Process Evaluation of COVID-19 Vaccination Sessions in Dadra and Nagar Haveli District During SARS-CoV-2 Pandemic

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Abstract

Context: Efficient roll out of COVID-19 vaccines requires high-quality preparedness at all levels and robust planning and training regarding COVID-19 vaccination, use of CoWIN software, post-vaccination care and communication for all health functionaries. Aims: The current study attempts to fill the research gap in monitoring of COVID-19 vaccination session sites in tribal areas of UT of Dadra and Nagar Haveli (DNH) during COVID-19 pandemic. Methods and Material: It was a cross sectional observational study conducted from April to May 2021 at 36 purposively selected COVID-9 vaccination session sites. Sites were monitored independently for assessing various parameters like infrastructure, HR status, vaccine, logistics availability, and AEFI management using the WHO Session Site Monitoring Form for COVID-19 Vaccination. Results: Out of 36 session sites observed, three separate designated rooms were available at 21 (58.3%) sites. Almost two-thirds of the session sites (61.1%) had displayed information, education, communication (IEC) materials. Mean number of team members was 5.1 (SD 1.7). Adequate stock of vaccine vials and AD syringes, AEFI kits or anaphylaxis kits were available and biomedical waste segregation was as per guidelines at all the session sites. Conclusions: Logistics availability, safe injection practices, and COVID-appropriate behavior were adequate; however, infrastructure and post-vaccination care needs strengthening for successful rollout of COVID-19 vaccination.

Keywords: Covid-19, monitoring, vaccination

Introduction

Around 34.4 million confirmed COVID-19 cases and over 4.6 lac deaths have been reported in India till date.[1,2] Frequent handwashing, mandatory mask use and physical distancing are essential preventive measures, but vaccines will provide a long-lasting solution to contain the disease spread.[3] Efficient roll out of COVID-19 vaccines requires a high quality of preparedness at all levels.[4] India has successfully rolled out new vaccines like measles and rubella vaccines and pneumococcal conjugate vaccine in the past.[4] A similar preparedness is required in context to the COVID-19 vaccine. A nationwide COVID-19 vaccination campaign started on 16 January 2021 and has administered over 1.14 billion doses till date.[5]

Close monitoring and supportive supervision ensure correct implementation of new tasks and identifies bottlenecks and challenges at all levels. This study attempts to monitor the COVID-19 vaccination session sites in tribal areas in the union territory (UT) of Dadra and Nagar Haveli (DNH) during SARS-CoV-2 pandemic with the objective to assess the COVID-19 vaccination session sites for effective rollout of the vaccination campaign.

Methodology

It was a cross-sectional descriptive study conducted at the tribal district of Dadra and Nagar Haveli located in the UT of DNH and Daman and Diu from April to May 2021. It is a landlocked district with a tertiary level healthcare facility at Silvassa, one sub-district hospital, two community health centers (CHCs), nine primary health centers (PHCs), and

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How to cite this article: Bariya BR, Solanki P, Mahyavanshi D, Patel MG, Das VK. Process evaluation of COVID-19 vaccination sessions in Dadra and Nagar Haveli district during SARS-COV-2 pandemic. Indian J Community Med 2022;47:410-3.
Received: 24-11-21, Revision: 25-02-22, Accepted: 25-02-22, Published: 10-10-22

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Quick Response Code:
Website: www.ijcm.org.in
DOI: 10.4103/ijcm.ijcm_1405_21
two urban primary health centers (UPHCs). For maximum coverage, COVID-19 vaccination sessions were planned by the District Health Officials at the health centers as well as at outreach sites. The visits were conducted by the district monitoring team for COVID-19 vaccination with permission from health authorities (Date of the approval-10/04/2021 IEC approval document attached).

A total of 36 COVID-19 vaccination session sites were monitored (purposive sampling). 16, 11, and 9 sites were selected from rural, peri-urban, and urban areas respectively for better representation of the session sites in the district, including 16 government schools, 17 government health facilities (3 subcenters, 7 health and wellness centers (HWCs), 5 PHCs, and 1 CHC), 2 industries, and 1 anganwadi center.

The process evaluation of 36 COVID-19 vaccination session sites was done using the structured checklist developed by the World Health Organization (WHO). Data collection was done by a single observer to avoid inter-observer bias. The staff members were informed about the nature and purpose of the monitoring visit beforehand. Adequate time was given to observe each component of the checklist, like basic information of session sites, infrastructure, HR status, vaccine and logistics availability, process of vaccination, AEFI (adverse event following immunization) management and training status of the staff. The ongoing services were not interrupted during the process of data collection. Onsite corrections were made when any deviation was noticed. Feedback was given accordingly to personnel involved in the planning and execution of vaccination sessions for quality assurance.

Data were entered and analyzed using Microsoft Office Excel 2016. The study variables were described using mean, standard deviation, frequency, and its percentages.

Results

36 COVID-19 vaccination session sites were monitored independently for assessing the various parameters of the vaccination session. Basic services like three designated rooms, handwashing or sanitizing facility, drinking water facility, and bed or provision to lie down are shown in Table 1. All team members were found wearing face mask or face cover at 34 session sites (94.4%). At all the session sites (100%) CoWIN app was being used for registration and verification of the beneficiaries, and the registration staff were using their personal internet connection for this purpose at 36 sites (94.4%).

All the session sites (100%) were deployed with a vaccination team that included minimum one vaccinator, one observer, one or more registration staff, and two or more support staff. Mean number of total staff present at a session site was 5.1 ± 1.7. Six sessions were held at cold chain point itself; at the remaining sites the vaccine was delivered by a PHC vehicle. Adequate stock of vaccine vials, auto disable (AD) syringes, and functional hub cutters were available at all the session sites (36, 100%). Except one PHC, where there was power failure the previous day, all the sessions were supplied with conditioned icepacks.

At all the session sites (100%), the vaccinator sanitized their hands before vaccinating each beneficiary and the vaccine vials in use were marked with the date and time. It was observed that the vaccinator officer was following all safe injection practices (syringe needle remains untouched during drawing/ administering vaccine + no recapping + not applying thumb/finger at post-injection site + hub of used syringes being cut using hub cutter immediately after use) in 36 of the session sites (100%). Vaccine vial was not kept on ice pack in 35 sites (97.5%). Pre-filling of vaccine in AD syringes was not observed and vaccine vials were not being used after four hours of opening at any of the sites.

Table 1 shows details of post-vaccination care of vaccine beneficiaries, biomedical waste (BMW) management and AEFI management at session sites. All vaccinator officers were aware of the process of serious AEFI reporting. All the team members had received training on their specific roles and responsibilities for COVID-19 vaccination.

Discussion

This study was an attempt to assess the effective rollout of COVID-19 vaccination in Dadra and Nagar Haveli (DNH) district. Near to Home COVID Vaccination Centers (NHCVCs) follow a community-based approach where sessions can be conducted in non-health facility-based settings and are nearer to home. We found that 35 of the session sites (97.2%) were easily accessible by the beneficiaries. To maximize vaccination coverage, outreach sessions were held at government primary schools, industries, subcenters and anganwadi centers, so three separate designated rooms could not be managed there.

| Detail | Frequency (%) |
|--------|---------------|
| Basic Information of the session sites | 35 (97.2%) |
| Session site accessible | 35 (97.2%) |
| Three designated rooms available at session site | 34 (94.4%) |
| Drinking water facility available at session site | 34 (94.4%) |
| Handwashing facility with soap and water/ alcohol-based sanitizer available at session | 34 (94.4%) |
| Bed/provision to lie down in observation room | 24 (66.7%) |
| IEC materials (banner/poster/leaflet) related to COVID-19 vaccination displayed at session site | 24 (66.7%) |
| Caregivers/beneficiaries following physical distancing of at least 2 GUZ (6 feet) at session site | 24 (66.7%) |
| All team members found wearing face mask/face cover | 24 (66.7%) |
| Usage of CoWIN Application | 34 (94.4%) |
| CoWIN app being used | 34 (94.4%) |
| Team members using personal internet connectivity to operate CoWIN software | 34 (94.4%) |
An ideal session site should have three demarcated rooms or areas: a waiting room or area, a vaccination room, and an observation room.[4] Three designated rooms could be managed in 21 sessions (58.3%) in our study. Sharma and Pardeshi[6] reported that space and infrastructure constraints in the healthcare system of the country would pose challenges during COVID-19 vaccination.

A systematic review and meta-analysis[7] concluded that with physical distancing of one meter or more and use of face masks could reduce the risk of infection. In our study, vaccinators and beneficiaries followed physical distancing of at least 6 feet at 66.7% (n = 24) of the session sites and all team members were wearing face masks at 94.4% (n = 34) of the session sites.

In our study, IEC materials in form of banners or posters related to COVID-19 vaccination were displayed at 22 session sites (61.1%) as a reminder to follow COVID-appropriate behavior (CAB) even after vaccination. Similar recommendations were given by Sharma and Pardeshi[6] on intensive IEC to ensure compliance with CAB as the vaccine might cause a false sense of protection leading to compromise in adherence to COVID-19-appropriate behavior.

Every session is managed by a five-member team with defined responsibilities like pre-checking registration status of beneficiary and photo ID verification in CoWIN application, crowd management, vaccination and observation of beneficiaries for 30 minutes, monitoring for any AEFI symptoms and guiding non-registered beneficiaries.[15] In our study, all the session sites (36, 100%) were deployed with a vaccination officer providing all four key messages after vaccination and beneficiary waiting for 30 min post vaccination. We noticed that all the session sites (36, 100%) were deployed with a Biomedical waste management and Availability of injection waste disposal bag/container as 36 (100%), waste segregation at session per revised CPCB guidelines as 36 (100%), AEFI management as 36 (100%), Adrenaline available within expiry date as 36 (100%), Adrenaline syringe with detachable needle found in AEFI kit as 36 (100%).

AEFI kit or anaphylaxis kit were found at all the session sites (36, 100%). The vaccination officer needs to deliver four key messages after administering the vaccine to the beneficiary.[13] We noticed that the vaccination officer provided all four key messages after vaccination in 12 of the session sites (33.3%). A majority of the sites were missing the key message related to the name of the vaccine administered. Our findings are in coherence with a study[14] on process evaluation of routine immunization sessions. Sharma et al.[12] reported that the time of reconstitution was mentioned on the vial (BCG/measles) in 82.0% of the session sites, which is similar to our findings. In contrast, two studies[13,14] reported that time of reconstitution was not written on the vial after reconstitution of freeze-dried vaccines in 28.5% and 32.50% sites, respectively.

The session site should have good internet connectivity since the whole process will be done with the help of an online platform, that is, CoWIN.[10] All vaccinations must be recorded in real-time through the CoWIN Vaccinator Module on the same day.[10] At all the session sites (36, 100%), the CoWIN app was used for registration and verification of the beneficiaries, and the registration staff used their personal internet connection for this purpose. At some session sites, the vaccination team maintained the register of beneficiaries due to poor internet connectivity.

Alternate Vaccine Delivery System ensures cold chain maintenance at all points of vaccine distribution and right quality of vaccines.[11] For COVID-19 vaccination session, the vaccine needs to be sent to every session site on the day of vaccination along with one additional vaccine carrier with conditioned icepacks.[10] In our study, six sessions were held at cold chain point itself, and at remaining sites the vaccine was delivered by a PHC vehicle.

We observed that at all the sites, the vaccinator was marking the vaccine vials with the date and time of opening it, and the vaccine vials were not used after four hours of opening, as recommended.[4] This high proportion of vaccine marking could be attributed to the fact that the COVID-19 vaccine is a new vaccine and health functionaries are more cautious while administering it. Similar studies were conducted to assess the process evaluation of routine immunization sessions. Sharma et al.[12] reported that the time of reconstitution was mentioned on the vial (BCG/measles) in 82.0% of the session sites, which is similar to our findings. In contrast, two studies[13,14] reported that time of reconstitution was not written on the vial after reconstitution of freeze-dried vaccines in 28.5% and 32.50% sites, respectively.

Table 2: Post-vaccination care, BMW management, and AEFI management at session sites (n=36)

| Details                                                                 | Frequency (%) |
|------------------------------------------------------------------------|---------------|
| Post vaccination care of beneficiaries                                 |               |
| Vaccination Officer providing all four key messages after vaccination  | 12 (33.3%)    |
| Beneficiary waiting for 30 min post vaccination                        | 36 (100%)     |
| Biomedical waste management                                            |               |
| Availability of injection waste disposal bag/container                 | 36 (100%)     |
| Waste segregation at session per revised CPCB guidelines               | 36 (100%)     |
| AEFI management                                                        |               |
| Availability of AEFI kit or anaphylaxis kit                            | 36 (100%)     |
| Adrenaline available within expiry date                                | 36 (100%)     |
| Adrenaline syringe with detachable needle found in AEFI kit             | 36 (100%)     |

AEFI kit or anaphylaxis kit were found at all the session sites in our study. In contrast, during routine immunization, AEFI kit was available only at ten session sites (52.6%) in a study conducted by Mehta et al.[16] The higher prevalence in our study can be attributed to the fact that COVID-19 being a new vaccine, not much information regarding AEFI is available; so proactive measures were taken to avoid any untoward circumstances.
CONCLUSION

The present study observed satisfactory COVID-19 vaccination services in terms of logistics, cold chain maintenance, safe injection practices, and COVID-appropriate behavior. There is a scope for improvement in infrastructure and post-vaccination care focusing on four key messages.

LIMITATIONS

The study was performed at selected centers due to resource constraints. We monitored the on-going vaccination sessions that may change the team behavior in the presence of an observer.

ACKNOWLEDGEMENT

We are thankful to medical officers, supervisors and all health staff of Dadra and Nagar Haveli for cooperation and support.

FINANCIAL SUPPORT AND SPONSORSHIP

Nil.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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