WHITE PAPER

An Inter-Sectorial Approach to the Philippines' Soil-Transmitted Helminthiases

AMSA Philippines

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Abstract

Of 17 regions in the Philippines, 16 are endemic for soil-transmitted helminthiasis (STH) infections caused by roundworms, whipworms, and hookworms, with a prevalence of 50% in children aged 2-14 years; up to 30% of the 22 million children were infected with more than one of the three STH species. Although there are a School-based and a Community-based Deworming Program under the AO 2006-0028, wherein Mass Drug Administration (MDA) of anti-helminthic drugs is given twice a year, long-term STH infection control will require improvements in water access, sanitation access, and hygiene practices. Several acts to prevent the spread of diseases by improving public sanitation (such as prohibiting open defecation and providing standard sanitary maintenance of public toilets in the country) were proposed but not passed into law. Weak implementation of health ordinances by the Local Government Units through Rural Health Units and inaccessibility of remote residential areas to health programs have also heightened the spread of STH infections. The recent Dengvaxia controversy may have affected the implementation, with 60% of families opting not to participate in MDA programs. Inter-sectorial partnerships and mobilization of community-level units should be the core of the proposed policies and revisions. Continuous monitoring of the current anti-helminthic programs with proper implementation of health ordinances should be considered of primary importance and be given the highest priority by the government

Introduction

Soil-transmitted helminthiasis (STH) infections refer to a group of parasitic diseases caused by nematodes of major concern to humans: the roundworm, *Ascaris lumbricoides*; the whipworm, *Trichuris trichiura*; and the hookworms, *Necator americanus* and *Ancylostoma duodenale* (World Health Organization [WHO], 2011). Transmission is through ingestion of fecally-contaminated soil or water, and/or skin penetration of larvae.

Prevalence & Demographics

Of 17 regions in the Philippines, 16 are endemic for STHs, with a prevalence of 50% (WHO, 2011). A nationwide survey performed over 10 years found the prevalence in children aged 2–14 years was 50–90% (Belizario, 2009); and up to 30% of the 22 million children in the Philippines were infected with more than one of the three STH species (Easton, 1999). A study under Soares Magalhães (2015) on spatial clustering of STH infections showed that for all three islands of the Philippines (Luzon, Visayas, and Mindanao) individuals aged 5-19 years had higher prevalence of infection than those <5 years for all three STH infections.

Locality

The predicted geographical distribution of *A. lumbricoides* shows endemicity in Luzon and Visayas, with hotspots of high prevalence. *T. trichiura* is highly endemic and widespread in the Visayas region, while hookworm infections showed much more focal hotspots circumscribed

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to certain regions in the Philippines (e.g. Zambales or Isabela in the Cagayan Valley) (Soares Magalhães, 2015).

Certain environmental factors contributed to the difference in spatial clustering of STH infections: proximity to water bodies increased prevalence of hookworm infections in Luzon and Visayas, and land surface temperature increased prevalence of *Ascaris* and *T. trichiura* infections in Mindanao.

Outlined Problems

The School-Based Deworming Program, where the Department of Health (DOH) has partnered with public schools to distribute anti-helminthic drugs during National Deworming Months of January and July; and the Community-Based Deworming Program, which targets through local health centers other pre-school children aged 1-4 years and school-aged children not enrolled in public schools, both experienced great success in July 2016, with the DOH reporting that 82.4% of enrolled public school-age children (aged 5-18 years), and 74.3% of the pre-school age children (aged 1-4 years) were dewormed (DOH, 2018). However, long-term STH infection control will require improvements in water access, sanitation access, and hygiene practices. On environmental sanitation in endemic areas, around 30% of households have no safe sources of water supply and 50-80% do not have sanitary toilets. Thus approximately 60% of people in these communities bathe in irrigation canals, rivers, and streams (Leonardo, 2016). Currently, there are no laws prohibiting open defecation and providing standard sanitary maintenance of public toilets in the country. Several acts such as the National Sustainable Sanitation Act of 2013, 2014, 2015, and 2016; and the Public Urination and Defecation Prohibition Act of 2016 were proposed during the Sixteenth Congress to prevent the spread of diseases by improving public sanitation, but were not passed into law.

Despite the increase in budget in 2017, the implementation of complementary programs and the DOH's Water, Sanitation, Hygiene (WASH) and Nutrition programs greatly rely on local government units due to the devolution of the STH infection control program. There are deficiencies in the commitment of the local government units (LGUs) and rural health units as evidenced by the weak implementation of health ordinances or a lack thereof (UP CPH Foundation, 2012). Unfortunately, despite the increased availability of resources, distrust in DOH programs due to the recent Dengvaxia controversy may have affected the implementation, with only less than half the target goal achieved, and one DOH Regional Office reporting that 60% of families opted not to participate because of the Dengvaxia scare (Bartolome, 2018; de Guzman, 2018; Garcia, 2018; Pareño, 2018; Pazzibugan, 2018).

Another limitation is that there are certain remote agricultural areas that cannot easily be reached, assessed, and monitored; prevalence of far-flung areas can also be detrimental to the plans to eradicate or prevent STH infections globally. In many endemic areas where education is inaccessible, and literacy may be low, the susceptible population struggle to understand the relationship between indiscriminate waste disposal and STH infections and between stray animals and STH infections.

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Proposed Policy Revisions

1. Amendment of AO 2006-0028 (Strategic and Operational Framework for Establishing Integrated Helminth Control Program) such that:
    a. Mass Drug Administration (MDA) programs include a second administration within the same year (biannual) as recommended by WHO in response to the observed trend of reinfection and the return of prevalence to the recorded baseline level (Belizario, 2013; Mationg, 2017);
    b. Efforts to reach non-enrolled school-aged children and indigenous populations should be improved (Belizario, 2011);
    c. Sensitivity and specificity of diagnostic tests should constantly be evaluated and improved to improve accuracy of disease detection (Mationg, 2017);
    d. Standardization and consensus for indicators in monitoring and evaluation should be identified and met (WHO, 2012).
2. Amendment of AO 2010-0023 (Guidelines of Deworming Drug Administration and the Management of Adverse Events Following Deworming) such that:
    a. data sheets should be distributed in an effort to assess and record adverse effects (WHO, 2012), if any;
    b. periodic evaluation of efficacy should be conducted (WHO, 2012);
    c. possible development of resistance to drugs should be assessed (WHO, 2012);
    d. provisions for at-risk adult populations should be included (WHO, 2012).
3. Establishment of a Sanitation Unit or Task Force in each city, similar to that described in the National Sustainable Sanitation Act of 2016, and in the framework of Belizario (2013) for the implementation of the Disease Prevention and Control Program such that:
    a. The Unit shall consist of representatives from stakeholders, including:
        i. DOH
        ii. Department of Education (DepEd)
        iii. LGUs
        iv. Government hospitals
        v. Department of Public Works and Highways (DPWH)
        vi. Academe
    b. Goals
        i. Provide public restrooms in strategic locations within the city that comply with the ASEAN Public Toilet Standard to achieve Zone Of Discharge status.
        ii. Monitor and evaluate results of MDA and other National Deworming Month activities to identify best practices and challenges.

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4. Inter-agency collaboration to strengthen the campaign against the damage brought by STH infections such as:
    a. DepEd and DOH
        i. Tap Parent-Teacher Associations to help increase compliance to MDA (Belizario, 2013).
        ii. Use National Deworming Months as a venue for students to learn more about the advocacy and engage them through seminars, poster-making, essay writing, contests, etc.
        iii. Fortify sanitation efforts by constantly promoting safe water, environmental sanitation and personal hygiene (WASH) and its integration into appropriate subjects such as homeroom (domestic) and other relevant sciences.
        iv. Offer incentives to schools that report 100% compliance to deworming and drug administration programs.
    b. DOH and academe
        i. Conduct studies on STH infections to monitor developments regarding prevalence rates following drug administration and deworming programs, evaluate their effectivity, and create reforms to maximize their impact.
        ii. Constantly review and evaluate programs already in place to ensure that they are up-to-date and reflect global standards.
        iii. Conduct studies on changes in academic, social, psychological, etc. behaviors following deworming.
        iv. Record and report any challenges in the implementation of these programs and propose amendments to overcome these issues.
    c. DPWH and Local Government Unit
        i. Construct or improve roads and bridges for access to hard to reach places, to improve reach of the program.
        ii. Ensure strict implementation of Water Supply and Sewerage Sanitation programs by mobilizing barangay-level inspections and surveys.
        iii. Provide incentives to barangays that report 100% compliance to the aforementioned programs.
        iv. Form barangay-level sanitation teams to enforce compliance to the National Sustainable Sanitation Act of 2016 (i.e. Community-Led Total Sanitation) and other such regulations whose role will include conducting random, unannounced inspections.
        v. Offer incentives to barangays that report 100% compliance and implement fines to those who refuse to follow the above-mentioned rules.
5. Authoring of more laws that will bolster sanitation and health practices in conjunction with local ordinances in areas of concern
6. Cultivation of partnerships with pharmaceutical companies and other appropriate institutions to maximize budget allocations.

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Conclusion

In addition to inadequate funding, the meager number of sanitation laws and the ineffective implementation of those that are in place contribute largely to STH infection and reinfection. Current programs are considerably stunted by limitations in reach and poor execution. Inter-sectorial partnerships and mobilization of community-level units are vital in safeguarding the public from these infections. Without the necessary changes in sanitation and health practices, the impact of any local attempts at control cannot be improved.

Recommendations

To further strengthen the proposed policies and revisions thereof, there should be effective dissemination of information. People should be aware of their rights and responsibilities in the implementation of STH programs. As accessibility is one of the major concerns, the reach of programs should be increased in far-flung areas, especially where Indigenous People reside. Incentives should be given to those who are diligently fulfilling their role in preventing STH and penalties given to those who deliberately disobey the policies. Current sanitation programs (i.e. WASH) should be maintained and improved by inter-sectorial reinforcement.

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Further reading

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