Moving beyond school-based deworming: impact and implications of expanding treatment to communities in Kenya

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Committed to achieving the targets for 10 NTDs including soil transmitted helminths
NTDs have also now been included within the Sustainable Development Goal targets

Global landscape of STH control

• The London Declaration on neglected tropical diseases (NTDs) was signed in Jan 2012
• Committed to achieving the targets for 10 NTDs including soil transmitted helminths
• NTDs have also now been included within the Sustainable Development Goal targets
Rethinking deworming in Kenya

**AIM:** to eliminate worms as a public health problem in Kenya

**FIRST FIVE YEARS:** prevalence fell substantially, but kept bouncing back

**WHAT NEXT:** Modelled impact of treatment strategies for hookworm

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*Six million children treated in the 21 counties with the highest need in 2015*

Map: CIFF

Photo: ©Katherine Halliday

Anderson et al. 2015 PLoS NTDs
**AIM:** To evaluate the impact and cost-effectiveness of community-based versus school-based deworming on STH transmission in Kenya.
Kwale County
120 community units
~120,000 households

Baseline Survey (2015): Cross-sectional survey 225 people per cluster

40 clusters
Control
(2 – 14 years)

40 clusters
Increased coverage
(2 -99 years)

40 clusters
Increased coverage & frequency
(2 – 99 years x 2)

Year 1 Intervention:

Year 2 Intervention:
Impact Survey (2017): Cross-sectional survey of 225 people per cluster
Baseline: STH infections in Kwale

**Hookworm Prevalence**
- 0%
- <1%
- 1% - <10%
- 10% - <20%
- 20% - 62.67%

Mean prevalence: 19.0% (95% CI 16.4-21.6)

**Trichuris Prevalence**
- 0%
- <1%
- 1% - <10%
- 10% - <20%
- 20% - 35.42%

Mean prevalence: 3.7% (95% CI 2.6%-4.7%)
>423,000 Community members treated per MDA round

66,978 Individuals included in baseline, midline and endline surveys
Impact results – hookworm infection

- Reductions in the numbers infected across all arms
- Largest reductions seen for annual and biannual community-wide treatment
- \textbf{\sim 40\% and \sim 50\%} reductions in hookworm risk after two years of annual and biannual treatment respectively
- Similar results for hookworm intensity
- Results correspond to model predictions developed when designing the trials
Equitable delivery platform

• Coverage was high: ~80% children reached through communities or schools

• Effect of community-based intervention was equal across:
  • poorest and least poor households
  • most remote, and accessible households
  • school-going and non-school going children
  • those with and without access to adequate sanitation
In summary....

Community-wide treatment is shown to be more effective in reducing transmission than school-based treatment

• Large impact on the prevalence of hookworm
• Results matched model predictions
• Consistently good coverage was achieved
• The intervention was highly equitable
• The intervention can be delivered successfully at scale
So what now...?

• If we continue, will it continue on the same trajectory?

• How cost effective and acceptable is this strategy?

• Is this reproducible in other contexts?
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Treatment Coverage

Control (children 86.9%)

+ Coverage (children 81.6%; adults 62.9%)

+ Coverage & frequency (children 84.4%; adults 58.8%)

Each dot = a cluster

- 2-14 years
- 15+ years

MDA 1 MDA 2 MDA 3 MDA 4

(children 81.6%; adults 62.9%)

(children 84.4%; adults 58.8%)

(children 86.9%)
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