COVID Vaccines & International Air Travel
Outline

• IATA Position

• Vaccine Development:
  – Current status, including most promising candidates
  – Performance: effectiveness, duration of immunity etc.

• Vaccine Roll-out:
  – Profile of production and distribution
  – Geographical coverage
  – Prioritization of certain demographics and professions
  – Vaccine uptake

• Implementation:
  – Impact on reopening of borders
  – Managing a hybrid scenario with both testing and vaccines
  – Standardization and mutual recognition of vaccine certificates
IATA Position on Vaccines and Air Travel

- **Waiting for vaccine before reopening borders not an option**
  - Global vaccine roll-out is likely to take at least 12-24 months.
  - Implementing testing is the bridge solution – critical for industry survival
  - But, any traveler who has been vaccinated should not need to test or quarantine.

- **Governments should remove restrictions as soon as vulnerable groups vaccinated:**
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  - Vaccination should not be a mandatory government requirement for international travel

- **Governments should prioritize aviation for access to vaccines**
  - Recognition of the role of aviation in vaccine distribution
  - Aircrew and other aviation workers – once health workers and vulnerable groups vaccinated

- **Governments and industry need to work together on a blueprint for implementation:**
  - Standardized approach to ensure: i) equivalent treatment of different vaccines and ii) mutual recognition and acceptance of vaccination certificates;
  - Roadmap for managing the implementation period, including i) minimizing complexity during the period where testing and vaccination overlap, ii) managing the removal of testing and other measures;
  - Roadmap for 100% COVID-clean air travel with return to a full passenger experience in 2021.
WHO landscape of candidate vaccines (8 December):

- 48 candidate vaccines in clinical evaluation:
  - Of which 13 in Phase 3 trials (see table)
- 164 candidates in pre-clinical evaluation

3 candidates have announced preliminary results so far:

- **Pfizer/BioNTech**: 95% efficacy
  - Approved for Emergency Use in some markets
- **Moderna**: 94% effectiveness
- **Astra Zeneca**: 70% efficacy

Questions in addition to efficacy:

- Duration of immunity – need for regular re-vaccination?
- Impact on transmission
- Impact on reducing severe cases of COVID-19
- Effectiveness in different sub-populations (e.g. elderly)
- Long-term data on side-effects

### Vaccine Development: Status at December 2020

<table>
<thead>
<tr>
<th>Developer / Manufacturer</th>
<th>Vaccine Platform</th>
<th>Doses</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinovac</td>
<td>Inactivated</td>
<td>2</td>
<td>0, 14 days</td>
</tr>
<tr>
<td>Wuhan Institute / Sinopharm</td>
<td>Inactivated</td>
<td>2</td>
<td>0, 21 days</td>
</tr>
<tr>
<td>Beijing Institute / Sinopharm</td>
<td>Inactivated</td>
<td>2</td>
<td>0, 21 days</td>
</tr>
<tr>
<td>Bharat Biotech</td>
<td>Inactivated</td>
<td>2</td>
<td>0, 28 days</td>
</tr>
<tr>
<td>University of Oxford / Astra Zeneca</td>
<td>Non-Replicating Viral Vector</td>
<td>2</td>
<td>0, 28 days</td>
</tr>
<tr>
<td>CanSino Biological / Beijing Institute</td>
<td>Non-Replicating Viral Vector</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Gamaleya</td>
<td>Non-Replicating Viral Vector</td>
<td>2</td>
<td>0, 21 days</td>
</tr>
<tr>
<td>Janssen</td>
<td>Non-Replicating Viral Vector</td>
<td>1, 2</td>
<td>0, 0, 56 days</td>
</tr>
<tr>
<td>Novavax</td>
<td>Protein Subunit</td>
<td>2</td>
<td>0, 21 days</td>
</tr>
<tr>
<td>Moderna</td>
<td>RNA</td>
<td>2</td>
<td>0, 28 days</td>
</tr>
<tr>
<td>BioNTech / Pfizer</td>
<td>RNA</td>
<td>2</td>
<td>0, 28 days</td>
</tr>
<tr>
<td>Anzhuizhifei Longcom Biopharmaceutical</td>
<td>Protein Subunit</td>
<td>3</td>
<td>0, 28, 56 days</td>
</tr>
<tr>
<td>Medicago</td>
<td>VLP</td>
<td>2</td>
<td>0, 21 days</td>
</tr>
</tbody>
</table>

Source: World Health Organization
Vaccine Roll-out: Production

Global vaccine roll-out likely to take at least 1-2 years

- Astra Zeneca / Oxford, Pfizer/BioNTech and Moderna could deliver 4 billion vaccine doses by end 2021:
  - Sufficient to vaccinate 2 billion people.
- If all candidate vaccines in Phase 3 trials are successful, anticipated production capacity would be 8.4 billion doses by end 2021:
  - Sufficient to vaccinate 50%+ of global population
- Does not take into account any need for ongoing / regular revaccinations

Source: McKinsey
Vaccine Roll-out: Geographic Coverage

Geographic coverage of access to vaccines uneven

- Many countries have signed Advanced Market Commitments (AMCs) to secure access to candidate vaccines
- More than 50% of these pre-purchased doses accounted for by high-income countries:
  - US Project ‘Warp Speed’: 1 billion doses, 6 manufacturers
  - Canada: 10 doses per person
- 600m doses of Pfizer/BioNtech vaccine already purchased
  - 50% of production to end-2021
- Distribution of Pfizer/BioNtech vaccine will be a major challenge – particularly in lower-income countries.
- AstraZeneca/Oxford much easier to distribute

Confirmed orders of COVID vaccine (doses per person)

Major air travel markets are likely to secure early access to limited vaccine doses

Source: The Economist (published 12 November 2020)
Where vaccine supply is limited, governments will need to allocate scarce vaccine doses.

Criteria will be a decision for governments, but WHO has recommended a priority ordering in which healthcare workers, older adults and vulnerable groups will be prioritized.

Transportation workers would have access to vaccination in Stage 3, once 20%+ of the population has been vaccinated. This may reflect recognition of the importance of air transport in distribution of vaccines.

WHO does not recommend prioritizing travelers. Access to vaccination for travel would only be possible once vaccines are widely available.

### WHO Recommendation for Priority Use if supply is limited

<table>
<thead>
<tr>
<th>Supply Level</th>
<th>WHO Recommended Prioritization (Community transmission scenario)</th>
</tr>
</thead>
</table>
| **Stage 1:** Very limited (0-10% of population) | • Health workers at high risk  
• Older adults                                                                                                     |
| **Stage 2:** Limited (11-20% of population) | • Older adults (not covered in Stage 1)  
• High risk groups (comorbidities, vulnerable)  
• Health workers involved in vaccine delivery  
• Teachers and school staff                                                                                       |
| **Stage 3:** Moderate (21-50% of population) | • Essential workers (including transportation)  
• Pregnant women  
• Health workers at low / moderate risk  
• Social / employment groups at elevated risk                                                                 |

Source: World Health Organization

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Vaccine Roll-out: Prioritization / Allocation

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Willingness to get vaccinated is high across most markets, but far from universal

- 73% of survey respondents are willing to get vaccinated,
- In some markets e.g. France, US, Spain antivax sentiment is much greater
- 73% uptake in the population would likely be sufficient for herd immunity to be reached

If a vaccine for COVID-19 were available, I would get it

Base: 18,526 online adults aged 16-74 across 15 countries

Source: Ipsos for World Economic Forum
Implementation: Impact on Reopening of Borders

While Vaccine Supply is limited

Potential scenarios for relaxation of cross-border measures with vaccination:
1. Travelers are required by States to be vaccinated in order to travel;
2. Governments relax restrictions once vulnerable groups have been vaccinated – at this point the impact of the virus on the population and the pressure on the healthcare system will be significantly reduced.

Risk-based approach indicated widespread reopening when vulnerable groups vaccinated

Once vaccine becomes widely available

• Some States may impose vaccination as a condition for international travel
• Supporting mandatory vaccination would be a clear and simple policy vis a vis travelers:
  • COVID Clean flights beneficial for passenger confidence – airline choice or industry commitment?
  • May accelerate return to pre-COVID travel experience
• However, mandatory vaccination could be complex to implement:
  • Will take time to deliver in some markets. Antivax sentiment an issue in other countries
  • Discriminatory against passengers who cannot get vaccinated for medical reasons or availability
  • Legal / ethical concerns.

Travelers to a country should not be subject to stricter conditions than those for residents
Implementation: Standardization / Mutual Recognition

Issues to address

• **Equivalence:** In a likely scenario with multiple vaccines with differing performance characteristics how to ensure they are treated equal for cross-border travel?

• **Mutual recognition:** Need to ensure that both the vaccine and the supporting certificate are genuine and avoid the fraud issues that affect Yellow Fever

Trust

• Vaccination certificates must be robust and trustworthy to give governments confidence to support relaxation of other measures

Roles and responsibilities

• Need for ICAO, WHO and CAPSCA to show leadership

**Need solutions that are simple for passengers to implement and that do not create a burden for airlines**
Possible 4 Phase Vaccine Roll-out scenario

**Phase 1: Very limited vaccinations (<10% of population)**
- Testing as the primary cross-border risk mitigation measure
- *But* any traveler who has been vaccinated should be free from quarantine and testing

**Phase 2: Vulnerable groups vaccinated (~25% of population)**
- Level of COVID infection still high, but impact (risk of serious illness or death) massively reduced
- Border measures and quarantine should be relaxed immediately. Testing need no longer be mandatory
- *But* airlines may choose to retain testing as a passenger confidence measure
- Mandatory vaccination requirement would be a brake on restart / recovery if limited access

**Phase 3: Vaccination widely available**
- States may impose vaccination / antibody testing requirements. But, legal / ethical issues to address

**Phase 4: Steady State**
- Either: herd immunity attained – virus transmission massively reduced
- Or: virus mutates / immunity short-lived – regular re-vaccination required

*NOTE: PACE OF ROLL-OUT WILL VARY SIGNIFICANTLY ACROSS COUNTRIES*
Implementation: Coexistence of testing and vaccines

Given the likely timeline and trajectory for vaccine production and distribution it is likely that testing regimes and vaccination will coexist during the roll-out phase

- Vaccinated and non-vaccinated passengers should be treated as equivalent during the journey:
  - Not practical to operate two sets of parallel processes through the passenger experience
  - But may need separate channels for entry to the airport in a departure testing scenario

- IATA Travel Pass will be critical to managing through the dual testing/vaccination-stage:
  - Navigating complex network of government requirements. Validating exemptions
  - Ensuring that airlines do not have to triage between passengers
  - Providing trust in vaccine certificates to avoid antibody testing being introduced

- Examples of operational issues:
  - Managing an international network with countries at different stages of rollout
  - Enforcement / compliance of masking requirements for vaccinated passengers

Key Challenges in the dual / hybrid scenario – to be solved simultaneously:

1. Minimize operational complexity.
2. Maximize restart of international travel
3. Accelerate return to pre-COVID passenger experience
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