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DOI: 10.1016/S0140-6736(08)61654-2

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Changes in malaria indices between 1999 and 2007 in The Gambia: a retrospective analysis

|                      | Slope (b) | SE of b | p value |
|----------------------|-----------|---------|---------|
| **Malaria admissions**|           |         |         |
| 1999–2007            | –0·109    | 0·01    | <0·0001 |
| 1999–2003            | –0·007    | 0·04    | 0·95    |
| 2004–2007            | –0·162    | 0·05    | 0·002   |
| **Malaria slides**   |           |         |         |
| 1999–2007            | –0·157    | 0·01    | <0·0001 |
| 1999–2003            | –0·058    | 0·04    | 0·19    |
| 2004–2007            | –0·234    | 0·06    | <0·001  |
| **Malaria deaths***  |           |         |         |
| 1999–2007            | –0·47     | ..      | <0·001  |
| 1999–2003            | –0·25     | ..      | 0·05    |
| 2004–2007            | –0·31     | ..      | 0·015   |
| **Non-malaria admissions**|       |         |         |
| 1999–2007            | –0·043    | 0·003   | <0·0001 |
| 1999–2003            | –0·037    | 0·007   | <0·0001 |
| 2004–2007            | –0·022    | 0·014   | 0·130   |
| **Malaria-negative slides**|      |         |         |
| 1999–2007            | –0·013    | 0·006   | 0·047   |
| 1999–2003            | 0·025     | 0·015   | 0·113   |
| 2004–2007            | 0·002     | 0·022   | 0·929   |

Significance of linear trends in numbers over different periods in Fajara indicates that most decrease in malaria has occurred since 2003. We used a linear model to fit the data before and after 2003, and tested a null hypothesis that the number of malaria admissions, positive slides, and deaths remained unchanged for the study period. Dependent variables (malaria admissions and malaria-positive slides) were log-transformed and the residuals of these associations were normally distributed apart from malaria deaths for which the distribution remained highly heteroscedastic, hence we used a non-parametric test to measure the association (Spearman’s r). The analyses of admissions and slides incorporated adjustment for monthly rainfall during the study period. Yearly rainfall was not correlated (Spearman’s r correlation coefficient, p value) with the number of malaria admissions per year (r=0·16, p=0·66), number of malaria-positive slides per year (r=0·46, p=0·20), or number of malaria deaths per year (r=0·46, p=0·20). *Spearman’s r was used to measure the association for malaria deaths.

Webtable: Linear regression on Fajara malaria admissions, malaria-positive slides, malaria deaths, non-malaria admissions, and malaria-negative slides from 1999 to 2007