

BACKGROUND

- Studies in high-income countries, like the US, have reported significantly lower incidence of neural tube defects (NTD) following folic acid fortification of staple foods.
- In 2008, the incidence of NTD in Cameroon was found to be 1.99 per 1000 live births, 4 times the rate in the US¹.
- In 2011, a wheat flour folic acid fortification program was implemented in Cameroon.
- A regional micronutrient survey revealed significant increases in plasma folate concentrations in women of reproductive age one year after fortification².
- The plasma folate results suggest that the fortification program has been successful, but the impact on NTD incidence has not been studied.



Map of Cameroon, highlighting major urban cities

OBJECTIVES

- Main Objective: To assess the incidence of neural tube defects in urban hospitals in Cameroon prior to and following fortification of wheat flour with folic acid.
- Pilot study objective: To adapt the data collection protocol and tools to the context of Cameroon

METHODS

- Design: Retrospective chart review
- Inclusion criteria: Births between 2007-2017 in selected hospitals in urban cities of Cameroon
- Exclusion criteria: Non-English or non-French charts and those with minimum information unavailable
- Target sample size: 70,000 births, to detect a difference in NTD incidence of 20 vs 10 cases per 10,000 births.



Fortified wheat flour

METHODS

Pilot Study Methods

- Submit IRB protocol to UCD (approved) and Cameroon (pending)
- Prepared standard operating procedure and data collection forms
- Set up tablet-based system for secure data collection and management using ONA[®] software
- Arranged hospital visits and interviews with local experts to make field adaptations and standardize data collection

RESULTS

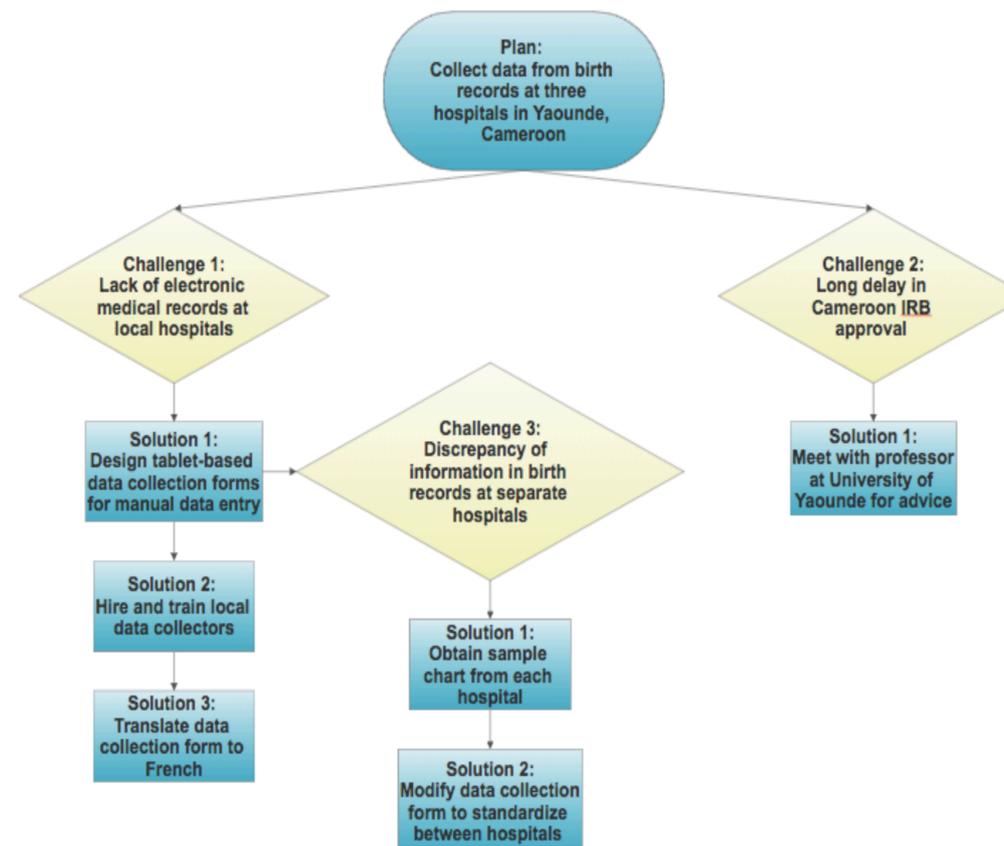


Figure 1: Field adaptations to Data Collection Challenges

RESULTS

- Biggest challenges to performing data collection included lack of electronic medical records (EMR), birth record discrepancy among local hospitals, and delay in Cameroon Institutional Review Board (IRB) approval (Figure 1).
- Tablet-based data collection forms and a manual of procedures have been modified based on each hospital's sample birth chart.
- Upon approval from Cameroon IRB, data collectors will be hired and trained to review birth charts from local hospitals in Yaoundé.
- Data collection is expected to be completed six months after initiation.
- Data will be reviewed for quality control, managed, and analyzed remotely throughout the study.

CONCLUSION

- Settings with limited resources, such as lack of electronic records and training in research methods, present challenges for studying disease.
- Challenges can be overcome with appropriate adaptations; these necessitate visiting the site and collaborating with local researchers
- Based on other studies, the post-fortification incidence of NTDs in Cameroon is expected to decrease by as much as 50%
- Given the relatively low cost of fortifying food flour, fortification programs could be a cost-effective means for reducing the burden of disease in developing nations.
- If the projected decrease in NTDs is confirmed, the results would generate increased support for the fortification program and serve as a model for other countries.



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References

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