

Healthy Schools – Reducing dengue and diarrheal diseases in primary schools in Colombia

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Abstract

Diarrheal diseases and dengue fever are major global health problems resulting in millions of deaths every year and billions of people live in risk areas. In Latin America both diseases are prevalent and infection rates are high. Where provision of clean water is inadequate, water storage is crucial. Fecal contamination of stored water is a common source of diarrheal illness. Stored water is also a potential breeding site for dengue vector mosquitoes. Little is known of the role of stored water for the dual risk of diarrhea and dengue, but joint management and intervention strategies can be applied, applicable in combination.

The long term goal of this study is to contribute to improved health and welfare in Colombian school children. The specific objective is to investigate the impact of school-based control interventions on dengue mosquito vector populations, drinking water quality, and prevalence of dengue and diarrheal diseases in school children.

We will carry out randomized controlled trials using integrated water management and dengue vector control interventions in primary schools in Colombia to assess their effect on water quality, mosquito vector density, and potential changes in people's knowledge, attitudes, and practices and their relationship with disease outcome. Potential intervention approaches include filters for clean drinking water, improving sanitary and hygiene facilities and behavior, insecticide-treated curtains for windows, container and rubbish cleanup campaigns, student educational programs on hand washing and mosquito breeding prevention.

The interdisciplinary nature of this project, combining ecological, microbiological, socio-economic and cultural aspects will reveal potential synergies and solutions for integrated control. Control and prevention of dengue and diarrhea is usually not coordinated in national health policies. Developing integrated and cost-efficient control strategies for several groups of diseases will likely improve resource allocation and alleviate stressed national health budgets. By focussing interventions in primary schools we expect a multitude of positive outcomes, such as preventive health care, better communication and information delivery between schools and homes, improved learning through locally relevant and socially responsible science education for sustainable development.

In addition, this 3-year initiative, funded by the Research Council of Norway, aims to develop a scientific and educational collaborative platform between Norway and South America to promote innovative scientific research, capacity building, and student exchange on water, environment, sanitation, disease epidemiology, and health.