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Assessment of Cold Chain Status During Routine Immunization Sessions in Jamnagar District

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ABSTRACT

Background & Objectives: Cold chin and vaccine managements are backbone of the immunization programme. So, to know about cold chain and vaccine management in Jamnagar district present study has been conducted.
Methods: A cross sectional study conducted during January-June 2012 in rural area of Jamnagar district by Multistage random sampling. Total 30 immunization sessions were observed and 10 Primary Health Centres (PHCs) were observed for cold chain maintenance.
Results: At majority of session sites planning of immunization sessions, cold chain maintenance, alternate vaccine delivery mechanism was satisfactory. Out of 30, 26.66% sessions were not conducted against planned on the date of visit. Time of reconstitution was mentioned on BCG vials and Measles vaccine ampoule at 56.7% sessions only.
Conclusion: Reorientation training of FHWs, regular supervision and effective review meetings should be conducted. Supervisory records should be used as corrective measure and rechecking of facility at interval for correction.

KEYWORDS Alternate vaccine delivery mechanism, Cold chain, Vaccine

Introduction:
Cold chain is a system of storage and transport of vaccines at low temperature from the manufacturer site to the actual vaccination site. (1) To maintain vaccine potency, effective cold chain system is a must. Once vaccines lose its potency it cannot be regained and it gives false sense of security to the beneficiaries against vaccine preventable diseases. There are electrical and non electrical equipments in the cold chain system for the storage and transport of vaccines at required temperature. To improve routine immunization apart from maintaining cold chain system, planning of immunization session, vaccine and logistics management, alternate vaccine delivery mechanism etc. is also crucial.

Materials and Methods:
A cross sectional study was undertaken during January-June 2012 in rural area of the study district. Study district have ten talukas. Study units were taken according to Multistage sampling method (2)·One Primary Health Centre (PHC) from each taluka and two Sub-centres (SCs) (one good performing and one poor performing) from the selected PHC were taken. Thus, total 30 centres (ten PHCs and twenty SCs) were identified for the study. Data entry and analysis done in Microsoft excel 2007.

The ethical clearance from the Institutional Ethical Committee was obtained before conducting the study.

Results:
Table-I: Planning of Immunization session.

	Frequency (n=30)	
Sessions conducted against planned on the date of visit	100%	22 (73.33%)
	80-100%	6 (20%)
	<80%	2 (6.66%)
Session site as per micro plan?	Yes	30 (100%)
Session site	Anganwadi	16 (53.3%)
	PHC	10 (33.3%)
	Sub centre	4 (13.3%)
IEC material displayed at session site	Yes	27(90%)
	Banner only	6 (22.22%)
	Poster only	3 (11.11%)
	Banner and poster	18 (66.66%)

Total 30 sessions were observed. Out of which 26.66% sessions were not conducted against planned on the date of visit and 53.33% sessions were held at Anganwadi. Majority of session sites (97%) displayed IEC materials, out of which at 67% session sites Banners and posters were displayed, whereas at 22% session sites Banner only and at 11% session sites Poster only was displayed.

Table-II: Alternate vaccine delivery mechanism and cold chain maintenance at session site.

	Frequency (n=30)	
Vaccine carrier distributed from PHC on the day of routine immunization	Yes	30 (100%)
Vaccine carrier brought by	FHW	28 (93.3%)
	MPW	2 (6.7%)
Vaccine carriers with four Ice packs available	Yes	30 (100%)
Vaccine vials, ampoules and diluents placed in plastic bag in vaccine carrier	Yes	28 (93.3%)
Any expired date vaccine found?	No	30 (100%)
Any vial found frozen?	No	30 (100%)
VVM on OPV in usable stage?	Yes	30 (100%)
VVM grade on OPV	I	21 (70%)
	II	9 (30%)
Time of reconstitution mentioned on BCG vial and Measles vaccine ampoule?	Yes	17 (56.7%)

Table-II depicts Alternate vaccine delivery mechanism and cold chain maintenance at session site. At cent percentage session sites vaccine carrier was distributed on the day of immunization session. At 93.3% session sites vaccine carrier was brought by FHWs. Cold chain maintenance at session sites were quite good except time of reconstitution was mentioned on BCG vials and Measles vaccine ampoule at 56.7% sessions only.

Discussion:

Total 30 sessions were observed. Out of which 26.66% sessions were not conducted against planned on the date of visit. More than half i.e. 53.3% sessions were held at Anganwadi. At 90% session sites IEC materials were displayed.

Table-II depicts that at cent percentage of session sites vaccine carriers were distributed from PHC on the day of routine immunization (Mamta day). Vaccine carrier brought by FHW at 93.3% session site on the vaccination day and by Multipurpose workers (MPW) at 6.7% session sites. In a study on Assessment of Alternate Vaccine delivery system in Orissa (3) in a majority of cases Auxiliary nurse midwife (ANM) herself was involved in transporting the vaccines to the sub-centre and immunization point. In a present study, at all session sites vaccine carrier with four ice packs was available. At 93.3% session sites, vaccine vials, ampoules and diluents were placed in plastic bag in vaccine carrier. At cent percentage session sites no any expired date vaccine found, no any vial found frozen and Vaccine Vial Monitor (VVM) on Oral Polio Vaccine (OPV) were in usable stage. Similar findings were in a study of Tushar Patel (4) where at majority sites i.e. 98.8% VVM shows stage I or II and at 98.8% of sites had freeze sensitive vaccines in liquid form. In a study conducted by Makwana NR et al (5) at 87.3% session sites all the vaccines were within expiry date and at 63.5% session sites freeze sensitive vaccines were in liquid form and Shake test was Ok. At almost 57% session sites time of reconstitution were written on BCG and measles vaccine vials.

Conclusion:

This study reveals Alternate vaccine delivery mechanism and cold chain maintenance at session site was quite good. Reorientation training of FHWs, regular supervision and effective review meetings should be conducted. Supervisory records should be used as corrective measure and rechecking of facility at interval for correction.Supervision should be supportive and supervisory visits can be used as an opportunity to improve the knowledge and skills of health staff by providing on the job training.

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