



Healthy Environments for Children Alliance

A world-wide alliance to reduce environmental risks to children's health that arise from the settings where they live, learn, play, and sometimes work by providing knowledge, increasing political will, mobilizing resources, and catalyzing intense and urgent action.

Issue Brief Series: Vector-borne Diseases

Children are at particular risk from a number of diseases transmitted by mosquitoes, flies or other insect vectors. Globally, malaria is the most prevalent vector-borne disease, with over 2.4 billion people around the world at risk of contracting this disease and more than 275 million cases reported every year. Over one million children die of malaria each year.

Another vector-borne disease of particular concern to children's health is dengue, the second most important tropical disease (after malaria) with approximately 50 to 100 million cases of dengue fever and 500,000 cases of Dengue Hemorrhagic Fever each year. Japanese encephalitis, onchocerciasis (river blindness), lymphatic filariasis, yellow fever, African trypanosomiasis (sleeping sickness) and Chagas Disease are regionally important vector-borne diseases that are particularly dangerous for children. Schistosomiasis, a water-based disease with aquatic snail species as intermediate hosts, also mainly affects children and adolescents, as do intestinal worms.

All of these vector-borne diseases sicken children and some can result in child death. They often leave child survivors with recurring illnesses and physical or neurological effects that can plague children throughout their lives.

Malaria and other vector-borne diseases also contribute to ill-health in other ways, such as through anemia, low birth-weight, poor growth and poor development.

Frequently diseases of poverty, vector-borne diseases have grave economic impacts on countries, communities and families. School absenteeism due to malaria is high, with sick children staying away as well as children who need to help care for other sick members of the family or serve as labor substitutes for parents or older siblings during bouts of illness. Children in infected areas can suffer an average of two to three malaria attacks a year, making malaria the most common cause of children missing school in infected areas.

With increased worldwide travel, de-emphasis of public health programs and population growth and shifts (for example, urbanization), vector-borne diseases are re-emerging in populations where immunities are low and vector breeding grounds are ideal. There is concern that global climate change could cause vectors to multiply and potentially expand to new geographical regions. With rapid urbanization, many cities in tropical areas are vulnerable to outbreaks of those vector-borne diseases that are especially hazardous for children.



... a Global Concern

- In Asia, Japanese Encephalitis puts three billion people at risk every year. Malaria and dengue are also major public health problems in South-East Asia.
- While 8% of the world population lives in the Eastern Mediterranean Region, almost 11% of the global burden of vector-borne diseases is found there.
- Malaria is among the most prevalent causes of death and illness in Africa, where 90% of the globally reported cases of malaria take place. An estimated one million deaths from malaria occur each year, most of them in children under five years old.
- In Latin America and the Caribbean, Dengue Hemorrhagic Fever has infested all major cities.
- Nearly 95 million people in the Western Pacific are at risk of contracting malaria.

Children's Vulnerability to Vector-borne Diseases

Behavioral determinants: Young children are unaware of health risks around them and are typically unable to take actions to reduce their risk. Children often go to bed at the time when mosquitoes are most active, making their resting bodies prime targets for mosquito bites. In some cases, social and cultural practices may place children expressly at risk of vector-borne diseases, such as children tasked with collecting water, exposing them to schistosomiasis.

Physiological determinants: Children have less developed immune systems and less capacity to resist vector-borne diseases. They more rapidly progress to severe cases of malaria and other diseases.

Developmental determinants: Children have immature organs that are more vulnerable to disease and damage in their early years. Children have their whole lives ahead of them to suffer the effects of neurological impairment, hindered development and other health consequences of vector-borne diseases.

Acting to safeguard children's environments can save millions of lives, reduce disease and provide a safer, healthier world for our children's future.

See the *Healthy Environments for Children Alliance Framework for Action*

Actions at Every Level Make the Difference

Everyone must act at every level to combat malaria and minimize childhood exposure to this and other vector-borne risks. International organizations, governments of countries affected by the disease, non-governmental organizations, academic institutions, the private sector, health professionals, researchers, families and children themselves must play a role. The Roll Back Malaria partnership initiative provides strategic as well as technical advice to countries fighting malaria. National governments are primary actors in the fight to reduce disease vectors. Health service providers have a key role to play, but other sectors can also contribute, for example by investing in water, sewer and drainage infrastructure to reduce breeding sites in open sewers, urban storm drains, and household water storage containers. Governments can actively engage in integrated vector management projects and improve solid waste collection and management. In the agriculture sector, government agencies can promote appropriate agriculture practices and improve irrigation water management infrastructures and practices. Governments can also support media campaigns to increase awareness and education.

Settings-based Interventions

- Protect children against mosquito bites by eliminating potential breeding sites in standing water and household garbage.
- Use insecticide impregnated mosquito nets, screens on windows and doors and appropriate clothing and mosquito repellants. Promote early diagnosis by caregivers and learn at-home malaria management, using safe and effective drugs.
- Promote collective efforts to eliminate vector breeding sites, such as involving children in weekly clean-outs of water holding containers and identifying other vector breeding sites.
- Inform children of the risks of malaria and other vector-borne diseases, how they are transmitted, how to protect oneself, symptoms of illness and first steps to treat illness.
- Include health promotion and protection in school curricula, including a focus on vector-borne diseases.

Community leaders and health professionals can advocate to:

- Continue or begin to record incidence and other information on vector-borne diseases.
- Provide immediate, effective treatment, as even a short time can mean the difference between life and death to a child sick with malaria.
- Initiate periodic immunization campaigns where health services are weak, such as for yellow fever. At the same time, local healthcare professionals can support campaigns on other preventive medical treatments to reduce incidence of vector-borne diseases.
- Promote safer water management practices in agricultural areas with help from community health workers teamed up with agricultural extension workers.

At Home

At School

In the Community