

Original Article**Process evaluation of routine immunization in rural areas of Anand District of Gujarat**Tushar Patel¹, Devang Raval² Niraj Pandit³¹Assistant Professor, P.S. medical College, Karamsad, ²Associate Professor, Community Medicine Department, Govt medical college, Bhavnagar; ³Associate Professor, Community Medicine Department, SBKS Medical College, WaghodiaCorrespondence to: Tushar patel, Email: trushar_9@yahoo.com**Abstract:****Objective:**

To evaluate the process components of routine immunization such as planning of immunization sessions, cold-chain and logistic management, community mobilization, appropriate technique of vaccination etc. in district Anand, Gujarat.

Study Design:

Cross-sectional observational study.

Study setting:

Sub-centre or Aanganwadi where immunization sessions are conducted and Primary Health Centres.

Methods:

Total 88 immunization sessions were evaluated in 44 PHCs. With the help of pre-tested structured questionnaire information was gathered.

Results:

Almost 46 percent of session sites did not have list of beneficiaries for active mobilization. In nearly 78.4 % of sessions, number of mobilizer present during immunization session was one and/or two. Only 50 percent of session sites had all vaccines available. 93.2 % of Primary Health Centres had no written plan for supervision of immunization sessions. Out of 44 PHC, in 29.6 % of PHCs, sessions were not conducted as per micro-plan on the date of visit.

Conclusion:

All ASHA / Aanganwadi workers should mobilize infants from their respective area if village has more than one AWW/ASHA. There is need to send BCG vaccine at all session sites irrespective of wastage concerns. Problem of Vacant post of FHW or FHW on leave/deputation should be dealt with.

Key words: Routine Immunization, Process evaluation

Introduction:

Infectious diseases are one of the major causes of morbidity and mortality in children. One of the most cost effective and easy methods for child survival is immunization. To reduce the morbidity and mortality due to vaccine preventable diseases World Health Organization (WHO)

launched Expanded Programme on Immunization in 1974. As a member country Government of India also accepted the immunization programme in 1978 which was re-introduced as the Universal Immunization programme in 1985. Initially the target was set to cover at least 85% of all infants⁽¹⁾. However national socio-demographic goals in National Population Policy 2000 set a target of achieving 'universal' immunization of children by 2010⁽²⁾.

In spite of Immunization Programme operating in India since 1978, approximately 10 million infants and children remains unimmunized. Number is higher than any other country in the world⁽³⁾. Only 44% of infants receive full vaccination (all doses up to age of one year) and 5% of infants don't receive any vaccine in India⁽⁴⁾.

It was realized that merely providing vaccine just to achieve targets without giving adequate attention to quality of immunization services doesn't guarantee a reduction in disease morbidity & mortality. Full course of potent vaccine given at right age, at right interval, by right technique with a valid documentation constitutes quality criteria of vaccination services. For successful implementation of routine immunization service all its components – planning of immunization sessions, cold-chain and logistic management, community mobilization, appropriate technique of vaccination etc. should also be carefully looked into. This requires an in-depth process evaluation. The present study was conducted with an objective to evaluate the process of routine immunization in district Anand, Gujarat with specially focus on quality of services.

Materials and Methods:

The present study was immunization session based evaluation study. The study was carried out during the year 2008 in Anand district of Gujarat. The district is situated in central Gujarat and popularly known as "charotar" green belt of agriculture, where main agriculture product is tobacco. Author of the study worked as Routine Immunization Monitor and study was conducted along with monitoring. The district Anand has 44

Primary Health centres in 8 Talukas, which covers 1.86 million populations according to 2001 census. It was decided to cover all PHCs for evaluation and at least two sessions should be monitored for study. Thus total 88 sessions in different villages were observed on Wednesdays (Fixed Immunization day). The schedule of vaccination programme was taken from Chief District Health officer and Block Health officer. Two sessions/sites in one PHC area were selected randomly. The PHC staffs were informed about visit of supervision and the session visited.

The data was collected on structured pretested questionnaire, which was prepared by WHO/Government of India and modified as per requirement of study⁽³⁾. The questionnaire consists of interview and observations of various aspects like programme management, cold chain management, injection technique and safety, quality of record keeping and reporting, IEC, micro plan and community mobilization. All the data collected was then coded and analyzed using Microsoft Excel. Co-Author assisted in designing the study and analysis of data.

Results:

Total 88 immunization sessions were observed during 2008. It also showed that only 13.6% of Female Health Workers have registered 90-100% of expected number of births. Birth registration is essential for mobilizing beneficiaries. The poor registration was observed at majority of sub-centres (Table 1).

Almost 46% of session sites did not have list of beneficiaries for active mobilization. Infant mobilizer plays an important role in vaccination coverage. In immunization programme, Aanganwadi worker, ASHA worker, Village volunteers are working as mobilizer. In 78.4% of sessions, number of mobilizers present during immunization was one and/or two.(Table-1)Most of the Female Health workers (92.1%) were correctly filling immunization register. IEC materials were displayed at 97% of session sites. Only 62% of ANMs were giving four key messages to be given after vaccination viz. name of vaccine that has been given, side effects of vaccination, when to come for next vaccine and to bring immunization card along during next visit.

Table 2 depicts that only 50% of session sites had all vaccines available. In respect to cold chain maintenance, 98.8% of sites shows VVM stage I or II and 98.8% of sites had freeze sensitive vaccines in liquid form. This was quite positive for the district. However, at 28.5% sites, time of

reconstitution was not written on vial after reconstitution of freeze dried vaccine.

Table I: Status of record keeping and infant mobilization during immunization session

DIFFERENT ASPECTS	N=88	ADEQUATE (%)
Number of births registered (% of total target):	12	13.6
90 – 100%		
70-90 %	59	67.1
Less than 70 %	17	19.3
List of due beneficiaries prepared	48	54.5
Yes		
No	40	45.5
Number of AWW/ASHA/other mobilizer present	10	11.4
< three		
One / Two	69	78.4
Zero	9	10.2
Correct filling in of immunization register	81	92.1
Yes		
No	7	7.9
ANM is giving all 4 key messages after vaccination	55	62.5
Yes		
No	33	37.5
IEC displayed on site	85	96.5
Yes		
No	3	3.5

Technique of vaccine administration was quiet good with 95.4% of Female Health Workers selecting appropriate site and route of vaccination, 86.4% of FHWs gave appropriate dose of vaccine and 92.0% of them administered vaccine at appropriate age. The study also revealed that only 3% of ANMs had needle stick injury in the last

three months. All ANMs were using auto-disable syringes for vaccination.

Table 2: Cold chain, logistics, safety issues etc. at session site

DIFFERENT ASPECTS	N=88	ADEQUATE (%)
All vaccines along with diluents available	44	50.0
Yes		
No	44	50.0
Freeze sensitive vaccine in liquid form and shake test OK	87	98.8
Yes		
No	01	01.2
VVM stage I or II on OPV	54	98.8
Yes		
No	01	01.2
Time of reconstitution written on vial	64	61.4
Yes		
No	34	28.6
Correct selection of Injection site and route	84	95.4
Yes		
No	04	04.6
Correct dose of vaccine given	76	86.4
Yes		
No	12	13.6
Correct age of administration	81	92.0
Yes		
No	07	08.0
Number of ANMs asking to wait for half an hour after vaccination	86	97.2
Yes		
No	02	02.8
Use of separate syringe and needle for each injection	88	100.0
Yes		
No	00	0
Needles stick injury to ANM during last three months	02	02.8
Yes		
No	86	97.2

Programme management and cold chain aspects at Primary Health Centre (Table- 3) shows

that 93.2% of Primary Health Centres had no written plan for supervision of immunization sessions. Out of 44 PHCs, in 29.6% of PHCs sessions were not conducted as per micro-plan, due to various reasons like vacant post, FHW on leave or in training etc. Temperature of ILR (in 90.9% of PHCs) and storage of vaccines in ILR (in 93.2% of PHCs) were appropriate.

Table 3: Programme management and cold chain issues at PHC level

DIFFERENT ASPECTS	N=44	ADEQUATE (%)
Plan for supervision available at PHC	03	06.8
Yes		
No	41	93.2
Percentage of sessions Conducted against planned on the date of visit	31	77.0
100%		
80-100%	08	18.2
< 80%	05	11.4
Drop out for DPT1-DPT3 at PHC as per monthly report	41	93.2
< 10%		
> 10%	03	06.8
Correct storage of vaccines in ILR	41	93.2
Yes		
No	03	06.8
ILR temperature +2 C to +8 C	40	90.9
Yes		
No	04	09.1

Discussion:

To achieve the target of 100% immunization of infants, the first step is to achieve 100% birth registration. However, present study shows that 86.36% of female health workers had registered less than 90% of expected births and 45% of FHWs had not prepared due beneficiary list. Not preparing the list of due beneficiary infants, further reduces the possibility of the infant mobilized to session site for vaccination. Around 9.7% of mothers lacked information about the session as reported by U Manjunath et al in his study on Maternal Knowledge and perception about routine immunization ⁽⁵⁾. These mothers require active

mobilization. Only one or two mobilizer was present in session at 78% sessions and at 10% session sites there were no mobilizers. Even if a village had more than one Anganwadi, only one Anganwadi worker remained present during sessions as per rotation. Workers from other areas neither mobilize infants nor remain present at session.

Regarding availability of all vaccines at session sites, only 50% of sites were having all vaccines. This was mainly because of BCG vaccine which FHW gives only once in a month to avoid wastage. No tracking of drop-outs and left-outs and missing opportunities due to wastage concerns were also identified by National Immunization Programme Review⁽⁶⁾.

Cold chain issues at vaccine sites, like VVM for polio vaccine and shake test for freeze sensitive vaccine were satisfactory. But reconstitution time was not written on vial for almost 28% of session site which is important for prevention of toxic shock syndrome followed by measles vaccine. Other vaccine safety aspects like correct site for vaccination, correct dose, and correct age were satisfactory. Injection safety issue was also good in district. Only 3% ANM reported needle stick injury in last three months. This is much lower than reported by Pandit NB⁽⁷⁾ in his study from the same district in 2004. He has reported more than 19% of annual needle stick injuries among service providers in district Anand, India. The reason for lower needle stick injury among vaccinator may be due to universal use of AD syringe.

Arun Aggarwal et al in his evaluation of cold chain system has identified that storage of vaccine and packing was proper, most ILRs had temperature within prescribed range (4 to 8⁰ C)⁽⁸⁾. The present study also supports the Arun et al study. Similarly Sokhy J et al has also reported satisfactory immunization session organization, cold chain maintenance and injection techniques⁽⁹⁾. Micro-plans have been prepared by PHCs. But all sessions are not conducted as per micro-plan due to various reasons like vacant post, staff deputed for training, staff on leave etc. Lack of staff and resources for service delivery has also been reported by National Immunization Programme Review by World Health Organization⁽⁶⁾.

Recommendations:

Though cold chain maintenance is appropriate, to achieve 100% target of immunization coverage there is need to improve birth registration and active mobilization of infants. All ASHA workers/

Aanganwadi workers should mobilize infants from their respective area if village has more than one AWW/ASHA. Name of mobilizer should also be mentioned in micro-plan. Some incentive to mother can improve attendance during routine immunization session.

BCG Vaccine is given only once in a month by FHWs to avoid wastage. However different sessions in one month are for different areas. So there is need to send BCG vaccine at all session sites irrespective of wastage concerns.

Vacant posts of FHWs should be filled so that all planned sessions can be conducted. There should be alternate plan available in case of any unforeseen condition like leave and training of ANM/FHW. It is also recommended that concept of mobile immunization team could be considered which could fill the gap of staff on leave or deputed for training and other reasons

Other activities like Orientation training of ANM, Waste management. Review Meetings, Strengthening the Cold Chain Systems, organizing immunization week, etc. could be carried out to improve the coverage and effectiveness of the programme.

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