

Diagnostics for STH: MDA decisions and TPP



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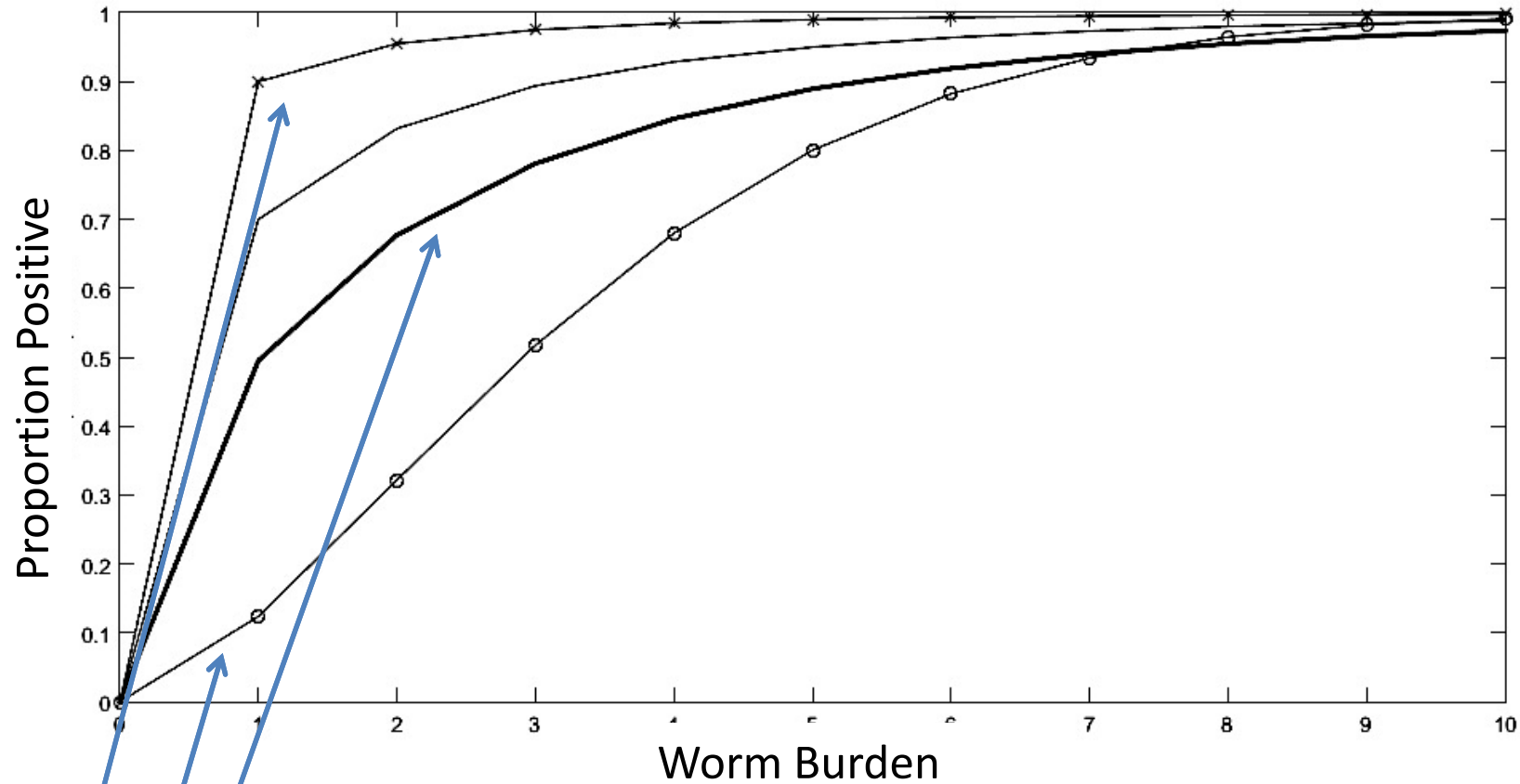
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BILL & MELINDA
GATES foundation

Medley, G.F., Turner, H.C., Baggaley, R.F., Holland, C., Hollingsworth, T.D. (2016). The Role of More Sensitive Helminth Diagnostics in Mass Drug Administration Campaigns: Elimination and Health Impacts. *Advances in Parasitology*, Volume **94**, pp. 343–392. <http://dx.doi.org/10.1016/bs.apar.2016.08.005>

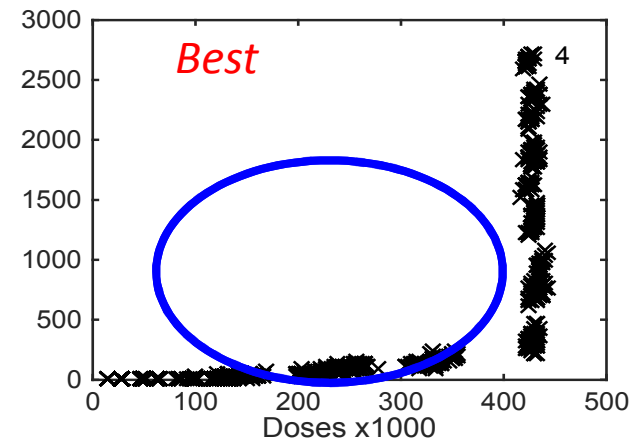
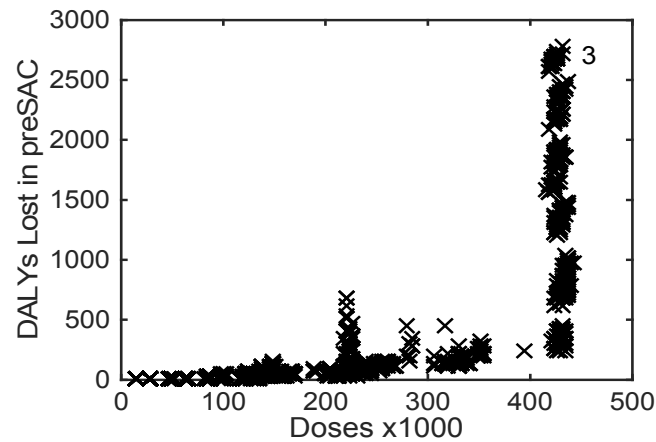
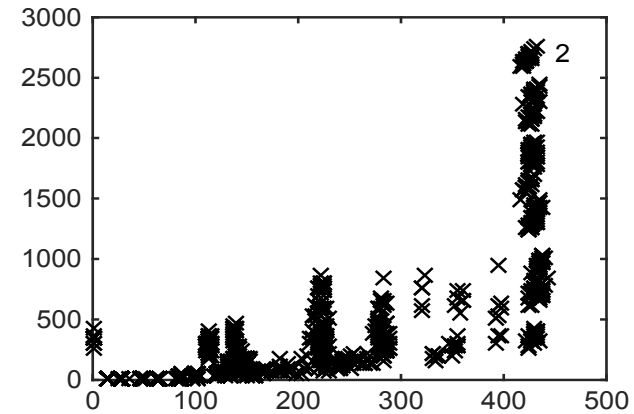
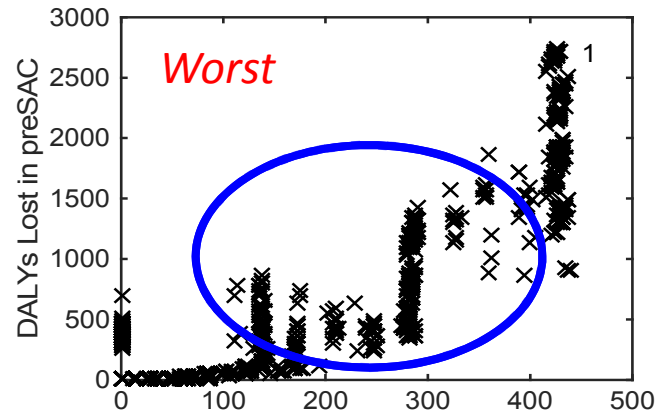


Fitted relationship from research study

Worst sensitivity – probably the most realistic for field

Best sensitivity – high single worm sensitivity

DALYs Lost in PreSAC



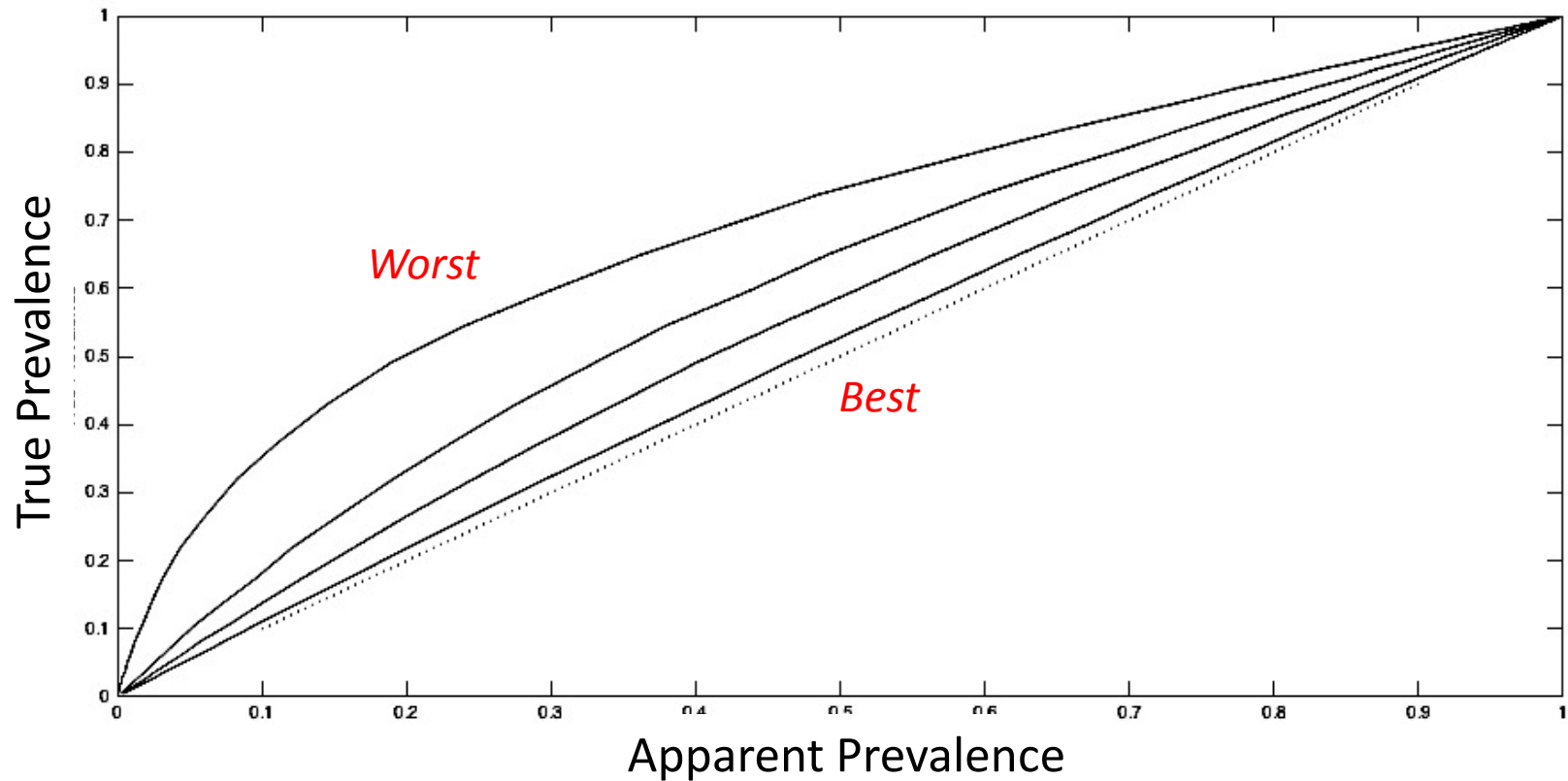
Increasing sensitivity of diagnostic results in better control where possible – more chemotherapy in mid-prevalence communities

Diagnosics Influence MDA Decisions

- The impact of improved (more sensitive) diagnostics for STH depends on their use for decision-making
 - Guidelines (e.g. 30% threshold) are based on APPARENT prevalence
 - Create a barrier to improved diagnostics – what is 30% by KK in terms of a different diagnostic?
- APPARENT prevalence is different from TRUE prevalence
 - Discrepancy changes with true prevalence
 - True prevalence is never known

Target Product Profiles

- Diagnostic influences
 - Individual-level sensitivity and specificity
 - Pooling of samples
- Epidemiological influences
 - Sources of heterogeneity – sampling frames
 - Systematic non-compliance
 - Spatial & population effects
- Economics
 - Cost (value) of prevalence estimates vs. Human and financial costs of incorrect decisions
 - Epidemiology
 - Transport, labour, sample size
 - Diagnostic
 - Type of sample; Laboratory requirements
- For a given diagnostic, how would it best be used and what is the impact on MDA decisions to stop and re-start



APPARENT prevalence is different from TRUE prevalence,
and the discrepancy changes with true prevalence
True prevalence is never known