Economic evaluations
of mass drug administration

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Mass drug administration

• Several NTDs are controlled by using mass drug administration (Known as MDA).

• I will give an overview of some of our health economic research on MDA within the LCNTDR.

Sources: USAID, Gebre et al. 2015
Costs of MDA and economies of scale

- Reviewed the costings studies on MDA.
- The cost per treatment varied across different settings.
- Partly due to economies of scale.

Data from Brooker et al. (2008)
Why this matters

- Projections support the scaling-up of MDA

Why not use selective treatment?

• Why treat everyone?
  • Could use selective treatment — where only those infected are treated?

• HOWEVER, testing for infection costs $2-5 per sample!

• Even though MDA uses more drugs, it is CHEAPER and MORE EFFECTIVE then using selective treatment.

• We worked with the WHO on this when informing the latest deworming guidelines.
How cost-effective is MDA? The GPELF as a case study

• 1.3 billion people in 73 endemic countries at-risk of LF.
  • In 2000, the WHO formed the GPELF.

• Between 2000 and 2014, it delivered 5.6 billion treatments.

• We estimated that:
  • At a cost of ≈US$3 billion.
  • Will stop 175 million healthy life years being lost to LF
  • Equals US$29 per healthy life year saved.

(Turner et al. CID 2017)
Economic benefits of the GPELF

• Over $100 billion in potential economic loss will be averted over the lifetime of those treated by the GPELF
  • -> Long term economic benefits are 30 times the programmes costs.

• Useful for policy makers and advocacy group in justifying continued investment in NTD control.

(Turner et al. CID 2017)
Key messages

• MDA can be very cost-effective and it can generate economic benefits.

• However, the MOST cost-effective approach WILL depend on the local setting.

• Need to tailor the strategy to the local context more.
Thanks for listening

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Community health volunteers

• In many countries MDA is delivered by a volunteer.

• The average economic value of their unpaid time is between **US$0.06-0.09 per treatment for MDA.**

• With the African Programme for Onchocerciasis Control the time the volunteers donated would be valued between **US$60-90 million.**

• **Highlights that the endemic communities are also making significant commitments to NTD control!!**
  • Useful for policy makers for understanding the sustainably of using volunteers.

(Turner et al. In prep)
Estimating the cost-effectiveness of MDA against filarial worms

- We have performed several economic evaluations of interventions against the filarial worms:

  - **River blindness**: US$11 per healthy life year saved in high burden settings
  - **Lymphatic Filariasis**: US$29 (14–48) per healthy life year saved
    - The GPELF would also generate up to US$100 billion in economic benefits.

- Useful for policy makers and advocacy group in justifying continued investment in NTD control.
<table>
<thead>
<tr>
<th>Drug</th>
<th>Average Cost/Economic Value per Treatment</th>
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<tbody>
<tr>
<td>DEC</td>
<td>$0.044</td>
</tr>
<tr>
<td>ALB</td>
<td>$0.052</td>
</tr>
<tr>
<td>IVM</td>
<td>$4.635</td>
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</tbody>
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**Treatment delivery cost type** | **Average Cost Per Treatment (95% Confidence Interval)**
--- | ---
Financial costs               | $0.46 ($0.21--$0.76)  
Economic costs excluding DDV  | $0.56 ($0.25--$0.94)  
Economic costs including DDV /overall average of the Global Programme to Eliminate Lymphatic Filariasis | $1.32 ($1.00--$1.69)  
Economic costs including DDV (IVM and ALB regimen)  | $5.25 ($4.93--$5.62)  
Economic costs including DDV (DEC and ALB regimen)  | $0.66 ($0.34--$1.03)  

*Prices were adjusted to 2014 US dollars [11]. When estimating the delivery costs, we used the model parameterization [3,10] relating to the use of paid health workers and not community volunteers (resulting in a higher unit delivery cost). Further description is provided in Supplementary Tables S4 and S5. The total cost of the program for 2000–2014 was estimated by multiplying the relevant unit costs by the numbers treated [12] for each year over this time period.

Abbreviations: ALB, albendazole; DDV, donated drugs value; DEC, diethylcarbamazine; IVM, ivermectin.

<sup>a</sup> Includes a wastage factor of 10%.