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Introduction: In Brazil and elsewhere *Aedes aegypti* is the main vector of four fatal and/or debilitating arboviruses (dengue, chikungunya, yellow fever and Zika). Despite the crucial importance of targeting *Ae. aegypti* for disease control, our understanding of evolving mechanisms underpinning insecticide resistance across Brazilian *Ae. aegypti* mosquitoes and its threat to effectiveness of vector control interventions remain limited.

Aim: To infer the likely impact of three pyrethroid-resistance associated target-site mutations (Val410Leu, Val1016Ile and Phe1534Cys – the voltage-gated sodium channel gene (*Vgsc*) in reduced effectiveness of anti-vector programmes.

Methods: Field-caught mosquitoes were sampled between 2016 and 2017 from 10 counties in four Brazilian's Northeast State (Paraíba-PB, Pernambuco-PE, Rio Grande do Norte-RN and Sergipe-SE) spanning urban to rural locations. The frequency of three pyrethroid resistance-associated target-site (voltage-gated sodium channel gene, *Vgsc*) mutations – Val410Leu, Val1016Ile and Phe1534Cys – were screened using TaqMan assays.

Results: The resistant-alleles for each marker are widely disseminated across populations, with fixation of one or more mutations in some locations. Moreover, contrasting patterns in genotype frequencies among the four Brazilian Northeast regions, suggest contrasting strength of selection across geographic locations. Across the three mutant positions we identified a total of 13 genotypes, including triple mutants (410Leu, 1016Ile and 1534Cys), which were most strongly associated with resistance in pyrethroid-selected mosquitoes.

Conclusion: Our data support co-evolution of a triple mutant allele in the *Vgsc* gene of *Ae. aegypti* mosquitoes which produces strongly resistant phenotypes and could impact the efficacy and sustainability of pyrethroid-based insecticides.

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DEVELOPMENT OF THE HIV PATIENT MASTER INDEX: A BASIS FOR MONITORING THE HIV CONTINUUM OF CARE AND FORMULATING INTERVENTIONS FOR PEOPLE LIVING WITH HIV IN SURINAME

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Introduction: Over the past decade the information need for HIV has evolved from just service delivery information (e.g. number tested, number on treatment) to a system more focused on people-centered monitoring where people living with HIV (PLHIV) are followed through the continuum of care. This requires a case-based surveillance system. Till 2014, Suriname did not have such a case-based-surveillance system and

data collection and reporting on the HIV treatment cascade was not possible.

Aim: Establish an electronic case-based surveillance system, which will facilitate the monitoring of the continuum of care for PLHIV and allow for more complex analysis; this while utilizing minimal resources.

Methods: The existing national electronic data sources for PMTCT -, CD4 -, viral load, HIV test and treatment were used, and the data was cleaned to establish uniformity. A deduplicated cohort of HIV patients was generated.

Results: Using the Unique Identifier, available in all data sources used, the cleaned data was linked to each other. Linking was done by probabilistic (fuzzy) matching, which provides a possibility to identify similarities between two different health patient IDs, thus addressing data entry and code formulation errors. For probabilistic matching the Link-plus program, provided by CDC¹, was used. A Master Patient Index was constructed containing the de-duplicated unique patient codes which were initially housed in Microsoft Access and then transferred to MySQL. Through this Master Patient Index which initially contained 7481 patients, the formulation of HIV treatment cascade was made possible.

Conclusion: The establishment of an unduplicated HIV master Patient Index using unlinked existing data sources was accomplished and could serve as a basis for further expansion of the HIV surveillance. There is a need to have a closer look at the quality of data collected and to improve the algorithm for deduplication. This system can definitely serve as an example for the establishment of case-based-surveillance systems for other diseases or HIV case-based-surveillance systems in other countries.

Reference:

1. CDC - Cancer - NPCR - Registry Plus Link Plus. (2018, November 29). Retrieved February 6, 2013, from <https://www.cdc.gov/cancer/npcr/tools/registryplus/lp.htm>

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EXPLORING BARRIERS TO AN EFFECTIVE SUPPLY OF LEISHMANIASIS DRUGS AND DIAGNOSTICS IN EASTERN AFRICA: A QUALITATIVE STUDY

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Introduction: Control of visceral leishmaniasis (VL) in eastern Africa requires effective supply to diagnostics and medicines. Challenges such as shortages, low-quality products, and complex procurement hamper access to these life-saving commodities. We explored VL supply barriers from stakeholders perspective (international organizations, manufacturers, control programs) from VL endemic countries in eastern Africa.

Aim: To understand stakeholders' perceptions of the access barriers to quality-assured diagnostics and medicines for leishmaniasis in the high burden region of eastern Africa, to identify key bottlenecks in order to improve supply of commodities for neglected diseases.