Factors Associated with Childhood Mortality in the DR Congo from the Demographic and Health Survey-2014

Paul Law, MD, MPH, MS
Franklin C. Baer, MHS-TM, DrPH
In collaboration with Jenny Tegelvik, MPH; Lawrence Streshley, DrPH and Susan Durberstein of IMA World Health

Background

- According to UNICEF, the DR Congo has the 8th highest Under-Five Mortality Rate at 119/1,000.
- In 2014, a Demographic and Health Survey (DHS) was completed in DRC.
- Only 8 publications exist on PUBMED from the 2007 DHS data and none from 2014.
- There is much greater use of DHS data in other countries.
- In this analysis we review factors associated with under-five mortality rates from the 2014 DHS survey.
DRC’s Health Zone System

- DRC’s health system includes 516 health zones (HZ).
- Church-owned hospitals comprise 34% of the reference hospitals for those HZs.
- Church hospitals generally maintain a higher level of functionality than state hospitals. In some provinces they alone offer health care of appreciable quality. (PNDS 2011-2015)
- Might DHIS surveys demonstrate lower child mortality in HZs where this is church management?
- We matched DHS 2014 data clusters to their respective HZs and then compared HZs with and without a church-owned HGR.

Hypothesis

There will be a clinically relevant and statistically significant association between childhood mortality for health zones with a church-owned reference hospital (aka FBO HZ management). At the same time the analysis also considered associations for the following:
- Gender
- Year of birth
- Parity
- Rural/urban
- Maternal BMI
- Province
- Bed net use
- Wealth index
- Number of wives in the family
Methods

• DHS 2014 data was used along DHS guidelines for weighting to construct a logistic regression model with death by five-years-olds as the outcome variable and the previously-mentioned independent factors. STATA 11.1 (StataCorp) was used.

• Individual Kaplan Meier Survival curves were used for exploration.

• Children with a current age of <60 months at the time of the interview were included.

Results and Statistical Significance

Results that were statistically significant:
• Parity (OR1.56, p=0.008)
• Provinces
  – (Bandundu (0.25, p=0.007)
  – Equateur (OR=0.23, p=0.004)
  – Kasai-Oriental (OR=0.33, p=0.041)
  – Nord-Kivu Province (OR=0.28, p=0.027)
  – Sud-Kivu (OR=0.056, p=0.015)
• DHS Wealth Index (OR=.056, p=0.002)
• Maternal age (OR/year=1.03, p=0.013)

Results trending toward significance:
• Gender (OR=0.79)
• FBO HZ management (OR=0.79)
• Urban/Rural (OR=0.83)
• Year of birth (OR=1.33)
• Bed net use (OR=0.77)
• Number of wives (OR=1.26)
• Maternal BMI (OR/unit=1.03)
Factors Associated with Childhood Mortality in DRC

The Kaplan-Meier Survival curve for Childhood Mortality in health zones with and without a church-owned hospital.

<table>
<thead>
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<th></th>
<th>Events observed</th>
<th>Events expected</th>
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<tr>
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<td>195.41</td>
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<tr>
<td>any_fbo = 1</td>
<td>111</td>
<td>118.59</td>
</tr>
<tr>
<td>Total</td>
<td>314</td>
<td>314.00</td>
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</table>

The P-Value approaches, but does not reach, significance

Discussion

• Parity is predictive of higher mortality.
• Several provinces perform better than the index province of Kinshasa.
• Wealth Index and maternal age have strong associations with mortality.
• FBO co-management status, gender, bed net use, and urban/rural status all had strong associations, but were not statistically significant.
• Further research using other DHS datasets (e.g., 2007) is recommended.
• We should continue to evaluate predictors of childhood mortality and modify health delivery strategies accordingly.