Original Article

PROCESS EVALUATION OF IMMUNIZATION COMPONENT IN MAMTA DIWAS AND SUPPORT SERVICES IN KHEDA DISTRICT, GUJARAT

Deepak Kumar Sharma[1], Arun Varun[2], Rakesh Patel[2], Uday Shankar Singh[3]

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Author's Affiliation:
[1]Associate Professor; [2]Second year Resident; [3]Professor, Department of Community Medicine, Pramukh Swami Medical College, Karamsad, Gujarat

Correspondence:
Dr Deepak Sharma,
Email: drdeepak1105@gmail.com

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ABSTRACT

Background: Mama Diwas is a fix day, fix site, preventive, promotive health care service center for mother and child.

Objectives: The present study is to evaluate the process of Mamta Diwas in terms of different immunization variables and the logistic support to Mamta Diwas from Primary Health Centre.

Methods: The present study is a "Descriptive cross sectional study" encompassing all the PHCs in Kheda district. The Mamta Diwas checklist is used a tool for the data collection.

Results and: Forty (80%) had calculated the beneficiaries for the year and based on it only 17(34%) have calculated the logistics requirement. In 45 PHCs T-series vaccine and Hepatitis- B (Hep-B) vaccine were not found at the bottom of the Ice lined Refrigerator(ILR). In 11(22%) PHCs, dropout rate was found to be more than 10%. Adverse events following immunization (AEFI) were reported from 20(40%) PHCs and Vaccine Preventable Diseases (VPD) were reported from 25(50%) PHCs. Information Education and Communication (IEC) materials were displayed in 38(76%) PHCs. In 41(82%) session sites, time of reconstitution was mentioned on the vial. Site of vaccination and correct dosage and technique of vaccination was known to every interviewed Female Health Worker (FHW) at all the session sites.

Conclusions: Programme management at PHC needs to be emphasized. Vaccine storage practices and cold chain maintenance is up to the mark throughout the District.

Keywords: Mamta Diwas**,** Programme Management, Cold Chain maintenance, Supplies and Stock, Micro planning, VPD, AEFI

INTRODUCTION

Mama Diwas is a fix day, fix site, preventive, promotive health care service center for mother and child population or village per month. All pregnant women, breast feeding women, under five children are beneficiaries of this session. Services provided through this session includes growth monitoring, health check up, immunization, primary treatment, referral and counseling services.[1]

During monthly visit weight gain of pregnant women and children is measured and recorded in growth chart. This facilitates identification of defaulters in adequate weight gain for appropriate intervention and counseling. General and specific health check up of antenatal women and children is done for early detecting

and prompt treatment with timely referral. Here integrated management of antenatal, postnatal, neonatal and child health services is practiced. Vaccination of mother and child is done for all vaccines included under National Immunization Programme. Prophylactic and therapeutic drug for preventive and primary Reproductive and Child Health Care are available at the centers and are provided to the beneficiaries.[1]

Immunization is one of the most well-known and effective methods of preventing childhood diseases. With the implementation of Universal Immunization Programme (UIP), significant achievements have been made in preventing and controlling the vaccine preventable diseases. Immunization has to be sustained as a high priority to further reduce the incidence of all VPDs, control measles, eliminate tetanus and eradicate poliomyelitis. One of the important elements for improving the immunization is cold chain and vaccine logistics management which is backbone of immunization programme. Cold Chain and vaccine management are the left and right hands of immunization programme.[2]

RESEARCH OBJECTIVES

The present study is an attempt to evaluate the process of Mamta Diwas in terms of different immunization variables and to evaluate the logistic support services for Mamta Diwas (from PHC)

MATERIALS AND METHODOLOGY

The present study is a "Descriptive cross sectional study" encompassing all the PHCs in Kheda district. The Mamta Diwas checklist is used a tool for the data collection relevant to Mamta Diwas activities. The supervision findings are used to prepare manuscript. All the PHCs in all the blocks are supervised at least once. During the PHC visit all the necessary details of the PHC supporting the Mamta Diwas sessions were taken as per the checklist.

The key points which were taken during the study were

a. Programme Management at PHCs for Mamta Diwas,
b. Cold Chain maintenance
c. Supplies and Stock, Micro planning, reports and Injection safety
d. Mamta Diwas findings at Session site

One sub centre was randomly chosen amongst all the subcentres and subsequently the centre was visited and the active Mamta Diwas session was observed. The findings are noted down as per the checklist. The ANM is interviewed as per the checklist. The data entry is done in excel sheet and analyzed by SPSS 15.0

Ethical Clearance and Consent: Data was gathered as per the routine SRIM visits and so the ANM were interviewed as per the procedure and the PHC details were taken accordingly. Before submission of manuscript, Human Research Ethics Committee of the college was informed and one copy was submitted also.

RESULTS

There are total 50 PHCs in 8 blocks in Kheda district. The distribution is shown below.

Table 1: Distribution of PHCs* of different Blocks in Kheda District

Blocks in Kheda District	PHCs (%)
Balasinor	5(10.0)
Kapadwanj	6(12.0)
Kathlal	5(10.0)
Kheda	8(16.0)
Mahemdabad	6(12.0)
Mahuda	5(10.0)
Nadiad	8(16.0)
Thasra	7(14.0)
Total	50(100.0)

*PHC Primary Health Center

Programme management at PHCs for Mamta Diwas is shown in table 2.

Out of 50 PHCs visited, 34(68%) were having the map of the catchment area. Beneficiaries for the year were calculated in only 40(80%) PHCs .In 46(92%) PHCs, immunization calendar was available. Coverage monitoring chart was available only in 4(8.0%) PHCs.

Particulars regarding cold chain management are shown in table 3.

In 48(96%) PHCs, ILR and DF were placed on wooden block. In 42 PHCs (84%) ILR and DF were connected through individual stabilizer. In 45 PHCs T-series vaccine and Hep B vaccine were not found at the bottom of the ILR. In 49(98%) PHCs lab reagent and other vaccines were not placed in ILR.

Table 2: Programme Management at PHCs for Mamta Diwas

Programme Management at PHCs for Mamta Diwas (n=50)	Yes (%)	95% CI
Catchment area map available	34(68.0)	54.2-79.77
Estimation of beneficiaries calculated	40(80.0)	67.24-89.37
Estimation of logistics calculated	17(34.0)	21.93-47.88
Immunization calendar available at PHC	46(92.0)	81.82-97.41
Immunization calendar displayed at the facility(PHC)	32(64.0)	50.07-76.35
Supervisory field visits details for sessions in a year available	29(58.0)	44.05-71.04
Coverage Monitoring chart available(Drop out chart) at PHC	04(8.0)	2.59-18.18
Meeting conducted with PRI* and ICDS** functionaries about Mamta Diwas	31(62.0)	48.04-74.60
Supervisory visits by District officials on Mamta Diwas	20(40.0)	27.17-53.96

*PRI –Panchayati Raj Institution ICDS** Integrated Child Development Services

Table 3: Cold Chain maintenance

Cold Chain maintenance (Total Observations n=50)	Yes (%)	95% CI
ILR* and DF** placed on wooden block	48(96.0)	87.41-99.32
ILR connected through stabilizer	42(84.0)	71.87-92.28
Functional Thermometer placed inside ILR	49(98)	90.53-99.90
DF connected through stabilizer	42(84)	71.87-92.28
Functional Thermometer placed inside DF	41(82)	69.53-90.85
Twice daily monitoring of temperature	44(88.0)	76.71-94.99
Record of power failures maintained	49(98.0)	90.53-99.90
Periodic check by facility in charge	49(98.0)	90.53-99.90
ILR- Vaccine vials arranged in labeled cartoons	48(96.0)	87.41-99.32
ILR-T series and Hep-B*** vaccine not found at bottom	45(90.0)	79.22-96.24
ILR-Diluent placed within 24 hours	49(98.0)	90.53-99.90
DF icepacks arrangement proper	31(62)	48.04-74.60
Lab reagent and other vaccines than RI**** vaccine in ILR	01(2.0)	0.10-9.46
DF and ILR placed 10 cm away from the wall	50(100.0)	94.18-100.0

*Ice lined Refrigerator; **Deep freezer; ***Hepatitis-B; ****Routine immunization

Table 4 highlights the supplies and stock, micro planning, reports and Injection safety. In 25(50%) PHCs stock register tallied with issue register for BCG/Measles vaccine whereas in 6 (12%) PHCs it was kept under lock and key which is a wrong practice. In 11(22%) PHCs stock register tallied with issue register for BCG diluent/Measles diluent. In 11(22%) PHCs, dropout rate for DPT-3 was found to be more than 10%.AEFI was reported from 20(40%) PHCs and VPD was reported from 25(50%) PHCs. In 47(94%) PHCs chemical disinfection was done before final disposal of immunization waste. In 46(92%) PHCs disposal pit were available in the premises.

Table 4: Supplies and Stock, Micro planning, reports and Injection safety

Supplies and Stock, Micro planning, reports and Injection safety (n=50)	Yes (%)	95% CI
Stock register tallied with issue register for BCG/Measles	25(50.0)	36.34-63.66
Stock register tallied with issue register for BCG diluent /Measles diluent	11(22.0)	12.15-35.01
Every session having at least one vial of each antigen	46(92.0)	81.82-97.41
ADS syringe and reconstitution syringe record updated	27(54.0)	40.15-67.39
Planned sessions are conducted	43(86.0)	74.26-93.67
Dropout rate more than 10%	11(22.0)	12.15-35.01
AEFI* or zero report in last 3 calendar months reported	20(40)	27.17-53.96
VPD** or zero report in last 3 calendar months reported	25(50.0)	36.34-63.66
Chemically disinfection before final disposal	47(94.0)	84.54-98.45
Disposal pit available in the premises	46(92.0)	81.82-97.41

*Adverse event following immunization; ** Vaccine preventable diseases

Mamta Diwas findings at Session/Vaccination site are shown in table 5. IEC material was displayed in 38(76%) session sites. At 40(80%) session sites, ice packs were found to be conditioned. Hub cutter was not available in 11(22%) sites. Due beneficiaries list was available at 45(90%) session sites. Site of vaccination and correct dosage and technique of vaccination was

known to every FHW interviewed at the session sites. At 47(94%) session sites, four key messages were told to mother like what is this vaccine for, next date for immunization, what needs to be done after vaccination, nutritional advices for child and contraceptive advices.

Table 5: Mamta Diwas findings at Session/Vaccination site

Mamta Diwas at Session site (Total Observations n=50)	Yes (%)	95% CI
IEC material displayed properly	38(76.0)	62.77-86.30
Vaccine carrier available at the site	50(100.0)	94.18-100.0
Conditioned of ice pack	40(80.0)	67.24-89.37
Plastic zipper bag to place vaccines available	48(96.0)	87.41-99.32
Expired vaccine found during vaccination	49(98.0)	90.53-99.9
T series vaccine or Hep-B found frozen	00(0.0)	0.0-5.81
Time of reconstitution mentioned on the vial (BCG/Measles)	41(82.0)	69.53-90.85
Due list of beneficiaries available	45(90.0)	79.22-96.24
Administration of vaccines seen correctly	50(100.0)	94.18-100.0
Hub cutter available at the session	39(78.0)	64.99-87.85
Key messages were given to mother	47(94.0)	84.54-98.45
Medical Officer visited the session site within 1 month	50(100.0)	94.18-100.0

DISCUSSION

Coverage monitoring chart was available only in 4(8.0%) PHCs. The coverage monitoring chart is developed to track the coverage of infants on a month- by-month basis against the target population (left outs).It also helps to determine whether the beneficiaries are completing the series of vaccines (dropouts).[3] All the PHC has functional ILR and DF. In a study by Rao. S et al[4], ice lined refrigerators and deep freezers were available in 69 (98.6%) and 67(95.8%) of centers. In 48(96%) PHCs, ILR and DF were placed on wooden block. In 42 PHC (84%) ILR and DF were connected through individual stabilizers. Rao S et al[4] in their study found cold boxes, frozen packs and automated voltage stabilizers in 68(97.2%) centers In 49(98%) PHCs functional thermometer was placed in ILR whereas in 41(82%) PHCs functional thermometer was placed inside DF. Rao. S et al[4] in their study found dial thermometer in all the centers. Temperature of ILRs/Freezers used for storage of vaccines must be recorded twice daily. These records should be checked during supervisory visits. A break in the cold chain is indicated if temperature rises above $+8^0$ C or falls below $+2^oC$ in the ILR; and above -15^o C in the Deep Freezer.[2] The ILR and Deep freezers each should have separate thermometer and temperature record book.[2]

In 49 PHCs (98%) record of power failures were maintained and also verified by the facility in charge. The DPT, DT, TT and BCG vaccines should never be kept directly on the floor of the refrigerator as they can freeze and get damaged. The top section of the ILR maintains the temperature of $+2^0$Cto $+8^0$C. All the vaccines should be kept in the basket provided with the refrigerator. OPV and Measles can be kept at bottom of the basket while BCG, DPT, DT and TT vaccines are kept in upper part of the baskets.[2]

In 45(90%) PHCs the vaccine arrangement was proper as T-series vaccine and Hep B vaccine is not found at the bottom of the ILR. Rao S et. al[4] found improper vaccine storage was observed in 7 (10%) centers. The diluents may be stored outside the cold chain but diluents should be kept inside ILR for at least 24 hours before use to ensure that vaccines and diluents are at +2° to +8°C when being reconstituted.[2] In the present study we found that diluents were placed within 24 hours in ILR. In all the PHCs, ILR and DF were placed 10 cm away from the wall. Book on immunization for medical officers states that all electrical cold chain equipment should be kept at least 10 cm away from walls.[3]

Monthly reporting of immunization data including vaccine usage, VPD and AEFI cases must be ensured as per Government of India (GOI) guidelines.[2] AEFI was reported from 20(40%) PHCs and VPD was reported from 25(50%) PHCs. It is important that AEFIs are detected, investigated, monitored and promptly responded to for corrective interventions.[3] Each individual case of VPD needs to be recorded and reported upwards within a comprehensive VPD surveillance system.[3]

In 40(80%) session sites, ice packs were found to be conditioned. An icepack is said to be adequately conditioned as soon as beads of

water cover its surface and sound of water is heard on shaking it. Conditioning prevents freezing of freeze sensitive vaccines.[3] At all the session sites, respective MO has visited the session site within previous one month. Supportive supervision is a process of helping staff to continuously improve their own work performance. It is carried out in a respectful and non-authoritarian way with a focus on using supervisory visits as an opportunity to improve the knowledge and skills of health staff.[3]

CONCLUSIONS AND RECOMMENDATIONS

Logistic support is not a problem in Kheda district but Hub cutter was not available in 11(22%) session sites. It should be made available at all session sites. Programme management at PHC needs to be emphasized. Vaccine storage practices and cold chain maintenance is up to the mark throughout the District. Reporting of AEFI and VPD needs to be strengthened. Supportive supervision by the medical officers is very good in the district.

Abbreviations used:

PHC-Primary Health Centre,
AEFI-Adverse events following immunization,
VPD-Vaccine preventable diseases,
ILR-Ice lined Refrigerator,
DF-Deep Freezer,
MO-Medical Officer,
GOI-Government of India,
SRIM-State routine Immunization Monitor,
Hep-B- Hepatitis B,
FHW-Female Health worker,
RI-Routine Immunization

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