

Universal checklist for COVID-19 control measures: consensus via a Delphi method

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Background

With millions of people infected worldwide, COVID-19 has a high infectivity rate which prompted governments in many countries to launch untested policies and guidelines of unknown impact to contain its spread. We formed an international collaborative group of experts to reach a consensus on a universal checklist that consisted of the most widely implemented containment measures and their timing. This resulting checklist may help further studies to validate the effectiveness of the included measures to ascertain an international response plan against future pandemics.

Methods

We conducted a two-round modified Delphi study on the expert panel using an email survey. The process of developing the checklist was divided into five phases: planning phase, drafting phase, consensus phase via the Delphi method, dissemination phase, and the maintenance phase.

Results

An initial checklist consisting of questions about 51 measures was generated after a systematic review and

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Box 1. Universal checklist of COVID-19 control measures

Policy and health system:

- Declaration/announcement of emergency status
- Launching a public website for guidelines and information
- Establishing a 'coronavirus task force' / expert board
- Conducting training programmes
- Government financial assistance for citizens/taxpayers
- Equal protection for immigrants/foreigners
- Regulation and stabilisation of food prices and daily necessities
- Require company to pay full salary to quarantined/isolated people
- Financial support to frontline cleaners, toilet attendants and security employees
- Free testing
- Free treatment
- Production/procurement of supplies (such as surgical masks, gloves, ventilators, or goods)
- Enhance production of sanitisers
- Enhancing hospital capacities (beds)
- Designating which hospitals can receive COVID-19 patients
- Equipping university housings, hotels, sports stadiums or building temporary hospitals to be ready to receive patients
- Guidelines for treatment of COVID-19
- Application of telemedicine

Research:

- Established in-house PCR assay
- Development of quick test kits
- Successfully identifying SARS-CoV-2 genes
- Launching clinical trial treatment of COVID-19
- Launching vaccination development
- Call for research related to epidemiology, prevention and control measures
- Call for development or reuse of efficient low cost of PPE and medical devices such as ventilators
- Call for development of a new treatment or new drug discovery, PPE and medical devices such as ventilators
- Call for non-academic industries to join the research or give funds

Box 1. Universal checklist of COVID-19 control measures (Continued)

Social distancing and barriers:

- Prohibition of group gathering more than (x) number of people in public places
- Physical distancing from each other in public (2 metres between individuals)
- Closure of schools
- Working from home
- Shelter in place
- Closure of public areas
- Closure of services
- Closure of public transport
- Closure of city/area hotspots (separating areas, restriction of movement)
- Protection of vulnerable people (elderly, people with suppressed immunities or relevant comorbidities: hypertension, heart disease, kidney disease, liver disease, chronic respiratory disease, diabetes, obesity)
- Supporting e-learning for students/tele-workplace

Preventive and containment measures:

- Hygiene practice
- Wearing face masks in public
- Health declaration at airports, seaports and borders
- Body temperature and quick test screening at airports, seaports and borders
- Quarantine and prohibition of travellers from affected areas and other countries
- Determining who can get an RT-PCR test
- Epidemiological investigation using F0–F5 evaluation system

Box 1. Universal checklist of COVID-19 control measures (Continued)

- Using a medical declaration when having respiratory symptoms or close contact with a new confirmed patient
- Isolation for all confirmed cases (F0)
- Disinfect the workplace of the newly detected patient
- Closure of workplace of the newly detected patient
- Isolation/quarantine for patients with respiratory symptoms (flu-like illness)
- Isolation/quarantine for suspected cases with negative RT-PCR (who had contact with confirmed patients or came from hotspots)
- Protection of hospitals at outpatient units
- Protection of healthcare workers
- Guidelines for each type of health worker to prevent cross-transmission
- Guidelines for performing aerosol generation
- Guidelines regarding reuse of masks/PPE for healthcare workers
- Guidelines on disposal of dead bodies
- Guidelines for home care
- Guidelines for community service (public transportation, food delivery, postal, volunteer services)

Additional items:

- Triage and dispatch stations outside hospitals
- Post lockdown roadmap/strategy: Preparedness of government to lift the lockdown
- Isolation/quarantine for suspected cases with negative RT-PCR (who had contact with confirmed patients or came from hotspots)

sent to the experts for rating. Out of the 21 experts who indicated an interest in participating in the study, only 15 completed at least one round of our study and helped create the final checklist. This consisted of 62 measures divided up into the following categories: policy and health system, research, social distancing and barriers, preventive and containment measures, and additional items. The experts were predominantly highly experienced representatives of decision-making healthcare management during COVID-19.

Conclusion

A universal checklist of 62 COVID-19 containment measures (Box 1) was developed after meeting experts' consensus via a modified two-round Delphi study with information on what measures they think should be expected during each Centers for Disease Control and Prevention (CDC) stage of the pandemic. ■

Conflicts of interest

None declared.