

# Precaution & Safety recommendations for hospital duty during covid-19

Dr Piyush Kumar, M.B.B.S., E.M.O.C., <sup>1</sup>

<sup>1</sup>Affiliation not available

May 12, 2021

# 3 FACTORS TO HELP YOU MAKE SAFER CHOICES

WHEN YOU'RE IN AN AREA OF WIDESPREAD COVID-19 TRANSMISSION

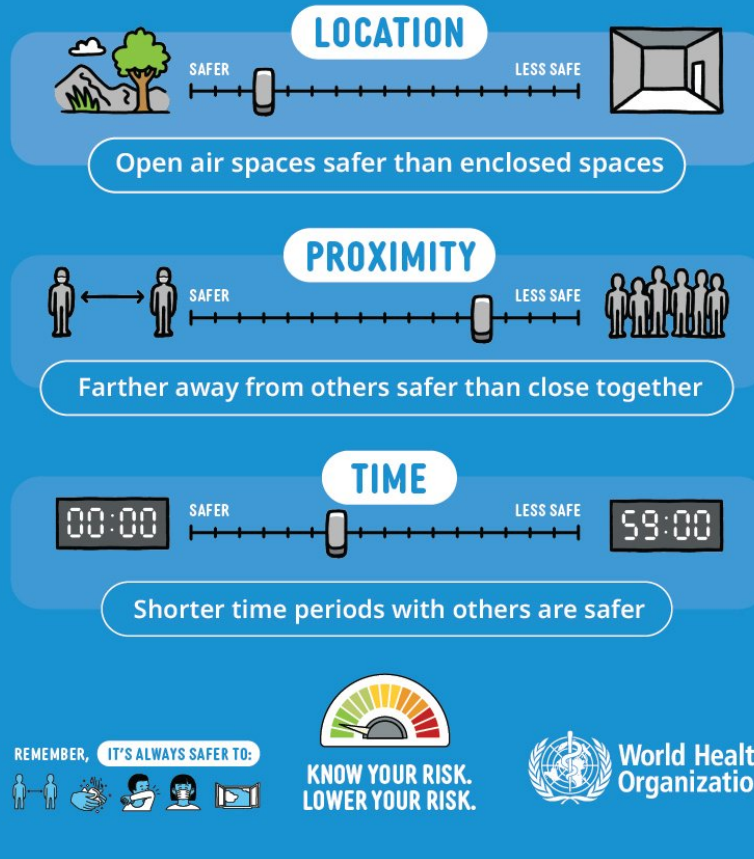


Figure 1: Safety measures-WHO

## Qualification & Affiliation-M.B.B.S., Bihar Health Services, Government of Bihar, India

The current ongoing coronavirus pandemic caused by SARS-CoV-2/covid-19/novel coronavirus is an acute infectious communicable disease spreading mainly via respiratory, eye, mouth and other possible routes from person to person as well as through contact with infected non living objects. Added to previous global burden of NCDs (non communicable diseases) & other communicable diseases this new pandemic burden of covid-19 pandemic have put a stress on already overstressed health system of India particularly poor states like Bihar.<sup>11</sup>Kumar P. What Impact Have SARS-CoV-2/Covid-19 Pandemic on the Reproductive and Child Health Programme of Bihar in India over the 3 months after nationwide Lock down announcement in March 2020? How SARS-CoV-2 Pandemic era does influence RCH Programme? Immunisation, Maternal Health,

Family Planning, Research Square, 2021 DOI: 10.21203/rs.3.rs-348841/v4. The delivery of health services is of utmost importance and prime concern in India particularly poor states like Bihar due to high population load with limited resources, poor infrastructure and huge demand on healthcare system. **The Healthcare workers (HCWs) are particularly vulnerable group hence this topic needs essential attention and protection.**<sup>22</sup><https://www.researchsquare.com/article/rs-360551/v1>

The SARS-CoV-2 pandemic had presented a challenge even for developed healthcare systems around the world.<sup>33</sup><https://europepmc.org/article/ppr/ppr304897> A sense of fear gripped the whole world due to pandemic and India is not an exception. The scarce healthcare resources including manpower, infrastructure, transportation (ambulance services) etc. have been largely deployed to tackle the situation of pandemic of Covid-19. This shift & covid-19 pandemic has tremendous and detrimental effects on HCWs. The healthcare workers of India as well as Bihar are getting frequently infected leading to death of thousands of healthcare workers till date. Although there are several guidelines issued for precaution and safety at workplace by WHO (world Health Organization) & several accredited organizations but a protective and supportive approach from local management and governance is need of the hour. It seems that there is failure of protective and preventive measures at workplace documented and evidenced by several deaths of healthcare workers. Consequently it is apparent from above scenario to ensure the health and safety of healthcare workers in order to control the outbreak and decrease panic and fear among healthcare workers. **In this article I am sharing methods and various ways for protecting healthcare workers (HCWs) while having hospital duties as well as policy makers and management people can also find this article useful while making policies for protecting and safeguarding HCWs.** This article aims to reduce incidence/prevalence as well as mortality and morbidity of HCWs in Bihar by suggesting important precautions, preventive measures and other facts to be adopted by healthcare workers at workplace as well as drawing attention of policy maker, important stakeholders and management people to provide protection to HCWs.

Healthcare workers (HCWs), covid-19 infection, safety, pandemic

**Background: The case fatality rate among doctors due to Covid-19 infection is far more in Bihar says IMA (Indian Medical Association) official** “Doctors account for 0.5 per cent of the total deaths in India due to Covid-19. However, in Bihar, the percentage of doctors’ death is 4.75 per cent, which is nine times more than the national average,” said senior vice-president of IMA-Bihar Dr Ajay Kumar. “In other states, doctors doing duty in Covid-19 wards are quarantined for 15 days after 15 days of continuous work. This arrangement is not followed in Bihar, as a result of which our doctors remain exposed to Covid-19 patients far longer than in other states. In fact, in Bihar, doctors are working continuously at a stretch since mid-March2020, without even an off day,” said Dr Kumar. Protective gears available here are questionable.<sup>44</sup><https://www.hindustantimes.com/india-news/death-rate-among-doctors-due-to-covid-far-more-in-bihar-says-ima-official/story-I6hRm0eoJAVXMWSgcyu8zN.html>

There is a growing concern and sense of fear among healthcare workers of Bihar erupting from the news regarding daily death of HCWs due to covid-19 infections acquired at workplace, violence & struggle at workplace, scarcity and supply of inferior quality PPE<sup>55</sup><https://www.telegraphindia.com/india/bihar-doctor-deaths-blamed-on-inferior-ppe/cid/1788730> see **figure 3 a doctor (author himself)** working in Bihar using bedcover as PPE kit for protection due to scarcity of PPE kit. The healthcare workers are under undue stress due to several factors added to this which may affect mental health as well as physical and social health status of care providers. On March 11, 2020, the World Health Organization announced covid-19 as a pandemic and within no time infection first discovered in china (december2019), Hubei province reached India in January 2020. The health work force in Bihar is struggling since then with strict regulation and legal bindings as well as scarce resources added with regular death of workers and patients creating stress and panic. In the current year 2021 and last year 2020 healthcare workers have had a high rate of infection hence for safety of healthcare workers it’s important to ensure that procedures, equipment and training are fully protective. At the same time long term, nursing, and resident care providers should have guidance for long term care, nursing homes, assisted patient living facilities and other resident care facilities such as

ICU/covid-19 wards for protective measures to reduce the high incidence and prevalence of covid-19 cases and deaths of workers. Emergency services must have critical infrastructure to be able to function properly including law enforcement, fire and violence safety etc. This time last year in 2020 India was under lockdown phase, many theories about India's surprisingly low rates of Sars-CoV-2 infection included variety of factors including hot weather, natural immunity, heard immunity, robust health system, highly qualified doctors and the country's high proportion of young people; some also attributed it to the country's harsh lockdown. India was doing so well that in megacities like Mumbai and Delhi, officials had begun dismantling temporary COVID-19 facilities. Comparing it to current scenario in April 2021, cases and deaths are soaring. The shortage of beds and space is so acute that people are dying in car parks and other places while waiting to be admitted in hospitals. Daily rates are currently over 300,000, the world's highest-ever daily infection rate. The SARS-CoV-2/COVID-19 pandemic is still going on and globally as well as in India particularly healthcare system is overstressed with this new burden added with previous NCD(non communicable diseases) & CD(communicable diseases). The First human case of this global pandemic was reported from Wuhan city of China in December 2019. The first case of COVID-19 in India was found in January 2020. Today India is having more than 3 lakh cases per day and thousands of deaths daily due to this pandemic. The situation is very worse as compared to previous year and is worsening day by day due to several factors.<sup>66</sup><https://covid scholar.org/article/608d13484e85066fbf2f1797>

**Objective and Goals:** The key objectives and goals are to increase safety and healthy lifestyle adoption among healthcare workers & providers to reduce mortality and morbidity. Creating awareness & providing training to health care workers for infection control, protective measures, home care, long term care, clinical care etc. The government and policy makers should ensure making and enforcement of safety/preventive/protective protocols to ensure safety at workplace by reducing exposure to SARS-CoV-2 infection sources by using PPE & WASH measures etc. The health department should provide training for Capacity building & awareness among healthcare workers to protect themselves & Creating awareness particularly about good nutrition and sleep which often remain neglected.

Establishment of Central advisory committee and research wing at state level to keep health workers updated about latest information and guidelines of treatment as these things are changing continuously & almost daily with new findings. Use of reliable and highly accredited sources such as WHO, ICMR, MoHFW, CDC , peer reviewed publications of reputed science journals etc. for providing information to healthcare workers can be utilized to explain basic factsheet of covid-19 virus and disease through IEC etc., incubation period & transmission through droplet, aerosol, contact and other possible routes (stool etc). Risk assessment of workplace should be carried out by analyzing various parameters related to infection & Stepwise approach instead of high technical letters to demonstrate steps of worker protection in real scenario by experts giving clear description and vision on worker protection and IPC (infection prevention and control).Special capacity building & training of healthcare workers involved particularly in invasive and aerosol generating procedures to protect themselves as well as training of healthcare workers for using PPE , respirators, ventilators etc as well as regarding decontamination of medical and surgical equipments. Health promotion and motivation of healthcare workers by traditional yoga, moral and financial support as well as providing working environment with adequate rest hours to ensure good health added with entertainment programs to divert anxiety.

## Methodology

**Developing a safety protocol** with all important stakeholders of health department and other concerned authorities such as police department to establish Intersectoral multidepartment approach for solving issues, the safety protocol with division & statement regarding responsibility of Employer and Health care worker as well as other concerned department and authorities. A proper **classification of safety protection** , hazards and involved risk

## See Table 1

There should be reasonable working hours of HCWs as per health facilities . Workers of Health facilities having heavy workload and more number of patients should have reduced working hours and more HCWs to

work in different small shifts and vice versa. Responsibilities & protection of healthcare workers with legal acts like Epidemic disease act and various labour laws, ward and workplace protection should be considered & modified as per situation to address vulnerability of workers to occupational, social, financial, mental, and physical with other recognized and non-recognized hazards added with providing a safe and protective working environment with nil corrupt and illegal practices. Active participation of workers of health task force from all categories is required in development and implementation of safety and health policies with continuous monitoring and evaluation of effectiveness of protocols and guidelines related to safety in order to modify if required at any stage of the cycle of safety operations. **See figure1** . The Government should establish quick grievance Redressal cell exclusively for healthcare workers with transparency and nil corrupt practices.

Considering the healthcare & population ratio to divert load as well as considering fact that loss of one healthcare worker is going to reduce the health coverage of population and will put more stress on already overstressed health system. The agent virus of SARS-CoV-2 is changing continuously and virulence and case fatality rates are also changing accordingly. Keep everyone aware of global and local scenario by establishing communication channels with healthcare workers exclusively to avoid panic and misinformation. Reservation of special beds for healthcare workers on priority basis added with proper treatment especially senior healthcare workers and workers vulnerable due to co morbidities due to pre-existing health conditions/illnesses such as hypertension, DM, COPD, AID etc.

## Protective Methods:

### Settings and Designs-

- Provide proper, timely information and capacity building among healthcare personals for being prepared for self protection and testing if required, addressing the fact that an infected symptomatic/asymptomatic healthcare personal can spread the infection to colleagues , household members , public as well as non infected patients of NCD etc.
- Establish and implement using regular guidelines of wearing proper mask of safety standards as well as changing it as per guidelines, other PPEs, social distance when possible, WASH guidelines for sanitation-hygiene, good nutrition, proper sleep and stress reducing measures, sanitizer or soap use as per availability. Infection control training must be provided to all HCWs. Must know steps and order of wearing and removing personal safety gears – see Table 2 Applying different level of protection for HCWs working in different settings see **Table 1**
- Avoid touching source of entry of covid-19 i.e. eye, nose, mouth during working hours at hospital and if possible after duty too. Inform timely if you have symptoms and with isolation take proper treatment as per standard guidelines. During isolation don't forget to disinfect cloth etc. Nutrition is very important to help body have sufficient energy to fight hence have a proper balance diet with special recommendations. If you are not expert avoid self medication and contact expert.
- Maintain daily disinfection of all surfaces of hospital area with disinfectants. The virus may persist on surface for several hours. For ward protection divide ward in different areas – **see Figure2 Conceptual scheme of workplace protection** for healthcare workers (HCWs). The green arrows show the direction of movement of the HCWs; the red arrows show the direction of movement of the coronavirus disease 2019 (COVID-19) patients. The entrances to all rooms were marked with specific signs warning the HCWs to move in the right direction. Patients testing positive for COVID-19 were directed to the quarantine ward/ICU/other wards as per triage considerations they were placed in different isolation rooms/wards for further treatment. The clean area comprised the office where the medical staff worked, and measures were taken to prevent the virus from entering this area. The disinfection room was the place where the HCWs disinfected their personal belongings (cell phone, watch, and so on) and performed hand hygiene. The preparation room was the place where the HCWs dressed in appropriate personal protective equipment (PPE). The negative pressure operating room was designated for the surgical treatment of COVID-19 patients, and it is an effective measure to control the source of infection and block the route of transmission.

- Key questions - does the work setting require close contact with covid-19 infected confirmed cases? Do specific job duties require close repeated or extended period of contact with covid-19 cases? Is there community spread of the virus in the workplace? Will a worker paid if quarantined? What can be done for workers who have no paid sick leave? How to ensure free of cost treatment to healthcare workers particularly having low wages when government have fixed daily treatment cost at several thousand per day in private facilities? Other impacts? Why the expired healthcare workers families have not yet received the benefits announced by the government?
- Rapid identification and isolation of covid-19 cases to ensure symptomatic workers are not in public places, relaxing room/waiting rooms, reception areas, emergency departments or other common places used by healthy workers. Fresh joining health worker history of travel etc and test must be done for covid-19 before joining for isolating infectious cases.
- Gathering at workplace should be avoided to reduce potential of exposure. Contact tracing of cases at workplace, containment, education, communication for mitigation of further problems. Restriction on public events like birthday etc at workplace.
- Proper ventilation, plastic shields, sneeze guards, masks, N-95, respirators as per need of the work with training and drills.
- Allow sick worker to stay home and limit number of staff present for high potential exposure tasks. Period check up of health workers for assessing physical, mental and social well being should be done on routine basis.
- **Protection of workers right** such as safety standards, regular supply of PPE etc.

**Discussion-** Covid-19 infection presents with multitude of symptoms such as fever ,cough, shortness of breath, sore throat, runny or stuffy nose, body ache, pain abdomen, shivering/chills, fatigue, gastrointestinal upset/diarrhoea, anosmia, anorexia, nausea, vomiting. In more severe cases breathing difficulty/shortness of breath, persistent pain or pressure in the chest, confusion, and signs of CNS involvement, cyanosis (bluish lip or face). Covid-19 must be differentiated from seasonal-flu and other respiratory diseases of upper and lower respiratory tract through clinical sign / symptoms and laboratory investigations. CFR is more for covid-19 as compared to seasonal flu. Treatment is mainly supportive and symptomatic.

HCWs with high potential for exposure- covid-19 ward duty, laboratories testing covid-19 samples, autopsy work, bronchoscopy, sputum induction, dental procedures of covid-19 cases, aerosol generating procedures, ambulance workers carrying covid-19 cases and dead bodies of covid-19 patients, housekeeping workers of covid-19 wards and ICU facilities should be protected at any cost to ensure the continuous delivery of health services.

## Conclusion:

- Investigate and observe healthcare worker having signs and symptoms of covid-19 as well as cases having potential exposure within 14 days before onset of symptoms. Keep these in suspected cases list.
- Triage of Health workers as per laboratory confirmed and suspected cases, mild/moderate / severe cases and provide treatment as per prescribed latest guidelines.
- Vaccination of healthcare workers on priority basis with due consideration to efficacy and effectiveness of vaccines.
- Maintaining critical utilities and infrastructure is necessary to provide adequate treatment as well as rostering personnel according to requirements keeping reserve for future.
- Supportive policy and communication to ensure continuum of activities and services. Stocking supplies and using multiple suppliers to ensure continuity of operations.
- Covid-19 workplace plan should be made with management leadership with hazard identification and risk assessment. Strategy for hazard prevention and control, risk communication, education, training, system evaluation and improvement etc should be implemented.
- Special precaution for healthcare elderly workers and those with pre-existing health conditions and co morbidities
- With the rapid spread of COVID-19, the healthcare systems & HCWs are facing severe burdens.

- A large number of medical staffs are infected due to the lack of adequate protection. Currently, the COVID-19 pandemic is growing day by day with lack of essential facilities for treatment. Some experts have warned of a possible third wave of COVID-19.

In the long run, proper protection from contracting COVID-19 in clinics/opd/ipd and hospitals is necessary and should be made norm. The protection of HCWs and appropriate training are of paramount importance in the fight against COVID-19 pandemic.

I hope my protocol of measures will successfully control COVID-19 infection in our Health department, can help HCWs minimize the risks of infection in medical facilities around the public and private health facilities of Bihar and also useful at national and international levels.

#### **'Declarations':**

-This paper has not been previously published and is not currently under consideration by another journal. The document is Microsoft word with English (India) language & 3536 words Total.

#### **- Ethics approval and consent to participate:**

Not applicable. This study has not involved any human or animals in real or for experiments

**-Consent for publication:** Not applicable

**-Availability of data and materials:** The data & materials for study is mentioned as references

#### **-Conflicts of Interest/ Competing Interest**

There are no conflicts / competing of interest

**- Funding-** Self sponsored. No aid taken from individual or agency etc.

**- Authors' contributions :** The whole work is solely done by the Author - Dr Piyush Kumar,

**- Authors' qualification :** M.B.B.S. - Sri Krishna Medical College, EMOC- PMCH

**- Authors' affiliations:** General Medical Officer- Bihar Health Services- Government of Bihar,

**- Acknowledgements-** I am thankful to **Advocate Anupam** my wife for cooperation.

**- Author information:** The author is currently working as general medical officer for the government of Bihar.

**-Financial Support & sponsorship:** Nil

#### **REFERENCES**

Kumar P. What Impact Have SARS-CoV-2/Covid-19 Pandemic on the Reproductive and Child Health Programme of Bihar in India over the 3 months after nationwide Lock down announcement in March 2020? How SARS-CoV-2 Pandemic era does influence RCH Programme? Immunisation, Maternal Health, Family Planning, Research Square 2021 DOI: 10.21203/rs.3.rs-348841/v4.

<https://www.researchsquare.com/article/rs-360551/v1>

<https://europepmc.org/article/ppr/ppr304897>

<https://www.hindustantimes.com/india-news/death-rate-among-doctors-due-to-covid-far-more-in-bihar-says-ima-official/story-I6hRm0eoJAVXMXWSgcyu8zN.html>

<https://www.telegraphindia.com/india/bihar-doctor-deaths-blamed-on-inferior-ppe/cid/1788730>

<https://covid scholar.org/article/608d13484e85066fbf2f1797>

#### **Figures and Tables –see below**

Figure 1 - monitoring and evaluation of effectiveness of protocols and guidelines

Figure 2- Ward protection- divide ward in different areas & apply different levels of protection

Figure-3 – A doctor working (author himself) in Bihar, India using bed sheet as ppe kit and personal goggles for protection.



TABLE 1 Infection control measures across different levels of protection-safety protection classification

Level of required protection	Personal protective equipment & others safety gears, sanitizer, soap	Recommended usage as per settings (examples)
Level 0 (low)	White coats, surgical mask of WHO standard, surgical cap, shoe etc. sanitizer, soap	Clean area, office healthcare workers
Level I (medium)	Protective suits, surgical mask or N95 respirator, protective goggles, gloves, shoe covers, surgical cap etc as per availability sanitizer, soap	Ward rounds, visiting covid-19 and other patients area of hospital



Level of required protection	Personal protective equipment & others safety gears, sanitizer, soap	Recommended usage as per settings (examples)
Level II (high)	Protective coveralls, N95 series respirator, protective goggles, gloves (double), long shoe covers, surgical cap	Transferring patients in wards/ambulance, dressing change of covid-19 patients, stitches removed and procedures on covid-19 patients
Level III (very high)	Protective coveralls, N95 respirator and surgical mask, protective goggles, gloves (triple), long shoe covers, surgical cap, powered air purifying respirators etc as per availability sanitizer, soap	Contact with patients' blood, body fluids, and involvement in any aerosol-generating procedures and prolonged contact with covid-19 patients

Table 2-steps and order of wearing and removing personal safety gears

Step 1	Step 2	Step 3	Step 4	Step 5
For removal Remove protective coverings inside out including gloves	Perform surgical hand wash with all steps	Remove cap goggles from behind	Remove mask from behind	Perform hand wash and or apply sanitizer
For wearing Perform hand wash and or apply sanitizer	Check safety gears for damage hole etc	Wear proper fitting sterilized safety gears	Check comfort after wearing	Wear safety gears as per recommendation

References as endnote