Border Health Strategies to Contain the Spread of COVID-19

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Objectives

- Discuss border health strategies to stop the spread of coronavirus disease 2019 (COVID-19)
- Discuss benefits and limitations of screening at points of entry (POE)
Background on COVID-19
Coronaviruses

Coronaviruses are a family of viruses named after the crown-like outer structure of the virus. They have zoonotic origins and have caused the following recent epidemics:

- **Severe acute respiratory syndrome (SARS)**
  - 2002-2003

- **Middle East respiratory syndrome (MERS)**
  - 2012, 2015, 2018

- **Coronavirus disease 2019 (COVID-19)**
  - December 2019 to present
Signs and symptoms of COVID-19

- Reported symptoms of COVID-19 range from mild to severe
- Symptoms may appear 2-14 days after exposure to the virus and include:
  - Fever or chills
  - Cough
  - Shortness of breath or difficulty breathing
  - Fatigue
  - Muscle or body aches
  - Headache
  - New loss of taste or smell
  - Sore throat
  - Congestion or runny nose
  - Nausea or vomiting
  - Diarrhea

COVID-19 background

31 Dec. 2019
First reported as a pneumonia outbreak in Wuhan, Hubei Province, China

11 Jan. 2020
WHO alerted to an outbreak associated with one seafood market in Wuhan

13 Jan. 2020
Thailand Ministry of Public Health confirms first case outside of China

11 Feb. 2020
WHO officially names the disease COVID-19

31 Jan. 2020
WHO declares the outbreak a Public Health Emergency of International Concern

11 Mar. 2020
WHO declares COVID-19 outbreak a pandemic
COVID-19

- Primary signs and symptoms
  - Fever (not always present)
  - Cough
  - Difficulty breathing
- Most people with COVID-19 have mild symptoms
- Clear evidence for human-to-human transmission
- Incubation period is up to 14 days post-exposure (ranges from 2-14 days)
Countries with COVID-19 cases as of 22 June 2020

Travel-associated cases

“Travel-associated” refers to a probable case of COVID-19 in which:

- The person recently travelled from or had contact with travellers from another country
- The person could have acquired the disease in another country or could have been in an outbreak country during the incubation period and be contagious now
- The person could have been exposed in another country
- The person has imminent plans to travel to another country
- The collaboration of other countries is required for investigation and control of the disease
Travel-associated case surveillance and reporting

- Responses that should alert travel surveillance system:
  - Responds yes to having travelled to another country
  - Responds yes to having contact with someone who has recently travelled to another country
  - Has imminent plans to travel to another country

- Steps to follow if above criteria are met:
  - Surveillance officer conducts a follow-up interview to gather more information about travel history or intent to travel
  - Regional and/or national authorities are notified, when appropriate
  - Counterparts in other countries are notified, when appropriate
WHO recommendations for screening at POE

- Travel measures (e.g., travel restrictions) that interfere with international traffic for more than 24 hours may have a public health rationale at the beginning of an outbreak
  - May allow affected countries time to implement sustained response measures
  - May allow non-affected countries time to initiate and implement preparedness measures
- Restrictions should ideally last a short time and be proportionate to public health risks; re-evaluate as situation evolves
- Countries should undertake active surveillance, early detection, isolation and case management, and contact tracing to prevent onward spread of COVID-19
- Countries should share data with WHO and must inform WHO about additional health protection measures that significantly interfere with international traffic
Why conduct screening at POE?

It is a flexible, scalable intervention that can be rapidly deployed or shifted based on the needs and resources of the POE.

Objectives of screening:

▪ Reduce the international spread of communicable diseases
▪ Educate travellers about the signs and symptoms of diseases, like COVID-19
▪ Ensure travellers know what to do if they get sick
▪ Inform travellers whom to call if they get sick

Sample CDC Travel Health Alert Notice for COVID-19
Screening protocols

▪ Assess travellers for signs of COVID-19 using pre-established criteria
▪ Ensure correct personal protective equipment (PPE) use based on role in screening
▪ Primary screening:
  o Maintain at least 1m distance
  o Observe travellers for obvious signs of illness
  o Measure temperature
  o Use POE screening form
  o Educate travellers about COVID-19
▪ Secondary screening:
  o Separate travellers and conduct a medical evaluation and interview
  o Follow standard operating procedures for POE regarding isolation and alerts

Screening protocols - primary screening

Review answers on primary screening form

- Note any ‘yes’ answers, travel history, or visible signs of illness that would indicate the traveller needs to be referred to secondary screening
- Measure the traveller’s temperature
  - Not all people with COVID-19 present with fevers, and temperature should not be the only determining factor for letting travellers continue
- If criteria are met, refer the traveller to secondary screening
- Collect contact information for the traveller’s companions
- Refer contacts to secondary screening for further evaluation, if needed
Example primary screening form
Preventative measures for primary screeners

WHO recommendations as of 21 May 2020

- Maintain physical distance of at least 1m
- Have a glass or plastic screen to create a barrier between screener and traveller
- No required PPE unless physical distance is not possible, then use mask and eye protection
- Perform hand hygiene

Screening protocols - secondary screening

- Observe the traveller for signs and symptoms
- Retake temperature at least 15 minutes after initial temperature was taken
- Conduct a risk assessment
- Determine if the traveller needs to be referred to a healthcare facility
Preventative measures for secondary screeners

WHO recommendations as of May 21, 2020

- Maintain physical distance of at least 1m
- Wear personal protective equipment (PPE)
  - Medical mask
  - Gloves
- Perform hand hygiene

Limitations of screening

- Can detect only overtly ill travellers
  - May miss infected people who are asymptomatic or have only mild symptoms
  - Will miss people who are currently incubating infection and do not have symptoms (2-14 days incubation period)

- Reliable temperature reading are affected by multiple factors
  - If the environment is extremely hot or cold
  - If the thermometer has not been properly calibrated
  - If the screener is using the thermometer improperly, per manufacturer standards
  - If the traveller has taken fever-reducing medication (e.g., paracetamol, ibuprofen)

- People need to behave in a manner that may be outside their personal interest
  - Travellers may not reveal their illness, may take medicine to mask it, or may not disclose exposure history
Limitations of screening for COVID-19

- Large-scale screening may not be the most effective way to prevent the spread of COVID-19
- Screening is only one tool for responding to COVID-19; other tools include traditional epidemiology and community mitigation
- Asymptomatic transmission can occur; travellers may not have any signs of COVID-19 but can still be spreading the virus
- COVID-19 is widespread globally and travellers are likely to be coming from an affected area, have come in contact with someone from an affected area, or have passed through an affected area
- Worldwide travel restrictions have greatly limited the number of people travelling and the places they can travel to and from
Combining screening and education

- **Screening:**
  - Identifies travellers with visible signs; however, it may not catch the majority of people with COVID-19 as they frequently experience no or mild symptoms, but can still spread disease
  - Requires coordination between POE and health authorities

- **Education:**
  - Alerts travellers to signs and symptoms of COVID-19 and what to do if they are sick
  - Provides an opportunity to educate travellers on how to protect themselves and others
  - Informs travellers how to reach local health resources
  - Ensures travellers receive accurate information
Education strategies: communication

- Distributing Travel Health Alert Notices (T-HAN) to arriving and departing travellers
- Displaying health messages at POE
- Audio and video messages about signs, symptoms, and what to do if sick
- Social media to share information about current guidance for travel
Regulatory considerations

- Does the country have legal and regulatory authority to detain, isolate, or quarantine travellers passing through the POE?
- Do authorities have an established, controlled pathway to direct travellers to specific airports for systematic screening?
- Is there a way that travellers can bypass the screening location?
  - Screening at POEs slows travel and it can be easy to bypass by detouring around a screening location
- Is it safe to screen at this location?
  - Screening should only be implemented at POEs where the safety and security of travellers and screening personnel can be assured
Context-specific considerations

- What is the volume of travellers at the POE?
- What kind of travellers use the POE? Mostly foreign? Mostly domestic? What languages do they speak?
- Is the POE connected to a geographic area where there has been community spread of COVID-19?
- Are there cases nearby the POE?
- Does the POE meet previous regulatory considerations?
National-level resource considerations

- Funding to pay for screening and follow-up actions? Short-term and long-term?
  - Screeners’ salaries
  - Supplies and equipment for screening
  - Food, water, and other necessities for quarantined travellers
  - Ability to follow up on travellers who may have been exposed

- Location for prolonged quarantine of travellers?

- Ability to procure and provide necessities to quarantined travellers?

- Referral to designated healthcare facilities where ill travellers will be sent for diagnosis and care?

- Funding to produce educational/communication materials?

- Mechanism to send traveller information to health departments for follow-up?
POE resource considerations

▪ Does the POE have protocols for primary and secondary screening?
  o A clear definition for suspected cases
  o Ability to follow up when a suspected case or exposed person is identified

▪ An adequate number of trained primary and secondary screeners who demonstrate competency in screening tasks and appropriate use of PPE?

▪ Adequate personal protective equipment (PPE) and screening tools?

▪ Ability to isolate suspected cases safely and away from other travellers and POE personnel?

▪ An isolation area with access to potable water, toilet, handwashing facilities, and a place to sit or lie down?
Risk assessment and movement restrictions of travellers

- Risk assessment of who is most likely to introduce or spread the disease
  - Traveller arriving from or recent travel to a country with widespread transmission
  - Traveller from a country with community transmission

- Considerations for restricting movement into or out of country

- Considerations for restricting movement of travellers to facilitate surveillance once admitted into the country
  - Stay home for 14 days after arrival and maintain a distance of 1m from others
  - Self-monitor for symptoms (check temperature twice daily, watch for cough, shortness of breath, and other symptoms of COVID-19)
  - Avoid contact with people at higher risk for severe infection
Summary

- Screening can reduce the international spread of communicable diseases - one of many tools
- Limitations exist for detecting COVID-19 cases through POE screening
- Screening provides an opportunity to educate travellers
- Designing the best use of border health resources involves many considerations
- Border health strategies are one of many tools that can complement other measures (e.g., epidemiology, community mitigation)
Contact information

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.