Equation for our study’s Mixed effect logistic regression analysis using Interrupted time series design

\[
\log \left( \frac{p_{it}}{1 - p_{it}} \right) = (\beta_0 + b_{0i}) + \beta_1 \cdot PRE.LPHCR_time + \beta_2 \cdot LPHCR_time + \beta_3 \cdot LPHCR.TT_time + \beta_4 \cdot HCENTRE + \sum_{k=3}^{4} \gamma_k \cdot I(district = k)
\]

Where \(p_{it}\) represents probability of data availability/completeness for selected DQA indicator or combined indicators. Subscripts \(i\) and \(t\) indicate data completeness at \(i\) facility at month \(t\). 

\(PRE.LPHCR_time\) counts time in month since July 2013. \(LPHCR_time\) counts time in month since July 2014, otherwise “0”. \(LPHCR.TT_time\) counts time in months since July 2016, otherwise “0”. \(HCENTRE\) refers to health center where the reference group is Hospital. District is a dummy variable for the four districts with Berea as the reference group. \(\beta_0\) is intercept for the fixed effect while \(b_{0i}\) is intercept for facility level random effects, \(e^{\beta_1}\) refers to the odds ratio of data completion comparing subsequent months to July 2013, \(e^{\beta_2}\) is the odds ratio of data completion trends comparing LPHCR time against pre-LPHCR time. \(e^{\beta_3}\) is odds ratio of data completion trend comparing LPHCR/TT time against LPHCR time.