Scabies and impetigo in Timor-Leste

A school screening prevalence study

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The scourge of scabies

• Common and important skin condition but often neglected
• Scabies affects more than 130 million people globally (WHO)
• Disease of poverty
  • Household crowding
  • Low socioeconomic groups
  • Poor access to healthcare
• Parasitic skin infection caused by *Sarcoptes scabiei*
The importance of impetigo

Engelman et al. PLoS NTD. 2013
What is known in Timor-Leste

- Bacterial sepsis common but poorly defined
- Acute glomerulonephritis occurs but etiology unknown
- Rheumatic heart disease is common and devastating

Table 1 Infections identified by age group and type, Timor-Leste, September 2007.

<table>
<thead>
<tr>
<th>Age Group in years</th>
<th>No infection identified</th>
<th>Fungal</th>
<th>Scabies</th>
<th>Pyoderma</th>
<th>Leprosy</th>
<th>Yaws</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5 (n = 100)</td>
<td>18 (18.0)</td>
<td>24 (24.0)</td>
<td>58 (58.0)</td>
<td>30 (30.3)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>6 to 10 (n = 145)</td>
<td>60 (41.3)</td>
<td>44 (30.3)</td>
<td>38 (26.0)</td>
<td>18 (12.3)</td>
<td>1 (0.7)</td>
<td>3 (2.0)</td>
</tr>
<tr>
<td>11 to 15 (n = 483)</td>
<td>223 (46.1)</td>
<td>195 (40.4)</td>
<td>71 (14.7)</td>
<td>34 (7.0)</td>
<td>5 (1.0)</td>
<td>3 (1.0)</td>
</tr>
<tr>
<td>16 to 20 (n = 486)</td>
<td>254 (52.2)</td>
<td>175 (36.0)</td>
<td>50 (10.3)</td>
<td>22 (4.5)</td>
<td>11 (2.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>21 to 30 (n = 101)</td>
<td>40 (40.0)</td>
<td>49 (48.0)</td>
<td>11 (11.0)</td>
<td>4 (4.0)</td>
<td>4 (4.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>31 to 50 (n = 153)</td>
<td>52 (34.0)</td>
<td>77 (50.3)</td>
<td>27 (18.0)</td>
<td>3 (2.0)</td>
<td>6 (4.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>over 50 (n = 67)</td>
<td>27 (40.3)</td>
<td>29 (43.2)</td>
<td>11 (16.4)</td>
<td>1 (0.9)</td>
<td>2 (3.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Total (n = 1535)</td>
<td>674 (44.0)</td>
<td>593 (39.0)</td>
<td>266 (17.0)</td>
<td>112 (7.0)</td>
<td>29 (2.0)</td>
<td>6 (0.4)</td>
</tr>
</tbody>
</table>

Dos Santos et al. BMC Infect Dis. 2010
Goals

• To determine the prevalence of scabies and impetigo in school children in urban and rural settings in Timor-Leste

• To investigate epidemiological associations of skin disease affecting this cohort of children

• Improved understanding of epidemiology is needed in order to design and implement appropriate treatment and prevention strategies at a community level
Methods

• Screening for school students aged 5-24
• 3 schools in 2 districts
  • Opt-out consent
  • Demographics
  • Anthropometry
  • Echocardiography
  • Skin examination
Study Sites

Study sites within Timor-Leste: Dili and Ermera
Skin examination
### Demographic

<table>
<thead>
<tr>
<th></th>
<th>Dili (n=502)</th>
<th>Ermera (n=894)</th>
<th>Total (n=1396)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>254</td>
<td>483</td>
<td>737</td>
</tr>
<tr>
<td>Male</td>
<td>248</td>
<td>411</td>
<td>659</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-9</td>
<td>233</td>
<td>179</td>
<td>412</td>
</tr>
<tr>
<td>10-14</td>
<td>266</td>
<td>349</td>
<td>615</td>
</tr>
<tr>
<td>15-19</td>
<td>3</td>
<td>290</td>
<td>293</td>
</tr>
<tr>
<td>20-24</td>
<td>0</td>
<td>76</td>
<td>76</td>
</tr>
<tr>
<td><strong>Anthropometry</strong> (median z-score (range))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight for age</td>
<td>-1.48 (-4.34 – 2.67)</td>
<td>-1.79 (-4.93 – 1.28)</td>
<td>-1.65 (-4.93 – 2.67)</td>
</tr>
<tr>
<td>Height for age</td>
<td>-0.66 (-3.46 – 3.97)</td>
<td>-1.67 (-5.39 – 2.70)</td>
<td>-1.35 (-5.39 – 3.97)</td>
</tr>
<tr>
<td>Body Mass Index for age</td>
<td>-1.78 (-4.91 – 2.89)</td>
<td>-1.19 (-4.17 – 1.65)</td>
<td>-1.39 (-4.91 – 2.89)</td>
</tr>
<tr>
<td><strong>People per household</strong></td>
<td>Median 6 (range 1-16)</td>
<td>Median 8 (range 2-16)</td>
<td>Median 7 (range 2-46)</td>
</tr>
</tbody>
</table>
Scabies

• Total: 312/1396 (22%)
  • Dili: 26/502 (5%)
  • Ermera: 286/894 (32%)
  • aOR 8.1 (95% CI 5.2-12.4)

• Males more likely than females
  • aOR 1.4 (95% CI 1.0-1.8)

• 1 with crusted scabies
Impetigo

- Total: 136/1396 (10%)
  - Dili: 41/502 (8%)
  - Ermera: 95/894 (11%)

- No significant differences across gender, age, location

- 68% had evidence of either active or healed impetigo
Treatment

• Students with active skin lesions were referred to the local clinic
• Limited resources were available to treat children with severe infections
• Anticipate that many would not have been able to access appropriate treatment.
Discussion

- Socially disadvantaged population
- High prevalence of scabies and impetigo
- Higher rates in a rural district
- Limited treatment options

- Community awareness and education
- Improved access to effective treatment
- Consideration for community-wide strategies
Acknowledgements

• Joshua Francis
• Kim Davis
• Annette Applebe
• Ivonia Mascarenhas
• Ines Teodora
• Asha Bowen

• Hospital Nacional Guido Valadares
• St John of God Healthcare
• East Timor Hearts Fund
• Bairo Pite Clinic
• DFAT
• Pfizer