Testing and Safely Reopening Borders

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Grounded: March 2020

- COVID-19 has plunged the aviation industry into its biggest crisis ever.
- In mid-March this year aviation ground to a halt.
- It soon became clear that this pandemic would not allow us to restart quickly on a global scale.
• As the industry’s main trade association, it was clear to us that we need to review the entire travel process and implement new measures and protocols to ensure safe operations during this pandemic.

• And given the nature of the our internationally connected business this ultimately needed to be an industry wide collaboration across the entire travel value chain.

• The groundwork from our side was the multi-layered bio-safety measures for airline operations.

• These ultimately provided the basis for the overall guidance issued by the International Civil Aviation Organization (ICAO) in June.
For those who know this industry well, it is a great achievement that the ICAO’s Council Aviation Recovery Task Force (CART) managed to provide internationally harmonized guidance three months into the crisis.

We are well aware that this was not an easy task.

And as the pandemic continues to spread, the work that CART is doing must be kept going. The virus has not stopped so we cannot stop either.

Two weeks ago, CART published updated guidance which included COVID-19 Testing Public Health Corridors or Travel Bubbles Extending regulatory alleviations till 31 March 2021:

And just last Friday CART published its updated Manual on Testing and Cross Border Risk Management which provides very clear guidance on testing air travelers.
Air Travel Environment is Safe: Risks Mitigated

• Cabin environment limits potential for virus transmission
• Multi-layered biosafety approach further reduces risk

• Data shows that the risk of contracting COVID-19 in the air travel environment is very low.
International travel safer than many other activities

Restricting international air travel does not align with assessment of relative risk compared to other activities which are widely permitted.

Ventilation Air Rate (VAR) is a standard measure for the exchange of air in a given space – office, shopping mall, airplane...

Here’s how an airplane’s Ventilation Air Rate compares:

- Better than a conference room \(x3\)
- Better than a classroom \(x2\)
- Better than a mall or supermarket \(x8\)
- Better than an office space \(x12\)

Comparison based on data from ANSI/ASHRAE Standard 62.1 – Ventilation for Acceptable Indoor Air Quality (2019) and an aircraft operation with the max certificated number of passengers.

What we have learnt over the past months is that all the measures which have been implemented have made air travel safer than many other activities.

Hence we renew our call on governments to support the industry’s request for systematic testing. This can reduce importation risk to very low levels, while allowing travel restrictions to be lifted.
A plan for safely reopening borders

There is an urgent need to reopen borders:
1. Vaccines may not be available until 2nd half of 2021. Waiting for vaccines not an option
2. Air travel environment is very safe: biosafety measures highly effective
3. Quarantine costly to run, a brake on travel. Home isolation ineffective
4. Systematic testing can reduce importation risk to very low levels
5. International travel is safer than other activities which have restarted

In summary, IATA is calling on government to support the industry in opening borders given the fact that:

1. Vaccines may not be available until 2nd half of 2021. Waiting for vaccine not an option -> airlines do not have the cash to survive this long.
2. Air travel environment is very safe: biosafety measures highly effective
3. Quarantines are costly to run, a brake on travel. Home isolation ineffective
4. Systematic testing can reduce importation risk to very low levels
5. International travel is safer than other activities which have restarted

And with that I ask Dr. Powell to provide more details on testing
Risk of In-flight Transmission

Risk of transmission in-flight is shown to be low by:

- Modelling data, computational fluid dynamics
- Case reports as published
- Cabin research (TRANSCOM)

"Travelling now is actually relatively safe. Your chance of being exposed during the travel process is actually relatively low because of all the measures that have been taken."

Dr Mike Ryan, WHO Press Briefing, 30 Oct 2020

This is the full from Dr Mike Ryan at the WHO Press Briefing, 30 October 2020

Therefore it is a trade-off that countries have to make; the risk of a traveller arriving and potentially starting another chain of transmission against the obvious benefit of allowing travel from a social and an economic point of view.

You can add testing and different measures into that. … It is a difficult issue.

What I will say is that the process of travel itself has been significantly de-risked. The travel industry, airlines, airports authorities deserve huge credit.

Travelling now is actually relatively safe. Your chance of being exposed during the travel process is actually relatively low because of all the measures that have been taken.

Risk of importation

Countries are attempting to manage the risk of importation across borders

- Can quarantine be avoided?
- How can testing be used?

"Clearly the use of the tests is certainly now supposed to have a much larger place compared to quarantine…"

Prof Didier Houssin (Chair, WHO COVID-19 Emergency Committee), 30 October 2020

This is the full quote of Prof Didier Houssin, Chair, WHO COVID-19 Emergency Committee, 30 October 2020

“I think it’s very important that WHO produce updated guidance with regard to safe international air travel. Clearly the use of the tests is certainly now supposed to have a much larger place compared to quarantine for example, which would certainly facilitate things considering all the efforts which have been made by airlines and by airports, but of course considering what the country can do on the side of the traveller …”
COVID-19 Testing Considerations

- **Efficacy**
  Encompasses sensitivity/specificity i.e. false negatives and positives

- **Speed (at scale)**
  Major challenge in an airport setting

- **Acceptability/Ease**
  Saliva less invasive, easier logistics

- **Cost**
Accuracy of results: Sensitivity

- 99.5% sensitivity means 0.5% of negatives are false negatives
- False negatives allow someone to travel who is infected. This is a public health concern.
- However, with low prevalence overall, this remains rare.
- Example:
  - Italy at the height of the pandemic had a community prevalence of 4%, and with a rate of 410,000 passengers per day
  - At sensitivity of 99.5%, the test would have failed to detect 80 infected passengers per day
Accuracy of results: Specificity

• 99.6% specificity means 0.4% of positives are false positives (Public Health England-Oxford University study)
• False positives prevent someone from travelling who is actually safe.
• In a low prevalence situation, this means MOST of the positives are FALSE.
  • This means that many will have their travel disrupted, requiring secondary testing and follow-up.
• Example: European Study, high performing test as above
  • 20,000 travelers with 1.5% prevalence
  • 679 positives, including 394 false positives
PCR Tests – the “Gold Standard”

- **Efficacy**
  Excellent sensitivity/specificity

- **Speed (at scale)**
  Hours to days; requires laboratory; major challenge in an airport setting

- **Acceptability/Ease**
  Mostly NP swabs. Saliva less invasive, easier logistics, but not widely adopted

- **Cost**
  Hundreds of dollars typically and availability problems in many places
# Various testing methods

<table>
<thead>
<tr>
<th>Methods</th>
<th>RT-PCR*</th>
<th>RT-LAMP</th>
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<th>Rapid Antigen</th>
<th>Newer – mRNA epigenetic, spectroscopy, mass spec, dog</th>
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<td>Public Health Gold Standard</td>
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<td>Speed at scale</td>
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<td>Cost</td>
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<td>Detection Time</td>
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<td>Early False Negative Rate</td>
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<td>+ Yes ($epigenetic)</td>
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*IATAMediaDays 23 and 25 November 2020*
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When to Test?

On departure (at airport)?
• Risk last minute cancellation for traveler and companions
• Time, space and performance constraints – antigen test

Prior to departure?
• Allows a window of infection beyond the test
• Relies on:
  – Mutual recognition between origin and destination countries
  – Secure protocol for data transfer and fraud-proofing

On arrival?
• Uncertainty
• Risks unexpected isolation for traveler and companions

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Quarantine vs testing: risk-based approach (ICAO)

Assess risk at destination and origin:
- Current new infection rates, per capita;
- Trend in infection rates (decreasing, stable, increasing);
- Effectiveness of overall public health response to COVID-19 – e.g. test positivity rate

Coming from lower to higher prevalence:
- No rationale for quarantine (traveler presents lower risk than community)
- Testing may not be required

Similar risk:
- Risk similar, but if add a negative test, risk lower than either community

Coming from higher risk:
- Can quarantine be avoided or reduced by strategic testing?

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Summary

Controlling importation risk is challenging, but:

• A risk-based approach could avoid quarantine in many cases
• Testing can facilitate this
• Testing technologies are developing rapidly
• Testing is already in place in many countries

There are important implementation challenges eg fraud-proofing
Systematic testing can mitigate importation risk

Benefits of pre-departure testing:
• COVID Clean travel environment
• Detect asymptomatic cases
• Mitigate importation risk

Case Study:
Air Canada / Toronto Pearson Trial
• 20,000 tests carried out
• 99% tested negative
• Of <1% positive tests:
  • 70% on day of travel
  • 30% on day 7
  • < 1% on day 14

Thank you David, so in summary, through systematic testing, the following can be achieved:

• COVID Clean travel environment
• Detect asymptomatic cases
• Mitigate importation risk

• Just citing one example from one of the testing studies being done in Toronto:

20,000 tests carried out
99% tested negative
Of <1% positive tests:

of those:
70% on day of travel
30% on day 7
less than 1% positive results on day 14
Compare risk vs benefits & relative in-country risk

Risk assessment is a comparative exercise.

- WHO clear that zero-risk is not credible:
  - “Economies have to open up, people have to work, trade has to resume. So how do we reopen...in a way in which we minimise the risks associated with that....?”
  - It is a trade-off that countries have to make; the risk of a traveller arriving and potentially starting another chain of transmission against the obvious benefit of allowing travel from a social and an economic point of view”

  - Dr Mike Ryan, WHO

International travel is safe. It should not be subject to measures that are more restrictive than those applied in the domestic economy

The economic benefits of restart are relevant

87.7 million Jobs supported by air transport under normal circumstances.
41.7 million Jobs supported by aviation following Covid-19 impact.

A reduction of 46 million jobs supported (-52.5%).

$3.5 trillion Aviation global economic impact under normal circumstances.
$1.7 trillion Global economic impact following Covid-19.

A reduction of $1.8 trillion in economic activity supported by aviation (-51.5%).

Governments need to consider the economic benefits of reopening borders, especially if the risk of importation will not have an adverse effect on the existing COVID-19 levels in the country.

46 million jobs and an economic contribution of US$ 1.8 trillion are at risk
Use rapid tests as close to travel as practical

- Rapid testing with high accuracy level is appropriate for a screening context, such as international travel. RT-PCR is too slow and expensive.

- Rapid antigen tests are affordable and increasingly being used for screening of asymptomatic populations in the community.

- Testing prior to departure is preferable for passenger confidence. Testing should be as close as possible to departure to make the travel environment ‘COVID Clean’.

- New and even faster technologies are in development. Consider these for use in a travel setting to limit queues and delays

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New Rapid Antigen Tests allow testing to be integrated into the travel experience and be administered as close as possible to the actual departure
Efficiently implement testing capacity

- Evaluate the volume of passengers that must comply with testing requirements
- Ensure that the registration process to access the testing facility has a minimum impact on operations
- Allocate staffing resource efficiently
- Wherever practically possible to allow passengers to leave the testing facility as soon as the sampling is completed
- Monitor process bottlenecks and support improvement plan

In order to implement testing facilities we need to:

- Evaluate passenger volumes
- Implement easy registration process with minimum impact on operations
- Efficiently allocate staffing
- Allow passengers to leave testing facility and transmit test results in an electronic format
- Monitor process bottlenecks and support improvement
Use data from trials to develop and refine protocols

Base policy decisions on real-world data - do not rely only on modelling studies

- Governments, airlines and airports around the world are running dozens of trials and pilots – these represent a valuable learning opportunity

- Where modelling studies are used, they should use the latest real world data to guide input assumptions

Dimensions to consider

- Testing method and operator
- Performance: Accuracy and speed
- Logistics: Location and scalability
- Cost: How much and who pays?
- Standards, Certification and Validation

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- Collecting and evaluating data is essential so we can refine and improve processes.

- This will also allow governments to not only rely on modelling but base their decisions on actual figures.
Governments can reopen borders by:

- Assessing overall impact of multi-layer mitigation measures
- Comparing risks to benefits of reopening
- Using most rapid tests available
- Testing as close to travel as practical
- Using data from trials to develop and refine protocols, not only modelling studies
- Adopting a standardized global approach to health credentials

In summary, IATA calls on governments to open borders by:

- Assessing the overall impact of multi-layer mitigation measures
- Comparing risk to benefits of reopening
- Using most rapid testing technology available
- Testing as close to departure as practical
- Using data from trials to develop and refine protocols, not only on modelling studies
- Adopting a standardized global approach to health credentials – something I will expand upon in the next session
Questions?

Please use the chat feature to submit your questions, we will try to answer as many as possible.