Active Case Detection, programme baseline evaluation and future priorities in implementation research

Setting the Post Elimination Agenda for Kala-Azar in India
New Delhi 3rd to 5th November 2016

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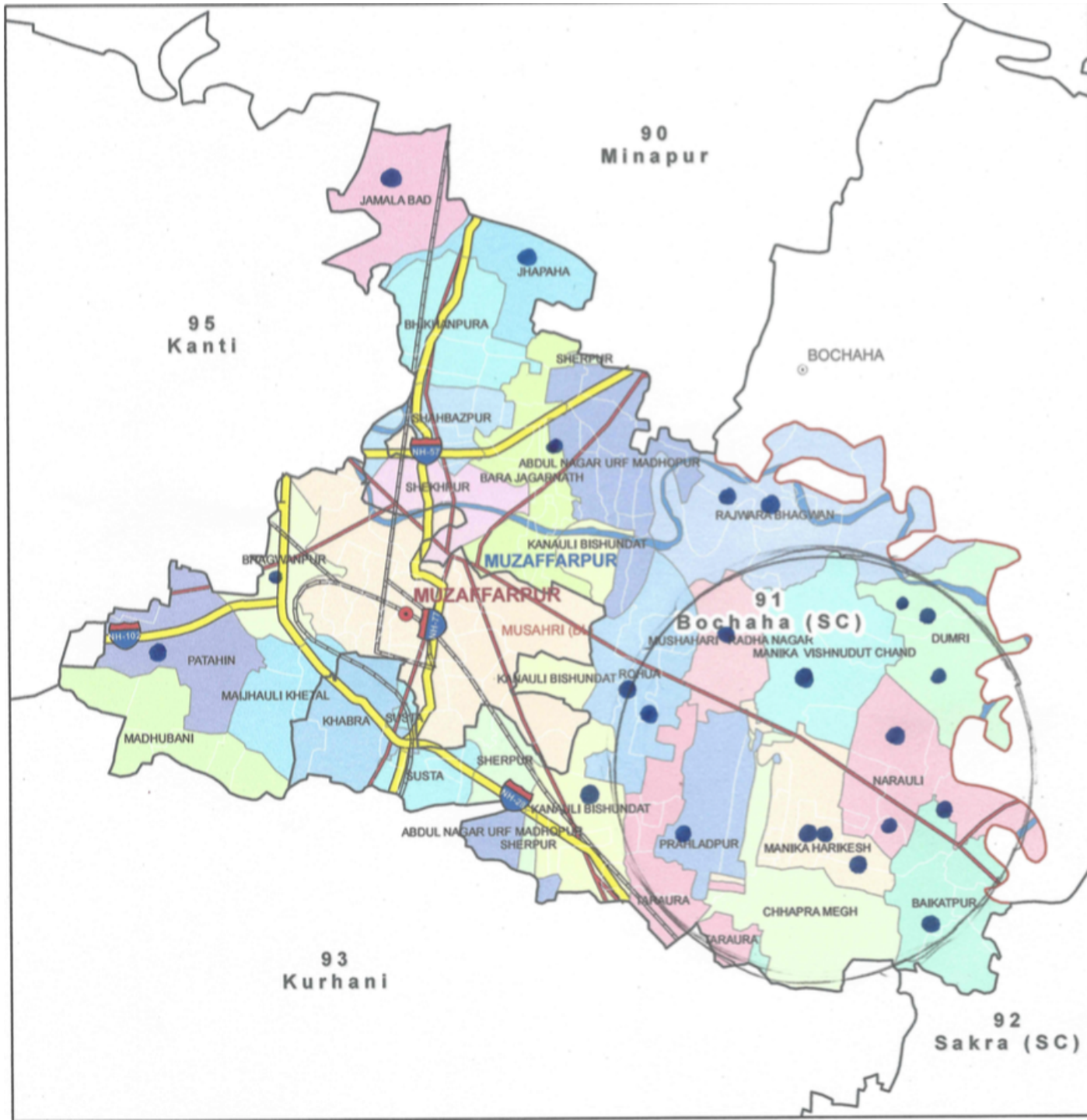
Three areas to cover:

- Results of Active Case Detection

- Baseline evaluation of treated patients

- Priorities for implementation research

Active Case Detection

- 19 block 'villages-at-risk' in 3 districts completed

- Shifting PAR from block to village level

- 119 villages identified by 2-year mean PAR VL incidence of **>5/10,000**

- **Activities conducted at tail end of the VL season**
  - **Number of VL cases expected to be low**
  - **Aim to roll out during Jan-May 2017 across highest endemic districts**

- Strategy remains to interrupt transmission, accelerate elimination in 2018

- Mop up of PKDL key – as seen in West Bengal model

- Is this the right approach and an efficient use of resources approaching elimination?
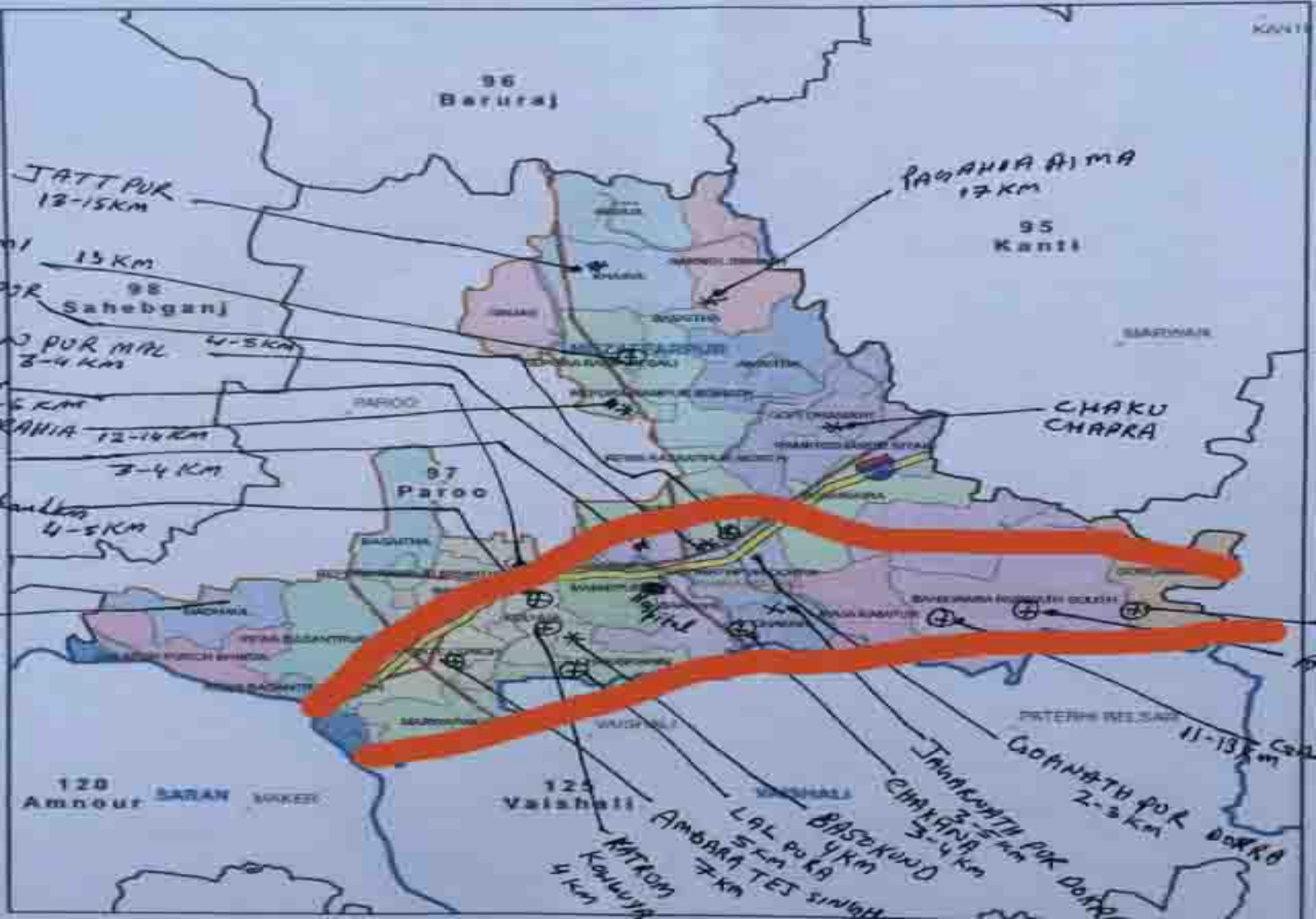
MUSHARI BLOCK WISE INCIDENCE RATE BY VILLAGE POPULATION AT RISK – MUZZAFARPUR DISTRICT

Sr. No.	Village	2014	2015	No. of Household	Total Population	2014 incidence	2015 Incidence	2 Yr mean Incidence
1	Bishunpur Manohar	4	4	264	1326	30.17	30.17	30.17
2	Salha	1	4	229	1057	9.46	37.84	23.65
3	Mushari urf Radhanagar	10	11	1707	8431	11.86	13.05	12.45
4	Narauli Dih	6	6	1083	5157	11.63	11.63	11.63
5	Rajwara Bhagwan	5	2	676	3181	15.72	6.29	11.00
6	Tarma Bakhri	1	2	319	1584	6.31	12.63	9.47
7	Budhnagra	3	2	668	2962	10.13	6.75	8.44
8	Manika Harkrish	4	1	709	3440	11.63	2.91	7.27
9	Rohua Rajaram	1	2	640	2762	3.62	7.24	5.43
10	Rajwara Dih		2	387	1991	0.00	10.05	5.02
11	Chau Siwan		1	235	1114	0.00	8.98	4.49
12	Narauli Kalyan		1	294	1365	0.00	7.33	3.66
13	Rohua Apuchh	4		1163	5738	6.97	0.00	3.49
14	Sutihara		1	358	1542	0.00	6.49	3.24
15	Mominpur		1	359	1686	0.00	5.93	2.97
16	Dwarika Nagar		1	406	1905	0.00	5.25	2.62
17	Jamalabad		4	1772	8634	0.00	4.63	2.32
18	Dumri urf Mahamadpur Mubarak		2	1262	5996	0.00	3.34	1.67
19	Nayagaon		1	578	3091	0.00	3.24	1.62
20	Kanahauli Bishundat		1	705	4044	0.00	2.47	1.24
21	Bhagwanpur	3		3296	17690	1.70	0.00	0.85
22	Prahladpur		1	1676	8984	0.00	1.11	0.56
23	Jhapaha		1	2275	12186	0.00	0.82	0.41

Block map
State : BIHAR
District : MUZAFFARPUR
Block Name : MINAPUR

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Map Compiled by NIC

Legend

● District Head Quarters	AC Boundary
Sub district hqrs	Block boundary
District Boundary	Panchayat Boundary
State Boundary	Village boundary
Railway	National Highway
Other road	River

District : MUZAFFARPUR
Block Name : SAHEBGANJ

PURVI CHAMPARAN

HIMMAT PATTI

DHARAPALI

PARSAUNI GULAB PATTI

7KM

9KM

5 Km

GULAB PATTI

GULAB PATTI

TALCHORA

15
Kesaria

AARS...
10

J
8

ARJ

B

RAJEPUR

SARAI

8KM

SLI

8-9 km

1KM

HOSPITAL

S

2KM

JEETU

PAN...

6 KAL...

8KM

8 km

96
Baruraj
10

GHAURA

MAHDEHIYA

K

10-12 KM

BISHON PUR PA

12 KM

98
Sahebganj

M'8KM

SIMRA NANKA

7 KM

RA

GOPAL

KHIRI PAKA

SAHEDALLUR
10KM

RAMCHHAPRA 12 Km

15-16 Km

JAGDISH PUR

116
Taraiya

SARAN

HUSEPUR 14-16km

District : MUZAFFARPUR
Block Name : SARAIYA

Results so far..

District	Population screened (Population at Risk)	Population as per adjusted census	% of population screened	Suspects Identified VL	Suspects Identified PKDL	Suspects attending diagnostic camp VL (%)	Suspects attending diagnostic camp PKDL (%)	No of VL suspects attending camp diagnosed positive	No of PKDL suspects attending camp diagnosed positive	% of VL suspects attending camp diagnosed positive	% of PKDL suspects attending camp diagnosed positive	Point prevalence VL in PAR (based on % attending camp) x/10,000	Point prevalence PKDL in PAR (based on % attending camp) x/10,000
Muzaffarpur	336760	367238	93	862	163	78	96	18	63	1.9	53.2	**0.5**	**1.87**
Gopalganj	209286	205089	104	297	278	87	74	6	70	1.2	57.3	**0.3**	**3.34**
Godda	17244	15334	145	184	52	90	94	14	38	10.7	69.9	**8.1**	**22.04**
Total	563290	587661	114	1337	499	85	88	38	171	3.2	39.8	**0.7**	**3.04**

Cost per village screened : $1500
Cost per suspect case identified: $146
Cost per patient screened: $0.50
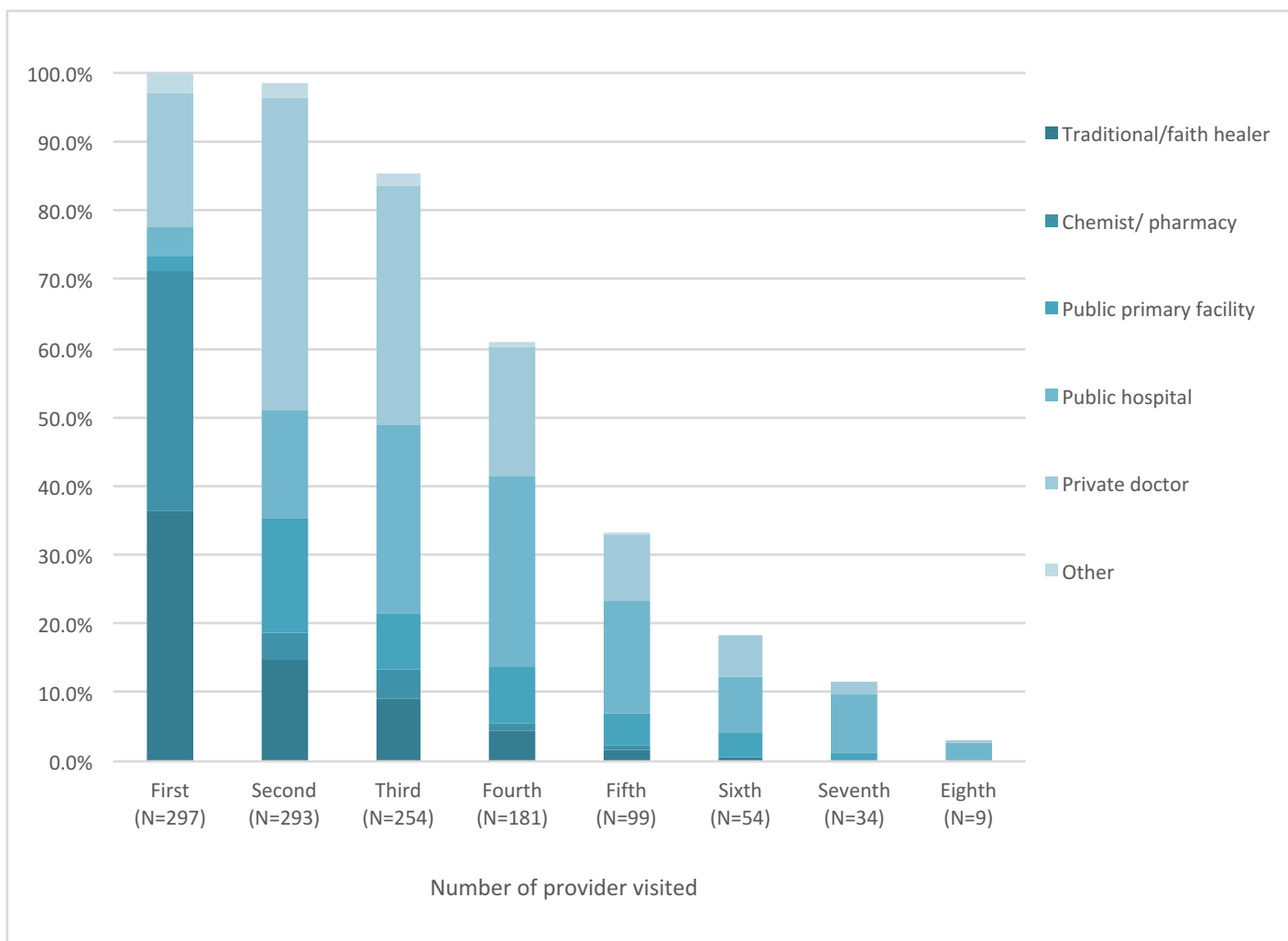Cost per positive diagnosis: $1299

Baseline evaluation of patients

District hospital	Number of respondents
Araria	25
East Champaran	25
Gopalganj	25
Katihar	24
Muzaffarpur	25
Purnea	25
Saran	25
Saharsa	25
Siwan	23
Sitamhari	25
Godda	25
Dhumka	25
TOTAL	297

- Cross sectional survey of 297 VL patients treated at 12 facilities across Bihar and Jharkhand (April-June 2016)

- Patients drawn from the HMIS

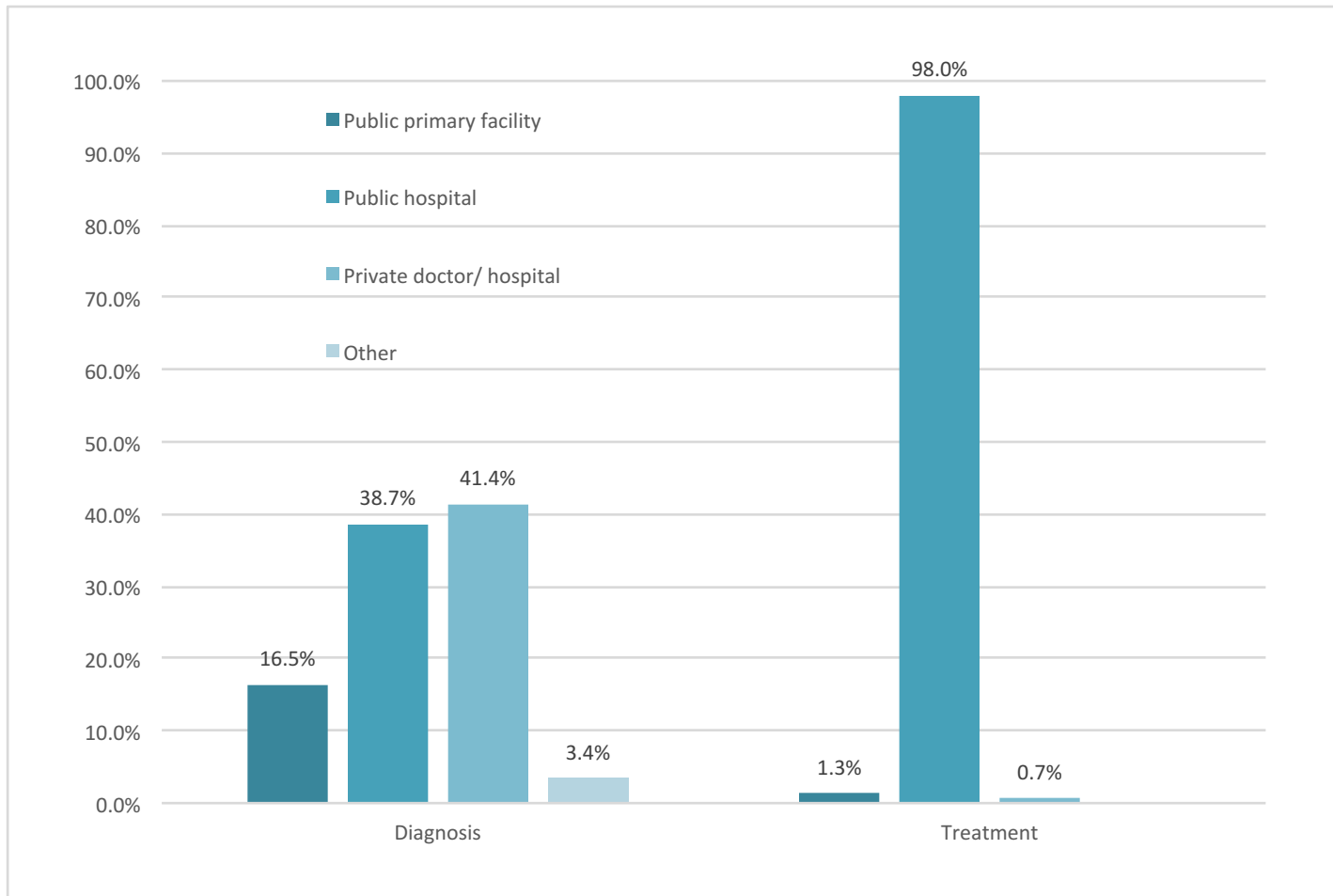- Household characteristics, treatment pathway, costs of VL

Time between onset of symptoms and (i) receiving a VL diagnosis and (ii) starting VL treatment

Variable	N	Median [IQR]	
		Number of days between symptoms and VL diagnosis	Number of days between symptoms and VL treatment
All patients	297	43 [21-78]	54 [31-94]
Region			
Bihar	247	44 [23-76]	55 [32-90]
Jharkhand	50	37 [10-110]	52 [20-129]
Sex			
Male	172	42 [19-83]	51 [26-97]
Female	125	46 [25-76]	57 [34-89]
Ethnic group			
SC	92	38 [23-60]	46 [32-71]
ST	57	46 [21-100]	62 [32-111]
Other	147	46 [20-90]	57 [29-110]
Age			
0-4 years	20	35 [23-75]	43 [36-92]
5-15 years	111	42 [19-81]	54 [29-95]
16-49 years	128	49 [25-76]	57 [31-90]
50+ years	38	35 [16-74]	49 [31-98]

Type of provider visited by order of visit during patient's VL episode (median 3, IQR 2-4)

Legend:
- Traditional/faith healer
- Chemist/ pharmacy
- Public primary facility
- Public hospital
- Private doctor
- Other

X-axis categories: First (N=297), Second (N=293), Third (N=254), Fourth (N=181), Fifth (N=99), Sixth (N=54), Seventh (N=34), Eighth (N=9)

X-axis label: Number of provider visited

Y-axis: 0.0% to 100.0%

Source of first confirmed VL diagnosis and source of VL treatment

IRS experiences of VL patients

Bihar (n=247):

- 70.4% offered IRS in last 12 months

- 83.3% accepted in all areas

- 14.9% in some areas

- 1.7% refused

Jharkhand (n=50):

- 68% offered IRS in last 12 months

- 38.2% accepted in all areas

- 61.8% in some areas

- 0% refused

Pre-post elimination implementation research priorities..

Diagnosis and Treatment of HIV/VL and PKDL

HIV-VL Coinfection

– HIV-VL emerging issue in India as proportion of VL cases reduces

– 'Super spreaders' of disease – estimated to be >400 times more infective than VL alone

– Poor treatment outcomes, recurrent relapses, reservoirs for resistance

– 58 cases treated by MSF in 2016;

– >50% living/diagnosed 3 districts where MSF is encouraging testing of all patients

– 25% (n=15) living in Vaishali district alone where MSF was based

- 11% (15/135) of all VL cases living in Vaishali in 2016 (until September)

– 86% (58/68) cases co-infected recorded in HMIS have been identified by MSF in 2016

PKDL

▪ Diagnosis and treatment of PKDL remains a major lacunae

▪ Do we even need to treat macular cases from the public good perspective?

▪ Current treatment is burdensome, teratogenic and very low compliance

▪ Innovative, field effective and replicable tests are needed

- ▪ ? Filter paper based finger prick/lesion aspirate LAMP
- ▪ Validation of qPCR

Pre-post elimination implementation research priorities..

- Who infects sandflies?
  - PKDL? Asymptomatics?
- Diagnosis of relapses
  - Very difficult with existing resources; need for innovative RDTs
- Vector Control
  - DDT phased out (>60% resistance), no rotational policy
  - Generally poor uptake and performance, role of bednets ambiguous
  - How and where is it needed to sustain this post elimination
- Lack of understanding of epidemiological curve
  - Natural decline vs impact of control programmes?
  - Better programmatic understanding of 'emergent and re-emergent' VL foci needed
  - Using WB and UP as pilot ground for post-elimination surveillance

When a virus and a parasite can work together so well, why can't we?

- Need to work outside disease silos
- Cross-disease collaboration may be as important as cross-border collaboration
- Need to focus on post-elimination strategies and new surveillance streams aside from "diagnosis-treat-report"