The lymphatic filariasis treatment study landscape: a systematic review of study characteristics and the case for an individual participant data platform

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Background

- Lymphatic filariasis (LF) is a neglected tropical disease (NTD) targeted by the World Health Organization for elimination as a public health problem
- Nearly 900 million people yearly require mass drug administration with combinations of albendazole, diethylcarbamazine and/or ivermectin
- Gaps in understanding of variation in treatment responses could be addressed by individual participant data (IPD) meta-analyses
- IDDO has a growing portfolio of NTD data reuse platforms using principles of Findability, Accessibility, Interoperability, and Reusability (FAIR)

Aims & objectives

- Identify prospective studies assessing responses to LF treatment and/or morbidity management and disease prevention (MMDP) approaches published since 2000 (Fig. 1)
- Extract study meta-data to summarise the study landscape
- Estimate abundance of LF IPD data on pre- and post-intervention indicators of infection and/or morbidity
- Assess feasibility of building a global data repository

Key findings

- 29,842 IPD from 138 studies conducted in 23 countries: over half in Southeast Asia (Fig. 2 & 3)
- 83 studies published from 2000 to 2010 generated an estimated 12,237 IPD; 55 studies published from 2011 to 2022 generated 17,605 IPD (Fig. 3)
- 14,800 (~50%) IPD on infection indicators including microfilaraemia, circulating filarial antigen and/or ultrasound indicators measured before and after treatment interventions using 8 drugs administered in various combinations
- 6,102 (~20%) IPD from 33 studies on morbidity indicators measured before / after MMDP interventions
- 8,940 IPD (~30%) IPD on both infection and morbidity indicators
- Most frequent follow up time was 12 months post-intervention; 13 studies followed up participants for more than 5 years (Fig. 4)

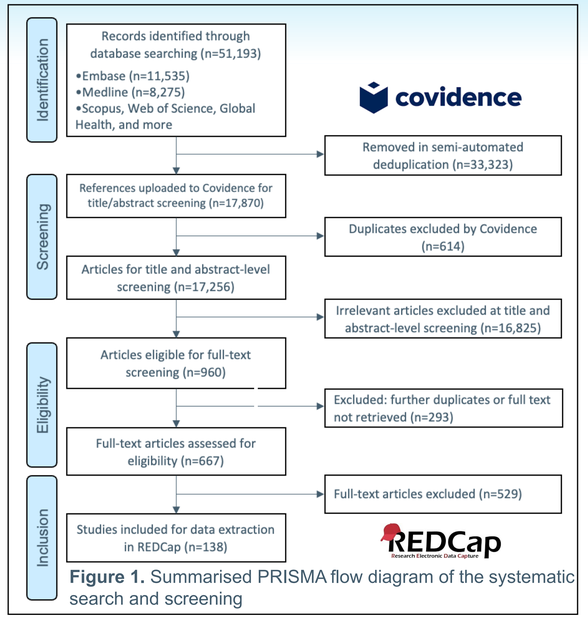

Figure 1. Summarised PRISMA flow diagram of the systematic search and screening

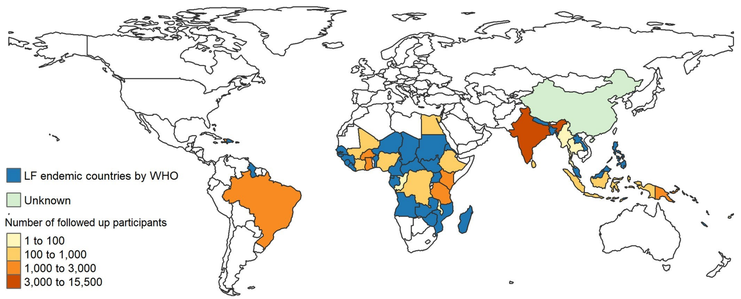

Figure 2. Geographical coverage of studies collecting data on LF infection or morbidity responses to treatment

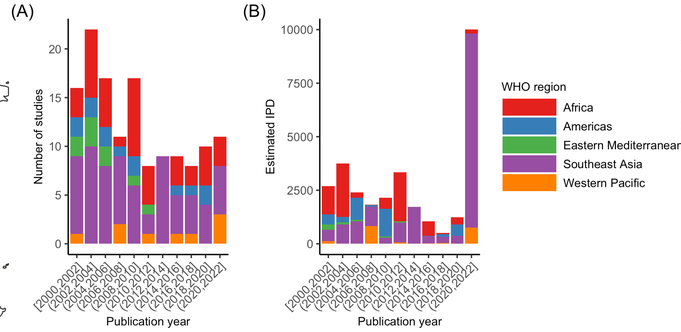

Figure 3. Frequency distribution (A) and estimated IPD (B) of 138 studies generating IPD on LF infection and morbidity measured pre- and post-intervention grouped by year of study publication.

Conclusions

- There is a rich source of IPD on LF infection and morbidity that could be valuable in improving understanding of factors that shape variability in responses to LF treatment
- An IPD data sharing & reuse platform could maximise power and utility of these data
- Engagement with the LF research community is essential in seeking commitment to effective and equitable data sharing and in defining and prioritising research questions that could be tackled with an operational data sharing and reuse platform

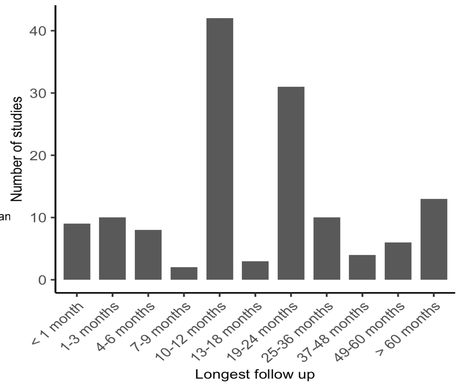

Figure 4. Frequency distribution of 138 studies generating IPD on LF infection and morbidity measured pre- and post- intervention grouped by months of longest follow up.

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