

Relationship between vector borne diseases and climate in Sri Lanka

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It's well established that certain environmental conditions could have an impact on the epidemiology of certain diseases. Rainfall and temperature can affect the life cycle and livelihood of vectors of some diseases like malaria and dengue. In this study we look at relationship between malaria and dengue on one side and rainfall and temperature on the other. In Sri Lanka the main rainy season occurs in Oct-Nov-Dec and is followed by the peak of the malaria season in Dec-Jan-Feb. When we look at the correlation between rainfall in October and number of cases of malaria at each individual month we found a weak correlation of 0.20, 0.25, and 0.25 in respectively December, January and February. The year-to-year correlations are weak compared with what previous studies have found in Sri Lanka (Zubair et al Malaria Journal 2008, 7:140). But the lower frequency (decadal) relationship is stronger. During persistent years of drought, for example in 1979-1983 and in 1994-2001, we found a low incidence of malaria and both malaria and rainfall follow the same negative trend. High variability in rainfall during 1986-1993 coincides also with high variability in the number of cases of malaria. So the general trend agrees but the year-to-year variation shows a lot of discrepancies as the climate alone cannot explain all cases of infection. For Dengue temperature seems to be the most related climate parameter. The seasonal cycle shows temperature peaks in April-May-June before the maximum number of dengue cases in June-July. This implies a plausible cause to effect. With a better data set we could have found a stronger relationship.