COVID-19-related testing.

5. Use of COVID-19-related testing

Overall, the reliability and usefulness of COVID-19-related testing depends on many factors, including prevalence of the SARS-CoV-2 virus infection in the population being tested, assay type and performance, as well as specimen type, quality, and timing of sample collection after exposure to the SARS-CoV-2 virus. After infection by the SARS-CoV-2 virus, the mean time before the onset of symptoms– the incubation period – is 5-6 days (range 1-14 days), while the virus becomes detectable in the upper respiratory tract 1-3 days before symptoms onset *(5)*. Thus, an international traveller may be in the initial phases of the incubation period without having detectable amounts of the virus at the time of sampling. Additionally, an international traveller may become infected during the period between sampling and departure, while on their journey, or post-arrival. Therefore, results suggestive of absence of SARS-CoV-2 virus infection on samples obtained prior to departure do not guarantee international travellers are free from infection. Such negative testing results may generate a false sense of security both for the individual international traveller and national authorities at destination, and ultimately lead to less diligent adherence to hand and respiratory hygiene, physical distancing, and use of personal protective equipment (PPE).

National testing capacities, including laboratory supplies, trained personnel, and PPE should also be carefully considered when deciding on whether testing of healthy prospective or incoming travellers could constitute a priority within the overall national response strategy. Many countries face situations where there are not enough resources to test individuals who should be prioritized due to their exhibiting of illnesses compatible with COVID-19. In this context, travellers are not regarded as a priority. Investing resources to test prospective or incoming travellers might significantly divert the country's testing capacity from focusing on high risk settings or high risks groups, which would have a higher public health impact *(5)*.

At this juncture of the pandemic, **conducting COVID-19-related testing of prospective or incoming international travellers as a tool to mitigate the risk of international spread is not supported by the current available testing technology and test performance, considering biological and epidemiological challenges, as well as legal, operational, and resources-related constraints**, as outlined below.

The aforedescribed potential testing-based screening of international travellers should not be confused with the testing of travellers with illness compatible with COVID-19, which should be conducted as outlined in the WHO publication *"Public health considerations while resuming international travel" (2)*.

5.a. SARS-CoV-2 virus-related laboratory testing methods

Nucleic Acid Amplification Test (NAAT), such as real-time reverse transcription polymerase chain reaction (rRT-PCR), is the recommended assay for confirmation of SARS-CoV-2 virus infection in line with PAHO and WHO guidance on testing for COVID-19 *(6, 7)*.

- Many molecular tests for SARS-CoV-2 virus are well-characterized and have high sensitivities and specificities. This means that the risk of false negative and false positive results is low. However, the infrastructure and biosafety requirements for molecular testing in a laboratory are stringent *(6, 7)*. Some NAAT systems have the capacity for fully automated testing that integrates sample processing with the capacity for RNA extraction, amplification, and reporting. They can be performed near patients, but their performance is under evaluation, and validation data of some of these assays are not yet available *(6, 7)*. Further, they generally have a low sample throughput and, therefore, they are not practical for screening large numbers of passengers as they risk generating crowding and disrupting physical distancing if used at PoE.
- A prospective international traveller with a negative rRT-PCR test result on sample/s obtained 2-5 days prior to departure, which is the time window currently requested by some countries, may get infected with SARS-CoV-2 virus, but with viral loads below the limit of detection of the assay. Similarly, he/she may get infected prior to departure or during the international travel. For the same reasons elaborated upon above, a negative rRT-PCR test result on sample/s obtained from an international traveller upon arrival, does not rule out that the individual is infected with SARS-CoV-2 virus and incubating the disease. Therefore, this type of testing could lead to a false sense of security and missed opportunities to implement other control measures.

- Finally, in some COVID-19 cases, viral RNA can be detected by rRT-PCR for weeks, possibly months, after clinical recovery *(8)*. Most of these patients are not considered infectious and other criteria are used to infer their infectiousness *(8)*. Thus, if rRT-PCR testing was used to allow an individual to undertake an international voyage, a positive test result obtained under those circumstance might unnecessarily prevent an individual from traveling.

Antigen-detecting test might be conducted by either laboratory-based tests (e.g., ELISA) or rapid diagnostic tests (RDT), and have the potential to expedite and simplify the detection of SARS-CoV-2 virus infection. WHO has published interim guidance on antigen-detection in the diagnosis of SARS-CoV-2 virus infection, focusing on the use of rapid immunoassays *(9)*. Antigen-detecting tests have a lower sensitivity when compared to NAATs, and as for NAATs, are unlikely to perform well with samples collected early in the incubation phase *(9)*.

Additional considerations regarding the use of NAATs and antigen-detecting RDTs

- Considering that COVID-19 cases and their contacts should be prevented from travelling, the prevalence of SARS-CoV-2 virus infection amongst travellers is expected to be lower than that of the general population at their location at origin. Therefore, both NAATs and antigen-detecting RDTs with high specificity would have a poor positive predictive value;[4] hence, a high number of false positives would be expected. As such, PAHO does not currently recommend the use of either of these types of tests prior to departure or upon arrival at PoE.
- Pooling specimens could be considered for population groups with low/very low expected prevalence of SARS-CoV-2 virus infection *(6, 7)*. However, this could result in increased turnaround times as individual samples of pools that tested positive would each need to be re-tested individually. Also, samples containing low viral load might be diluted, thus leading to false negative results.
- The use of alternative strategies for sample collection (e.g., saliva instead of the currently recommended nasopharyngeal swab) and genetic material extraction (e.g., heat treatment of samples) might be perceived as appealing options. However, these do not address the biological and epidemiological limitations mentioned above.

IgM/IgG/IgA antibody detection or serological tests, including ELISA, immunofluorescence assay or RDTs, are also available for COVID-19-related diagnostics. Regardless of the platform, they are not considered a diagnostic test for current SARS-CoV-2 virus infection. A positive serological test result only indicates previous infection, which, according to the current available evidence, neither excludes an

[4] As an example, when using an antigen-detection RDT with 80% sensitivity and 98% specificity in a given population where the prevalence of SARS-CoV-2 infection is 1/1000, the positive predictive value (proportion of travelers with a positive test who are truly infected) is only 4%. The same calculation with a NAAT with 99.9% sensitivity and 99.9% specificity results in a positive predictive value of 50%.

ongoing infection (thus, a transmission risk) nor the possibility of reinfection with SARS-CoV-2 virus. Some countries have proposed the use of antibody testing to certify an individual's serological status, referred to as an "immunity passport", which has been addressed by WHO in a technical brief. The use of "immunity passports" for international travel in the context of the COVID-19 pandemic is not currently supported by scientific evidence and therefore not recommended by WHO *(6, 10)*.

5.b. Additional challenges of COVID-19-related testing

In addition to the primary limitations of the use of SARS-CoV-2 virus related laboratory testing as a tool to mitigate the risk of international virus spread (pertaining to the natural history and epidemiology of the infection and to the laboratory assay's characteristics), secondary challenges are of a legal, operational, and resources management nature. Ultimately, such constraints are likely to deter individual travelers from undertaking a non-essential international voyage; may generate false sense of security; and, therefore, hinder the reactivation of the economy.

With respect to **challenges of legal nature**, pursuant to Articles 35 and 36; and Annexes 6 and 7 of the IHR, the International Certificate of Vaccination or Prophylaxis (ICVP) with proof of vaccination against yellow fever is the only *health document* that can be required in international traffic. However, travelers can be requested to complete contact information forms and questionnaires on their health, provided that these are consistent with Article 23. Therefore, requiring a documental proof of laboratory testing results in international traffic would contravene IHR provisions. Additionally, under the current COVID-19 pandemic circumstances, imposing the burden of performing laboratory testing on the country of origin might be regarded as interfering with the country's sovereignty in responding to the pandemic and in prioritizing the use of its laboratory resources. It is worthwhile recalling that the ICVP, with proof of vaccination against yellow fever, despite being strictly regulated by the IHR (e.g. *"*[ICVP] *shall be fully completed in English or in French"*; *"the yellow fever vaccine used must be approved by the Organization"*; *"States Parties shall designate specific yellow fever vaccination centres* […]*"*), is subject to a substantial volume of falsifications, and it is associated with corruption and black-market transactions. It is worthwhile recalling that, pursuant to Article 40 of the IHR, *"no charge shall be made by a State Party* […] *for* […] *measures for the protection of public health"*. An additional challenge is related to the liability of conveyances and PoE operators who might be involved at any given step of the sampling, testing, and checking of the document presenting the results of laboratory testing.

Notwithstanding the aforementioned limitations, the potential implementation of such requirements would pose substantial unwarranted **operational challenges** at multiple levels. Of concerns are those pertaining, but not limited, to:

- Communication of international traffic-related requirements to different audiences.
- Sampling and, in some cases, testing related to SARS-CoV-2 virus within PoE's premises, which also requires adequate biosafety and biosecurity conditions.

- Crowding, and hence potential increased risk of exposure to SARS-CoV-2 virus, that can be generated at PoE in relation to sampling, testing, checking documentation, and communication of testing results, and which can cause stress to travellers.
- Verification of the veracity of the documented testing results obtained in a different jurisdiction.
- Discrepancies between testing results obtained in the country at origin and those obtained at destination if serial testing is conducted.
- Logistical and financial implications for international travellers who, based on laboratory results, are either prevented from travelling (e.g. reimbursement of airline ticket, unplanned accommodation costs, medical costs), or incur in health care-related expenses.

These circumstances are of concern considering the proportion of false positive results expected among travellers.

The complexity of the multifaceted response to the COVID-19 pandemic has posed unprecedented challenges to national authorities – on one hand, the need to respond to periods of high intensity community transmission, and, on the other hand, a market failure related to diagnostic tools and other laboratory supplies. Those factors have imposed the development of testing strategies to allow for the most cost-effective and sustainable use of **resources** available, entailing *(5)*:

- The definition of target and eligible individuals/settings – generally not contemplating individuals planning to undertake an international voyage. Therefore, the potential introduction of testing for prospective or incoming international travellers might divert human resources and supplies from priority groups and settings. Additionally, it is worthwhile to note that potential serial testing in international travellers could divert diagnostic tools and other laboratory supplies from priority groups and settings;
- The authorization of laboratory facilities to perform SARS-CoV-2 virus related tests;
- The identification of resources and mechanisms to cover the cost of tests performed.

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