



Research Article

# Td Vaccination Campaign - Overview from an Urban Slum of Cuttack District of Odisha

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## I N F O

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## A B S T R A C T

**Background:** World Health Organization (WHO) has recommended replacement of TT vaccine by Td vaccine since 1998. Based on this and several other recommendations, the Government of India introduced Td vaccination for children aged 10 and 16 years as well as for pregnant women on 14th August 2019.<sup>1</sup>

**Objective:** Monitoring of Td vaccination drive campaign and identification of shortcomings in an urban slum of Cuttack, Odisha.

**Methodology:** A community-based cross-sectional study was carried out by visiting all the session sites on the day of the vaccination drive covering 10 schools and 3 community outreach sessions from 1st to 15th September 2019. 281 children studying in classes 5th and 10th i.e., aged 10 and 16 years respectively were vaccinated with Td Vaccine during the campaign. Session sites were selected by simple random sampling method and data was collected by interviewing ASHAs and ANMs using a checklist for monitoring of session sites available at the MoHFW website.

**Result:** All session sites were conducted according to micro-plan. Supervisors visited 16% of session sites during the campaign. All the logistics were available in sufficient quantities at all the session sites. None of the session sites used a zipper pouch for storing the vaccine vials, or tally sheets for marking, or a register for keeping the count of used vials. In 20% of the session sites, recapping of the needle was done by the Multipurpose Health Worker (female).

**Conclusion:** Although the arrangements for conducting the vaccination drive at session sites including schools were commendable but a few lacunas were observed. Most of the schools did not maintain a register of the absentees for tracking them in the community session sites by the social mobilizers (ASHA). All the observed shortcomings could have been overcome with proper microplanning.

**Keywords:** Monitoring of Immunisation, Session Site Monitoring, Td Vaccination



## Introduction

Tetanus is an acute infectious disease caused by the toxin tetanospasmin released from the germinating spores of bacterium *Clostridium tetani*. It has high case fatality rates even with the availability of intensive care services. In the year 2015, 35% of neonates and 65% of older adults and children were affected by tetanus out of all the cases reported.

Diphtheria, which is one of the most feared infectious diseases globally, is currently showing a fluctuating trend in India. It is caused by the spores of bacterium *Corynebacterium diphtheriae*. India contributes to three-fourth of all the cases of the SEAR region.

Since 1998, WHO has recommended that the TT vaccine should be replaced by Td vaccine to boost the waning diphtheria immunity in order to curtail the diphtheria epidemics. This recommendation was again re-stated by the Strategic Advisory Group of Experts (SAGE) on Immunization in 2002 and 2016, and was published and disseminated again in the WHO position papers on tetanus vaccine in 2006 and 2017.<sup>2</sup>

In a diphtheria outbreak in Kerela in 2016, about 79% of cases were seen in children who were more than 10 years old. According to a lab supported vaccine preventable diseases surveillance data in India, 77% and 69% cases of diphtheria were seen among those aged  $\geq 5$  years old in 2017 and 2018 respectively.<sup>2</sup> This was because of the fact that the immunity to diphtheria subsides following the primary series of DPT immunisation during infancy and booster doses are required to provide further immunity. Furthermore, vaccination during pregnancy serves to boost immunity and increase the duration of protection against maternal and neonatal tetanus as well as diphtheria during prenatal care.

Keeping these in view, on 14th August 2018, MoHFW, Government of India, based on the recommendations of the National Technical Advisory Group on Immunization (NTAGI) recommended the replacement of TT vaccine with Td vaccine in the Universal Immunization Program for all age groups, including pregnant women. NITI Aayog also suggested the replacement of TT vaccine by Td vaccine for adolescents at 10 and 16 years as well as for pregnant women.<sup>2,4</sup>

Tetanus and adult diphtheria (Td) vaccine is a WHO prequalified vaccine comprising of a combination of tetanus and diphtheria with a lower concentration of diphtheria antigen (d) as recommended for older children and adults.

Each 0.5 ml of Td vaccine contains  $\geq 2$  IU of diphtheria toxoid,  $\geq 5$  Lf to  $\leq 25$  Lf ( $\geq 20$  IU) of tetanus toxoid.<sup>5</sup>

The coverage of TT vaccination among the 10 years and

16 years old adolescents in the State of Odisha during 2018-19 was 55% and 64% respectively.<sup>3</sup>

To improve the immunisation coverage and to ensure that maximum adolescents receive Td vaccine, a Td vaccine drive in campaign mode was launched in Odisha before introducing Td vaccine in routine immunization. The drive involved carrying out-of-community and school-based sessions throughout various districts of Odisha from 1st September to 15th September 2019.<sup>1,3</sup>

With the above information, this study was being conducted with the objective of monitoring of Td vaccination drive in an urban slum area of Cuttack.

## Methods

Before the beginning of the vaccination drive, state and district level workshops were being organised to provide all information regarding the replacement of TT by Td vaccine. In Cuttack, health workers and medical officers were provided separate training in the month of August 2019 at Zilla Swasthya Bhawan.<sup>2</sup>

A meeting for sensitisation of all the nodal officers was held on 4th September 2019 at the Directorate of Family Welfare (DFW) conference hall.<sup>3</sup>

The vaccination drive ran from 1st to 15th September 2019 in Cuttack district, Odisha. To cover the school-going children, it was carried out in government, private as well as in religious schools. Local clubhouses, mandaps etc. were used as community settings for children not attending the schools.

## Study Type

A community-based cross-sectional study.

## Study Setting

Field practice area of Urban Health and Training Centre (UHTC) of SCBMCH, Cuttack.

## Duration of the Study

1st to 15th September, 2019.

## Study Population

Children studying in classes 5th and 10th i.e., aged 10 and 16 years respectively.

## Sampling

A list of all the session sites was obtained from the office of the Chief District Medical Officer. The sites were listed based on school and community levels. 10 schools and 3 community session sites were selected for the study by Simple Random Sampling.

## Sample Size

281 children aged 10 years and 16 years.

## Methodology

After obtaining IEC clearance and permission from the CDMO office, each session site was visited once during the campaign period. Data were obtained by interviewing ASHAs and Multipurpose Health workers (female) present in the session site using a questionnaire. Data were collected using a checklist available for the monitoring of session sites on the MoHFW website.

## Results

In our study, we found out that of all 281 children covered during the vaccination drive, majority (79%) were covered from schools which includes government, private as well as religious schools. Among the 10 schools covered during the vaccination drive, 5 were government schools accounting for 55% of coverage and 3 were private schools. Only 2 madrasas were covered which accounted for 9% of the total.

Regarding the availability of a separate vaccination site during the session, 64% of schools provided a separate area for carrying out the vaccination. The rooms were either a vacant classroom or a separate corner in the school verandah. 15% of the cases were carried out amidst the routine working space. 21% of the sessions were held in the community sites like a puja mandap or a clubhouse.

Out of 10 schools, 7 did not maintain any record of the children who did not receive the Td vaccine on that particular day. However, the rest did maintain a separate register for the same.

Lastly, 84% of session sites, i.e. 10 out of 13 sites, were not visited by a supervisor at least even once during the entire day session. The supervisor was appointed from the nearest PHC or from the district level.

**Table 1. Availability of Logistics (N = 13)**

S. No.	Logistics required	Availability (%)	
		At school	At community
1.	Vaccine vials	100	100
2.	Adequate vaccinators	100	100
3.	Functional hub cutter	100	100
4.	AD syringe	100	100
5.	Vaccine carrier	100	100
6.	AEFI kit	100	100
7.	Alternate vaccine delivery system	100	100
8.	Social mobilizers	100	100

The availability of logistics at the school and community session sites is being demonstrated in Table 1. It is clearly evident from the figures in the above table that there were

sufficient vaccine vials, vaccine carriers, AD syringes, AEFI kits and functional hub cutters provided to each and every session site. Also, there was no shortage of manpower in the form of vaccinators and social mobilizers.

**Table 2. Vaccine Handling by Vaccinators at Various Sites (N = 13)**

S. No.	Vaccine Handling Protocol	Followed By (%)	
		At school	At community
1.	Vaccines within the date of expiry	100	100
2.	Proper storage in vaccine carrier	100	100
3.	Use of zipper pouch	0	0
4.	Intramuscular administration	100	100
5.	Use of aseptic technique	100	100
6.	Recapping of needle	20	20
7.	Tally sheets marking	0	0
8.	Maintaining number of vials used	0	0
9.	Knowledge about AEFI	100	100
10.	Training for using AEFI kit	100	100
11.	Knowledge for referral	100	100

Whether or not proper vaccine handling protocol was being followed at the session sites has been noted down in Table 2. Most of the criteria were properly fulfilled in both- school and community session sites. None of the vaccinators used a zipper pouch to keep the vaccine vials, or used tally sheets for marking vaccines, or maintenance of registers for the total number of vaccine vials used. 20% of vaccinators recapped the needle instead of cutting them using a hub cutter.

## Discussion

Session site monitoring is a type of supportive supervision, which is an open two-way communication approach, focusing on the improvement of performance, knowledge and skills of health staff by regular supervisory visits.<sup>6</sup> Ideally, monitoring and supportive supervision should be carried out when a new vaccine is introduced, in routine as well as outreach immunisation sites, with prior information to the health worker about the visit.

In our study, we monitored all the session sites in the field practice area where the Td vaccination campaign was

carried out in those 15 days (1st 15th September, 2019).

All the session sites were held according to the micro-plan and at the pre-designated sites but in a study conducted by Algotar PD et al.<sup>7</sup> in the urban and rural communities of Ahmedabad district, Gujarat for process evaluation of mission IndraDhanush, 3.34% of sessions were not held according to the micro-plan.

In the study conducted by Algotar PD et al.<sup>7</sup>, 73.34% of session sites were visited by the supervisor at least once during the entire day session, but in the present study, this activity was carried out only in 16% of session sites.

In the present study, all the logistics essential to carry out a vaccination session were available in adequate quantities. However, a study by Algotar PD et al.<sup>7</sup> found that 1.7% of session sites did not have sufficient number of vaccine vials. In similar studies conducted by Panika RK et al.<sup>8</sup> for evaluation of session sites during routine immunization in Damoh district of Madhya Pradesh and Patel T et al.<sup>10</sup> for process evaluation of routine immunization in rural areas of Anand district of Gujarat, as many as 50% of session sites did not have sufficient vaccine vials.

Regarding the availability of a functional hub cutter in every session site, it was available in 63.1% and 83.3% of sites in studies conducted by Biradar SM et al.<sup>9</sup> for session site monitoring of routine immunization in Bijapur district, Karnataka and Panika RK et al.<sup>8</sup> in Damoh district of Madhya Pradesh respectively. Required quantities of 0.5 ml Auto Disable (AD) syringes were available in all the session sites in the studies conducted by Algotar PD et al.,<sup>7</sup> Biradar SM et al.<sup>9</sup> and Patel T et al.<sup>10</sup> But in the study by Panika RK et al., 16.7% of session sites had insufficient quantities of AD syringes. 3.33% of sites did not have an AEFI kit as per the result of the study by Algotar PD et al.<sup>7</sup> In 3.34% and 10.2% of session sites, no social mobilizers (ASHA/ AWW) were available to mobilise children towards session sites as depicted in the studies conducted by Algotar PD et al.<sup>7</sup> and Patel T et al.<sup>10</sup> respectively. In our study, all the session sites had sufficient numbers of functional hub cutters as well as 0.5 ml AD syringes.

All the vaccines were within the expiry date and were properly stored in the vaccine carrier. However, in the studies conducted by Biradar SM et al.<sup>9</sup> and Patel T et al.,<sup>10</sup> 4.3% and 1.25% of session sites had vaccines with VVM in unusable stages. All the vaccines were stored in a zipper pouch inside the vaccine carrier in 94.4% of session sites as in the study conducted by Panika RK et al.<sup>8</sup> but in our study, none of the vaccines were stored inside a zipper pouch which made them vulnerable to the loss of details regarding batch number and expiry date. In 20% of session sites of our study, the needles were not cut by the MPHWF (F) using the functional hub cutter immediately after use.

This number varied from 5% in Algotar PD et al.<sup>7</sup> to as high as 22.2 % in Panika RK et al.<sup>8</sup> and 43.5% in Biradar SM et al.<sup>9</sup> All the vaccinators were trained regarding the usage of AEFI kit and they had the knowledge regarding referral in case of any AEFI. But in 8.33% of session sites, the ANM were not aware of the same in the study conducted by Algotar PD et al.<sup>7</sup>

Regarding the vaccine administration, all the session sites opted for the correct site and route of administration.

## Conclusion

All children present on the stipulated date at the school were vaccinated with the Td vaccine, but most of the schools did not maintain a register of the absentees so that the unvaccinated children could have been tracked down easily later for vaccination. Social mobilizers (ASHA) could have been trained and sensitised in a better way to mobilise the unvaccinated/ left out children to attend the community sessions.

A few lacunas observed during the Td vaccination drive in the slum area were maintenance of the absentee register, ensuring the availability of separate areas for vaccination in all session sites, and no visits by supervisors in some session sites. All these shortcomings could have been overcome with proper microplanning.

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**Conflict of Interest:** None

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