

and biological implications of co-administration of drugs. In the Solomon Islands, trachoma MDA with azithromycin was implemented in nine out of 10 provinces. When a decision was made to extend the program to the province of Choiseul, we had an opportunity to investigate the feasibility, safety and efficacy of co-administering ivermectin to control scabies and impetigo, diseases that were recognised as endemic in a number of countries of the Pacific region. The drug delivery infrastructure was established using the framework for trachoma. The MDA regimen was a single dose of oral azithromycin combined with a single dose of oral ivermectin. A second dose of ivermectin was given a week later to ensure elimination of scabies eggs that may have been present at first visit. Participants in 10 randomly selected villages were asked to undergo skin examination to collect scabies and impetigo baseline data. The study enrolled 26,188 participants, 99.3% of the total resident population. Of those, 98.2% received azithromycin and 98.5% received a first dose of ivermectin. A second dose of ivermectin was received by 83.7% of participants. In the survey villages, baseline scabies prevalence was 18.7% and highest in children aged 5-9 years (34%). Impetigo was present in 24.8% of participants, and highest in the 5-9 age group (46.4%). There were no serious adverse events. Adverse events were noted in 2.6% of the entire study population and 4.3% of participants in the more closely monitored skin survey sites. At present, this is the world's largest scabies MDA and the first large scale co-administration of ivermectin and Azithromycin. Co-administration of ivermectin and azithromycin appears to be safe, well tolerated and feasible.

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ADDING TSETSE CONTROL TO MEDICAL ACTIVITIES ALLOWS CONTROL OF SLEEPING SICKNESS IN THE MANDOUL FOCUS (CHAD)

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Gambian sleeping sickness or HAT (human African trypanosomiasis) is a neglected tropical disease caused by *Trypanosoma brucei gambiense* transmitted by riverine species of tsetse. A global programme aims to eliminate the disease as a public health problem by 2020. The Mandoul area of Chad is a persistent focus of Gambian sleeping sickness where more than 100 HAT cases are still diagnosed and treated annually. Up to 2013, control of HAT relied solely on case detection and treatment, and did not lead to a clear and consistent decrease in the annual incidence of HAT despite annual screening of the population. We assessed whether the addition of vector control to case detection and treatment could reduce annual incidence of HAT in Mandoul. In particular, we investigated the impact of deploying 'tiny targets' which attract and kill tsetse. Before tsetse control commenced, a census of the human population was conducted and their settlements mapped. A pre-intervention survey of tsetse distribution and abundance was implemented in November 2013 and 2600 targets were deployed in the riverine habitats of tsetse in early 2014 and 2015. Impact on tsetse and on the incidence of sleeping sickness was assessed through six tsetse monitoring surveys and four medical surveys of human population in 2014 and 2015. The census indicated that a population of 26600 inhabitants lived in the vicinity of the Mandoul focus. Within this focus, the vector is *Glossina fuscipes fuscipes* and the mean catch of tsetse from traps was 0.7 flies/trap/day (range, 0-26). The catch of tsetse from 44 sentinel biconical traps declined after

target deployment with only five tsetse being caught in five surveys giving a mean catch of 0.009 tsetse/trap/day. Simultaneously, HAT transmission declined from a mean of 127 cases/year between 2009 and 2013, to 52 cases in 2014 and only 25 new cases in 2015 with a similar medical effort.

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THE IMPACT OF MASS DRUG ADMINISTRATION ON REDUCTION OF NTD PREVALENCE IN RWANDA

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Worldwide an estimated 6 billion of the world's most impoverished people, including 875 million children are affected by Neglected Tropical Diseases (NTDs) which cause severe pain, long-term disability, and are the cause of death for over 500,000 people per year. In 2008, 65.8% of Rwandan schoolchildren were affected by Soil-Transmitted Helminth (STH) infections. Rwanda Ministry of Health in collaboration with its partners had started to implement large-scale NTD control through regular Mass Drug Administration (MDA) against these infections as per World Health Organization guidelines. Two national mapping surveys were conducted in 2008 and 2014 in order to assess schistosomiasis and STH prevalence at national level and geographic distribution. In 2008, a total of 8,313 schoolchildren aged between 10 and 17 years were tested for STH and schistosomiasis using Kato-Katz method. Prevalence of urinary schistosomiasis was established by testing for micro-haematuria using dipsticks and urine filtration technique. In 2014, a total of 9,250 schoolchildren aged between 8 and 18 years were tested for STH and schistosomiasis using Kato-Katz method while 19,371 schoolchildren were tested for schistosomiasis also using Circulating Cathodic Antigen (CCA) urine Assay. We carried out trend analysis for schistosomiasis and STH data from 28 schools that were randomly selected in both mapping surveys. All 28 schools are located in districts that reached at least 75% MDA therapeutic coverage for all treatment campaigns. For schistosomiasis, eleven (11) schools are located in areas that received praziquantel. Of these 11 schools 7 had 100% reduction in prevalence; three (3) had reduction between 39.4% and 93.0%. The comparison for STH infections showed a remarkable reduction in prevalence for only hookworm with 10 schools having 100% reduction and 17 schools with a reduction between 39.4% and 96.4%. These data demonstrate an encouraging quick impact of MDA in controlling schistosomiasis and STH and call for continuous support to NTD control programs of endemic countries.

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TARGETTING MALARIA HOTSPOTS IN SENEGAL: RESULTS OF A CLUSTER-RANDOMIZED TRIAL

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In Senegal scaling-up of control measures has reduced the incidence of malaria but transmission persists and new tools are needed to move towards elimination. We evaluated a targeted approach, employing IRS and chemotherapy implemented in transmission hotspots, on a large scale. 40 clusters (health posts) were randomized. In 30 clusters, hotspot villages were targeted to receive IRS with Actellic 300CS in July, followed