

Cross-sectional surveys in Bangladesh, India, Ethiopia & Sudan: understanding treatment seeking & household economic burden for VL patients

Lucy Paintain¹, Merce Hererro³, **Vikas Aggarwal**², Mark Pearson², Tansy Edwards¹, Atia Alatiaby³, Dinesh Mondal⁴, Kingsuk Misra², Cherinet Adera², M Prakash⁴, Mahmudur Rahman⁵, Shewaye Belay⁶, Bewketu Mengesha⁷, Gamal Khalid⁸, Yassen Hamed⁸, Mosab Alhag⁹, Mobarak Alnor⁹, Toby Leslie², Jose Postigo³, Daniel Argaw³, Margriet den Boer^{2,10}, Sakib Burza¹⁰, Jayne Webster¹

¹London School of Hygiene and Tropical Medicine (LSHTM), London, UK; ²KalaCORE; ³World Health Organization, Geneva, Switzerland; ⁴*International Centre for Diarrhoeal Disease Research, Bangladesh (iccdr,b)*, Dhaka, Bangladesh; ⁵Foundation for Research in Health Systems (FRHS), Bangalore, India; ⁶Mekelle University, Mekelle, Ethiopia; ⁷University of Gondar, Gondar, Ethiopia; ⁸University of Gedarf, Gedarf, Sudan; ⁹Ministry of Health, Khartoum, Sudan; ¹⁰Médecins Sans Frontières (MSF), London, UK



Background

- KalaCORE is a UKaid funded initiative to support control and elimination of visceral leishmaniasis in six countries:
 - Bangladesh, India and Nepal - supporting the South Asia regional VL elimination plan to reduce incidence to less than 1/10,000 people
 - Ethiopia, South Sudan and Sudan - enhancing capacity for VL control in the three highest burden countries in East Africa
- Consortium partners: DNDi, MSF, LSHTM, Mott Macdonald
- Working through national control programmes & in-country implementation partners
- Majority of KalaCORE-supported activities aim to improve access to high quality case management of VL (provider- and demand-side)



Study Rationale

- Recent evidence on treatment seeking & economic burden limited
- These surveys provide a baseline to identify where support from KalaCORE to VL control programmes can be targeted to improve patient management and access to care.



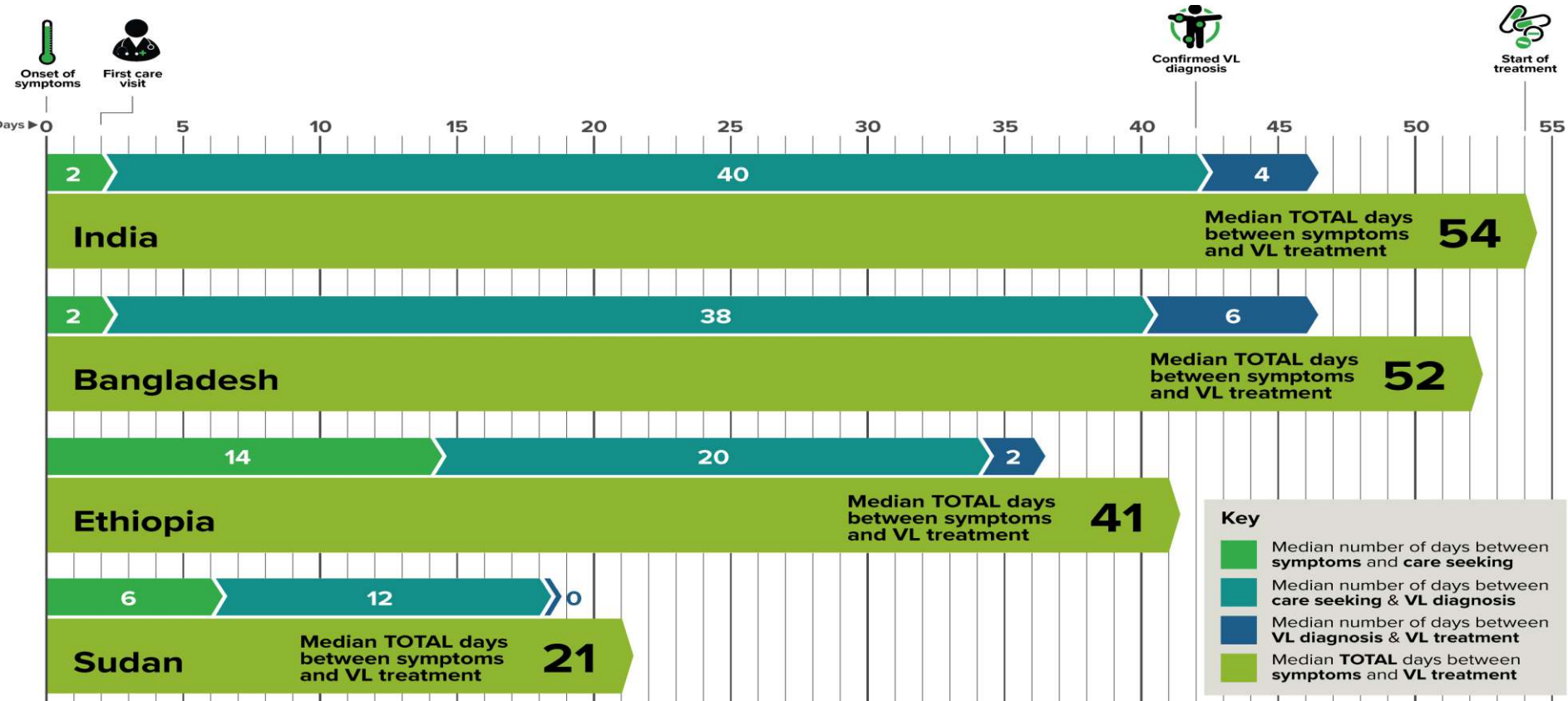
Evaluation design

- Cross sectional patient surveys at baseline and endline in endemic areas of Bangladesh, India, Ethiopia & Sudan
- VL patients recruited from health facilities
 - Sample size calculations were a balance between representativeness, statistical power and operational feasibility
 - Prospective and/or retrospective sampling
 - Max length of recall 3 months
- Structured questionnaire
 - Patient & household characteristics
 - Treatment pathway for current VL illness episode
 - Financial & economic costs of VL illness to the patient/ household
- Ethical approval obtained in-country and from LSHTM



	Bangladesh	India	Ethiopia	Sudan
What is the cause of VL				
Sandfly	10.3%	8.1%	10.8%	39.6%
Insect/ mosquito	8.1%	25.6%	36.0%	7.1%
Trees	-	-	21.6%	4.4%
Don't know	80.9%	67.0%	10.4%	51.1%
How can VL be prevented				
Sleep under a net	7.4%	30.0%	48.8%	26.2%
IRS	0.7%	7.4%	6.4%	3.1%
Clean environment	10.3%	18.9%	15.6%	4.4%
Sleep on a bed	-	-	12.0%	-
Don't know	82.4%	66.3%	13.9%	67.6%
Effective treatment for VL				
SSG	12.5%	-	20.4%	21.8%
SSG+PM	-	-	1.6%	16.9%
Injections	-	-	34.0%	-
AmBisome	35.3%	9.8%	-	-
Don't know	52.9%	89.2%	14.5%	64.9%
% respondents seen/heard a health education message about VL <12mo	0.7%	33.7%	21.6%	15.6%

	Bangladesh	India	Ethiopia	Sudan
Number of health facilities	17	12	8	9
Total number of patients sampled	136	297	251	225
Percentage of male patients	61.8%	57.9%	96.4%	68.4%
Median age of sampled patients [IQR]				
Male	30 [14-47]	22 [10-39]	23 [20-29]	13 [7-24]
Female	23 [14-35]	15 [10-32]	26 [16-30]	12 [7-17]
Median number of providers visited during illness [IQR]	5 [3-5]	4 [3-5]	3 [2-4]	3 [2-4]
Place of first VL diagnosis				
Public primary facility	7.4%	16.5%	24.0%	1.8%
Public hospital	53.7%	38.7%	54.4%	82.2%
Private doctor/facility	37.5%	41.4%	6.4%	9.8%
NGO facility/other	1.4%	3.4%	15.2%	6.2%
% treated at same place as VL diagnosis received	36.8%	37.7%	86.5%	76.0%



	Bangladesh	India	Ethiopia ²	Sudan
Mean total MEDICAL cost of illness to household, 2016 USD [95% CI]	123.53 [101.71, 145.35]	63.09 [47.13, 79.04]	39.16 [28.50, 49.82]	75.67 [46.31, 104.87]
Mean total NON-MEDICAL cost of illness to household, 2016 USD [95% CI]	66.47 [34.99, 97.96]	45.04 [29.97, 60.13]	63.41 [44.44, 82.48]	227.47 [79.28, 375.67]
Mean total ECONOMIC cost of illness to household, 2016 USD [95% CI] ¹	360.46 [289.50, 431.41]	259.34 [206.75, 311.93]	177.96 [140.74, 215.22]	322.29 [114.60, 529.98]
% households facing catastrophic EXPENDITURE ³	16.4%	7.2%	7.5%	3.7% ⁵
% households facing catastrophic COSTS ⁴	51.1%	41.1%	35.4%	46.2% ⁵

¹ Economic costs include direct medical & non-medical costs plus lost income for patient (all four countries) and lost income for caretakers (Bangladesh & India only); ² Costs for Ethiopia presented here exclude patients treated at Abdurafi and Gondar hospitals (where all direct VL-associated costs are supported by MSF and DNDi, respectively); ³ Out-of-pocket medical costs exceeded 20% average annual household expenditure; ⁴ Total economic costs exceeded 20% average annual household expenditure; ⁵ Based on data from only 36.9% (81) of patients who were able to estimate household expenditure

	Bangladesh	India	Ethiopia	Sudan
% patients that had to use savings to cover costs	25.7%	42.4%	44.0%	59.6%
% patients that borrowed money to cover costs	69.6%	75.1%	16.0%	46.2%
% patients that sold crops or livestock to cover costs	26.7%	15.4%	12.4%	54.2%



Cost drivers

- In Bangladesh, greatest financial cost categories were: treatment, diagnostics, transport
- In India: treatment, diagnostics, food
- In Ethiopia: food, transport, treatment
- In Sudan: food, treatment, diagnostics
- In all countries: zero/minimal treatment costs at provider where VL treatment received
 - Free treatment policies largely being adhered to
 - Substantial costs for diagnoses & treatment seeking before receiving VL treatment



Challenges in evaluation design

- Focal nature of VL (in time and space)
- Relatively small numbers of patients
- Varying epidemiology across and within countries
 - Risk groups (age, gender, seasonal workers/residents)
 - HIV prevalence, relapses
 - PKDL
- Different treatment policies across countries (length of treatment, inpatient/outpatient)
- Length of illness – issues of recall
- How to measure economic burden on households
- Only measuring those patients that have accessed care



Conclusions

- VL illness results in substantial economic burden for patients and their households, largely due to financial costs incurred before receiving a VL diagnosis and loss of income to patients and/or their caretakers.
- However, financial risk protection (providing free diagnostics and drugs) is insufficient – there is a need for broader social protection to cover non-medical costs and loss of income for patients and caretakers
- The KalaCORE project will contribute to the VL control programmes in Bangladesh, India, Ethiopia and Sudan to reduce the time between onset of symptoms and start of treatment through patient- and provider-side interventions.





Acknowledgements

- Cherinet Adera
- Atia Alatiaby
- Sakib Burza
- Daniel Argaw Dagne
- Margriet den Boer
- Tansy Edwards
- Merce Herrero
- Toby Leslie
- Kingsuk Misra
- Lucy Paintain
- Lucy Palmer
- Mark Pearson
- Jose Ruiz Postigo
- Jayne Webster

Survey implementing partners

- icddr,b (Bangladesh)
- Foundation for Research in Health Systems, FRHS (India)
- Gondar University, Mekelle University, Amhara & Tigray Regional Health Bureaus (Ethiopia)
- University of Gedaref (Sudan)



Thank You

KalaCORE is a partnership to support control and elimination of visceral leishmaniasis in South Asia and East Africa.

The programme brings together Drugs for Neglected Diseases initiative (DNDi), London School of Hygiene and Tropical Medicine, Médecins Sans Frontières and Mott MacDonald, the managing agency.



The Programme is funded by UK Aid from the British people.

Control and Elimination of
Visceral Leishmaniasis

