Evidence to recommendations: Methods used for assessing health equity and human rights considerations in COVID-19 and aviation

Interim guidance

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World Health Organization

Introduction

The ongoing and substantial impact of the COVID-19 pandemic on international travel and trade, particularly in the aviation sector, prompted key stakeholders – including World Health Organization (WHO) Member States, the general public, the aviation industry and its affiliates – to request guidance from WHO to manage the safe and effective recovery of air travel. Thus, in October 2020, the work of the Guideline Development Group (GDG) for WHO International Travel and Health *(1)* was pivoted to synthesize primary evidence on the efficacy, safety and harms of specific public health interventions for the mitigation of SARS-CoV-2 transmission before, during and after air travel. The GDG is a group of experts selected in their personal capacity, following rules and protocols laid out in the WHO *Handbook for guideline development (2)*, which ensures their independence and impartiality in the performance of systematic reviews and development of guidance. The scope of the GDG is international travel and health, including all aspects of public health measures at points of entry[1] as well as risk mitigation strategies for travel-acquired infectious and non-infectious diseases, including primary and secondary preventive and therapeutic interventions.

With the support of systematic review teams and methodologists, the current objective of the GDG is to translate knowledge syntheses for nine specific questions into guidance documents for stakeholders that will meaningfully address the broad range of critical decisional factors enveloping the complex intersection of COVID-19 and aviation. Given the novel dramatic nature and sometimes inconvenient duration of public health mitigation measures for SARS-CoV-2, coupled with the emerging data on differential experience of COVID-19 across demographies, health equity and human rights considerations factor heavily into decisional pathways. The impact of COVID-19 vaccine availability on health equity and human rights as it relates to aviation will be addressed in updated guidance documents as the situation evolves.

The purpose of this evidence to recommendations document is to illuminate the process by which the International Travel and Health GDG will assess representation and reporting of health equity and human rights factors in the primary literature ultimately included in each of nine systematic reviews of the efficacy, safety and harms of COVID-19 public health interventions as they relate to aviation.

Related WHO recommendations

Several WHO publications address the incorporation of health equity and human rights factors into surveillance programmes, data monitoring, implementation activities and decisional processes. The WHO *Handbook on health inequality monitoring*, published in 2013, outlines the key health equity factors by which programmatic data, particularly those generated in low- and middle-income countries, should be measured, reported and assessed *(3)*. Those factors, listed according to the acronym PROGRESS, include place of residence; race or ethnicity; occupation; gender and sex; religion; education; socioeconomic status; and social capital or resources. While PROGRESS captures the most frequently addressed equity stratifiers, it is not by nature exhaustive and allows for context-specific expansion of the acronym to include many other factors of relevance (for example, sexual orientation, marital status or gestational status). Both age and disability – while not explicitly addressed by PROGRESS – are captured in the Cochrane PROGRESS-Plus equity framework *(4)*. The overarching goal of incorporating these factors in decision-making is to ensure that WHO recommendations and actions improve health equity and reduce disparities. On the other hand, the WHO INTEGRATE framework,[2] developed for the evidence to decision process, is intended to elucidate how existing health interventions might drive outcome disparities, inequity and human rights infringements *(5)*. The INTEGRATE framework provides "a structured approach

[1] Under the International Health Regulations (IHR) 2005, the term "point of entry" includes international points of entry and exit, for example international airports, seaports and ground crossings.

[2] WHO-INTEGRATE is an evidence to decision framework encompassing seven key criteria to be systematically considered, discussed and addressed during the process of guideline development for health interventions.

for guideline panels or other decision-making bodies to consider the available evidence and to make informed judgements about the advantages and drawbacks of a given health decision" *(5)*.

The first publication of the International Travel and Health GDG – *Evidence to recommendations: COVID-19 mitigation in the aviation sector* – describes the high-level methodological approaches underpinning the work of the GDG, and also presents an analytic framework to map pathways from public health interventions to a broad range of outcomes and considerations that will inform interim guidance and recommendations *(6)*.

However, there is presently little specific WHO guidance describing the process by which to enumerate and synthesize health equity and human rights considerations in primary evidence of public health mitigation measures for SARS-CoV-2 transmission as it relates to aviation.

Methods

WHO is presently conducting systematic reviews of the scientific literature and grey literature on the effectiveness, safety and potential harms of various public health mitigation measures for SARS-CoV-2 transmission implemented before, during and after air travel, including at points of entry. The resulting knowledge products will be published as a series of scientific briefs or interim guidance documents, each of which will be attached to one of the aforementioned nine key questions within the scope of the International Travel and Health GDG *(6)*. The reviews are being conducted by teams of experts in knowledge synthesis, supported by three methodologists.

An analytic framework capturing the high-level outcomes, impacts and considerations of the work of the GDG is highlighted in the first publication of the GDG *(6)*. The analytic framework developed for the GDG scope of work captures many elements highlighted in the work of Glover and colleagues, which provides a new conceptual framework for specifically identifying equity harms associated with COVID-19-related interventions *(7)*.

For the purpose of specifically identifying gaps in our understanding of health equity and human rights considerations as they relate to public health mitigation measures for COVID-19 and aviation, the GDG will review each study or report ultimately included in each of nine systematic reviews. Primary data included in systematic reviews will be examined by the GDG for reporting according to the key PROGRESS health equity stratifiers outlined in the *Handbook on health inequality monitoring*, as described above *(3)*. In addition to the PROGRESS factors, the GDG has identified the following health equity and human rights stratifiers – represented by the acronym CANDALS – as being of particular relevance to COVID-19 and aviation: citizenship; ability; neurotypicality or neurodiversity; disability; age; literacy and/or fluency in a universal language of aviation; and size, body mass index (BMI) or body habitus. Other factors of potential relevance but not specifically addressed by PROGRESS-CANDALS at this stage will be captured in a narrative manner as sources of primary evidence are reviewed, and then incorporated into subsequent iterations of PROGRESS-CANDALS.

The PROGRESS-CANDALS factors will be evaluated both individually and in aggregate across included studies for each systematic review. This process will be documented using templates developed and piloted by the GDG to determine the presence or absence of PROGRESS-CANDALS factors in each included study, and to summarize the represented stratifiers in a narrative manner. Templates 1 and 2 enable categorical assessment of the PROGRESS-CANDALS factors as a group and by which outcomes, including efficacy, harms, and other decisional factors such as feasibility and acceptability, might be stratified.

Where possible, data will be synthesized and graphically represented in the templates above according to the PROGRESS-CANDALS factors. Completion of the templates for health equity and human rights considerations represented in each systematic review will enable the GDG to, in both a narrative and visual manner, illuminate gaps in relevant data accrual, reporting and synthesis. It will also enable the GDG to identify other emergent health equity and human rights-oriented themes and factors that will inform subsequent iteration of PROGRESS-CANDALS. The GDG's process will therefore enhance the ability of stakeholders to optimally contextualize available scientific evidence on efficacy, safety and harms of public health mitigation measures for COVID-19 and aviation.

With recognition that health equity outcomes will reflect the differential application of public health interventions for risk mitigation of SARS-CoV-2 transmission and air travel, the GDG will adhere to INTEGRATE for all evidence to decision processes. For systematic reviews employing the GRADE [3] approach to methodological quality assessment, the GDG's application of INTEGRATE may also be informed by the GRADE equity evidence to decision framework. Adherence to INTEGRATE will facilitate systematic consideration of evidence to decision factors and outcomes, with the aim of synthesizing such factors quantitatively, qualitatively or in narrative format.

[3] Grading Recommendations Assessment and Development Evidence.

Template 1 for assessing reporting and data stratification by health equity and human rights considerations in studies of public health measures related to COVID-19 and aviation

Instructions: complete Template 1 for *each individual study*.

HE/HR reporting in primary data sources	Any* mention (Y/N)	P (Y/N)	R (Y/N)	O (Y/N)	G (Y/N)	R (Y/N)	E (Y/N)	S (Y/N)	S (Y/N)	C (Y/N)	AND (Y/N)	A (Y/N)	L (Y/N)	S (Y/N)
Reported at all														
Data stratification: main outcomes														
Data stratification: harms														
Data stratification: feasibility														
Data stratification: acceptability														
Reported by traveller experience														
Explicit reporting of HR infringement														

Abbreviations: HE = health equity; HR = human rights; Y = yes; N = no.

* of any PROGRESS-Plus factor. PROGRESS-CANDALS: place of residence; race/ethnicity; occupation; gender/sex; religion; education; socioeconomic status; social capital; citizenship; ability, neurotypicality or neurodiversity, disability; age; literacy/fluency in universal language; size/BMI/body habitus.

To be used if the answer to a question in Template 1 was Yes/Reported

HE/HR reporting in primary data sources	Narrative synthesis of the impact of PROGRESS-CANDALS and other relevant factors on outcomes reported in each study Citation: first author, title, journal, year, volume, pages

Template 2a for assessing reporting and data stratification by health equity and human rights considerations in studies of public health measures related to COVID-19 and aviation

Instructions: complete Template 2a for the included primary sources of data *in aggregate*.

N = total included studies or primary sources of data.

HE/HR reporting in primary data sources	Any* mention (n/N)	P (n/N)	R (n/N)	O (n/N)	G (n/N)	R (n/N)	E (n/N)	S (n/N)	S (n/N)	C (n/N)	AND (n/N)	A (n/N)	L (n/N)	S (n/N)
Reported at all														
Data stratification: main outcomes														
Data stratification: harms														
Data stratification: feasibility														
Data stratification: acceptability														
Reported by traveller experience														
Explicit reporting of HR infringement														

Abbreviations: HE = health equity; HR = human rights; n = number of studies with factor addressed; N = total number of studies.

* of any PROGRESS-Plus factor. PROGRESS-CANDALS: place of residence; race/ethnicity; occupation; gender/sex; religion; education; socioeconomic status; social capital; citizenship; ability, neurotypicality or neurodiversity, disability; age; literacy/fluency in universal language; size/BMI/body habitus.

To be used for aggregate synthesis of reported stratifiers from Template 2a

HE/HR reporting in primary data sources	Narrative synthesis of the impact of PROGRESS-CANDALS and other relevant factors on outcomes reported in aggregate (across studies) Citation: first author, title, journal, year, volume, pages

Template 2b for assessing reporting and data stratification by health equity and human rights considerations in studies of public health measures related to COVID-19 and aviation

Instructions: complete Template 2b for the included primary sources of data *as a study line list*.

Sample graphical representation of reported factors across individual studies.

HE/HR reporting in primary data sources	**Any* mention**	**P**	**R**	**O**	**G**	**R**	**E**	**S**	**S**	**C**	**AND**	**A**	**L**	**S**
Study 1														
Study 2														
Study 3														
Study 4														
Study 5														
Study 6														
Study 7														

Abbreviations: HE = health equity; HR = human rights.

* of any PROGRESS-Plus factor. PROGRESS-CANDALS: place of residence; race/ethnicity; occupation; gender/sex; religion; education; socioeconomic status; social capital; citizenship; ability, neurotypicality or neurodiversity, disability; age; literacy/fluency in universal language; size/BMI/body habitus.

Legend for reporting of PROGRESS-CANDALS:

Present	Absent	Unknown

Additionally, primary studies included in each systematic review will be critically examined for health equity and human rights themes that emerge. Thematic analyses will be presented both at the individual study level and in aggregate according to Templates 3 and 4, which were also developed and piloted by the GDG in an iterative manner.

Template 3 for assessing themes of health equity and human rights considerations in studies of public health measures related to COVID-19 and aviation

Instructions: complete Template 3 for *each individual study*.

HE/HR themes in primary data sources	**Reported (Y/N)**	**Narrative synthesis of themes reported** **Citation: first author, title, journal, year, volume, pages**
Economic factors or implications		
Parental separation from children during isolation or quarantine		
Violation of privacy protection and information governance, or differential experience of treatment of personal data pursuant to Article 45 of IHR (2005) *(8)*		
Differential experience of detention, exclusion, or entry denial		
Freedom of religious expression		
Differential experience of specific PHI harms (e.g. mask-related subjective dyspnoea, epistaxis/NP trauma, exacerbation of cynophobia)		
Differential experience of health measures relating to entry of international travellers as outlined in Articles 31[a] and 42 of IHR (2005)		
Differential experience of treatment of international travellers as outlined in Article 32[b] of IHR (2005)		
Other theme:		
Other theme:		

Abbreviations: HE = health equity; HR = human rights; IHR = International Health Regulations; PHI = public health intervention; NP = nasopharyngeal; Y = yes; N = no.

a. For example, invasive medical examination, vaccination, or other prophylaxis as a condition of entry of any international traveller to the territory of a State party.

b. For example, provision of adequate meals, accommodation and clothing, protection for baggage and other possessions, appropriate medical treatment, means of necessary communication if possible in a language understood by the international traveller.

Template 4 for assessing themes of health equity and human rights considerations in studies of public health measures related to COVID-19 and aviation

Instructions: complete Template 4 for the included primary sources of data *in aggregate*.

N = total included studies or primary sources of data.

HE/HR themes in primary data sources	Reported (n/N)	Narrative synthesis of themes reported in aggregate
Economic factors or implications		
Parental separation from children during isolation or quarantine		
Violation of privacy protection and information governance, or differential experience of treatment of personal data pursuant to Article 45 of IHR (2005) *(8)*		
Differential experience of detention, exclusion, or entry denial		
Freedom of religious expression		
Differential experience of specific PHI harms (e.g. mask-related subjective dyspnoea, epistaxis/NP trauma, exacerbation of cynophobia)		
Differential experience of health measures relating to entry of international travellers as outlined in Articles 31[a] and 42 of IHR (2005)		
Differential experience of treatment of international travellers as outlined in Article 32[b] of IHR (2005)		
Other theme:		
Other theme:		

Abbreviations: HE = health equity; HR = human rights; IHR = International Health Regulations; PHI = public health intervention; NP = nasopharyngeal; n = number of studies with factor addressed; N = total number of studies.

a. For example, invasive medical examination, vaccination, or other prophylaxis as a condition of entry of any international traveller to the territory of a State party.

b. For example, provision of adequate meals, accommodation and clothing, protection for baggage and other possessions, appropriate medical treatment, means of necessary communication if possible, in a language understood by the international traveller.

Review of the evidence

Given the recent emergence of SARS-CoV-2, many of the data reported thus far on-air travel acquisition of COVID-19 exist in the form of smaller observational studies, such as retrospectively reported case series and small cohorts, which have not been designed to rigorously interrogate critical decisional factors such as health equity and human rights. Further, many of the studies directly related to SARS-CoV-2 and COVID-19 are based on mathematical modelling, data from which have yet to be validated, and typically do not methodologically address factors crucial to the process of evidence to decision. A major issue related to health equity and human rights in COVID-19 and aviation is the rapid evolution of knowledge, tools and processes that could theoretically confer beneficial impacts that will almost certainly be experienced in a differential manner. An example of such a phenomenon is the existence of rapid, point-of-care diagnostics for detection of antibodies against SARS-CoV-2, which, coupled with the recent and imminent licensure of several SARS-CoV-2 vaccines, have prompted aviation stakeholders to propose the use of "immunity passports" to open sectoral economies. WHO currently does not recommend the use of antibody-based "immunity" documents, stating: "At this point in the pandemic, there is not enough evidence about the effectiveness of antibody-mediated immunity to guarantee the accuracy of an 'immunity passport' or 'risk-free certificate'" *(10)*. Such antibody-based immunity passports should be differentiated from e-vaccination certificates, which would corroborate immunization status *(11)*. These factors collectively affect the translation of knowledge syntheses into recommendations that take account of health equity and human rights considerations and highlight the need for the scope of work undertaken by the International Travel and Health GDG and described herein.

Limitations

Anticipated broad limitations of the work of the GDG include a lack of high-quality reported interventional trials directly related to COVID-19 and aviation; anticipated low certainty caused by bias, inconsistency, imprecision and indirectness of available published data that are broadly applicable to the topic; and a proliferation of small, anecdotal or case series-level observational data that will be challenging to synthesize rigorously. A dearth of high-quality studies reporting on the specifics of and adherence to in-flight protocols (compared with those followed both before boarding and after disembarkation) is expected. As it pertains to this evidence to recommendations document, a major limitation will be the anticipated absence of reported health equity and human rights stratifiers across all literature and data sources as they relate to COVID-19 and aviation. Moreover, it is uncertain whether the degree to which PROGRESS-CANDALS represents disadvantage is similar or different to that in a non-aviation context.

Knowledge gaps

Much of the systematically synthesized literature pertaining to transmission of coronaviruses in the context of aviation is directly related to or extrapolated from studies of severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and other viral pathogens. Synthesized direct high-quality evidence is lacking. A considerable knowledge gap remains regarding the likelihood that high-quality scientific data will be reported or stratified by the PROGRESS-CANDALS factors needed to meaningfully address operational efficacy, health equity and human rights considerations in this body of work. Similarly, it is unclear what types of health equity and human rights-oriented themes might emerge in the sources of primary data relating to COVID-19 and aviation. A full literature mapping exercise of typical evidence to decision considerations as they specifically relate to health equity and human rights will be undertaken during the second phase of the GDG work.

Conclusions

This document describes the process that WHO will undertake to assess the reporting of key factors related to health equity and human rights in the primary literature of specific public health interventions as they relate to COVID-19 and aviation. A synthesis of the available scientific and publicly available evidence on the effectiveness, safety and potential harms of various public health mitigation measures for SARS-CoV-2 transmission associated with air travel constitutes the overarching objective of the International Travel and Health GDG. However, evaluating the representation of health equity and human rights considerations in the primary literature on efficacy will enable identification of critical knowledge gaps and improved contextualization of rigorously synthesized outcomes related to efficacy, harms and safety of public health mitigation measures. The proposed methodological approaches to fill such gaps will allow for a future focus on health equity and human rights in guidance on COVID-19 and aviation.

Plans for updating

WHO and the International Travel and Health GDG continue to monitor the situation closely for any changes that may affect this evidence to recommendations guidance. Should any factors change, this brief will be updated accordingly. It is anticipated that vaccine licensure and progressive availability in many jurisdictions will potentially affect the workplan and processes described herein. The landscape of the effects of vaccine availability on all aspects of public health measures for COVID-19 as they relate to aviation, including health equity and human rights, will be fully addressed at the next update.

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WHO continues to monitor the situation closely for any changes that may affect this interim guidance. Should any factors change, WHO will issue a further update. Otherwise, this interim guidance document will expire 2 years after the date of publication.

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