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Research Article

Best Public Health practices to Control & Prevent COVID - 19 in Haryana

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A B S T R A C T

The novel disease COVID - 19 has reached to 33 States/ Union Territories (UT) of India causing more than 49,000 infections and 1600 deaths till 6th May, 2020. Various measures have been undertaken to control and arrest the spread of this disease in country which include invocation of Epidemic Act, 1897, social distancing, nationwide lockdown, enhanced active and passive surveillance. COVID - 19 containment strategy for single large area with multiple foci and cluster is being implemented. The real war is being fought by the silent warriors, i.e. Public Health workforce of India at community level, to arrest the local transmission of COVID - 19 following mapping & micro-planning as given in National guidelines. As the quality implementation of these field activities is essential to control this disease, several Central Rapid Response Teams (CRRT) were constituted to visit States/ UTs to provide assistance in effective implementation of same. The present article is compilation of best public health practices observed by CRRT, Haryana, State, which were followed to conduct surveillance, monitoring, awareness generation, coordination etc. at community level, with objective to enable its replication by other States/ UTs.

Keywords: COVID - 19, SARS-CoV-2, Infectious Disease, Pandemic, Containment, Control, Surveillance

Introduction

The novel disease COVID - 19 has affected 33 States/ Union Territories (UT) of India causing more than 1600 deaths and infecting more than 49,000 persons till 6th May, 2020.[1] The status of this global public health emergency which has spread to 215 countries, affected 3.5 million peoples and caused 2.45 lakh deaths by 6th May, 2020[2] is continuously being reviewed by highest authority in India. Several measures to prevent, control and manage the pandemic of COVID - 19 in country through restricting entry & spread of this novel agent in the community and further management of confirmed cases has been undertaken. These measures include invocation of Epidemic Act, 1897, social distancing, quarantine of suspected carriers and complete lock down of whole nation,[3] enhanced active & passive surveillance in containment zone and passive surveillance in buffer zone.

It is noted that through various measures as mentioned above, the spread of virus can be slowed, however, as large number of undiagnosed or mild cases would be there in community transmitting the virus, isolation alone would not be sufficient to stop the outbreak altogether.[4] Hence, the COVID - 19 containment strategy with objective

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to interrupt the transmission and achieve reduction in morbidity and mortality is being implemented in country. The geographic quarantine of single large outbreak area or area containing multiple foci of local transmission is followed for containment of large outbreaks. Further, the cluster containment strategy includes enhanced active surveillance, suspects' testing, cases' isolation, contacts' quarantine, social distancing, geographic quarantine and awareness generation among public regarding preventive measures such as personal hygiene, hand washing, respiratory etiquettes etc.[5]

In order to arrest local transmission of COVID-19, the war is being fought by the silent warriors, i.e. Public Health workforce of India. As suggested in the National guidelines, the microplan to contain the outbreak of COVID - 19 in defined geographic area is being prepared. In a geographic area, the residence of confirmed COVID - 19 case is considered as epicenter and 3 Kilometers (Kms) radius around same is considered as containment zone. The containment zone may be refined on the basis of cases and contacts mapping by rapid response teams. Further, buffer zone is to be identified by adding additional area of 5 Kms radius in urban area and 7 Kms in rural areas.

The surveillance component of microplan suggest to divide the containment zone in sector consisting of 50 houses (30 in difficult area) and enlist those sectors with nodal officer. Further, active surveillance in all containment zones is to be carried out through daily house to house visit by field workers, i.e. Auxiliary Nurse Midwife (ANM)/ Accredited Social Health Activist (ASHA)/Anganwadi Worker (AWW). The activities of these workers include identification of suspect cases (as per given case definition), identification of contacts of confirmed/ suspect cases with daily follow up regarding their home quarantine status and record maintenance of their daily visits in the predesigned proforma. They are also supposed to perform counselling of household members regarding basic precautions to follow while dealing with a suspect case & awareness generation about this disease in community. Additionally, they provide mask to suspect case and inform supervisor about same immediately.

The Medical Officer (MO)/ Lady Health Visitor (LHV) has to supervise the above mentioned door to door surveillance in the assigned sectors through daily visits. The role of supervisor is to collect, collate data from health workers and submit cumulative data by 4.00 PM to control room. Supervisor has to visit any suspect case identified by search team and ensure transfer of patient to identified hospital and real time report submission in channel.

In addition, the passive surveillance is to be performed by all Government and Private Health facilities of the containment and buffer zones. These facilities has to report COVID-19 suspect cases to the supervisor of that sector on proforma designed for same.[6]

The quality implementation of the above mentioned field activities is essential for the containment of this novel disease in community. Hence, in order to assist States/ Union Territories (UT) in effective implementation of containment strategies (7) various Central level teams, i.e. Central Rapid Response Team (CRRT) visited several States/ UTs. The present article is the compilation of best practices observed during field visits in by CRRT, Haryana, State which is situated in North Western region of India. (8) These field level best practices are being shared with objective to enable its replication by other States/ UTs.

Methodology

A multidisciplinary central team consisting of respiratory physician, National Institute of TB and Respiratory Diseases (NITRD), Microbiologist and Deputy Director General (DDG), Directorate General Health Services (Dt.GHS), Ministry of Health & Family Welfare (MoHFW), visited Haryana, from 18th April to 28th April, 2020 wherein following activities were carried out:

- Field visits to 10 districts with coverage of minimum one containment and buffer zone in each district
- Review and analysis of data
- Discussions with various level authorities, implementers and stakeholders, i.e. public health authorities, clinicians, community representatives etc.

The map of Haryana indicating team's itinerary is given in image 1, wherein number depict the date of arrival in the district, arrows depict the movement of team and halt during the days of visit. The red color arrow indicate the travel of Central team within State and green and blue color arrow depict the travel of Central Team to and from Haryana State respectively.

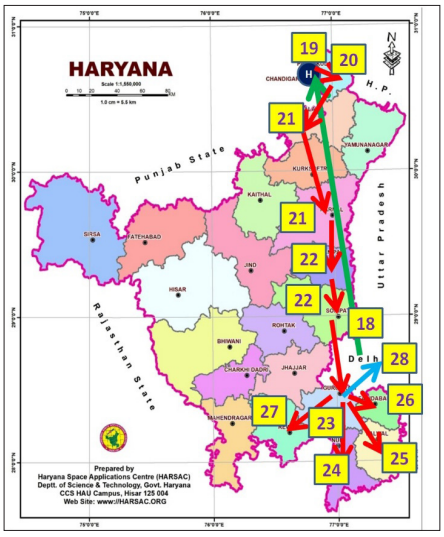

Image 1.Itinerary of central team on Haryana map

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Observations

In the situational analysis done by team it was observed that as on 18th April, 2020, in Haryana State 227 confirmed case of COVID 19 were reported out of which 88 discharged, 2 died and 137 were active cases. District-wise details are as given in the image 2 below:

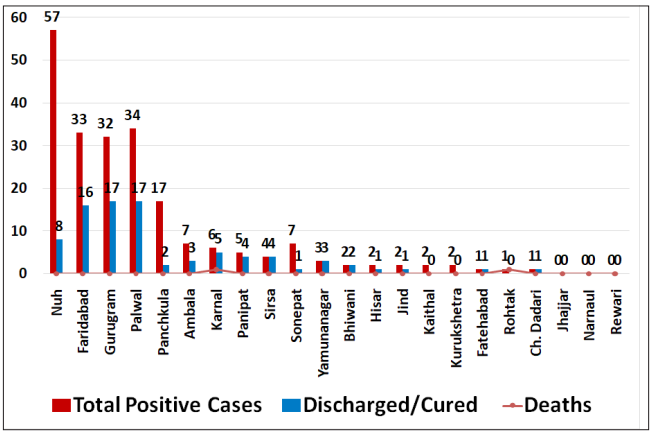

Image 2.Graph indicating district wise morbidity/ mortality status of COVID - 19 as on 18th April, 2020

In geospatial distribution analysis, it was observed that most of the cases are occurring in 4 districts of South Haryana, which are Gurugram, Faridabad, Palwal and Nuh. Additionally, districts situated along-side of Delhi-Chandigarh Highway showed high reporting. GIS based map of confirmed cases is given in image 3. The same belt was selected by central team to conduct the field visit. In addition, Rewari district was selected for field visit as it had a containment zone due to detection of COVID-19 case in Rajasthan near border.

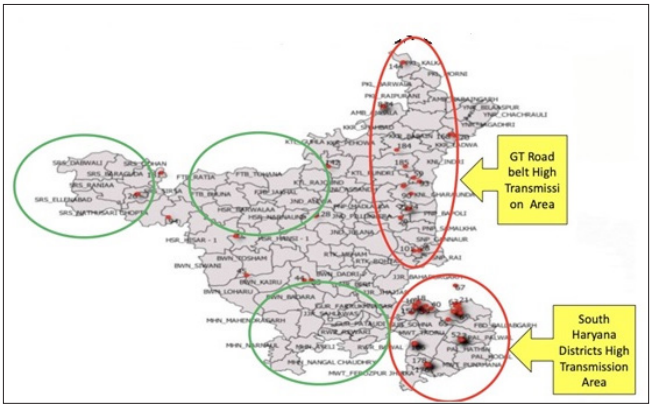

Image 3.Map of Haryana indicating district wise distribution of COVID - 19 cases

Daily trend of Cumulative COVID-19 cases, vis-à-vis key steps taken/ events happened is given in the image 4.

There were total 119 containment zones for which micro plans had been prepared in State, when the CRRT visit started. After discussion on various issues related to the implementation of central guidelines and necessary clarifications at State level, the central team started visits to districts. The districts covered were Panchkula, Ambala, Karnal, Panipat, Sonipat, Gurugram, Nuh, Palwal, Faridabad and Rewari.

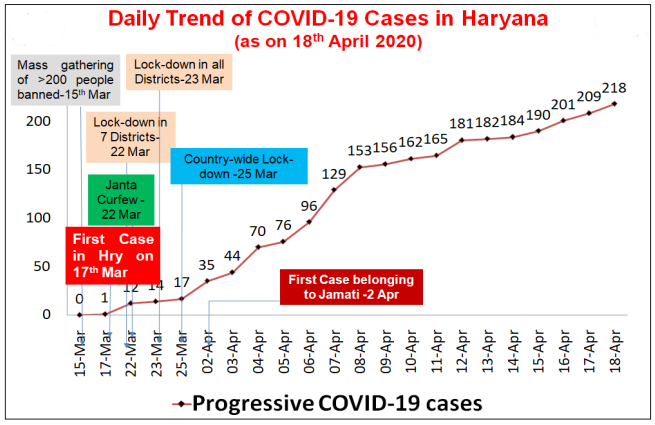

Image 4.Graph indicating progress of COVID - 19 vis-à-vis key steps/event in Haryana

Major observations regarding field activities are as given below:

- The door to door surveillance for active case finding for Influenza Like Illness (ILI) cases was being implemented in all the containment zones visited.
- In Ambala district several good practices were observed which are as below:

  - Utilization of loudspeakers in Temples, Mosques and Ambulances for audio IEC activities of COVID-19.
  - Sharing of live locations by mobile teams to monitor their movements in the containment zones.
  - Extensive use of thermal scanners by the field teams deputed for active surveillance for early identification of suspects.
  - Video calling to monitor home quarantined NRIs.
  - Manufacturing of dead body bags to carry the dead body of COVID 19 patients.
  - Manufacturing of reusable autoclavable Hazmat Suit for Personal Protective Equipment (PPE) (Image 5).

Image 5.Hazmat Suit

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- In Panipat, it was observed that the sensitization trainings and activities for awareness generation of all the Sarpanches and Indian Medical Association (IMA) Doctors conducted at the very beginning in the month of February, 2020. Other proactive measures performed by Panipat are as below:

  - House to house survey of whole population of the district and testing of eligible ILI cases for COVID 19.
  - Quarantine of each and every person entering in the district from high endemic districts.
  - Identification of persons entering in districts from high endemic districts, with the support of Gram Panchayat, Police, Common people.

- In Gurugram, exit and entry record were being maintained by Resident Welfare Association (RWA) security guard as a routine at containment zone at Suncity, Sector 54 (Image 6).

Image 6.Containment zone at Suncity, Sector 54, Gurugram

- In district Nuh, it was found that in addition to survey for ILI, IEC activities were being performed by teams during daily house to house visit in each and every household through interpersonal communication (IPC). In addition, IEC activities were conducted through loudspeakers from mosques and through scout students (image 7).
- In the containment zone visited in Nuh, collection of the biomedical waste especially all types of Masks in yellow bags from rural areas was done with the support of gram sarpanch.

Image 7.IEC material displayed by scouts/ local volunteers

- In district Palwal, it was observed that

  - Team of civil surgeon was supported by 3 Public Health Specialists from Community Medicine Deptt. of Al-Fla Medical College Faridabad. This team besides supporting field activities, also performed critical analysis of district's COVID 19 data for better decision making.
  - Passive surveillance was being done through mobile teams in the containment zone devoid of health facilities.
  - District authorities, had created a whatsapp group of panchayat heads for effective communication.

Image 8.Interaction with village Sarpanch

  - A district level war room for COVID control activities was created to:

    - Act as a call center to provide COVID related information to general public.
    - Assign activities to heath work force working in the field.
    - Perform compilation of records.

- In district Faridabad, it was observed that

  - Active surveillance for ILI of entire district population of 25 lakhs had been done with the help of health, teaching and clerical staff and 1,602 ILI cases had been detected.
  - Team of civil surgeon is supported by 4 Public Health Specialists from Community Medicine Deptt. of ESIC Medical College Faridabad. Their support in analysis helps in taking vital decisions at district level.

- In district Rewari, it was observed that

  - Training to field staff was given in advance in the month of March 2020 and reorientation training was given on formation of containment zone.
  - There was no confirmed case detected in the district till date, however, one positive case detected in an adjoining district of Rajasthan in the village Mehtavas at Haryana-Rajasthan border. Considering village Mehtavas as epicenter, the containment plan in nearby

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villages of district Rewari was activated. It was observed that all kuchha and metallic roads were blocked at entry exit point in Haryana side of the containment zone. In order to block kaccha roads JCBs were used.

- It was informed that only one person from a family was being allowed to bring fodder for domestic animals. Persons being put under quarantine were supported by Panchayat in the village by looking after their family members and animals.
- Sarpanch in the villages were providing lot of support to the Health administration by informing about any person entering in village, putting person 24x7 for duty to man on all inner entry/ exit points (Kuccha Roads).
- Daily house to house search for the cases was being conducted by field teams. After suggestion of the CRRT the use of thermal scanner by the field teams to actively detect cases was initiated.

Image 9.Interaction with teams of Rajasthan and Haryana

- Central Team also visited Mobile Medical Unit setup in Haryana State Transport Bus. The unit had a fixed route and fixed time to stop at particular place which had been shared with the community. The unit was very effective in improving passive surveillance of COVID -19 cases in containment and buffer zones.

Image 10.Mobile Medical unit set up

Discussion

The containment strategy[4,5] for COVID - 19 disease is built with objective to arrest the same in large area and clusters. Further, the assistance to various level implementers of these strategies from State to Village level is provided through central teams. The visits conducted by these Central Rapid Response Teams (CRRT) were not the fault finding exercises, but joint venture to control this pandemic in field where the battle against this novel agent is being fought. In order to fill the gap in understanding the central guidelines were discussed in detail by CRRT and technical reasons for all strategies were explained to healthcare workforce of all levels.

Many Civil Surgeons with their committed hard work have excellently controlled COVID-19 in their areas. Various initiatives introduced to get community participation and to take care of hardship being faced by them which include formation of WhatsApp groups of Resident Welfare Associations (RWA) and Gram Sarpanch, formation of committees at village level to take care of family members and domestic animals of the person/s who are under quarantine/ isolation. Additionally, in some villages kuchha roads are guarded by community to prevent unauthorized entry/ exit. In addition, Mobile Medical Units in the State are effective in improving passive surveillance.

In order to ensure that people do not leave containment zone and start staying somewhere else which may lead to spread of infection, the record keeping of movements at all entry exit points was initiated after the suggestion of CRRT. Further, the quality of active surveillance was enhanced by district as per suggestion of CCRT by utilisation of thermal scanner by search team during daily house visits, as sufficient number of thermal scanners were available in all the districts.

With these efforts at State/ District and field level, number of active cases in Haryana is going down every day. Quality public health practices and support of administrative/ law and order (including police force) machinery and community is the key to success. The impact of efforts put in by Haryana State may be seen in the image 11 which shows that the percentage of recovered/ discharges has increased from 46% to 72% from 20th April, 2020 to 29th April, 2020, whereas death percentage remain same, i.e. 1%.

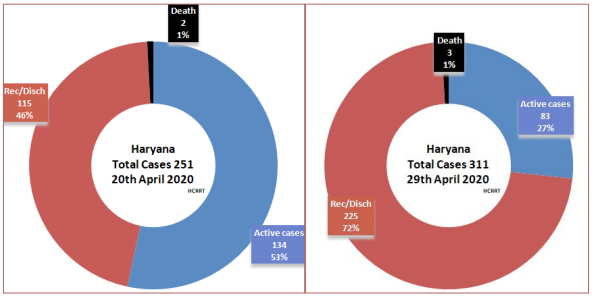

Image 11.Comparison of active, recovered and death percentage of Haryana from 20th April to 29th April, 2020

Conclusion

In various districts of Haryana there are many best practices in different areas of prevention and control of COVID 19. These practices need not only should be shared with other

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districts in Haryana but also with districts in other States/ UTs.

Recommendation

Learnings based on visit to Haryana State which can help in effective control of COVID - 19 not only in Haryana but elsewhere in India also are as below:

- Constitution of more State Rapid Response Teams (RRT) and placement of the same in the high priority areas.
- Daily reporting by such RRTs as mentioned above to State Headquarter.
- Daily Monitoring of containment area activities by the State level authorities.
- Mobilization of public health manpower to support civil surgeons in districts.
- Deployment of additional field staff for active surveillance in containment zones wherever necessary.
- Strict regulation and record maintenance of movement through Entry-Exit points of containment zone.
- Implementation of daily door to door active surveillance by the field staff in the containment zones by visiting each and every house, with use of thermal scanner.
- Utilisation of GPS technology in monitoring the movement of mobile teams in the containment zones through their live locations.
- Monitoring of home quarantined persons through video calling.
- Implementation of Excel software based monitoring of active and passive surveillance in containment zones throughout the State.
- Utilisation of information technology and recent tools and technology in public health at district level.
- Survey of whole population in districts as per requirement with support of field staff.
- Coordination between district health authorities and Community Medicine deptt. of medical colleges.
- Provision of support by community medicine department, medical colleges in high-quality data analysis and interpretation to CS.
- Communication with RWAs through social media like Whatsapp group.
- Involvement of Sarpanch and other panchayat members is very useful and effective in contact tracing, IEC and overall preventive activities implementation.
- Development of communication and coordination mechanism in two different districts or states is essential to ensure synchronized and synergistic public health actions in containment and buffer zones spreading amongst those districts/states.
- Utilization of loudspeakers in Temples, Mosques and Ambulances for audio IEC activities of COVID-19.
- Establishment of High quality surveillance in vulnerable population like migratory population, which has potential to increase incidence and prevalence of COVID 19 in districts reporting nil or very low prevalence of COVID 19.

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References

1. Status update of COVID - 19, published by MoHFW, accessed on 6th May, 2020. https://www.mohfw.gov.in/.
2. Coronavirus disease (COVID-19) outbreak situation update by World Health Organisation (WHO) accessed on 6th May, 2020 https://www.who.int/emergencies/diseases/novel-coronavirus-2019.
3. Karotia D, Kumar A. A Perspective on India's Fight against COVID - 19. *Epidem Int* 2020; 5(1): 22-28.
4. Jha V, Dinesh TA, Nair P. Are we Ready for Controlling Community Transmission of COVID 19 in India? *Epidem Int* 2020; 5(1): 10-13.
5. Containment Plan for Large Outbreaks Novel Coronavirus Disease 2019 (COVID-19), Ministry of Health and Family Welfare, Government of India.
6. Model Micro-plan, Micro Plan for Containing Local Transmission of Coronavirus Disease (COVID-19), Ministry of Health and Family Welfare, Government of India.
7. Roles and Responsibilities of RRTs in COVID-19 response, Ministry of Health and Family Welfare, Government of India, https://ncdc.gov.in/WriteReadData/l892s/41768812571585916287.pdf.
8. Government of Haryana website, accessed on 2nd May, 2020 https://web.archive.org/web/20160314194554/http://www.haryana.gov.in/knowharyana/history.html.