



Swiss TPH Winter Symposium 2017

Helminth Infection – from Transmission to Control

Elimination of Urogenital Schistosomiasis in Zanzibar: Results of a 5-Year Multidisciplinary Integrated Intervention Approach

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Urogenital schistosomiasis in Zanzibar

Before 1990:

Unguja: >50% in high risk areas (Mgeni et al., 1990)

Pemba: >60% of the population (McCullough and Kraft, 1976)

→ Morbidity control: preventive chemotherapy

→ Increased access to safe water

→ Climatic and environmental changes

In 2012:

Unguja: children 3.9%, adults 2.7%

Pemba: children 8.1%, adults 5.5%

→ Transmission control and elimination



Zanzibar Elimination of Schistosomiasis Transmission (ZEST) Alliance

Elimination of urogenital schistosomiasis is a priority for:



SCORE

Zanzibar
President



SCI

WHO



BMGF



NHM

Swiss TPH



Zanzibar Ministry of Health

Helminth Control Laboratory Unguja

Public Health Laboratory – Ivo de Carneri Pemba



Goals

- 1) Control schistosomiasis throughout Pemba (prevalence $<10\%$) in 3 years and eliminate it as a public health problem (heavy infection intensities $<1\%$) in 5 years
- 2) Eliminate schistosomiasis as a public health problem (heavy infection intensities $<1\%$) on Unguja in 3 years and interrupt transmission in 5 years
- 3) Assess the effectiveness and costs of different interventions
- 4) Draw lessons for schistosomiasis elimination programmes in Africa and elsewhere

Cluster randomized intervention trial with 3 study arms

MDA only



MDA + snail control

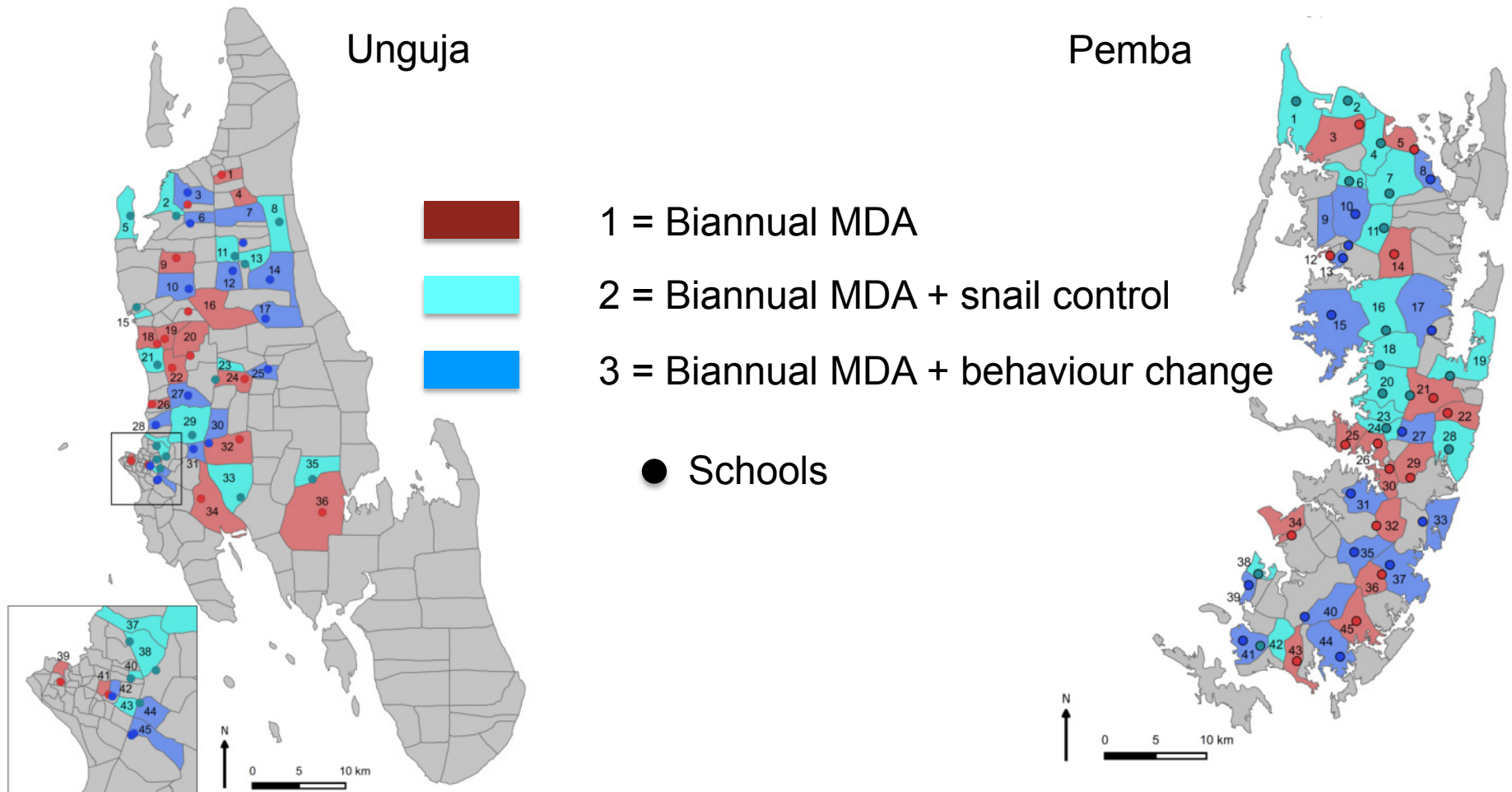


MDA + behaviour change interventions



- Each intervention arm includes 15 shehias on Unguja and Pemba ($n=2 \times 45$)
- Annually: urine examination of 100 schoolchildren (9-12 y) per shehia ($n=2 \times 4,500$)
- Annually: urine examination of 50 adults (20-55 y) per shehia ($n=2 \times 2,500$)
- Year 1 and 5: urine & blood examination of 100 children (Std. 1) per shehia ($n=2 \times 4,500$)
- Occurrence and reinvasion of *Bulinus* snails in treated water bodies
- *S. haematobium* cercariae shedding from *Bulinus* snails
- Qualitative data on community perception of schistosomiasis (FGD, IDI, KII)

Study schools and shehias by intervention arm



Bi-annual MDA with praziquantel + albendazole



Community-wide treatment
(CWT)



School-based treatment
(SBT)



Snail control with niclosamide

Niclosamide application:

- At human water contact sites (HWCSs)
- In dry(er) season and ideally before MDA
- Mollusciciding: only if *Bulinus* snails are found
- Re-treatment: after 3-8 weeks if *Bulinus* were present



Behaviour change interventions



School-based classroom education component



Community laundry platform



School-based educational safe play events

Community male and female urinals



Outlook

- **Hotspot areas**

- Cross-disciplinary combined interventions to reduce and interrupt transmission

- **No/low prevalence areas**

- Screen and treat
- Reactive case detection and interventions to prevent recrudescence of transmission

- **Diagnostics**

- Sensitive and specific RDTs for active and passive case finding
- Sensitive and specific high-throughput tests for verification of elimination

- **Prevalence thresholds**

- Indicators for when to move from single to multiple interventions to test and treat

Acknowledgments

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- Zanzibar Ministry of Education
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- Pemba Public Health Laboratory – Ivo de Carneri
- Shehas and study participants
- Highly motivated intervention teams
- Community members

