A Review on Considerations in Adjusting, Public Health and Social Measures (PHSM) in the Context of COVID-19

Dr. Dilip Kumar Gupta*

Associate Professor, Raj Kumar Goel Institute of Technology [Pharmacy],Delhi-Meerut Road Ghaziabad. Uttar Pradesh - 201003, India.

Email ID: kumarjai24sep@gmail.com

Abstract-In the context to COVID-19, countries across the globe have implemented a range of public health and social measures, including movement restrictions, partial closure or closure of schools and businesses, quarantine in specific geographic areas and international travel restrictions. In many countries, competent authority staffs are largely working from home, teleworking being the normal practice, and all face-to-face meetings cancelled or rescheduled as teleconferences. According to current evidence, SARS-CoV-2, the virus that causes COVID-19, is primarily transmitted between people via respiratory droplets and person-to-person contact routes. Transmission may also occur by touching objects or materials carrying infection in the immediate environment around the infected person. In the local epidemiology of the disease changes, countries will adjust (i.e. loosen or reinstate) these measures accordingly. After that transmission intensity declines, some countries will begin to gradually re-open workplaces to maintain economic activity. It requires to establishing protective measures, including directives and capacity to promote and enable standard COVID19 prevention in terms of physical distancing, hand washing, respiratory etiquette and, potentially, thermal monitoring, as well as monitoring compliance with these measures.

Keyword: Covid-19, SARS-CoV-2, Epidemiology, Quarantine, Respiratory etiquette, Thermal monitoring

1 INTRODUCTION

Recent scenario COVID-19 pandemic is caused by a corona virus named SARS-CoV-2. Corona viruses (CoVs) are a wide range family of viruses, several of which cause respiratory diseases in humans, from the common cold to more rare and serious diseases such as the Severe Acute Respiratory Syndrome (SARS) and the Middle East respiratory syndrome (MERS), both of which have high mortality rates and were detected for the first time in 2003 and 2012, respectively. Corona viruses are divided into four genera: alpha-, beta-, gamma- and delta-CoV. Mostly all corona viruses currently known to cause disease in humans belong to the alpha- or the beta-CoV. Either many of these CoVs can infect several animal species as well. SARS-Corona virus infected civet cats and infected humans in 2002 and MERS-CoV is found in dromedary camels and infected humans in 2012 and a number of other CoVs isolated from bat populations. MERS-CoV also belongs to this group of family but is very less closely related. This virus that is regularly transmitted from an animal to a human is called a zoonotic virus. Either what happened when a virus passes from animals to humans for the first time it is called a spillover event. After all the first human cases of COVID-19, the corona virus disease caused by SARS-CoV-2, were first reported from Wuhan City, China, in December 2019. Present day, the zoonotic source of SARS-CoV-2 is unknown.[1]

WHO published interim guidance on 16 April 2020 that provides advice on adjusting PHSM, we while managing the risk of resurgence of cases? 1. A series of annexes was published to help guide countries through adjusting various public health measures in different contexts. This annex is for those participated in making policies and standard operating procedures to prevent the transmission of COVID-19 in the workplace, including employers, workers and their representatives, labour unions and business associations, local public health and labour authorities, and occupational safety and health practitioners. This document offers general guidance for non-healthcare workplaces and workers in that settings.2. More specific protective measures may be necessary for specialized workplaces. Specific recommendations for protection of the health and safety of some frontline public workers are also included in the existing WHO guidance for the accommodation sector, ii detention centers, iii schools, iv food businesses, v aviation sector, vi water, sanitation, and waste management, vii camps, viii and construction. [2]

Considerations in Adjusting, (PHSM) for:

2 Public health surveillance for COVID-19 [3,4,5,6,7,8]

2.1 WHO COVID-19 Case definition: The current case definition integrates recent knowledge on signs and symptoms of COVID-19 issued from shown in table1.

- Publications describing the clinical spectrum of COVID-19 among and nonhospitalized COVID-19 patients and WHO Clinical management of COVID-19
- WHO's and partners' analysis of sensitivity, specificity and predictive value of most described signs and symptoms using surveillance data
- Expert consultations with clinicians, radiologists and laboratory scientists connected to global expert networks who supported validation of the definition

2.2 Purpose of this document: This document provides guidance to Member States on the implementation of surveillance for COVID-19 and the reporting requirements for WHO.

2.2.1Suspected COVID-19 case (two suspected case definitions a or b)

2.2.1 a. clinical AND epidemiological criteria

- Clinical criteria: Acute onset of fever AND cough and
- Epidemiological criteria: Working in an area with high risk of transmission of the virus, travel to an area with community transmission and Working in health setting.

2.2.1 b. severe acute respiratory illness (SARI)

- acute respiratory infection with history of fever or measured fever of ≥ 38 C°; and cough; with onset within the last 10 days; and who requires hospitalization.

2.2.2 Probable COVID-19 case:

- A patient who meets a probable or confirmed case
- A suspect case with chest imaging
- A person with recent onset of anosmia (loss of smell) or ageusia (loss of taste) in the absence of any other identified cause
- Death, is not otherwise explained, in an adult with respiratory distress preceding death AND was a contact of a probable or confirmed case or epidemiologically linked to a cluster with at least one confirmed case.

2.2.3 Confirmed COVID-19 case

- A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

Table 1: Definition of the categories for transmission pattern

Category number	Category name	Definition
1	No cases	Countries/territories/areas with no cases
2	Sporadic cases	Countries/territories/areas with one or more cases, imported or locally detected
3	Clusters of cases	Countries/territories/areas experiencing cases, clustered in time, geographic location and/or by common exposures
4	Community transmission	Countries /territories/areas experiencing larger outbreaks of local transmission defined through an assessment of factors including, but not limited to: - more numbers of cases not linkable to transmission chains - more numbers of cases from sentinel lab surveillance or increasing positive tests through sentinel samples (routine systematic testing of respiratory samples from established laboratories) - more than unreelated clusters in several areas of the country/territory/area.

3 Risk Communication and Community Engagement (RCCE) [10]

RCCE is an essential component of your health emergency preparedness and response action plan, shown in table 2.

3.1 There are 3 sections to the RCCE action plan guidance:

- "The Key Steps" to developing a COVID-19 RCCE plan.
- A related planning template for countries to fill in related to each step.
- Seven annexes provide additional guidance and resources: an audience assessment questionnaire, a process for identifying objectives and audiences, a method for identifying key information needs about COVID-19, and a list of sources for existing content and messaging.

3.2 RCCE objectives

- To ensure that people have the life-saving information they need to protect themselves and others (from the virus and to reduce its impact on health, social life, and the economy)
- To ensure effective feedback mechanisms are in place and used to ensure two-way
- communication between health/response authorities and communities, the public and stakeholders.
- To ensure that healthcare workers know how to engage with patients and care givers, detect possible cases, communicate with patients about COVID-19, and report to the relevant health authorities and also to protect themselves in context of their exposure to the disease.
- To position country health officials as the main/first trusted source of information about COVID-19.
- To ensure consistency in information and language from all partners and avoid misinformation/rumours.
- To inform the general public how the public health response is being conducted and health authorities are being pro-active in monitoring, detecting, and preventing the spread of COVID-19.
- To ensure participation of and engagement with relevant communities to work out barriers to the implementation and uptake of public health measures.

Table 2: List of general information

GENERAL INFORMATION NEEDED BY MOST AUDIENCES ABOUT COVID-19	
Topics for multiple au-diences	Location of content
What is COVID-19?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
How is it transmitted?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
What are its symptoms?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
How severe is it?	
How contagious is it?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
How can I prevent becoming infected?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
What is happening now in the COVID-19 outbreak?	
How many cases are there?	Regularly updated information can be found at https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/
Where are the cases occurring?	Regularly updated information can be found at https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/
How many deaths have occurred because of COVID-19?	Regularly updated information can be found at https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/
GENERAL INFORMATION NEEDED BY MOST AUDIENCES ABOUT COVID-19	

What are health authorities and other partners doing to respond to the outbreak? (These topics will need to be continuously updated)	
What international agencies are doing	Regularly updated information can be found at https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/ https://www.unicef.org/stories/novel-coronavirus-outbreak-what-parents- -should-know https://media.ifrc.org/ifrc/press-release/red-cross-scales-preparedness-global-response-novel-coronavirus-declared-international-health-emergency/
What are your country's national and local health authorities and partners doing?	Seek this information during COVID-19 management meetings or from national situation reports
What important issues are emerging about the outbreak and what needs to be done? These are likely to be controversial because they often have policy implications or focus on overcoming barriers.	
Vaccine development and challenges	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
Risks and advice to travellers	https://www.who.int/ith/2019-nCoV_advice_for_international_traffic/en/
Availability of medical supplies and personnel	Seek this information during COVID-19 management meetings or from national situation reports
Capacities of health facilities to	Seek this information during COVID-19 management meetings or from

meet COVID-19 demand	national situation reports
Specific Content Needed for Varied Stakeholders	
Health care providers	
Laboratory testing for COVID-19	https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance WHO has international protocols, but local guidelines and locations need to be communicated as well
Travelers	
Screening protocols at airports and borders Recommended precautions for travelers	

In the same way that those health authorities must identify and address new questions, they must also know about and address worries, questions and rumors. The mechanism for gathering information about concerns, questions, believes and rumors can be the same as those for identifying new stakeholder questions. Some common sources include:

- Media monitoring (traditional news and social media)
- Key informant interviews and focused groups
- Rapid assessments and surveys • Community leaders and mobilizers
- Partners who are trusted by communities and at-risk groups
- Monitoring radio talk shows • Tracking calls and content of health "hotlines"
- Feedback mechanisms

Health authorities will want to make use of as many sources as possible to understand their audiences' and stakeholders' understanding of COVID-19.

4 Digital tools for COVID-19 contact tracing [11,12]

Contact tracing is an important public health measure and a critical component of comprehensive strategies to control the spread of COVID-19. Contact tracing discontinue the chains of human-to-human transmission by identifying people exposed to confirmed cases, quarantining them, following up with them to ensure rapid isolation, and testing and treatment in case they develop symptoms.

4.1 Classification of digital tools

In response to the COVID-19 pandemic, many digital tools have been developed to assist with contact tracing and case identification. Table 3 gives examples of the specific uses and functions of digital tools for contact tracing, and specific considerations for implementation.

Table 3: Digital tools and their uses for COVID-19 contact tracing

Tool category	Characteristics and use	Considerations for implementation, opportunities and challenges
Outbreak response tools	Outbreak response tools are designed for public health response personnel involved in contact tracing activities and outbreak investigations	Open access and open source software allow for increased transparency, and continuous improvement of tools
	Outbreak response tools facilitate all elements of contact tracing activities, from case investigation to identification, listing and tracing of contacts to data management and analysis. They are especially useful for initial localized outbreak response, early cluster investigations, and limited populations. Some may have monitoring dashboards	Incorporation or linkage to case data is required to relate contacts and cases
	Set up relational databases linking lists of contacts to line lists of cases, allowing the incorporation of information from various sources (contact tracing, laboratory, case notification, etc.)	Standardized data formats/data dictionaries and reporting templates are needed to link case-based line lists with contract tracing data and laboratory testing data
	Allow for tailored case investigation forms, contact listing forms, and contact follow-up forms to be set up.	Different roles and responsibilities should be incorporated in outbreak response tools to mirror the data collection and data verification process (such as field data collectors, team lead for data collectors, and epi lead functions taking care of data quality, reducing data entry errors, duplicate removal and data approval)
	Enable electronic data capture by	Where possible, the implementation of

	contact tracers directly through smartphones or tablets • Streamline the data flow and data management process, by avoiding data entry errors, pushing the information automatically through the system, reducing processing time, and improving timeliness of analysis and monitoring	new outbreak response tools should augment, rather than replace, existing electronic surveillance tools		contact with a case.	rely heavily on proximity tracing tools. As such, proximity tracing tools do not replace the need for rigorous contact identification and listing, but could augment such activities, particularly in public spaces and other settings where contact identification remains challenging.
	Software packages may allow for automated and semi-automated analytical outputs	Tools should optimally be designed for field staff and run on smartphones or tablets that can synchronize across mobile and internet networks		Location-based tools are based on GPS location of users. They may be used to identify people who have been in the same location as cases, to facilitate contact identification	GPS or Bluetooth wearable devices could potentially be developed for people without smart phones or to increase consistent use
Proximity tracing / tracking tools	Using either GPS location or Bluetooth signals, proximity tracing tools can help identify contacts by identifying when individuals have been in close physical proximity and have had prolonged	Proximity tracing tools require individuals to have a charged smartphone and to always carry it; necessary updates to changes in people's case status may require mobile network connectivity. People who do not have smartphones may be excluded from approaches that		Linkage to other information systems can provide users direct notifications of contact events with confirmed cases, testing locations, or other helpful information such as where to access masks	There are many privacy issues regarding the disclosure of location history, case and contact status, and possibly other personal data. Privacy concerns and data protection need to be carefully considered with location-based approaches
				Other location-based apps	Proximity tracing tools do not

	have been developed that preserve anonymity by not linking to other databases, but still maintaining the ability to provide location-based information for contact tracing	directly provide information about exposures, which may vary independently of proximity, such as being in an enclosed vs. open-air space.			previously been a barrier.
					Location-based proximity tools can be used to identify locations with a high concentration of confirmed cases, and hence provide some assessment of transmission risk
	Bluetooth signaling between devices enables users to know if they have been in close proximity to a case without providing location information. Data can help contact tracers identify potential contacts of cases	A critical mass of the population needs to use proximity tracing tools for optimally identifying potential contacts Proximity tracing tools are suitable for use in increasing intensity of transmission, from clusters to community transmission			Proximity tracing tools could potentially have other uses, such as monitoring public health measures (for example physical distancing)
			Symptom tracking tools	In the context of contact tracing, symptom tracking tools may be useful to help daily monitoring of contacts	Using symptom tracking tools for contact tracing requires careful consideration of data ownership and of privacy and data protection
		Bluetooth-based tools should be able to send, receive, and record Bluetooth signals even in background mode (when the phone is locked).		Used for self-checking and self-reporting of signs and symptoms by people through mobile phone apps or SMS technology.	Can be useful if contacts cannot be seen daily due to access issues, or to complement in-person visits by contact tracing teams
		Companies have developed joint API that allows cross platform functionality using Bluetooth communication, which has		Can have value when traditional in-person contact tracing capacity is not possible	Could be considered in scenarios where the number of contacts exceeds the capacity of contact tracing teams

	It can be used to generate syndromic data at population level, and allows for real-time monitoring of self-reported syndromic data	Is dependent upon how individuals assess their own health and is difficult to provide verification or validation
	Self-reporting symptom tracking tools require the data to be integrated with other surveillance and monitoring data	Self-assessment questions and algorithms must consider up-to-date evidence on the most sensitive and specific symptom combinations to achieve best possible sensitivity and specificity
		Symptom tracking tools have limited ability to offer differential diagnoses, and as such must be used with caution to not increase the risk of adverse clinical outcomes for diseases not encompassed in the tool
		Symptom tracking tools need to be integrated with health care systems so that users have a clear referral pathway if medical attention is required
		Interpretation of
		the data is limited due to uncertainty in the reporting denominators, potentially low specificity due to other respiratory pathogens, and limited positive predictive value, especially in low-incidence settings
		Some tool developers are exploring extensions beyond user self-report of signs and symptoms to include monitoring of breathing patterns using microphones in smart phones and the integration of wearable devices that monitor parameters such as oxygen saturation
		Written consent should be obtained before sharing health-related data

1 The probability that individuals identified as ill through symptom tracking tools actually have COVID-19

5 Cleaning and disinfection of environmental surfaces [13,14]

A list of disinfectants for use against the COVID-19 virus is currently being actively updated by the U.S. Environmental Protection Agency (EPA) with caution that inclusion of a disinfectant within this list does not constitute endorsement by their agency.Environmental cleaning and disinfection in clinical, non-traditional facilities and home-based health-

care settings should follow detailed SOPs with a clear delineation of responsibilities (e.g. housekeeping or clinical staff), regarding the type of surfaces and frequency of cleaning (Table 4).

Table: 4 Health-care setting: Recommended frequency of cleaning of environmental surfaces, according to the patient areas with suspected or confirmed COVID-19 patients.

Patient area	Frequency a	Additional guidance
Screening/triage area	At least twice daily	Focus on high-touch surfaces, then floors (last)
Inpatient rooms / cohort – occupied	At least twice daily, preferably three times daily, in particular for high-touch surfaces	Focus on high-touch surfaces, starting with shared/common surfaces, then move to each patient bed; use new cloth for each bed if possible; then floors (last)
Inpatient rooms – unoccupied (terminal cleaning)	Upon discharge/transfer	Low-touch surfaces, high-touch surfaces, floors (in that order); waste and linens removed, bed thoroughly cleaned and disinfected
Outpatient / ambulatory care rooms	After each patient visit (in particular for high-touch surfaces) and at least once daily terminal clean	High-touch surfaces to be disinfected after each patient visit Once daily low-touch surfaces, high-touch surfaces, floors (in that order); waste and linens removed, examination bed thoroughly cleaned and disinfected
Hallways / corridors	At least twice daily b	High-touch surfaces including railings and equipment in hallways, then floors (last)
Patient bathrooms/ toilets	Private patient room toilet: at least twice daily Shared toilets: at least three times daily	High-touch surfaces, including door handles, light switches, counters, faucets, then sink bowls, then toilets and finally floor (in that order) Avoid sharing toilets between staff and patients

- An environmental surface should also be cleaned and disinfected whenever visibly soiled or if contaminated by a body fluid (e.g., blood); b Frequency can be once a day if hallways are not frequently used.

6 Rational use of personal protective equipment [15, 16, 17, 18]

- Based on current evidence, the COVID-19 virus is transmitted between people through close contact and droplets.

6.1 For all the most effective preventive measures include:

- Maintaining physical distance (a minimum of 1 meter) from other individuals;
- Performing hand hygiene frequently with an alcohol-based hand rub if available and if your

hands are not visibly dirty or with soap and water if hands are dirty;

- Avoiding touching your eyes, nose, and mouth;
- Practicing respiratory hygiene by coughing or sneezing into a bent elbow or tissue and then immediately disposing of the tissue;
- Wearing a medical mask if you have respiratory symptoms and performing hand hygiene after disposing of the mask;
- Routine cleaning and disinfection of environmental and other frequently touched surfaces.

6.2 In health care settings, the main infection prevention and control (IPC) strategies to prevent or

limit COVID-19 transmission include the following

- ensuring triage, early recognition, and source control (isolating suspected and confirmed COVID-19 patients);
- applying standard precautions for all patients and including diligent hand hygiene;
- implementing empiric additional precautions (droplet and contact and, wherever applicable for aerosol-generating procedures and support treatments, airborne precautions) for suspected and confirmed cases of COVID-19;
- implementing administrative controls;
- Using environmental and engineering controls.

7 School-related public health measures [22, 23]

National guidance on the prevention and control of COVID-19 in schools has been published by some countries and international organizations. The recommended key measures to be taken to help ensure the safety of students and staff are summarized in Table 5. The capacity of schools to implement the outlined recommended measures should be considered in decisions regarding the operation of schools in all transmission scenarios.

Table 5: Comprehensive, multi-layered measures to prevent introduction and spread of SARS-COV-2 in educational settings. [19, 20, 21, 22, 24, 25, 26]

Community level	Recommended broader community level measures in communities where schools are reopening Early detection of suspected cases, test suspect cases; identify and trace contacts; quarantine contacts. Investigation of clusters to implement and communicate localized measures to limit gatherings and reduce mobility. Physical distancing of at least 1 metre, hand and other personal hygiene practices and age-appropriate wearing of masks when physical distancing cannot be achieved. Community-led initiatives for risk reduction (e.g. addressing incorrect and misleading information, rumours and stigma) and protection/shielding of vulnerable groups and safe public transportation, including organizing "walking buses" and safe cycling routes. Other PHSM, as appropriate.
School level	Administrative policies: setting attendance and entry rules; cohorting (keeping students and teachers in small groups that do not mix, also referred to as bubble, capsule, circle, safe squad); staggering the start of school, breaks, bathroom, meal and end times; alternate physical presence (e.g. alternate days, alternate shifts) Infrastructure: Reorganization of the physical space or its use, identifying entry/exists and marking direction of walking, handwashing facilities, building environmental design clues ("nudging") to facilitate appropriate use of space Maintaining clean environment: frequent cleaning of surfaces and shared objects Ensuring adequate and appropriate ventilation with priority for increasing fresh outdoor air by opening windows and doors, where feasible, as well as encouraging outdoor

	activities, as appropriate The age-appropriate use of masks where physical distancing cannot be maintained; this includes ensuring the availability of masks Symptom screening by parents and teachers, testing and isolation of suspected cases, as per national procedures; stay-at-home when sick policies Reorganization of school transportation and arrival/departure times Clear accessible sharing of information, and feedback mechanisms established with parents, students and teachers Continuation of essential school-based services such as mental health and psychosocial support, school feeding and nutrition programmes, immunization and other services.
Classroom level	Physical distancing where appropriate Wearing of masks, where recommended Frequent hand hygiene Respiratory etiquette Cleaning and disinfection Adequate ventilation Spacing of desks or grouping of children if required.
Individuals at high-risk	Identification of students and teachers at high-risk of severe illness – those individuals with pre-existing medical conditions; develop appropriate strategies to keep these individuals safe Adoption of a coordinated and integrated approach to ensure vulnerable children's holistic needs (protection, mental health and psychosocial support, rehabilitation, nutrition and other issues) Maintenance of physical distancing and use of medical masks Frequent hand hygiene and

	respiratory etiquette.

8 Hotels and other entities of the accommodation sector [27, 28, 29, 30, 31, and 32]

I. Hotels and accommodation establishments are places where there is a high degree of interaction among guests and workers.

II. All staff of the accommodation establishment should comply with basic protective measures against COVID-19 including hand hygiene, physical distancing, avoiding touching eyes, nose and mouth.

III. Information and communication
- Physical distancing measures, hand cleaning and respiratory hygiene
- Necessary equipment and personal protective kit at the reception desk
- Water disinfection
- Dishwashing and laundry equipment
- Ventilation and air conditioning
- Recreational areas for children
- Cleaning and disinfection when guests or employees are identi
- Availability and use of cleaning materials and personal protective equipment fied with COVID-19
- Hotel and accommodation establishment staff taking part in the evacuation of a suspected case

Note: Depending on relevant national legislation, it is usually the relevant public health authority, not the management of the hotel and accommodation establishment, who has the authority to demand sick guests to temporarily remain in their room or to prevent them from receiving visits from other guests. National law will guide the rights of the guests to refuse or comply with the recommended measures.

9 Infection prevention and control for the safe management of a dead body

This document updates guidance issued on 24 March with the following new or modified content:

- Clarification of body bag requirements;
- Clarification of personal protective equipment (PPE) requirements during autopsies;
- Updated ventilation requirements during autopsy;

- Additional guidance for burial or cremation in the community.

9.1 Key considerations:

- People may die of COVID-19 in health-care facilities, at home or in other locations.
- The safety and well-being of those who tend to dead bodies is critical. Before attending to a dead body, people should ensure that necessary hand hygiene supplies and facilities, PPE, and cleaning and disinfection supplies are readily.
- The dignity of the dead, their cultural and religious traditions, and their families should be respected and protected throughout.
- All measures should respect the dignity of the dead including avoiding hasty disposal of the body of a person who has died of COVID-19.
- Authorities should manage each dead body on a case by-case basis, balancing the rights of the family, the need to investigate the cause of death, and the risks of exposure to infection.

There is a common assumption that people who died of a communicable disease should be cremated to prevent spread of that disease; however, there is a lack of evidence to support this. Cremation is a matter of cultural choice and available resources.

10 Conclusions

The large-scale public health and social measures introduced by countries in response to COVID-19 may also amplify some other risks for health, safety, and wellbeing at work due to alternative work arrangements, job insecurity, and sudden loss of income, social isolation, and fear of contagion. Actions on prevention and mitigation of COVID-19 should be implemented together with actions for addressing other occupational safety and health risks such as ergonomic problems, heavy workloads and long working hours, remote working, psychosocial risks, poisonings, and others. Occupational health services should strengthen their capacity to carry out risk assessment, infection prevention and control, and medical surveillance and organize mental health and psychosocial support in the context of COVID-19.

References

[1] WHO/2019-nCoV/FAQ/Virus_origin/2020.1

[2] WHO (2020) Considerations in adjusting public health and social measures in the context of COVID-19 (Interim Guidance, 16 April 2020)(WHO 2020). https://www.who.int/publications-detail/considerations-in-adjusting-public-health-andsocial-measures-in-the-context-of-covid-19-interim-guidance

[3] WHO reference number: WHO/2019-nCoV/Surveillance_Case_Definition/2020.1

[4] Guan WJ, Ni ZY, Hu Y, Liang WH, et al. China Medical Treatment Expert Group for Covid-19. Clinical Characteristics of Coronavirus Disease 2019 in China. N Engl J Med. 2020 Apr 30;382(18):1708-1720. doi: 10.1056/NEJMoa2002032. Epub 2020 Feb 28. PMID: 32109013; PMCID: PMC7092819.

[5] Menni C, Valdes AM, Freidin MB, et al. Real-time tracking of self-reported symptoms to predict potential COVID-19. Nat Med.2020 Jul;26(7):1037-1040. doi: 10.1038/s41591-020-0916-2. Epub 2020 May 11. PMID: 32393804.

[6] Spinato G, Fabbris C, Polesel J, et al. Alterations in Smell or Taste in Mildly Symptomatic Outpatients With SARS-CoV-2 Infection. JAMA. 2020 Apr 22;323(20):2089–90. doi:10.1001/jama.2020.6771. Epub ahead of print. PMID: 32320008; PMCID: PMC7177631.

[7] Tostmann A, Bradley J, Bousema T, et al. Strong associations and moderate predictive value of early symptoms for SARS-CoV-2 test positivity among healthcare workers, the Netherlands, March 2020. Euro Surveill. 2020 Apr;25(16):2000508. doi:10.2807/1560-7917.ES.2020.25.16.2000508. PMID: 32347200; PMCID: PMC7189649.

[8] Struyf T, Deeks JJ, Dinnes J, et al. Cochrane COVID-19 Diagnostic Test Accuracy Group. Signs and symptoms to determine if a patient presenting in primary care or hospital outpatient settings has COVID-19 disease. Cochrane Database Syst Rev. 2020 Jul 7;7:CD013665. doi: 10.1002/14651858.CD013665. PMID: 32633856.

[9] Manna S, Wruble J, Maron S, et al. COVID-19: a multimodality review of radiologic techniques, clinical utility, and imaging features. Radio Cardiothoracic Imaging. 2020 June 1; 2(3): https://pubs.rsna.org/doi/10.1148/ryct.2020200210

[10] https://www.who.int/emergencies/diseases/novel-coronavirus-2019.

[11] World Health Organization. Contact tracing in the context of COVID-19. (Interim Guidance) (10 May 2020, https://www.who.int/publications-detail/contact-tracing-in-the-context-of-covid-19).

[12] WHO reference number: WHO/2019-nCoV/Contact_Tracing/Tools_Annex/2020.1.

[13] List N: Disinfectants for Use Against SARS-CoV-2 | US EPA. 2020. (https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2, accessed 6 May 2020)Rutala, W.A., Weber, D.J., 1997. Uses of inorganic hypochlorite (bleach) in health-care facilities. Clin. Microbiol. Rev. 10, 597–610. (https://doi.org/10.1128/CMR.10.4.597, accessed 6 May 2020)

[14] Gon, G., Dancer, S., Dreibelbis, R., Graham, W.J., Kilpatrick, C., 2020. Reducing hand recontamination of healthcare workers during COVID-19. Infect. Control Hosp. Epidemiol. 1–2. (https://doi.org/10.1017/ice.2020.111, accessed 9 May 2020)

[15] Tran, K., Cimon, K., Severn, M., Pessoa-Silva, C. L., & Conly, J. (2012). Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: a systematic review. PloS one, 7(4). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3338532/

[16] Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected. Interim Guidance. Geneva: World Health Organization; 2020.

[17] Standard precautions in health care. Geneva: World Health Organization; 2007 (accessed 2 April 2020).

[18] Infection prevention and control of epidemic-and pandemic-prone acute respiratory infections in health care. Geneva: World Health Organization; 2014 (accessed 27 February 2020).

[19] Viner, R. M. et al. School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. Lancet Child Adolesc Health 4, 397–404 (2020).

[20] World Health Organization. (2020). Considerations for school-related public health measures in the context of COVID-19: annex to considerations in adjusting public health and social measures in the context of COVID-19, 10 May 2020. World Health Organization. (https://apps.who.int/iris/handle/10665/332052 accessed 04 September 2020)

[21] World Health Organization. (2020). Considerations in adjusting public health and social measures in the context of COVID-19: interim guidance, 16 April 2020. World Health Organization. (https://apps.who.int/iris/handle/10665/331773 accessed 04 September 2020)

[22] United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Children's Fund (UNICEF), World Food Programme, World Bank & United Nations High Commissioner for Refugees. Framework for Reopening Schools, June 2020, (https://www.unicef.org/sites/default/files/2020-06/Framework-for-reopening-schools-2020.pdf accessed 04 September 2020)

[23] United Nations Children's Fund (UNICEF), World Health Organization & International Federation of Red Cross and Red Crescent Societies (IFRC). Interim Guidance for COVID-19 Prevention and Control in Schools. March 2020 (https://uni.cf/2Zi58VC accessed 04 September 2020)

[24] Path to Zero & Schools: Achieving Pandemic Resilient Teaching and Learning Spaces. Harvard Global Health Institute https://globalhealth.harvard.edu/path-to-zero-schools-achieving-pandemic-resilient-teaching-and-learning-spaces/ (2020).

[25] Bonell, C. et al. An evidence-based theory of change for reducing SARS-CoV-2 transmission in reopened schools. Health Place 64, 102398 (2020).

[26] World Health Organization & United Nations Children's Fund (UNICEF). (2020). Advice on the use of masks for children in the community in the context of COVID-19: annex to the advice on the use of masks in the context of COVID-19, 21 August 2020. World Health Organization. (https://apps.who.int/iris/handle/10665/333919 accessed 04 September 2020)

[27] World Health Organization. Coronavirus disease (COVID-19) advice for the public. Geneva: World Health Organization; 2020. (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public accessed 20 August 2020)

[28] World Health Organization. Public health surveillance for COVID-19 Interim guidance.

[29] World Health Organization. Considerations for quarantine of contacts of COVID-19 cases: interim guidance. Geneva: World Health Organization; 2020 (https://apps.who.int/iris/handle/10665/333901 accessed 20 August 2020)

[30] The regulatory bodies may vary from country to country but usually the ministry of infrastructure. In terms of international regulation this should be under the International Organization for Standardization (ISO) mandate https://www.iso.org/ics/91.140.30/x/

[31] World Health Organization. Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19. Geneva: World Health Organization; 2020 (https://apps.who.int/iris/handle/10665/333560 accessed 20 August 2020)

[32] World Health Organization. Cleaning and disinfection of environmental surfaces in the context of COVID-19. Geneva: World Health Organization; 2020 (https://apps.who.int/iris/handle/10665/332096 accessed 20 August 2020)

[33] Leadership during a pandemic: what your municipality can do. United State aGency for Intrenational Development, 2009 (https://www.paho.org/disasters/index.php?option=com_content &view=article&id=1053:leadership-during-a-pandemic-what-your-municipality-can-do&Itemid=937&lang=en accessed 12 July 2020).

[34] Finegan O, Fonseca S, Guyomarc'h P, Morcillo Mendez MD, Rodriguez Gonzalez J, Tidball-Binz M, et al. International Committee of the Red Cross (ICRC): General guidance for the management of the dead related to COVID-19. Forensic Sci Int Synerg [Internet]. 2020;2:129–37. (https://linkinghub.elsevier.com/retrieve/pii/S2589871X20300309 accessed 18 July 2020)

[35] COVID-19 Interim guidance for the management of the dead in humanitarian settings. International Federation of the Red Cross and Red Crescent Societies, International Committee of the Red Cross, World Health Organization. Geneva, 2020 (https://interagencystandingcommittee.org/system/files/2020-07/Interagency%20COVID-19%20 Guidance%20for%20the%20Management%20of%20the%20Dead% 20in%20Humanitarian%20Settings%20% 28July%202020%29.pdf accessed 27 August 2020).