Web appendix B
Footnote to table 5
Assuming median survival time of 10 years,[19,30] and Weibull survival distribution with index 2 (widely used model for survival after HIV infection before introduction of antiretroviral drugs), survival function $S(t)=\exp(-(t/12)^2)$. If the number of incident infections increase with an annual rate of γ (e.g. if one assumes that the prevalence remains constant, then γ would equal the adult population growth rate, i.e. approximately 0.02). Then one can show (using simple calculus) that the ratio of deaths (D) to HIV infections (I) is D/I $=1/\{\exp(36\gamma^2)\sqrt{(144\pi)}\Phi(-\gamma\sqrt{72})\}$ - γ, where $\Phi()$ denotes the standard normal distribution function. For $\gamma=-0.05, -0.02, 0, 0.02, 0.05$ D/I would equal 0.1147, 0.1017, 0.0940 (i.e. 1/life expectancy), 0.0871, 0.0780 respectively.