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

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In collaboration with Jenny Tegelvik, MPH;
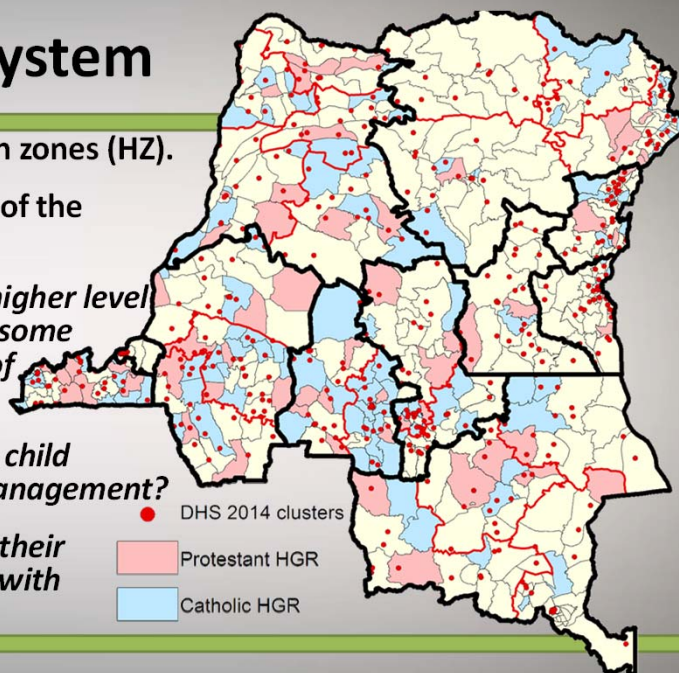Lawrence Sthreshley, DrPH and
Susan Durberstein of IMA WorldHeatlh

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.

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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.*

● DHS 2014 clusters
▮ Protestant HGR
▮ Catholic HGR

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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

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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)

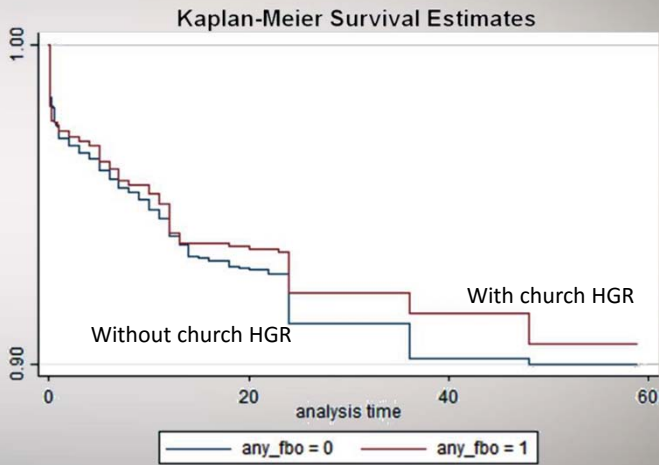**Results trending toward significance:**
- Gender (OR=0.79)
- FBO HZ management (OR=0.79)
- Urban/Rural (OR=0.83)
- Year of birth (OR=1.33)
- Bed net use (OR=0.77)
- Number of wives (OR=1.26)
- Maternal BMI (OR/unit=1.03)

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

Log-rank test for equality of survivor functions		
any_fbo	Events observed	Events expected
0	203	195.41
1	111	118.59
Total	314	314.00

chi2(1) = 0.79
Pr>chi2 = 0.3755

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.**