COR-NTD 2015
Philadelphia, PA, October 22-23

Breakout Group Summary Report

This document is intended to capture the key outputs of your breakout discussion, and to be representative of the group as a whole. Please denote your group's topic, presentations and research priorities before the start of the session, and dedicate the latter portion of your session to determining the key discussion points, knowledge gaps and recommended steps. Also, please indicate whether your group's recommendations align with the specified initial priority target. Your report will be shared on the NTD-SC website, and will inform future advisory panel discussions and donor priorities.

Section I

To be filled out before the session begins.

Breakout Topic:

1D: Visceral Leishmaniasis: How do we measure success?

Presentations:

Note: session focused on VL elimination in the Indian sub-continent and how we would measure success

- Shyam Sundar "Overview of VL in the Indian sub-continent"
- Shyam Sundar "Update on diagnostic and clinical research"
- Graham Medley "Diagnostics required for reaching and sustaining elimination"
- Mike Coleman "The potential and challenges of IRS for VL control"
- Lloyd Chapman "The pool of asymptomatics"
- Sake de Vlas "Feasibility of eliminating VL from the India sub-continent: explorations with a set of deterministic age-structured models"

Research priorities to be discussed:

I) Is indoor residual spraying an effective control measure?
II) Is faster identification and treatment of cases, or potential cases, an effective control measure?
III) Do asymptomatics provide a pool of infection that can undermine the elimination effort?
IV) What additional studies are needed to inform the elimination program and post-elimination surveillance?

Form continues on the next page.

COR-NTD 2015
Philadelphia, PA, October 22-23

Section II

To be filled out as the session concludes.

What were your group's key discussion points?

- Discussion of historical burden of VL in India, and recognition that current programming has had an impact, given the decline in the number of VL cases in the past 5-10 years.
- Advances in diagnostics (e.g. rK39 dipstick) and therapy (i.e. antimony vs miltefosine vs AmBisome vs paromomycin vs combination therapy) have been made which have resulted in more rapid and better cure rates in VL patients. Note radical cure is not achieved and if combination therapies are rolled out DOTS may be necessary; serology such as rK39 dipstick management practices are available in the private sector facilities, but a challenge is how patient data is reported from these facilities.
- Achieving/sustaining elimination: Nepal and Bangladesh are on track to VL elimination, why not India? What are the programmatic differences – is it just a matter of geographical scale? VL in the Indian sub-continent is anthroponotic, but the contribution of asymptomatic cases vs symptomatic cases vs cured patients vs PKDL is unclear; also, is there an animal reservoir?
- Operational programming: unclear what programmatic inefficiencies are and how these decrease efficacy of interventions.
- Health seeking behavior is/has been different between Nepal, India and Bangladesh – do these differences explain regional differences in success of operational programming? In India and Bangladesh patients access services quickly, but as a result VL symptomatology is unspecific, and there is a delay between patients accessing services and receiving a confirmed VL diagnosis and treatment. Key to elimination efforts is diagnosing patients as early as possible – reduces risk for severe disease and reduces population-level infectiousness to sand fly vectors. A test for pre-clinical VL would be a solution – modelling shows how such a test could have significant impact on elimination efforts; test's specificity is critical and more important than sensitivity in order to avoid false positives.
- There is widespread sand fly resistance to DDT in India; residual efficacy is less than expected 6 months; >95% susceptibility of sand flies to malathion and pyrethroids. Major issue around spray quality, as QA/QC efforts have shown that in most districts spraying quality is poor, with most households having less than the adequate minimum dose of insecticide per square meter applied onto walls.
- Infectiousness of VL – previous modelling suggested asymptomatics might contribute most to transmission, rather than symptomatic, cured or PKDL cases, due to their high numbers in the estimated model parameters. More recent data analysis suggests the pool of asymptomatics is much smaller, but that the pre-symptomatic and asymptomatic period may be 3-4 months.
- While more complete data on infectiousness would be very helpful (a xenodiagnostic study is underway), longitudinal data on progression from asymptomatic to symptomatic to cured to PKDL would be more useful to test some of the modelling assumptions.
- For some model assumptions, depending on endemicity, even optimal IRS may not yield VL elimination, and other interventions will be needed.

Form continues on the next page.

What knowledge gaps (if any) did your group identify?

For elimination to be achieved on the Indian subcontinent it is imperative that interventions currently being implemented – including diagnosis and treatment, and vector control – are implemented at maximum coverage and to a high quality. Additionally, the following gaps should be addressed:
- spatial and temporal dynamics of VL at the community and household level – little longitudinal data available
- what is the most appropriate surveillance method given the limitations of case detection, particularly when cases become rare and are therefore less likely to be identified?
- what is the most appropriate response in the event of resurgence?
- there is considerable variation in model assumptions about the relative importance of symptomatic cases to infection in sandflies and disease incidence. The transmission dynamics of VL are very different if the majority of infection is from symptomatic cases vs from asymptomatics.

What next steps does your group recommend?

- A longitudinal study that collects both vector and human data in the same place at the same time, while VL incidence is declining
- Use of this data to propose targets for measuring progress towards elimination
- New analyses to develop post-elimination surveillance and response strategies

Do your recommended steps align with the research priorities identified on page 1? ◉ Yes ○ No