

**Elimination efforts in one district of Bihar,
India: lessons learned and challenges
remaining**

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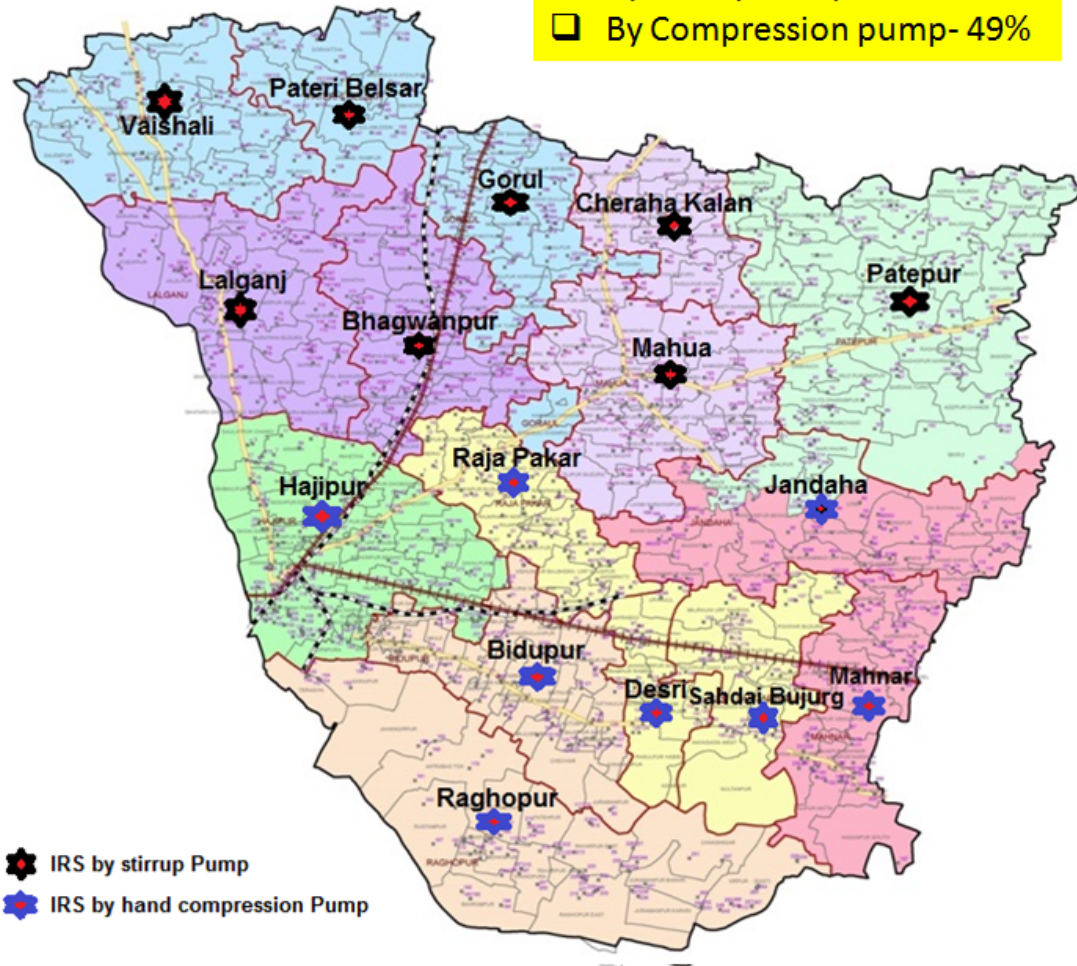
WHY VAISHALI :

(second highest endemic district of Bihar)

- ⊕ In presence of Union Health Minister, DGHS Govt. of India on 2nd Sept. 2014 given the task to RMRIMS to demonstrate elimination of Kala-azar from Vaishali district i.e $<1/10000$ case at PHC level by effective monitoring and supervision of IRS, early cases detection and complete treatment with Single dose Ambisome (SDA)
- ⊕ **13/16 PHCs had cases $>1/10,000$, average 2 case/10,000 in all PHCs**

VAISHALI DISTRICT Block & Village Level Map

Population covered :
 By Stirrup Pump- 51%
 By Compression pump- 49%



Total PHCs: 16
Total area: 2036 sq KM
Total villages: 1569
Total Population: 3.49 millions



PHC wise case reported in Vaishali district, Bihar

(2012-2014)

Name of PHCs	Years		
	2012	2013	2014
HAJIPUR	78	73	71
BIDUPR	85	48	41
GORAUL	25	30	34
CHERAKALA	31	30	11
BHAGWANPUR	40	33	20
VAISHALI	89	48	31
PATEDHI BELSAR	30	9	11
LALGANJ	48	53	31
MAHUA	129	103	53
RAJAPAKAR	36	30	15
JANDAHA	68	55	49
MAHNAR	71	48	51
SAHDEI BUJURG	27	22	26
DESRI	54	22	16
PATEPUR	107	93	79
RAGHOPUR	279	161	125
Total	1197	858	664

All case data has been collected from DMO-Vaishali (Action plan-2015)

***PHC wise VL affected villages in Vaishali district,
Bihar (Year 2012-2014)***

District: Vaishali	Number of kala-azar affected villages		
Name of Phc	2012	2013	2014
Patepur	18	35	36
Gorul	8	15	20
Rajapakar	20	15	19
Bhagwanpur	14	14	14
Bidupur	40	23	28
Cehara Kala	10	15	7
Deshri	10	9	8
Hajipur	19	22	29
Jandaha	20	14	34
Lalganj	19	21	17
Mahnar	20	17	19
Mahua	47	35	38
Pateri Belsar	13	10	10
Raghopur	14	15	17
Shadai Buzurg	8	11	12
Vaishali	26	26	19
Total	306	297	327

PHC wise name of the kala-azar affected villages in Vaishali district, Bihar

Sl.no.	1. Bhagwanpur PHC	Year wise cases		
	Name of villages	2012	2013	2014-
1	Manganpur	0	0	1
2	Gorhia Chamman	0	1	1
3	Harbanshpur Banthu	0	0	1
4	Sadhampur Jiwan	1	0	0
5	Asadpur Saidpur	0	1	0
6	Wafapur Banthu-1	0	2	3
7	Hussaina Khurd	1	3	0
8	Bhagwanpur	2	1	0
9	Rahua Shahmian	0	0	1
10	Rohsa Pacchiari	1	3	0
11	Mohammadpur Rohua	0	1	0
12	Rampur Asurar	0	1	0
13	Bihari	2	0	0
14	Kiratpur Raja Ram	1	5	1
15	Hansi Kewal	1	0	0

16	Sambhupur Kuari	1	0	0
17	Asoi Ragho	1	0	0
18	Madhopur Mahodat	1	5	3
19	Alimuddinpur Chak	1	1	0
20	Paterha	1	0	1
21	Enayetpur Parbodhi	0	3	2
22	Matiara Tok-1	1	0	0
23	Dohji Ramchandar	1	0	0
24	Jahangirput Paterha	1	0	0
25	Maricha Ram	0	0	1
26	Mohammadabad-I	0	0	1
27	Malahi Akbar	0	0	1
28	Mansurapur	0	1	0
29	Telia Sarae	0	1	0
30	Shembhupur	0	0	1

Legend		No. of villages
	Common villages in 2012,2013& 2014	2
	Common villages in 2012 & 2013	4
	Common villages in 2013& 2014	3
	New villages in 2014	8
	New villages in 2013	5

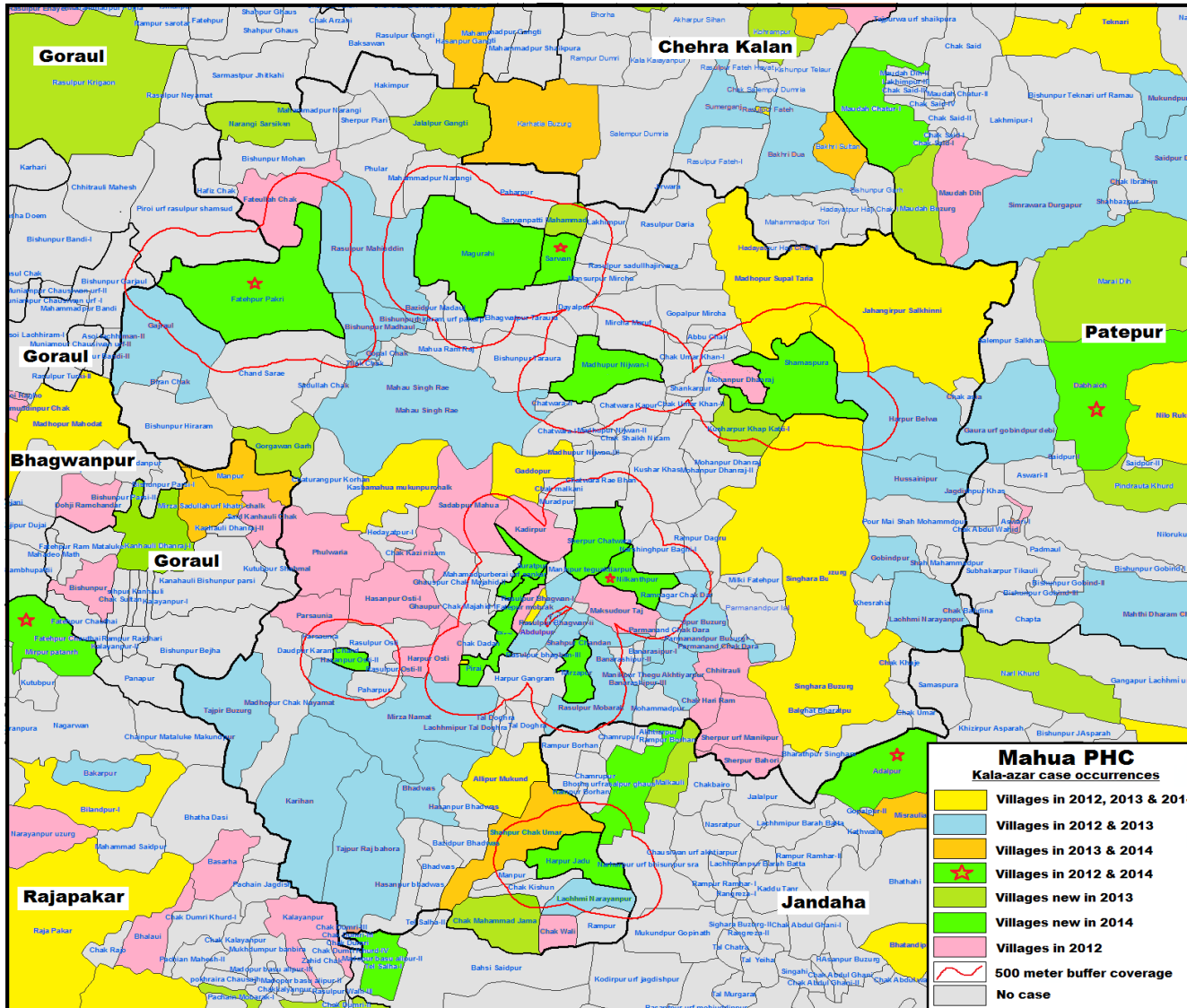
PHC wise name of the kala-azar affected villages in Vaishali district, Bihar

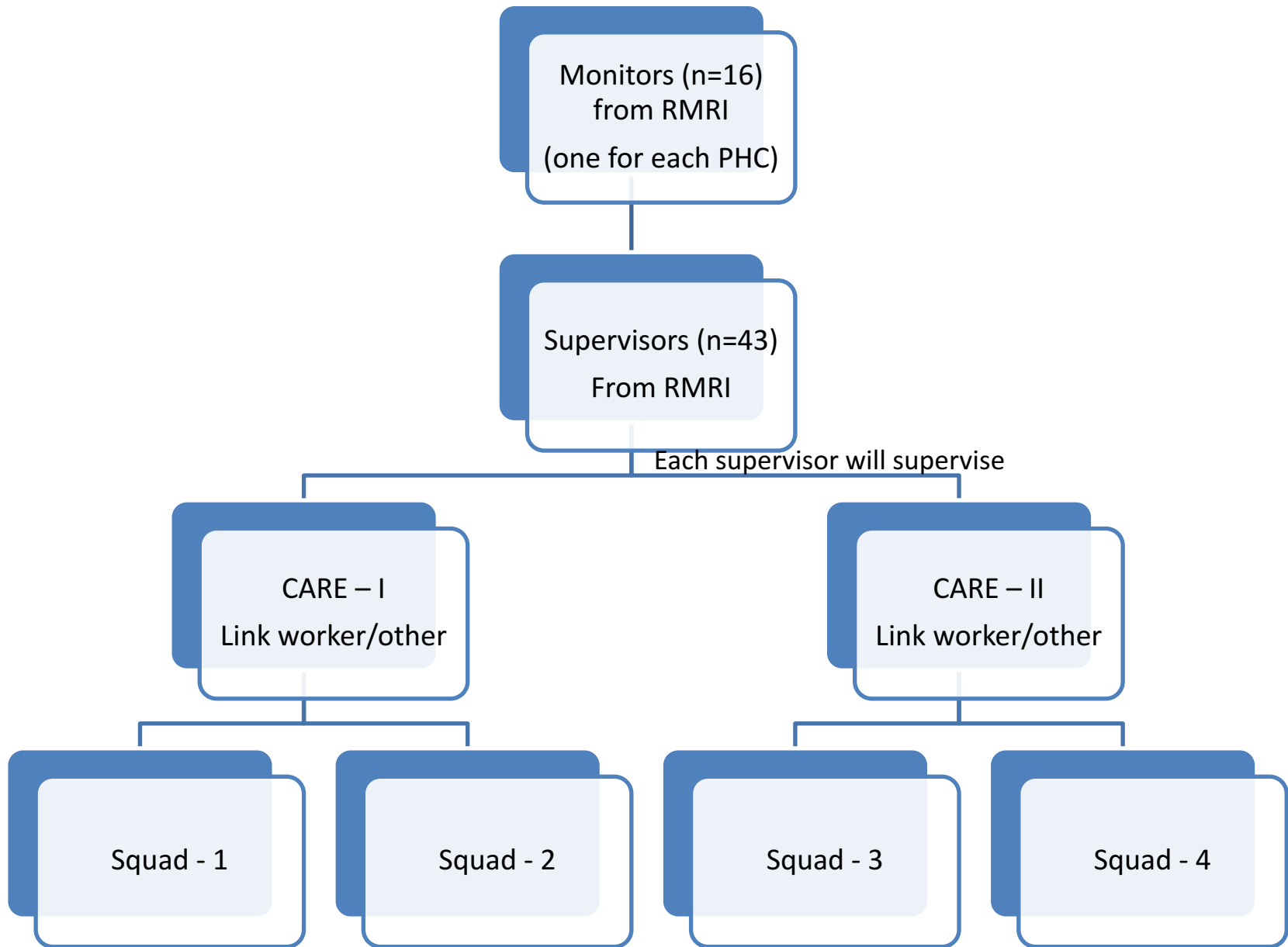
Sl.no.	7.Jandaha PHC Name of villages	Year wise cases		
		2012	2013	2014-sept
1	Narl Khurd	0	1	0
2	Mansingpur Bijhrauli	10	1	3
3	Malkauli	0	1	0
4	Bhorha urfrasalpur ghaus	0	0	2
5	Adalpur Urf Adilnagar	2	0	1
6	Sastaul Urf Siswan	1	0	0
7	Misraulia	1	1	0
8	Loma	3	3	1
9	Dih Buchauli Urf Bazidpur	6	1	4
10	Dulwar	1	2	1
11	Pirapur	0	0	2
12	Ghauspur	0	0	1
13	Rohua Urf Balgobindpur	0	0	1
14	Mahisaurh	0	2	1
15	MAhpura	1	3	0
16	Bhatandipur	1	1	1
17	Bishunpur Bedulia	2	0	0
18	Rasulpur Parkhotim	0	0	1

19	Tal Salha-I	0	0	2
20	Murtazpur Mukund	2	0	1
21	Jagdishpur Urf Makundpur	1	0	0
22	Rampur Chak Kala	0	1	0
23	Buchauli Sakrauli	1	0	0
24	Khopi	0	0	2
25	Chak Larho	1	0	0
26	Kalpahar	1	0	0
27	Silothar	1	0	0
28	Chand Sarae	1	0	2
29	Harparsad Bishunpur Khem	0	0	1
30	Mahiuddinpur Garahi	0	1	0
31	Chak Khurdi urf chlkarud	1	0	0
32	Mukundpur Bhath	0	1	2
33	Hazrat Jandaha	0	0	2
34	Chak Fateh	0	0	1
35	Malahi	1	0	0
36	Marai	3	1	4
37	Kajri Khurd-I	0	0	1

Legend		No. of villages
	Common villages in 2012,2013& 2014	6
	Common villages in 2012 & 2013	2
	Common villages in 2013& 2014	2
	New villages in 2014	14
	New villages in 2013	4

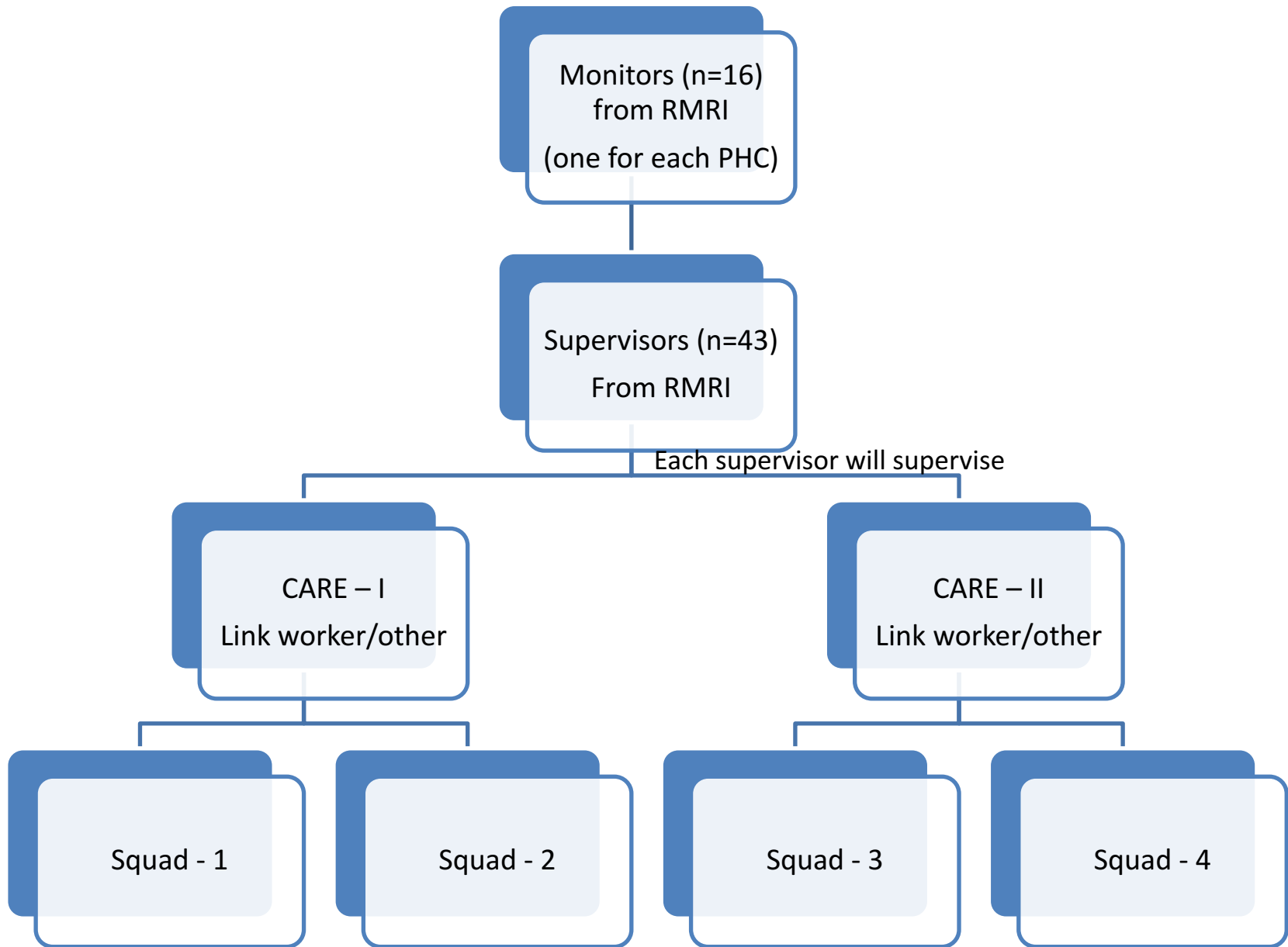
Proximity analysis of the kala-azar affected new villages in 2014 to old endemic villages in Vaishali district, Bihar





CARE staff required : 85 (each for two squads)

RMRIMS : 88



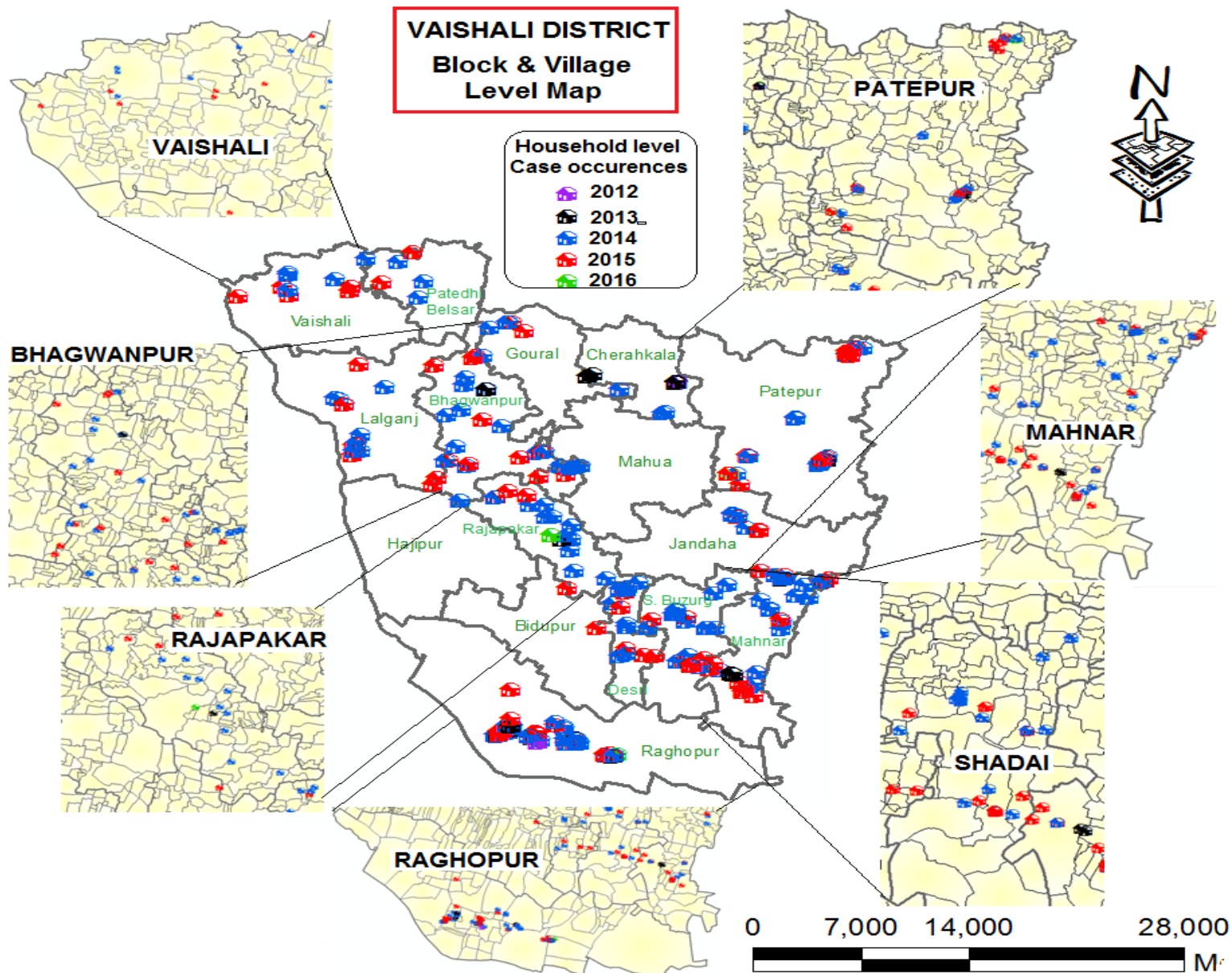
CARE staff required : 85 (each for two squads)

RMRIMS : 88

Strategies Adopted :

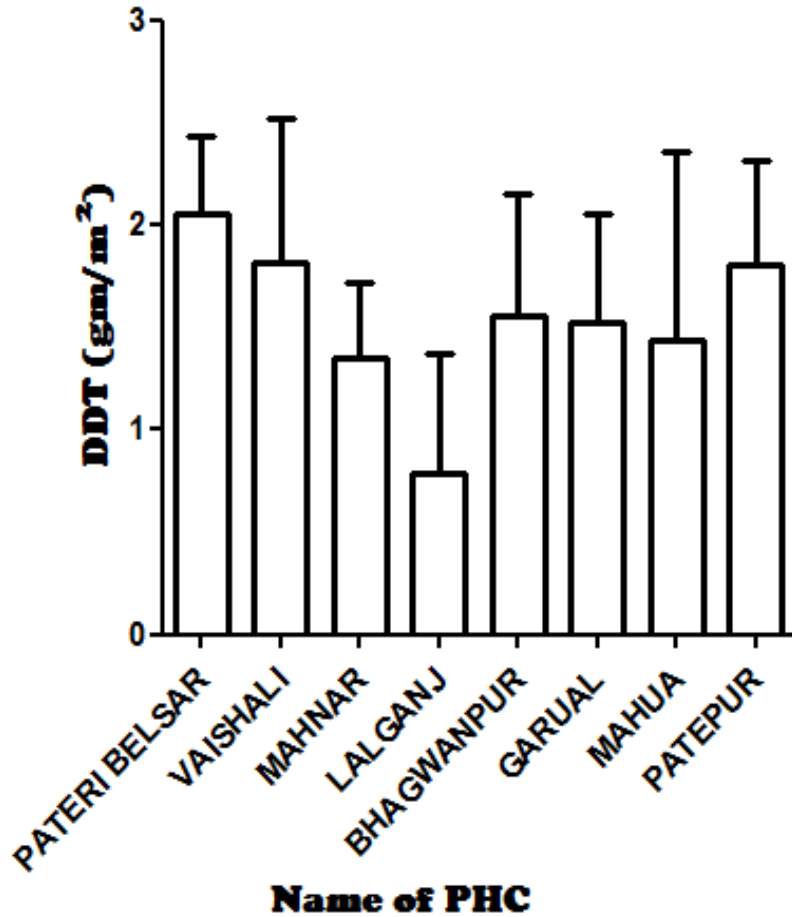
- ❖ Mapping of whole Vaishali district at village and house level for hotspot
- ❖ Active Case Detection (ACD) by HH survey and Index case approach using rk-39 in all 16 PHCs, especially villages reporting > 5 cases for last 3 years
- ❖ Upgraded 4 PHC and District hospital to treat each KA cases with SDA
- ❖ Training of all Physicians and Para Medical staffs for preparation and treatment with SDA (10 mg/kg)
- ❖ Training of 16 PHC staffs, spray members (i.e. SFW and FW) about use of stirrup pump and hand compression pump.
- ❖ Training of 2294 ASHA about KA, PKDL cases and IRS activity.
- ❖ Training of CARE and RMRI staffs about diagnosis of fever cases with rk-39, spray activity
- ❖ Micro Action Plan all activity (Drugs, diagnostics, Insecticides quantity including houses within 500 mt of last 3 year cases, man power for monitoring & supervision of IRS at different level)
- ❖ Monthly pre and post evaluation of sand fly density (CDC LT), susceptibility assay of sand flies to insecticides
- ❖ IEC and BCC: posters, banners at important places, Miking in all 16 PHC (2days before IRS)
- ❖ Use of IQK for DDT quality assessment on wall. All data in DDMS.

GIS based HHs level mapping of kala-azar cases in Vaishali District, Bihar (INDIA)

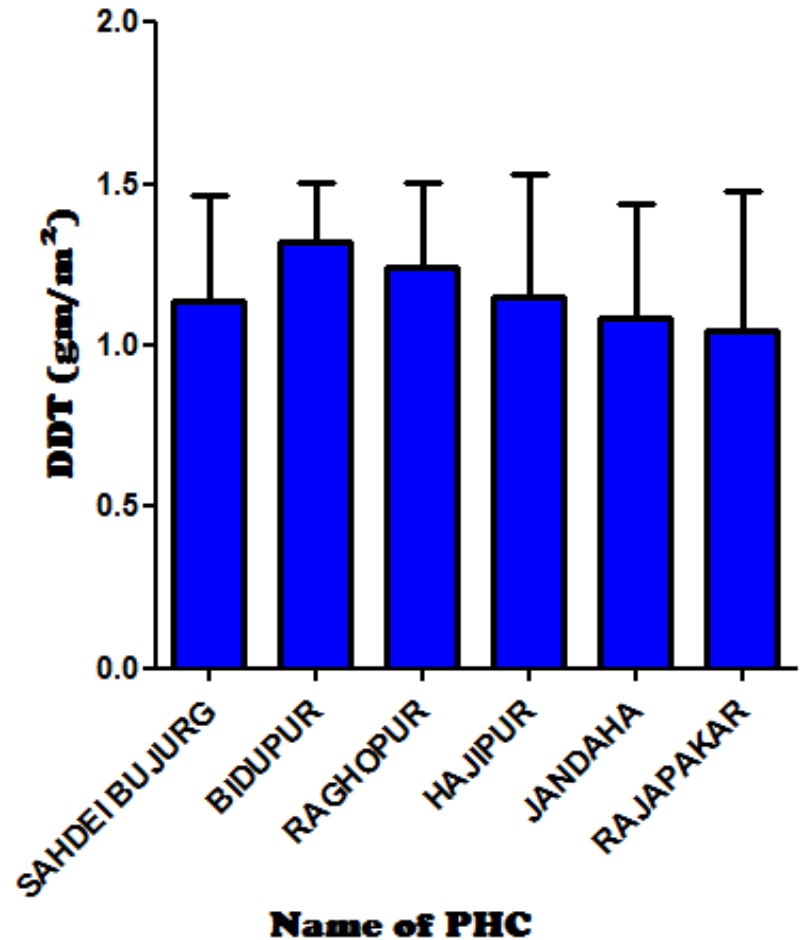


PHC wise result of IQK test

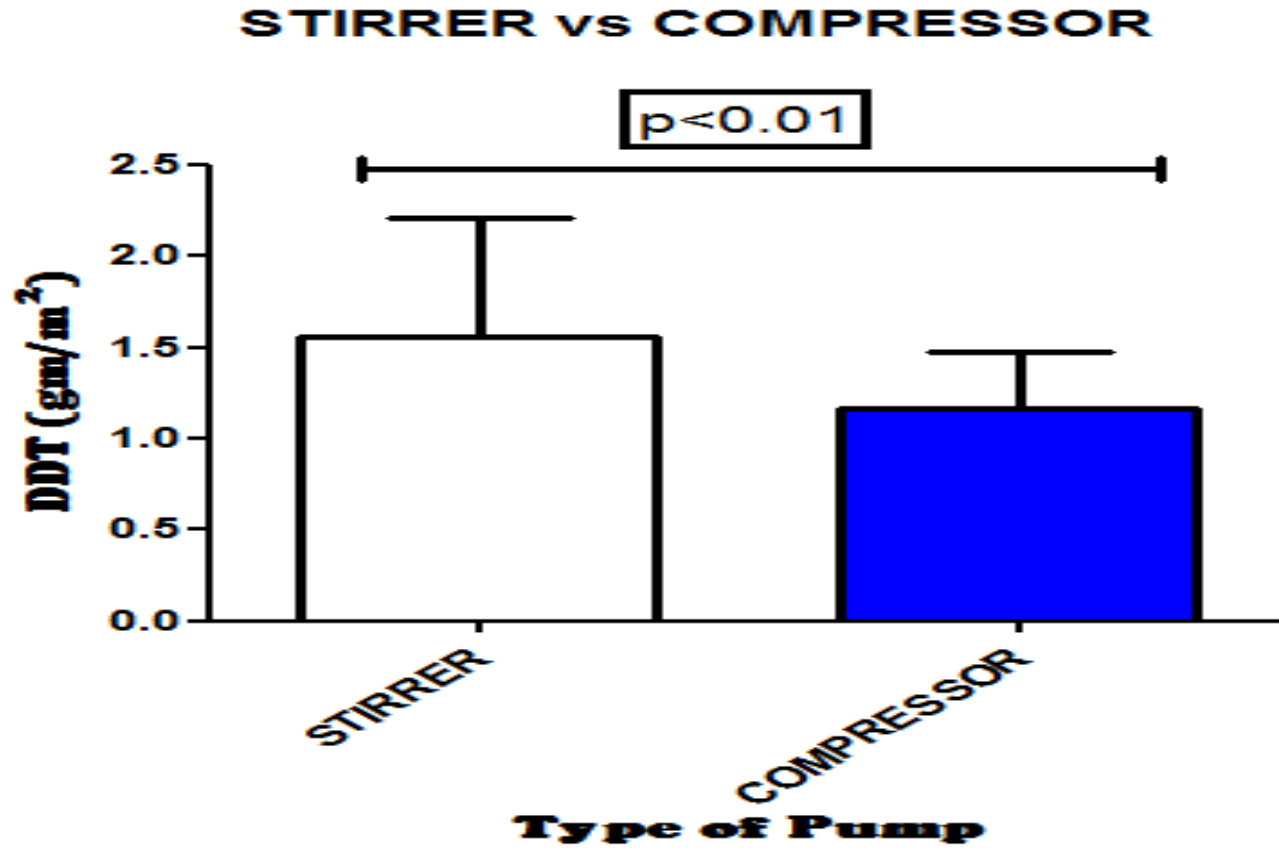
Stirrer Pump



Compressor Pump



IQK test



IEC/BCC materials distribution and Miking



IEC activities in Kala-azar



Sensitization of ASHAs on kala-azar in Siliguri



Creating awareness on Kala-azar causation and prevention

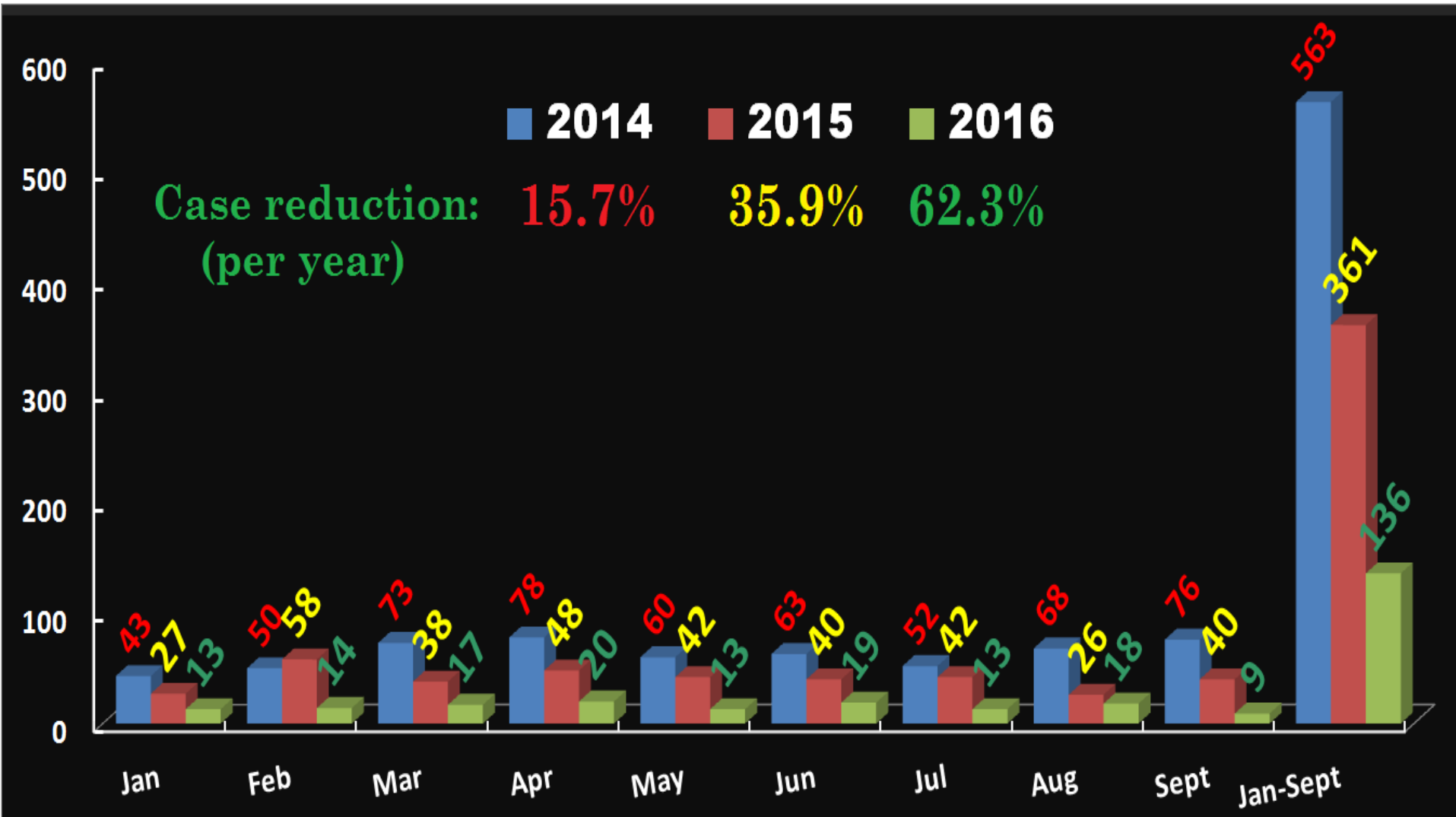


Munadi communication to villagers on IRS

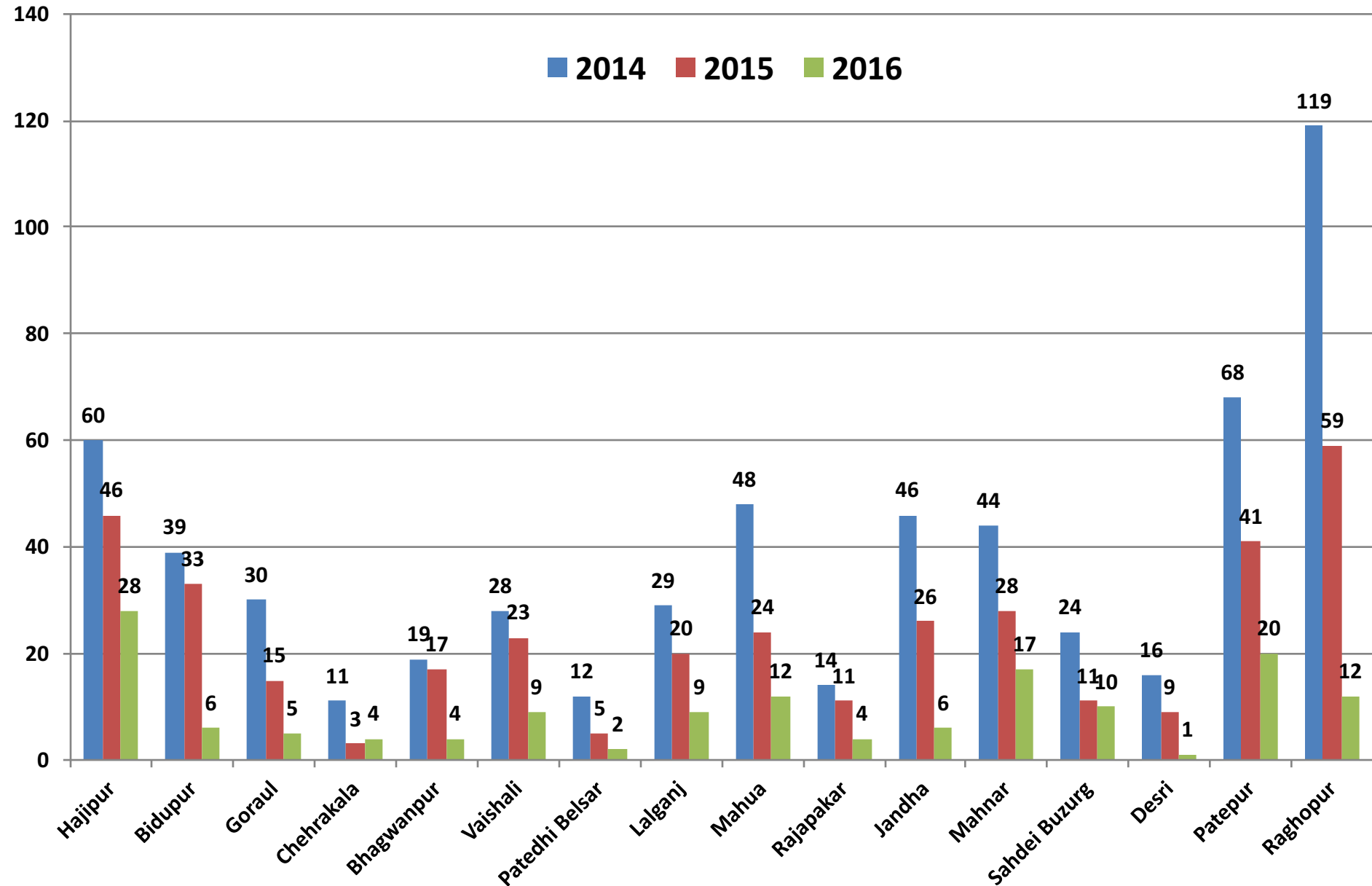


Educating school children on Kala-azar

Year wise monthly cases reported at Vaishali district, Bihar (2014 – 2016; Jan-Sept)



PHC wise case reports of Vaishali district, (January-September ; 2014-2016)



PHC wise incidence rate per-10K population at Vaishali district, Bihar (2014 - 2016)

Name of PHCs	Cases			As per 2011 census			As per population growth rate @ 2.5 % / year		
	2014	2015	2016*	2014	2015	2016*	2014	2015	2016*
BHAGWANPUR	20	17	4	1.0	0.8	0.2	0.9	0.7	0.2
BIDUPR	41	33	8	1.5	1.2	0.3	1.4	1.1	0.3
CHERAKALA	11	3	5	0.8	0.2	0.4	0.8	0.2	0.4
DESRI	16	8	1	1.6	0.8	0.1	1.5	0.7	0.1
GORAUL	34	14	7	2.0	0.8	0.4	1.8	0.7	0.3
HAJIPUR	71	53	37	1.6	1.2	0.8	1.5	1.1	0.7
JANDAHA	49	28	8	1.8	1.0	0.3	1.7	1.0	0.3
LALGANJ	31	20	12	1.2	0.8	0.5	1.1	0.7	0.4
MAHNAR	51	33	17	2.8	1.8	0.9	2.6	1.6	0.8
MAHUA	53	27	19	1.9	1.0	0.7	1.8	0.9	0.6
PATEDHI BELSAR	11	5	3	1.1	0.5	0.3	1.1	0.5	0.2
PATEPUR	79	43	21	2.2	1.2	0.6	2.0	1.1	0.5
RAGHOPUR	125	65	15	5.2	2.7	0.6	4.8	2.4	0.5
RAJAPAKAR	15	11	4	1.0	0.7	0.3	0.9	0.6	0.2
SAHDEI BUJURG	26	13	8	2.0	1.0	0.6	1.9	0.9	0.6
VAISHALI	31	23	12	1.6	1.2	0.6	1.5	1.1	0.6
Overall	664	396	181	1.9	1.1	0.5	1.8	1.0	0.5
No. of PHCs (>1/10K pop)				13	9	0	13	7	0

*Expected based on the monthly cases upto September

Lesson Learned

1. Unit of elimination may be village. More focus should be in villages having >5 cases
2. Micro action plan need to be prepared well ahead of all activities.
3. Still delay from diagnosis to treatment takes 45 days. 1-2% cases do not report to the systems. Need active participation of private practitioner.
4. Need Kala azar patient unique identification number to avoid the duplication.
5. Need facilities to diagnose PKDL HIV-VL at all point of care centres.
6. Monitoring and Evaluation of spray need to be done at least squad level
7. Need trained Entomologists to conduct pre-post entomological survey, monitor susceptibility of vector against insecticide, quality and quantity of spray on the wall. Introduction of IQK will be useful.
8. Regular training of DMOs, MOs, MIs and PHC doctors regarding SDA treatment of VL & PKDL and spray activity worker for spray activities.
9. Train ASHA and involved in ACD of VL & PKDL. Index case approach for ACD will be better in tracking of new cases and in reduction of transmission.
10. Need further strengthening IEC, BCC activities (Community participation)
11. Compression pump and Synthetic pyrethroid works better but concentration may be relooked.
12. Payment of incentive and wage loss in time will improve the programme implementation.

Entomological survey 2015 - 2016

	2015					2016				
Timeline	Insecticide	LT Installed	<i>P.argentipes</i>	<i>Sergentomia</i>	<i>P. Papatasi</i>	<i>Insecticide</i>	LT Installed	<i>P.argentipes</i>	<i>Sergentomia</i>	<i>P. Papatasi</i>
Baseline (1st Round IRS)	<i>DDT</i>	120	57	69	22	<i>SP</i>	80	39	43	6
After 15 Days (1st Round IRS)	<i>DDT</i>	120	10	1	0	<i>SP</i>	80	1	1	0
After 1 Month (1st Round IRS)	<i>DDT</i>	120	16	7	8	<i>SP</i>	80	10	13	0
After 3 Month (1st Round) & Basline (2nd Round)	<i>DDT</i>	90	41	55	36	<i>SP</i>	90	47	13	1
After 15 Days (2nd Round IRS)	<i>*DDT (14 PHCs)</i>	75	0	9	3	<i>SP</i>	90	0	0	0
	<i>**SP (3 PHCs)</i>	15	0	0	0					
After 1 Month(2nd Round IRS)	<i>*DDT (14 PHCs)</i>	75	13	9	6	<i>SP</i>	Under Process			
	<i>**SP (3 PHCs)</i>	15	1	0	0					
After 3 Month (2nd Round IRS)	<i>*DDT (14 PHCs)</i>	75	33	23	11	<i>SP</i>	Yet to be done			
	<i>**SP (3 PHCs)</i>	15	3	6	0					
<p><i>*Spray by DDT - Patepur, Hajipur, Bidupur, Chehrakala, P. Belsar, Mahua, Jandaha, S. Buzurg, Desri, Mahnar, Lalganj, Bhagwanpur, Raghapur & Vaishali</i></p>										
<p><i>**Spray by SP - Garaul, Rajapakar & Vaishali</i></p>										
<p><i>- In Vaishali PHC we installed CDC LT in Two Villages, One which were sprayed by DDT & another by SP.</i></p>										

Challenges

- Need tools for impact assessment of elimination strategies
- Needs methods to reduce the delay in diagnosis to treatment, to bring 2-3% cases that still not reporting to the system and private practitioners.
- Need the cause of spread of disease to new area.
- Need measure for zero transmission: Possible remedies
- ✓ Focal spraying around New cases during non-spray period
- ✓ Establish the role of VL, asymptomatic individual, PKDL cases in transmitting disease.
- ✓ Need availability of fund in time to release incentive to health workers and wage loss to patients.

Thanks