

Review Article

COVID-19 health facility preparedness for protecting healthcare workers: Designing a tool for rapid self-assessment

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ABSTRACT

Healthcare workers (HCWs) comprise an irreplaceable resource in combating the COVID-19 pandemic. However, thousands of HCWs have been infected with the coronavirus (SARS-CoV-2) globally, and hundreds have died in the line of duty. Increased stress and fear about personal and familial safety also erode the confidence of HCWs in adhering to the best-practices for COVID-19 patient care. A tool and checklist for rapid assessment of health-care facilities for their preparedness in prioritizing the protection of healthcare workers were developed based on a survey of multiple sources. A total of ten domains were identified that are pivotal toward enabling the protection of HCWs involved in the management of suspected or confirmed COVID-19 patients.

Keywords: Healthcare workers, COVID-19, Pandemic, Infection prevention and control, Health facility preparedness

INTRODUCTION

The novel coronavirus (2019-nCoV), also known as the severe acute respiratory syndrome 2 (SARS-CoV-2), has caused a worldwide COVID-19 pandemic that has afflicted 6,418,078 people and caused 381,064 deaths as of June 3, 2020.^[1,2] In India, COVID-19 has spread in all states across the country, with 2,017,615 cases and 5815 deaths reported at the time of writing.^[3]

Frontline healthcare workers (HCWs), including doctors, nurses, technicians, ward, and sanitation workers, are experiencing acute challenges in effectively managing patients while also protecting themselves and their families from COVID-19. Globally, tens of thousands of HCWs have been infected with the coronavirus (SARS-CoV-2), and hundreds have died in the line of duty.^[4] In India, according to the Indian Council of Medicine Research, 5.2% of the COVID-19 infected patients are healthcare workers.^[5]

HCWs comprise a valuable and irreplaceable resource in global efforts to combat the COVID-19 pandemic. Moreover, HCWs are also subject to the code of medical ethics that instruct them to care unconditionally for their patient but remains disencumbered of their self-protection.^[6] However, it is the moral and ethical duty of the administration and government to provide HCWs with the required equipment and facilities for effectively safeguarding their health.^[7] Failure to address the concerns of HCWs during large scale COVID-19 outbreaks is likely to undermine their morale, diminish their capacity for efficient and effective caregiving for their patients, and

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increase their risk of contracting the infection. Furthermore, if HCWs perceive their workplace as being unsupportive and nonchalant to their legitimate grievances and concerns, it can augment their stress and anxiety levels and contribute to impaired mental health.^[8]

Tools for rapid assessment of health-care facilities for their preparedness in prioritizing the protection of healthcare workers need development and validation in Indian health settings. Analysis based on such a tool would provide instantaneous feedback to hospital administrators regarding their health system deficiencies concerning COVID-19 and identify the necessary interventions required for improvement.

In the present review, a protocol checklist was designed for the rapid survey and assessment of the extent of preparedness of COVID-19 health-care facilities toward the protection of their healthcare workers.

MATERIAL AND METHODS

The checklist was self-designed after reviewing literature from the following sources:

1. Studies (original research, review articles, and perspectives) available at PubMed/MEDLINE and published from March 1, 2020, to May 31, 2020, using the following keywords:
 - (a) Healthcare workers AND COVID-19, (b) health-care employees AND COVID-19, (c). doctors AND COVID-19, and (d) nurses AND COVID-19
2. National guidelines related to health-care facilities preparedness, personal protective equipment, and testing strategies for COVID-19 published by the Ministry of Health and Family Welfare, Government of India, and the Indian Council of Medical Research.^[3] International guidelines issued by the World Health Organization were also reviewed.
3. Media sources by online and hand searching of news reports published in major national newspapers from March 1, 2020, to May 31, 2020.

Preparedness of COVID-19 health-care facilities

The following preparedness domains were identified [Table 1]:

1. Local guidelines (availability and access) are applicable for health facilities and are correctly adapted and compatible with the recommended international and national guidelines on the testing protocols, quarantine, isolation, admission, biomedical waste management, airborne infection control, etc.
2. Conduct, timeliness, and adherence to recommendations of gap assessments
3. Effective inventory management and quality control of personal protective equipment (PPE): The shortage of

PPE is a pressing public health concern. Governments globally have been handicapped by the original lack of manufacturing of PPE in their home countries. Information about PPE availability and quality checks should be transparently and openly accessible by healthcare workers at their hospital portal to build a culture of trust and understanding. Moreover, it is the responsibility of expert local, national, and international bodies to ensure that guidelines for the rational use of PPE are genuinely data-driven and not an act of compromise due to deficient supply and availability.^[9]

4. Training sessions for HCWs with a focus on content, timeliness, and access: A significant proportion of COVID-19 infections among HCWs are avoidable through practical training to prevent the risk of contamination during donning and doffing.^[10]
5. Adherence to recommended infection prevention and control (IPC) measures^[11,12]
6. Good recordkeeping practices: Maintenance of updated records for HCWs undergoing testing and positivity status allows health-care managers and policymakers to understand the effectiveness of IPC measures at health facilities and the current magnitude of the problem.
7. Monitoring and evaluation for risk assessment and development of mitigation strategies toward risk reduction among HCWs
8. Mental health-care assessment for early recognition of mental health symptoms suggestive of depression/anxiety/stress among HCWs. Surveys have reported a high burden of depressive symptoms and anxiety among HCWs involved in COVID-19 management.^[8]
9. Appropriate grievance redressal mechanisms for demonstrating responsiveness and building trust among HCWs. Media reports in India have reported high rates of infection, lack of PPE, and problems with the availability of quarantine facilities for COVID-19 HCWs.^[13-15] Responsiveness on the part of the administration to ensure the rapid resolution of such grievances is needed to meet the ethical principle of reciprocity and uphold confidence and trust in the health system for HCWs.
10. Healthcare worker satisfaction with their place of work at COVID-19 health facilities: Satisfaction of HCWs with their place of work in terms of risk reduction during pandemics has also been overlooked in Indian health settings. A sample questionnaire for identifying HCW satisfaction with their place of work during COVID-19 outbreaks is depicted in Table 2. More “Yes” responses indicate higher satisfaction, more “No” responses indicate lower satisfaction, and more “Not sure” responses indicate possible hesitation due to concerns over confidentiality and lack of trust in the health system.

Table 1: Recommend a checklist to assess readiness for healthcare worker protection at COVID-19 health facilities in India.

Characteristic (domain)	Indicators (item)
Local (hospital) guidelines for prevention, risk mitigation, and safe management for HCWs	<ol style="list-style-type: none"> 1. Use of PPE in various zones of the hospital (Wards/OPD Clinics/ICUs/etc.) 2. Testing guidelines for HCWs 3. Quarantine and home isolation for HCWs 4. Hospital admission, discharge, and work resumption guidelines for COVID-19 positive HCWs 5. Biomedical waste management in the context of COVID-19-related infectious waste. 6. Modality to avail health insurance 7. Use of air conditioners 8. Easy access to the most recent (updated) guidelines preferably on designated web-portal of the health facility 9. Frequency of adherence to guidelines and gap assessment surveys by the designated team
Designated donning and doffing areas in the wards and laboratories	<ol style="list-style-type: none"> 1. Present 2. Absent
Planning for effective social distancing at outpatient (OPD) clinics	<ol style="list-style-type: none"> 1. Online registration facility for patients 2. Fixed number of appointments/day
Infection prevention and control measures (adherence and implementation) ^[11,12]	<ol style="list-style-type: none"> 1. COVID-19 IPC Training to all HCWs (employees) including an overview of COVID-19, hand hygiene and respiratory etiquette, hand hygiene compliance, and information sessions for doctors 2. Real-time hand sanitizer stock inventory and demand placement 3. Handwashing/hand hygiene facilities 4. An adequate supply of tissues and appropriate waste disposal 5. IEC Materials throughout the hospital for promoting proper hand hygiene 6. IEC materials for visitors telling them to sneeze into the elbow or use a tissue and dispose immediately into the waste bin
PPE stock maintenance (transparency)	<ol style="list-style-type: none"> 1. Real-time PPE stock inventory and demand placement (PPE suit/surgical mask/N-95 mask/face shield/gowns/headcovers) with the availability of the information at the hospital portal. 2. Quality control specifications and checks.
Training in the appropriate use of PPE with emphasis on correct donning and doffing techniques	<ol style="list-style-type: none"> 1. Frequency of training sessions planned 2. Record of training sessions conducted 3. Attendance record of HCWs attending the training sessions 4. Schedule of training sessions 5. Availability of validated online training resources for on-demand access
Testing and positivity status of HCWs Monitoring and evaluation for risk assessment and development of mitigation strategies	<ol style="list-style-type: none"> 1. Records of HCWs tested (date of exposure/date of testing/test result). 2. Records of HCWs awaiting testing after coming in contact with COVID-19 case without wearing PPE. 3. Designated preventive team for weekly assessment, reporting of reasons, and issuing recommendations to avert future episodes of HCW infection. 4. Adherence to the recommendations of the preventive team by the administration.
Complaint and grievance redressal mechanism for frontline HCWs (availability of PPE/Quality of PPE/water and food availability/rational duty rosters/quarantine facilities/abuse or violence by COVID-19 suspected or confirmed patients or their relatives/attendants)	<ol style="list-style-type: none"> 1. Existence of online record-based mechanism for lodging complaints/grievances. 2. Time to action and grievance redressal with a designated nodal officer for the escalation of the complaints. 3. Assessment of satisfaction of HCWs with the grievance redressal process. 4. Monthly administrative meetings to assess reasons for the inability to resolve grievances satisfactorily or delayed grievances
Mental health care for early recognition of depression/anxiety/stress among HCWs Resources to manage stress, anxiety, and healthy coping	<ol style="list-style-type: none"> 1. Dedicated helplines for consultation with designated psychologists/psychiatrists. 2. Webinars/online resources for stress and anxiety management.

IEC: Information, education, and communication, HCWs: Healthcare workers

Table 2: A pilot questionnaire to assess frontline healthcare worker satisfaction with the place of work during COVID-19 management.

Question	Response		
Know where to access local hospital guidelines of testing/quarantine/isolation	Yes	No	Not sure
Training received for use of PPE	Yes	No	Not sure
Training quality and usefulness	Optimal	Suboptimal	Not sure
Confident of steps of donning/doffing	Yes	No	Not sure
Aware of hospital norms for the use of PPE in different settings (Ward/OPD/ICU)	Yes	No	Not sure
Access to PPE during patient care	Adequate	Inadequate	Not sure
Usual quality of PPE	Satisfactory	Unsatisfactory	Not sure
Facilities for hand hygiene	Adequate	Inadequate	Not sure
Availability of food during ward duties	Satisfactory	Unsatisfactory	Not sure
Availability of drinking water	Satisfactory	Unsatisfactory	Not sure
Grievance redressal available	Yes	No	Not sure
Experience of grievance redressal	Satisfactory	Unsatisfactory	Not availed
Quality of quarantine facility	Satisfactory	Unsatisfactory	Not availed
Have you been assessed for stress/anxiety/depression in the previous 1 month?	Yes	No	-
What is your sleep quality in the previous 1 month?	Good	Poor	Average

CONCLUSION

COVID-19 cases in India show an accelerating trend with the increasing development of hotspots and clusters. Infection and disease in healthcare workers and their families can undermine efforts in combating and controlling the pandemic in India.^[16] There is growing recognition that HCWs perceive the extent of organizational implementation of infection control and patient management strategies as essential risk mitigation strategies.^[17] Consequently, there is an urgent need for regular assessment of COVID-19 health facilities to assess their preparedness in preventing infection and promote their health-care employee satisfaction.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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