



QIMR Berghofer
Medical Research Institute

THE FUTURE OF HEALTH

Behaviour change and WASH – Magic Glasses for Schistosomiasis – success with STH version in Philippines

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**World Health
Organization**

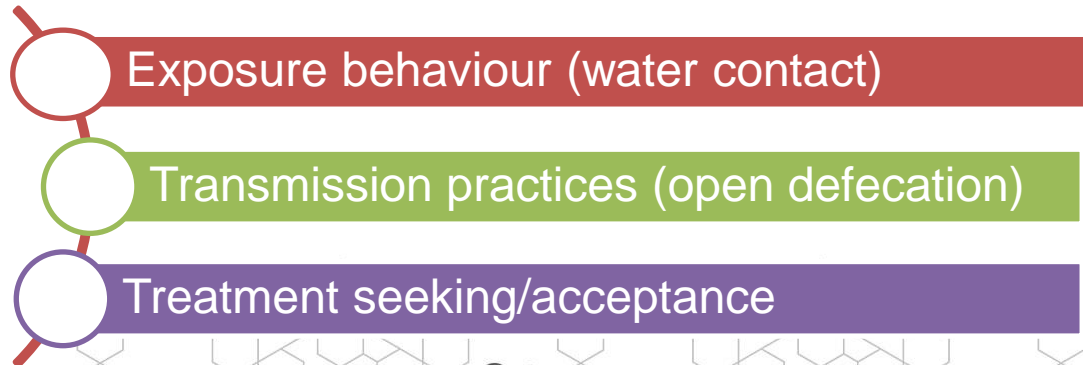
Schistosomiasis control

- Centered on MDA (in the past decades)
- Despite continuous efforts to deliver MDA, SCH remains a global health concern
- Case examples:
 - **Laos:** *S. mekongi* has nearly been eliminated but the cessation of MDA + other control measures has led to infection rebound (almost to a pre-treatment levels)
 - **Philippines:** MDA has been a backbone of *S. japonicum* control (3 decades), however, has failed to interrupt transmission
 - Highly focal in the Philippines and current data suggests that in endemic areas, high prevalence has been reported especially post Covid-19 pandemic
 - Recent survey in Municipality of Alang-Alang, Leyte (2022), prevalence of schisto using KK (25.3%), qPCR (28.2%), ELISA (45.3%) and LFIA (48.5%)
- While PZQ remains highly effective, **additional control measures should be added to augment the MDA program** and move beyond just morbidity control

Importance of Behaviour Change in the control of SCH

- MDA should also include other **measures that are doable in the endemic villages like health education and behavioural modification**
- Growing recognition of its role in the control of SCH – **behaviour modification can reduce risk of transmission by interrupting the disease cycle**
- Most recent WHO guidelines: recommends that behavioral change activities will be implemented alongside MDA + WASH

Behaviour change can strengthen control transmission through modifying



Behavioral change interventions for SCH

- Convince people to adopt alternative practices to recreational swimming
- Use of protective gear (water contact)
- Encourage the use of treated water
- Encourage MDA uptake treatment seeking
- Encourage use of toilet for defecation
- (Encourage to) or build water and sanitation infrastructure

Health education

Magic Glasses Programme (for STH)



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Health-Education Package to Prevent Worm Infections in Chinese Schoolchildren

Franziska A. Bieri, M.Sc., Darren J. Gray, Ph.D., Gail M. Williams, Ph.D.,
Giovanna Raso, Ph.D., Yue-Sheng Li, Ph.D., Liping Yuan, Ph.D.,
Yongkang He, M.P.H., Robert S. Li, B.Inf.Tech., Feng-Ying Guo, B.A.,
Sheng-Ming Li, B.A., and Donald P. McManus, D.Sc.

Proof of principle established that our video-based health educational package widens student's knowledge and changes behaviour, resulting in fewer STH infections (50% efficacy)

Magic Glasses Philippines (MGP)



Video-based health educational package (for use in schools), culturally adapted for the Philippines, on STI infections in schoolchildren in Laguna Province

- Collaborative research work

Australia

- Australian National University (ANU),
- QIMR Berghofer Medical Research Institute,
- University of Queensland (UQ)

Philippines

- Research Institute for Tropical Medicine (RITM),
- Philippine Department of Health (DOH)
- Philippine Department of Education (DepEd),
- The Local Government Units of the province of Laguna

Magic Glasses Philippines (MGP)

Development of the video



The MGP intervention package:

- 15-minute cartoon
- classroom discussions
- distribution of a pamphlet
- essay-writing
- drawing competitions
- Video reinforcements (~6-8 weeks after the initial delivery)

Delivery of the Magic Glasses health intervention package, Laguna Province, the Philippines, 2016



MGP trial

- Cluster randomised intervention trial
- >2000 Schoolchildren aged 9-10 years (Grade 4)
- 40 schools in Laguna Province
 - 20 control schools received the DepEd/DOH standard health education
 - 20 intervention schools received the MGP + the DepEd/DOH standard health education
- Baseline Survey and 2 follow-up surveys (5-monthly interval)
 - KAP survey
 - Stool survey
- Participants were treated in school deworming activity after each survey points



MGP trial results

At two follow-up assessments:

- **Reduced STH prevalence** in intervention schools with $\leq 15\%$ STH (60% efficacy)
- **Increased students knowledge about STH** (5.3 percentage points (95% CI: 4.2-6.5; $p < 0.001$) higher vs control schools)
- **Improved STH preventive practices** (1.1 percentage points (95% CI: 0.4-1.7; $p = 0.002$) higher vs control schools)
- **Increased participation in deworming activity** (7% increased in intervention vs control schools)

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“The Magic Glasses Philippines”: a cluster randomised controlled trial of a health education package for the prevention of intestinal worm infections in schoolchildren

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“The Magic Glasses Philippines”: a cluster randomised controlled trial of a health education package for the prevention of intestinal worm infections in schoolchildren

Mationg et al.

MGP cost analysis

MGP Cost of the RCT*	Regional wide roll-out of the MGP*	Nationwide roll-out of the MGP*
Php 39.45 (USD 0.77) per student	Php 15.24 (USD 0.30) per student	17.46 (USD 0.34) per student

MDA Cost* Php 58.17 (USD 1.14)

SHE Cost* Php 117.34 (USD 2.30)

MGP + MDA + SHE cost* Php 192.97 (USD 3.79)

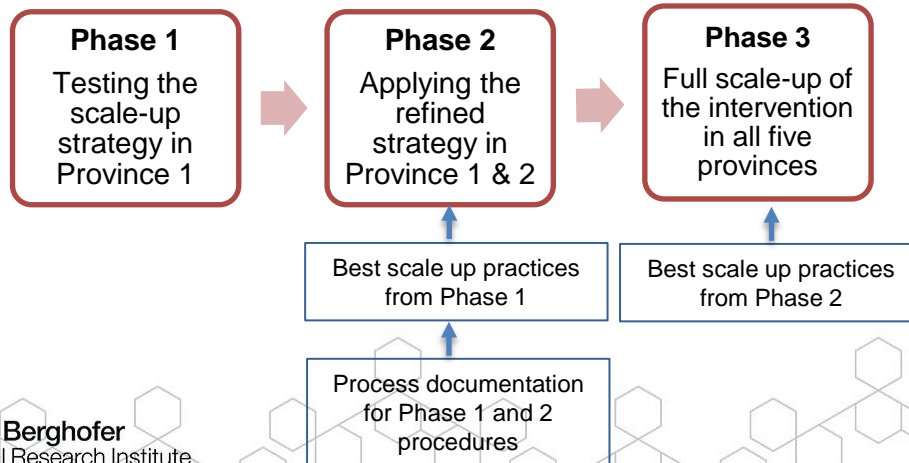
*Using 2020 rates

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MGP scale up plans

- Dissemination of results with various stakeholders:
 - DOH, DepEd and Local Government units
 - Consensus agreement for scale-up was obtained from stakeholders
- Framework of the MGP scale-up
 - Integration of the MGP in the MDA component of the WINS program
 - Planned to be done from 2025-2030
 - The ExpandNet framework (sequential, phased, horizontal scale up model)



MGP Stakeholder's meeting (DepEd and DOH Region 4A), August 28, 2019



MGP Feedback meeting with DOH and WHO Officials, August 29, 2019



MGP moving forward orientation and updates, October 2023



Meeting with the DepEd National Officials: seeking endorsements for scale-up, October 2023

MGP scale up in the Philippines

- Its integration and incorporation in the deworming program will contribute significantly, not only to DepEd's vision of children adopting positive behavior and life skills, which will lead them to become better learners, but in **WHO's goal of elimination of STH morbidity among SAC in 2030**
- MG video aligns with the trend of revolutionizing health education through the use of technology in an engaging, appealing and engrossed manner for children



Characteristics of Magic Glasses STH HE package

- The intervention (video) is engaging, appealing, precise and well-framed key messages
 - With the touch of light educational comedy (or edutainment), MG has shown to be a powerful communication tool in many respects
 - The right balance of humour has captured the audience's interest, made the messages more meaningful and the subject more digestible
- Context-based tailored messages: co-designed by teachers, parents, health officials in the community and children - applicable to local realities and relatable to children
- Reinforcement/participatory activities could help children assess problems and identify solutions themselves thus, enhancing their confidence to take action



MG was adapted for STH and Ov in the Lower Mekong Region (implemented as part of multi-component One Health program for STH and OV*)



Magic Glasses Cambodia



Magic Glasses Ov (Cambodia)



Magic Glasses Laos



Magic Glasses Ov (Laos)



Magic Glasses Thailand



Magic Glasses Ov (Thailand)

- ***Human and animal MDA + Lawa Model + Magic Glasses vs MDA alone**
- **Currently being evaluated using cluster RCT in Cambodia, Laos and Thailand**

Magic Glasses *Schistosomiasis mekongi*

- Will be developed as part of a cooperative research project which aims to eliminate *Schistosoma mekongi* in Lao PDR and Cambodia by using an intensive multi-component “One Health” approach
 - The project hypothesize that **by implementing and adapting and developing a health education package “Magic Glasses” combined with CL-WASH, MDA, diagnostics, environmental monitoring, and spatial and mathematical models for targeting *S. mekongi***, can provide a blueprint for the rapid elimination of *S. mekongi* in the Mekong area before the effects of the climate change are felt
- Will be developed using the similar approaches as the MG STH
 - Formative Research
 - Household survey, community observation, WASH facility audit, KAP survey and FGDs (children)
 - Identify transmission and exposure behaviour
 - Production of the video
 - Pilot testing and revisions

Magic Glasses *S. japonicum* development prospects in the Philippines

- MG development would form part of Schisto Integrated Strategy:
MDA + Snail Control, Animal (bovine) treatment + WASH





**UBS Optimus
Foundation**



**Australian Government
Australian Research Council**

Thank you!



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