

Original Article

Factors affecting High-Risk exposure amongst Health Care Workers (HCW): Audit of COVID-19 Risk Assessment Committee from Tertiary Care Centre in North East India

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Introduction: Quarantine and testing of High-Risk exposures of COVID-19 positive Health Care Worker (HCW) are recommended as per Ministry of Health & Family Welfare (MoHFW) guidelines. Many factors prevail when a HCW becomes High-Risk contact of a positive HCW during or after work hours.

Materials & Methods: Risk Assessment Committee (RAC) was constituted to assess the risk (high or Low) of exposure for contacts of COVID-19 positive HCW or patient. Direct or telephonic interview of HCW done for risk assessment. Based on the questionnaire of MoHFW guidelines, the contact is categorised as "High" or "Low" risk exposure. We performed an audit of these interviews to determine the various factors that lead to HCW being categorised as High-Risk contact of positive HCW.

Results: Having food together (lunch, tea, snacks etc.) was the commonest factor amongst the HCWs for reporting them as High-Risk contact. Other reasons included long conversations (>15minutes) without wearing a mask or proper PPE, sharing common vehicle to commute, personal visits to colleague's home, spending social time together and not wearing gloves or improper hand hygiene. Routine hospital services were severely affected (including shutting down of OPD & diagnostic services and delay in routine surgery) due to quarantine of High-Risk HCWs.

Conclusion: HCWs shortage and disturbance in routine hospital services is preventable by adequate social distancing norms and PPE protocols during and after work. Maintenance of social distancing among HCWs especially after work should be an important and ongoing task to counter COVID -19 transmission.

[J Indian Med Assoc 2021; 119(1): 56-9]

Key words : COVID-19, High-Risk Exposure, Health Care Worker, ICMR, MoHFW.

From January 2020, many Health Care Workers (HCWs) are exposed to COVID-19 outbreak in India. HCWs (including doctors, nurses, sanitation, and administrative staff) are part of the hospital, which cater to COVID-19 positive patients and are theoretically at more risk to be infected compared to the general population. Similarly, if an HCW becomes

Editor's Comment :

- Health care workers (HCW) may become high risk contacts of COVID positive colleagues in the presymptomatic or asymptomatic stages.
- Social interactions greater than 15 minutes, sharing of beverages and snacks and vehicle sharing without proper distancing and masks are common ways of exposure
- HCW shortage and hampering of hospital services is preventable if caution is exercised.

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Received on : 10/10/2020

Accepted on : 10/01/2021

positive for COVID-19 infection all his/her contacts are at risk of getting the infection. Exposure risk assessment from a positive HCW or patients (to his/her colleagues) is performed as per the Ministry of Health & Family Welfare (MoHFW) guidelines¹. A quarantine period of 14 days and ICMR (Indian Council of Medical Research) testing protocol is advised for High-Risk category contacts of an HCW^{1,2}. Low-Risk exposure contacts can continue normal work with advice to self-monitor their health for the development of symptoms and report if any such symptom occurs.

Some of the HCWs including doctors, nurses and supporting staff (technicians, cleaners. etc) have

designated duty in handling the COVID positive patients. These HCWs are provided with adequate Personal Protective Equipment (PPE) as per the MoHFW guidelines³. Rational use of PPE (full or Partial) is followed at our hospital for COVID and non-COVID areas as per these advisory orders. As the number of cases increased slowly at our hospital, some of the HCWs (including doctors, nursing officer, security officer and cleaning staff etc) were infected with Novel Corona Virus. The herculean task of contact tracing and risk assessment was done for the HCWs who encountered positive HCW. Risk Assessment Committee (RAC) attributed many factors to the designation of HCW as High-Risk exposure.

MATERIALS AND METHODS

A Risk Assessment Committee (RAC) was formed to assess exposure level "High or Low" for the contacts of COVID-19 positive HCW or patient at our hospital. Contact Tracing Committee (CTC) derived the list of all possible contacts of a COVID positive HCW or patients. Designation of High Risk or Low-Risk Contact was done as per questionnaire form of MoHFW advisory guidelines¹. RAC members did a direct interview (if the HCW is present in hospital) or telephonic interview of the HCWs. Whenever there was a doubt RAC committee members consulted amongst each other and nodal officer at our hospital to assign final risk category. RAC members and HCWs maintained social distancing norms and PPE protocols during these interviews. During the interview, the RAC committee noted many factors, which lead to the designation of High-Risk category for any HCW. We did an internal audit of all these factors to know the various reasons behind such situations. The RAC committee analyzed the interview data and recollected various factors in ranking orders that lead to High-Risk categorization of HCWs due to interaction with COVID positive HCW.

RESULTS

Between 24 June 2020 and 30 July 2020, RAC members interviewed 409 HCWs (including Doctors, Staff, sanitation worker etc) Out of these 171 HCWs were categorised as High Risk and 238 as Low-Risk exposure. Out of this High-Risk Contacts 145 were exclusively from COVID-19 positive HCW (i.e. from the interaction of COVID positive HCW with other HCWs). On analysis of interview details of these High-Risk contacts of HCW, we found that having food together (lunch, tea, snacks etc.) was the commonest cause

amongst the HCW for categorising them as High-Risk contact of positive HCW. Other reasons (in decreasing order) included long conversations (>15minutes) without wearing a mask or proper PPE, sharing common vehicle to commute. Personal visits to colleague's home, spending social time together and not wearing gloves or proper hand hygiene during or after work. Routine hospital services were severely affected (including shutting down of OPD & diagnostic services and delay in routine surgery) due to quarantine of most of the staff who were High-Risk exposure. Routine patient care was affected due to inadequate staff during this time.

DISCUSSION

Human nature is to socialize and keep healthy social interaction. Social distancing is a non-pharmaceutical, most effective and simple way of prevention of COVID-19 transmission in public as well as hospital premises. Health Care Workers (HCW's) theoretically are at increased risk of COVID-19 infection owing to the service they provide in hospital for patients (COVID positive or negative). The MoHFW has put an advisory for Personal Protective Equipment (PPE) protocol for hospitals³. Despite these appropriate PPE measures, there is COVID-19 transmission amongst HCWs during their work. Many factors like a breach in PPE, the emergency aerosol-generating procedure (intubation, tracheostomy etc.), poor infection control, lack of PPE, improper donning and doffing of PPE etc. has been postulated to increase this risk of transmission^{4,5}. Some authors also gave solutions for HCWs to limit infection spread^{6,7}. Occasionally an HCW is an asymptomatic carrier of COVID-19 and they continue to work at the hospital. COVID-19 testing of such HCW is done when they are symptomatic or as a part of routine screening after completion of COVID duty as per ICMR protocol². However, before an HCW is tested positive he has already interacted with other HCW at workplace either during his duty hours or after duty hours. Some of the HCW also hold other administrative posts (like the head of departments, members of various hospital committee, nursing in-charge etc etc) and carry out these responsibly over and above the clinical work at the hospital.

A contact is a person with a history of exposure with probable or confirmed case within 2-14 days⁶. Contact tracing of HCW who had come in contact with

COVID-19 positive HCW is a major issue. This contact could have happened either during the clinical or administrative work or sometimes as a personal interaction amongst HCW. Some of the HCW may have tea. Coffee, snacks after work, some may share a common vehicle to go home, some may visit each other's house with personal reasons or may go to market place together after work. There are many possibilities where one HCW can come in close contact with other HCW during or after work hours. Even though strict PPE protocols are maintained during clinical work (COVID duty, ICU, OPD, Non-COVID hospital areas, lab work etc.), such strict PPE protocols are not possible after work hours and as per advisory partial PPE protocols are maintained.

We observed that most of the time the personal contacts between COVID positive and negative HCW occurred outside duty areas where full PPE protocols are not necessary as per the advisory of MoHFW. The RAC members unanimously found that having tea, snacks, and food together is the commonest reason for close contact with positive HCW with obvious violation of PPE protocol. Long conversation of >15 minutes with fellow HCW after duty without face shields, sharing common vehicle to commute, visit (unofficial) to colleagues home, spending social time together in quarantine, not wearing gloves or not maintaining proper hand hygiene during personal interactions were other common reasons of close contact with positive HCW. Some awkward findings like giving each other haircut, donning and doffing together in changing room, having food together during the quarantine were noted during an interaction between RAC members and HCWs. Interaction of HCW in COVID duty with an HCW at non-COVID duty after work hours is also a factor noted in some cases. Sometimes HCW in COVID duty also went for official or administrative work to other non-COVID areas of hospital and interacted with other HCWs at non-COVID areas.

Our routine hospital services were severely affected (including shutting down of some OPD services & diagnostic services and delay in routine surgery) due to huge task of contact tracing and quarantine of High-Risk HCWs leading to the workforce shortage in some sections of the hospital.

Based on our interviews, discussions and risk assessment work analysis we came out with a take

home message cum advisory to avoid or minimize the risk of transmission amongst HCW. This advisory must be followed in addition to the MoHFW guidelines, which are freely available online and are updated regularly.

Advisory /Take Home Message for Health Care Worker (HCW) :

(A) During work :

- (1) Strict Social Distancing during work hours.
- (2) Follow strict PPE protocol (COVID and non-COVID areas) as per advisory from hospital administration.
- (3) Only one HCW allowed at any time inside changing rooms.
- (4) Donning and Doffing of PPE must be done in designated areas. If the "Buddy system" is followed, only one HCW of a team should do donning and doffing at one time ¹.
- (5) HCW workers must not engage in common activities like tea, snacks, lunch etc.
- (6) HCW should refrain from long interactions with fellow HCW and if required use of non-direct communication modes like mobile phones, intercoms or emails should be done.
- (7) HCW working in COVID area should minimise/avoid visits to Non-COVID areas of the hospital.
- (8) HCW working in COVID areas should avoid interactions with HCW from non-COVID areas.
- (9) HCW should avoid sharing common articles like pens, stationery material etc.

(B) After work :

- (1) HCW should avoid social interaction with other HCWs after work hours.
- (2) HCWs should avoid sharing tea, coffee and snacks after work hours.
- (3) HCWs should avoid visits to each other's house unless essential.
- (4) HCWs should avoid sharing vehicle to travel.
- (5) For common buses for HCWs, maintain social distancing and PPE protocol.
- (6) Maintain social distancing after work hours and especially during quarantine of HCWs.

There are some limitations to our analysis. The risk assessment form by the MoHFW does not have any column for noting reason for High-Risk exposure. RAC members analysed the factors as per recall from the interview. We have also not included the most common factor of High-Risk exposure i.e HCWs performing clinical/administrative work for long hours

or days together as per duty shifts. However, the point of this analysis is to determine other preventable factors. Strict adherence to social distancing, awareness of personal protection, use of appropriate PPE, adequate advisory, surveillance and proper actions would continue to play an important role in minimising the risk of COVID-19 infection among healthcare workers.

CONCLUSION

Maintenance of strict social distancing especially after work hours should be an important and ongoing measure to minimize further risk of transmission among HCWs. HCW shortage and disturbance in routine hospital services is preventable by adhering to social distancing norms, PPE protocols and appropriate advisory during and after work.

Financial Support & Sponsorship : NIL

Conflicts of interest : NIL

Source(s) of support : NIL

Presentation at a meeting : NIL

Conflicting Interest : NONE

Acknowledgement: NIL

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****VERY IMPORTANT UPDATE FOR FAMILY PHYSICIANS****

In a study published in the Annals of Internal Medicine on 20 October, 2020 Chow et al showed that influenza increases the risk of acute cardiovascular events. Thus, all patients with some cardiac condition should receive the seasonal flu shots.