Transyears Competing with the Seasons in Tropical Malaria Incidence

**RESEARCH-ARTICLE**

Lyazzat Gumarova1, 2, Germaine Cornelissen1, Borislav D Dimitrov3∗ and Franz Halberg1, 4

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**Abstract**

Communicable and non‐communicable diseases show coperiodisms (shared cycles) with the sun's and earth's magnetism. About 11‐year cycles and components with periods a few weeks or a few months longer than one year (near‐ and far‐transyears, respectively) are the cases in point. Published data on the incidence of malaria in Burundi, Papua New Guinea, and Thailand are analysed by the linear‐nonlinear cosinor to assess the relative prominence of transyears versus the calendar year. An about 2.3‐year component characterizes malaria incidence in Burundi and Papua New Guinea (Thailand data were only sampled yearly). Long‐term trends cannot be distinguished from the presence of an about 11‐year cycle found in a 100‐year long record from Chizhevsky on mortality from cholera in Russia, albeit its second harmonic is statistically significant in Burundi’s data. Whereas far‐ and near‐transyears characterize malaria incidence in Burundi more prominently than the calendar year, only a candidate near‐transyear of small amplitude is barely detected in Papua New Guinea, where the calendar year is most prominently expressed. Both regions are located near the equator. Selectively‐assorted geographic differences such as these, observed herein for a communicable disease, have been previously observed for non‐communicable conditions, such as sudden cardiac death.

**Keywords:**Chronoepidemiology, Malaria, time series analysis, public health, infectious diseases