"A study on Knowledge Attitude and Practice of Child Immunization among Auxiliary Nurse Midwives of Manihari Block, Katihar"

A dissertation submitted in partial fulfilment of the requirements for the award of

Post-Graduate Diploma in Health and Hospital Management

by

Nikki Pandey

Enroll. No. PG/11/060

International Institute of Health Management Research

New Delhi - 110075

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Office of Deputy Superintendent, SDH Manihari

Katihar

Letter No. 43 Date 27/04/2013

TO WHOM IT MAY CONCERN

This is to certify that Mr. Nikki Pandey has successfully completed his dissertation project period in our organization from February 7, 2013 to till date as HM at Sub- Divisional Hospital, Manihari, Katihar. During this intern he has worked on the project "A study on Knowledge Attitude and Practice of Child Immunization among Auxiliary Nurse Midwives of Manihari Block, Katihar" under my guidance at Sub- Divisional Hospital, Manihari, Katihar.

I hereby appreciate his efforts and wish him best of luck for his future assignments.

27/04/13

Dr. R.N. Singh
Deputy Superitendent
SDH, Manihari, Katihar

Certificate from Dissertation Advisory Committee

This is to certify that Mr. Nikki Pandey, a participant of the Post- Graduate Diploma in Health and Hospital Management, has worked under our guidance and supervision. She is submitting this dissertation titled "A study on Knowledge Attitude and Practice of Child Immunization among Auxiliary Nurse Midwives of Manihari Block, Katihar" in partial fulfillment of the requirements for the award of the Post- Graduate Diploma in Health and Hospital Management.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Faculty Mentor
Mr. Pawan kumar Taneja
Assistant Professor
IIHMR, New Delhi

27/04/13

Organizational Advisor
Dr R.N. Singh
Dy. Superintendent
SDH Manihari, Katihar

Certificate of Approval

The following dissertation titled "A STUDY ON KNOWLEDGE ATTITUDE AND PRACTICE OF CHILD IMMUNIZATION AMONG AUXILIARY NURSE MIDWIVES OF MANIHARI BLOCK, KATIHAR" is hereby approved as a certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of **Post- Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation

Name	Signature
Dr. A.M. KHAN	
Dr Dharmesh Lal	

Name of Student
Nikki Pandey

FEEDBACK FORM

Name of the Student: Nikki Pandey

Dissertation Organisation: Sub-Divisional Hospital, Manihari , Katihar; State Health Society Bihar.

Area of Dissertation: KAP of ANM regarding Immunization.

Attendance: Satisfactory.

Objectives achieved: Achieved all the set goals regarding his own study as well as organisational targets.

Deliverables: Successfully completed his dissertation period at our organisation as a Hospital Manager.

Strengths: Punctuality, dedication, responsibility and many more.

Suggestions for Improvement: The whole career is ahead of him to improve.

27/04/13

Date: 24.04.2013
Place: Manihari, Katihar, Bihar.

Signature of the Officer-in-Charge (Dissertation)

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Nikki Pandey

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ACRONYMS

- ADS - Auto Disable Syringe
- AEFI - Adverse Events Following Immunization
- AFP - Acute Flaccid Paralysis
- ANC - Antenatal Care
- ANM - Auxiliary Nurse Midwife
- ASHA - Accredited Social Health Activist
- AVD - Alternate Vaccine Delivery
- AWC - Anganwadi Centre
- AWW - Anganwadi Worker
- BCG - Bacillus, Calmette, Guerin
- CDM - Community Decision Makers
- CHC - Community Health Centre
- CMHO - Chief Medical and Health Officer
- CPCB - Central Pollution Control Board
- CSSM - Child Survival and Safe Motherhood
- DC - District Consultant
- DF - Deep Freezer
- DFID - Department of International Development
- DLHS - District Level Household Survey
- DIO - District Immunization Officer
- DPM - District Program Manager
- DPT - Diphtheria, Pertussis, Tetanus
- DT - Diphtheria Tetanus
- EPI - Expanded Programme on Immunization
- FGD - Focussed Group Discussion
- FIFO - First In First Out
- GoI - Government of India
- GoMP - Government of Madhya Pradesh
- Hep B - Hepatitis B Vaccine
- Hib - Haemophilus influenzae type B vaccine
- HSS - Health Sector Strategy
- HW - Health Worker
- ICDS - Integrated Child Development Services
- IEC - Information, Education and Communication
- IFA - Iron and Folic Acid
- ILR - Ice-Lined Refrigerator
- IMR - Infant Mortality Rate

- MCH - Maternal and Child Health
- MP - Madhya Pradesh
- MPTAST - Madhya Pradesh Technical Assistance Support Team
- MPW - Multipurpose Worker
- NID - National Immunization Days
- NIS - National Immunization Schedule
- OPV - Oral Polio Vaccine
- PHC - Primary Health Centre
- PPI - Pulse Polio Immunization
- RCH - Reproductive and Child Health
- RI - Routine Immunization
- RIMS - Routine Immunization Monitoring System
- SC - Sub Centre
- SIA - Supplementary Immunization Activity
- SRS - Sample Registration System
- TOT - Training of Trainers
- TT - Tetanus Toxoid
- UIP - Universal Immunization Program
- VHND - Village Health and Nutrition Day
- VHSC - Village Health and Sanitation Committee
- VPD - Vaccine Preventable Disease
- VVM - Vaccine Vial Monitor
- WCD - Women and Child Development
- WHO - World Health Organization

INTRODUCTION TO ORGANIZATION

The state health society, Bihar has been established to guide its functionaries towards Receiving, managing (including disbursement to implementing agencies e.g. Directorate, of Medical & Public Health District Societies, NGOs etc.) and account for the funds received from the Ministry of Health & Family Welfare, Government of India.

Its resources will manage the NGO / PPP (Public-Private partnership) components of the NRHM in the state including execution of contracts, disbursement of funds and monitoring of performance. Bihar Govt. has decided that SHS Bihar will function as a Resource Centre for the Department of Health & Family Welfare in policy/situational analysis and policy development (including development of operational guidelines and preparation of policy change proposals for the consideration of Government).
SHS Bihar, Strengthen the technical / management capacity of the Directorate of Medical & Health Services patna as well as of the Districts Societies by various means including through recruitment of individual / institutional experts from the open market and mobilize financial / non-financial resources for complementing/supplementing the NRHM activities in the State.

It will organize training, meeting, conferences, policy review studies / surveys, workshops and inter-state exchange visits etc. for deriving inputs for improving the implementation of NRHM in the BIHAR.

Figure: 1 Geographical location of district Katihar in Bihar.

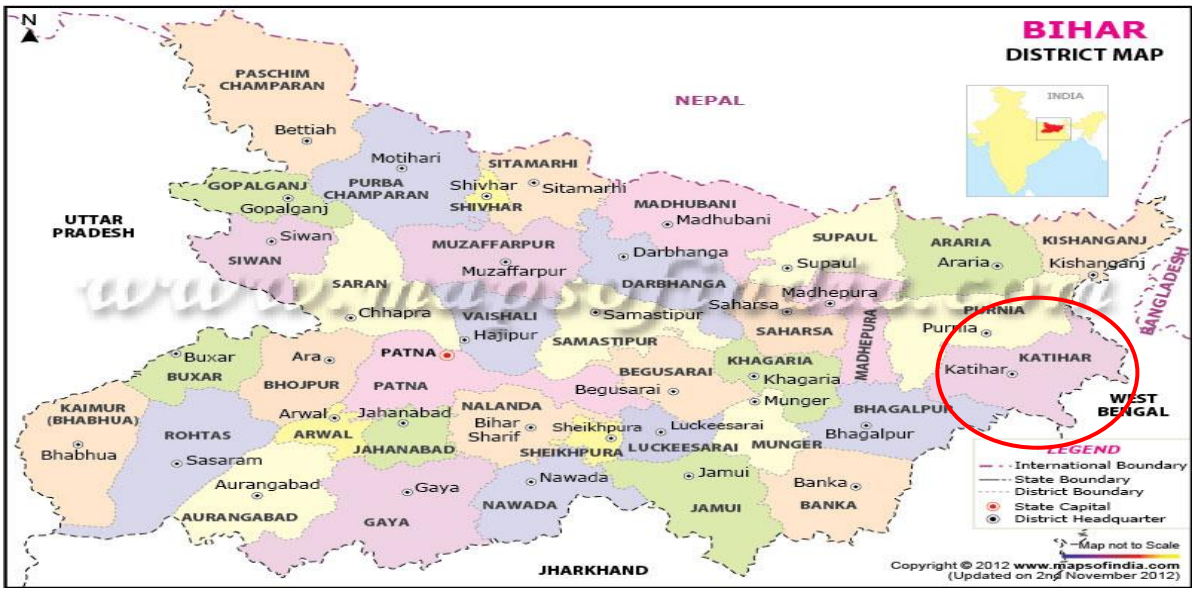
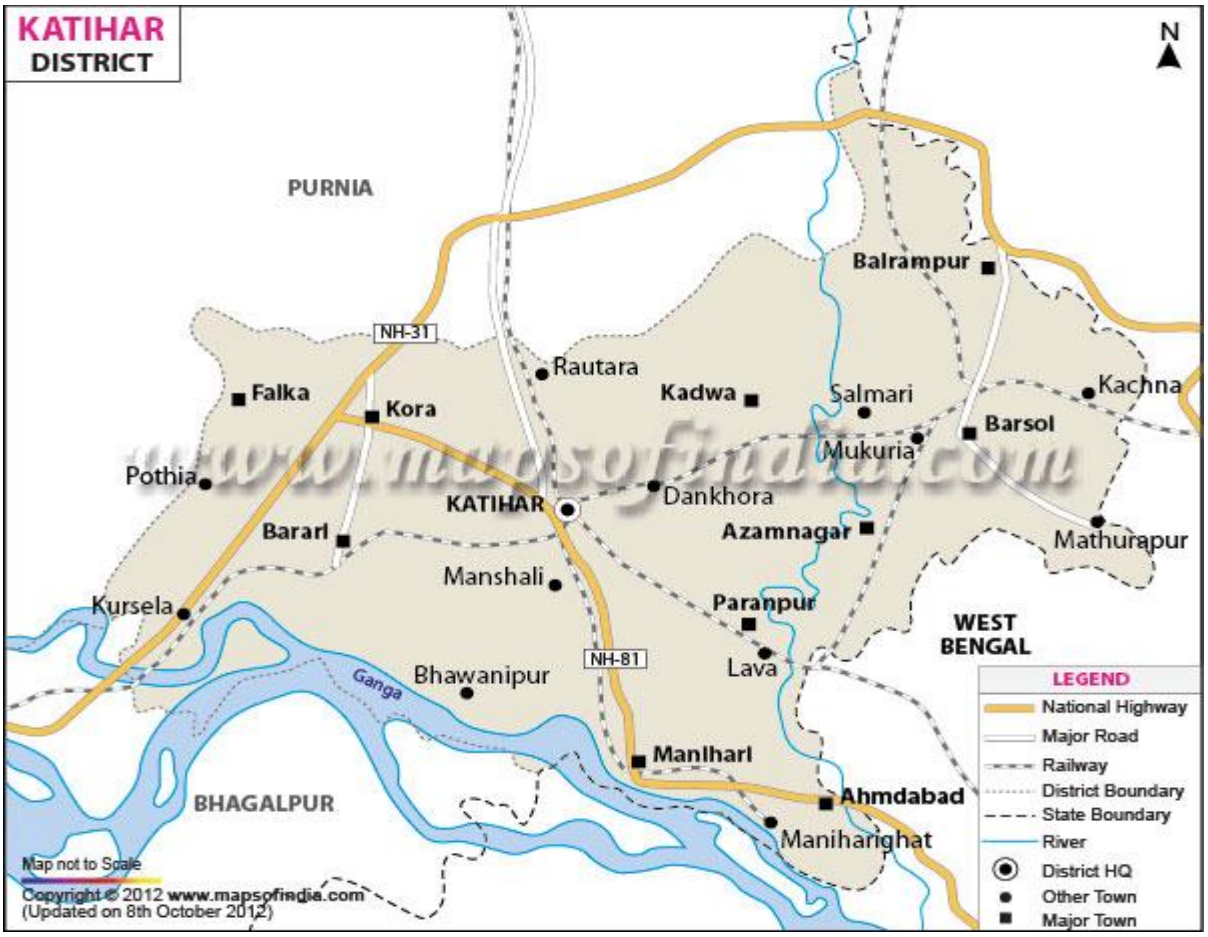


Figure: 2 Katihar District map



Managerial duties and tasks performed

During my internship period I was appointed as the Hospital Manager of Sub-Divisional Hospital, Manihari, District Katihar, in Madhya Pradesh. Following were the duties assigned to me:

Roles and Responsibilities

- Plan, organize, direct, control and coordinate day to day activities of the hospital.
- Developing procedures for medical treatments, as well as ensuring quality assurance and other patient services.
- Extrapolating data for quality assurance and monitoring purposes.
- Planning and implementing strategic changes to improve service delivery.
- Managing clinical, professional, clerical and administrative staff.
- Procurement of equipment and supplies, and organizing stores.
- Active participation in hiring contractual doctors, nurses and assistant.

- Liaise with clinical and non-clinical staff in other health facility, partner organizations.
- Public relations, ensuring that the facility maintains a positive image.
- Keeping up with ever-changing medical technology, government regulations, financing options and health insurance benefits.
- Implementing new policies and directives

Dissertation on Knowledge Attitude and Practice of Child Immunization among Auxiliary Nurse Midwives of Manihari Block, Katihar

Chapter-1

INTRODUCTION

This is globally accepted that immunization is most successful as well as cost-effective health intervention As we know that immunization is the child's right and prevention of diseases is the need of the day. Immunization is one of the most cost-effective interventions to prevent a series of major illnesses, particularly in environments where children are undernourished and die from preventable disease.[1] It is one of the best indicators to evaluate the health outcomes and services distributed across social and economic groups. Ever since the launch of EPI in 1978 and Universal Immunization Programme (UIP) in 1985 with promotion through Child Survival and Safe Motherhood (CSSM) program and RCH in 1997 there has been considerable progress in control of vaccine preventable diseases, in spite of this still large number of children continue to be afflicted with vaccine preventable diseases every year[4-8]. It prevents 2 million deaths per year worldwide however; 2.5 million deaths a year continue to be caused by vaccine preventable diseases, mainly in Africa and Asia among children less than 5 years old[1-2-3]. NFHS-3 reported that only 43.5% of children in India received all of their primary vaccines by 12 months of age. Recent estimates suggest that approximately 34 million children are not completely immunized with almost 98% of them residing in developing countries.[3] In response to challenges in global immunization, WHO and UNICEF developed the Global Immunization Vision and Strategy (GIVS), launched in 2006. GIVS is the first ever ten-year (2006-2015) framework aimed at controlling morbidity and mortality from vaccine-preventable diseases and helping countries to immunize more people, from infants to seniors, with a greater range of vaccines.[1] The issues of vaccine procurement is its storage, transport and administration, and factors such as knowledge, attitude and practices of health workers contribute to success or failure of immunization program.[5-6-8]

Number and knowledge of health workers can be a major constraining factor on vaccination coverage in developing countries. A higher density of health workers (nurses) increases the availability of vaccination services over time and space, making it more likely that children will be vaccinated and the knowledge and practice makes the coverage more efficient. [4]

Considering the incomplete knowledge, and inappropriate practices of the health workers, the policy makers and medical professionals require herculean efforts to raise the knowledge and to break the old beliefs of the people. Not only the health worker but also any inequities in the knowledge, attitude and practices that leave out large sections of the most deprived populations are a cause for serious policy concern. There is evidence of inequalities in immunization in India, despite the fact that childhood immunization has been an important part of maternal and child health services since the 1940s.[8]

The unacceptable level of knowledge in nursing and medical students, points out the need to restructure immunization related teaching in our hospitals. Incorporation of immunization based knowledge in high school curriculum is also recommended. It is important that areas of relevant information and education must be delineated time to time with increasing vaccination coverage.[9] It is also seen that the health education messages significantly increased the vaccination status of children under 5 in India.[7]

PROBLEM STATEMENT

Bihar, with a population of 83 millions, is the third most populous State in India. The population density in the State is 880 persons per sq. km., which is more than double the national average of 324 persons per sq. km. The State has recorded the highest decadal growth during the nineties. While all-India decadal growth rate of population was 21.34%, the population of Bihar rose by 28.45% between 1991 and 2001. Around 40% of the population is below poverty line. The major health and demographic indicators of the State like infant mortality rate (IMR), maternal mortality ratio (MMR), total fertility rate (TFR), etc. are much higher than the all-India level and reflect a poor health status in the State. The Human Development Index (HDI), a composite of literacy, life expectancy and per capita income, has increased for Bihar like the rest of India. But the State still lags at 0.367 compared to the Indian average of 0.472. Amongst the major States, the HDI of Bihar has been the lowest for the last three decades.The coverage under routine immunization and pulse polio is also very low as compared to the national figure. As per 2011 census, full immunization in the State was only 33% against the 10 national averages of 54%. As a result, a large number of cases of vaccine preventable diseases are still reported in the State. However, the recent National Family Health Survey (NFHS-3, 2005-06) indicates some improvement since NFHS-2(1998-9). It has shown increase in: immunization coverage from 12% to 33%.9

OBJECTIVE OF THE DISSERTATION

General Objective

To assess the Knowledge, Attitude and Practices about immunization among Auxiliary Nurse Midwives of Manihari, Block.

Specific Objectives

1) To assess the Knowledge of the ANM regarding immunization
2) To find out the attitude of the ANM's regarding immunization
3) To find out the practices carried out by the ANM's during immunization

Chapter 2

REVIEW OF LITERATURE

1) **Naveen Thacker et al.** (2013) conducted a study to assess the attitude and practices of frontline health workers in India regarding polio immunization in UP and Bihar.
   Multi staged sampling method was used to select the ANM's and ASHA's at the block level and structured questionnaire was used to collect the information.
   The findings revealed that majority of the health workers (95%) agreed that polio supplementary immunization campaign helped in increasing acceptance of all vaccines. It was also found that majority of the ANM (60-70%) believed that polio immunization activities benefited other activities they were carrying out. On the other hand very few health workers (5%) felt that they very likely to face resistance when promoting or administering polio vaccine.

2) **Joseph L Mathew** conducted a systematic review study to identify and explore factors associated with inequities in routine vaccination of children in India.
   Information was collected from publications reporting vaccination inequity through a systematic search of Medline and websites of the WHO, UNICEF and demographic health surveys in India.
   The findings revealed that there are considerable inequities in vaccination coverage in different states based on various factors related to individual, family, demographic and the society characteristics. Girls fare uniformly worse than boys and higher birth order infants have lower vaccination coverage. It was also found that urban infants have higher coverage than rural infants and those living in urban slums. There is a direct relationship between household wealth and vaccination rate.

3) N.Audinarayana conducted a review study to examine influence of socio-economic, ecological, communication and health indicators on immunization status. The indicators included female literacy rate, per capital percentage living in urban areas, number of radio and TV sets per lakh population, percentage of birth attended by trained health personnel, percentage of one year old children fully immunized with BCG, DPT Polio and Measles.
Data for the present paper was collected mainly from The State of the World's Children, 1991, an UNICEF publication, and World Development Report. The findings revealed

that female literacy and income exhibit large direct as well as indirect (through the AHS) effects on DPT and Polio. Unexpectedly female literacy direct effects on TT2, BCG and Measles are very small.

4) **Roos M. Bernsen et al.** conducted a study on Knowledge, Attitude and practice towards Immunizations among Mothers.

   The survey included 217 women attending maternity clinic and estimated the prevalence of a positive attitude towards immunization. Knowledge and attitude variables related to immunization of newborns were explored. The study findings revealed that around 93 percent of mothers had positive attitude towards immunization. Despite the current highly prevalent positive attitude towards immunization information by health professionals should focus more on parents with lower education.

Chapter 3

DATA, METHODS AND ANALYSIS

STUDY DESIGN: - Cross-sectional study

STUDY AREA: - Manihari block of Katihar district

STUDY POPULATION: - Includes all the ANM's of Manihari, Block

SAMPLE SIZE: - 45 (total ANM's in Manihari Block)

DATA COLLECTION TOOLS AND TECHNIQUES: -

Semi structured Questionnaire is formed.

It was pretested and modified if required

Data will be analyzed through SPSS V.16

Secondary Data is taken from BPMU unit Manihari, Katihar.

STUDY APPROACH:-

The study will be done in Manihari block of Katihar District and related data will be generated by taking the interview of the ANM's of the respective Health Sub-Centre within the month of March 2013.

INCLUSION CRITERIA:- consists of all the ANM's working in the respective Health Sub Centre of Manihari Block.

Chapter-4

RESULTS AND FINDINGS

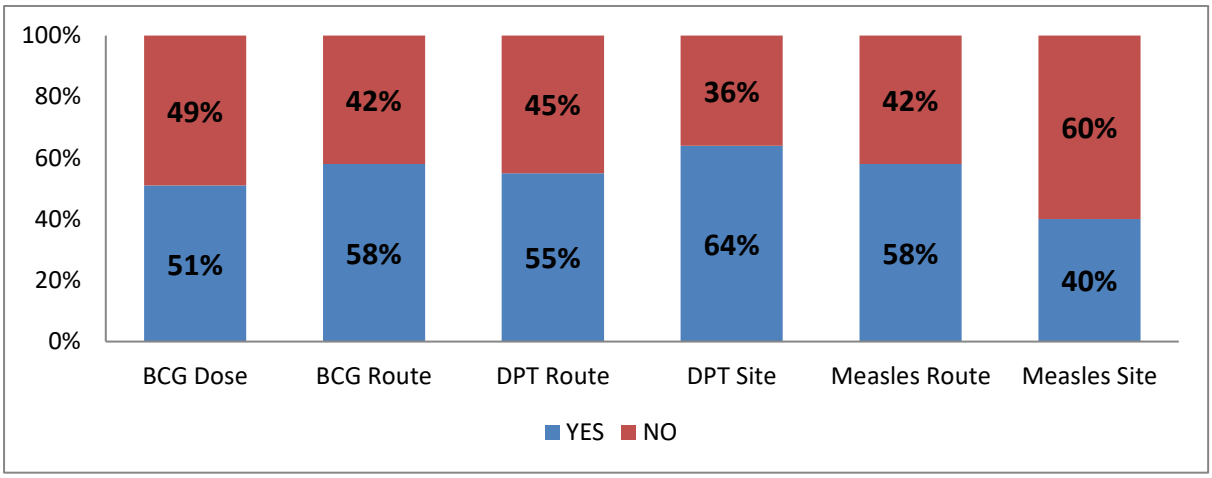
Total 45 ANM were interviewed among them only 51% of the ANMs knew the dose of BCG correctly and only 58% of the ANMs knew the route of BCG. Only 64% of the ANMs knew the

actual DPT site, about Measles vaccine only 58% of the ANMs knew about rout and 60% knew about actual site vaccination.

Table 1: **Knowledge regarding proper dose and route about vaccination among ANM.**

S.No.	Knowledge of vaccine	Yes	No
1.	BCG Dose	51%	49%
2.	BCG Route	58%	42%
3.	DPT Route	56%	44%
4.	DPT Site	64%	36%
5.	Measles Route	58%	42%
6.	Measles Site	60%	40%

Figure 3: Knowledge regarding proper dose and route about vaccination among ANM.



Only 13% of the ANM were aware about definition of Fully Immunized children. 40% of them knew about the discarding techniques of T series vaccine. Only 18% of them were aware about the storage of reconstituted. Only 62% of them knew about the Measles vials requirement for immunizing 15 children and 71% of them knew when to discard reconstituted vaccine. 13% of them knew about dispose off techniques of AD syringes after use. Only 14% of them knew about drop out children and 60% of them knew about immunization during mild fever and diarrhoea.

Only 83% ANMs were recorded batch number and expiry date of vaccination. All ANMs were used 0.1 ml AD syringes for BCG vaccination. And 100% and 65% of them advised to mother regarding adverse affect of vaccination and next schedule of immunization respectively.

Table 2: **Knowledge, Attitude and Practice of Immunization among ANM**.

1	**A fully immunized child is one who has received BCG, DPT/Polio-1&2 ,Measles and Vit-A before the first birthday.**	**Percentage**
	Yes	**13%**
	No	**87%**
2.	**What do you do with T- series vaccines (DPT, DT, TT, Hep B) that are frozen?**	
	a. Discard and report	**40%**
	b. Keep them in the cold chain	**42%**
	c. Warm them and use them as quickly as possible	**17%**
3.	**Diluent supplied with the vaccine should be stored in ILR at least 24 hrs before use to ensure that vaccine and diluent are at the same temp when reconstituted.**	
	Yes	**18%**
	No	**82%**
4	**How many vials of Measles vaccine will you carry to immunize 15 infants in a village?**	
	3	**18%**
	4	**62%**
	5	**20%**
5.	**Reconstituted BCG and Measles vaccines should be discarded after how many hours?**	
	1	**9%**
	2	**71%**
	3	**20%**
	4	**0%**

6	**How can you track drop out children?**	
	a. Immunization registration	**100%**
	b. Tickler box/ bag	**0%**
7	**How will you dispose off AD syringes after use?**	
	a. Burn it in open air	**42%**
	b. Cut needle in hub cutter and collect syringe in red bag and send to PHC for disinfection and disposal.	**13%**
	c. Throw in general waste/Black bag	**45%**
8.	**Drop out children are those who have never received any immunization**	
	Yes	**14%**
	No	**86%**
9	**If a child comes with mild fever and diarrhoea, should you give immunization?**	
	Yes	**40%**
	No	**60%**

Table 3: Practices regarding immunization among Immunization

S. No.		Percentage
1.	**Whether Batch NO. & Expiry Date of Vaccine recorded?**	
	Yes	**83%**
	No	**17%**
2.	**Whether spirit allowed to dry before vaccination of killed vaccine?**	
	Yes	**86%**
	No	**14%**
3.	**Whether 0.1ml AD syringe used for BCG vaccination?**	
	Yes	**100%**
	No	**0%**
4	**Whether normal saline used for cleaning the skin before BCG and Measles vaccination**?	

	Yes	**82%**
	No	**18%**
5.	**Whether DPT & Hep-B given on different sites?**	
	Yes	**87%**
	No	**13%**
6.	**Whether Vit-A given along with Measles vaccination?**	
	Yes	**87%**
	No	**13%**
7.	**Whether Ice-pack applied on the vaccination site after vaccination?**	
	Yes	**45%**
	No	**55%**
8.	**Whether advised mother regarding adverse affect of vaccination ?**	
	Yes	**100%**
	No	**0%**
9.	**Whether advised mother regarding next schedule of immunization?**	
	Yes	**65%**
	No	**35%**

Among 45 ANM interviewed 5 AMNs have experience of less than one year in which 4 have detail knowledge of complete immunization. 13 ANMs having experience of 1-3 years in which 13 knows about complete immunization and among rest 27 ANMs having an experience of more than 3 years 23 knows about complete immunization.

Firgure 4: Comparison between Experience of ANM and Knowledge regarding complete immunization:

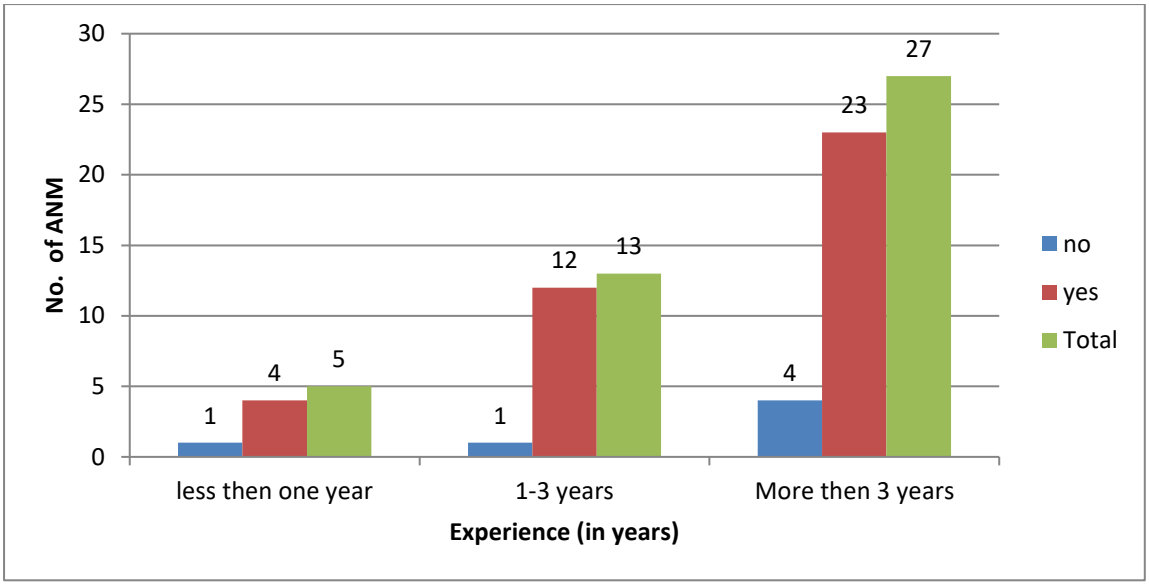
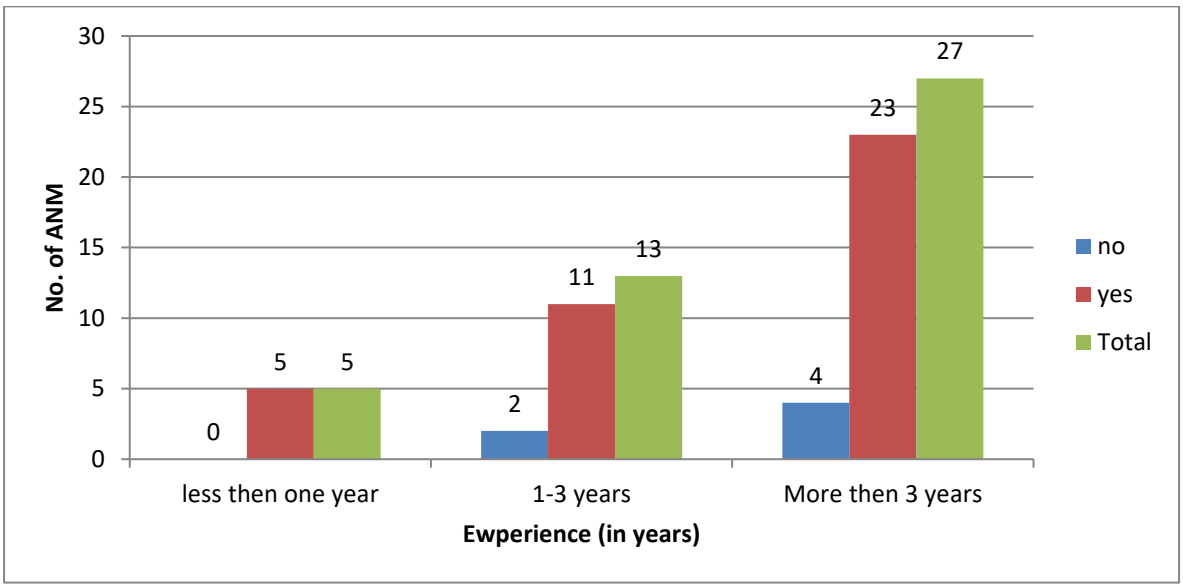


Figure 5: Comparison between Experience of ANM to the knowledge regarding drop- out children:



Chapter-5

DISCUSSION

Despite all the efforts taken by the Government of India and international agencies, the proportion of unimmunized and partially immunized children remain quite high and we lag far behind the National socio-demographic goal of 85% coverage of all the vaccines[10].The insufficient knowledge of the health workers requires sincere effort on the part of the health professionals and

policy makers to plan and execute the IEC "information, education and communication" initiatives. Knowledge about proper dose of vaccines is a major issue in the block. It was observed that about 50% of the total ANM only knows about proper dose and route of BCG, DPT and Measles vaccine.

Basic knowledge of vaccine like its use, storage and disposal mechanism is not known by most of the ANMs. Only 40% of the total ANM interviewed have proper knowledge regarding disposal of T-Series vaccines. Unexpectedly only 13% of them knows the proper disposal mechanism of AD syringes and is not practised commonly in the block. One more crucial factor observed was that only 60% of the ANMs know that child with mild fever and diarrhoea should not be immunized.

17% and 14% of the total ANMs do not record expiry date and do not allow the spirit to dry before vaccination respectively which may leads to serious consequences. 55% of ANM do not apply ice pack on the site of vaccination. Every ANM advise mother regarding the adverse effect of vaccination that may arise after application.

Only 65% ANM give advice to the mother regarding the next schedule of immunization which may decreases the awareness among society. 86% ANMs can't define the drop-out children which they track from immunization register which they maintain throughout, but without proper knowledge the maintenance of register is questionable. This study therefore provides us an important insight into the existing level of awareness among the health workers and the areas that need attention.

Chapter-6

CONCLUSION AND RECOMMENDATIONS

This is to conclude that the knowledge of ANMs about vaccination is not completely adequate and this is reflected on the state of immunization. This refers to incomplete knowledge and inappropriate practice of ANMs. This would require appropriate training and education to the success of the programme. The beneficiaries need to have clear information about the subsequent immunization schedule and its importance. So health workers need to be trained on communication skills; how to provide clear information and motivate mothers to come for

subsequent immunization and simultaneously educate them about the importance of immunization.

Behavioural training and capacity building should be organized for health workers and supervisors from block to district level. Provide in-service continuous training to ANMs, medical officers, and cold chain handlers to improve the quality of services. Improving injection safety and delivery in order to improve technical quality is also a crucial aspect to be improved because children have to be immunized with potent vaccines and appropriate injections. Supportive supervision should be provided to motivate the staff to follow the guidelines of use, delivery and disposal of syringe as well as vaccine is required.

The following issues still remain a matter of concern which needs to be resolved with a sustained and combined effort of the district and block level authorities. As the success of any program implementation is dependent upon the synergistic activities of several partners i.e. stakeholders, service providers and beneficiaries, there needs to be a mutually supportive, innovative, practical and time bound action plan which will go a long way in achieving long term improvement in uptake of Mother and Child Health services & immunization among beneficiaries.

REFERENCE:

1. GIVS. Global Immunization Vision and Strategy 2006-2015. Geneva: WHO/UNICEF; 2005. Cited in http://whqlibdoc.who.int/hq/2005/WHO_IVB_05.05 .pdf [accessed on 21 March 2013].
2. Expanded Programme on Immunization. The Social Science and Immunization Research Project. Wkly Epidemiol Rec 1998; 73: 285-8.
3. Das, N. Mishra, V. Saha, P. (2001) “Does Community Access Affect the Use of Health and family Welfare Services in Rural India?” National Family Health Survey Subject Reports.

4. Anand S, Bärnighausen T. Health workers and vaccination coverage in developing countries: an econometric analysis. Lancet 2007; 369:1277-85.
5. Petrovic V, Seguljev Z, Gajin B. Maintaining the cold chain for vaccines. Med Pregl. 2005; 58: 333-41.
6. Adhikari P, Dhungel S, Shrestha R et al. Knowledge, attitude and practice (KAP) study regarding facts for life. Nepal Med Coll J 2006; 8: 93-6.
7. Anjum Q, Omair A, Inam SN et al. Improving vaccination status of children under five through health education. J Pak Med Assoc 2004; 54: 610-3.
8. Gulati N, Sahgal K, Gogia V, Jain BK. Factors influencing immunisation status of urban and rural children in Delhi. Indian Journal of Community Medicine. 1990;15(4):180-184.
9. Shah B, Sharma M, Vani SN. Knowledge, attitude and practice of immunization in an urban educated population. Indian J Pediatr 1991; 58:691-5.
10. National Population policy 2000, Ministry of Health & Family Welfare, New Delhi. Government of India. 2000.
11. Shah C Raju, Shah K Nitin, K Shyam et al. IAP Guidebook on Immunization. IAP committee on Immunization. 2005-06; 7-17.
12. National Family Health Survey (NFHS-3) 2005-06 Volume-I and II. International Institute for Population Sciences, Deonar, Mumbai. Ministry of Health and Family Welfare Government of India. Appendix E;22-39
13. A report of the special task force on Bihar. Government of India, New Delhi, August 2007. 5: 6-17

APPENDIX-1

Questionnaire for Knowledge Attitude and Practice of Immunization among Nurses

Name:- ***Work experience:-***

HSC:- ***Date of joining:-***

1) **Knowledge regarding proper dose and route about vaccination among nurses**

S.No.	Knowledge of vaccine	Response
1.	BCG Dose	
2.	BCG Route	

3.	DPT Route	
4.	DPT Site	
5.	Measles Route	
6.	Measles Site	

2) **Knowledge, Attitude and Practice of Immunization among ANM**

1	A fully immunized child is one who has received BCG, DPT/Polio-1&2 ,Measles and Vit-A before the first birthday. ,d iqjh rjg ls izfrjf{kr cPpk og gS tks igys tUefnu ls igys BCG,DPT/Polio-1&2 ,Measles and Vit-A izkIr dj pqdk gks A	Yes	NO
2.	What do you do with T- series vaccines (DPT, DT ,TT, Hep B) that are frozen? vki tes gq, ¼Ýkstu½ (DPT, DT ,TT, Hep B) T- series Vhds ds lkFk D;k djsaxsa ?		
	a. Discard and report fudky nsaxsa ,oa lwpuk nsaxsa		
	b. Keep them in the cold chain. cold chain esa j[ksaxsa		
	c. Warm them and use them as quickly as possible xeZ djds iqu% ftruh जल्दी संभव gks bLrseky djsaxsa		
3.	Diluent supplied with the vaccine should be stored in ILR at least 24 hrs before use to ensure that vaccine and diluent are at the same temp when reconstituted. Vhds ds lkFk vkiwfrZ fd;s x;s eand dks ILR essa de ls de 24 ?kaVs igys ls laxzghr djsaxsa rkfd iquZxBu ds le; nksuks ,d rkieku ij gks	**Yes**	**NO**
4	**How many vials of Measles vaccine will you carry to immunize 15 infants in a village?** **,dk¡o esa 15 शिशुओं dks izfrjf{kr djus ds fy, [kljs oSdlhu dh fdrus ok;y ys tk;saxsa**?	**3,4,5,6**	
5.	**Reconstituted BCG and Measles vaccines should be discarded after how many hours?** पुनर्गठित बीसीजी और खसरा के टीके ko कितने घंटे के बाद खारिज कर दिया जाना चाहिए?	**1,2,3,4**	
6	**How can you track drop out children?** कैसे आप Drop out बच्चों को ट्रैक कर सकते हैं?		

	c. Immunization registration(टीकाकरण पंजीकरण)		
	d. Tickler box/ bag (. गुदगुदाने बॉक्स / बैग)		
7	**How will you dispose off AD syringes after use?** कैसे आप उपयोग के बाद एडी सीरिंज का निपटारा djsaxh?		
	d. Burn it in open air(खुली हवा में इसे जला **dj)**		
	e. Cut needle in hub cutter and collect syringe in red bag and send to PHC for disinfection and disposal.(हब कटर में सुई ककटdj सिरिंज dks लाल बैग में इकट्ठा करds प्राथमिक स्वास्थ्य केंद्र es भेजे कीटाणुशोधन और निपटान के लिए)		
	f. Throw in general waste/Black bag (सामान्य कचरे / काले बैग में फेंको)		
8.	**Drop out children are those who have never received any immunization** **Drop out** बच्चों og gs ftUgs dÒh टीकाकरण प्राप्त नहीं gqvk है	**Yes**	**No**
9	**If a child comes with mild fever and diarrhoea, should you give immunization?** एक बच्चे को हल्का बुखार और दस्त के साथ आता है, तो आप ko प्रतिरक्षण देना चाहिए?	**Yes**	**No**

3) **Practices regarding immunization among Immunization**

S. No.			
1.	**Whether Batch NO. & Expiry Date of Vaccine recorded?** **बैच सं और वैक्सीन की समाप्ति की तिथि दर्ज की गई?**	yes	No
2.	**Whether spirit allowed to dry before vaccination of killed vaccine?** **Spirit वैक्सीन के टीकाकरण से पहले सूखे की अनुमति दी है?**	**yes**	**No**
3.	**Whether 0.1ml AD syringe used for BCG vaccination?** **Kya 0.1ml ई. सिरिंज बीसीजी टीकाकरण के लिए प्रयोग किया जाता है?**	**yes**	**No**
4	**Whether normal saline used for cleaning the skin before BCG and Measles vaccination**? Normal Saline बीसीजी और खसरा टीकाकरण से पहले त्वचा की सफाई के लिए इस्तेमाल किया है?	**yes**	**No**
5.	**Whether DPT & Hep-B given on different sites?**	**yes**	**No**

	डीपीटी और Hep बी विभिन्न साइटों पर दी गई है?		
6.	**Whether Vit-A given along with Measles vaccination?** **विटामिन ए खसरा टीकाकरण के साथ दिया ja sakta h?**	**yes**	**No**
7.	**Whether Ice-pack applied on the vaccination site after vaccination?** **आइस पैक टीकाकरण के बाद टीकाकरण साइट पर लागana chahie या नहीं?**	**yes**	**No**
8.	**Whether advised mother regarding adverse affect of vaccination ?** **टीकाकरण के प्रतिकूल असर के बारे में maa ko सलाह दी gai?**	**yes**	**No**
9.	**Whether advised mother regarding next schedule of immunization?** **टीकाकरण के अगले शेड्यूल के बारे में मां को सलाह दी गई है?**	**yes**	**No**