Review of Supervisory Mechanisms for Indoor Residual Spray Strategy under Kalaazar Programme in (Vaishali) District in Bihar

Internship Training
at
CARE India

By
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Under the guidance of
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Post Graduate Diploma in Hospital & Health Management
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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mayure Gupta** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management Research, Jaipur has undergone internship training at **CARE India** from **27th January, 2014 to 30th April, 2014**

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

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

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From 27th January, 2014 to 30th April, 2014

He comes across as a committed, sincere and diligent person who has a strong drive and zeal for learning

We wish him all the best for future endeavors

Dr.S.K. Jena
Program Manager
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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **Review Of Supervisory Mechanisms For Indoor Residual Spray Strategy Under Kalaazar Programme In (Vaishali) District, Bihar** and submitted by **Dr Mayure Gupta** Enrolment No. **17-1334** under the supervision of **Professor Nutan jain** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from **27th January 2014** to **30th April** 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

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Dr Mayure Gupta

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ANM - AUXILLARY NURSING MIDWIFE
ASHA - ACCREDIED SOCIAL HEALTH ACTIVIST
AWC - ANGANWADI CENTRE
AWW - ANGANWADI WORKER
BCC - BEHAVIOR CHANGE COMMUNICATION
BHM - BLOCK HEALTHMANAGER
BMGF-BILL MELINDA GATE FOUNDATION
CS-CIVIL SURGEON
DDT - DICHLORO DIPHENENYL TRICHLOROETHANE
DH -DISTRICT HOSPITAL
DMO-DISTRICT MALARIA OFFICE
DPO - DISTRICT PROGRAM OFFICER
GOI - GOVERNMENT OF INDIA
HSC - HEALTH SUB CENTRE
ICDS - INTEGRATED CHILD DEVELOPMENT SERVICES
ICU - INTENSIVE CARE UNIT
IDSP - INEGRATED DISEASE SURVELLIANCE PROJECT
IEC - INFORMATION EDUCATION COMMUNICATION
IFHI - INTERGRATED FAMILY HEALTH INITIATIVE
IMs- INDOOR RESIDUAL SPRAY MONITORS
IRS - INDOOR RESDUAL SPRAYING
KLW- KALAAZAR LINK WORKER
KTS – KALA AZAR TECHNICAL SUPERVISOR
LS - LADY SUPERVISOR
MAM - MEDIUM ACUTE MALNOURISHED
MI - MALARIA INSPECTOR\\

MOIC - MEDICAL OFFICER IN CHARGE
MOU - MEMORUNDUM OF UNDERSTANDING
NVBDCP - NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME
OT - OPERATION THEATRE
PHC - PRIMARY HEALTH CENTRE
PKDL - POST KALA AZAR DERMAL LIESHMANIASIS
RI - ROUTINE IMMUNIZATION
RMNCH+A - REPRODUCTIVE MATERNAL NEW BORN CHILD HEALTH + ADOLESCENTS
RPM - REGIONAL PROGRAM MANAGER
SAM - SEVERE ACUTE MALNOURISHED
SDH - SUB DIVISIONAL HOSPITAL
SKAEP - STRENGTHENING OF KALA AZAR ELIMINATION PROJECT
TA/DA-TRAVEL ALLOWANCE DEARNESS ALLOWANCE
VHSND - VILLAGE HEALTH SANITATION AND NUTRITION DAY
VL - VISCERAL LIESHMANIASIS

INTERNSHIP REPORT

1.1 Introduction-

Internship training is an integral part of the second year program, where we have to observe and learn the work culture of organization. Also it will be necessary to participate in various department/activities so that we get first hand exposure of the different departments and work done in the organisation and through which we can understand process of work and thereafter be able to involve in decision making.

I am appointed as District Program Officer – Visceral Leishmaniasis (VL), by CARE India at Vaishali District, Bihar. The main focus is on detecting as many new cases of VL as possible by proper case detection, ensuring complete treatment course for patients, counselling the community on prevention methods and most importantly ensuring that the Indoor Residual Spraying (IRS) rounds being conducted by the Government of Bihar are done in the best possible way, ensuring quality of spraying, proper monitoring of actual spraying, ensuring community mobilization through proper IEC/BCC.

1.2 Objectives of Internship

(a) To understand the work pattern of CARE India, and its organizational structure

(b) To learn various managerial and administrative skills needed to work with a government system and to help in effectively implementation of the assigned program (KalaAzar Control Program) in the government setup to ensure the overall benefit of the community.

(c) To identify existing gaps in human resource, service delivery quality, data collection, analysis and implementation of health programs in the District and to propose probable solutions to them.

(d) To coordinate proper functioning of the assigned program (KalaAzar control Program)

The key responsibilities undertaken were:

- Lead, support and ensure high coverage and quality of IRS activities through a team of IRS Link Workers.
- Liaise with District Malaria Officer, NVBDCP Consultant, Civil Surgeon to support VL activities and provide Managerial support at district and block level.
- Oversee organization of patient services for VL at PHC/SDH/DH (patient flow, diagnostics, drug supplies, and incentives) and co ordinate with the Lab Technician, KTS, BHM, MOIC for the same.
- Enhance the use of Data for program management by health functionaries at district and block level.
- Co ordinate with KTS and MI – for micro planning for IRS, patient follow up and treatment completion records.
- Build Capacity and Strengthen Knowledge Base of Link Workers and Field level workers through training and Mentorship.

1.3 About the District: Vaishali

Vaishali district is a district in Bihar state, India. It is named after the Vaishali (ancient city). The history of Vaishali district is thus very ancient, and finds mention in the Indian classic Mahabharata, as well as in Buddhist and Jain tradition. Vaishali became a district when it was split from Muzaffarpur in 1972.

1.3.1 Geographical Location

The district is located at 25° to 30° North latitude and 84° to 85° east longitude. The District is surrounded by River Ganga in South, Gandak in West, District Muzaffarpur in North and Samastipur in East.The District is in semi tropical Gangetic plane. The state capital Patna is linked with famous Mahatma Gandhi Setu. The District is spread over 2036 sq km area.

1.3.2 Administrative Setup

Vaishali District has Three Sub Divisions Hajipur, Mahnar, and Mahua and a total of sixteen Blocks. It has 290 *Panchayat* and 1572 villages. Out of the 1572 villages 155 are unhabited

Blocks: 1) Mahnar, 2) Vaishali, 3) Bidupur, 4) Goraul, 5) Raghopur, 6) Lalganj, 7) Hajipur, 8) Mahua, 9) Jandaha, 10) Patepur, 11) Sahdeibuzurg, 12) Bhagwanpur, 13) Chehrakala, 14) Rajapakar, 15) Patedhi-Belshar, 16) Desri

Daudnagar Chakgadho (Bidupur Block):- one of largest *Gram-panchayat* of Vaishali district and economically good in comparison to other *Gram-panchayat*. Having all kinds of amenities and infrastructural facilities which are required for ideal *Gram-panchayat.* Connectivity: Hajipur-Muzaffarpur Road

1.3.3 Health Care Setup

There are 01 *Sadar Hospital,* Sixteen PHCs, 2 Referral Hospitals 33 Additional PHCs, and 339 Health Sub Centres.

1.3.4 Demographic profile

Highlights of Census 2011

- According to the 2011 census Vaishali district has a population of 3,495,249as compared to the 2001 figure of 2,718,421. The current population consists of 1,844,535 male and 1,650,486 female. In 2001 census, Vaishali had a population of 2,718,421 of which males were 1,415,603 and remaining 1,302,818 were females.
- Its population growth rate over the decade 2001-2011 was 28.58percent
- The population density is about 1,717 per sq km.
- With regards to Sex Ratio in Vaishali, it stood at 895 per 1000 male compared to 2001 census figure of 920. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. In 2011 census, child sex ratio is 904 girls per 1000 boys compared to figure of 937 girls per 1000 boys of 2001 census

data

- Literacy also showed an increase from about 50 percent to 67 percent in 2011. About 75 percent males and 57 percent females respectively are literate in Vaishali.
- About 93 percent of population of Vaishali lives in rural areas. The total population gives it a ranking of 86th in India (out of a total of 640).

1.4 About the Organization: CARE Bihar

CARE (Cooperative for Assistance and Relief Everywhere) is a major international humanitarian agency delivering broad-spectrum emergency relief and long-term international development projects. Founded in 1945, CARE is nonsectarian, impartial, and non-governmental. It is one of the largest and oldest humanitarian aid organizations focused on fighting global poverty. In 2013, CARE reported working in 86 countries, supporting 927 poverty-fighting projects and humanitarian aid projects, and reaching over 97 million people.

CARE's programmes in the developing world address a broad range of topics including emergency response, food security, water and sanitation, economic development, climate change, agriculture, education, and health. CARE also advocates at the local, national, and international levels for policy change and the rights of poor people. Within each of these areas, CARE focuses particularly on empowering and meeting the needs of women and girls and on promoting gender equality.

CARE has been working in India for over 60 years, focusing on ending poverty and social injustice. This is done through well-planned and comprehensive programmes in health, education, livelihoods and disaster preparedness and response. The overall goal of CARE is the empowerment of women and girls from poor and marginalized communities leading to improvement in their lives and livelihoods.

1.5 Services provided by the Organization:

In Bihar CARE programs fall into the following broad themes:

- **Gender and women's empowerment**: CARE lists the empowerment of women and girls as its first priority, and focuses its programming in other areas towards this. In 2006 CARE formed the CARE International Gender Network (CIGN) to improve the coordination and quality of CARE's work on gender equality.
- **Emergency response**: CARE supports emergency relief as well as prevention, preparedness, and recovery programs. CARE reported that in 2013 its emergency response and recovery projects reached over 4 million in 40 countries. CARE is a signatory of major international humanitarian standards and codes of conduct including the Code of Conduct for the International Red Cross and Red Crescent Movement and NGOs in Disaster Relief, the Sphere standards, and the Humanitarian Accountability Partnership (HAP) principles and standards.
- **Food security**: CARE provides emergency food aid and supports the prevention of malnutrition through demonstrating proper breast feeding, providing education focusing on the cultivation and preparation of nutritious food, and improving infrastructure.
- **Health**: CARE's health programs are focused on maternal health and HIV/AIDS, but also address other areas such as nutrition, safe drinking water, health education, and training local health workers.
- **Climate change**: CARE engages in climate-change advocacy and supports local mitigation strategies such as promoting early warning systems, helping communities to draft evacuation plans, providing technical equipment and

information, supporting reforestation, and working with local governments to reduce pollution

- **Education**: CARE provides economic incentives to help parents keep their children in school, advocates for the importance of educating girls, and supports programs that ensure that girls receive a quality education and engage girls in extracurricular and leadership activities.
- **Water, sanitation and Hygiene (WASH)**: CARE builds and maintains clean water systems and latrines, and provides education about hygiene and water-borne illnesses. These programmes aim to reduce the risk of water-related diseases and increase the earning potential of households by saving time otherwise spent fetching water.
- **Economic Development**: CARE supports increasing market linkages, promotes diversified livelihoods, organizes Village Savings and Loans Associations (VSLAs), and provides entrepreneurship training.
- **Advocacy**: CARE's advocacy for improved development policy is directed at local and national governments, as well as international organizations such as United Nations institutions, the European Union and other multilateral and international organizations

CARE India, Bihar is currently involved in two projects namely, Integrated Family Health Initiative (IFHI) and SKAEP. IFHI works in the sector of reproductive and child health services. SKAEP has been developed to eliminate KA from the endemic state of Bihar.

1.6 Project worked on:

SKAEP is a recently funded project by BMGF. The project intends to address critical challenges affecting Kala Azar elimination, identified in 8 districts where CARE's Integrated Family Health Initiative (IFHI) is currently operational, to support the Government of Bihar to reduce morbidity and mortality due to Kala Azar and scale it up to the entire state and accelerate progress towards eliminating the disease. The challenges include lack of execution capacity to increase coverage of treatment in the public and private sector, poor performance in vector control in the public sector, under reporting of cases, no quality monitoring of Indoor Residual Spraying (IRS), Post Kala Azar Dermal Leishmaniasis (PKDL) cases, weak referral system and no proper active case search. Thus under this project CARE intends to provide technical support to the government to help achieve the goal of elimination by 2015 and sustain the elimination. CARE thereafter also aims to increase ownership of the government towards the project.

1.7 Organizational Structure of SKAEP:

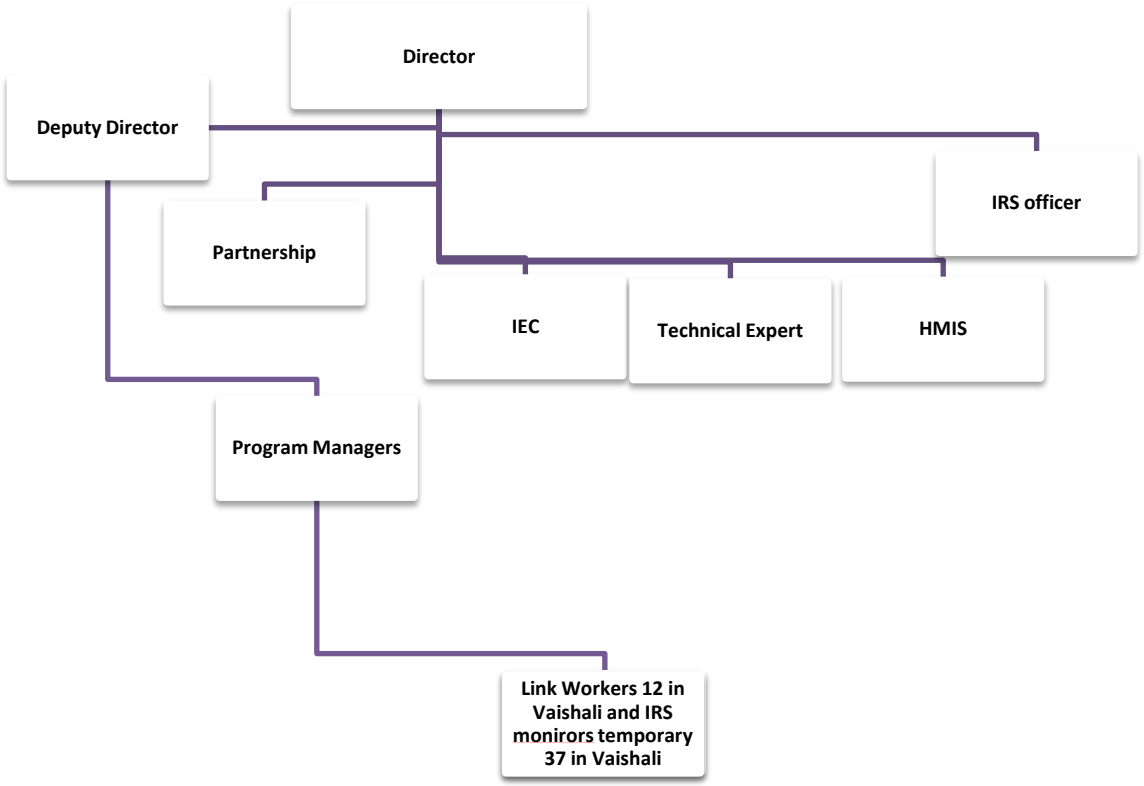

Figure 1.1 - Organogram of SKAEP

Svlk mc bhfdb . dkbjoobj

1.8 Field Visits undertaken with the District Staff

- Facility assessment of Block PHCs with MOICs.
- Follow up of line listed patients with District Vector Borne Disease Consultant.
- Orientation of ANMs for tracking KalaAzar diseases.
- Follow up on drug stocks as a whole and KalaAzar medications and test kits in particular with District NVBDCP Consultant.
- Attended LS Training Sessions on monitoring of Four days on ICDS initiatives.

- ASHA facilitator meetings and ANM meetings attended, orientation given on Kala Azar, community mobilization, awareness generation.
- AWCs visited with DPO –VL & District Manager – Care to assess their functioning.
- Continuous monitoring of IRS spraying by the squads in villages all over the district.
- Monthly movement to Hard to Reach Block Raghopur so as to assess the requirements and needs for planning.
- Identification of patients from endemic villages by KLWs /KTS and their follow up.
- Tracking of unlisted patients and who are still unidentified by any of the sources.
- IEC and awareness for ASHA and beneficiaries.
- KA Patient tracking from private health facilities.
- Attending monthly meetings at PHC and ICDS meetings for IRS awareness.
- Periodic visits to DMO office and blocks for KA case updates.
- PHC's visited and met MOIC, BHM, BCM, BHI, BHW, and ANM for IRS awareness.
- Visited ICDS office to meet CDPO, CLERK, LS for IRS awareness.
- ASHA's, AWW's, ANM's monthly meeting and HSC meetings to be attended for IRS awareness.
- Identification of other stakeholders and their role like identified MSF and its role in Kalaazar.
- Capacity Building and Coordination session for all joined KLWs and working KTS being headed by District Vector Borne Disease Consultant (DVDC; at District Malaria Office) completed. This session was chaired by Mr. Anil Kumar Sinha; DMO himself followed with one session of field based expectations.

- Ensured New format of microplan introduced and followed at all PHCs.
- Along with Malaria Office we identified almost 99 newly traced villages in numbers where at least one new VL patient was identified and further the block wise list prepared to share with respective field forces (KLWs/KTS). The suspected and thus shared villages were revalidated by block VL team members and following such thorough process almost 80% of the newly traced villages were enlisted with the IRS Micro Planning for the ensured DDT Spray during upcoming IRS Round.
- Requisition for the requirement related to stirrup pumps and other related and required materials along with the present status have been shared.
- KTS linkages with KLWs have been ensured a meeting held in presence of DMO.
- Periodic LW meetings with LW in field done successfully.
- IEC stall and participation in rally organized on World Health Day for KalaAzar.
- Various Squads training were facilitated at almost all blocks.

1.9 Observations

- In general, all blocks PHCs are well constructed; in one of the blocks due to fire whole PHC was burnt so there is lack of infrastructure in terms of furniture, also block PHC though was in a very bad shape in terms of its building, all records also burnt so it is required to create a new base for the PHC.
- OTs and Labour rooms were functional in all PHCs, but were not up to mark in terms of infrastructure required. Hygiene standards were generally poor (dirty bed sheets etc). New born care units were either lacking equipments or were non functional in most block PHCs. (Faulty suction machines).
- ASHAs was not competent enough to work for KalaAzar.

- ANMs were aware of the ANC visits to be made, on categorizing children in SAM, MAM, but in practice, neither the ANM, nor the AWW would fill the growth monitoring charts of children.
- Over all, the level of awareness of field workers, specially the ASHA workers was found to be really low, a great need of training/refresher trainings was felt. ASHA can be a very effective to mobilize community to generate awareness for the KalaAzar.
- Another major block in provision of good services was that the incentives due to ASHA workers was being greatly delayed. This resulted in decreased motivation of workers towards their work.
- Records maintenance is poor at PHC level.
- HR are lacking at various PHC in terms of health manager and drivers required to drive vehicles like ambulance.
- Medicines, specially those used to treat Kala Azar, which is a major health threat in Bihar, were constantly in short supply. Even at the district hospital, amount of medicines provided was less, and hence the block PHCs also got less supply.
- The equipment being used for spraying during IRS rounds (spray pumps) were of really poor quality. They were mostly mal functioning, leaking or not imparting spray proportionately. There was also a need felt for proper training of spray squads on the best practices of spraying as almost all of them were using incorrect techniques of spraying.

Part-2

DISSERTATION REPORT

REVIEW OF SUPERVISORY MECHANISMS FOR INDOOR RESIDUAL SPRAY STRATEGY UNDER KALAAZAR PROGRAMME IN (VAISHALI) DISTRICT IN BIHAR

2.1 Abstract

A clear understanding of roles and responsibilities should be known to each and every individual involved in the health system for an effective and proper supervision that can be helpful to do IRS in an appropriate manner timely and planned manner with a quality coverage. This study is an attempt to review the supervisory mechanism under IRs strategy followed for KalaAzar prevention in Vaishali District, which is among the high focus districts for KalaAzar in Bihar, India. The study covered 39 supervisors and 50 supervisee that are the government officials at district and PHC level and members of different squads respectively, collecting quantitative data through a semi structured questionnaire. Qualitative data was collected by conducting interview. The data indicated that the supervisory mechanism is there in the district initiated right from the Diagnosis and complete treatment of KalaAzar patients and preparation of the preventive measures taken for KalaAzar like IRS that involves pre.during and post preparations for various activities for example the preparation of line listing , the selection of villages to be sprayed , microplan preparation , Making annua budgets, arrangements for logistics , equipments and material availability and organizing preparatory meetings for IRS and IEC preparation and other awareness campaigns, preparation of and submission of reports and Maintenance of equipments and records and their analysis so as to make improvement for next round of IRS. all activities has to done in a time frame but in the review it was found that the activities are not performed within the set time frame as a result the IRS happens in a uncoordinated manner due to lack of supervision at every step, to be done by the higher authorities within the set time frame at district and PHC level.

2.2 Introduction

Visceral Leishmaniasis or more widely known as Kala-Azar is a slow progressing indigenous disease caused by a protozoan parasite of genus *Leishmania (L.Donovani in India).* It is the second largest parasitic killer in the world, only after malaria. It is one of the World's most neglected and poverty-related diseases, affecting the poorest people in developing countries associated with malnutrition, weakness of the immune system, displacement, poor housing, illiteracy, gender discrimination, and lack of resources. *Kala azar* is spread over a large geographical area across the globe with estimated yearly incidence of *Kala azar* of 500,000 cases[1] which lead to loss of nearly 2.4 million disability-adjusted life years (DALYs) each year. Since the last century several outbreaks of *Kala azar* have affected South-East Asia. Various programmes to control the disease have failed despite considerable efforts being done for prevention and control of the disease.

More than 60% of the world's VL cases are reported from India, Nepal and Bangladesh alone[2]. In India, out of the four states where Kala Azar is prevalent i.e, West Bengal, Jharkhand, Bihar and Uttar Pradesh[3]. Bihar contributes to more than 80% of the cases[4], reason being its low economic status, thus increasing the vulnerability of poverty, which is one of the main factors responsible for the poor living conditions, leading to this deadly disease. Though the situation has improved over the years, still the poorest sections of the society e.g, the musahar tolas, BPL families, SC and ST populations and other marginalized populations are at a higher risk

Government of India had been able to lower the cases to a very less number in the 1950s owing to the IRS through Malaria Control Programme. However in the 1970s,

due to reduction in IRS, the number of cases surged up. Thus in 1992, due to high incidence rate, centrally sponsored Kala-azar Control Programme was launched which was merged with NRHM in 2005 under NVBDCP. Government of India in 2002 National Health Policy had set a goal to eliminate *Kala azar* by year 2010, which could not be attained. India, Bangladesh and Nepal have demonstrated strong political will and commitment towards elimination of *Kala azar* by signing a Memorandum of Understanding (MoU) during the World Health Assembly in Geneva in 2005. The goal of Tripartite MoU was to contribute for improving the health status of vulnerable groups and at-risk population living in *Kala azar* endemic areas of Bangladesh, India and Nepal by the elimination of *Kala azar* so that it would no longer be a public health problem.Presently the Tripartite MoU aims towards reducing the annual incidence of *Kala azar* and post *Kala azar* dermal Leishmaniasis (PKDL) to less than one per 10,000 population at the district (or sub-district) level by the end of the year 2015.

However, despite all such efforts by GoI, incidence of Kala-Azar is still high in most districts of Bihar and so Jharkhand. So GoI, has entrusted CARE, an international organization with the task of providing technical assistance and much needed human resource to help them achieve the goal of elimination of Kala-Azar by 2016. Thus CARE India, has started a project **Strengthening Kala Azar Elimination Programme (SKAEP)**, under its Family Health Initiative project, funded by Bill and Melinda Gates Foundation, to help GoI achieve its goal of elimination

2.3 Review of literature

The KalaAzar Control Programme operates with a mix of strategies which include diagnosis and treatment, active and passive case detection, vector control, behavioral change communication, capacity building and monitoring and evaluation.

As may be evident from the post experience, insecticide spraying is an extremely important intervention in achieving KalaAzar elimination. To get optimum benefits of this strategy, it is essential to properly plan spray operations, supervise them and provide timely feedback for future planning. The guidelines on vector control have been prepared to guide peripheral workers in undertaking vector control for KalaAzar, in particular good quality, effective indoor residual spraying.

An organized centrally sponsored Control Programme launched in endemic areas in 1990-91.Government of India provided KalaAzar medicines, insecticides and technical support and the State governments implemented the programme through primary health care system and district/zonal and State malaria control organizations and provided other costs involved in strategy implementation. Programme strategy included:
-Vector control through IRS with DDT up to 6 feet height from the ground twice annually
-Early Diagnosis and Complete treatment
-Information Education Communication
-Capacity Building
The KalaAzar elimination initiative has recognized that case detection rates, compliance rates and cure rates are amongst the key indicators to monitor the effectiveness of the initiative undertaken. Nonetheless, the recording and reporting system currently in use lacks adequate provisions for monitoring the VL patients during treatment and their final clinical outcome. Monitoring clinical outcomes is complex in KalaAzar, as it conventionally requires an assessment by a clinician 6 months after treatment completion; while the drug treatment itself usually lasts for less than a month.

A cross-sectional survey of randomly selected 150 KalaAzar patients treated during 2008 in all the Community Health Centers of Muzaffarpur district, Bihar State, to document treatment effectiveness (Hasker et al 2010). There were some discrepancies between the results obtained through review of the health centre records and those obtained through interviews with patients.

The recording and reporting system currently in use in the health facilities was unable to generate this essential information on treatment outcomes. To better monitor treatment effectiveness, periodic random surveys for all the patients such as the one described here could be an option. In the study it was analyzed the operational and economical feasibility of a periodic random survey and have documented its strengths and its constraints. Also identified bottlenecks in the current recording and reporting system at Primary Health Care level. An attempt was made to suggest an alternate model with the involvement of gross root level functionaries.

Supervision and Monitoring was done by the following team constituted at the various levels •Central monitoring teams, state mobile teams, district monitoring teams, block level monitoring teams

Indoor residual spraying or IRS is the process of spraying the inside of dwellings with an insecticide to kill mosquitoes that spread malaria. A dilute solution of insecticide is sprayed on the inside walls of certain types of dwellings—those with walls made from porous materials such as mud or wood but not plaster as in city dwellings. Mosquitoes are killed or repelled by the spray, preventing the transmission of the disease. In 2008, 44 countries employed IRS as a malaria control strategy. Several pesticides have historically been used for IRS, the first and most well-known being DDT.

Indoor residual spraying with DDT (1, 1-bis (4-chlo-rophenyl)-2, 2,2trichloroethane) forms an important component of the KalaAzar (visceral leishmaniasis) control strategy in India. Use of DDT indoor spraying for such purposes has been carried out since there surgence of the disease in the mid-1970s in Bihar State. Belief in the efficacy of this strategy against KalaAzar rests largely on the high susceptibility to DDT of the vector, Phlebotomus argentipes, as evidenced by tests carried out using the WHO procedure (1, 2) and the transient disappearance of KalaAzar from India in the wake of antimalarial house spraying in the 1950s and the early 1960s.Very little operational data are, however, available to endorse the efficacy of DDT spraying on controlling populations of P.argentipes. Generation of such data was important for a concurrent evaluation of

the vector control strategy against KalaAzar, and has become all the more important since P.argentipes has been reported to be resistant to insecticides in one area of Samastipur district, north Bihar. In view of the importance of this issue, a long entomological study was initiated in Varanasi district, eastern Uttar Pradesh for the assessment of efficacy of IRS in control of KalaAzar. In this study two rounds of DDT spray and its impact on Phelbotomus argentipes population was observed. The study was conducted in two villages Shujabad and Bhojpura of Varanasi district where Shujabad was sprayed with DDT while Bhojpura was not sprayed. The findings suggested that the timely spraying with DDT was operationally highly effective against P.argentipes and apparently prevented the build-up of population of vector during KalaAzar transmission season which appears to be the monsoon in Eastern Uttar Pradesh. Timely spraying with DDT thus helped to interrupt transmission of KA and ensured its effective control (4).the IRS happens every year but still many new cases and new villages are still found every year gives rise to question whether due to the poor quality and coverage or lack of supervision.

2.4 Statement of the problem

Supervisory mechanism in IRS for KalaAzar has weakness in prevention of KalaAzar

2.5 Rationale of the Study

Visceral Leishmaniasis (Kala Azar) is a disease of the poorest of the poor. Though it is among the second largest parasitic killer in the world, only after malaria, still it continues to be a neglected disease. It is associated with poverty and malnutrition and is lethal if left untreated. Bihar bears the burden of more than 80 percent of the kala azar cases in the country. Since the last few years, government has been trying several efforts in the prevention of disease like Reservoir control, ITNS for prevention and control. In addition to that, spraying of insecticide (DDT) is also being done in endemic areas. In spite of this, it has been noted from previous studies, that Kalaazar is prevalent in the area and is due to improper implementation of IRS.

Vaishali district has been a highly endemic area for kala azar since a number of years. Although the number of cases being reported each year is reducing, but even now, Vaishali district contributes to among the highest number of case incidence of kala azar in bihar. In 2013, 644 cases of kala azar were reported from Vaishali district alone.

Hence this study was conducted to review the supervisory mechanism followed during the IRS in KalaAzar prevention

2.6 Research Question

What are the strengths in the supervisory mechanism in Indoor residual spray (IRS) strategy contributing in prevention of KalaAzar cases in a district of Bihar?

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2.7 Objectives

The objectives of the study are:

1) To review the supervisory mechanisms (roles and responsibilities, meetings, interactions, reporting, etc.) under IRS strategy under KalaAzar programme
2) To identify the stakeholders and their coordination mechanisms at various levels of health system
3) To analyze weakness of the indoor residual spray strategy to contribute in reduction of KalaAzar prevalence

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2.8 Methodology

Study Design

This was a descriptive cross sectional study.

Study Location

Study was conducted in Vaishali District, Bihar.

Study Subjects

Supervisors are government officials and supervisee that is squads working in field performing IRS for questionnaire

Sampling and Sample Size

All blocks were covered to capture supervisory cadre. All MOIC, BHI, KTS, DPO AND CIVIL SURGEON and DMO and DVBDC were covered. This consists of 39 supervisors in which 16MOIC, 16BHI, 3KTS, one DPO AND one CIVIL SURGEON and one DMO and one DVBDC were taken study.

For supervisee equal number of squads was selected from all blocks and random sampling was done in case of squads and sample size of supervisee is 50 one interview for each individual so as to understand the mechanism of supervision followed in IRS for Kalaazar.

Methods and Instruments of Data Gathering

Semi-structured questionnaire through face to face interviews

A semi-structured questionnaire was used as a data collection tool. This study was a questionnaire-based survey. The study population comprised of government officials

community. A briefing was given about the nature of study, and the procedure of completing the questionnaire was explained.

Statistical Treatment

Data collected was cross checked for any incomplete or partial filling. Using Microsoft excel the frequency and percentage and various calculations required were done.

2.10 Ethical Considerations

Informed consent was taken before starting the interview. If anyone disagreed to become part of the data collection process they were not forced by any means. Prior information was given before visiting any health facility. Confidentiality was ensured to all participants.

2.11 Results

2.11.1 Socio Demographic Characteristics of Population

The respondents here are supervisors and supervisee that is the official's of the health system and the field labour who actually do the IRS respectively. About a major chunk of supervisee belongs to age group 40-50 years followed by 30 -40 years age group i.e.30 percent while very few belong to a younger age group of 20-30 years i.e. 6 percent.

About three-fifth of the supervisee are literate upto matriculation less than one- third of supervisee has taken education upto high school.

The supervisee interviewed 40 percent has work experience of 10 to 20 years while 30 percent has worked for more than 20 years in this field ,26 percent are of work experience 5-10 years while four percent are of five years or below work experience.

Table-2.1: Percent distribution of respondents by their Socio Demographic Characteristic (n = 50)

Characteristics		Percentage of respondents
Age	20-30 Years	6
	30-40 Years	30
	40-50 Years	46
	50-60 Years	18
Education	Matriculation	62
	High school	28
	Below High school	10
Experience	0-5	4
	5-10	26
	10-20	40
	Above 20 years	30
Designation	Superior field worker	72
	Field worker	28

Table-2.2: Socio Demographic Characteristics of supervisor (n = 39)

Characteristics		Percentage of respondents
Age	20-30 Years	6
	30-40 Years	30
	40-50 Years	46
	50-60 Years	18
Education	Post graduate or above	62
	Graduate	28
Designation	Civil Surgeon	2.5
	District malaria officer in charge	2.5
	District vector borne disease consultant	2.5
	Medical officer in charge	2.5
	Block Health Inspector	41
	District Programme Manager	41
	Kalaazar technical supervisor	7.6

2.11.2 Roles and responsibilities of supervisors for KalaAzar

The roles and responsibility at district malaria office level is

To prepare action plan and budget at district level

Receive and distribute logistics from state office for the districtl

Monitor and evaluate activities at block level

Selecting the villages to be sprayed

Preparing the rosters

Preparing a checklist of all activities

Calculation of quantities of DDT required other added roles include overall management of KalaAzar activities going on in the district. i.e. Planning, implementation and supervision of all activities and fixing targets to be achieved in each round. while in these activities Consultant helps to attain the records and ensures that all activities are performed at time and helps District Malaria Officer In Charge in all activities.

On interviewing the different designation it was found that at block level the roles and responsibility are almost same except that do not prepare annual action plan and budget also they have added responsibility to organize and coordinate preparatory meetings at block level and to coordinate squads training for their squads at their respective PHCs.

The Block Health Inspectors said that

Receiving and distributing logistics from state office for the block

Selecting the villages to be sprayed

Preparing a checklist of all activities

Calculation of quantities of DDT required comes under their roles and responsibilities added to this to organize and to train squads prior to IRS however signatory authority is MOIC in all . But there were few Block level officials like one fourth of MOICs out of 16 were not clear about their roles and responsibilities to b performed for KalaAzar activities who were not clear about their roles and responsibilities

2.11.3 Ways of prevention of KalaAzar

About 67 percent of supervisors believes that IRS is the way of prevention for KalaAzar while 23 percent believes that apart from IRS other ways of prevention needs to be done for prevention of KalaAzar like use of Mats, coils and maintenance of sanitation and clean environment**.**

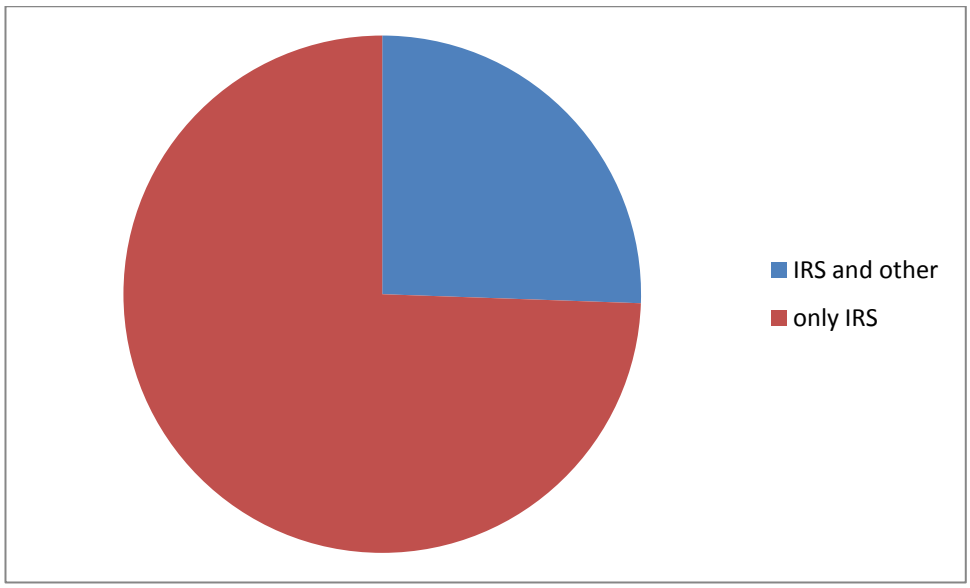

Figure 2.1 - Ways of prevention of KalaAzar

2.11.4 Supervision of IRS

On being interviewed the response for the supervision for IRS came and there is a categorization of irs activities as pre IRS . During and Pos IRS activitires which need to be supervised the various activities that supervisors supervise prior to IRS both at block and district level are

Diagnosis and treatment of KalaAzar patients.

Setting up of Khoj camp and preparing line listing of patients

Selection of villages to be sprayed

Preparation for logistics

Squads training

prepatory meetings

microplan preparation

iec awareness

submission of SOE and UC financial budget approval (only district malaria office).

DURING IRS

Timely start of the spray.

Day to day supervision of squads

Checking their attendance and the work of squads and solving their problems coming across during their course of action on daily basis.

Getting reports

POST IRS

Submission of reports and registers

Maintenance of equipments

On being interviewed it was found that only 36 percent knew about the Pre, during and post IRS activities to be supervised while most of the officials about 33 percent had a sound knowledge of only pre IRS activities while 21 percent for pre and during activities to supervised while 10 percent do not have any idea what to be supervised.

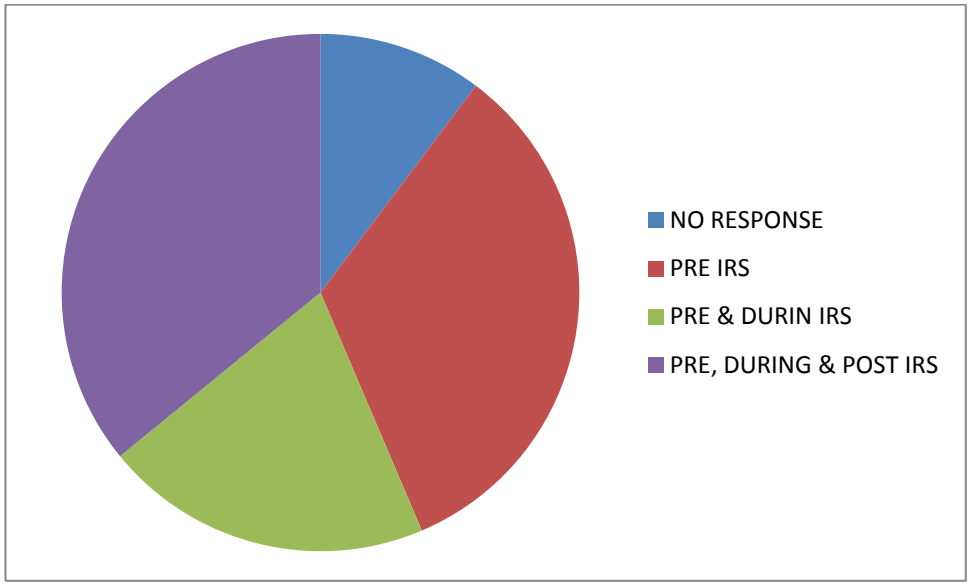

Figure 2.2 - Supervision of IRS (n=39)

2.11.5 Microplan preparation

At district level and other officials when gave insight about microplan preparedness it was found that microplan was not compiled due to the non submission and non preparation of microplan at all block .on being interviewed out of 16 blocks only 8 blocks were ready with their microplan. 28 percent of respondeb[nts informed about he nonpreparedb]ness of microplan about their respective blocks or at district level while Reason for non preparedness most of the blocks have issues of Human resource lack burden of other ongoing projects some do not have clear knowledge for microplan while are completely ignorant about its preparation.

2.11.6 Responsible person for the preparation of Microplan-

About 98 percent people said that microplan is not prepared by a single person but in the team that involves MOIC, KLW, KTS and BHI and Health manager also at places . Amongst the responses the team BHI and KLW were working in teamand making a

perent of 23 percent and all most all places some external stakeholders helped in the formation of microplan.

2.11.7 Mode of prepaprtion

On being asked about the mode of preparation for Kalaazar activities all respondents responded that they conduct meetings for the preparation of IRS.

2.11.8 – Place of Meeting

At district level district meeting is held at Civil Surgeon office which is to be attended by all MOICs of the Blocks and at PHC also the meetings are held for the IRS

2.11.9 Frequency of meeting

On being asked for the frequency of meetings at district level weekly meetings are held at CS office to be attended by all MOIC, DVBDC, DMO and CS.

The PHCs conduct two meetings in am month that is to be attended by KTS, MOIC and BHI. The meetings conducted once in a month was responded by 13 percent officials while eight percent said that they had weekly meeting system,69 percent had meeting twice in a month while rest 10 percent had no meetings.

Table-2.2: frequency of meeting (n = 39)

Once in a month	13
Twice a month	69
Weekly meetings	8
No meetings	10

This was verified by asking about the last date of meeting held either at their PHCs or CS offices and it was found that 15 percent were aware about the dates when meeting happened while rest 85 percent were not aware of the last meeting held.

2.11.10 Supervision of meeting

When asked who supervises the meeting it was found that MOIC is the supervisor atPHC level meeting and the CS at the District level meeting while DPO at their organization but at phc level 46 percent respondents said that MOIC supervised

meetings actually while 54 perceent said BHI organized and supervised the meetings however the signatory authority at PHC level is the MOIC

2.11.11 Preparation of agenda of meeting

The respondents were asked whether agendas of meetings are made or not 97 percent said that they had agendas with a proper checklist which they update in upcoming meetings. About being asked about the checklist the following checklist was provided by block officials

- Has the microplan for this round been made?
- Has it been submitted?
- Does the PHC have the updated and complete list of villages having any KA patient in the last three years?
- Is the PHC planning to spray all the villages which had cases in the last three years in this IRS round?
- Are all patients' houses in the villages identified by LWs / KTSs?
- Has the date of spray activities been decided for all endemic villages?
- Has the ASHA / village level workers been informed of the date of spraying in their village?
- Has a preparatory meeting been held at the PHC for IRS?
- PHCs have submitted requisition for insecticide, pumps, equipment?
- Insecticide available in PHCs?
- Pumps available at PHCs?
- Sufficient supportive equipment (buckets etc) available at PHCs?
- Are the stirrup pumps in working order
- Are the supportive equipment in working order
- Are the supportive equipment in working order
- Training / Sensitization of spray squad completed?
- Monitoring duty roster of MO and other staff made?
- Monitoring and supervisory teams formed?
- Villagers informed of dates of spray?
- IEC activities (advocacy, meetings and spreading messages) planned?
- IEC material like hand bills, posters, cards etc available at PHC?
- Is IEC / BCC / Awareness campaign being done for the IRS in the villages. (Mention percent of villages covered)

At district level regarding this checklist DMO and DVBDC are responsible to check and supervise by confirming from MOIC at block level .while at block level MOIC responsible for the activities to be supervised.

2.11.12 – Checking of IRS

On being interviewed for the mode of checking of IRS activities of the squads five percent respondent did no visit while 43 percent had a random surprise visit system, 10 percent had made a joint visit with other stake holders like Care India for checking squads activities while 41 percent had both random surprise visits plans as well as joint visit plans in field.

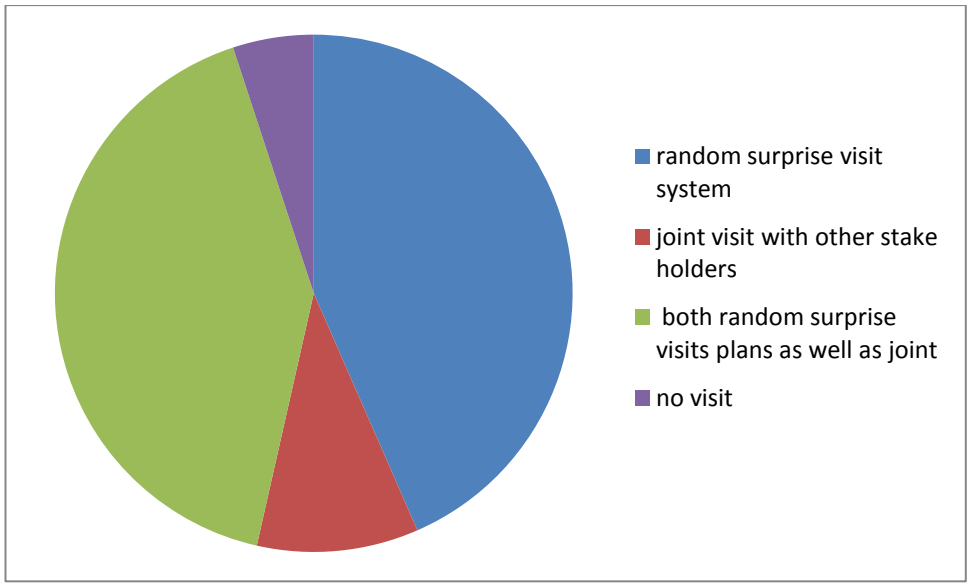

Figure 2.3 - Supervision of IRS (n=39)

2.11.13 –Roster Preparation

All the respondents said that they make roster but it is not followed the reason behind was that they had other departmental work to be performed and do not facilities of vehicle or financial power o support the activities also fearful of moving in fields where there are issue of release of wages of squads however other stake holders Care India had made a roster which they strictly follow and had shared with government officials to assist them during their supervisory visits.

2.11.14 – Number of supervisory visits held during IRS

The respondents said that in the guidelines they are supposed to perform at least 8 visits in the field but during IRS they should daily move so on daily basis when asked it was found that 41 percent officials did eight or more visits till day while less than eight by 15 percent while 18 percent had no visits in the field till date.

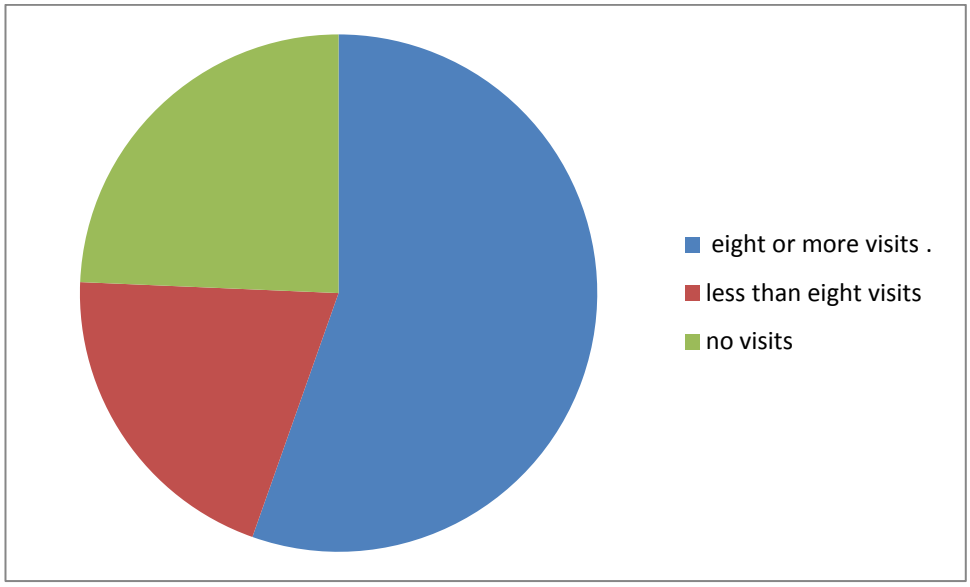

Figure 2.3 –Number of visits held during IRS (n=39)

2.11.15 – Activities for which squads are supervised during visit

The various activities for which squads has to be supervised are

Squads attendance, timings and techniques followed during spray equipments used for the IRS, personal protective equipments, and whether microplan followed as per plan or not refusals and their conversion all these activities has to be followed.

Thirteen percent respondents were not been able to say what they have to check and supervise during the field visit while 49 percent were able to say all the activities to be supervised during visit while rest 38 percent do not supervise all activities of squads either they check and most of them check just attendance, equipments and technique during IRS and ignore rest other things.

2.11.16 – mode of reporting (n=39)

The reporting is done by evening briefing at PHCs or by mobile or both. CS and DPO have different ways of reporting DPO had daily SMS system and DRS developed by organization in which the daily collected data through SMS from field by KLWs is updated and sent to state office . While CS is dependent on MDO for the reports. It was found that 70percent are reported on phone or mobil whie 19 percent have evening briefings and five parecnt has bith the system ahile five percent has no system of reporting

2.11.17 – Reportee

At district level MOIC and BHI are responsible for the reporting while MOICs are reported by BHI and BHI are reported by SFW s from the field itself. While CS is informed by DMO

2.11.18 – Problems solved by at field level

The total respondents said that most of the problems are solved by block level officials and Care India KLWs i.e. by 41 percent 18 percent said that problems are solved by block officials and five percent said that problems are solved at DMO and 33 percent said problems are solved with the intervening of other stake holders like Care India people. That is they bring forwards the field problems and get solved either by themselves or by passing it to block or DMO officials.

2.11.19 –Post IRS activities

The post IRS activities involve maintenance of equipments, records registers and analysis of all activities .85 percent said that the maintenance of records and registers are the activity that they do after IRS and just three percent maintain records and equipments

Only at DMO and other stake holders do analysis and evaluating of all activities including maintenance of equipments and records and registers making a percent of eight and CS office people take updates from DMO, no reply from three percent.

2.11.20 – Report preparation (n=39)

At district level the report is obtained from PHCs and a report is prepared bty DVBDC and signed by DMO. While at PHC the report is whole solely prepared by BHI CS obtain reports from the DMO and DPOs reports on the basis of data and reports collected from field at all PHCs.

2.11.21 – Report Submission (n=39)

DMO submits report to RDD state malaria office NVBDCP office new delhi and dm office and to CS office while PHCs submit their report at DMO.

2.11.22 – Challenges and Problems

The various problems and challenges faced by the people are

Lack of human resources like data entry operators, field forces to do daily supervision and to cover the large areas of supervision, drivers to run vehicles, lack of awareness of IEC, overburden of various departmental activities, no TA/DA given to the officials to conduct the field visits during they are dependent on their own vehicles. Less budget for IEC, lack of attention of senior officials at field issues and they do not mitigate those issues, lack of support of general administration. Lack of financial power there is no decentralization of funds at PHC level so that the general repair work of equipments could be done at PHC level. At some places due to the issue of release of wages of squads people fear of visiting the places due to the violence created in the field by the agitated squads. However there were few people who do not find any problem in the system.

2.11.23 Training given to the supervisee (n=50)

Among all the respondents, a majority of the Squad (96percent) were trained prior to the IRS only four percent gave negative response to this question.

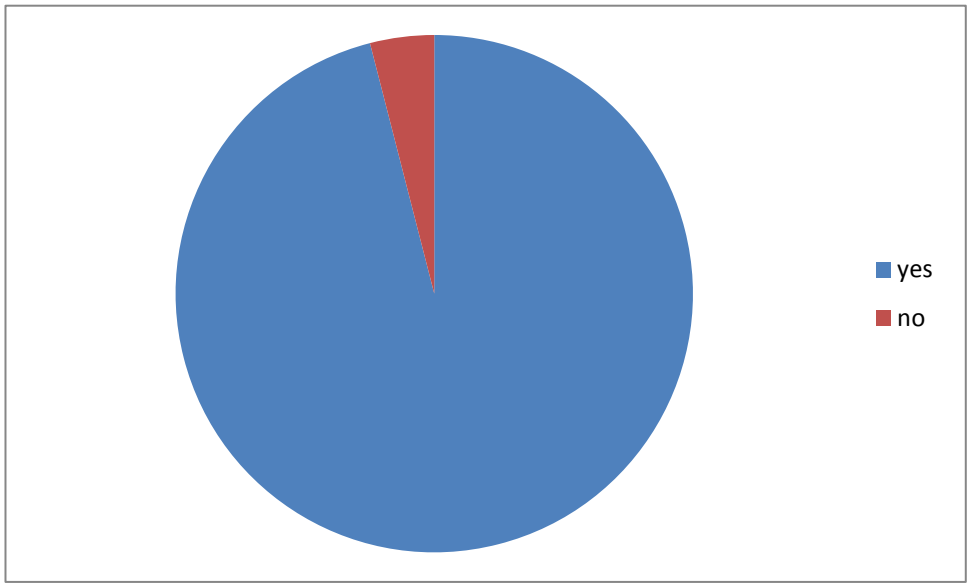

Figure 2.5 – Training given to the supervisee (n=50)

2.11.24 Training given prior to the IRS (n=50)

The respondents whom the training was given 100 percent responded that training was given a week before the IRS round started.

2.11.25 Training given by (n=50)

In about 42 percent field workers responded that training was given by both government and other stakeholders like Care India people either DPO or KLW while 40 percent said that training was given by BHI and KLW, eight percent were trained by other stakeholders like KLW or KLWs while six percent were trained by district officials like DVBDC rest foyr percent were unaware who gave training as they were absent at the time training session was held at PHC.

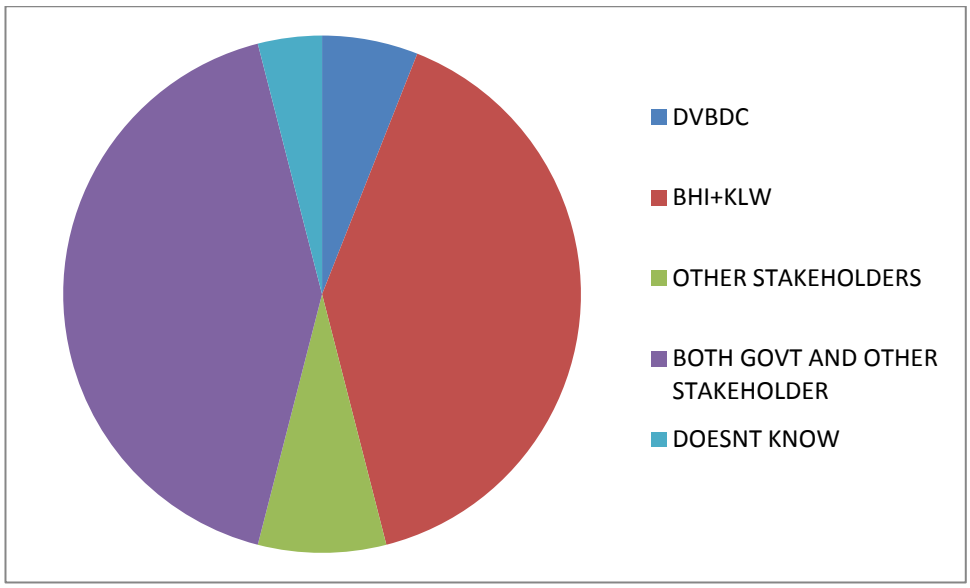

Figure 2.6– Training given to the supervisee by (n=50)

2.11.26 Topics of training (n=50)

About 86 percent said that they were for the spraying technique and equipments and materials required for spraying while eight percent said that they were trained for refusals and the conversion also two percent said that training was given only for equipments and four percent has no idea about the training topics.

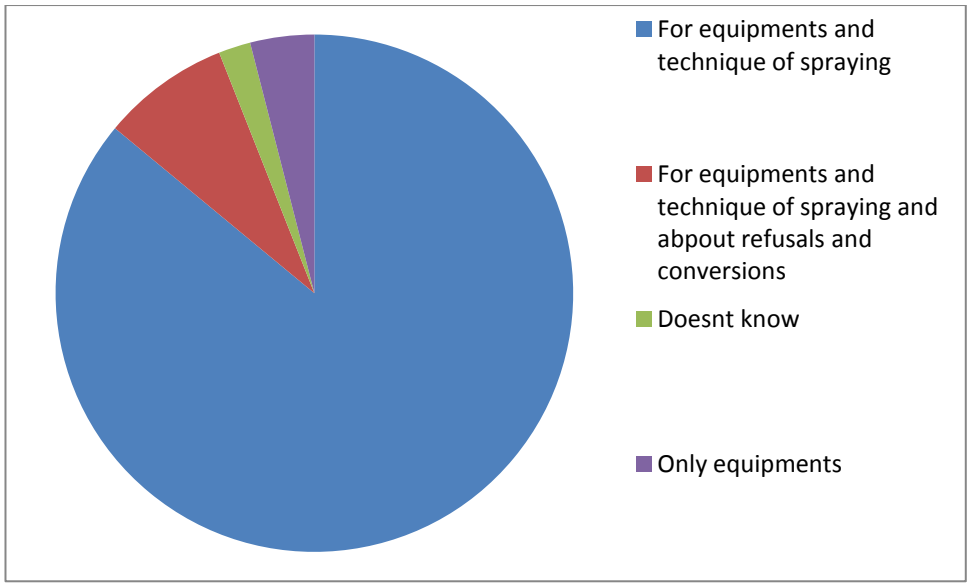

Figure 2.6– Topics of training (n=50)

2.11.27 who comes for supervision during IRS (n=50)

The respondents said at times district officials like DMO , DVBDC comes alone random or along with other stakeholders like Care India officials while at times Block

officials MOIC, BHI comes together or along with Other Stake holder like Care India Officials and few responded that nobody came for supervision during IRS

2.11.28 whether visits are informed or not (n=50)

More than 95 percent said that they were not informed about the visits by any of the officials.

2.11.29 number of squads supervised by officials at a time (n=50)

Most of the field forces (48 percent) said that only one squad is supervised in a visit by any of the officials while 30 percent said that two squads were observed 14 percent said that supervisors look at the activities of three squads in a visit and eight percent said do not observe any of the squads in their visit.

2.11.30 Number of visits by government officials or any other officials (n=50)

Nearly 66 percent said that government officials visited less than eight times per month during RS while 26 percent said that none of the officials visited. Only eight percent responded that government officials visited them eight or more times per month.

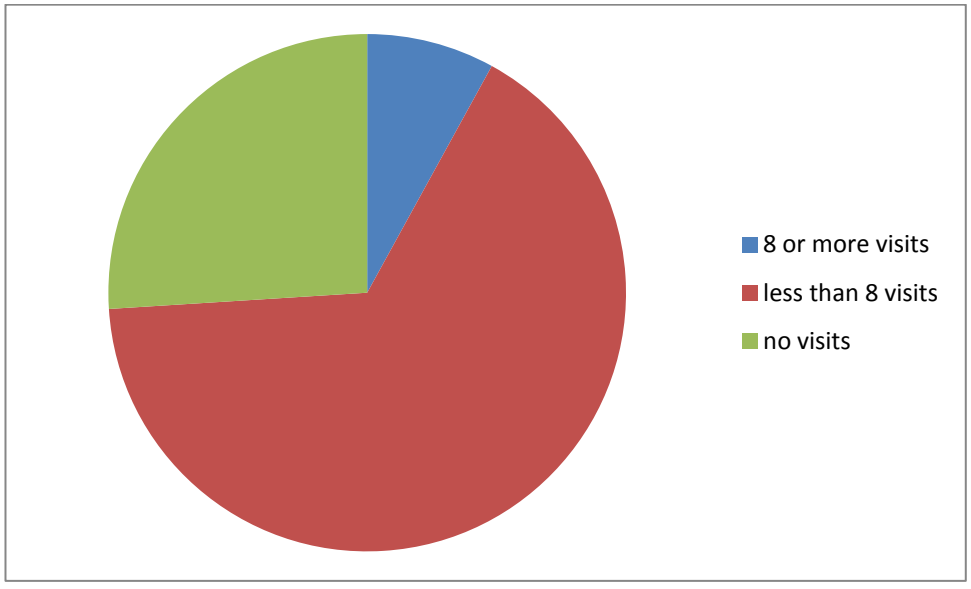

Figure 2.8– no of visits by officials (n=50)

2.11.31 Activities supervised during IRS by Supervisors (n=50)

The squads informed that if visited by any officials then they are checked for their attendance , equipments.PPE, Timings and techniques of spraying and refusals ab]nd conversion but the complete activities are checked at four perent and rest 96 percent are partially checked for their activities.

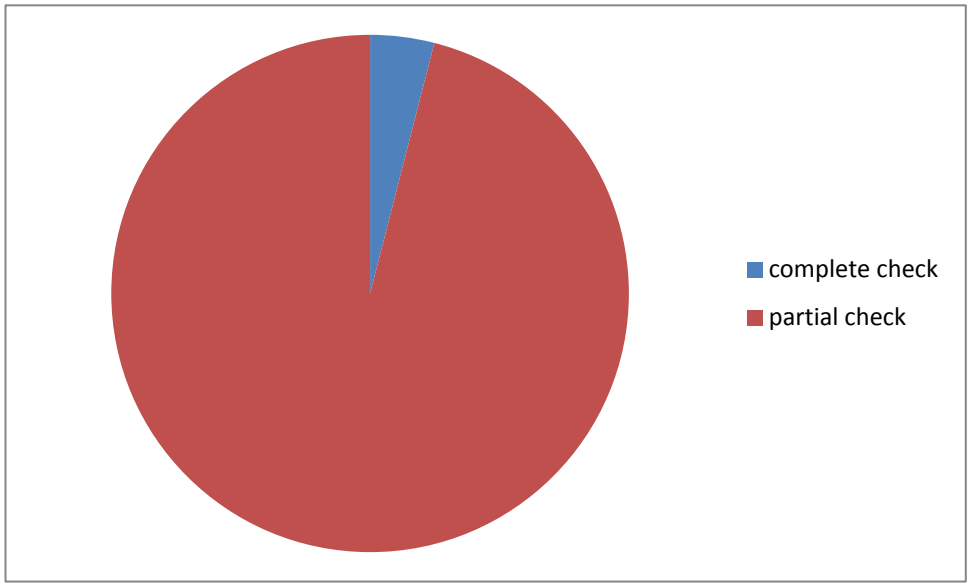

Figure 2.8– Activities checked completely or partial (n=50)

2.11.32 whether do self reporting (n=50)

Only 26 percent of squads do self reporting rest report only when asked by PHC people**.**

2.11.33 whom do you report (n=50)

They report to the BHI at PHC.

2.11.32 other stakeholders whom you report (n=50)

KLW of Care India

2.11.32 mode of reporting (n=50)

About 72 percent said that report by phone to PHC people about daily work done while 28 percent had evening briefings at PHV\Cs where they report the whole day activities to PHC people.

2.11.32 activities followed after IRS (n=50)

All said that they complete the records and registers to be submitted at PHC.

2.11.32 preparation of report (n=50)

SFW prepares report for the complete IRS round happened.

2.11.32 Submission of report done (n=50)

Report is submitted at PHC to BHI by SFW.

2.11.32 Challenges or constraints faced by the Squads (n=50)

The various challenges faced by them are the old and non functional instruments they are using for the IRS round , lack of transportation facility for them to reach the Spraying site , less wages paid to them , delayed payment of their previous wages, very less time given for IEC so community needs more awareness for IRS and KalaAzar as a result there are cases of refusals and denials by community so they have to do fake entries to achieve the targets based on which they are paid. Also no one from the government comes and listen to their problems they face during IRS and do not mitigate.

2.12 Discussion

The objective of the study was to review the supervisory mechanisms (roles and responsibilities, meetings, interactions, reporting, etc.) under IRS strategy under KalaAzar programme, to identify the stakeholders and their coordination mechanisms at various levels of health system and to analyze weakness of the indoor residual spray strategy in Vaishali district, Bihar.

Supervision is to check the ongoing activities whether happening as per plan and standards in any project it is very important to supervise each and every activity done as per plan and preparation to be done prior to the implementation of the plan in order to make an effective planned activity.

The study covered 39 supervisors that are the government officials at DMO am\nd Block level also the squads that are the supervisee involved in the actual IRS activity performed in the field in Vaishali district, Bihar. The supervisors were asked about their roles and responsibilities in relation to KalaAzar and the mechanism they follow in their district to supervise various activities coming under KalaAzar.

The review study showed that at district office officials are clear about their roles and responsibilities but there is little clarity at MOIC designation people as one fouth of 16

MOICs were unable to say anything. Reason can be the officials appointed are senior in their fields and long ago appointed at their posts so they need capacity building and resh course to revive their knowledge. So there is a need to have a capacity building trainings for the health officials so that they are aware of their roles and responsibilities at various level required for KalaAzar activities. Also they have little knowledge about the pre during and post supervisory activities to be performed as only 36 percent knew about the Pre, during and post IRS activities to be supervised while most of the officials about 33 percent had a sound knowledge of only pre IRS activities while 21 percent for pre and during activities to supervised while 10 percent do not have any idea what to be supervised. Regarding the preparatory part for various activities done prior to IRS round only 50 percent blocks were ready and rest were still lagging behind as a result all the activities are lagging behind the standard time. However the government has a system of preparatory meetings both at district (weekly meeting system) and PHC level (twice a month)but it is not followed people knew about it but unable to follow it The meetings conducted once in a month was responded by 13 percent officials while eight percent said that they had weekly meeting system,69 percent had meeting twice in a month while rest 10 percent had no meetings.

This was verified by asking about the last date of meeting held either at their PHCs or CS offices and it was found that 15 percent were aware about the dates when meeting happened while rest 85 percent were not aware of the last meeting held. So the system is not followed also at various level higher authority responsible for meetings are not supervising the meetings but another officials supervises this absence motivates others to deviate from their duties. For example at PHCs instead of MOIC BHI is the whole sole of whole activity right from preparation planning to submission of records all activities are supervised by him and MOIC is just the signatory authority at only 8 blocks only MOIC supervised that too irregularly. BHI miss out some points due to this overload of work however in all the activities the Care India a stakeholder has emerged who facilitates in all the activities going on in the field and preparation of microplan tracking of patients and other related activities like squads training and field supervision. The visits held shows that there is a system to do *Auchak nirikshan* by their officials regularly for squads and to supervise their activities but officials are hardy doing specifically MOIC are unable to make such visits and are not been able to even 8 visits a month as per guidelines they also have certain limitations like burden o pother departmental activities and lack of financial power given to them as a result they are unable to mitigate the field issues requiring funds also they themselves m]need vehicle

or TA or DA to conduct their field visits at the hard to reach areas like Raghopur.at the supervisee level when asked about the training squads said that every year it happens that BHI gave training and the training given doesn't carry all topics that squads need to be informed for like refusals and conversions , use of IEC material given to them and the proper use of microplan.Those who are absent there is no compensatory sessions for them . Also the meetings held are supervised by BHI and lacks the presence of MOIC however this time the added presence of Care India people helped to add some more points of discussion during squads training. Regarding the visits performed by officials for their daily work 66 percent said they were not regularly visited by government officials however Care India people always remained at the site daily so there is a need to motivate th officials at least to do visits twice a week at regular intervals so that the field issues of squads could be mitigated. The supervision done by officials was partial and they were not supervised completely so a proper checklist to be made while visiting the field for the officials coming for supervision. Most of the reporting part is done on Phone by SFWs and very few said that had an evening briefing system. Reporting and submission is done directly to BHI at PHC

However another stake holder whom they inform or report are the Care India People.

Most of the field problems are dealt by BHI with KLW so for that the system needs to be strengthened for the addressal of problems and its mitigation directly by higher authorities like district officials or MOIC.

Conclusion

The study aimed to REVIEW THE supervisory mechanism followed under IRS, to identify the other stakeholders and their mechanism and to analyze the weakness of the system it was found from the results that supervisory system is there in the district but is not followed as per guide lines that is the main weakness of the system. The challenges faced by the supervisors and supervisee like lack of HR. lack of finance and lack of support of general administration are making the supervision system weak. There are

lots many deviations from the planned schemes also there is no uniform system followed in the district or at PHC level for IRS. Amongst the other stake holders the Care India organization is working and giving technical support to the government at various ends like it has field force of KLWs and IRS monitors(temporary)to help government in supervision and also during preparatory phase of IRS like preparation of microplan, tracking of patients. preparing of line list for each block, preparation for logistics continuous supervision of Squads.

2.14 Limitations of the Study

This study is done in on small population of supervisors however here are many other officials who were unable to be interviewed also squads interviewed are 50 of 882 squad members working in the field so hence cannot be generalized over a large population.

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4. Impact of DDT indoor residual spraying on Phlebotomus argentipesin a KalaAzar endemic village in eastern Uttar PradeshS.M.Kaul, 1R.S.Sharma, 2K.P.Dey, 3R.N.Rai, 4& T.Verghese

5. http://www.census2011.co.in

3. Annexure

3.1 Annexure 1

English Questionnaire

(For Supervisors)

Starting Time: Closing Time:

Date of Interview

Serial no:

Consent form no.:

Information of Indoor Residual Spray

Q.NO	QUESTIONS AND FILTERS	CODING CATEGORIES

1	Name		
2	Age (in complete years)	20-30 years	1
		30-40 years	2
		40-50 years	3
		50-60 years	4
3	Sex	MALE	1
		FEMALE	2
4	Educational Qualifications	POST GRADUATE OR ABOVE	1
		GRADUATE	2
		MATRICULATION	3
		HIGHSCHOOL	4
6	Designation	DMO	1
		MOIC	2
		DVBDC	3
		BHI	4
		KTS	5
		Other (specify)	9
7	What are your roles and responsibilities that come under kalazar?	Preparing annual action plan and budget at district level	1 2
		Receive and distribute logistics to block level	3
		Monitor and evaluate activities at block level	4
		Selecting the villages to be sprayed	5
		Preparing the rosters	6
		Preparing a checklist	7
		Calculation of quantities	8

		All of the above	9
		Other (specify)	10
8	What are major health problems in your district?	NAME OF DISEASE	
		MALARIA	1
		Filaria	2
		KalaAzar	3
		Dengue	4
		Chikinnguinea	5
		Yellow fever	6
		Other (specify)	9
9	What are you doing for prevention of Kalazar in the district?		
10	How do you do IRS in the district?		
11	Do you have microplan for district/ block?	Yes	1
		No	2
11.1	Whether all the blocks have the plan? If no, why not?	Yes	1
		No	2
11.1a	If no why?		
11.2	Who prepared microplan for the block?	MOIC	1
		MO	2
		BHI	3
		KTS	4
		In team	5

		Others	9
11.2a	If code 5 team name the team members?		
12	How the IRS plan is prepared? Please elaborate the process	Telephonic conversation	1
		Meetings	2
		Any other	9
12.1	If 12 then where does the meeting happen?	District malaria office	1
		PHC	2
		APHC	3
		HSC	4
12.2	What is the frequency of meetings that happen?	Once in a month	1
		Twice a month	2
		others	9
12.3	When the last meeting was conducted?		
12.4	Who supervises the meeting? _____ _		
12.5	Whether the agendas of meeting are prepared?	Yes	1
		No	2
12.5a	If no why?		
12.6	If 11 then what are the agendas tick the appropriate one in front of the list given. If yes, show a copy of the last meeting agenda		

No.	Topic area/component	Yes / No	Timeline for completing the task	Who supervise/remarks

12.61 Micro Plan				
12.61a	Has the microplan for current round been made?			
12.61b	Has it been submitted to? If submitted then mention the date of submission…….			
12.61c	Does the PHC have the updated and complete list of villages having any KA patient in the last three years (2011, 2012, 2013)? If yes, please collect the same			
12.61d	Is the PHC planning to spray all the villages which had cases in the last three years in this IRS round			
12.61e	Are all line listed patients' houses in the villages identified by LWs / KTSs			
12.61f	Has the date of spray activities been decided for all endemic villages?			
12.61g	Has the ASHA / village level workers been informed of the date of spraying in their village?			
12.61h	Has a preparatory meeting been held at the PHC for IRS?			
12.62 Insecticides and Materials				
12.62a	PHCs have submitted requisition for insecticide, pumps, equipment?			
12.62b	Insecticide available in PHCs?			
12.62c	Pumps available at PHCs?			
12.62d	Sufficient supportive equipment (buckets etc) available at PHCs?			
12.62e	Are the stirrup pumps in working order Total working _____out of Total Pumps_____			
12.62f	Are the supportive equipment in working order			
12.62g	Training / Sensitization of spray squad completed?			
12.62h	Monitoring duty roster of MO and other staff made? Collect the roster			

12.62i	Monitoring and supervisory teams formed? Collect the document/ order Ask for date of supervision			
12.63 IEC				
12.63a	Villagers informed of dates of spray?			
12.63b	IEC activities (advocacy, meetings and spreading messages) planned?			
12.63c	IEC material like hand bills, posters, cards etc available at PHC?			
12.63d	Is IEC / BCC / Awareness campaign being done for the IRS in the villages. (Mention percent of villages covered)			

13	During IRS round how do you check the activities of squads?		
14	Any roster is formed for supervision?		
15	How many supervisory visits are held during the IRS round? _____		
16	What do you check for the squad's activities?	Attendance	1
		Equipments	2
		Personal protective equipments	3
		Timings while spraying	4
		Technique followed while spraying	5
		All of the above	6
		Others (specify)	9
17	What is the mode of reporting at the places where visit is performed /not performed by you?		
18	Who reports you about the whole activities?		
19	How the reported problems are solved and who solves those problems?		
20	After the completion of IRS what are the activities	Maintenance of equipments	1

	followed?	Maintenance of records (registers)	2
		All of the above	3
		Others (specify)	9
21	Who prepares report for the whole activity?	DVBDC	1
		MOIC	2
		BHI	3
		KTS	4
		Others (specify)	9
22	Whom the report is submitted to?		
23	What are the challenges or constraints faced by you?		

(For Supervisee)

Starting Time: Closing Time:

Date of Interview

	QUESTIONS AND FILTERS	CODING CATEGORIES	
1	Name		
2	Age (in complete years)	20-30 years	1
		30-40 years	2
		40-50 years	3

		50-60 years	4
3	Sex	Male	1
		Female	2
4	Educational Qualifications	Post Graduate Or Above	1
		Graduate	2
		Matriculation	3
		High school	4
		Below High school	5
5	Designation	SFW	1
		FW	2
6	Experience (in years)		
7	Whether training was given prior to IRS?	Yes	1
		No	2
8	If yes then how many days before start of spraying training was given to you this time?		
9	Who gives the training for IRS?	MOIC	1
		DBVDC	2
		Others (specify)	9
10	What are the topics of training?	Microplan	1
		Spraying technique	2
		Equipments/materials	3
		Others (specify)	9
11	Who comes for supervision during IRS round?		
12	How many squads are supervised at a time by supervisors during IRS?		
13	Whether squads are informed about the visit of supervisors?	Yes	11
		No	12
14	How many times you were visited by anyone either from government or any other		

	organization during the IRS round? Specify and name the organization.		
15	What do they check for the squads activities?	Attendance	11
		Equipments	12
		Personal protective equipments	13
		Timings while spraying	14
		Technique followed while spraying	15
		Others (specify)	16
16	Whether the report is asked by someone or you yourself report?		
17	Whom do you report?		
18	Do you report to any other organization people? If yes than specify		
19	What is the mode of daily reporting at the places?		
20	After the completion of IRS what are the activities followed?	Maintenance of equipments	11
		Maintenance of records (registers)	12
		Others (specify)	13
21	Who prepares report for the whole activity of IRS?		
22	Who solves your problems coming during IRS?		
23	Whom the report is submitted to?		

24	What are the challenges or constraints faced by you?