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Field evaluation of ZeroVector™ Durable Lining as an alternative to indoor residual spraying (IRS) for the control Anopheles vectors of malaria in rural villages of Obuasi, Ghana
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Background: ZeroVector™ Durable Lining (DL) is a novel vector control tool that releases a suitable insecticide impregnated in a textile which is used to cover surfaces where malaria vectors rest after taking a blood meal. The product has the ability to remain effective for three to four years. The technology utilizes the best features of both long-lasting insecticide-treated bed nets (LLINs) and indoor residual spraying (IRS) by being long-lasting and requiring no behavioural change after installation. This study was conducted in 2008-09 to evaluate the acceptability, durability and residual activity of ZeroVector™ DL in two selected rural villages of Obuasi.

Methods: Anwona and Mmemiriwa #1, located at the periphery of the Obuasi Municipality, were selected for the field trial. Data on the installation process of ZeroVector™ DL was captured. At three weeks and nine months post-installation, acceptance and durability surveys were conducted at the household level to obtain data on user impressions of the product appeal and appearance over time and also to compare resource demand in contrast to IRS. The residual activity of deltamethrin-impregnated DL against field and susceptible An. gambiae s.s was assessed monthly and compared with deltamethrin spray (K-Othrine) on both cement and mud surfaces using WHO cone bioassay kits. Twelve houses, six representing each surface, were selected for each intervention at each village.

Results: ZeroVector™ DL was preferred over IRS by 95.1% of household heads (58/61), primarily for aesthetic reasons. They claimed the textile added beauty to their rooms. At 12 months post-installation, the durable lining was generally in good physical condition. Mortality of An. gambiae s.s was 100% for ZeroVector™ DL installed on both cement and mud surfaces at the end of the 1 year study. However, the residual life for the IRS was app. 6.5 months on cement surfaces and 4 months on mud surfaces.

Conclusion: The high user acceptability and residual efficacy of ZeroVector™ Durable Lining makes it an ideal substitute for IRS in the control of Anopheles vectors of malaria, especially in rural communities where houses are constructed with mud or with mud rendering.

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Mass screening and treatment for malaria among gold miners in Suriname
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Background: The activities and habits of small to medium scale gold miners - and their interaction with both the environment and the local population - are recognized as one of the main determinants of the current occurrence and dispersion of malaria in the Amazon Region. Gold miners are the group with highest risk for malaria in the region. Their exploration techniques are based on damming creeks and rivers, to provide water that is used in high pressure hoses, to dig for gold. This practice, multiplies the potential breeding sites of the main vectors in the region. We assessed the malaria prevalence in gold mining areas in Suriname.

Methods: Mass screening and treatment for malaria was conducted in 4 main gold mining areas in Suriname. A standardized national malaria form was used to collect the information. Malaria blood films were stained with 4% Giemsa and read using microscopy (1000X). 100 microscopic thick film fields were inspected before a slide was being declared malaria negative. For positive-malaria smears, parasite species were identified and treatment was given following the national malaria protocol.

Results: Between June and October, 2009, there were 2543 people screened for malaria in 4 main gold mining areas in Suriname. These 4 areas had 261 gold mining camps (Victoria:26; Benzordorp:88; Sellacreek:79; Maku:68). Sixty-six percent of the people seen were Brazilian. Malaria infections were reported among 85 people with an overall prevalence of 3%. There were 42, 40 and 3 cases of Plasmodium falciparum, P. vivax and P. malariae, respectively. Parasite specific prevalence ranged from 1-4%(Pf), 1-3%(Pv) and <1%(Pm). All malaria cases were uncomplicated infections and treated. No cases were detected among pregnant women.

Conclusion: Despite a steep decline of malaria morbidity in Suriname (~95% reduction), “hot spots” still exist. From the 4 gold mining areas evaluated, Sellacreek was the only malaria-free region. Gold mining activities implies population movements and transmission of malaria which make diagnosis and treatment, a critical gap for the sustainability of the impact obtained in other areas. A strategy to increase access to adequate diagnosis and treatment for malaria - training locals and serving their populations - in gold mining areas is ongoing.

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