

The influence of distance on health facility use for childbirth in Zambia

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Motivation

- Every year there are 500 000 maternal and 4 million newborn deaths world-wide, most are preventable.
- Most maternal and newborn deaths occur around time of delivery and cannot be predicted.
- Access to skilled attendance at delivery is key to improving maternal and newborn survival.
- Research so far often assumed services were available and focussed on the characteristics of the mother and her family.
- Distance to services may play an important role.



Study aim



To improve our understanding of how distance from a skilled attendant in a health facility affects women's use of health facilities for childbirth, taking into account other influential factors

Approach

Using their geographic coordinates
we link:

- 1) Household survey data (DHS)
with
- 2) Health facility census (HFC) data.

→ In a geographic information system (GIS) we
calculate straight-line distance from each woman's
community to the nearest health facility.



Level of care

- Basic Emergency Obstetric Care (BEmOC) :
6 signal functions

(injectable antibiotics, anticonvulsants and oxytocics, manual removal of placenta, removal of retained products and assisted vaginal delivery)

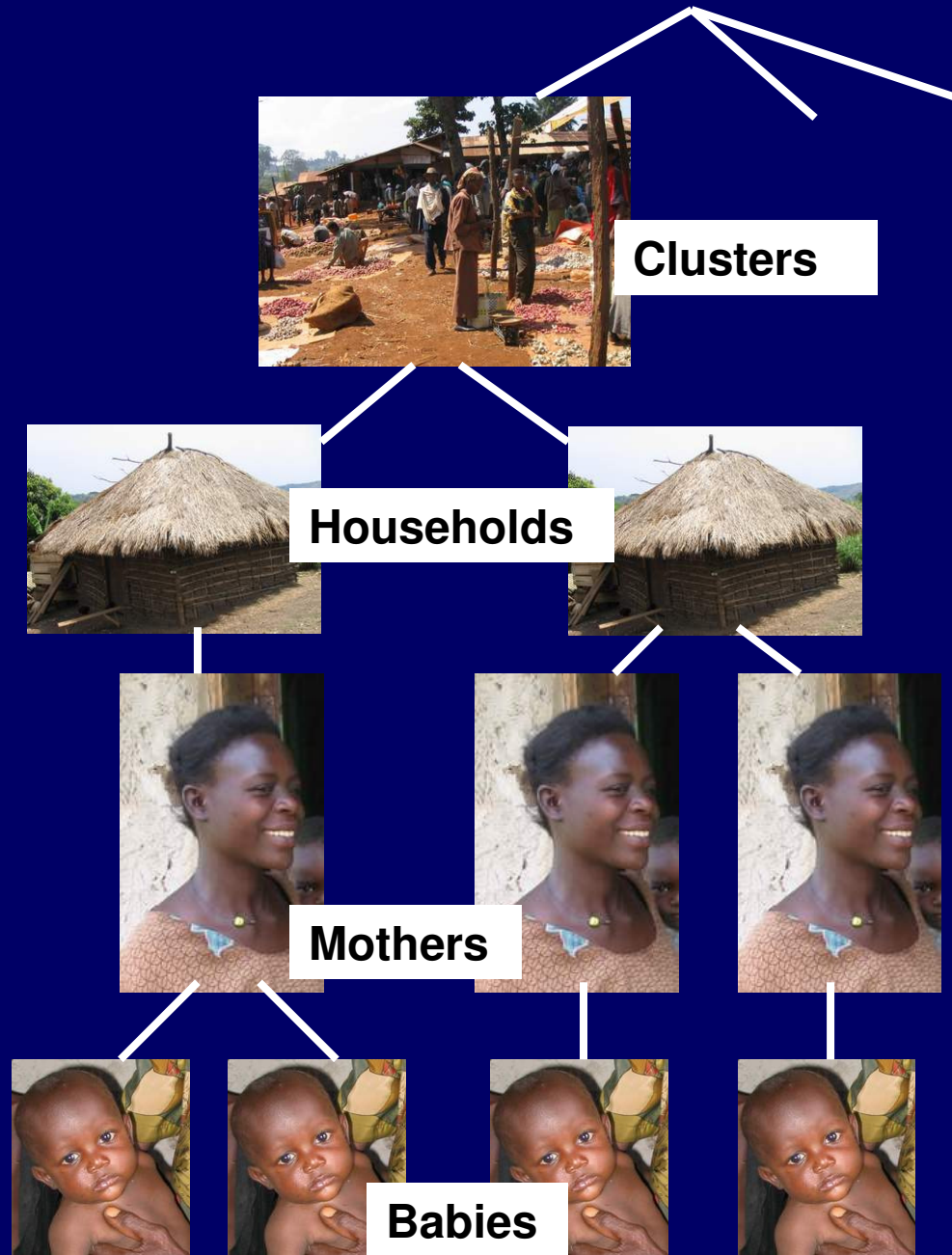
- Comprehensive Emergency Obstetric Care (CEmOC)
= BEmOC + surgery + blood transfusion

→ Health facility classification:
from substandard delivery service to CEmOC



Analysis methods

- Hierarchical data structure:
births from same mother, household, cluster are not independent
- Covariates at each level
- Multilevel logistic regression (random effects)



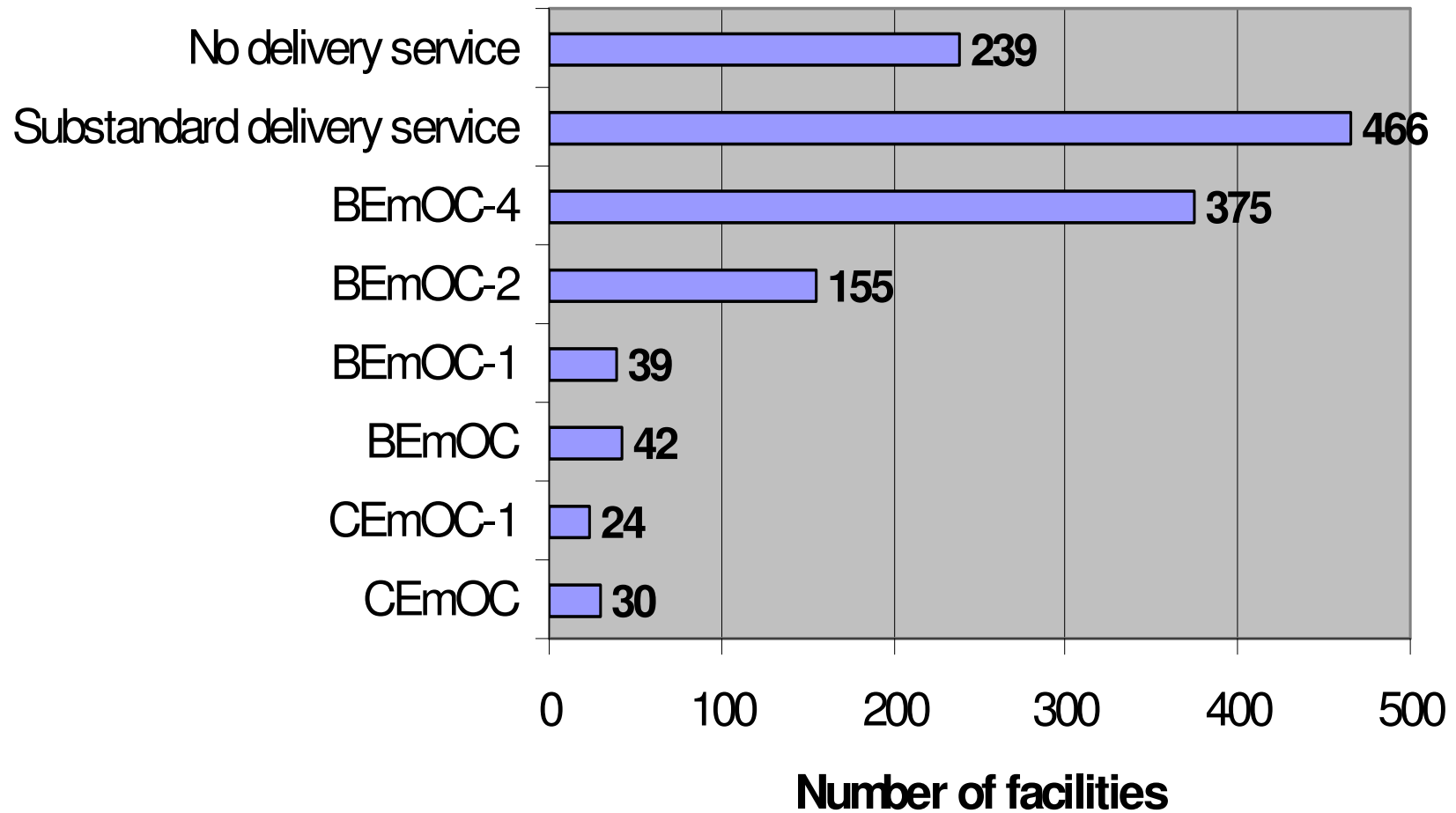
Methodological challenges

- Health facility data: SAM only few districts, SPA not in relation to DHS clusters
- DHS data: GIS data scrambling (HIV, all)
- Time period overlap, facilities at one point in time
- Visitors and those who moved since birth of child
→ GIS and all cluster information misclassified

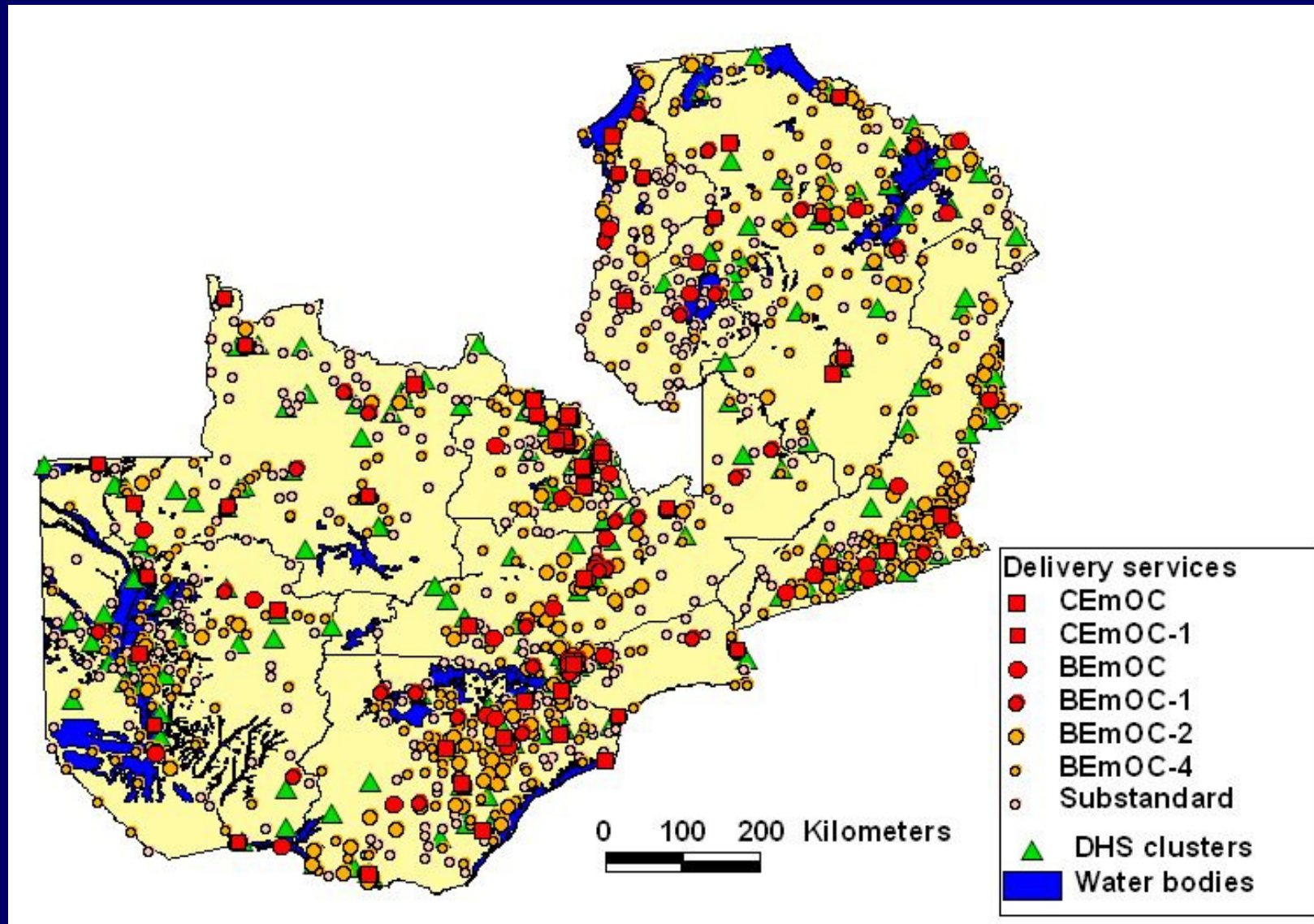
Results (so far)



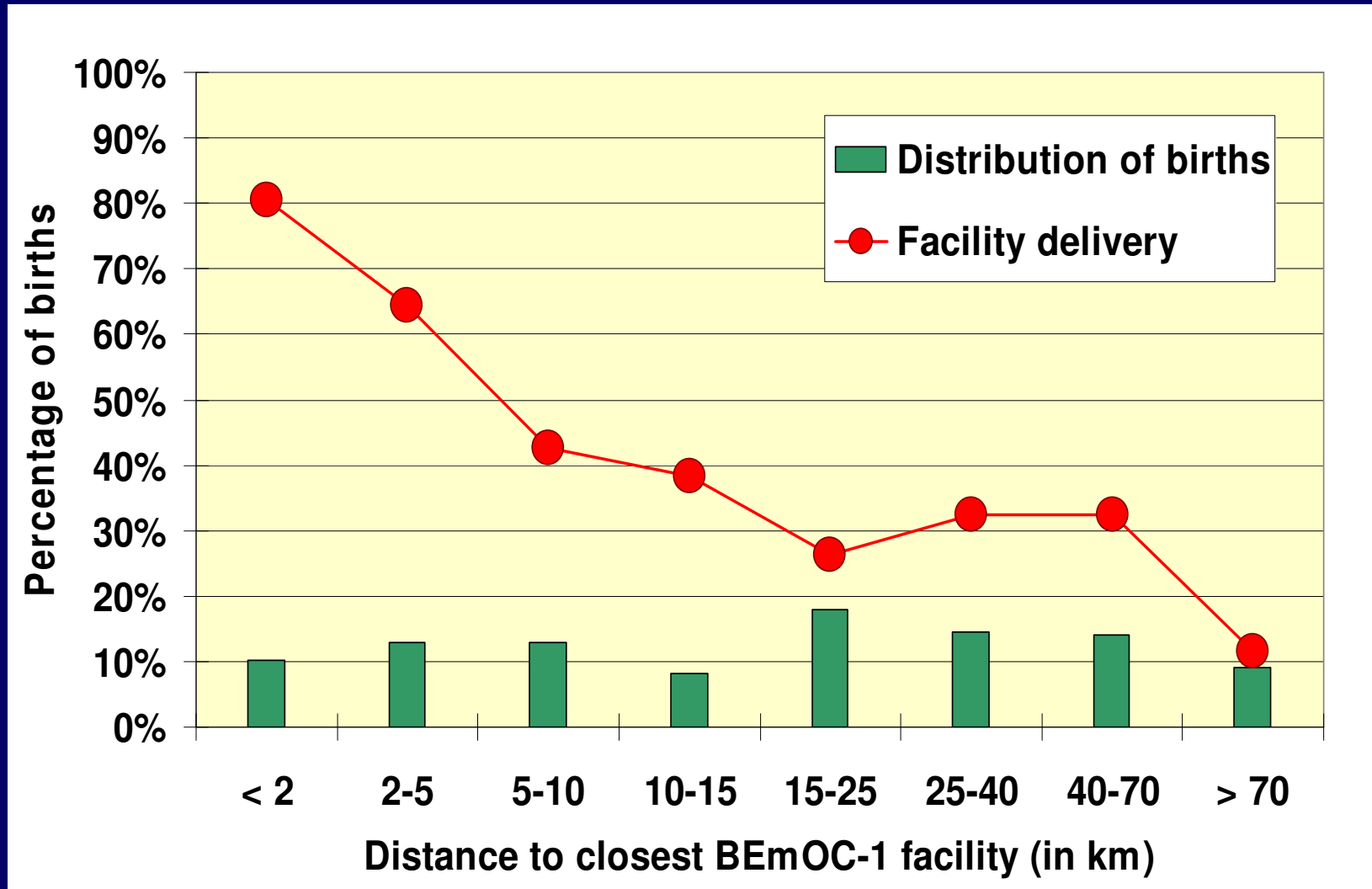
Categorisation of all **Zambian** health facilities according to their **EmOC** functions (n=1370)



Delivery services in Zambia



Facility delivery by distance in Zambia



Distance effect adjusted

Multivariate multilevel model

(adjusted for birth order, previous newborn death or stillbirth or C-section, mother's age, literacy, education, occupation, exposure to media health programmes, autonomy, husband's occupation, household wealth, household transportation means, ...)

Distance to BEmOC-1	Facility delivery OR	95% CI	p-value
< 5 km	1	–	–
5 – 15 km	0.21	0.09 - 0.48	< 0.001
> 15 km	0.11	0.05 - 0.23	< 0.001

Conclusions

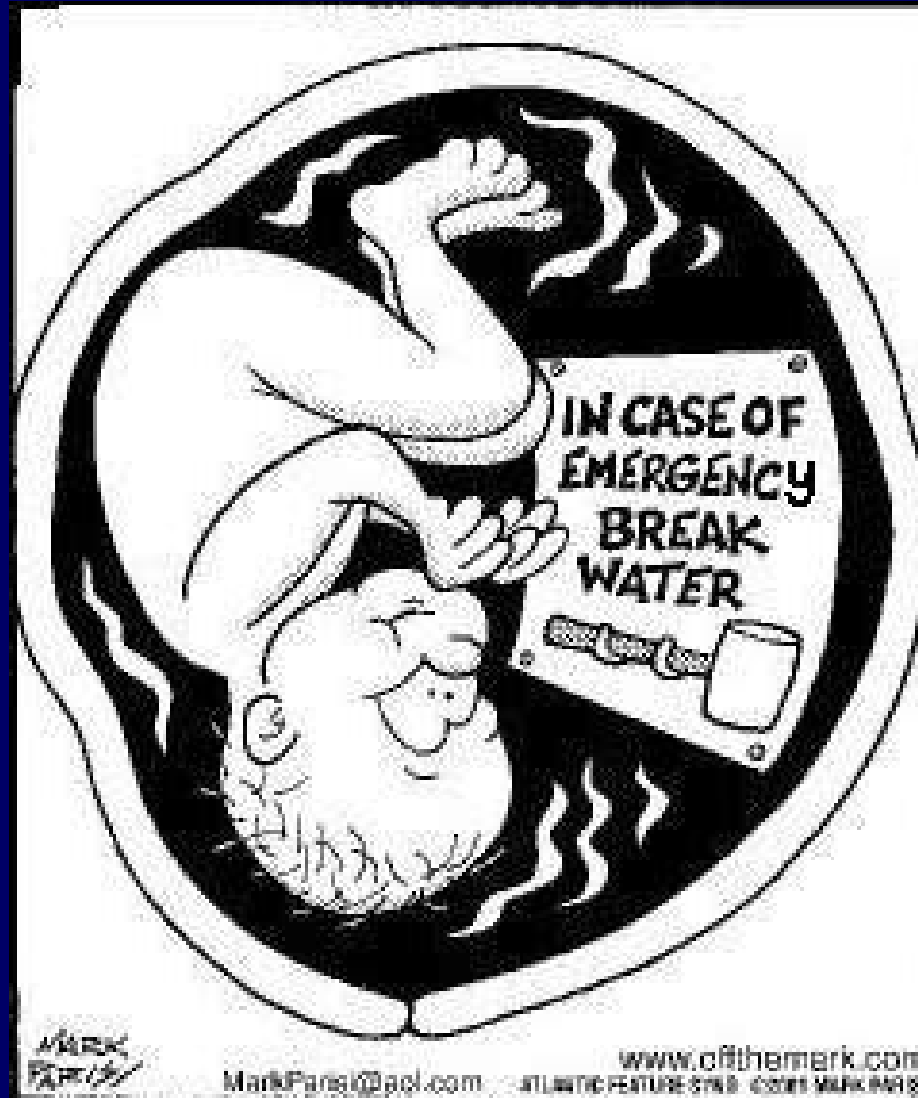
- Few facilities in Zambia offer delivery services at the level of Basic Emergency Obstetric Care or higher
- Most people live far away from such facilities
- Keeping all individual and household factors the same, those at further distance are much less likely to deliver in a health facility
- Next steps....



Outlook

- Effect modification by other factors such as mother's education, ability to pay and aspects of health care quality
- Absolute importance (PAF)
- Include other cluster-level variables in model
- More sophisticated distance measures than straight-line
- Other countries
- Effect of distance to neonatal services on newborn survival

**Thank you! Gracias! Obrigada!
ANY QUESTIONS?**



**Any
comments
welcome!**

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