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RAPID COMMUNICATION

Contact Tracing for COVID-19 in a Healthcare Institution in India: Our Experience and Lessons Learned

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Abstract

During the initial phases of the COVID-19 pandemic contact tracing was used to control spread of the disease. It played a key role in health care institute which continued to work even during lockdown. In this piece of work, we share the lessons learnt from the contact tracing activity done in the health care institution during April to July 2020. The training needs of persons involved in contact tracing, the follow of activities, use of technology, methods to fill the missing gaps were the key lessons learnt. Its documentation supports in setting up contact tracing activity for any emerging infectious disease outbreaks in future.

Keywords: Contact tracing, High-risk contacts, COVID-19

1. Introduction

Globally, contact tracing has been used as a public health tool to control the COVID-19 pandemic [1−4]. In India, during the early phase of the COVID-19 pandemic, a few of the health facility were shut down with diagnosis of COVID-19 among hospital staff or patients admitted in non-COVID area. This was done to stop spread of infection among health care workers. However, it led to discrimination of health staff, heightened fear, and disruption of health services. In this piece of work, we share how we conducted the contact tracing activity and avoided such shut downs and lessons we learnt. Contact tracing begins with the diagnosis of the cases. Contact tracing includes three main steps namely (i) contact investigation or identification, (ii) risk assessment and classification, and (iii) contact management. Follow-up of the contact was based on the risk stratification and the guidelines in force in the area [5−7].

2. Setting of our experience

Ours is a large teaching institution with a 2000-bed hospital in the Puducherry, an Union Territory in Southern India. A separate block was designated as a COVID-19 hospital to provide comprehensive care to patients with severe COVID-19 as per the guidelines of Ministry of Health and Family Welfare, Government of India [8]. Contact tracing was done by a team of residents in the Department of Preventive and Social Medicine under supervision by faculty and the Health Care Worker Safety Committee, which included clinicians. The team approximately included five to six members who were posted on rotation basis. This piece describes our experience with two trial runs and first 50 cases of COVID-19 within the hospital either among health care staff (n = 24) or patients admitted in non-COVID patient care area (n = 26). The primary focus of our Contact tracing activity was to identify exposed contacts among HCWs, patients and their

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attendants. This was done during April to July 2020. We conducted two trial runs in 3rd week of April 2020, using dummy scenarios. We reviewed the trial runs, reworked and modified our strategy of Contact tracing. The first Contact tracing was done on 30th April 2020 for an elderly woman who had been admitted in Medicine ward with a hematological disease for four days and then became COVID-19 positive.

2.1. Lessons learnt

1. **Contact tracing is an intensive activity:** For the first 50 cases, we identified 1929 potential contacts (median = 31 contacts per case). Of these, 217 were classified as high-risk contacts, 1178 as low-risk contact, and another 534 persons were identified as 'non-contacts'. The risk stratification follow is given in Table 1. Of the high-risk contacts identified, 56 were tested positive, including 29 family contacts, 23 HCWs, and 4 who were patients/patient's attendants. Thus, the positive predictive value of being identified as a high-risk contact for being infected was 26% (56/217). None of the low-risk contacts were tested positive during the 14 days follow-up period, however only symptomatic low-risk contacts were tested. Around one fourth of them were symptomatic. For the first few cases, we spent up to 96 man-hours per case. However, with the passage of time, due to learning from our experiences and efficient systems being put in place, the average time spent decreased.

2. **Involve the administrative head and a person from each patient care area:** During the trial runs, we began with permission from the senior-most doctor and nurse available in the ward. We faced many hurdles with it and hence we reached out to the administrative head of that area. Later, 'contact person' for each patient care area was identified by the administrative head for this activity and we had a list of around 50 contact persons and they were faculty or officer-in-charge of the patient care area.

3. **Jump start immediately:** For Contact tracing to be an effective preventive tool, contacts should be identified and managed quickly. In one-third of instances, the test results were released at night. We started the contact tracing process immediately at night so that the preliminary data was available in the morning. This aided decision making in the morning before people reported to duty. The preliminary data included, number of contacts and type of contact and presence of symptom from one to two key persons involved in that scenario.

4. **Prior preparation saves time during contact tracing:** In the initial phase, it took our Contact tracing teams a long time to obtain the list of staff working in a particular patient care area, especially for the contract/outsourced staff. This was sorted out by preparing apriori a list of

Table 1. Exposure risk assessment categories for COVID-19: definitions and action taken as per the protocol followed in our institution.

Risk categorisation	Definition used	Action taken
High-risk contact	1. Having had a face-to-face contact with a COVID-19 case within two meters for more than 15 min. 2. Having had unprotected physical contact with a COVID-19 case and did not follow hand hygiene following the contact. 3. Having unprotected direct contact with infectious secretions of a COVID-19 case (e.g. being coughed on). 4. A healthcare worker or other person providing care to a COVID-19 case, or laboratory workers handling specimens from a COVID-19 case, without recommended PPE or with a possible breach of PPE.	1. Quarantine in the facility provided at the institute for exposure in the workplace 2. Immediate testing, if symptomatic 3. If asymptomatic, testing was done once between 5 and 10th day or when symptoms developed
Low-risk contact	1. Shared the same space, such as admitted in the same ward, worked in the same room, attend a meeting or teaching session in the same room, and not having a high-risk exposure to confirmed case of COVID-19	1. Testing, if symptomatic 2. If asymptomatic: Resume work with self-monitoring of symptoms for 14 days after exposure. Test if symptoms develop.
No contact	1. Persons who were on duty on the same day, but did not share the same duty hours 2. Patients occupying a bed in the same ward as the positive case, but not covered by either of the above two definitions	1. Resume duty 2. Testing only if any symptoms appear

names and contact details of all the workers in each patient care area. This made things easier.

5. **Keep the social context in mind:** In a particular instance, the Contact tracing team telephoned contacts after 10 pm. The contacted persons found this unacceptable, leading to unpleasant conversations. This led to the learning that though we needed to begin immediately (as indicated above), we should not reach out to these persons till the morning. However, it should be done before the person reports to duty. The initial telephonic calls were long and with time the team was trained to collect only the necessary information.

6. **Be sensitive and be prepared to handle the patient's emotions:** Contact tracing involves a detailed history from the patient or his/her attendants through telephone. It is usually done soon after the disclosure of diagnosis when the patient is going through various stages of grief — denial, anger, bargaining, depression, and acceptance [9]. These emotional changes has to acknowledged and respected. Sometimes, the Contact tracing team was the first to disclose the diagnosis to the person. Hence, the Contact tracing team should be trained on breaking the bad news and efficient interview over phone.

7. **Be cautious of false information:** The decision on testing or quarantine relies on exposure status (high-risk or low-risk) which classified based on the self-reported history. We found that there were some secondary gains to be made by misreporting the exposure history. To check this, our institution's administration decided to introduce mandatory quarantine in an institutional facility than at home for all workplace-related exposures.

8. **Use computer technology:** Contact tracing was manpower-intensive and time-consuming. In the trial runs, we used hard copy forms to collect information and then input these into a computer database. Very soon, we used online tools for data collection (Google Forms) and communication within the Contact tracing team (WhatsApp). It made communication faster and more user-friendly. The employees were sensitized earlier about the need for the contact tracing activity and need for it for health care worker and patient safety. Hence, almost all complied to the contact tracing process and we had sorted to implied consent.

9. **Incorporate action along with Contact tracing:** The complete Contact tracing process for a patient may take a long time. However, other complementary activities like risk assessment for the contacts, quarantine of high-risk contacts, and testing for was initiated along with. These activities need to be manned by teams that are separate from the Contact tracing team. The contact tracing information was shared with the health care worker safety, quarantine, clinical management and patient safety team which formulated guidelines on regular basis in alignment with the national guidelines.

10. **Plan brief presentation to other stakeholders:** The results of the Contact tracing should be periodically presented, and reviewed by clinicians, nursing officers, and public health staff who are not directly involved in Contact tracing. This gives feedback on the blind, or missed-out areas. During this review meeting, we identified that contact of patients and their attendants were missed and the contact tracing process was refined to specifically include them.

11. **Channelize the flow of the information:** The flow of information within the team needs to be determined in advance. At each level, the completeness, correctness, and clarity of the information should be ensured. When we started, several people handled the same data, leading to multiple versions with consequent confusion, duplication and loss of data. Hence, we designated separate persons for data management, line listing of contacts, risk stratification and quarantine. This fast tracked our activity. Several agencies were in need of the data. Ensuring the authenticity of the request was a challenge. Hence, one member was assigned the responsibility of information dissemination.

12. **Train and periodically re-orient the Contact tracing team:** Within a few days, as the work increased and some of the messages above were learnt, the Contact tracing team was expanded to include health care workers with diverse professional backgrounds such as medical/nursing students, postgraduates from other pre and para-clinical subjects. After a few iterations, it became apparent that these team members had varying knowledge and skills. It resulted in errors and reduced efficiency as they were not well trained in interview skills. The social worker team was actively involved in counselling the distressed contacts who contacted the health care worker helpline.

13. **Innovate to identify missed contacts:** Some high-risk contacts were missed due to stigma

associated with COVID-19, emotional reaction to the diagnosis, and issues due to recall. When needed we included alternative systems namely scrutiny of the hospital records, review of CCTV footage especially for areas with high patient turnover such as emergency rooms and laboratories. In area of high patient turnover, the attending doctor or patient could not recollect who were their contacts which were identified using CCTV footage.

3. Conclusion

Contact tracing is a crucial step in the control of the COVID-19, especially in the context of health care facilities, where HCW safety is of paramount importance. It is therefore essential that Contact tracing is introduced early and is well planned keeping in mind the epidemiology of the disease, socio-cultural aspects, administrative structure of the institution, and resources available. Contact tracing is a dynamic process, with changes in the number of daily cases and the stage of the outbreak. Training and use of technology are paramount, as are prior planning and preparedness.

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Nil.

Conflicts of interest

Nil.

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Appendix 1

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