Prevention of Imported Pediatric Malaria—Travel Medicine Misses the Bull’s Eye

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Although exact incidence data of imported malaria in children are not available, results of a recent GeoSentinel study on pediatric travel-associated morbidity showed that malaria is the single most frequent specific etiologic diagnosis affecting 8% of ill children who present post-travel. An international analysis of more than 12,000 imported pediatric malaria cases in industrialized countries showed that children account for approximately 15%–20% of all imported cases worldwide and that infections with Plasmodium falciparum, acquired in West Africa predominate with the highest worldwide rate of importation in the immigrant community from the Comoros Islands, settled in France. Pediatric travelers visiting friends and relatives (VFR) followed by children who travel for immigration account for most cases. Infections with Plasmodium vivax have been mainly described in children returning from Asia and the Americas. The proportion and importance of the respective Plasmodium species responsible for clinical cases varies between and within countries, and is a reflection of the settled immigrant communities. In the United States, as in other industrialized countries, malaria cases cluster in areas where such immigrant communities have predominantly settled, most commonly in certain neighborhoods of major urban centers. Children who travel for tourism appear at less risk of acquiring malaria.

In the travel medicine literature as well as at the professional society level, much attention has been previously given to increase the awareness of the importance of migrant-related VFR travel. To a lesser degree, and only recently, has the focus of investigations been directed specifically to children of migrant families traveling internationally or pediatric VFR travelers. This is a generation of children, mostly born in the industrialized countries of immigration, who frequently travel internationally to either visit during school holidays or often to live for extended periods with family members in the parent’s country of origin. This most important target group is the bull’s eye of travelers’ malaria that is currently missed in travel medicine. The studies by Venturini and colleagues and Hickey and colleagues in the current issue of the journal are, thus, valuable contributions. Venturini and colleagues illustrate, in their survey of immigrant parents, originally from malaria endemic countries and now residing in Florence, Italy, an important disconnect between knowledge and behavior. Although the great majority of parents were knowledgeable about the malaria risk in their home countries, malaria chemoprophylaxis was insufficiently used by children traveling to the families’ countries of origin. Hickey and colleagues complement this picture by elegantly showing, with specialized mapping software, how children diagnosed with malaria in Washington, DC reside mainly in neighborhoods of the city and surrounding suburban districts that are predominantly home to recent immigrants from sub-Saharan Africa. Likewise, the analysis of national data in their study highlights that US regions, where immigrants from sub-Saharan Africa have preferentially settled, carry a disproportionate burden of pediatric malaria cases.

So the bull’s eye has been identified once again and travel medicine practitioners need to be proactive. The first step, obviously, is to engage such children and their families in pretravel health advice. This target group is, however, difficult to reach. Strategies ranging from innovative educational initiatives, utilizing...
community-based avenues via eg, schools, sports clubs, and religious institutions to local language media programs via eg, radio, television, and internet to actively highlight malaria prevention are imperative. Additionally, easy access to effective pretravel advice within primary care offices is essential as this target group is unlikely to consult a specialized pretravel clinic.1–3 The efficacy of such community programs is unclear, and needs to be formally assessed. Furthermore, it is important to note that the development of such programs will have to compete for public health funds with the urgent need to tackle other major costly public health challenges (eg, asthma and obesity) that notoriously affect children in large urban inner cities and therefore acutely overlap with areas where immigrant populations prefer to settle.9

Malaria is a preventable infectious disease. The use of personal protection measures such as mosquito nets, insecticides, and repellents is effective and can be recommended even for very young children and this approach should be explained in detail to parents if they present for pretravel advice. Failure to take appropriate antimalarial chemoprophylaxis is probably the central risk factor for contracting malaria in pediatric travelers to high risk malaria endemic areas. Use of and adherence to chemoprophylaxis regimens is poor.1 Licensing and recommendations on the use of antimalarials in children differ internationally. For example, mefloquine is not licensed in Australia for children younger than 14 years and in Japan, no malaria chemoprophylaxis is licensed for use in children. Don’t Japanese children travel to malaria risk areas? Atovaquone/proguanil as palatable, pediatric tablets can be used by children weighing >5 kg in the United States and this combination is licensed for children weighing >11 kg in Europe. Doxycycline is used for children aged over 8 years (over 12 years in the UK). Mefloquine can be used by children weighing >5 kg and despite the need to disguise its bitter taste, this medication is a good choice for VFR families because of its low cost and once-weekly administration.10

Increasing worldwide international travel and migration has the potential to further intensify the clinical and economical impact of imported malaria in children. More research is needed on available chemoprophylaxis regimens with respect to their suitability, pharmacokinetics, and tolerability in children but some good medications or “darts” are already available. The key, immediate goal is to be aware of the travel health needs of immigrants who are settled in the neighborhood or catchment area. Know your neighbors. Aim for the bull’s eye.

Declaration of Interests

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