Climate Change Impact on Malaria in Africa
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Complex & non-linear influence of environment

Mechanistic approach
Selection based on historical data

GCMs → GCM → RCM

Dynamic downscaling

GCM: Global Climate Model
RCM: Regional Climate Model
Climate change impacts on Malaria in Africa

Projected temperature in July 2011
Climate change impacts on Malaria in Africa

- Ethiopian Highland
  - Cold to warmer → more malaria
  - Wet to slightly wetter → more malaria
  - Current low immunity
  - High risk
Climate change impacts on Malaria in Africa

- Coastal Sahel fringe
  - Warm to warmer → less malaria
  - Dry to drier → less malaria
  - Current moderate immunity
  - Low risk
Climate change impacts on Malaria in Africa

- **WA Sahel fringe**
  - Warm to warmer → less malaria
  - Dry to wetter → more malaria
  - Current moderate immunity
  - Moderate risk
Climate change impacts on Malaria in Africa

- **Ethiopian Highland (i):**
  - Hotter and wetter
  - Current low immunity
  - **High risk**

- **Coastal Sahel fringe (ii):**
  - Hotter and drier
  - Current moderate immunity
  - **Low risk**

- **WA Sahel fringe (iii):**
  - Hotter and wetter
  - Current moderate immunity
  - **Moderate risk**

References: Yamana et al., *Nature Climate Change* (2016)
Endo and Eltahir, *in review*