Internship Training at

National Health Mission, Haryana

By

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International Institute of Health Management Research

Internship Training
At
Child Health
NHM Haryana

"Assessment of Cold Chain Status in various District Hospitals of state, Haryana"

SUBMITTED BY – Dr. Swati Aggarwal

Under the guidance of

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POST GRADUATE DIPLOMA IN HOSPITAL AND HEALTH MANAGEMENT
NEW DELHI
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Certificate of Internship Completion

TO WHOM IT MAY CONCERN

This is to certify that Dr. Swati Aggarwal has successfully completed his internship in our organization from February 5, 2014 to May 2, 2014. During this internship he has worked on project "**Assessment of Cold Chain Staus in various District Hospitals of state, Haryana**" & also co-ordinated for the Supportive Supervision of Programmes under the guidance of me and my team at National Rural Health Mission, Haryana..

We wish her good luck for his future assignments.

(Signature)
Medical Officer,
Child Health, NHM - Haryana

Deputy Director - MCH & EPI
Directorate General Health
Services, Haryana, Panchkula

TO WHOMSOEVER MAY CONCERN

This is to certify that **Dr. Swati Aggarwal** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at National Health Mission, Haryana from 10- Feb-2014 to 02-May-2014.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all his future endeavors.

Dean, Academics and Student Affairs

IIHMR, New Delhi

Supervisor

IIHMR, New Delhi

Certificate of Approval

The following dissertation titled "**Assessment of Cold Chain Status of Various District Hospitals in State Haryana**" at **National Health Mission, Haryana** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a pre-requisite 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.

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FEEDBACK FORM

Name of the Student: Dr Swati Aggarwal

Dissertation Organisation: Child Health Division
National Health Mission, Haryana.

Area of Dissertation: Assesment of Cold chain Status in various districts Hospitals of State Haryana

Attendance: 100%.

Objectives achieved: The objective of dissertation was achieved with the aim of achieving programme goal.

Deliverables: Report of dissertation was submitted at the head quarters

Strengths: → Team work → ability to work within timelin
→ Good communication skills
→ perseverant → Hardworking

Suggestions for Improvement:

→ Scope for analytical approach
→ Report writing

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Place:

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Swati Aggarwal,** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He/ She is submitting this dissertation titled "**ASSESSMENT OF COLD CHAIN STATUS IN VARIOUS DISTRICT HOSPITALS OF STATE, HARYANA**" at "NATIONAL HEALTH MISSION, HARYANA" 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.

Organization Mentor Name

Designation,

National Health Mission, Haryana

Deputy Director - Medical Officer
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INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled " Assessment of Cold Chain Status in various District Hospitals of State, Haryana" and submitted by Dr. Swati Aggarwal, Enrollment No. : PG/12/097 under the supervision of Dr. A. K. Khokhar for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from February 5, 2014 to May 2, 2014 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

AKNOWLEDGEMENT

"Any accomplishment requires the grace of god as well as help and good wishes of many people and this work is not different."

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I express my thanks to Dr. Suresh Dalpat, Deputy Director, Child Health – NHM Haryana,

I feel highly honoured to express my most profound gratitude to Dr. Suresh Dalpat, Deputy Director, Child Health – NHM Haryana for giving me the opportunity and resources to pursue my project work.

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Place – Panchkula Dr. Swati Aggarwal

Abreviations/ Acronyms

BCG	Bacille Calmette-Guérin [vaccine]
CHC	Community health centres
DF	Deep freezer
DLHS	District level household survey
DTP	Diphtheria-tetanus-pertussis [vaccine]
EPI	Expanded programme of immunization
Hib	Haemophilus influenza type b
ILR	Ice lined refrigerator
MDG	Millennium Development Goal
MDG 1	The first Millennium Development Goal
MDG 4	The fourth Millennium Development Goal
MMR	Measles-mumps-rubella [vaccine]
NHM	National health mission
NIP	National Immunization Program
OPV	Oral polio vaccine
PHC	Primary health centres
R&D	Research and development
RAPID	Regular Appraisal programme implementation in district

GH	General Hospital
WHO	World Health Organization
DH	District Hospital
PPC	Post partum centre
GOI	Government of India
IMNCI	Integrated Management of newborn and Childhood illness
CCH	Cold Chain Handler

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1.INTRODUCTION

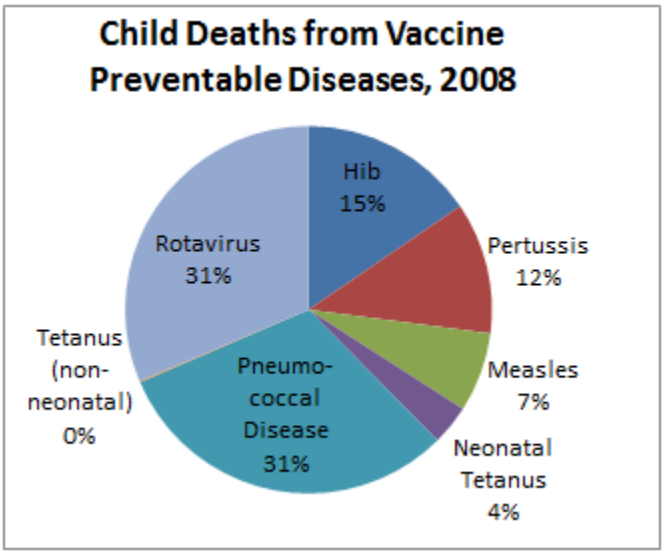
Child Mortality

7.6million children under the age of five die every year, according to 2010 figure (WHO, 2011) Over **two-thirds** of these early child deaths are due to conditions that could be **prevented** or **treated** with access to simple, affordable interventions. (WHO, 2011).Approximately **40%** of child deaths occur in infants under one month old. (WHO, 2011).Children in low-income countries are nearly **18 times more likely** to die before the age of five than children in high-income countries.

Impact of Vaccines

Vaccines are cost-effective and life-saving.In 2010, **109 million** children were immunized with three doses of tetanus, diphtheria and pertussis vaccine (WHO, 2011)Vaccines prevent **2.5 million deaths** every year in all age groups (WHO, 2011).Expanding coverage of vaccines at the national and subnational level could **prevent 2 million additional deaths** in children under 5 (WHO, UNICEF, World Bank, 2009).

Vaccine Preventable Diseases



Despite reaching 109 million children last year with three doses of the tetanus, diphtheria and pertussis vaccine, **19.3 million** children were **not** reached in 2010 (WHO, 2011).

As a result of undervaccination, the WHO estimates that **1.7 million** children under 5 still die from diseases preventable by vaccines currently recommended by WHO (2008 estimate) (WHO, 2011)

This represents approximately **20%** of under five child deaths and **30%** of child deaths between 1 – 59 months old (WHO, 2011)

With a reported 71.7%immunization coverage in Haryana, the state presents with an IMR of 42/1000 live births. Showing a variation between urban areas (IMR=33) and rural areas (IMR=46)

Effective cold chain system is the backbone of any immunization programme and it ensures that the beneficiaries receive safe and potent vaccines so that they are protected against infectious diseases for which vaccines were administered. Effective vaccine management is designed to get a glimpse of the present condition of the cold chain system of the state taking into account the cold chain points at facility level also and then assess their strengths and weaknesses making recommendations to make the system better. 14 districts (Panchkula,Faridabad,Narnaul, Bhiwani, Ambala, Kaithal, Karnal,Jind,Fatehabad, Hisar, Jhajjar, Gurgaon,Sirsa, Yamunanagar) out of the 21 were taken as a sample and cold chain point at the District hospital of I each of these districts were assessed to give a picture of vaccine management in the state. Cold chain handlers (CCH) were interviewed, documents assessed, observations made and the results showed that a lot of work has been done according to the state guidelines in handling the cold chain and vaccine and logistics. There was contingency plan in case of any emergency along with planned preventive maintenance of cold chain equipments (CCE). Temperature monitoring instrument was present at all cold chain points. Infrastructure was adequate at most places. There is need to train the existing staff to upgrade their skills. Storage capacity was sufficient at most places .Vaccine requirement was forecasted properly at the district level. The strength of the cold chain system of the state lies in the staff's attitude to learn more and improve the effectiveness of the existing system. In spite of such shortcomings they have managed 71.7%

immunization coverage. With more work in the training area and microplanning, the state would definitely be able to achieve 100% immunization coverage of infants and pregnant women.

1.1 Background

Immunization is one of the best efforts that India is putting forward currently to fight against various vaccine preventable diseases. The country spends a lot of money every year on immunization. Expanded Program on Immunization (EPI) was launched globally by WHO in 1974. India, in line with WHO's "Health for All by 2000" launched it in 1978 to reduce child mortality. More vaccines were added in the program in the ensuing years like OPV in 1979 and TT for pregnant women in 1983. Subsequently, in 1985, Indian government launched Universal Immunization Program (UIP) to immunize all children and pregnant women by 1990 including a new vaccine Measles along with the other six. Presently, UIP consists of the following vaccines:

BCG

TT

OPV

DTP

Hep B

Measles

Pentavalent (vaccine against Diphtheria, pertussis, tetanus, Hepatitis B and Haemophilus influenzae type B infection)- only in Kerala and Tamil Nadu

Japanese encephalitis- in some states.

Vitamin A is not a vaccine but its administration prevents many deficiency related diseases and is a part of UIP. The success of this program depends highly on the level of cold chain maintenance of the vaccines right from the site of manufacturing up to its administration. General Hospitals (GH),Urban Health Centers (UHCs), set up under various Municipal

Corporations, have been the backbone for delivering services related to immunization in urban areas in India. It is thereby important that cold chain system be adequately maintained at these centers. It is repeatedly found that cold chain is not maintained properly in India. Health workers knowledge of these health workers in the maintenance of the cold chain system is a pre-requisite in the correct delivery of immunization services. It is also imperative that the condition of cold chain equipment, i.e., deep freezer and ice-lined refrigerator (ILR) is maintained appropriately and emergency plan in case of cold chain failure is followed adequately.

Cold Chain is a system of storing and transporting vaccine at the recommended temperature range from the point of manufacture to point of use. India has built a vast cold chain infrastructure to ensure that only potent and effective vaccines reach millions of beneficiaries across the country. The vaccines are supplied by manufacturers directly to four Government Medical Store Depots (at Karnal, Mumbai, Chennai and Kolkata) and state and regional vaccine stores. The GMSDs supply to the states and regional vaccine stores; state and regional vaccine stores supply vaccines to Divisional vaccine stores and district in Post partum centres (PPCs) in District Hospitals. The vaccines are further supplied to last cold chain points which are usually situated in Primary Health Centers (PHCs) and Community Health Centers. Transportation of vaccines from States/Regional stores to divisions and districts is done in cold boxes using insulated vaccine vans. Vaccines carriers with icepacks are used to transport vaccines from PHCs to the outreach sessions in the village. In addition to the equipment, there are different personnel deployed for cold chain and vaccine handling. In the states, there are State Cold Chain Officers who are in charge to ensure smooth functioning of all cold chain equipment in the state. At regional, divisional and district levels, there are cold chain technicians whose responsibility is to maintain and repair cold chain equipment for maintaining the recommended temperatures for storage of vaccines. At the PHCs and CHCs, cold chain handlers, who are health personnel (pharmacists, male and female multi-purpose health workers, etc) have been tasked with proper storage and handling of vaccines and daily upkeep of Ice Lined Refrigerators (ILRs) and Deep Freezers (DFs) including temperature charting. Cold chain technicians have been provided with trainings and tool kits for performing installation, maintenance and repair activities. For maintenance of cold chain equipment, Govt. of India provides funds to the state under NRHM. The performance and efficiency of the cold chain system at different levels is monitored continuously, through supervisory visits, review meetings. The Government of India procures

and supplies all UIP vaccines along with diluents to all states. In addition to vaccines, syringes of different capacities, are also procured centrally and supplied to states. The process involves vaccines and logistics forecasting, scheduling, ensuring supplies as per need, and so on. It is important to ensure that the cold chain system is not over burdened and there are no under supplies. Supplies are made to states on a quarterly basis on receipt of indent. State Vaccine Stores can store vaccines for three months and so can district vaccine stores. PHCs/CHCs send monthly indents to district stores. PHCs can store vaccines for a maximum of one month only.

1.2 Rationale of the study:

Cold chain needs continuous supervision and assessment at different levels to prevent the loss of vaccine potency during storage and handling. This is important as new and expensive vaccines that require different approaches to storage are introduced. This study was done to assess the cold chain as per guidelines.

1.3 Objectives:

General Objective:

Assessment of Cold chain status in various district hospitals of State, Haryana.

Specific objectives

- To assess the programme management of routine immunization.
- To assess the cold chain maintenance practices among various district hospitals as per guideline.
- To assess the level of knowledge of cold chain handler regarding cold chain among various district hospitals.
- To improvise onto drawbacks and give recommendations

1.4 Review of Literature:

1. Assessing cold chain status in a metro city of India: An intervention study[1]:

Cold chain maintenance is an essential activity to maintain the potency of vaccines and to prevent adverse events following immunization. One baseline study highlighted the unsatisfactory cold chain status in city of Kolkata in India. This study was carried out to assess the changes which occurred in the cold chain status after the intervention undertaken to improve the status and also to assess the awareness of the cold chain handlers regarding cold chain maintenance. Reevaluation of cold chain status was done at 20 institutions selected by stratified systematic random sampling after the intervention

Results:

Significant improvement had been observed in correct placing of cold chain equipment, maintenance of stock security, orderly placing of ice packs, diluents and vaccines inside the equipment, temperature recording and maintenance. But awareness and skill of cold chain handlers regarding basics of cold chain maintenance was not satisfactory.

2.Evaluation of Vaccine Cold Chain in Urban Health Centres of Municipal Corporation of the Surat City, Western India[2]

The aim of the study was to assess the condition of cold chain equipment, practices adopted for cold chain maintenance and knowledge of the vaccinators. It was a cross-sectional study conducted in 20 UHCs of Surat Municipal Corporation (SMC). Cold chain equipment were observed with regards to their condition, along with the practices adopted by vaccinators for cold chain maintenance. A pre-designed and pre-tested questionnaire was used to interview the vaccinators regarding their knowledge and awareness regarding cold chain practices, management and handling

Results:

Absence of separate stabilizer for deep freezers and ILRs (85%), ill-maintained temperature-record register, lack of criss-cross pattern of ice packs in deep freezer (65%), presence of things other than ice packs in deep freezer (10%) and things other than vaccines in ILR (10%) indicate poor cold chain maintenance. In addition to this, expired vaccines in ILR (5%), vaccines in the "unusable" stages of VVM (15%), lack of emergency contact number nearby in case of cold chain failure (85%), lack of inverter (85%), lack of generator (85%) and failure to note time of reconstitution on the vaccine vial at the time of vaccination (25%) indicate poor cold chain practices. Lack of knowledge of defrosting of ILR and deep freezer (45%), lack of knowledge about Shake test (40%), lack of knowledge of temperature range to be maintained in deep freezer (70%) and in ILR (15%) indicate poor knowledge of vaccinators.

Therefore, Cold chain maintenance and practices need improvement. Knowledge of vaccinators was overall unsatisfactory.

3. Evaluation of cold chain system in Chandigarh during PPI campaign 2001-2002.[3]

The aim of the study was to evaluate the maintenance of cold chain system (CCS) in intensified pulse polio immunization (IPPI) programme, during December 2001 and January 2002 in Union Territory (UT) Chandigarh.

A Cross sectional time bound study was conducted in seven centres, where OPV vials were stored prior to IPPI and 20 IPPI Booths in UT, Chandigarh. Booths were selected by stratified random sampling technique. The status of cold chain equipments was assessed at headquarter of IPPI, 6 regional (distribution) centres, 20 IPPI posts and 5 house to house teams.

Results: The cold chain sickness rate was found to be 9.7% in January, 2002. There were reports of breakdown of cold chain maintenance due to defective plugs and sockets, faults in thermostat, leakage of gas. But all vaccine samples picked up randomly were reported potent, as per the test reports provided by Central Research Institute (CRI), Kasauli during the period of study.

4. Assessment of cold chain status for immunization in central Ethiopia.[4]

The objective of the study was to assess the cold chain status and practices in 116 health facilities located in three CCRDA/CORE Group Ethiopia operational districts (woredas). An institution based cross-sectional study was conducted in December 2011 and January 2012 in three districts (woredas) of Oromiya, SNNP and Amhara Regions of Ethiopia, data was collected

from 116 health facilities and from the same number of immunization service providers. Multiple logistic regression analysis was carried out to identify factors related to knowledge of cold chain management.

Results: Of 116 visited facilities, only 22 (19%) had functional refrigerators. The remaining facilities transported vaccines from nearby facilities having functional refrigerators. Complete temperature recording of the last month was observed in 13 (59.1%) facilities. Of 22 functional fridges, the thermometer reading was found to be outside the recommended range in 6 (27.3%) on the date of data collection. Vaccine storage in the refrigerator was not proper in 12 (54.5%) facilities. Sixty-five (56%) health workers had satisfactory knowledge on cold chain management. Professional qualification and year of service in the immunization program showed a statistically significant association with knowledge of cold chain management ($P < 0.05$).

5. Program on immunization and cold chain monitoring: the status in eight health districts in Cameroon.[5]

Cold chain monitoring is a precondition to ensure immunization quality, efficacy and safety This study was conducted to assess the status of cold chain in eight health districts in Cameroon.The study was carried out in eight health districts out of fifty with poor immunization coverage rate. Data were collected using a validated form by observation and consultation of related documents. Health Centers (IHC) randomly selected were targeted per health district. Forty health facilities were included.

Results:Twenty eight (70.0%) had at least one functional refrigerator for EPI activities. The power supply was reported to be permanent in 7 (20.6%) out of 34. (85.0%) health facilities with access to power supply. The temperature monitoring chart was pasted on 27 (96.4%) of the cold chain equipment. On 16 (59.3%) of these charts, the temperature was recorded twice daily as recommended. Seven (25.9%) of 27 refrigerators assessed had temperature out of the recommended range of 2 to 8°C. Almost 23.30% of health centers did not received any supervision on cold chain monitoring during a vaccination campaign.

6. Cold chain maintenance in vaccines: a systematic review[6]

Systematic immunization programmes mostly depend on the correct maintenance and manipulation of the vaccines to be used, i.e. perfect maintenance of the cold chain. Therefore, a systematic review of the literature on the cold chain and vaccines was carried out, to identify daily practices in vaccine sites. A literature search was performed in the main medical databases for documents published between 1990 and 2005, including those performed by means of a survey and/or inspection of vaccine sites that provided the following data: a designated health officer, availability of a thermometer with maximums and minimums, refrigerator temperature at the time of the visit, and temperature control and registration. For all the variables, the mean prevalence was calculated with a 95% confidence interval.

Results: Three hundred seventy-seven articles were found; 31 were initially selected and 13 were finally included. In 72.21% of the vaccine points, there was an officer responsible for the vaccines, but only 61.43% knew the optimal temperature range. Fifty-five percent of these points had a thermometer with maximums and minimums and only 26.88% carried out temperature controls and registrations at least once per day.

2.Methodology:

2.1 Study design- Cross sectional study

2.2 Study area- Post Partum Centers in District Hospitals of State, Haryana

2.3 Study respondent- Cold chain handler

2.4 Sampling- Random sampling

2.5 Data collection tools

- Pre-tested RAPID tool for health facility.
- Knowledge assessment questionnaire for cold chain handler.

2.6 Technique-

- Interview
- Review of records/documents- Stock register, temperature log book, vaccine issue register etc.
- For analysis- Excel.

  The majority of data are drawn from the health-facility and caregiver questionnaire. The findings from the interviews at each level of the health service, and the observations at facility will be summarized to provide an overview of the cold chain maintenance process. The collected data in the filled will entered into spreadsheets in excel, and then compile for the final analysis

2.7 Data collection methods

- Qualitative collection methods namely observation, interviews, questionnaires and focus group discussions.
- Quantitative data was collected from temperature log books, stock registers and indent challan books and by physical count of vaccines/diluents/consumables.

  Furthermore, a short account of each of the methods and the description of how specifically various data was collected.

1.Observations –Interaction with the various Cold Chain handlers maintaining the cold chain in PPC of District hospitals for assessing the current status.

2.Interviews – A semi-structured interview were conducted based on the questionnaires formulated which helped in gaining much qualitative data through informal conversations that can be regarded as unstructured interviews. A lot of information was gathered through these informal conversations, as it was easier for study population to discuss things more freely and in depth. Notes were taken whenever these occasions occurred.

3.ORGANIZATION PROFILE

3.1 Name of the organization National health mission Panchkula, Haryana.

Address BAYS NO.55-58, SECTOR-2, PANCHKULA ,HARYANA

Genesis The **National Rural Health Mission** (NRHM) is an initiative undertaken by the government of India to address the health needs of underserved rural areas. Founded in April 2005 by Indian Prime minister Manmohan Singh, the NRHM was initially tasked with addressing the health needs of 18 states that had been identified as having weak public health indicators.

The Union Cabinet vide its decision dated 1st May 2013 has approved the launch of National Urban Health Mission (NUHM) as a Sub-mission of an over-arching National Health Mission (NHM), with National Rural Health Mission (NRHM) being the other Sub-mission of National Health Mission.

NHM has six financing components:
(i) NRHM-RCH Flexipool,

(ii) NUHM Flexipool,

(iii) Flexible pool for Communicable disease,

(iv) Flexible pool for Non communicable disease including Injury and Trauma,

(v) Infrastructure Maintenance and

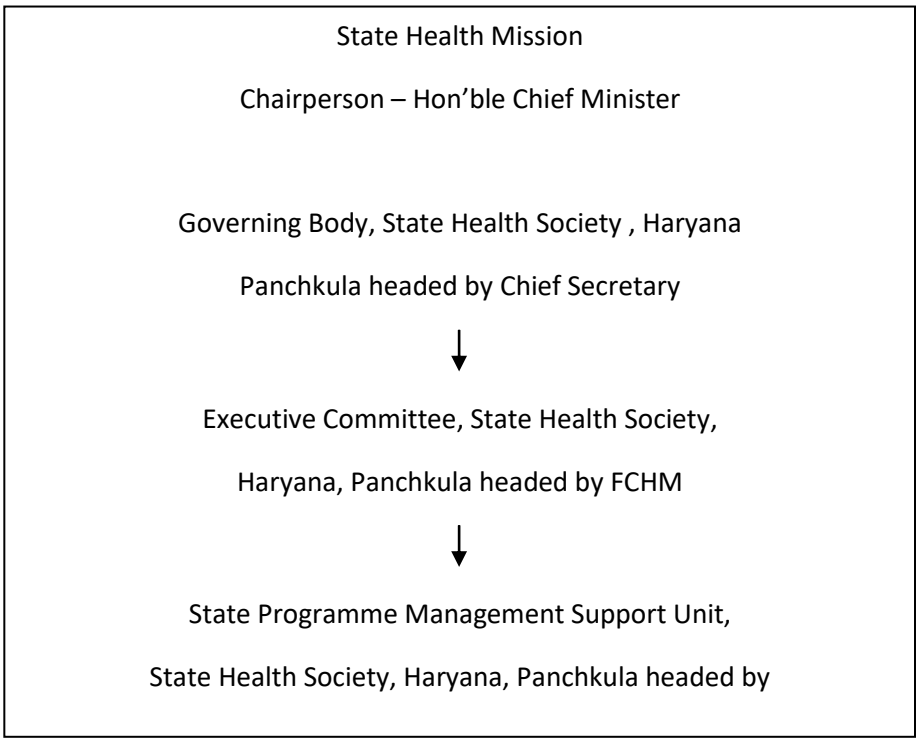
(vi) Family Welfare Central Sector component.

The National Rural Health Mission seeks to provide effective health care to rural population throughout the country. It aims to undertake architectural correction of the health system to enable to effectively handle increased allocations as promised under the National Common Minimum programme. It has as its key components provision of a female health activist in each village; a village health plan prepared through a local team headed by the Health & Sanitation Committee of the Panchayat. It aims at effective integration of health concern with determinants of health like sanitation & hygiene, nutrition, and safe drinking water through a District Plan for Health. As per mandate under NRHM the State Health Society has been reconstituted under the Chairmanship of Chief Secretary, Haryana adopting multi department approach and involvement of all stake holders.

 Mission – Mission of NRHM is to improve the quality of life of people by providing better Health Services. It strives to help people improve their productivity and reduce risks of diseases and injury in a cost-effective way.

 Vision--NRHM seek to establish long-term relationships with groups and individuals to enable them to continue to work to achieve optimal health. It delivers cost-competitive health promotion services with patient's satisfaction and accountability.

Structure of State Health Mission



B. Some of functions and duties of health department:

Health department has manifold functions and duties which are as under: - 1. Provide promotive, preventive, curative and rehabilitative services to the community through primary health care delivery system.

2. Provide equitable and quality health care at primary, secondary and tertiary level.

3. Extension, expansion and consolidation of rural health infrastructure.

4. Respond to the local community health needs and request.

5. It takes many steps for population stabilization.

6. Provide Reproductive and Child Health Services with the objective of reducing MMR & IMR.

7. Provide immunization services against vaccine preventive diseases of childhood as well as pregnant mothers against tetanus during child birth.

8. Provide Family Welfare Services.

9. Provide Essential Obstetric Care.

10. Enforcement of PNDT Act to prevent Sex Determination.

C. Programme Implementation Plan for 2012-13

State of Haryana has made steady progress in NRHM implementation during first phase of NRHM (2007-2012). State has now reached the stage from where it requires taking a leap forward. There has been considerable increase in the funds absorption capacity over the last few years, particularly after 2008-09. NRHM have however identified certain loose ends which need to be tightened up in the next phase. 2012-13 continues to retain the proposal of 2011-12, barring few structural changes necessitated by sub optional achievement in certain areas.

Program management needs a revamp both at state and district level. While on one hand state is averse to creating extra posts under NRHM but on the other this need people who can manage the program at district and sub district level. Community processes and main streaming of AYUSH have been weak areas. This year NRHM is proposing to link these two weak areas to strengthen both of them. It is proposed that MO (AYUSH) will function as community process manager at block level to look after ASHA, SMS, IBSY and HBPNC programs. AYUSH doctors otherwise well equipped to handle such programs have been underutilized. They will be paid extra honorarium for community process work.

ASHA program in Haryana has started moving; there has been increasing realization that if ASHA moves everything else would move along with it. There are two structural changes proposed this year in ASHA program: first, there will be an ASHA

supervisor from among the best performing ASHA at PHC level who will be paid extra honorarium for the work and second, there will be increased honorarium for ASHA for ensuring service delivery to SC and BPL population. In 2012-13, proposing 3000 new ASHAs in rural areas according to population norms. It is also proposed to have ASHA in urban areas to provide much needed extension services in urban slums.

State has proposed a new weekly a new weekly Iron Folic Acid supplementation (WIFS) program for adolescent girls in college in all the district. This will supplement the effort of Indira Bal Swasthya Yojana (IBSY) for controlling anemia in children and adolescents.

Analysis of expenditure in last few years has revealed that while salary component has been almost fully utilized, the expenditure in services and procurement has not been commensurate. In new PIP, it has been proposed to link honorarium with performance- there will be fixed component of honorarium which will be same as in last PIP plus a variable component which will be based on performance and can go up to 50 percent of the fixed honorarium. State has proposed to bolster its procurement wing to cut down delays in procurement.

Managerial tasks I did with respect to the departments

During the three months of working period in the office, I mainly co-ordinated for the various programmes of child health . Also, I was involved in below mentioned activities.
After one month of extensive training period,I did three district visit for supportive supervision of various child health programmes such as

- Essential newborn care supportive supervision in Districts narnaul, sirsa, yamunagar
- Routine immunization supportive supervision in above all three districts.
- On job training to staff nurse and ANM on ENBCR.
- Data entry of all the finding then analysed the data and explain with higher authority of respective Districts person such civil surgeon, DIO.
- Quality assessment of Special newborn care unit and cold chain room
- Part of Data Quality Assessment team.

Learnings in internship time

1. I came to know about various health programmes managed by the organization.
2. Work culture in govt. organizations as we think, is not the same everywhere.
   In NRHM Haryana there is lot of pressure of work in most of departments .
3. This provided me an opportunity to field exposure .
4. I came to know the harsh reality of health conditions prevalent in Haryana state.
5. I learned the various programmes run by GOI regarging Child Health Programmes
   I got the training of
   Essential new born care,
   Routine Immunization,
   Home base New born care,
   IMNCI (integrated management of newborn child illines.

7. Research type activities are very less held in NRHM, Haryana. This project by me created a niche in NRHM to think about the involvement of Researchers & health managers in their organization.

8. I also attended review meetings of CMO & also aware with points discussed in IMR reduction. These provided me a lot of knowledge & a platform to learn.

9. Last but not the least, I came to know that career in public health management is not as easy

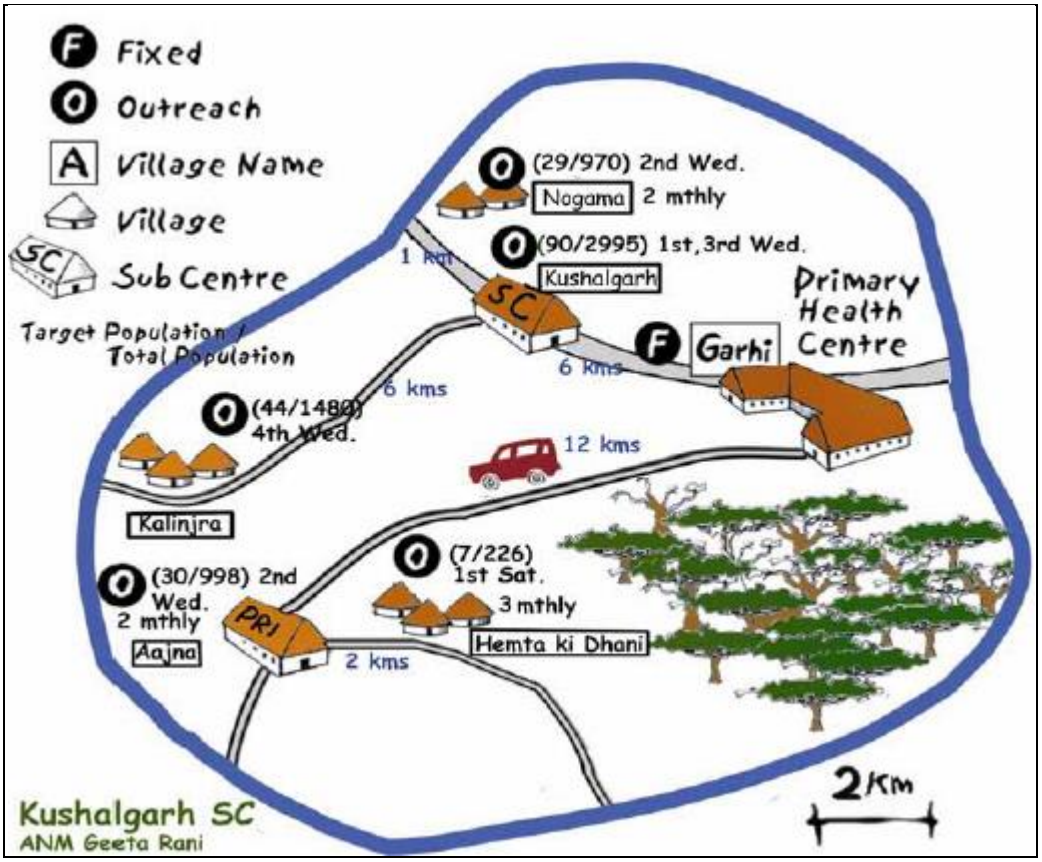
4.Observations

4.1Study findings and outcomes:

a. Programme Management :P lanning for routine immunization is a continuous process of analyzing data, evaluating progress and constraints and making decisions about reaching program objectives. The building block of planning for routine immunization is the Sub Centre **microplan**, which is compiled at the PHC and further at the district level. *Table* summarizes the components of a microplan and the levels at which it is prepared.

Sub-center	▪ An estimation of beneficiaries ▪ An estimation of vaccines, and logistics ▪ A work plan, including: ▪ Who will provide the services? ▪ Who will assist in provision of the services (AWW, ASHA, Social mobilizers, Gram Panchayat members, NGOs etc) ▪ Where will the services be provided (selection of sites)? ▪ When will the services be provided (planning of sessions)? 
SC/PHC	 ▪ An Area Map (with villages, hamlets, hard to reach areas, etc. at the SC-level. For the block level, the map includes SC boundaries, with alternate vaccine delivery routes and vaccine storage points.
PHC/District	▪ A plan for Supervision ▪ A budget that includes the costs of transport, meetings, social mobilization and other activities. ▪ IEC and Training Plans 

b.Map of the catchment area:



c.Supervisory plan

Plan for supervision						
Health facility:				Month:		
Health facility visited	Supervisor	Post	Session site	Planned visit	Conducted(y/n)	Remarks
1.						
2.						
3.						
4.						

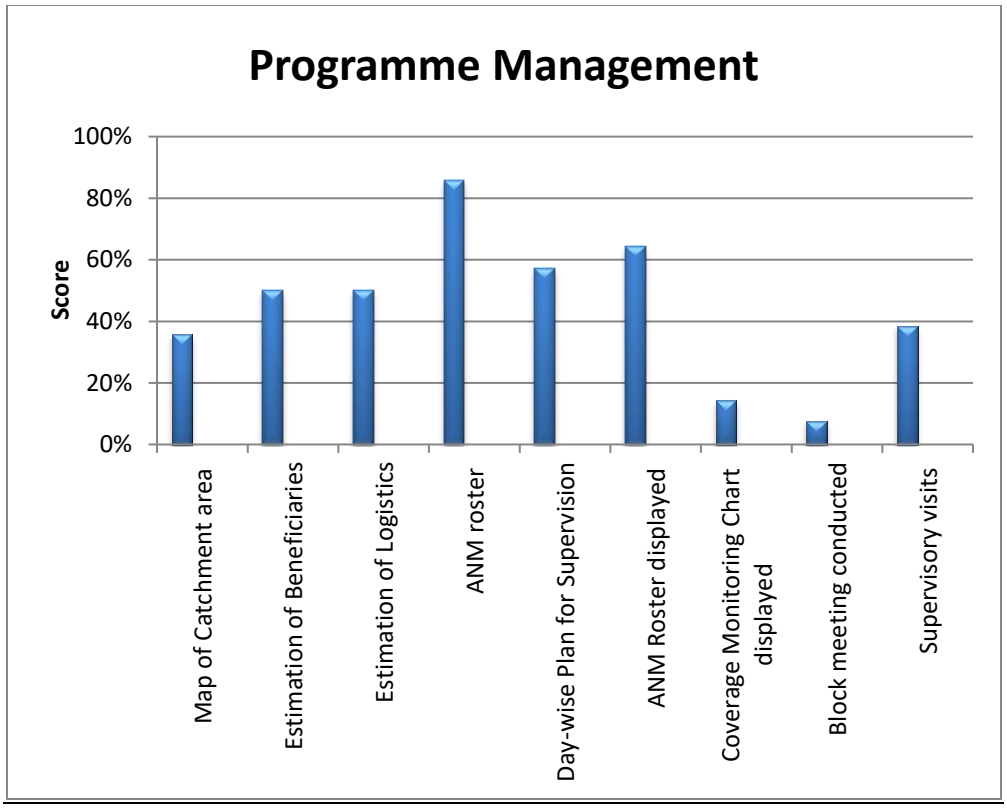


Figure 1

This figure shows the management of the immunization programme in PPCs of District Hospitals of state, Haryana. In 38% of the PPCs , map of the catchment area was displayed. Around 50% of the PPCs had estimated the beneficiaries as well as logistics. In about 84% of PPCs ANM duty roster was found and in 62% of PPCs it was found displayed. In 58% of PPCs day wise supervisory plan was made. Coverage monitoring chart was found displayed in about 18% PPCs. Only 8% of PPCs had the minutes of meeting of block meetings conducted. About 39% of PPCs had note of Supervisory visits.

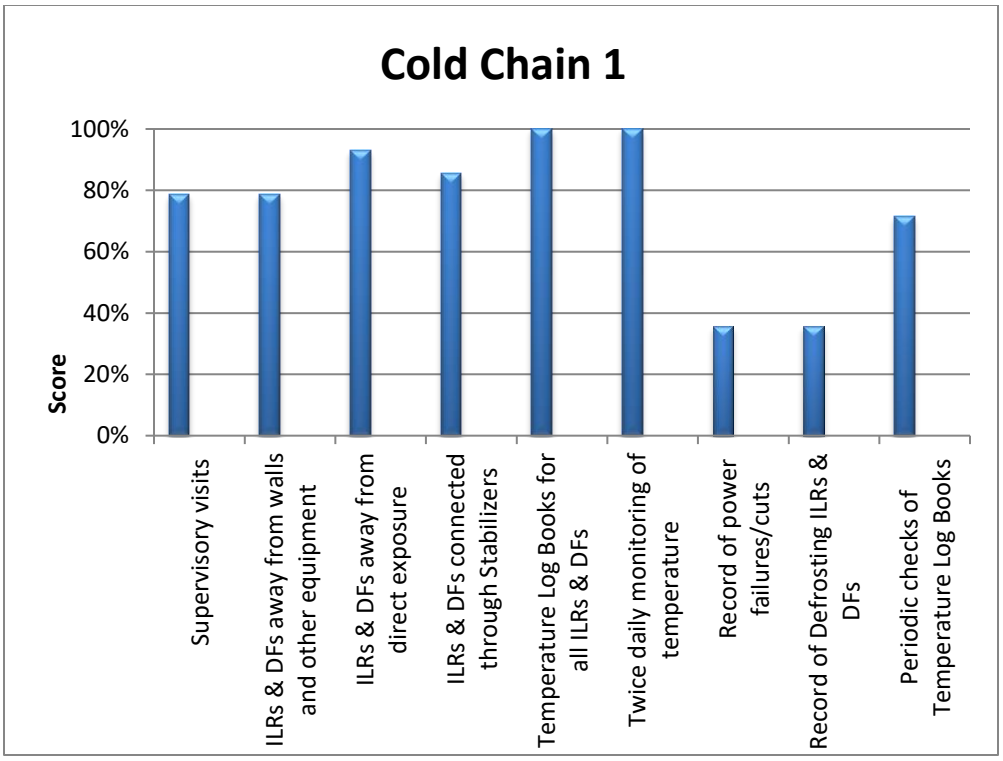


Figure 2

The figure shows cold chain maintenance practices in PPCs of District Hospitals in state, Haryana.In about 79% PPCs record of supervisory visits was found. In 79% PPCs ILRs and DFs were found placed away from walls and other equipments whereas in 92% of PPCs ILRs and DFs were found away from direct exposure .In 84% PPCs ILRs and Deep Freezers were found connected through stabilizers. In all the PPCs temperature log books for ILRs and DFs were found with twice daily monitoring of temperature. In only 38% of PPCs record of power failure was found in log books along with record of defrosting of ILRs and DFs. Periodic checks of Temperature log books was seen in 76% of PPCs.

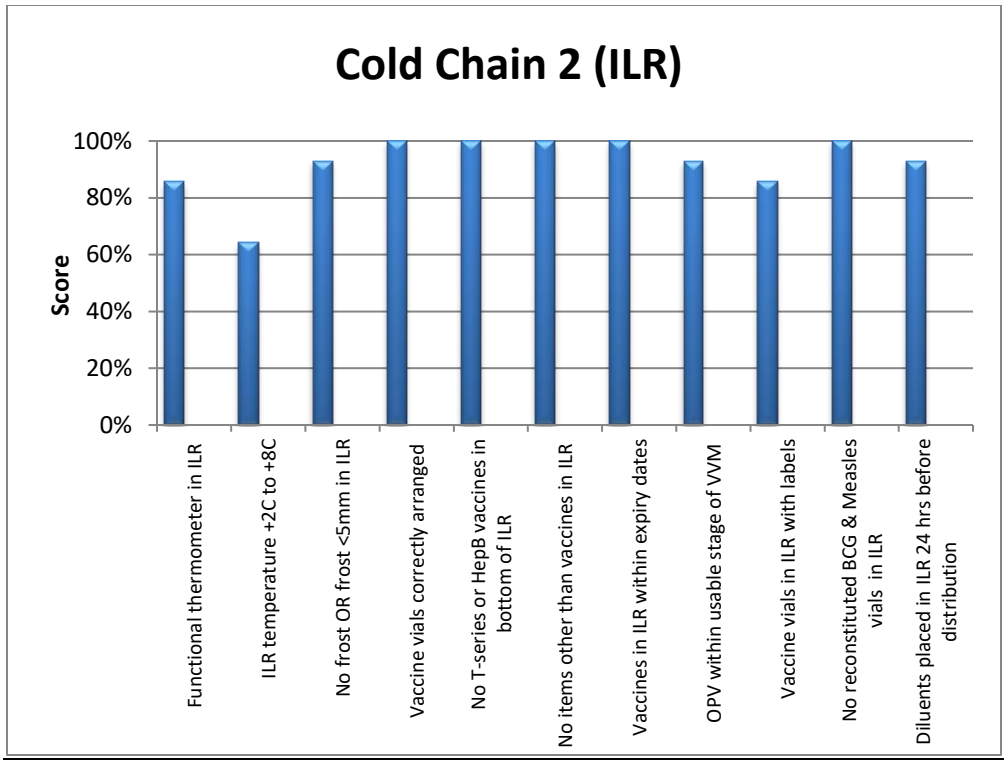


Figure 3

This figure shows the practices followed with respect to ILRs. In about 86% of PPCs thermometer found inside ILR was functional. In about 64% of PPCs temperature of the cabinet was found between +2C to +8C. In about 98% PPCs no frost or frost less than 5 mm was seen in ILRs. In all the PPCs vaccines were found correctly arranged, no T- series vaccine or Hep B vaccines were found at the bottom of ILR and no items other than vaccines were found in ILRs. In 96% of the PPCs Vaccines within expiry date were found in ILRs.IN 96% of the PPCs usable stage of VVM was found on vaccine vials . In about 86% of the PPCs Vaccine vials were found with labels. In all the PPCs no reconstituted vaccine vials were found in 96% of the PPCs

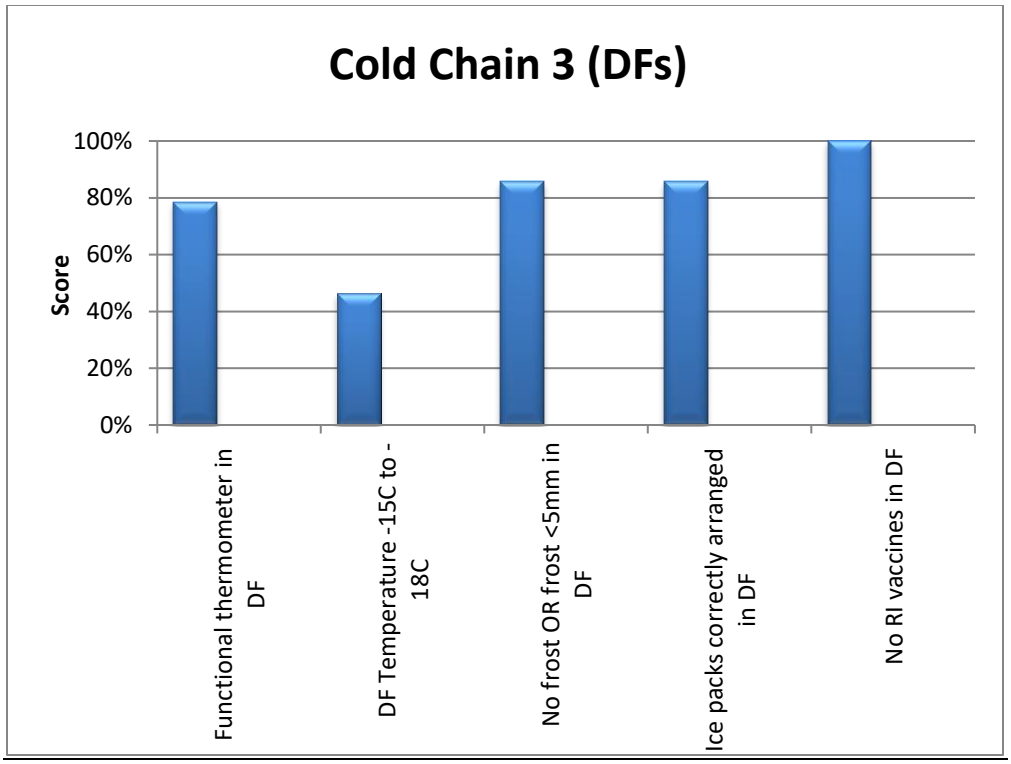


Figure 4

This figure shows practices followed with respect to Deep Freezers. In 80% of the PPCs thermometer was found functional in DFs and correct cabinet temperature was found in 48% PPCs. In about 86% PPCs no frost or frost less than 5 mm was seen and ice packs were placed correctly. In all the PPCs RI vaccines were not found.

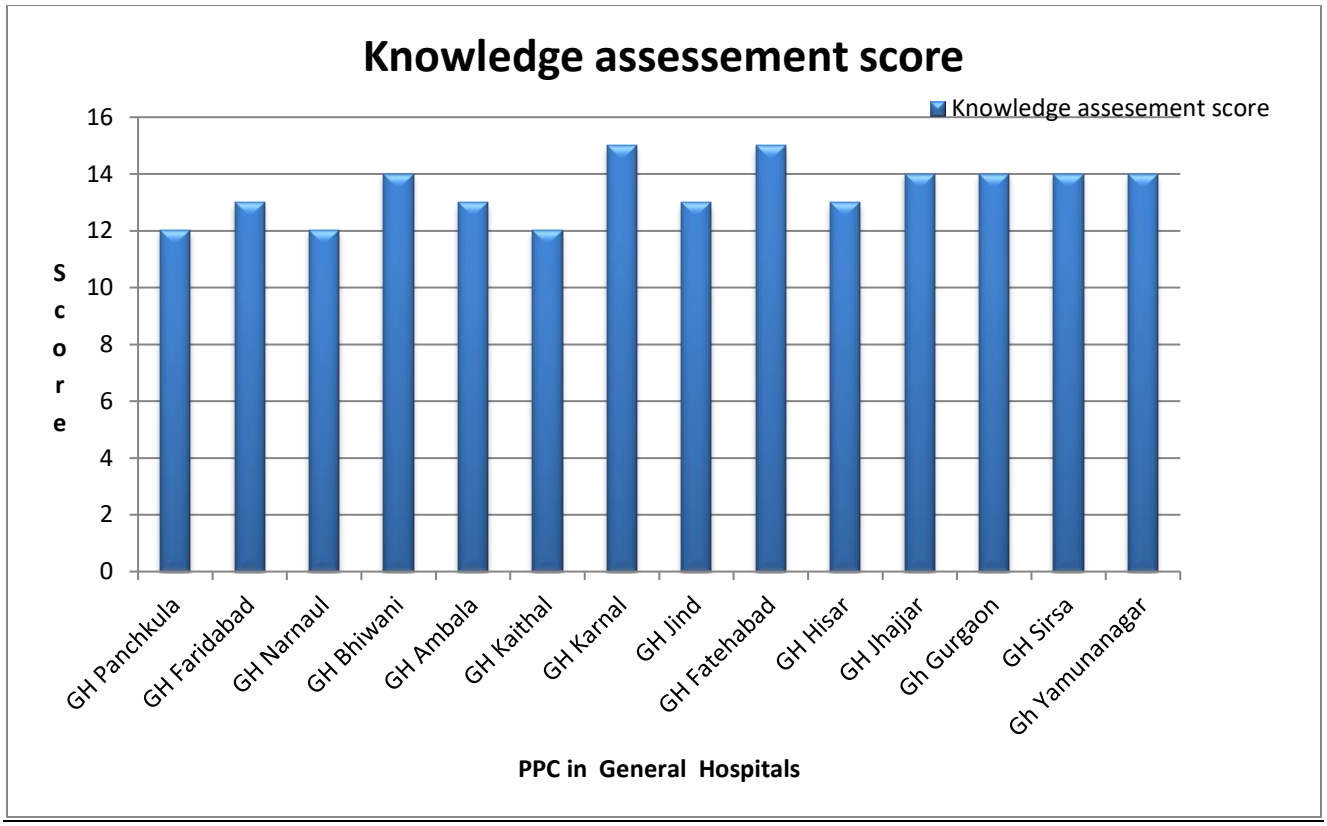


Figure 5

In this figure Knowledge assessment score of Cold chain handlers regarding their knowledge in the same is shown. A questionnaire to assess the knowledge of Cold Chain Handlers to handle vaccines was handed to them . Their score is as follows: about 21.4% of CCHs scored 12 marks, 28.5% of CCHs scored 13, 35.7% of CCHs scored 14 and 14.2 % of CCHs scored 15.

4.2 Discussion and Conclusion:

The present study was an attempt to throw light on the knowledge and practices of Cold chain handlers and cold chain maintenance status. The knowledge of CCHs was found to be satisfactory regarding cold chain maintenance practices. They had good knowledge regarding the placement of vaccines in ILRs, about placement of ice packs in DFs, heat sensitive vaccines, freeze sensitive vaccines, open vial policy, arrangement of ice packs, T-series vaccine, reconstituted vaccine, VVM and usable stage of VVM. The reason behind most of the PPCs not having map of catchment area displayed, no calculated estimated beneficiaries and logistics is that now they cover more population due to which outreach sessions have also increased. So, at that point of time they had no map of catchment area displayed and no estimated benifivciaries and logistics and they said that they will display it soon after they make an estimate according to the increased population. Coverage monitoring charts were not found at most of the PPCs and they was no record found of block meetings conducted. Record of power failures and record of defrosting of ILRs and DFs was also seen in less than 50% PPCs as most of the CCHs said that they DHs are on hotline and they hardly have problem of power cuts and if they do face this problem , they have power backup. So there was no record of power cuts found. Some CCHs said that they have recorded the date of defrosting in the log books but they do defrost ILRs and DFs. At some PPCs cabinet temperature by ILRs and DFs was not displayed correctly and at some places it was not even working. Therefore, there is a need for CCHs to change their attitude a bit towards handling of Cold chain so that it can be improved further. Mostly at the PPCs all the facilities are provided by the government and they are being put to full use according to the guidelines given by GOI.

Chain cold system is well managed and maintained in almost all the PPCs of various District Hospitals of Haryana, this could be due to supportive supervision by the health consultants for routine immunization. Despite of these good things, there was some gaps in staff training, vaccine coverage and dropout, waste disposal system, immunization practices.

5. Recommendations:

As said earlier that cold chain is being maintained and managed well at PPCs but still there are certain points where they lack. The District Hospital sets an example for the health facilities at community level, to work in the same manner and provide services to the needy. So in order to be a leader, District Hospital should act as a role model for other health facilities for which they need to strengthen each and every point where they lack. Supervisory visits by the health officials at regular intervals should be there in order to monitor the progress of District Hospital. PPCs should have the map of catchment area displayed and estimation of beneficiaries and logistics so that they may have an idea that how much population they are catering to. Undoubtedly, being the District hospital they will not have any shortage of any logistics but they should have an estimate and record as well. If they will keep a record of population they are catering to then only they can estimate the coverage in the area (coverage monitoring chart) which will give them the reason for the flaws in their current working system and will help them to correct those flaws. Routine immunization must be discussed in monthly meetings which will help officials to spot the loopholes and help them to take corrective actions. The ILRs and DFs should be maintained properly as it is one of the factor for success of RI programme.

6.**Limitations:**

1. Due to the lack of time span, sample size taken is very small

2.The sample population for study was taken on convenience basis.

3.Due to time constraints and limitations to the study, I could not complete all the districts of Haryana.

7.References:

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[9] WHO. (2011). *Global Immunization Data.* Retrieved January 2012, fromhttp://www.who.int/immunization_monitoring/Global_Immunization_Data.pdf

[10] http://www.unicef.org/india/Haryana_Fact_Sheet.pdf

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[12] http://www.action.org/resources/item/vaccine-preventable-deaths

8.Annexure

Knowledge assessment questionnaire regarding cold Chain handling for cold chain handler

Respected Sir/Madam

I am a Coordinator child health (NHM, Haryana). As a part of my dissertation I am assessing the knowledge of cold chain handler regarding cold chain maintenance practice. So, I request you to spare some of your precious time for this.

- All respondents will be kept strictly confidential. Complete survey will be used for data entry & analysis
- No individual data or responses will be reported. Please give your honest opinion for each question.

Thank you for sparing your valuable time.

Signature:

Respondent code-……. Age: ……. Sex: ……. Qualification: …….

Experience: ……. Designation: …….. Training status: ……

When was the last training attended: ……

Accessibility: (0-40 km/ 40- 80 km/ above 80 km)……

No. of supervisory visits in last 6 months: ……

Presence of Urban Nodal officer: ……

Presence of DIO: ……

1. Open vial policy applicable for which vaccine
   a. Pentavalent ☐
   b. Measles ☐
   c. BCG ☐
   d. JE ☐

2. Open vial policy does not applicable for
   a. T-series vaccine ☐
   b. Reconstituted vaccine ☐
   c. JE only ☐
   d. BCG only ☐

3. Condition that must be fulfilled for the use of open vial policy-
    a. The expiry date has not passed. ☐
    b. The vaccines are stored under appropriate cold chain conditions both during transportations and storage in cold chain storage point ☐
    c. The vaccine vial monitor (VVM), has not reached the discard point. ☐
    d. All of the above ☐

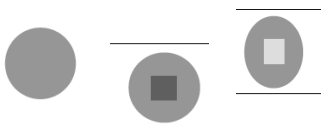
4. When will discard the vaccine vial in any of the following condition met-
    a. If expiry date has passed ☐
    b. If vaccine vial is frozen or contains floccules. ☐
    c. No label or partially torn label or writing on label is not legible ☐
    d. All of the above ☐

5. What is the temperature required for the storage of vaccine in ILR-
    a. -15 to -20◦c ☐
    b. +2 to +8◦c ☐
    C. +15 to 8◦c ☐
    D.None of the above ☐

6. All vaccine vial must be marked when opening at first use-
    a. Record date of vaccine vial opening ☐
    b.Record of time of vaccine vial opening ☐
    C. (a) and (b) both ☐
    d.None of the above ☐

7. JE discarded after reconstitution ☐
    a. Within 2 hours ☐
    b. Within 4 hours ☐
    c. Within 6 hours ☐
    d. Within 8 hours ☐
8. BCG and measles discarded after reconstitution
    a. Within 24 hours ☐
    b. Within 12 hours ☐
    C.Within 2 hours ☐
    d.Within 4 hours ☐

9. In which condition vaccine can be used-



a. b. c. d. Both (a) and (b)

☐ ☐ ☐ ☐

10. Returned, partially used vials ……

a. Kept in cold chain box ☐

B.Kept in separate zipper lock bag / separate box and labelled it accordingly. ☐

C.Kept in vaccine carrier box ☐

d. kept in refrigerator ☐

11. In what condition vaccines do not keep in cold chain room?

a) Any vials that are expired ☐
b) Frozen or with VVMs beyond the discard point ☐
c) Both of the above ☐
d) None of the above ☐

12. Ice pack arrangement in DF

a) Criss cross arrangement ☐
b) Normal arrangement ☐
c) Fully packed arrangement ☐
d) None of the above ☐

13. Most Heat sensitive vaccines

a) BCG(after reconstitution), OPV,Measles ☐
(both after and before constitution) ☐
b) DPT,TT,DT and HepB ☐
c) BCG(before reconstitution) and Hep B ☐
d) All of the above

14. Most freeze sensitive vaccines

a) OPV and BCG ☐
b) Hep B and DPT ☐
c) Measles and BCG ☐
d) None of the above ☐

15. Storage of vaccines in ILR from top to bottom in basket

a) HepB,LPV,TT,BCG,OPV ☐
b) OPV,BCG,TT,HepB ☐
c) Measles,OPV,LPV ☐
d) Both (a) and (c) ☐

CHECK LIST FOR COLD CHAIN ASSESSMENT

Name of block/Planning unit…… Name of health facility…… Date…….

Population covered…… Ph. No. ……

Note: Availability of component recorded in yes /NO

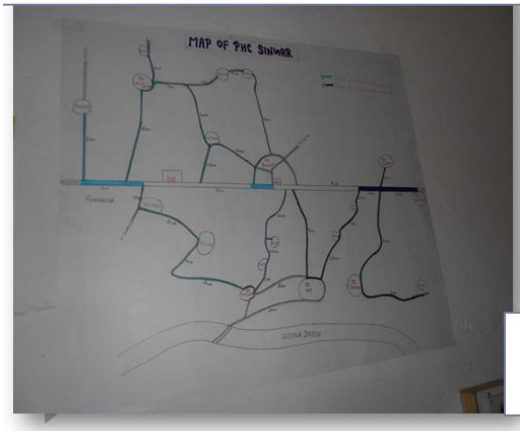
1	Components of facilities RI microplan available	
2	Map of Catchment area	
3	Estimation of Beneficiaries	
4	Estimation of Logistics	
5	ANM Roster/Immunization calendar	
6	ANM roster/Immunization Calendar displayed at facility	
7	Coverage monitoring chart displayed at facility	
8	Block meetings conducted	
9	Supervisory visits	
10	Correct placement of ILR and DF	
	a) All ILRs & DFs placed on blocks (e.g. Wooden/plastic)	
	b) All ILRs & DFs at least 10 cm away from walls and surrounding equipment	
	c) All ILRs & DFs away from direct exposure to sunlight, moisture and rain	
	d) All ILRs & DFs connected through functional voltage stabilizers separately	
11	Temperature log books	
	a) Temperature log books available for every ILR and DF	
	b) Twice daily monitoring of temperature in respective log books	
	c) Record of power failure/cuts (if any)	
	d) Record of defrosting ILRs and DFs	
	e) Periodic checks of temperature log books by facility in -charge (see evidence of signatures)	
12	Ice lined Refrigerator(ILR)	
	a) Functional thermometer placed inside every ILR	
	b) Cabinet temperature of ILR between +2 to +8◦c	
	c) No frost or frost less than 5 mm on inside wall of every ILR	
	d) All vaccine vials correctly arranged inside labelled cartons (expiry date, batch)	
	e) No freeze sensitive vaccine vials placed in the bottom of ILR	
	f) No items other than vaccines placed inside ILR	
	g) Vaccines in ILR within expiry dates (check a few vials)	
	h) All vials within usable stage of VVM (check a few vials)	
	i) Vaccine vials in ILR with labels (check a few vials)	
	j) No reconstituted BCG & Measles vials	

	k) Diluents placed in ILR, at least 24 hours before distribution (observe /consult)	
9	Deep freezer (DF)	
	a) Functional thermometer placed inside every DF	
	b) Cabinet temperature of DF between -15 to -25◦c	
	c) No frost or frost less than 5 mm on inside wall of every DF	
	d) Correct placement of ice packs inside DF(in crisscross manner, while freezing)	
	e) No RI vaccines stored inside DFs(including reconstituted vaccines)	

Photos

Good Practices observed

Map of the PHC with distances from the cold chain point



Contingency plan for cold chain displayed

Well IEC DISPLAYED IN COLD CHAIN ROOM

Stabilizer placed at the Platform at eye level

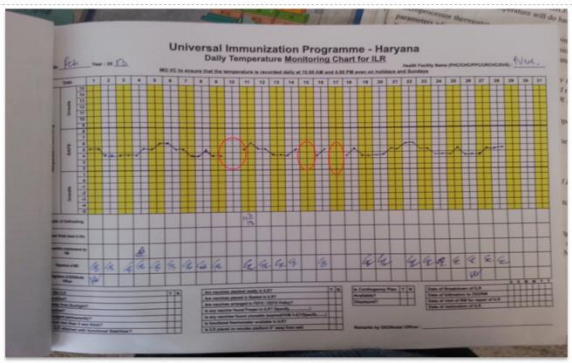
Open vials placed in ILR with zipper lock bag with tagging of ANM Name

Criss cross pattern on icepacks

Dots, Date & Name of ANM mentioned for implementing open vial policy for LPV

Practices that need improvement

Open Hepatitis vaccine in ILR without date



Daily Monitoring of Temperature Log Books not being done, no record of defrosting, power cuts