

# National Health Research Dissemination Symposium 2015

Ending Preventable Child and Maternal  
Deaths in Ghana: Event Presentations



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## INTRODUCTION

The National Health Research Dissemination Symposium (NHRDS) took place May 27 and 28, 2015, at the GIMPA Executive Conference Center in Accra. Co-hosts were the Research Directorate of the Ministry of Health, Health Research Development Division and Policy, Planning, Monitoring and Evaluation Division of the Ghana Health Service and the USAID/Ghana Evaluation for Health Project, implemented by Management Systems International.

The Research Symposium's overarching theme was: "Ending preventable child and maternal deaths in Ghana." The event brought together more than 150 participants, including young researchers, policymakers, educators, senior health service professionals, development partners and selected research students. Researchers and special guest speakers made more than 30 oral presentations and 12 poster presentations during the two-day event.

### Accessing the Research Presented at the Symposium

This document is a compilation of the speeches and presentations made at the Symposium. It will be available on USAID's Development Experience Clearinghouse <http://dec.usaid.gov> and on the Ghana Health Service's website <http://www.ghanahealthservice.org>. The abstract book made available at the event is also available for download on the Development Experience Clearinghouse.

The NHRDS's Steering Committee has posted the individual plenary and parallel session presentations in public Dropbox folder at [https://www.dropbox.com/sh/682xmfihk9lssfr/AADrV5Umqt\\_7wIIWP2xOqFrPa?dl=0](https://www.dropbox.com/sh/682xmfihk9lssfr/AADrV5Umqt_7wIIWP2xOqFrPa?dl=0).

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## Programme

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3. “What have we learnt and where do we go from here? Setting the agenda within the sustainable development goals to end preventable child and maternal deaths.” Dr Abdulai Tinorgah, Public Health Expert.

### Plenary Session Presentations

1. “Ending preventable child and maternal deaths: notable successes and notable challenges-the data story told over two decades.” Dr Appiah Denkyira, Director General, GHS, and Dr Patrick Aboagye, Director, Family Health Division, GHS.
2. “Succeeding in ending preventable maternal, neonatal and child deaths: the tasks ahead as we move from MDGs to SDGs.” Dr. Magda Robalo, WHO Country Representative.
3. “Using evidence to make an investment case for ending preventable child and maternal deaths.” Dr Joses Kirigia, PhD, Program Manager Research, Publications and Library Services Program, World Health Organization, Regional Office for Africa.
4. “Are we reinventing the wheel? Aren’t there solutions already out there?” Cyril Engmann, PhD, Global Program Leader and Director for Maternal, Newborn, Child Health and Nutrition, PATH
5. “Determinants of Infant/Child and Maternal Mortality.” Kodjo Senah, Prof of Sociology, University of Ghana.
6. “Preventing Maternal and Child Deaths with Health System Strengthening Initiative: The Ghana Essential Health Intervention Program (GEHIP) Experience.” Dr. Koku Awoonor-Williams, Regional Director, Upper East Region, GHS.
7. “Summary of emerging themes.” Jacqueline Möller Larsen, Public Health Consultant.

### Parallel Session Research Presentations

#### Session 1a: Providing Leadership and Governance/Organizing Health Services for Child and Maternal Health

- An insight into Tema General Hospital causes of maternal mortality. A descriptive mixed method study on causes of maternal mortality in Tema General Hospital. Dr John B K Yabani, GHS.
- A qualitative study exploring barriers to exclusive breastfeeding among “nurse mothers” in Koforidua, Ghana. Dr N’Dauguié Armel E. Abou, St Joseph Hospital.
- A focused ethnographic study of infant and young child feeding and their context in rural Ghana. Margaret Armar-Klemesu, University of Ghana.

### **Session 1b: Organizing Health Services for Child and Maternal Health**

- Medical transport for women and children in rural settings: modified motorcycle as a promising option. Mr Mohammed Ali, Catholic Relief Services.
- An assessment of the implementation of prevention of mother-to-child transmission (PMTCT) of HIV in the Volta region. Mr Adams Agbeko, GHS.
- Ghana EMBRACE implementation research: is continuum of care in MNCH feasible and effective? Dr Evelyn Ansah, GHS.

### **Session 2a: Developing and Utilizing Human Resources for Child and Maternal Health**

- Factors related to retention of community health workers in community-based management of fevers in children under-five years in Dangbe West district of Ghana. Mrs Mercy Abbey, GHS.
- Determinants of skilled birth attendant at delivery in rural southern Ghana. Mr Alfred Kwesi Manyeh, Dodowa Health Research Centre.
- Let's start where we begin: e-Learning in pre-service education. Mrs Alison Trump, Jhpiego.
- Food-based dietary modifications to improve the dietary intake of infants and young children in Ghana. Abdul-Razak Abizari, Department of Community Nutrition, School of Allied Health Sciences, University for Development Studies, Tamale.

### **Session 2b: Financing and Provision of Social Protection for Child and Maternal Health**

- Analysis of health and economic benefits of family planning in Ghana. Dr Nichole Zlatunich, Futures Group.
- Socio economic correlates and choice of treatment for childhood fevers. Mr Eric Arthur, University of Benin, Nigeria.
- Randomized control trial to ascertain impact of behaviour change interventions. Madeleen Husselman, Innovations for Poverty Action.
- Predictors of abortions in rural Ghana: cross sectional study. George Adjei, Kintampo Health Research Centre.

### **Session 3a: Developing and Organizing Health Information for Child and Maternal Health**

- District Health Information Management System (DHIMS-2). Dr Anthony Oforu, PPME, GHS.
- Child and maternal deaths in Northern Ghana: evidence from the Navrongo Health and Demographic Surveillance System. Dr Abraham Oduro, Navrongo Health Research Centre.
- Improving maternal mortality reporting at the community level with a 4-question modified reproductive age mortality survey (RAMOS). Dr Anthony Oforu, PPME, GHS.
- Effect of timely initiation of breastfeeding on child health in Ghana. Rita Fosu-Brefo, University of Cape Coast, Ghana.

### **Session 3b: Innovations and Health Technologies for Child and Maternal Health**

- Adverse events following immunization with newly introduced measles rubella vaccine-Jirapa district, Ghana, 2013. Mr Godfrey Konnyebal, Ghana Field Epidemiology Training Program.
- Can mobile phone messages to licensed chemical sellers increase prescription use of ORS and zinc? A randomized controlled trial in Ghana. Mr Odartei Lamptey, Abt Associates.

- Impact of malaria vaccine candidate RTS, S/AS01 on malaria in African infants and children 18 months post-primary vaccination. Kwaku Asante, Kintampo Health Research Centre.
- Effect of MenAfriVac meningococcal A vaccine on pregnancy outcome: An assessment conducted at the Navrongo Health and Demographic Surveillance site. Mr George Wake, Navrongo Health Research Centre.

#### **Session 4a: Community Ownership, Participation and Decision Systems for Child and Maternal Health**

- Community maternal morbidity audits: evidence for optimal community based model for reducing maternal mortalities in Ghana. Mr Raymond Aborigo, Navrongo Health Research Centre.
- Treating fever in children under five: caregivers' perceptions of community health worker services in Dangbe West district. Mrs Mercy Abbey, GHS.
- The stillbirth and neonatal death study (SANDS): implications of lessons learned from an interdisciplinary, mixed -method, four institutions collaborative. Raymond Aborigo, Navrongo Health Research Centre.
- Commonly identified infectious agents and their sensitivity pattern: a threat to the development of children under five. Louisa Iddrisu, University of Ghana Medical School.

#### **Session 4b: Development Partnerships for Child and Maternal Health**

- Rapidly increasing the use of correct paediatric diarrhoea treatment in Ghana. Mr Joseph Addo-Yobo, Abt Associates Inc.
- Socioeconomic and demographic determinants of under-five mortality in rural northern Ghana. Mr Edmund Kanmiki, Navrongo Health Research Centre.
- Congenital Malaria in newborn twins. Dr David Opare, Ghana Health Service.
- Determinants of prenatal HIV testing and counselling as a component of quality maternal and child health services amongst rural women in Ghana: a population-based survey. Mrs Doris Sarpong, Dodowa Health Research Centre.

# PROGRAMME

WEDNESDAY, MAY 27, 2015

## First Plenary and Opening Session

Chairperson: Professor Fred Newton Binka, Vice Chancellor, University of Health Allied Sciences

- **Dr Frank Nyonator, Chairman National Steering Committee for NHRDS 2015** *Welcome and introduction.*
- **Dr Appiah Denkyira, Director General, GHS** *Ending preventable child and maternal deaths: notable successes and notable challenges – the data story told over two decades.*
- **Special Guest Speaker: Dr Magda Robalo, WHO Country Representative, representing the UN system in Ghana** *Succeeding in ending preventable maternal, neonatal and child deaths: the tasks ahead as we move from the MDGs to SDGs*
- **Keynote Address: Honourable Alexander Segbefia, Minister of Health, Ghana** *Strategic direction for the eliminating maternal, neonatal and child death in Ghana.*

## Parallel Session One of Research Presentations

### Session 1a: Providing Leadership and Governance/Organising Health Services for Child and Maternal Health

Chair: Dr George Amofah, Former Deputy Director General, GHS and Senior Lecturer at University of Ghana School of Public Health

- *An insight into Tema General Hospital causes of maternal mortality. A descriptive mixed method study on causes of maternal mortality in Tema General Hospital.*
- *A qualitative study exploring barriers to exclusive breastfeeding among “nurse mothers” in Koforidua, Ghana.*
- *A focused ethnographic study of infant and young child feeding and their context in rural Ghana.*

### Session 1b: Organizing Health Services for Child and Maternal Health

Chair: Dr Linda Vanotoo, Regional Director of Health, GHS, Greater Accra Region

- *Medical transport for women and children in rural settings: modified motorcycle as a promising option.*
- *An assessment of the implementation of prevention of mother-to-child transmission (PMTCT) of HIV in the Volta region.*
- *Ghana EMBRACE implementation research: is continuum of care in MNCH feasible and effective?*

## Parallel Session Two of Research Presentations

### Session 2a: Developing and Utilizing Human Resources for Child and Maternal Health

Chair: Dr Patrick Aboagy, Director, Family Health Division, GHS.

- *Factors related to retention of community health workers in community-based management of fevers in children under-five years in Dangbe West district of Ghana.*
- *Determinants of skilled birth attendant at delivery in rural southern Ghana.*
- *Let's start where we begin: e-Learning in pre-service education.*
- *Food-based dietary modifications to improve the dietary intake of infants and young children in Ghana.*

### Session 2b: Financing and Provision of Social Protection for Child and Maternal Health

Chair: Dr Erasmus Agongo, Director of Policy Planning Monitoring and Evaluation Division, GHS

- *Analysis of health and economic benefits of family planning in Ghana.*
- *Socio economic correlates and choice of treatment for childhood fevers.*
- *Randomized control trial to ascertain impact of behaviour change interventions.*
- *Predictors of abortions in rural Ghana: cross sectional study.*

### **Second Plenary Session: Global Research Evidence to Support Ending Preventable Child and Maternal Deaths.**

Chair: Dr Gloria Quansah Asare, Deputy Director General, GHS

- Guest Speaker 1: **Dr Joses Muthuri Kirigia, PhD: Programme Manager Research, Publications and Library Services programme. World Health Organisation, Regional Office for Africa:** *Using evidence to make an investment case for interventions to end preventable child and maternal deaths.*
- Guest Speaker 2: **Professor Cyril Engmann, Global Program Leader and Director for Maternal, Newborn, Child Health and Nutrition, PATH:** *Are we re-inventing the wheel? Aren't there solutions out there?*
- Chairman's Closing Remarks and opening of the Poster Session

### **Symposium Reception and Poster Presentation.**

**THURSDAY, MAY 28, 2015**

### **Third Plenary Session: Local Evidence and Challenges to Ending Preventable Child and Maternal Deaths**

Chair: Dr Sam Adjei, Chief Executive, Centre for Health and Social Services and formerly Deputy Director General of GHS

- Guest Speaker 1: **Kodjo Senah, Prof of Sociology, University of Ghana:** *Local socioeconomic determinants to ending preventable child and maternal death*
- Guest Speaker 2: **Dr Koku Awoonor-Williams, Regional Director, Upper East Region, GHS:** *Local health system challenges to ending preventable child and maternal deaths and issues with relevant research translation through the lens of the Ghana Essential Health Intervention Project.*

### **Parallel Session Three of Research Presentations**

#### **Session 3a: Developing and Organizing Health Information for Child and Maternal Health**

Chair: Dr Charity Sarpong, Regional Director of Health Services, Eastern Region

- *District Health Information Management System (DHIMS-2).*
- *Child and maternal deaths in Northern Ghana: evidence from the Navrongo Health and Demographic Surveillance System.*
- *Improving maternal mortality reporting at the community level with a 4-question modified reproductive age mortality survey (RAMOS).*
- *Effect of timely initiation of breastfeeding on child health in Ghana.*

#### **Session 3b: Innovations and Health Technologies for Child and Maternal Health**

Chair: Dr Abraham Hodgson, Director, Research and Development Division, GHS

- *Adverse events following immunization with newly introduced measles rubella vaccine-Jirapa district, Ghana, 2013.*
- *Can mobile phone messages to licensed chemical sellers increase prescription use of ORS and zinc? A randomized controlled trial in Ghana.*

- *Impact of malaria vaccine candidate RTS, S/AS01 on malaria in African infants and children 18 months post-primary vaccination.*
- *Effect of MenAfriVac meningococcal A vaccine on pregnancy outcome: An assessment conducted at the Navrongo Health and Demographic Surveillance site.*

#### **Parallel Session Four of Research Presentations**

##### **Session 4a: Community Ownership, Participation and Decision Systems for Child and Maternal Health**

Chair: Dr Joseph Nuertey, Regional Director of Health, GHS Volta Region

- *Community maternal morbidity audits: evidence for optimal community based model for reducing maternal mortalities in Ghana.*
- *Treating children under five: caregivers' perceptions of community health worker services in Dangbe West district.*
- *The stillbirth and neonatal death study (SANDS): implications of lessons learned from an interdisciplinary, mixed -method, four institutions collaborative.*
- *Commonly identified infectious agents and their sensitivity pattern: a threat to the development of children under five.*

##### **Session 4b: Development Partnerships for Child and Maternal Health**

Chair: Placide Tapsoba, Country Director Ghana, Population Council

- *Rapidly increasing the use of correct paediatric diarrhoea treatment in Ghana.*
- *Socioeconomic and demographic determinants of under-five mortality in rural northern Ghana.*
- *Congenital Malaria in newborn twins.*
- *Determinants of prenatal HIV testing and counselling as a component of quality maternal and child health services amongst rural women in Ghana: a population-based survey.*

#### **Fourth Plenary Session and Closing: Where do we go from here?**

Chair: Dr Moses Adibo, Former Deputy Minister for Health, Government of Ghana

- **Jacqui Moller Larsen, Public Health Consultant:** *Brief summary of emerging themes and issues from the Symposium.*
- **Guest Speaker: Dr Awudu Tinorgah, Public Health Expert:** *What have we learnt and where do we go from here? Setting an agenda within the Sustainable Development Goals to end preventable child and maternal deaths.*
- **Chairperson's Concluding Remarks.**

# **SPEECH TRANSCRIPTS**

## **Welcome and Introduction**

Dr. Frank Nyonator, Chairman, National Steering Committee

## **Strategic Direction for the Ending Child and Maternal Deaths in Ghana**

Honorable Alexander Segbefia, Minister for Health, Ghana

## **WHAT HAVE WE LEARNT AND WHERE DO WE GO FROM HERE? SETTING THE AGENDA WITHIN THE SUSTAINABLE DEVELOPMENT GOALS TO END PREVENTABLE CHILD AND MATERNAL DEATHS**

Dr Abdulai Tinorgah, Public Health Expert

## Welcome and Introduction

**Dr. Frank Nyonator, Chairman, National Steering Committee**

Mr. Chairman, Honorable Minister for Health, our guest speaker, the Director, USAID Office of Health Population and Nutrition, our supportive development partners, colleague presenters and participants, invited guests, ladies and gentlemen. I am, on behalf of the Steering Committee for the National Health Research Dissemination Symposium, welcoming you all to this two-day event and permit me to provide you with a background to the Symposium.

Mr. Chairman, Honorable Minister and invited guests, Ghana's current investments in health are notable and have resulted in substantial reductions in maternal mortality, child mortality, malnutrition and increases in life expectancy at birth - as clearly reflected in the preliminary results of the 2014 Ghana Demographic and Health Survey.

However, the prevalence of avoidable maternal, neonatal and child deaths remains unacceptably high. Ghana continues to confront unmet needs for expanded access to quality child and maternal health services and strengthened national and community-based health systems. In addition, some prevailing wider social and cultural determinants further constrain efforts to reduce preventable child and maternal deaths.

Mr. Chairman, to help Ghana meet these challenges, our development partners and specifically, USAID/Ghana, seek to support improvements in the Ghanaian health system and changes in the social and cultural beliefs, norms and practices that will contribute to the attainment of universal health coverage. These efforts include: increasing access to and utilization of integrated health services; expanding availability of community-based resources, strengthening and creating responsive health systems and improving health sector governance and accountability.

Indeed, the transformation of prevailing social norms that constrain the creation of health promoting and enabling community environments are also important. Such a transformation can lead to empowered and informed parenting, self-care in pregnancy and appropriate use of services.

Mr. Chairman, as a start and to help the health sector in Ghana realize these critical improvements, USAID is supporting evidence-based interventions to end preventable child and maternal mortality. In furtherance of these goals, the USAID/Ghana – Evaluate for Health (E4H) Project (which I direct) has been working alongside the Government of Ghana and other stakeholders to organize this two-day research dissemination symposium to showcase important research findings from Ghanaian experts and bring those findings closer to practice and policy makers.

Mr. Chairman, I will like to emphasize that the E4H Project, the Ministry of Health, the Ghana Health Service – specifically, the Research, Statistics and Information Management Directorate of the Ghana Ministry of Health, Health Research Development Division of the GHS and the PPME Divisions of both MOH and Ghana Health Service (GHS) - are co-hosting this symposium.

The public health challenges Ghana has yet to overcome are complex and deeply inter-connected. They require continued commitment to fundamental and transformational change in our health systems, structures, professional accountabilities, practices, and policies, and in people's hearts and minds.

As part of the overall effort, we hope this symposium will enable stakeholders to reflect together on the existing bodies of knowledge and research evidence to ensure that national policies, practices, approaches and interventions are informed by the most impactful approaches and interventions to end preventable child and maternal deaths in our country.

Mr. Chairman, the overarching theme of this Symposium is “ending preventable child and maternal deaths.”

As far as possible, participants have been invited to look at related research themes through the lens of health systems, in line with the following maternal, neonatal and child health priority areas, outlined in the Ouagadougou Declaration on Primary Health Care and Health Systems in Africa (April 2008):

1. Providing leadership and governance
2. Organizing health services
3. Developing and utilizing human resources
4. Financing and provision of social protection
5. Developing and organizing health information
6. Innovations and health technologies
7. Community ownership, participation and decision systems
8. Development partnerships
9. District level implementation and operational research (what we call in my time – ‘Commando Research’)

Mr. Chairman, Hon Minister and Invited Guests, this symposium has six key objectives:

- Provide a forum for the academic and research community in Ghana to showcase the existing body of research and evidence in Ghana to relevant policymakers, implementers, decision makers and other researchers to ensure that evidence directly informs practice going forward and further research builds on, not duplicates, this work.
- Highlight research and evaluations that have demonstrated notable impact and efficacy of innovations, interventions and multidisciplinary approaches in maternal, neonatal and child health and where scaling up or adoption might be encouraged or considered.
- Identify gaps in the existing body of research and establish a consensus on national priorities for further research.
- Create an impetus and opportunity for greater exchange and collaboration within the research community to share, build capacity and nurture expertise in the area of maternal, neonatal and child health.
- Give opportunity for younger researchers to share their work alongside more experienced, established researchers.
- Value and encourage further research that seeks to improve health systems through investigation, appraisal and review to inform changes and improvements and address bottlenecks

In conclusion, Mr. Chairman, registration to the Symposium had been very encouraging and currently we have 200 participants attending, made up of researchers (including young researchers), policymakers, senior health service professionals, development partners and selected research students. We have had approximately 60 submissions of abstracts from which the Steering Committee recommended 32 oral presentations to be delivered under the various health systems priority areas of the Ouagadougou Declaration and along with 15 poster presentations. The GHS has ensured regional representation and the GHS Research Division has arranged for continuing professional development points to be awarded to health professionals who participate in the symposium when they apply through the normal channels.

We have put together a book including the symposium program and abstracts on all research submissions for oral presentation and poster display. After the symposium, this booklet will be updated and made widely available both in hard copy and electronic format on the Symposium webpage.

Mr. Chairman, enthusiasm for this Symposium has been overwhelming indicating the huge felt need for this type of event to be held at least every two years to showcase the body of evidence being generated in

Ghana to help strengthen the health systems in our country, not only to end preventable child and maternal deaths, but also to improve the overall health status of Ghanaians.

The National Steering Committee Welcomes you all to this Symposium and wishes you a fruitful two days. Thank you.

## **Strategic Direction for the Ending Child and Maternal Deaths in Ghana**

### **Honorable Alexander Segbefia, Minister for Health, Ghana**

Mr. Chairman – Professor Fred Newton Binka, Vice Chancellor, University of Health and Allied Sciences, UHAS. Our Special Guest Speaker – Dr. Magda Robalo, WHO Country Representative representing the UN System in Ghana. The Director, USAID Office of Health Population and Nutrition. Chairman and Members of the National Steering Committee for NHRDS 2015, Ghana’s development partners in health, presenters and participants, invited guests, ladies and gentlemen.

I am most delighted to be part this important initiative to share information that will contribute to our collective effort to end preventable child and maternal death in Ghana. It is an exciting beginning for me as your current Minister of Health.

The death of any child or pregnant woman in this country or elsewhere that could have been prevented is an entirely unacceptable death.

Mr. Chairman and colleagues, as a Government, Ministry, Health service, and as citizens, we all have our unique and collective roles to play in preventing child and maternal deaths in our communities.

We are indeed making some significant progress in reducing preventable child and maternal deaths in Ghana. Deaths amongst children under five have more than halved since 1990 although same cannot be said for deaths amongst Newborns. Maternal mortality ratio is currently estimated at about 380 deaths per 100,000 live births. This is an improvement from the very high rates observed in 1990.

Much of the progress with the reduction in child and maternal deaths is due to improvements in our health policies, health systems and practices, changes in our health behaviors and even our health beliefs. It is also through the hard work of our health force and the support of our collaborators and Development Partners.

Indeed I take this opportunity to commend the great effort of everyone who has played a part and celebrate these very positive achievements. We can be proud of what has been done.

However we are not there yet. It is not enough and there can be no place for complacency.

The number of preventable deaths amongst our unborn and newborns is still too high. Mothers, wives, sisters and daughters are lost at a time in their own and their family’s lives that should be joyous and momentous. Instead each preventable death has a devastating effect and is in fact a tragedy for the whole nation. No child or woman deserves to die from a preventable cause.

For this reason we need to do more, we must all continue to focus our energy and efforts to end preventable child and maternal deaths in our country.

As a Government, we take this challenge extremely serious and seek to embrace every potential tool or resource that can help us shape our policies, organize and target our services, change or improve our practice to be as efficient and effective as possible to make the difference.

High quality research evidence is one such critically important resource to help us to do these. This is why we as a Ministry and Government have invested in many health research institutes that are conducting high quality research and producing extremely valuable evidence that can help us target our efforts and interventions where the impact is greatest.

Health research has already translated into key policies in Ghana. Examples are the Community Health and Planning Services (CHPS) initiative, insecticide treated bed nets, vitamin A supplementation trials, the mutual health insurance scheme pilots, amongst others.

This symposium is an important opportunity for our country's research experts and academics to showcase their work. This symposium brings together policy makers, planners, educators, health care professionals and managers, NGO's and other critical stakeholders to share and discuss these findings and get them closer to our decision making and practice.

I urge you all to participate actively in this symposium, consider the relevance of the findings within the context of what you do and what you can influence and share the research products widely with those who are unable to attend.

There remains much to be done, and I believe that the research products shared here today will add value to our health policies and programming or translate into further deeper interrogation of inconclusive findings.

It is my fervent hope that the knowledge gained here over the next two days will add value to our collective efforts to end preventable child and maternal deaths in Ghana. I will like to congratulate the National Steering Committee for a good work done.

Finally, ladies and gentlemen, I wish you all a very successful symposium and may the lives of children and mothers in Ghana be better for it.

Thank you.

Hon. Alexander Segbefia  
Minister of Health, Ghana  
27th May 2015

# WHAT HAVE WE LEARNT AND WHERE DO WE GO FROM HERE? SETTING THE AGENDA WITHIN THE SUSTAINABLE DEVELOPMENT GOALS TO END PREVENTABLE CHILD AND MATERNAL DEATHS

## Dr Abdulai Tinorgah, Public Health Expert

I thank Dr Frank Nyonator and the organisers for inviting me to give this guest speaker address. It is an honour for me. I would normally not include ‘research’ in statements describing my capacity. BUT I make this presentation as a consumer of research and one who has high expectation that research will influence and inform decisions that I make and advice I give.

Preparing this address I had to think about ‘research and evidence’ and this reminded me about a funny but relevant episode that happened in WHO HQ sometime in 2002 when I worked there. I run into a visiting Frank Nyonator. His response when I greeted him was cold and almost hostile – ‘*what is wrong with you people here. I came to discuss community health insurance and the experience we are building in Ghana. Your people keep interjecting that there is no evidence to support what I was saying. How can there be evidence when we are yet building the evidence*’. This encounter brings to the fore two issues we must consider if we are to learn from research:

- The first issue is the importance of coordinating efforts between researchers and consumers of the research. We often lament how health system managers are not aware of, or if they are, are not using research results for the benefit of the sector. For this to happen, we require an active process that must be promoted and managed. We should not expect it to happen spontaneously. We need to organize to make research relevant to the needs of practitioners and to get practitioners to conduct research themselves.
- The second issue is the mystic preoccupation with ‘evidence’. *There is no evidence that implementing TBA programmes reduce maternal mortality* and suddenly TBAs are out of fashion and we will not talk about them anymore. We dumped our investment in building that social capital and forgot other potential roles of TBAs in the community. I believe we must be guided by evidence. But I also believe we must be aware of our environment.

The subject I was asked to talk on is ‘*What have we learnt and where do we go from here? Setting the agenda within the Sustainable Development Goals to end preventable child and maternal deaths.*’

Because the context for this meeting is research and maternal and child health, I will select a few aspects of the status of maternal and child health that I believe will draw our attention to important issues and questions we must address if we are to make further progress.

## I. Trends in mortality reduction

### a) What do the trends in health status indicators tell us?

It is the general practice to measure improvements or otherwise of the health status of populations by tracking child and maternal mortality and child nutrition indicators. From various presentations since yesterday, we can agree on some general statements:

- We have made over all progress with steady declines in child mortality reduction over the past 2 decades
- There was a worrying stagnation between DHS 2008 and MICS 2011, but the fortunate release of the DHS 2014 about a month ago gives hope that we are moving again in the right direction
- Maternal and neonatal mortality reductions have lagged and require special attention.

So, while both the MDG Under-5 mortality target of 40 per 1,000LB or the neonatal mortality target of 15 per 1,000 live births (LB) are unlikely to be achieved this year, I believe Ghana should celebrate the progress made so far. At current trends, maternal mortality ratio will be reduced to about 340 per 100,000 LBs by 2015 – a modest decline from 760 per 100,000LB but a far cry from the MDG target of 185 per 100,000 by 2015.

We all know about these trends. What is important for our discussion is understanding the story behind the trends. To ask the right and relevant questions.

- What actions and interventions drove the decline, albeit modest declines?.
- Why did we stagnate recently? Was it that we were had become complacent or fatigued regarding the interventions that drove the child mortality declines in earlier years; or were we unable to maintain progress on the interventions for overall child mortality while developing a new focus on neonatal and maternal mortality?

There are few studies that attempt a causal link between the evidence based interventions we promote and the general declines in child mortality. However, the interventions generally credited with the child mortality declines in Sub Saharan Africa (SSA) include immunisation (especially measles and recently the pentavalent, pneumococcal, and rota virus vaccines), malaria control interventions, birth in health facilities, preventing mother to child transmission of HIV, access to safe water and improved sanitation and hygiene, improvements in access and quality of services especially for pneumonia and diarrhoea, and general economic growth resulting in increased incomes, better nutrition and health seeking.

We must understand the story so as to do more of what is working for us and faster; and to re-examine our approaches where our efforts insufficient or not working. I will briefly illustrate three aspects of our story.

**Immunisation:** This is our old and trusted intervention. By maintaining high coverage levels for measles vaccine, there was a 74% reduction in measles mortality world-wide and over 85% reduction in SSA. Ghana has maintained high immunisation coverage rates of over 85% for measles, and in recent years for the Pentavalent, pneumococcal and rotavirus vaccines. These cover the major causes of childhood deaths from pneumonia and diarrhoea. *To what extent did the recent introduction of the new vaccine against the childhood killers push us from stagnation to continuing the decline in child mortality?* Ensuring vaccine supply will be the challenge of the future. Financing vaccine procurement will be an issue to be addressed as GAVI has already alerted governments to prepare for a gradual transition to take over the cost of vaccines currently heavily subsidised by GAVI.

**Malaria:** Malaria control has a prominent role in many of the studies to explain child mortality reduction. In Ghana, percent of under-5s sleeping under an ITN increased rapidly and stagnated just below 40% from 2008. This increased to 47% in the 2014 DHS, with 54% of children sleeping either under an ITN or in a dwelling sprayed within the last 12 months. Prevalence of malaria among children measured by RDT decreased from 48% in MICS 2011 to 36% in DHS 2014. *Do these trends explain the stagnation and then the recent declining trend in child mortality? What happened to the service delivery system during the time of the stagnation?*

**The treatment gap for malaria, pneumonia and diarrhoea:** These are major causes of child mortality requiring prompt and correct treatment. There have always been significant gaps in access to treatment for children with these diseases. The 2014 DHS indicates only about half the children with these diseases sought and received treatment. After decades of promoting ORS/ORT, only 49% of children with diarrhoea received treatment with ORS packet and a negligible proportion of 7% received zinc. *Closing this treatment gap is one area that requires our urgent attention. The CHPS platform could have great potential to contribute to closing these gaps. This is an area to direct our research efforts.*

b) **The focus on neonatal and maternal health is right, but it is a more difficult problem:**

Neonatal deaths constitute between 35 – 48% of under-5 deaths; increasing in proportion and importance as overall child mortality declines. By the scale of it, it is important to address neonatal health issues if we are to continue to make overall good progress in child mortality reduction. However, the core approaches to address neonatal and (by close association) maternal mortality are not the same as the public health approaches we have more successfully applied for overall child mortality reduction. The mode of delivery differs.

In the case of public health interventions, we can mobilise a broad range of stakeholders (such as school children, student nurses, policemen), take time to gather materials and schedule the time for delivery of interventions – immunisations, distribution of bed nets, health communication campaigns etc. The core interventions to reduce neonatal and maternal mortality on the other hand, require a functional network of clinical services, able to respond promptly and effectively. This is a different kind of investment. Admittedly there are profound socio-cultural issues to be addressed in this area of care. But all that will come to naught if services are not available when needed.

Our facilities are not ready to support this. In the 2010 EmONC assessment, a little less than a quarter of the Health centers and maternity homes assessed met the full criteria of Basic EmONC service whilst only 27% of the Hospital (Private and Public) assessed met the criteria for comprehensive care. A 2012 report by the Centre for Population Change showed that while 90% of WCBA lived within 2 hours travel time to their nearest facility, most of these facilities cannot provide the life-saving interventions needed.

We need a serious and sustained effort to significantly upgrade the capacity of health facilities to provide life-saving interventions and an effective referral system. We have heard of the creative rural ambulances. *What else? We need innovations in how we organise to deliver services, in communication and transport and in other areas to ensure pregnant women and new-born babies receive life-saving interventions.*

**c) Addressing inequalities is not only fair, it is also strategic:**

Almost all presentations in this meeting drew attention to the wide disparities among regions and districts, and between urban and rural populations. I also raise the issue of inequity to make 2 points:

- A UNICEF study - *NARROWING THE GAPS TO MEET THE GOALS*- shows that a focus on equity is the most practical and cost-effective way to approach Millennium Development Goals for children. The research team concluded that an equity focus will accelerate progress towards the health MDGs faster than the current path, and is more cost-effective and sustainable. They estimated that each \$1 million investment using an equity focus (ie making a special effort to reach the poor and deprived) would avert 60% more deaths than the current path. The study also showed better results in reducing maternal mortality, diminishing stunting, preventing mother to child transmission of HIV, and eliminating unsanitary conditions. Prioritizing resources and our effort to those lagging behind and deprived is not only fair and morally right, it is also cost-effective. *How can our research and analytical work help the equity agenda?*
- Secondly, I want to highlight some lessons from the UER, and emphasize that with a combination of commitment, creativity, and investing in what matters most, we can achieve much more with the resources we have and reduce equity gaps. I must preface what I am about to say by apologizing to those who have heard me say it more than once, and acknowledging Dr Koku Awoonor. I had had occasion in recent months to look at some data of the UER, and was struck by quantum improvements from around 2003. I also attended the 2014 performance review of the region. In 2003 and 2009, the UER recorded U5MR better than the national average and was no longer in the league of the other northern regions with the highest U5MRs, as was the case before 2003. In many other areas, the UER is an outlier on the good side. At the recent health summit, this observation was confirmed. In this meeting, Dr Aboagye commented that the UER fought its way out of the league of the red.

The other observation was that there was a drastic reduction of poverty in UER at the same period that health status improved. Is that a case for improved health status being an investment; the virtuous cycle of good health leading to socio-economic improvements?

These are lessons to learn if not already done. AND I am by no means implying only the UER has lessons to learn. I am rather drawing attention to the fact that we have lessons in our midst, no doubt from other regions and districts. We must find them learn from them and document them.

## VI. From Knowledge to practice is a major hurdle

Going from knowledge to practice is probably the most difficult transition for us in public health. Knowledge of family planning is universal but there is a 30% unmet need among married women, and 42% unmet need among unmarried women. Most of the results we want to achieve are dependent on behavioural and social changes. Health seeking behaviour and practices are often governed by individual and community social and cultural norms and beliefs. Hence, it is critical that we understand the underlying social and cultural determinants as well as the factors that empower the demand side perspectives of interventions. Yet, our research and analysis mostly describe the manifestation – rural women are unlikely to ....; only half of the children with diarrhoea sought and received appropriate care; etc. We must explain the ‘why’ as the basis of our action. I saw only 2 or so items in this area in the agenda. *The answers to the ‘why’ would surprise us. See the text in the box.*

### Unravelling the true reason for very good ANC attendance in Rural Konkomba women

In the late 1980s, we were surprised to observe very high ANC in rural Konkomba communities in the East Dagomba district. These rural women dress up and were taken by their husbands on bicycles to ANC clinic. During FGDs, the women explained i) the nurses insulted them as dirty women and so they dressed up and rode to the ANC to stay clean and nice; and ii) if a woman has a complication and had to be sent to the clinic to deliver, the nurses created difficulties and abused them if they did not have a card. So these women attended only the one ANC so they will have card in case they have a complication.

## VII. Preparing for the Post - MDG Agenda:

The post 2015 agenda (Post MDG or SDGs) does not shift from the MDG agenda. Rather, it looks for even better ways to achieve and sustained better results in the MDG areas. The principles will remain the same - (a) to implement programmes relevant to our context and designed to improve equitable access to quality health services, and (b) ensure governance and efficiency of the health systems to get better value for money.

For the health sector the language of the Post MDG agenda emphasises **Universal Health Coverage (UHC)**, and maintains the focus on maternal, new born and child health, and expands the scope to include non-communicable diseases and hence behaviour change. At the simplest level of definition, UHC aims for all people who need health services to receive them without undue financial hardships. This requires 3 components;

- Financial protection so no one is impoverished by out of pocket health expenditure. Our NHIS, in spite of its current problems provides such protection and the potential to do better.
- Communities and individuals, especially those at the bottom 40% of the population, receive quality health services through the life cycle, and are protected from health risks. This expands the scope from the health MDGs to include non-communicable diseases (NCDs). The focus on NCDs underscores the importance of a much enhanced capacity for social and behavior change health promotion.
- A third component emphasizes sustainability by building the fundamental base for health – Safe water and improved sanitation, social protection mechanisms, agriculture linked to nutrition, education, progressive tax regime etc.

Intersectoral linkages are highlighted:

- Nutrition and stunting under poverty reduction
- Sexual and reproductive health rights and fertility under economic growth
- Early childhood development under Education
- Nutrition and diets properly linked to food production
- Urban and peri-urban issues related to health and nutrition

Global leaders have started anticipating a post MDG world; AND defining the next agenda has started. ‘**A Promise renewed**’ was mentioned in the USAID statement at the opening ceremony. In recommitting to its Child Survival promise UNICEF together with the Governments of Ethiopia, India and the USA, started to remobilize the world. More than 20 Sub-Saharan African governments have committed to reducing U5MR to less than 20 per 1000LB by 2035. Remember the story of Sri Lanka and Malaysia in Dr Kirigia’s presentation, the IMRs were about 10 per 1000 LBs, but the coverages of the high impact interventions were all 95% and above. That is where we must aim in the post MDG period.

In setting our post MDG agenda, we must not spend the next 2-3 years losing our momentum and starting all over with ‘new’ concepts and packages. Setting the post MDG agenda must not derail the current momentum. It must sustain and strengthen it as we expand the focus to non-communicable diseases, to better ways of reaching the poor and reducing inequities in access, to better ways of ensuring social and behaviour change beyond knowledge, and to more effective intersectoral work.

#### **VIII. Concluding Remarks**

There is a wide scope for research – from researchers who might be interested in the effects of zinc on mitochondrial enzymes of mice to those interested in the effects of a welcome smile in increasing health facility delivery. During the past 2 days we heard reports of a wide range of research undertaken mostly in Ghana. I will conclude with a few suggestions about how we refocus research to answer our most urgent and strategic needs in our quest to end child and maternal deaths. I repeat what I said at the beginning – ‘*the importance of coordinating efforts between researchers and consumers of the research*’. This health research dissemination is no doubt very timely, informative and important. I propose the following as purposeful actions we might take:

- i. We should not leave the determination of research questions only to researchers. We should convene meetings with all the ‘hats’ (programme, policy, research, funder) to identify and pose the questions/issues to which research may provide answers. This might include explaining trends, improving organization of services, making service delivery easier and/or more effective, finding effective ways of addressing the demand side issues etc
- ii. Demystify research and build the leadership and research capacity for regions, districts and hospitals to model and try innovative solutions and doing more with the resources available.
- iii. Actively look for the good lessons within the country and promote documentation and propagation.
- iv. Make this research dissemination meeting an annual affair. If we make the time and effort to pose the research questions together and to prioritize the needs, the next research dissemination meetings will be much more useful.
- v. Finally, so that the momentum generated by this is meeting is not lost, we need an institutional home or caretaker to take forward these suggestions. I suggest that the steering committee for this meeting should continue and convene the consultations on making research accessible and relevant to our needs. In the process, the definitive institutional home for this process and some funding commitments be concluded.

Thank you for your attention.

## Plenary Session Presentations

1. “Ending preventable child and maternal deaths: notable successes and notable challenges-the data story told over two decades.” Dr Appiah Denkyira, Director General, GHS, and Dr Patrick Aboagye, Director, Family Health Division, GHS.
2. “Succeeding in ending preventable maternal, neonatal and child deaths: the tasks ahead as we move from MDGs to SDGs.” Dr. Magda Robalo, WHO Country Representative.
3. “Using evidence to make an investment case for ending preventable child and maternal deaths.” Dr Joses Kirigia, PhD, Program Manager Research, Publications and Library Services Program, World Health Organization, Regional Office for Africa.
4. “Are we reinventing the wheel? Aren’t there solutions already out there?” Cyril Engmann, PhD, Global Program Leader and Director for Maternal, Newborn, Child Health and Nutrition, PATH.
5. “Determinants of Infant/Child and Maternal Mortality.” Kodjo Senah, Prof of Sociology, University of Ghana.
6. “Preventing Maternal and Child Deaths with Health System Strengthening Initiative: The Ghana Essential Health Intervention Program (GEHIP) Experience.” Dr. Koku Awoonor-Williams, Regional Director, Upper East Region, GHS.
7. “Summary of Emerging Themes.” Jacqueline Möller Larsen, Public Health Consultant.



ENDING PREVENTABLE MATERNAL AND CHILD  
DEATHS: NOTABLE SUCCESSES AND CHALLENGES- *A  
data story over two decades*

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# INTRODUCTION

- MILLENNIUM DEVELOPMENT GOALS ARE A UN FRAMEWORK FOR GLOBAL DEVELOPMENT
- THERE ARE A TOTAL OF 8 MDGS AND 4 GOALS ARE DIRECTLY RELATED TO HEALTH:
  1. **END POVERTY & HUNGER**
  2. **UNIVERSAL EDUCATION**
  3. **GENDER EQUALITY**
  4. **CHILD HEALTH**
  5. **MATERNAL HEALTH**
  6. **COMBAT HIV/AIDS**
  7. **ENVIRONMENTAL SUSTAINABILITY**
  8. **GLOBAL PARTNERSHIP**

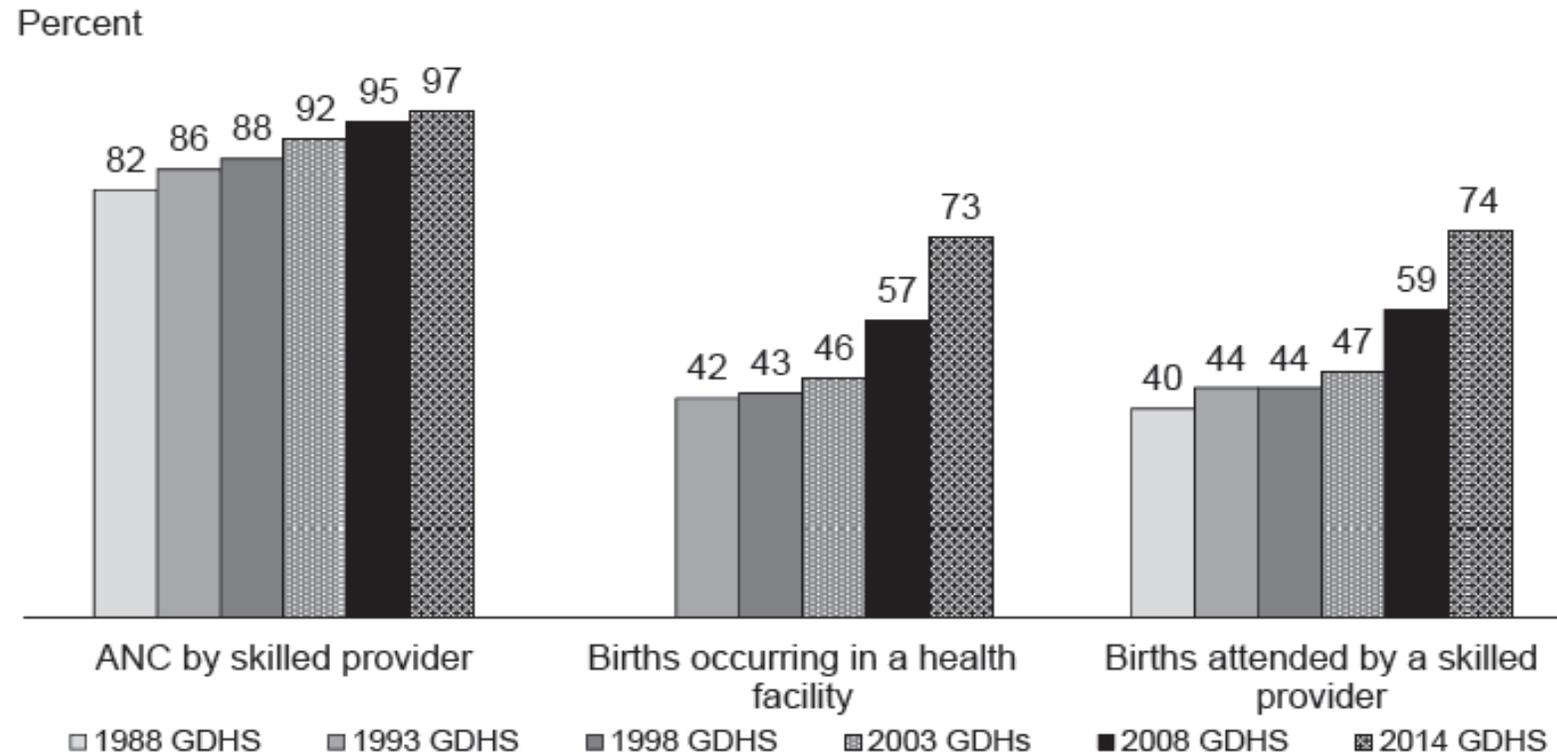
# INTRODUCTION

## KEY STRATEGIES AND APPROACHES ...

- 4 HEALTH SECTOR MEDIUM TERM DEVELOPMENT STRATEGIES ALL PRRIORITIZING MNCH
- HIRDA – 2005 STARTED FROM THE 4 POOREST REGIONS AND SCALED UP TO ALL REGIONS 2007
- ROAD MAP FOR ACHIEVING MDG 5 2006- 2011
- MDG ACCELERATION FRAME WORK FOR MDG 5- 2011 -----
- NEW BORN STRATEGY -----

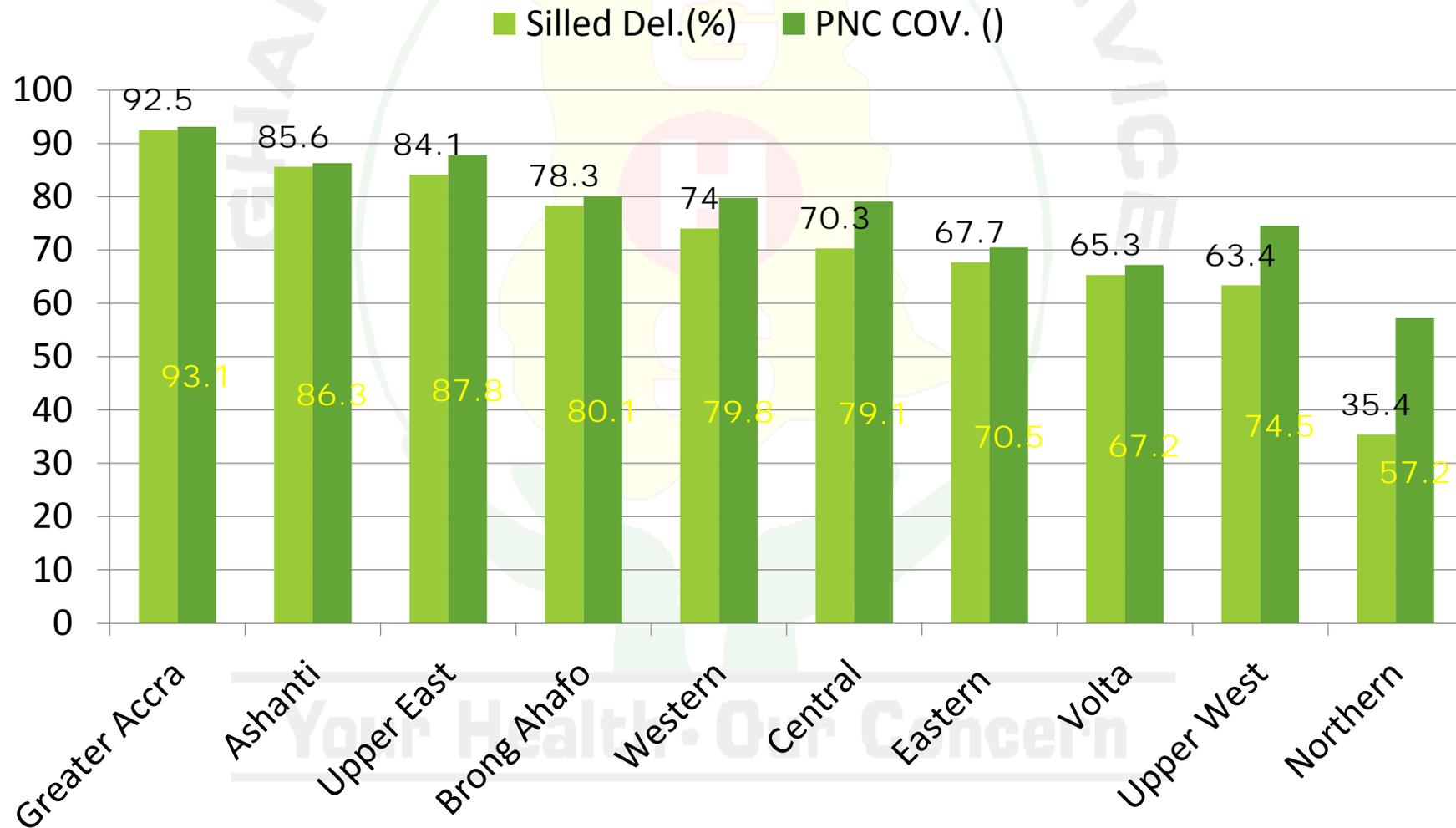
# MATERNAL HEALTH CARE

**Figure 4 Trends in maternal health care, 1988-2014**

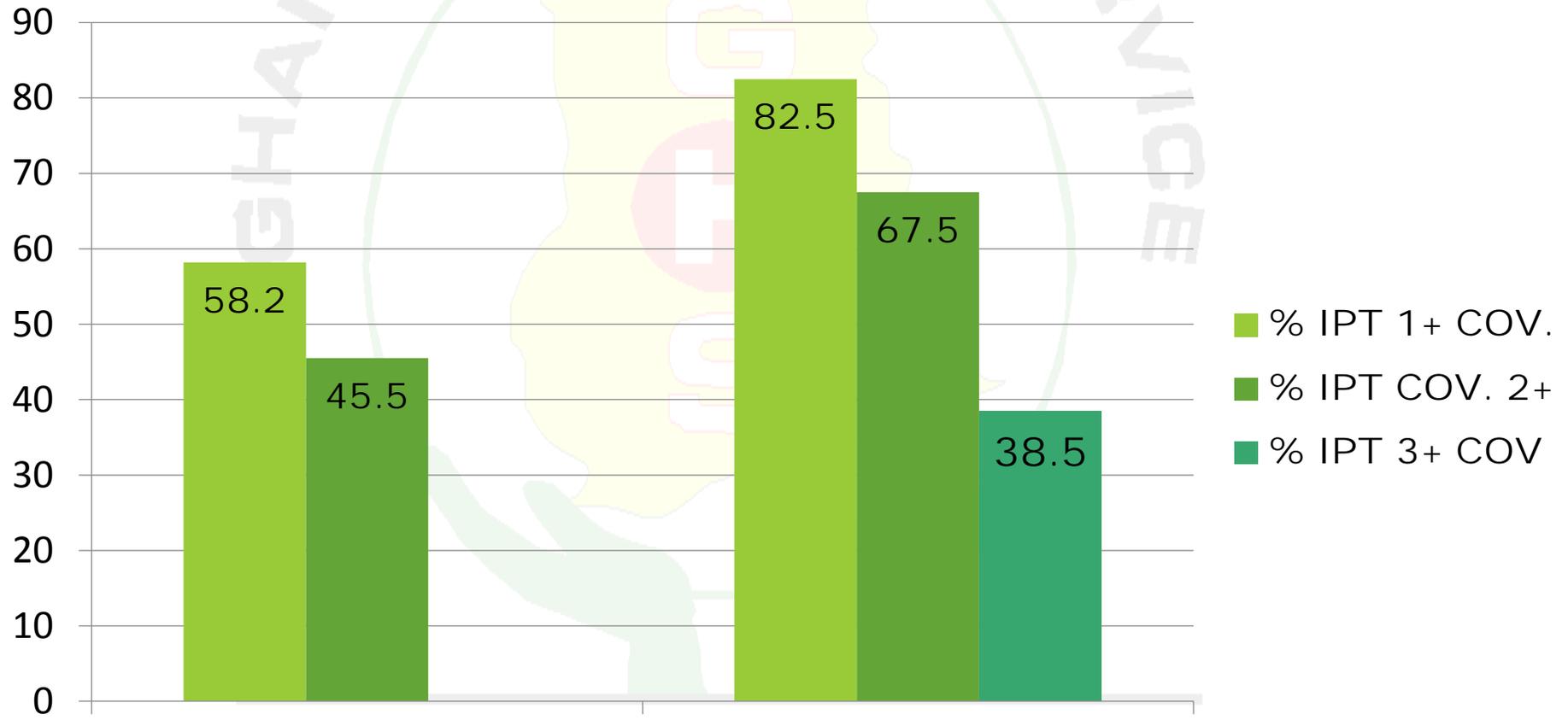


Note: Data for the 1988, 1993, and 1998 surveys refer to births, whereas data for antenatal care for the 2003, 2008, and 2014 surveys refer to women who had a live birth. The reference period is five years preceding the survey except for 1993, which refers to the three years preceding the survey. In the 2008 and 2014 surveys, a skilled provider includes a community health officer, while in all previous surveys a community health officer was not included. For the 1988 survey, data for births that occurred in a health facility are missing.

# SKILLED DELIVERY AND PNC (48HR) BY REGION

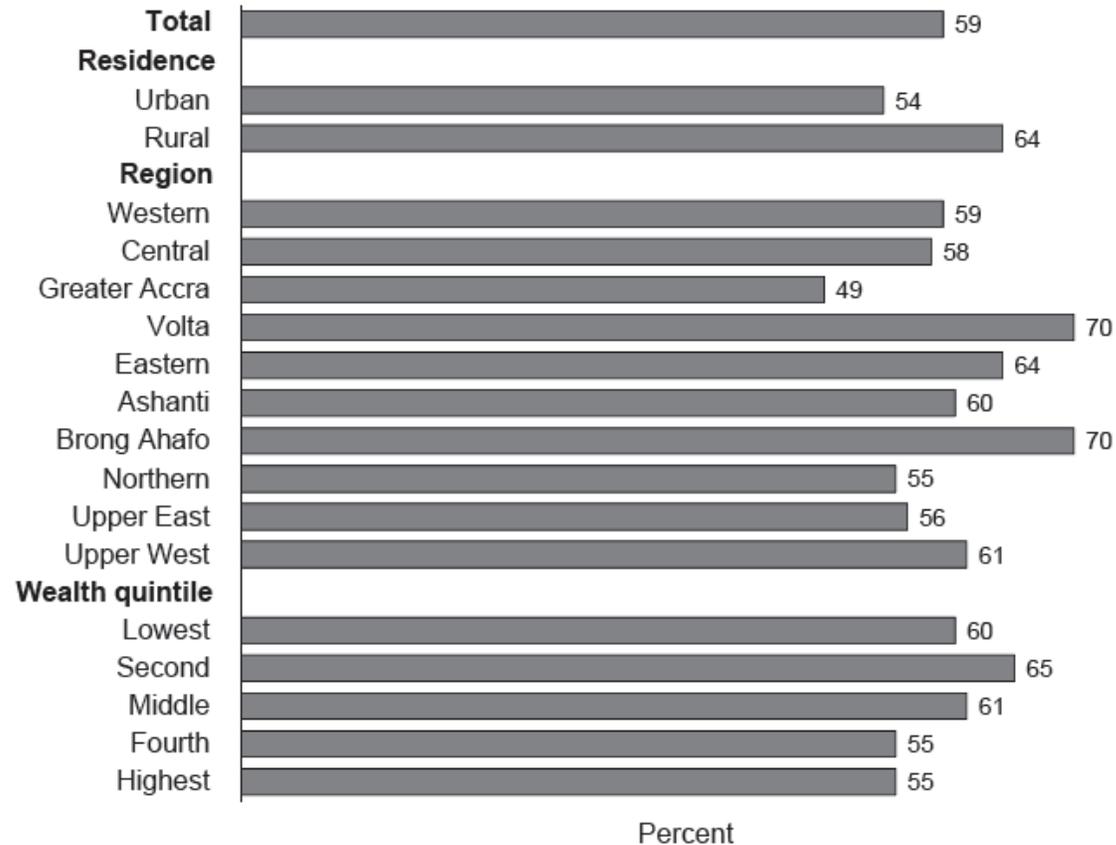


# IPT Coverage



2008 Health · Our 2014 Concern

# ITNs Use

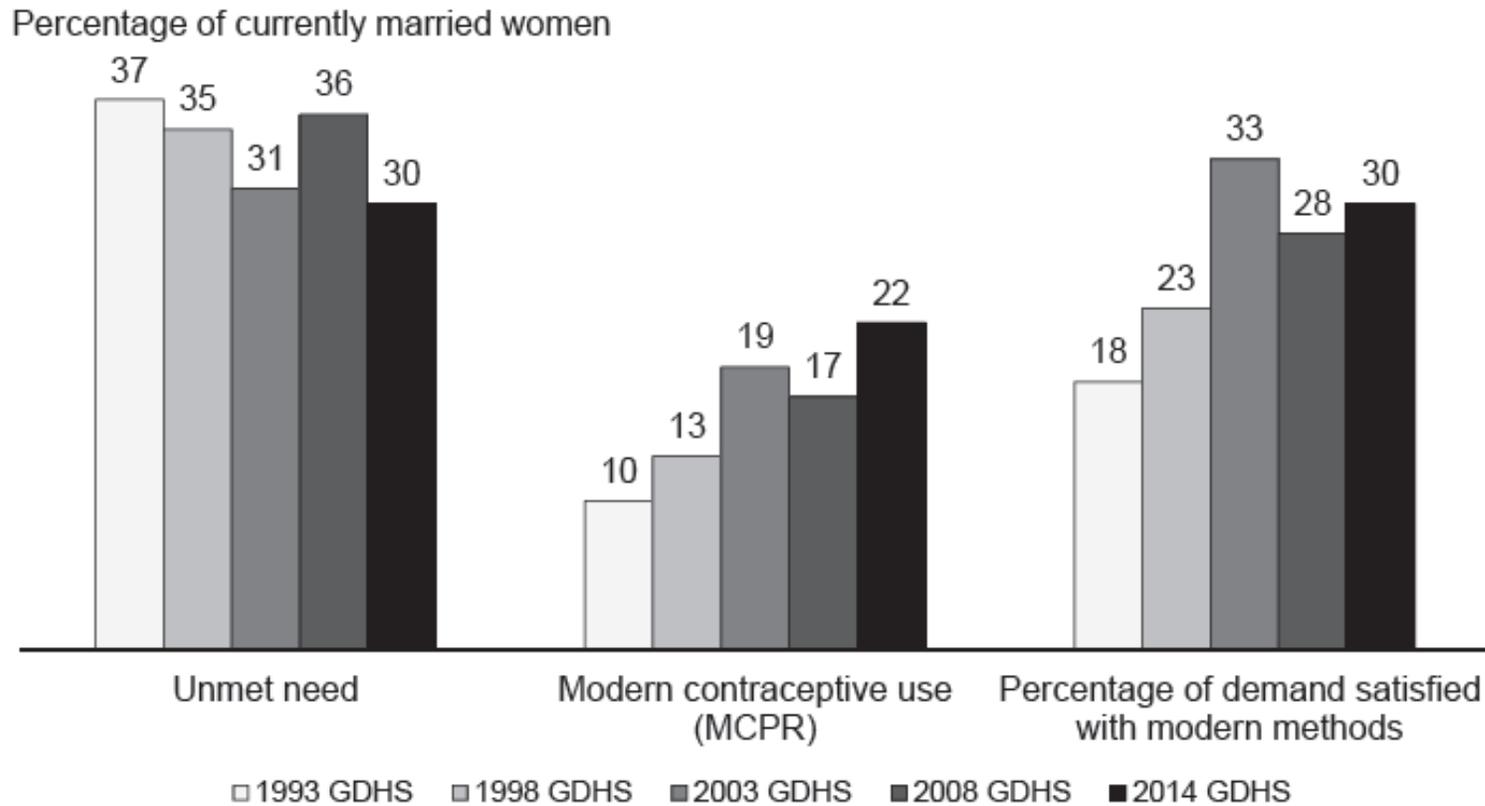


## 3.12.2 Use of ITNs by Children and Pregnant Women

Community-level protection against malaria helps reduce the spread of the disease and offers an additional layer of protection against malaria for those who are most vulnerable: children under age 5 and pregnant women. This section describes use of mosquito nets among children and pregnant women.

# FP- TRENDS IN UNMET NEEDS

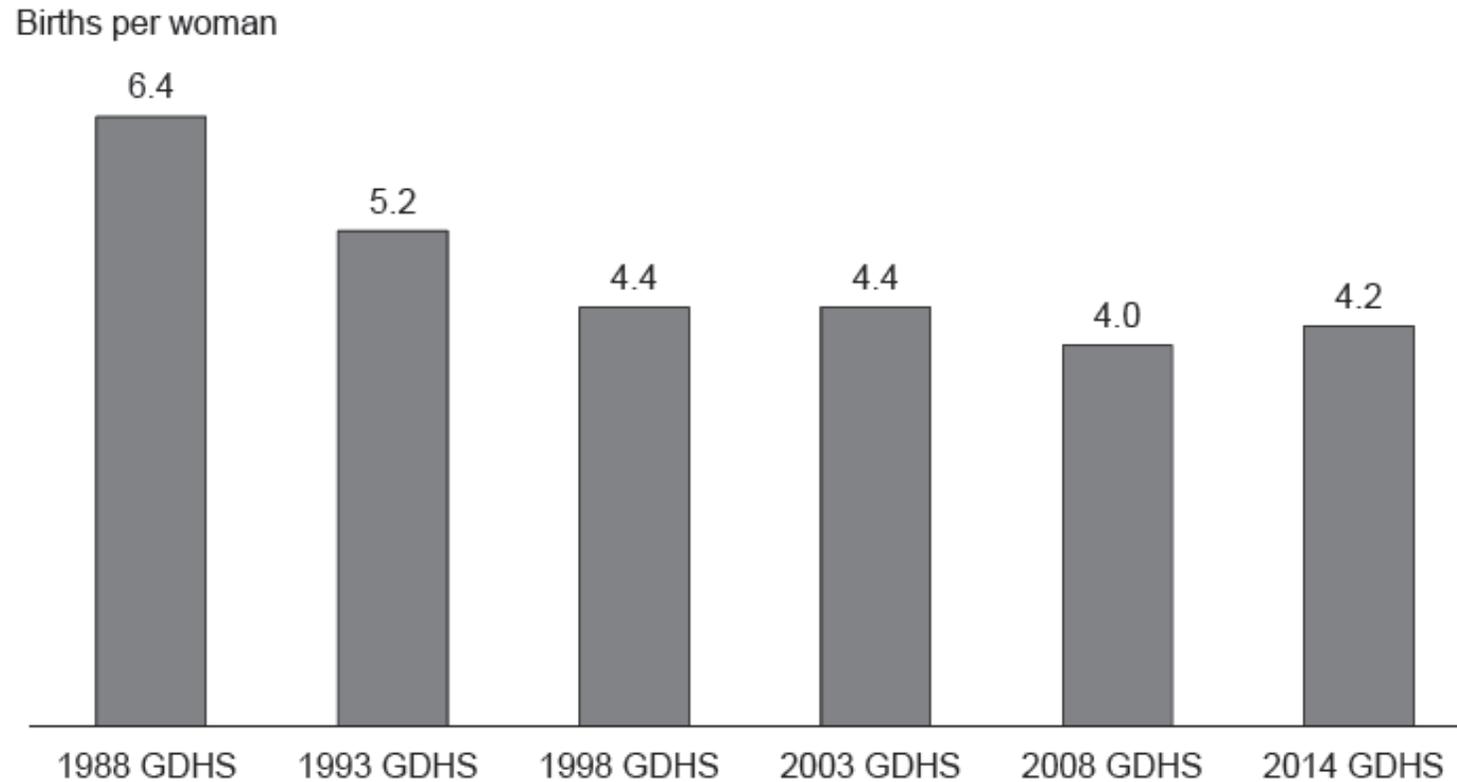
**Figure 2 Trends in unmet need, modern contraceptive use, and percentage of demand satisfied with modern methods, 1993-2014**



Note: Data on unmet need not available for the 1988 GDHS survey. The unmet need estimates for the 1993, 1998, 2003, and 2008 GDHS surveys have been recalculated using the revised definition of unmet need (Bradley et al., 2012).

# TOTAL FERTILITY RATES

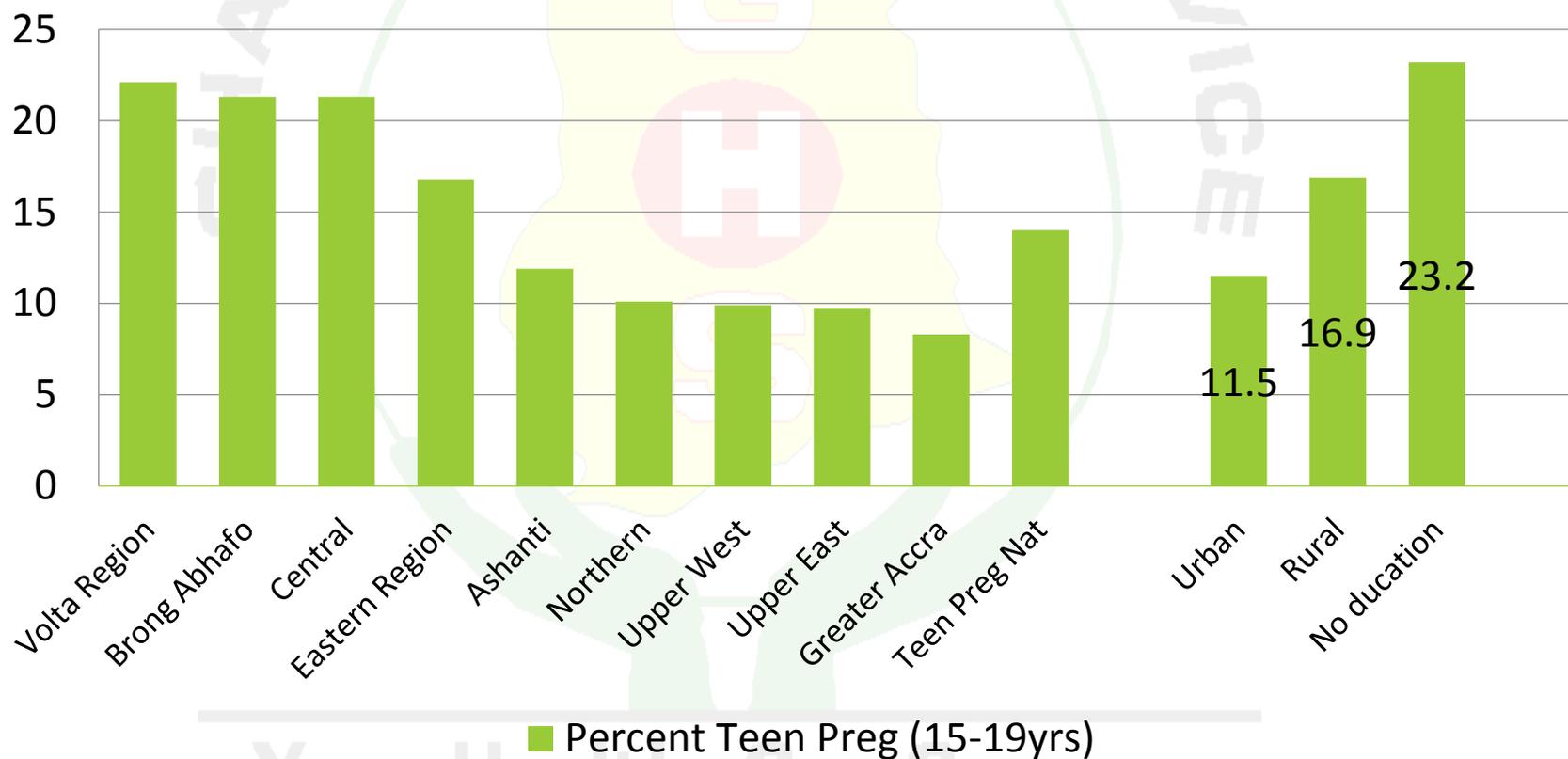
**Figure 1** Trends in total fertility rate, 1988-2014



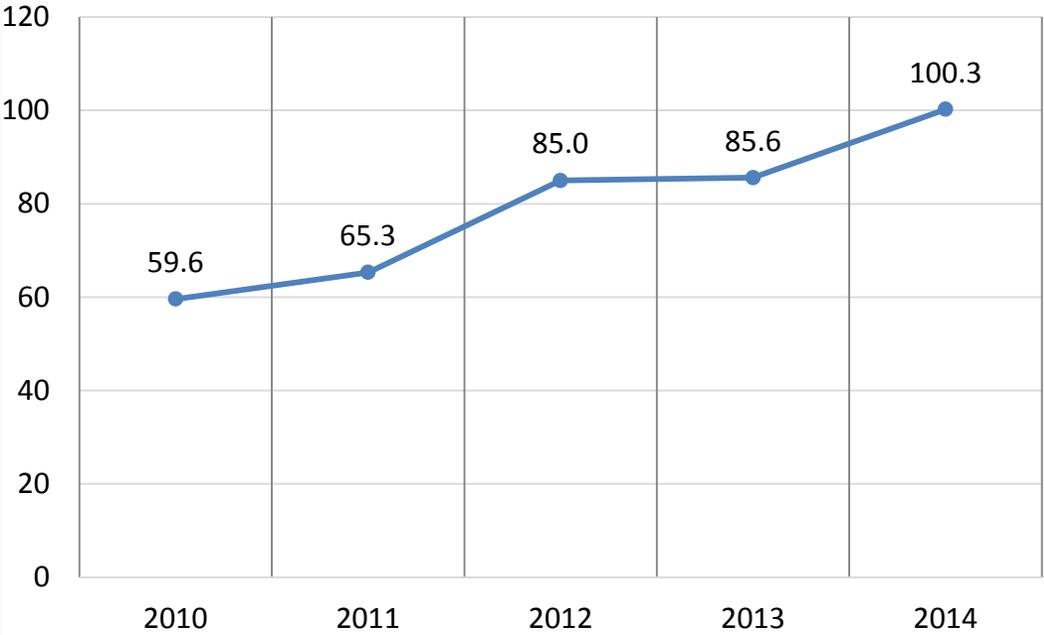
Note: Rates are per 1,000 women and refer to the three-year period preceding the survey.

# TEENAGE PREGNANCY

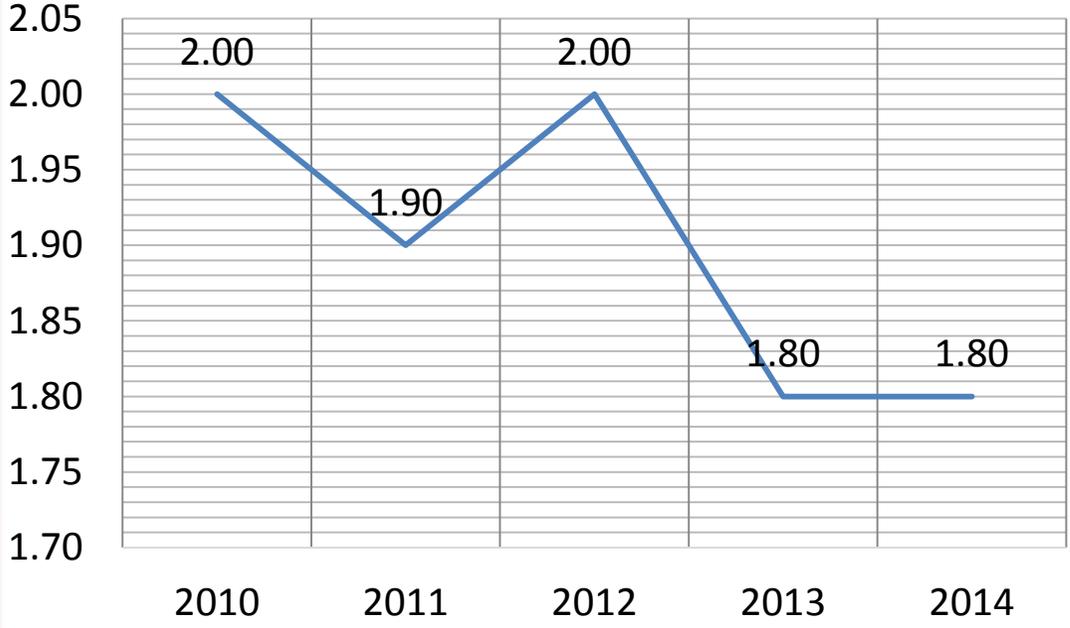
Percent Teen Preg (15-19yrs)



**National Trend in Postnatal Care Coverage 2010-2014**



**TREND IN STILL BIRTH RATE 2010-2014**



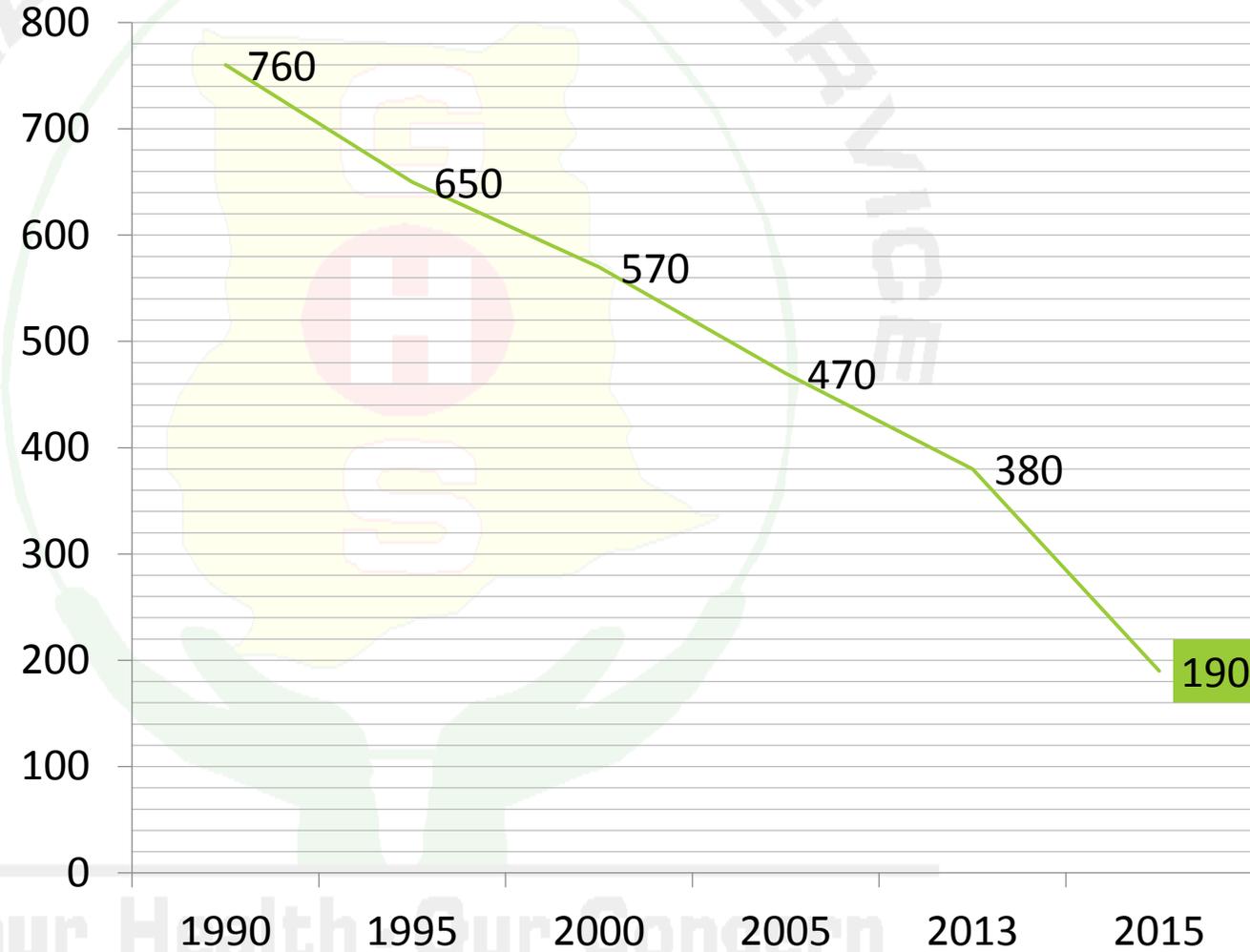
## MMR TRENDS 1990-2013

**CURRENT  
TREND (new)**

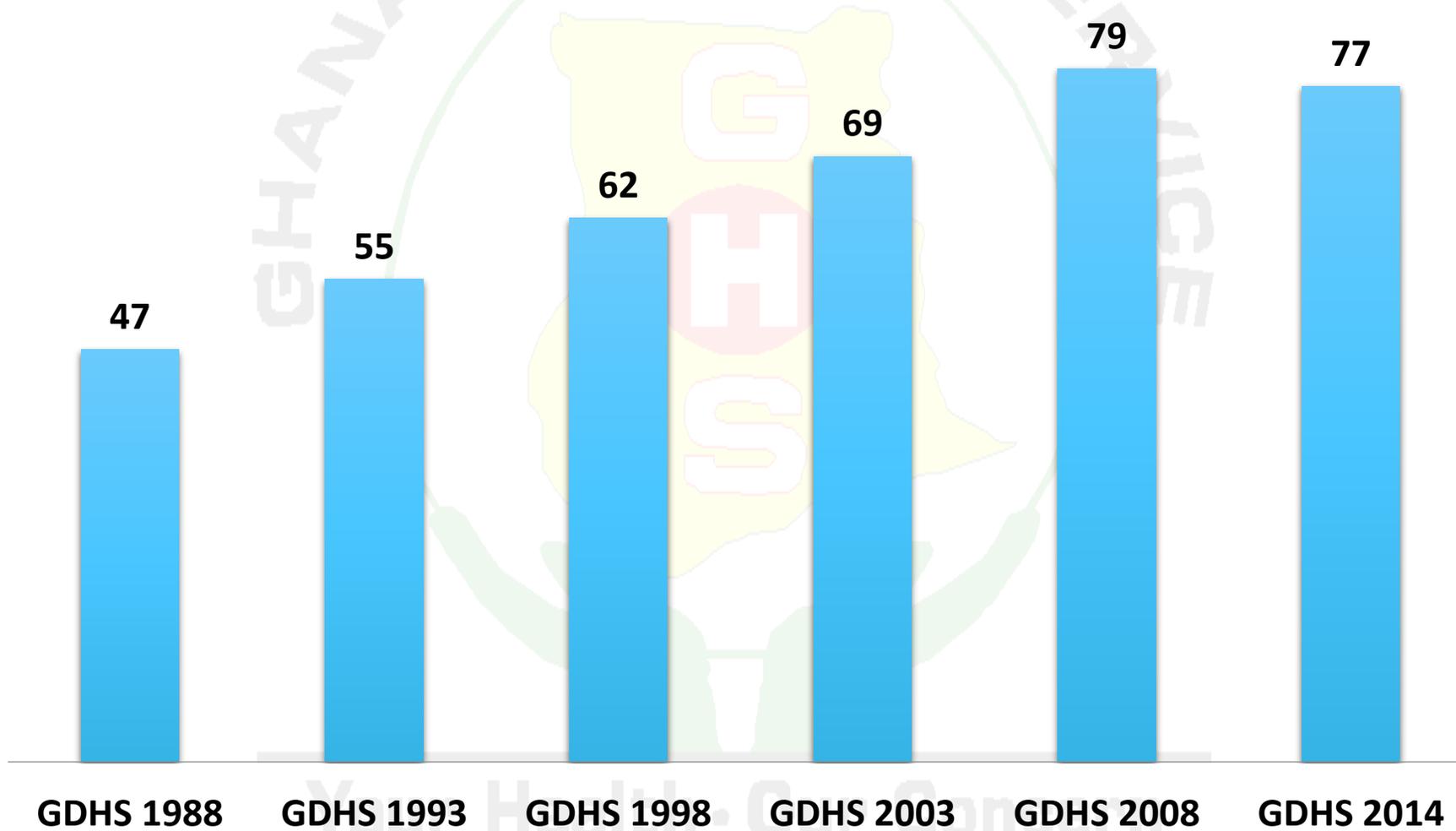
**50% REDUCTION**

%WIFA MATE  
DEATHS REDUCED  
FROM 28% TO  
11.9%

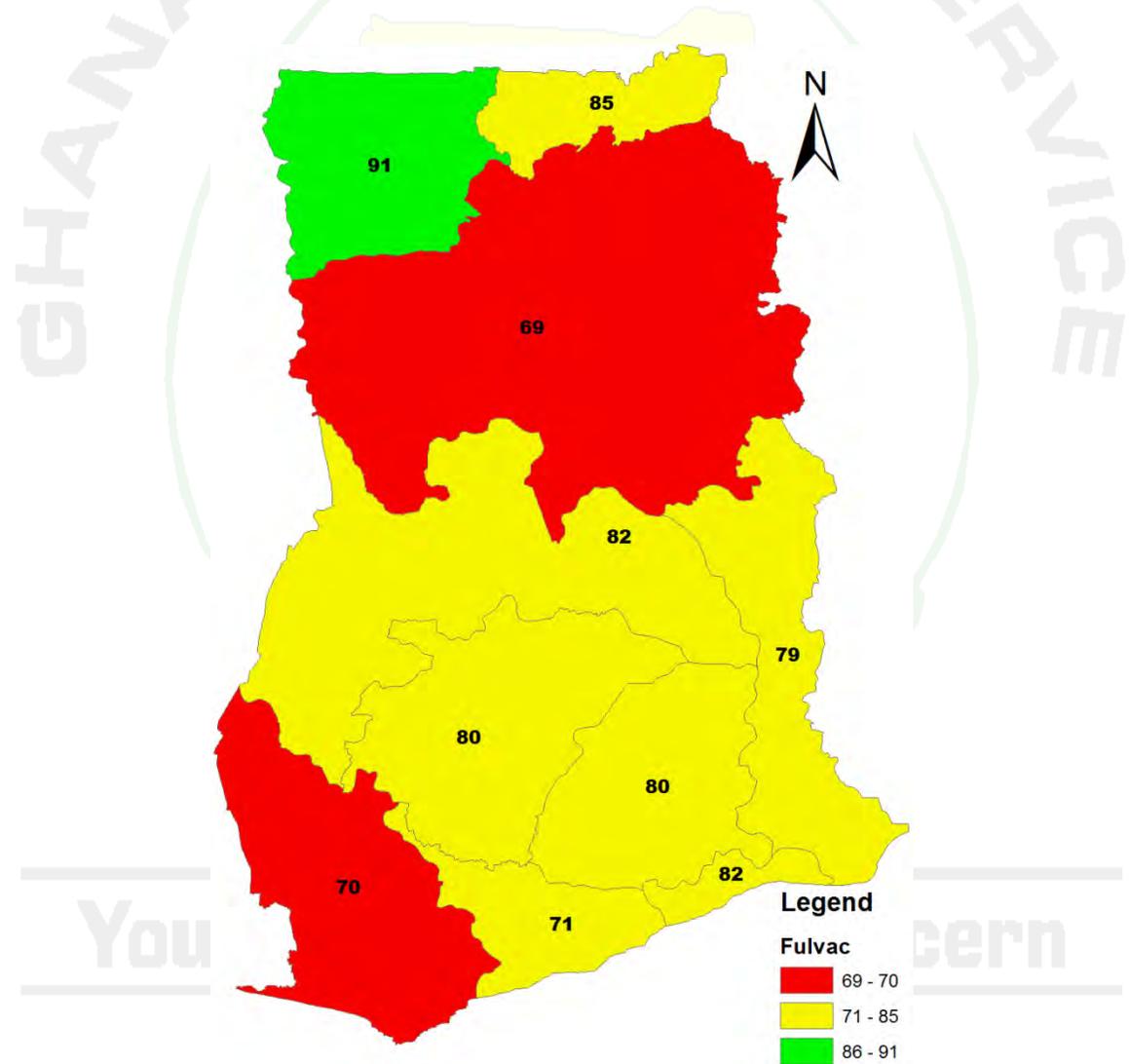
Total Mat Deaths  
4,300 to 3,100 in  
2013



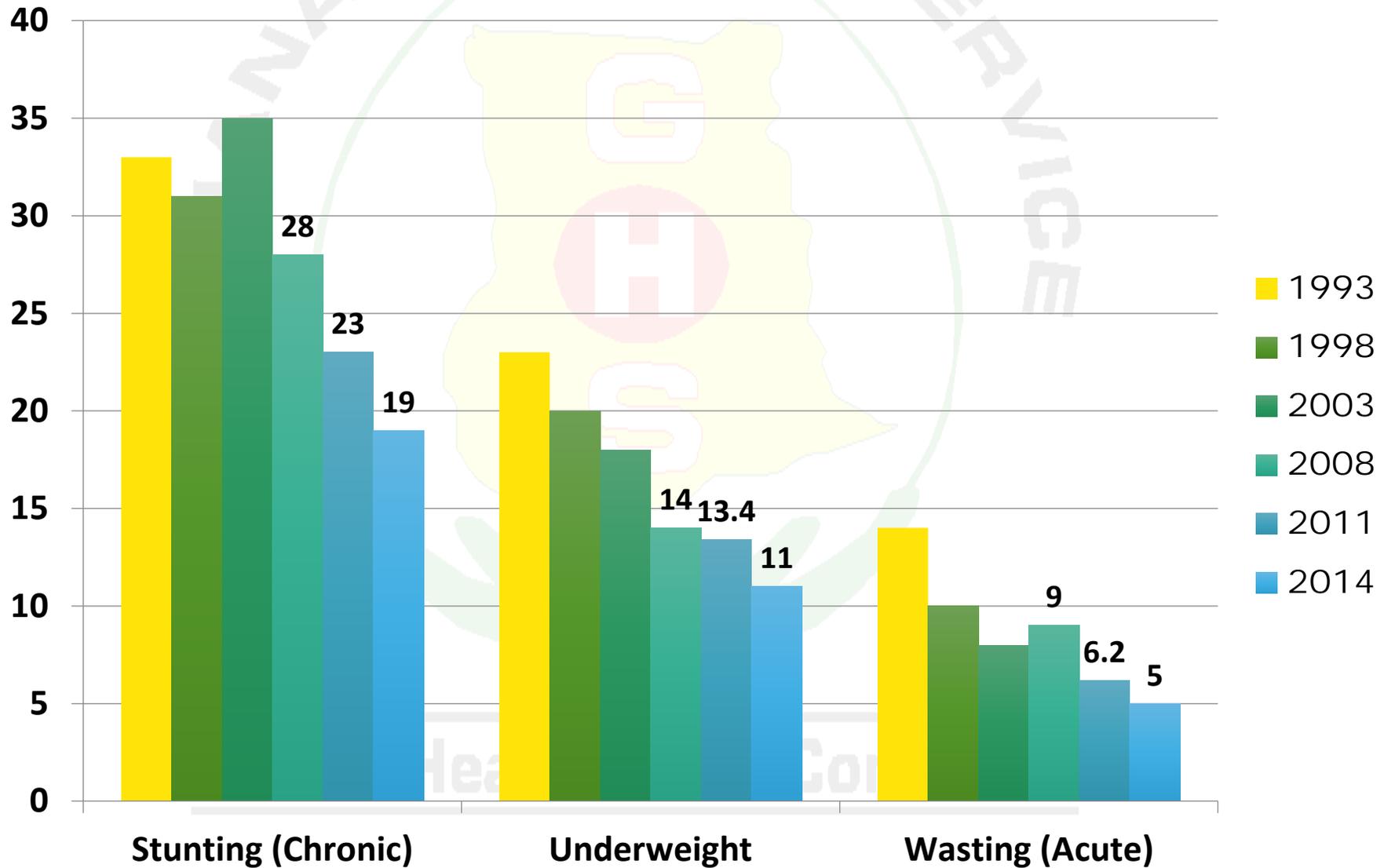
# TREND IN FULLY VACCINATED COVERAGE, GDHS



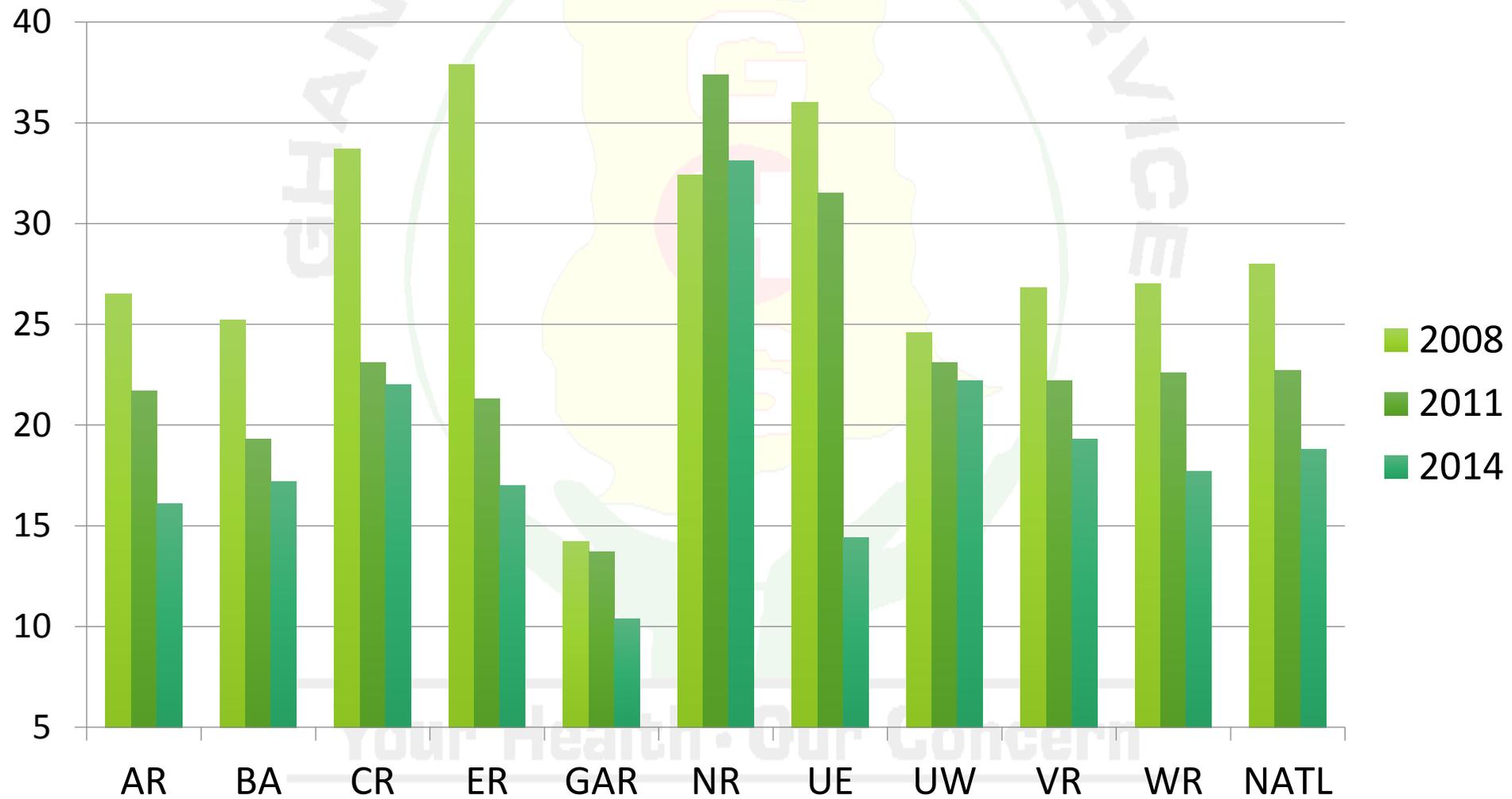
# FULLY VACCINATED CHILDREN, 2014 GDHS



# TRENDS IN UNDER-NUTRITION IN GHANA IN 20 YEARS

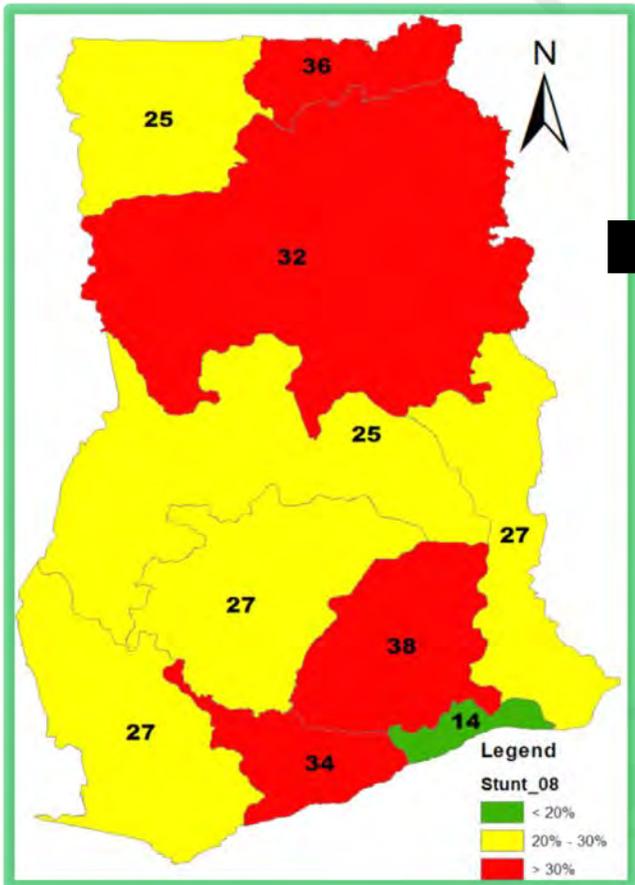


# TREND IN STUNTING BY REGION

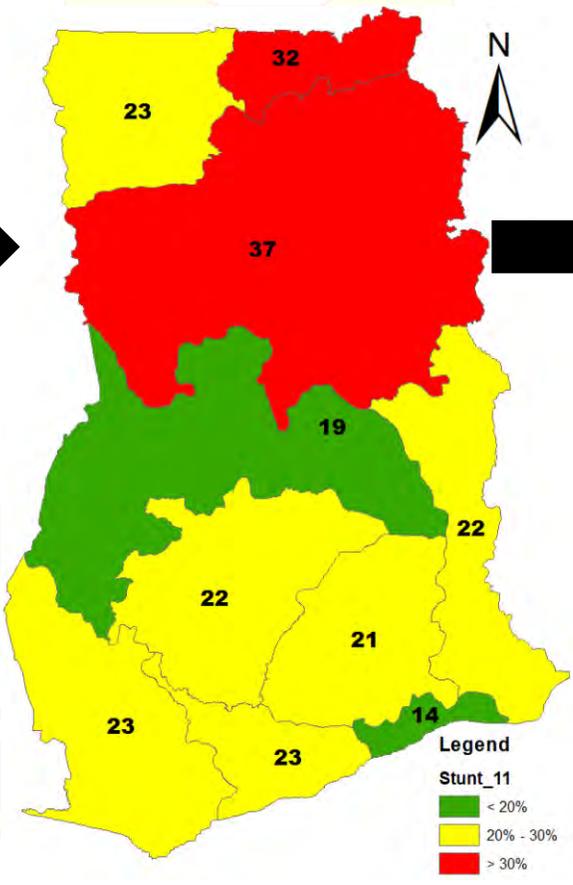


# STUNTING BY REGION, 2008 AND 2014

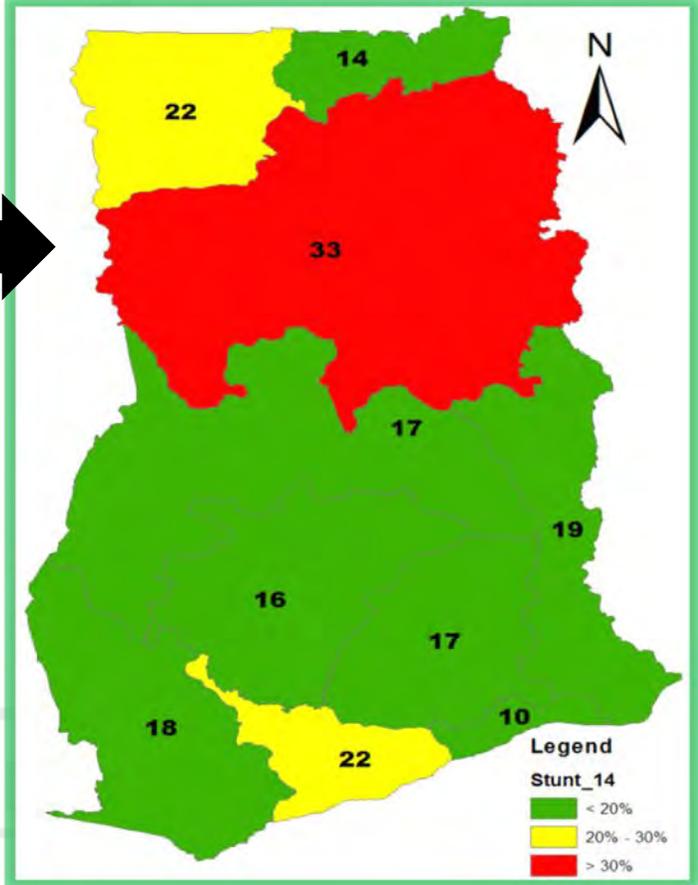
2008



2011

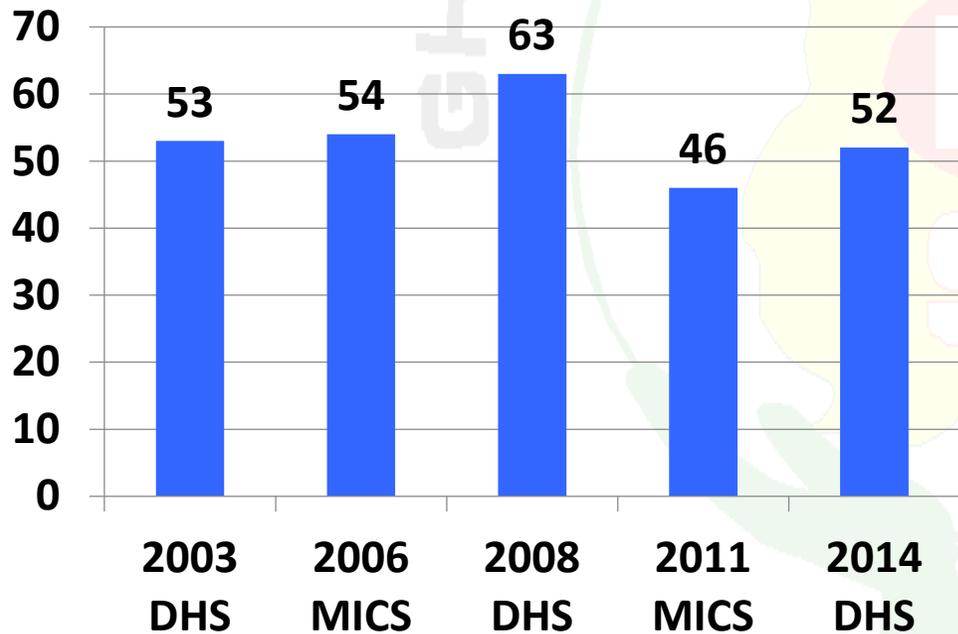


2014

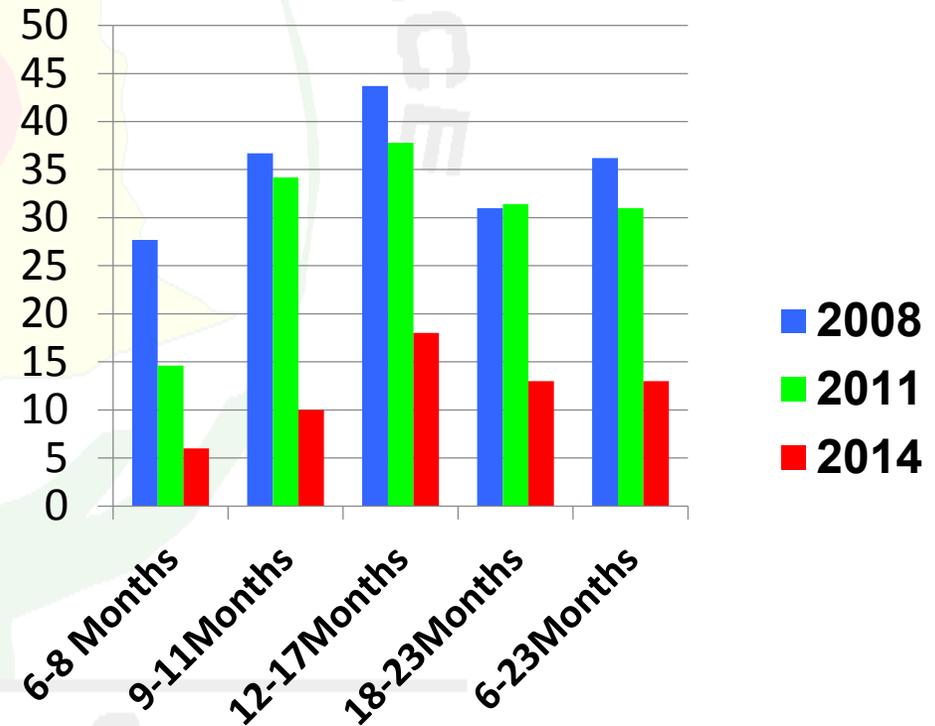


# UNDERLYING CAUSES OF UNDER NUTRITION

## TRENDS IN EXCLUSIVE BREAST FEEDING

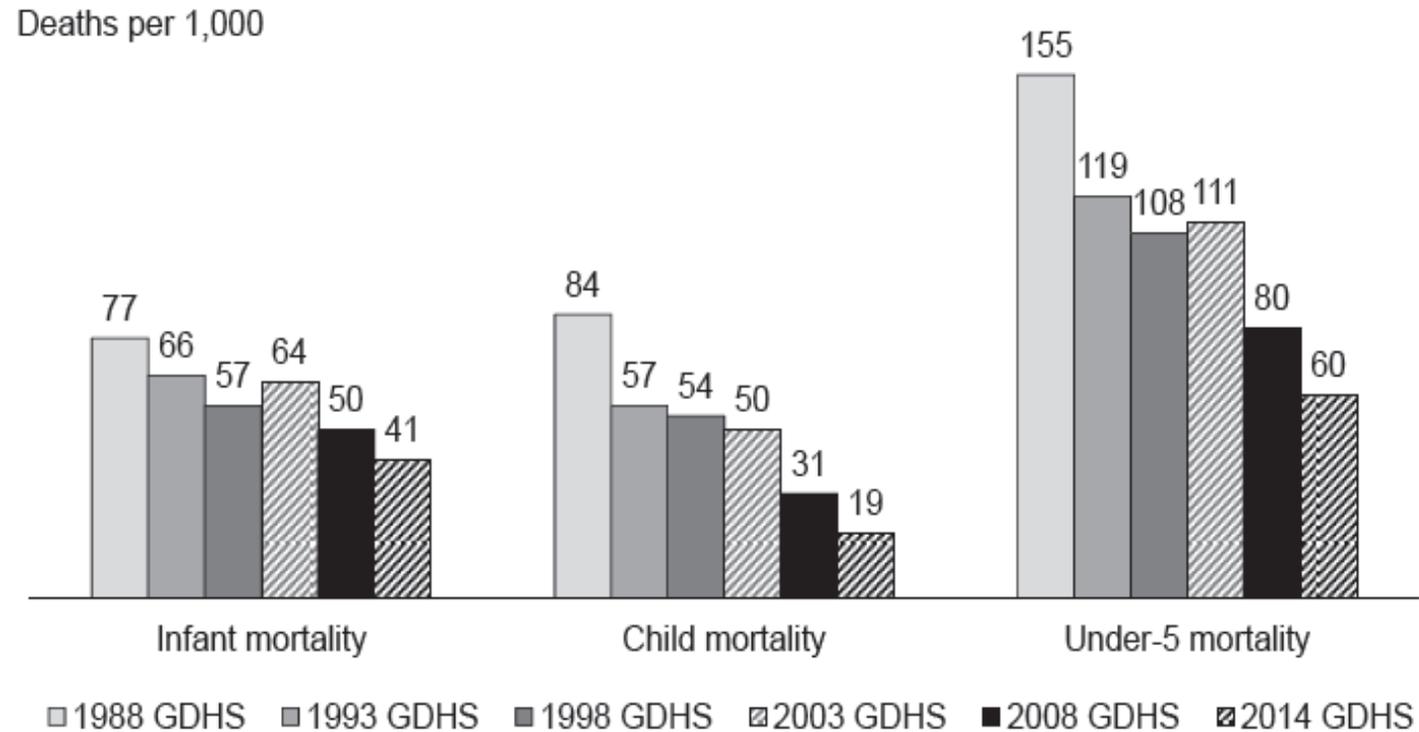


## Minimum Acceptable Diets – Decreasing Trend



# CHILDHOOD MORTALITY

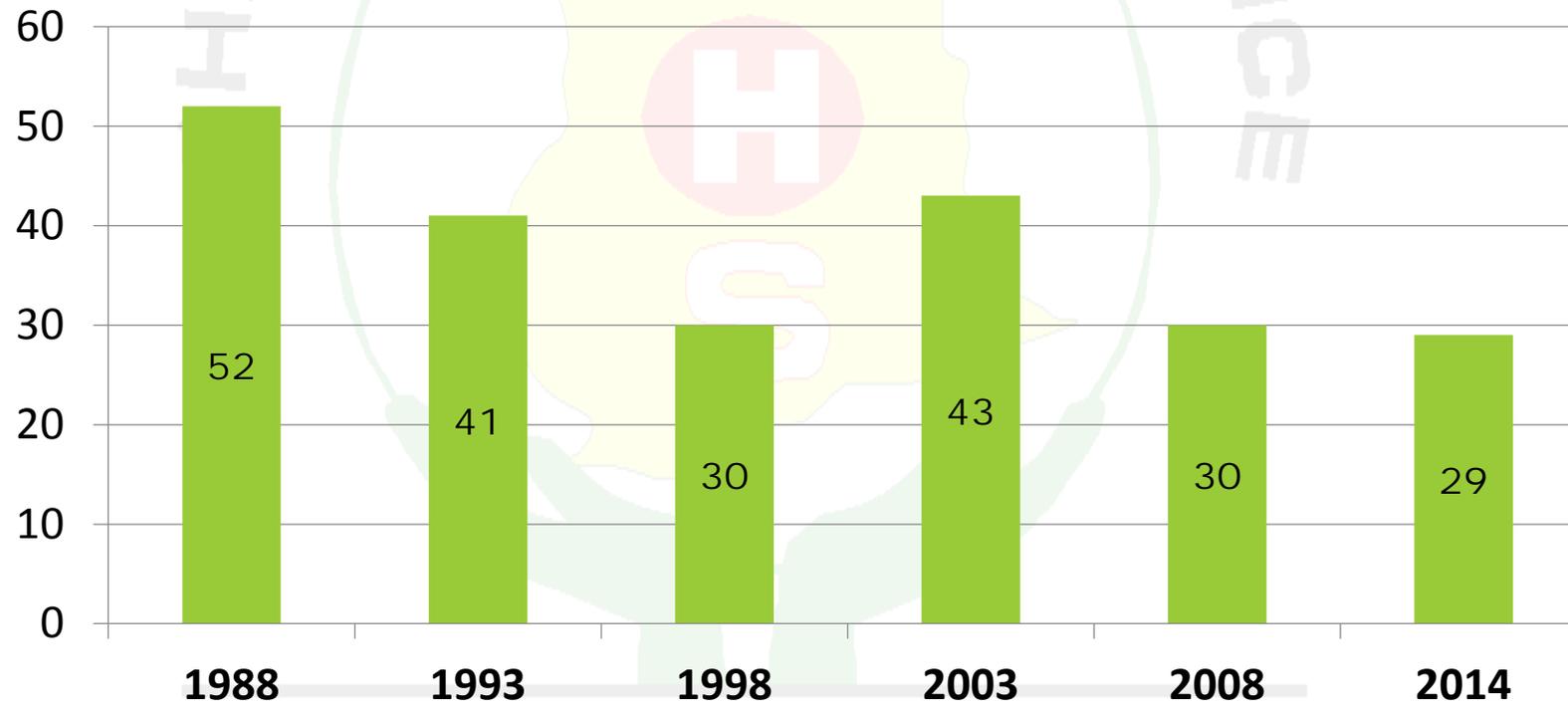
**Figure 3 Trends in childhood mortality, 1988-2014**



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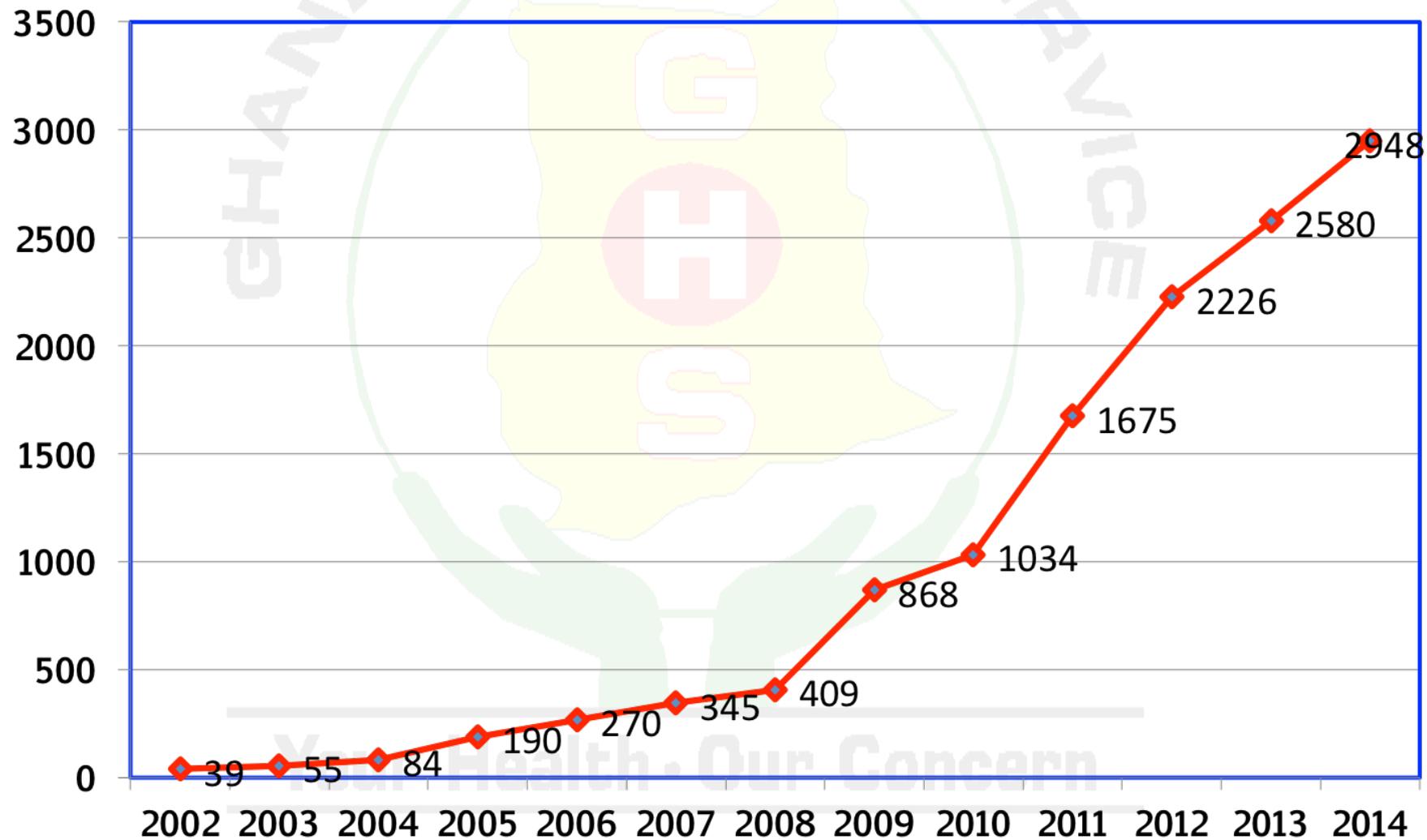
# NEONATAL MORTALITY

Neonatal Mortality per 1000 Live Births

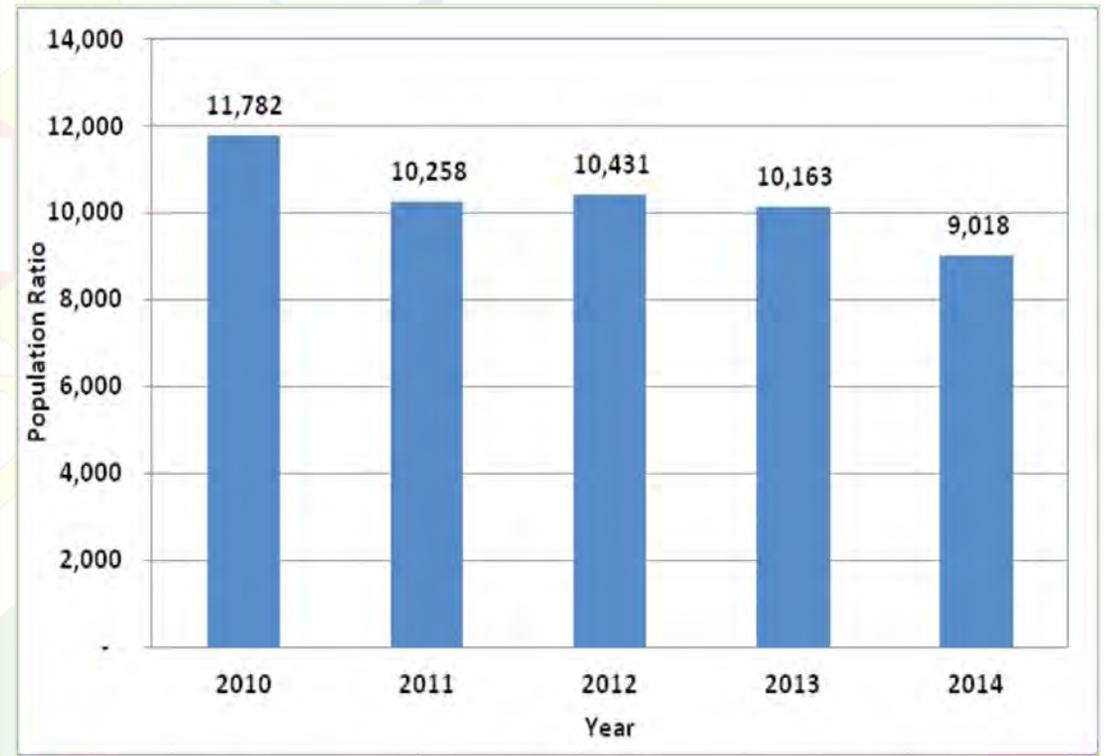
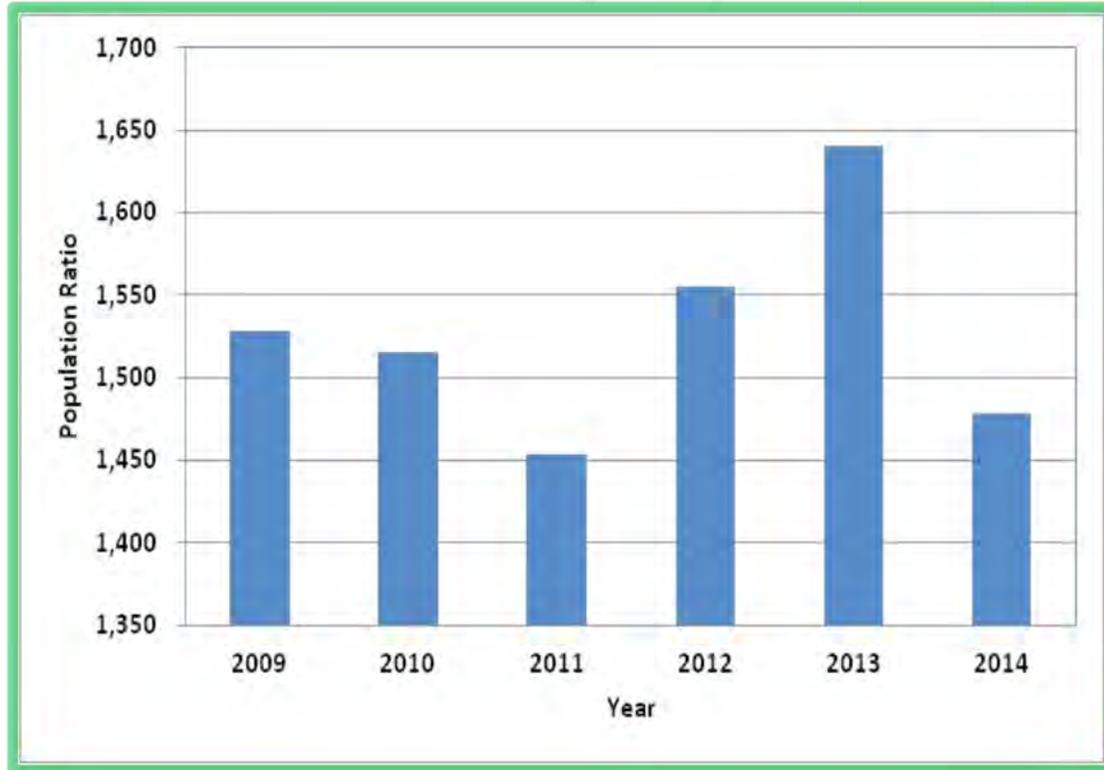


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## TREND IN IMPLEMENTING FUNCTIONAL CHPS ACROSS GHANA 2002-2014



# TRENDS IN DOCTOR POPULATION RATIO AND MIDWIFE WIFA(15-49YRS) POPULATION RATIO



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GHANA HEALTH SERVICE

**CHALLENGES**

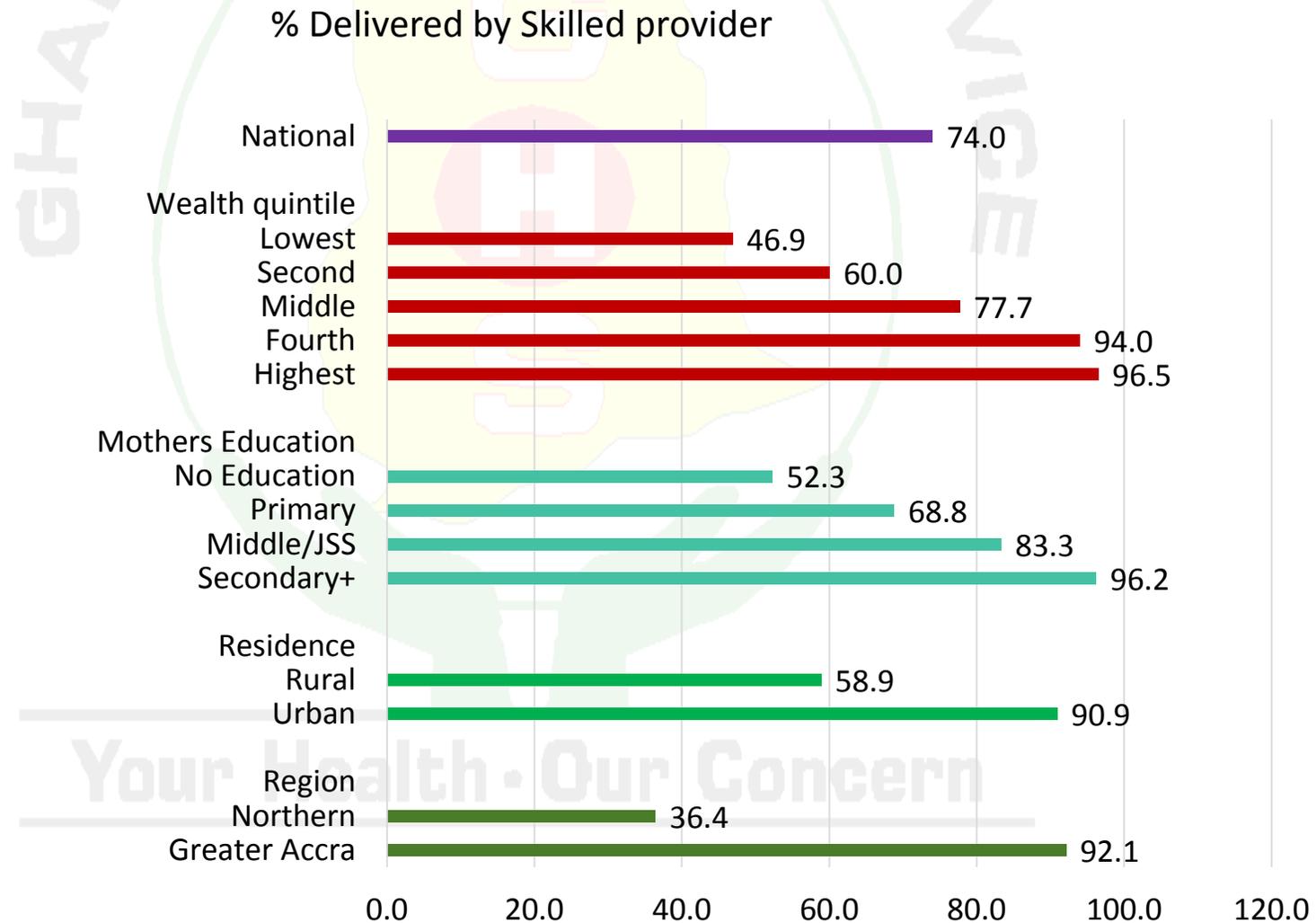
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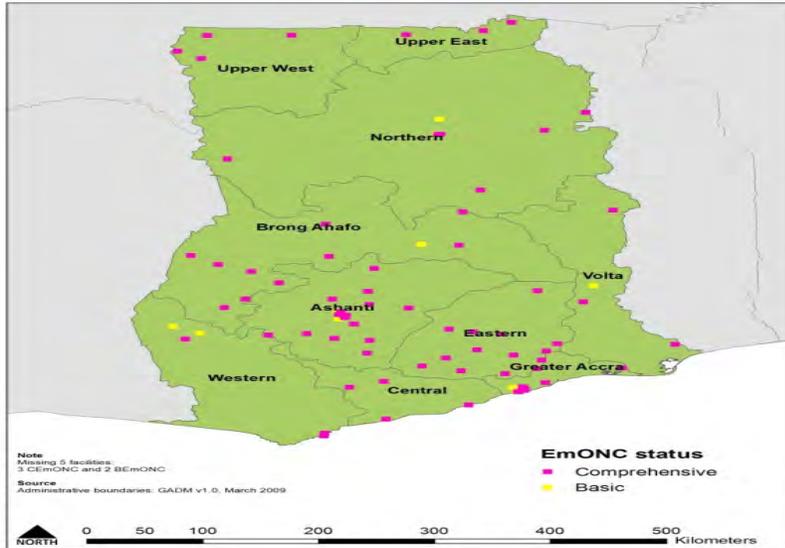
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# DISPARITIES IN SKILLED DELIVERY IN GHANA

## GDHS 2014



# CHALLENGES FOR MATERNAL HEALTH

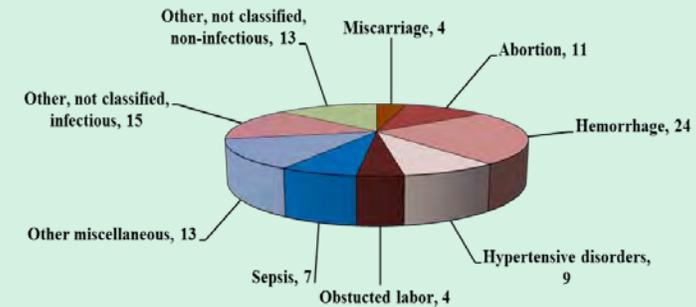


**Poor Access to EmONC**

STAGNATING CPR, HIGH UNMET NEED FOR FP  
 MALDISTRIBUTION OF FP  
 COMMODITIES  
 INADEQUATE METHOD MIX IN RURAL AREAS  
 UNSAFE ABORTION



**Human resource numbers and skills**  
**Many one man stations Doctor in District hosp 33%**  
**❖Lonely midwife in HC 57%**



# CHALLENGES FOR NEWBORN AND CHILD HEALTH

## High Neonatal mortality rate

- Limited access to services
- Essential Newborn Care not Available to All
- Poor geographical access

## Traditional/ Cultural practices

Persistence of cultural and social practises that affects appropriate health seeking behaviour.

# CHILDREN UNDER FIVE YEARS

- REGIONAL DISPARITIES:
  - VERY WIDE DISPARITIES PERSIST
  - CHILDREN IN NORTHERN, UPPER EAST AND CENTRAL REGIONS MORE LIKELY TO BE UNDERWEIGHT AND STUNTED THAN CHILDREN IN OTHER REGIONS:
    - STUNTING RANGES FROM FROM 10.4% IN GREATER ACCRA TO 33.1% IN THE NORTHERN REGION.
    - NORTHERN REGION SITUATION HAS REMAINED UNCHANGED FOR OVER TWO DECADES

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## KEY STRATEGIES

- RESPONSE HAS BEEN GROUPED IN 4 KEY AREAS
  - SCALING UP OF COST EFFECTIVE HIGH IMPACT INTERVENTIONS
  - INNOVATION AND ACCOUNTABILITY/GOVERNANCE
  - ADVOCACY
  - HEALTH SYSTEM STRENGTHENING
  - RESOURCE MOBILIZATION

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## INNOVATIONS

- M-Health
  - MOTECH, EWS
  - Emergency response
  - Data capture with smart phones

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## CONCLUSION

- Ghana continues to make steady progress to achieving MDG's 4 and 5.
- However, the current rate of decline of Maternal Mortality will not lead the country to achieving the MDG goal 5 unless additional measures are introduced.

# Succeeding in Ending Preventable Maternal, Neonatal and Child Deaths: The Tasks Ahead as we Move from the MDGs To SDGs

Dr Magda Robalo, WHO Country Representative  
GIMPA Conference Centre  
27 May 2015

# Worldwide early neonatal, late neonatal, postneonatal, and childhood mortality, 1990-2011

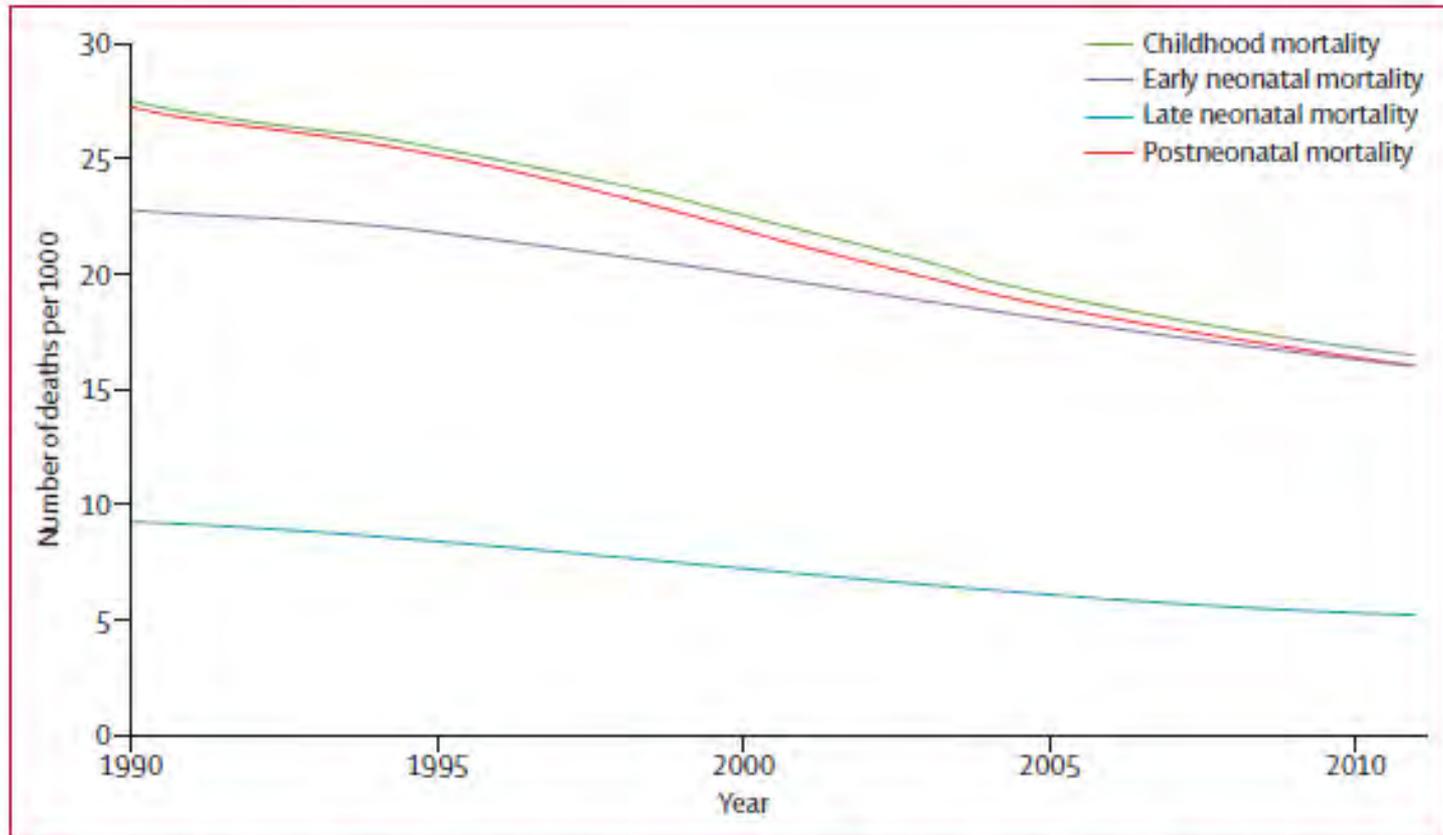
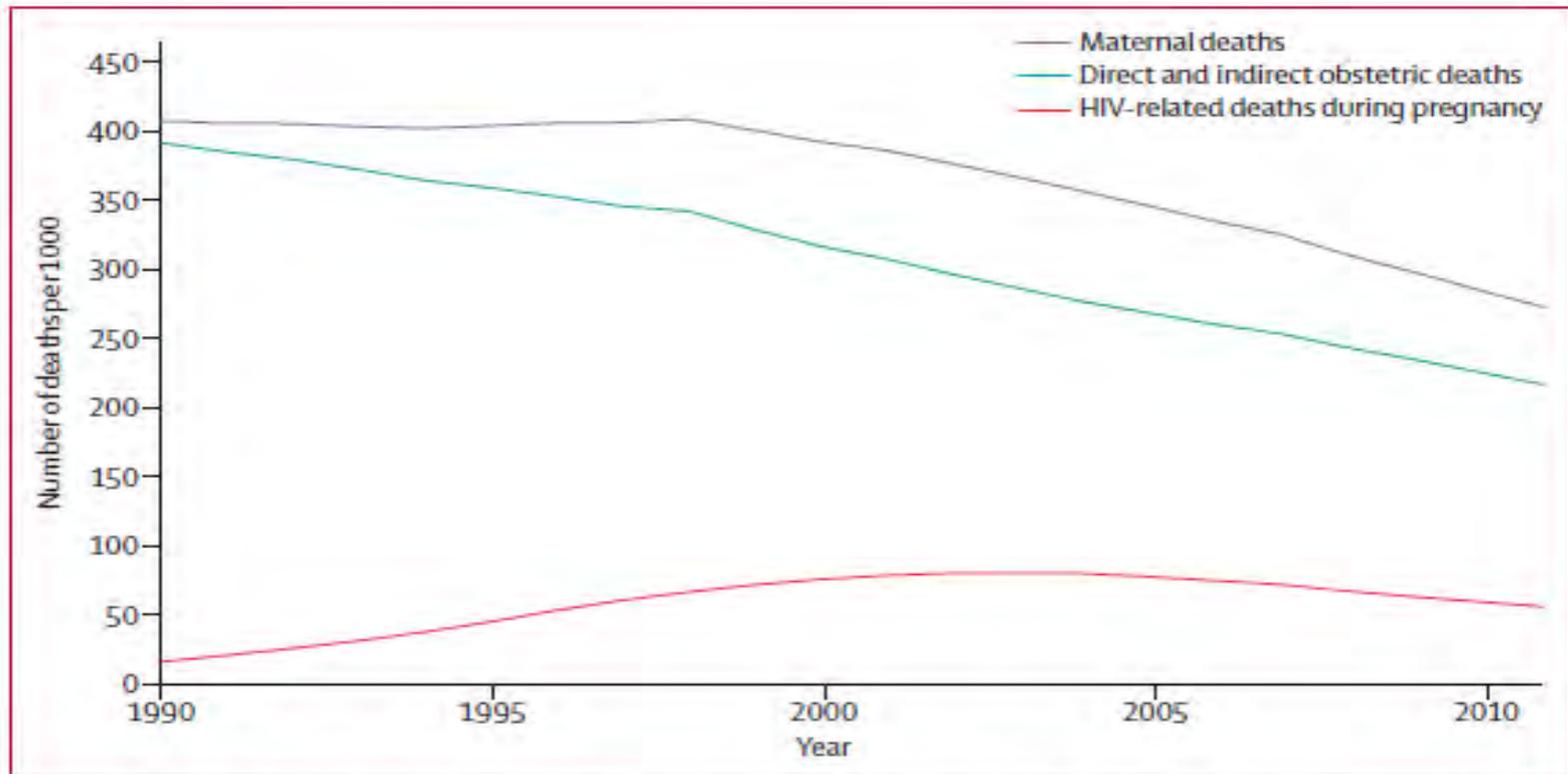


Figure 1: Worldwide early neonatal, late neonatal, postneonatal, and childhood mortality, 1990-2011

# Worldwide maternal deaths, direct and indirect obstetric deaths and HIV related deaths during pregnancy, 1990-2011



**Figure 5: Worldwide maternal deaths, direct and indirect obstetric deaths, and HIV-related deaths during pregnancy, 1990-2011**

# MDG 4 attainment year based on annualized rates of change, 1990-2011

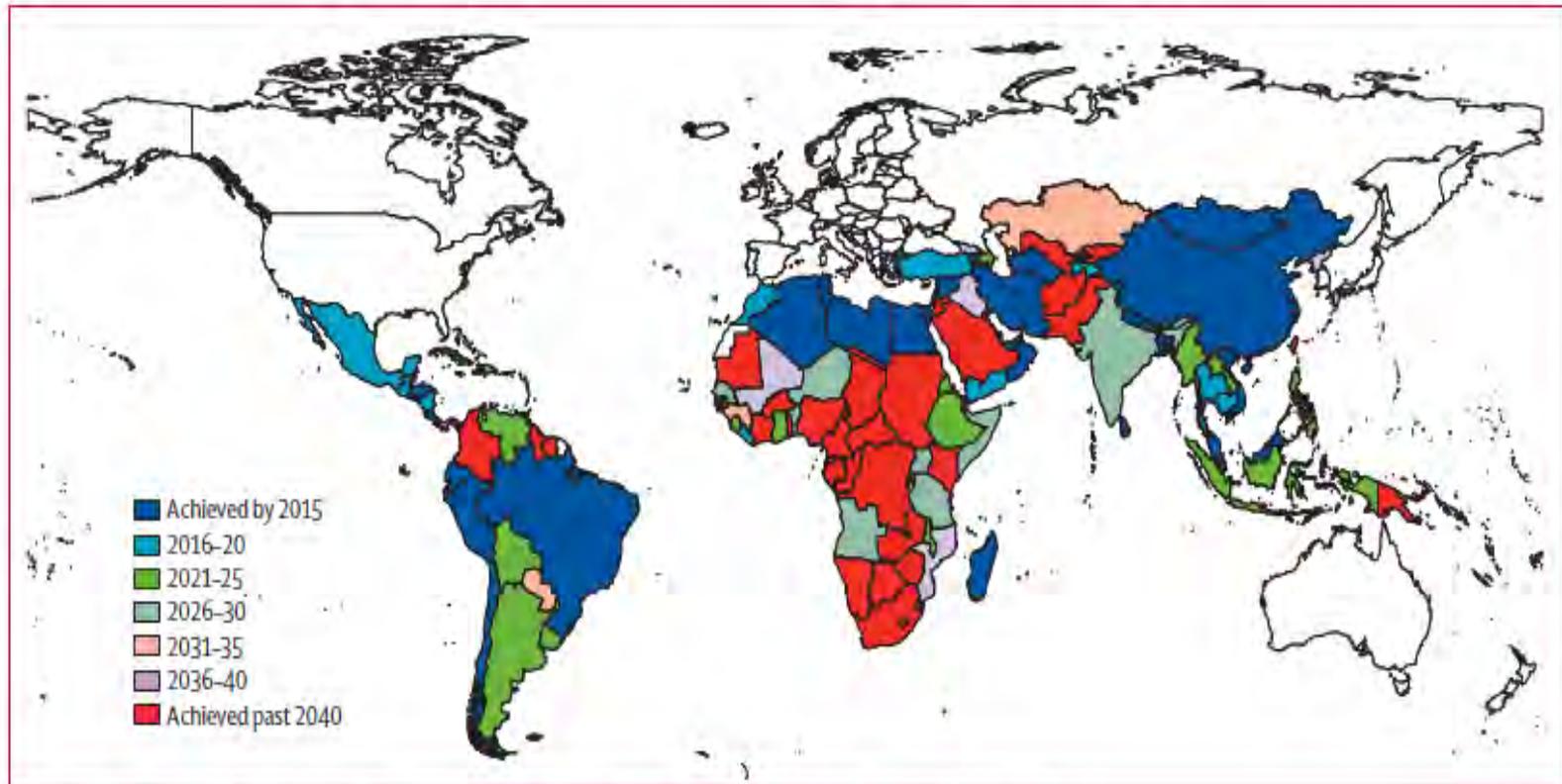


Figure 4: Millennium Development Goal 4 attainment year based on annualised rates of change, 1990-2011

# MDG 5 attainment year based on annualized rates of change, 1990-2011

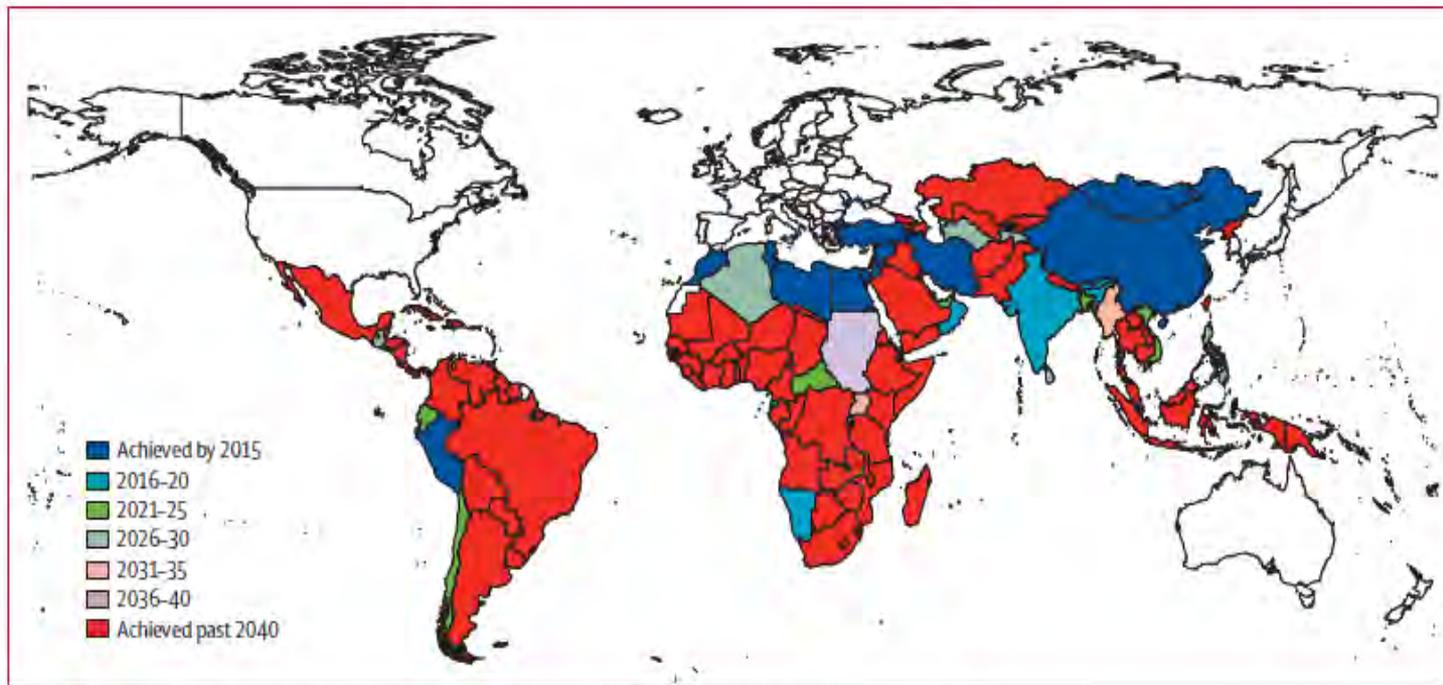


Figure 6: Millennium Development Goal 5 attainment year based on annualised rates of change, 1990-2011

# Using evidence to make an investment case for ending preventable child and maternal deaths

*Joses M. Kirigia, PhD*



**World Health  
Organization**

# Presentation Outline



Child mortality due to a few preventable causes



Maternal mortality due to a few preventable causes



Countries on track for MDG4 & 5: how?



Cost-effective interventions exist

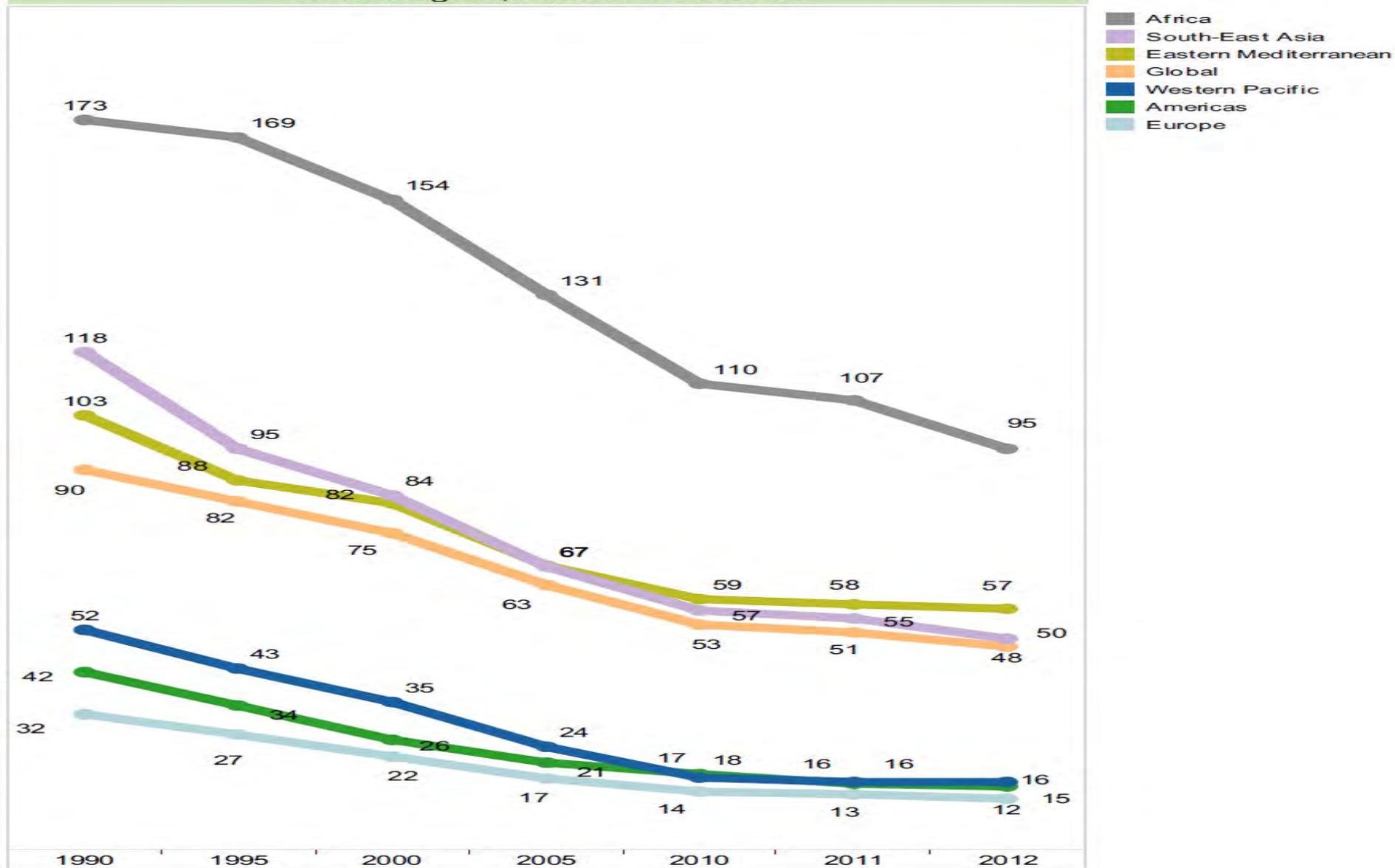


Potential savings

# Child mortality occurs due to a few preventable causes

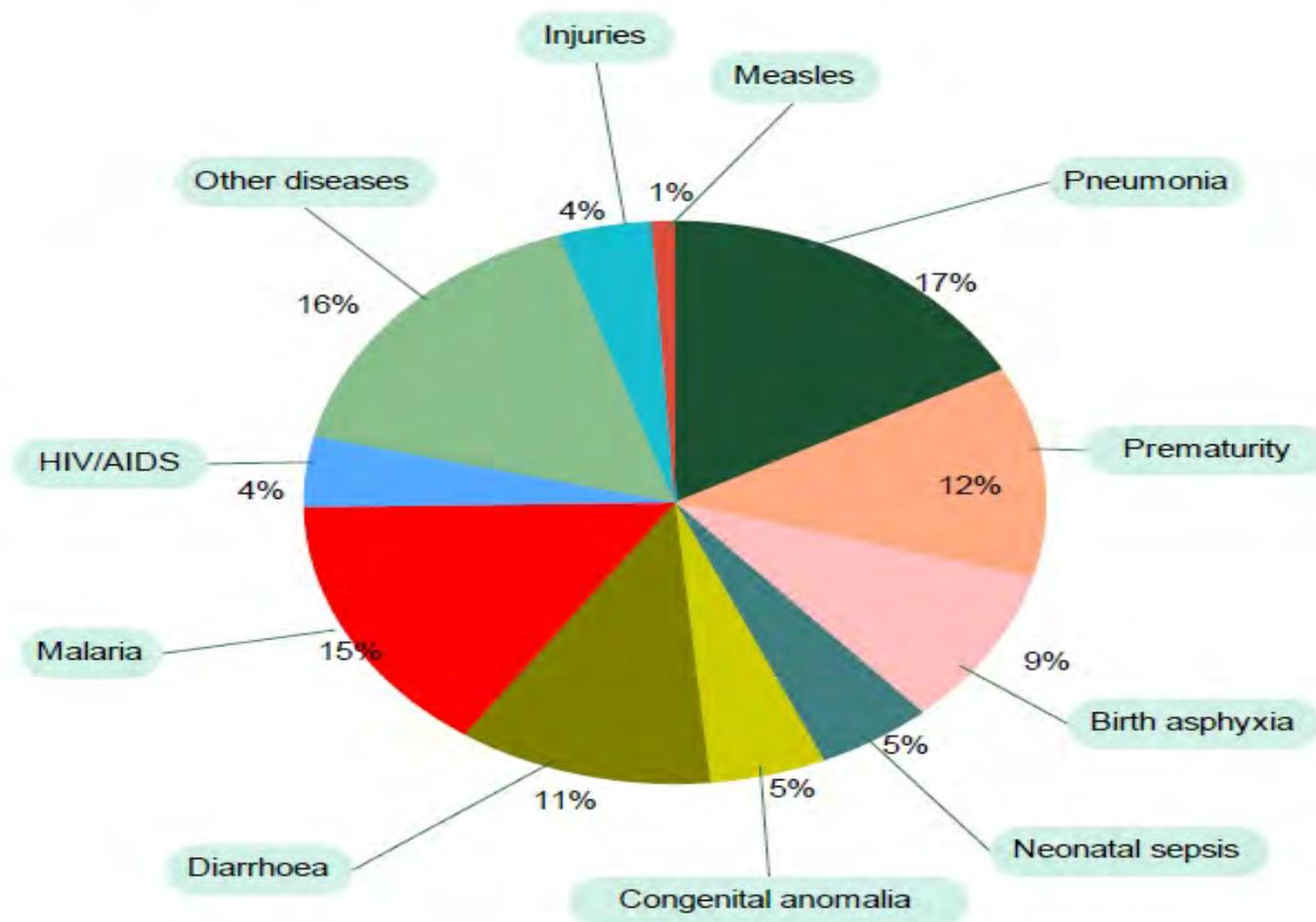


**Figure 2.2.6: Trend in Under-5 mortality rate per 1,000 live births by WHO Region, from 1990 to 2012**



Source: WHO, November 2013.

**Figure 4.5.1: Causes of death among children aged <5 years in the WHO African Region, 2010**



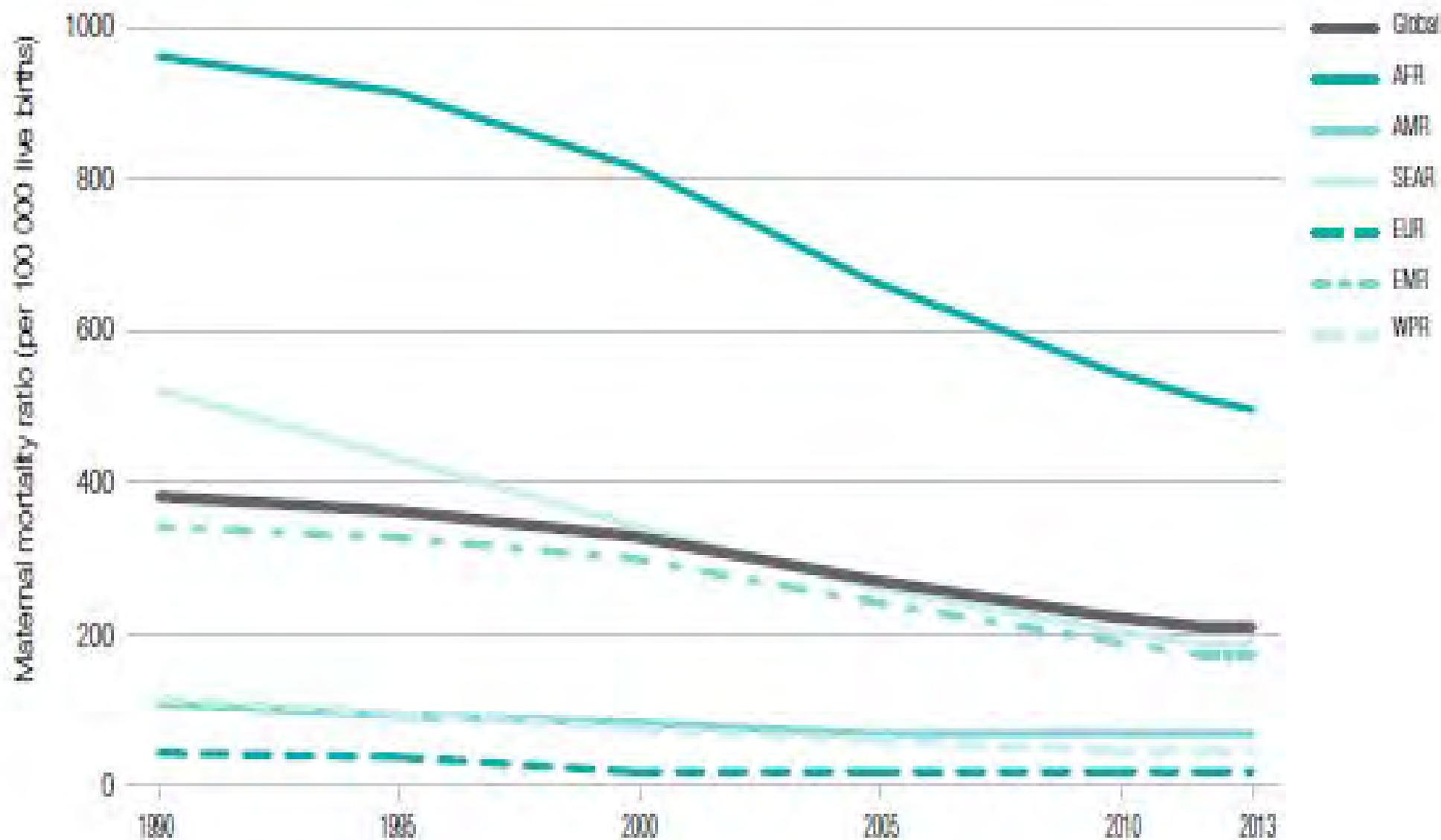
## Target 4.A: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate

Countries on track and Ghana	Under-five mortality rate (per 1000 live births)	Percent reduction in under-5 mortality rate, 1990-2013	Measles immunization coverage among 1-year-olds a (%), 2013
Eritrea	50	67	96
Ethiopia	64	69	62
Liberia	71	71	74
Madagascar	56	65	63
Malawi	68	72	88
Niger	104	68	67
Rwanda	52	66	97
Tanzania	52	69	99
<b>Malaysia</b>	<b>9</b>	<b>47</b>	<b>95</b>
<b>Sri Lanka</b>	<b>10</b>	<b>52</b>	<b>99</b>
<b><u>Ghana</u></b>	<b><u>78</u></b>	<b><u>39</u></b>	<b><u>89</u></b>

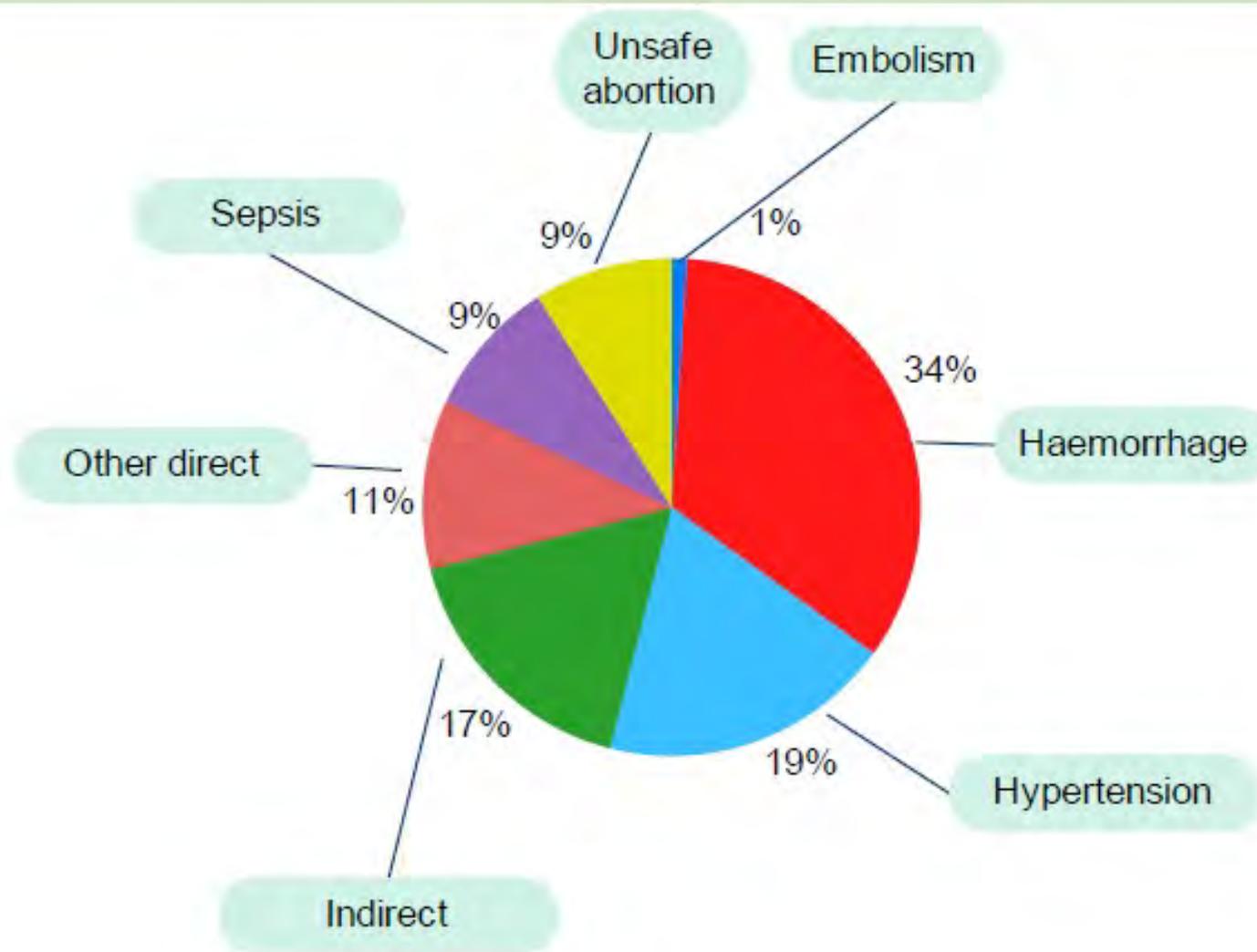
# Maternal deaths due to a few preventable causes



Figure 3. Maternal mortality ratio – globally and by WHO region, 1990–2013



**Figure 4.6.1: Main of causes of maternal death, Sub-Sahara Africa Region, 2010**



Source: WHO/UNICEF 2010.

# Target 5A:

Countries on track and Ghana	Maternal mortality ratio (per 100 000 live births) in 2013	Target 5A: Percent reduction in maternal mortality ratio, 1990-2013	Target 5A: Births attended by skilled health Personnel (%)	Target 5B: Antenatal care coverage (%): at least one visit	Target 5B: Unmet need for family planning (%)
<b>Cabo Verde</b>	<b>53</b>	<b>77</b>	<b>99</b>	<b>91</b>	-
<b>Equatorial Guinea</b>	<b>134</b>	<b>82</b>	<b>68</b>	<b>91</b>	<b>34</b>
<b>Eritrea</b>	<b>380</b>	<b>78</b>	<b>32</b>	<b>70</b>	-
<b>Rwanda</b>	<b>106</b>	<b>77</b>	<b>69</b>	<b>98</b>	<b>21</b>
<b>Malaysia</b>	<b>29</b>	<b>48</b>	<b>99</b>	<b>97</b>	-
<b>Sri Lanka</b>	<b>29</b>	<b>41</b>	<b>99</b>	<b>99</b>	<b>7</b>
<b>Ghana</b>	<b>380</b>	<b>50</b>	<b>67</b>	<b>96</b>	<b>37</b>



# Underlying causes of Maternal Mortality

- Three delays:
  - (1) Household level – women/families slow to seek medical assistance. Why?
    - lack of trust in modern health services;
    - weak incentives to use public health services;
    - limited control over household resources & health decision-making;
    - prohibitive financial costs;
  - (2) Reaching health facility – delay in transferring women to health facilities. Why?
    - unavailability of health infrastructure
    - poor rural road network & transport – ambulance services
  - Receiving appropriate care at the health facility – poor quality of care available hamper treatment of complications. Why?
    - Shortage of trained health staff & not motivated
    - Stock-outs of blood
    - Lack of adherence to professional standards

# Examples of countries on track for MDG4 & 5: How?



# Malaysia

- Maternal mortality declined from 540 per 100,000 live births in 1957 to 29 per 100,000 in 2013.
- What factors led to the drastic decline?
  - Rapid development of rural health services: health centres and midwife/community nurse clinics (+ mobile clinics and flying doctor stations); & referral system strengthened
  - Specific programmes to addressing women and children needs, e.g. MCH programme (1950s); High Risk Approach in MCH care (1970s) - Colour Coding System in health centres to identify high risk mothers & provides special care; Safe Motherhood in 1980s; Confidential Enquiry into Maternal Deaths (CEMD) in 1990
  - Improved coverage and reduction in high-risk pregnancies: average number of antenatal visits per pregnant woman doubled from 6 in 1980s to 12 in 2010.





# Malaysia (continued)

- Increase in the number of safe deliveries by skilled personnel and the reduction in deliveries by TBAs.
- Increased uptake of FP - reduction in fertility rate from 6.3 in 1960 to 3.3 in 2010.



# Sri Lanka (20 million)

- MMR decreased from 2000 per 100 000 live births in 1930 to 29 in 2013.
- How?
  - Provision of free education without discrimination, up to completion of university education. Benefits: delayed marriage (23.2 yrs); reduced teenage pregnancies; access to electronic and print media – greater health awareness; education empowered women (economically & otherwise).
  - Improved infrastructure and low-cost transport facilities.
  - Provision of healthcare services free of charge.
  - Gradual expansion & enhancement of the healthcare facilities - easy access to organised primary & tertiary health care plus surveillance and appropriate action.



# Sri Lanka (continued)

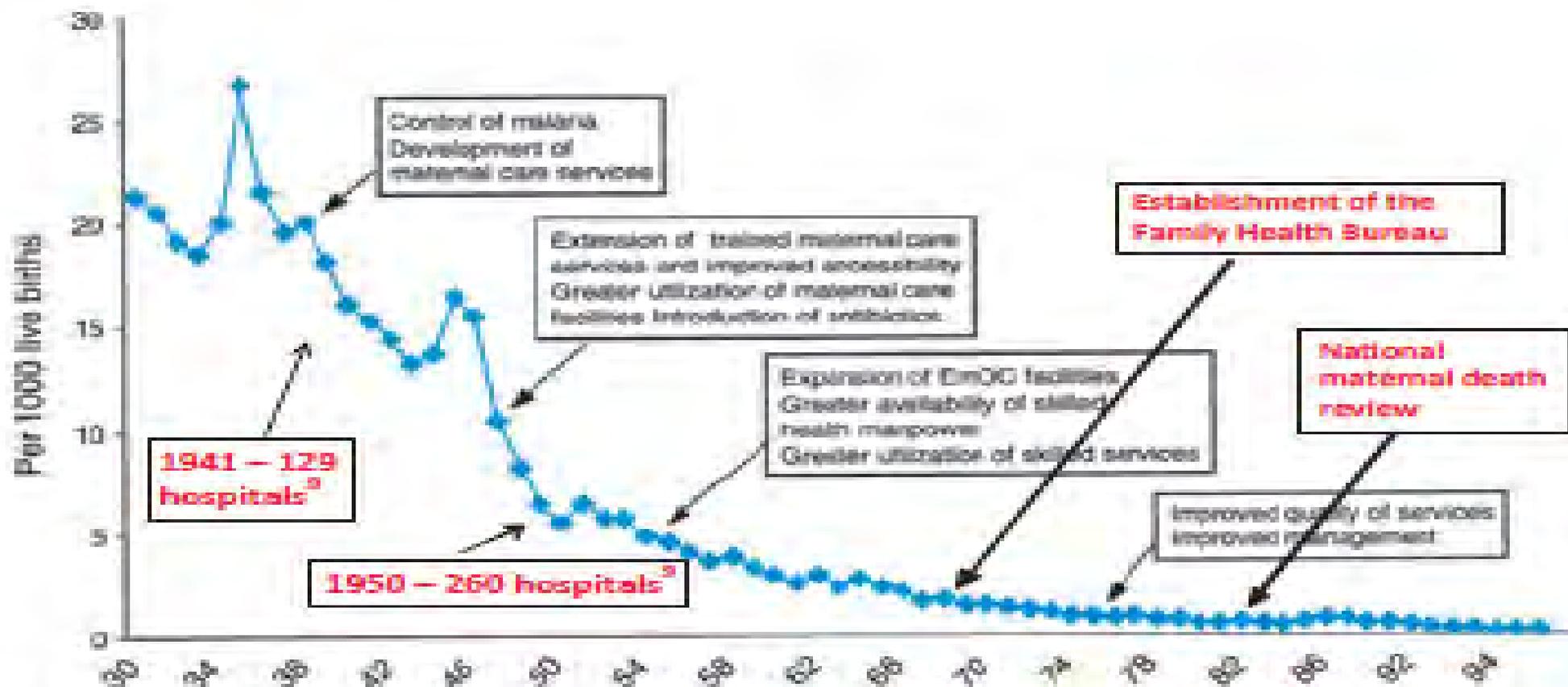
- Establishment of a field health system for delivering maternal and child health (MCH) services in the country in 1926;
- Steady increase in the number of government hospitals in the country from the 1930s;
- Commencement of training of midwives in 1931;
- Establishment of the Family Health Bureau (FHB) under the MOH to oversee MCH activities in 1969;
- Commencement of the National Maternal Mortality Review in 1984.



# Sri Lanka (continued)

- ANC coverage runs at 99% for the whole country
- 51% of pregnant women have had 9 - 15 ANC visits; 36% have had 4 – 8 visits.
- Intra-partum care: increase in midwives from 5000 in 1989 to more than 8995 in 2007.
- Skilled birth attendance (SBA) at delivery increased significantly from 40% in 1948 to 99.5% in 2007.
- Home deliveries declined from 25% in 1958 to <1% today.
- 85% of Sri Lankan mothers now deliver in a facility that has the services of a specialist obstetrician.





**Figure 1.** Maternal mortality ratio of Sri Lanka 1930–96.<sup>11</sup> Source: *Maternal Mortality Decline—The Sri Lankan Experience*, Colombo: Family Health Bureau, Ministry of Health, Nutrition and Welfare, 2003. Figure published with the kind permission of the Director, Family Health Bureau.

# Rwanda

- Maternal death reduced from 1400 per 100 000 LBs in 1990 to 320 in 2013. Between 2000 and 2010 Rwanda reduced MMR at rate of 50%. How? Thro..
- (1) Increased availability & use of modern services
  - Construction & equipping of district hospitals and health centres; & health workforce development
  - Very effective public education campaign – improving uptake of maternal health services, including family planning, antenatal care and health centre deliveries.
  - Fines imposed on women who fail to attend ANC & deliver in health care centres
  - Village community health system run by CHWs replaced TBAs

# Rwanda (continued)

- (2) Timely transfers of emergency cases:
  - Community health insurance (CHI) scheme covers 90% of the cost of ambulance transfers.
  - Increased availability of “waiting wards” for expectant mothers at rural health centres (swift diagnosis of complicated deliveries).
  - CHWs extensively trained; given incentives to meet MCH targets; & RapidSMS Programme linking CHWs to pregnant women; enabling monitoring of ANC & referrals in emergencies; & used to report on births & deaths.
- (3) Better quality care/responsiveness to client expectations:
  - Health centre opening hours are respected;
  - Good levels of hygiene/cleanliness;
  - Staff are respectful to patients;
  - Monitoring and supervision of CHWs by hospital staff;



# Rwanda (continued)

- (5) Institutional arrangements governing maternal health
  - Policy coherence: policy reforms have been mutually reinforcing, e.g.
    - use of voluntary CHWs and strong encouragement to subscribe to nationwide health insurance scheme.
    - Government-led sector-wide planning has ensured donor support plugs real resource gaps.
  - Enforcement of professional performance discipline:
    - regular supervision +
    - performance-based health financing +
    - moral rewards and sanctions (local officials & health professionals have performance targets) +
    - public sector workers forbidden to run private health care facilities.
  - Local problem-solving initiatives: State facilitates local participatory problem-identification and action – through ‘Collective action against poverty’.
  - Good governance – policy of zero tolerance to corruption zero tolerance policy on corruption, inter-sectoral collaboration, decentralization, sector-wide approach (SWAp), performance-based environment, and national gender policy (and structures to empower women and to prevent gender-based violence)

Thus, proven cost-effective interventions exist that can end preventable maternal and child mortality.





Intervention package	Description (coverage) of package	Average cost effectiveness ratio (cost per DALY averted) Int\$	incremental cost effectiveness ratio (Int\$)
A1	Community based management of neonatal pneumonia (95%)	1	1
A2	A1+community newborn care package (95%)	7	8
A3	A2+tetanus toxoid (95%)	11	22
A4	A3+screening for pre-eclampsia, screening and treatment of asymptomatic bacteriuria, and screening and treatment of syphilis (95%)	12	27
A5	A4+skilled maternal care and immediate care of new born (95%)	18	40
A6	A5+treatment of severe pre-eclampsia (95%)	19	42
A7	A6+emergency neonatal (95%)	25	61
A8	A7+management of obstructed labour, breech presentation, and foetal distress	28	73
A9	A8+steroids for preterm births (95%)	32	117
A10	A9+management of maternal sepsis (95%)	64	125
A11	A10+antibiotics for preterm premature rupture of membranes (95%)	35	178
A12	A11+referral for postpartum haemorrhage (95%)	36	223

Source: Adam et al [2005]



# Inequities in MCH need addressing

- Analysis of Ghana 2008 Demographic and Health Survey (DHS) revealed that poorest quintile was most affected by stunting, underweight in under-five children, anaemia in children and women, and childhood diarrhoea (Zere et al 2012).
- Skilled care at birth, deliveries in a health facility (both public and private), caesarean section, use of modern contraceptives, and intermittent preventive treatment for malaria during pregnancy all indicate gradients that are in favour of the wealthiest.
- There is more use of home delivery among women of the poorest quintile.
- So? Implement equity-enhancing measure both within and outside the health sector in line with the principles of PHC and the recommendations of the WHO Commission on Social Determinants of Health.

Investment in health system strengthening & action against social determinants of health can end preventable maternal and child deaths resulting in billions of International Dollars saved & contributing significantly to economic development (or Growth)!!! It would also go a long way in protecting women's and children's right to basic needs and life!!!!



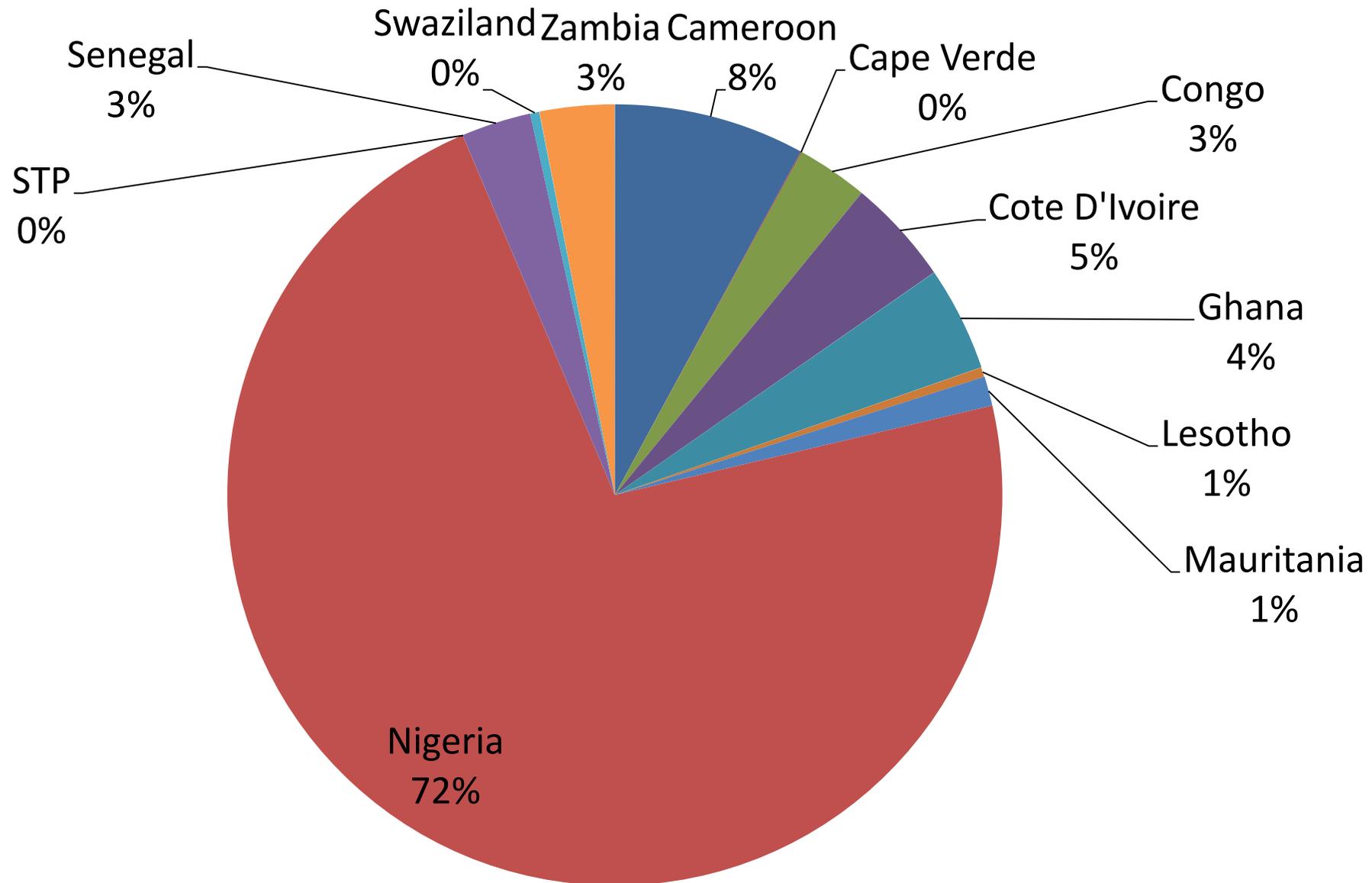
# Non-health GDP lost due to 147,741 maternal deaths in 2010

Cost Items	High income & upper middle income countries cost (Int\$)	Lower Middle Income countries cost (Int\$)	Low Income countries cost (Int\$)	Grand total cost (Int\$)
Total cost of maternal deaths	1,092,866,973	2,001,723,471	1,367,677,434	4,462,267,878
Average cost per maternal death	139,219	35,440	16,397	30,203
Average cost per person in population	9.6	7.7	2.9	5.3





# Non-health GDP loss due to maternal deaths in lower middle income countries in 2010.

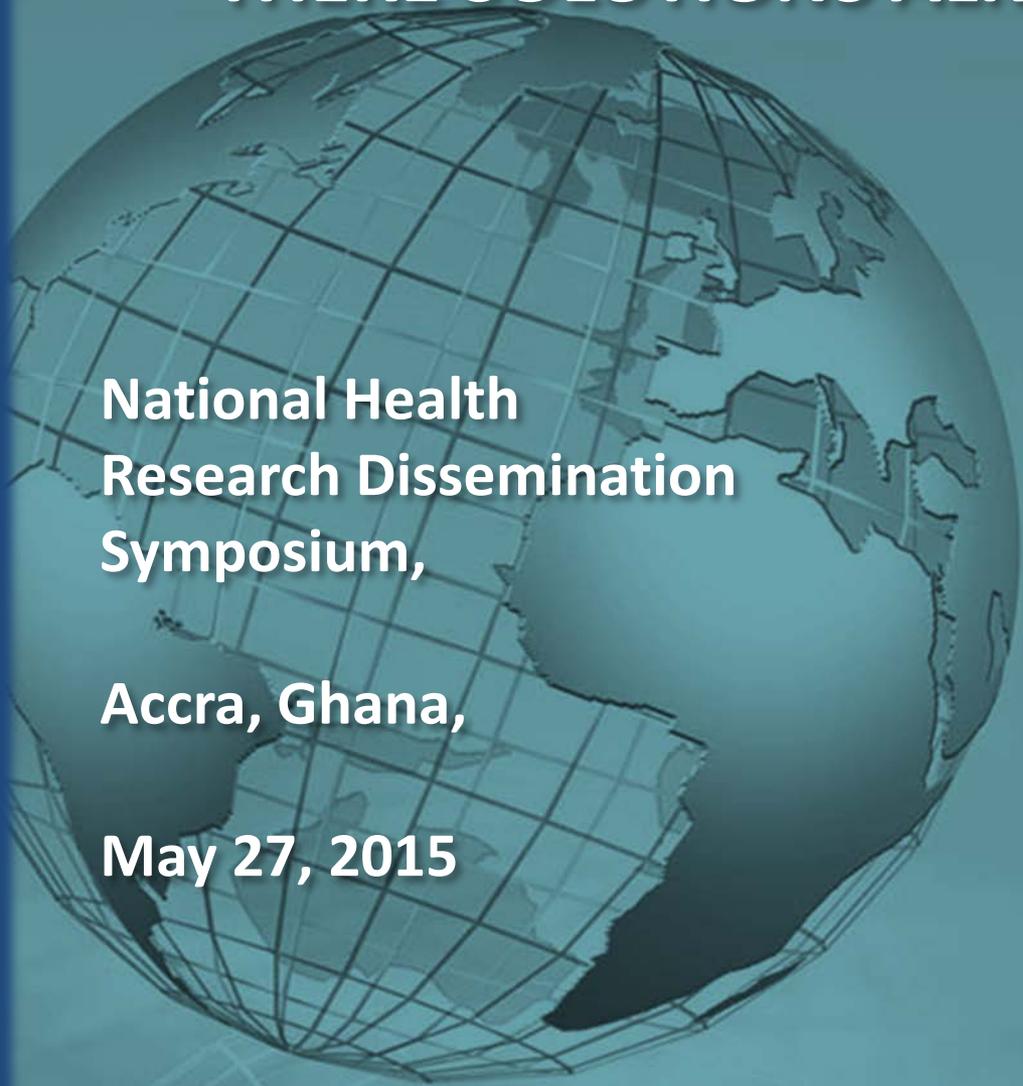


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**Thank you**  
**Merci**  
**Obrigado**



# ARE WE REINVENTING THE WHEEL? AREN'T THERE SOLUTIONS ALREADY OUT THERE?



National Health  
Research Dissemination  
Symposium,

Accra, Ghana,

May 27, 2015

**Cyril Engmann, MD FAAP**

*Global Program Leader/Director*  
Maternal, Newborn, Child Health & Nutrition  
PATH, Seattle

*Attending Neonatologist,*  
*Professor,*  
Departments of Pediatrics,  
University of Washington & Seattle Children's  
Hospital,  
School of Medicine,  
Seattle

# Are we reinventing the wheel? Aren't there solutions already out there?

- It depends...
- What we are solving?
- Which hat(s) we are wearing?



# Are we reinventing the wheel, aren't there solutions already out there?

- *Research*
- Funders
- Policies
- Programs
- Global, local (Ghana), global
- Reflections on future directions





The **NEW ENGLAND**  
**JOURNAL** of **MEDICINE**

# Newborn-Care Training and Perinatal Mortality in Developing Countries

Baseline data collection before Essential Newborn  
Care Intervention  
96 Clusters participating  
23,137 Mothers screened (23,248 infants)

\*30% relative risk reduction in perinatal deaths, primarily due to a decrease in fresh stillbirths.

\*2 million potential perinatal deaths averted each year.

Waldemar A Carlo, MD and the FIRST BREATH Study Group  
for the Global Network for Women's and Children's Health Research

**AFRINEST: a community-based multicentre  
randomised controlled trial in  
Democratic Republic of Congo,  
Kenya and Nigeria**

# SIMPLIFIED REGIMENS FOR MANAGEMENT OF POSSIBLE SERIOUS BACTERIAL INFECTIONS IN NEONATES & YOUNG INFANTS IN OUTPATIENT & COMMUNITY SETTINGS



## The Kinshasa School of Public Health and University of North Carolina Research Partnership



ECOLE DE SANTE  
PUBLIQUE

PI's: Cyril Engmann & Antoinette  
Tshefu



# Why was this study done?

- **700,000 deaths every year are due to neonatal infections – sepsis, pneumonia, meningitis,**
- **6-13 million newborns born every year have "suspected sepsis", with dire consequences in LMIC**
- **Increase access of newborns with possible severe bacterial infections to effective treatment**

# Limitations of referral



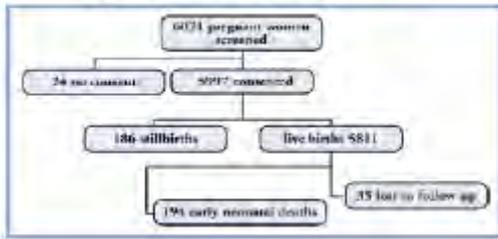
# Environmental conditions in Central Africa



# Environmental conditions in Central Africa



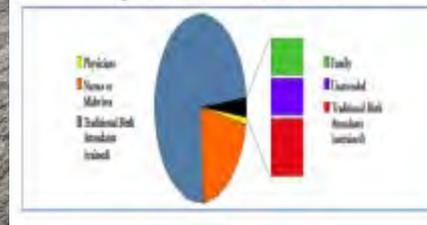
Figure 1. Study Population



Stillbirth (SB) rate was 31/1000 births

- ▶ 75% of SB were fresh
- ▶ 24% of SB were macerated
- ▶ 1% of SB were unspecified
- 64% of SB were LBW
- 31% of SB were VLBW

Figure 3. Characteristics of Birth Attendants



# Stillbirth and Early Neonatal Death in Rural Central Africa

Engmann et al, *Int J Gynaecol Obstet*, 2009

## Aim of the study

**\*To identify in timely fashion sick young infants and find the simplest treatment which is:**

**\*as effective as standard treatment,**

**\*deliverable, and**

**\*acceptable to families.**

**\*Study design: Open-label equivalence RCT**

# Simplified Regimens are Equivalent to Reference Treatment

	Gentamicin & Pro. Pen inj <b>14 injections</b>	Gentamicin & Oral Amoxicillin <b>7 injections</b>	Gentamicin & Pro. Pen inj <b>4 injections</b>	Gentamicin & Oral Amoxicillin <b>2 injections</b>
	<b>n= 828</b>	<b>n= 826</b>	<b>n= 862</b>	<b>n= 848</b>
<b>Treatment failure</b> (Risk Difference)	<b>67 (8.1%)</b>	51 (6.2%) -2% (-4% to 0.1%)	65 (7.5%) -1% (-3% to 2%)	46 (5.4%) -3% (-5% to 0.3%)
<i>Death</i>	<i>10 (1%)</i>	<i>8 (1%)</i>	<i>17 (2%)</i>	<i>10 (1%)</i>
<i>Clinical deterioration</i>	<i>12 (1%)</i>	<i>11 (1%)</i>	<i>12 (1%)</i>	<i>15 (2%)</i>
<i>SAE</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Hospitalization</i>	<i>2</i>	<i>2</i>	<i>4</i>	<i>1</i>
<i>Not improved by day 4</i>	<i>34 (4%)</i>	<i>24 (3%)</i>	<i>24 (3%)</i>	<i>17 (2%)</i>
<i>Not recovered by day 8</i>	<i>8 (1%)</i>	<i>6 (1%)</i>	<i>8 (1%)</i>	<i>3 (1%)</i>
<b>Death during 2 wks</b>	<b>12 (1%)</b>	<b>10 (1%)</b>	<b>20 (2%)</b>	<b>11 (1%)</b>



**\*WHO Expert Policy Group worked on expedited schedule towards guideline development**

**\*Policy breakthroughs already occurring.. .in India, Ethiopia, Nigeria.....**

# Are we reinventing the wheel, aren't there solutions already out there?

- Research
- *Funders*
- Policies
- Programs
- Global, local (Ghana), global
- Reflections on future directions



# Bringing US Congressional attention to progress still needed to improve maternal child health and nutrition around the world



- Survive & thrive
- Bridge the “know-do” gap, including implementation science
- Quality of care at birth (Mother-Baby friendly hospitals)

# Bringing US Congressional attention to progress still needed to improve maternal child health and nutrition around the world



- Multi-sectoral approach, integrating the RMNCHN continuum
- Economic case

Neonatal cause of  
death 1  
Preterm birth  
complications

- **Born Too Soon**

- The Global Action Report on
- Preterm Birth

# Born Too Soon - a truly global report

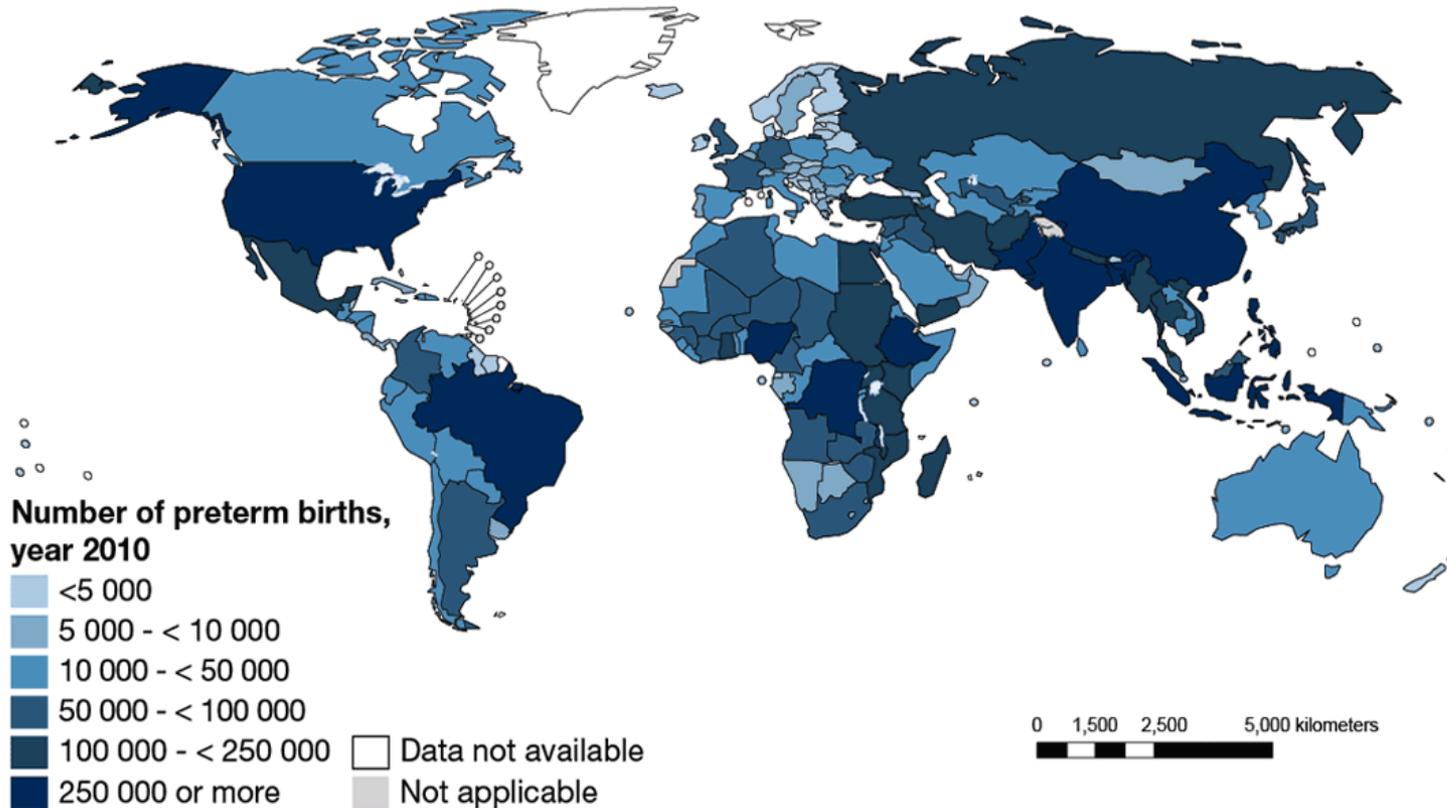


- First global estimates of preterm birth rate for 184 countries with WHO (Lancet, 2012)
- > 50 partner organizations including
- 45 authors from 11 countries including scientists, epidemiologists, clinicians, parents
- Linked to *Every Woman Every Child*, and forward by UN Secretary General Ban Ki-Moon

**Professionals, policymakers and parents**

Free at [www.who.int/pmnch/media/news/2012/preterm\\_birth\\_report/en/index.html](http://www.who.int/pmnch/media/news/2012/preterm_birth_report/en/index.html)

# 15 Million Preterm births – a global problem



**10 countries** account for 60% of the world's preterm births

1. India
2. China
3. Nigeria
4. Pakistan
5. Indonesia
6. **United States of America**
7. Bangladesh
8. Philippines
9. Dem Rep Congo
10. Brazil

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization  
Map Production: Public Health Information and Geographic Information Systems (GIS)  
World Health Organization



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## PRETERM BIRTH: BIRTH BEFORE 37 COMPLETED WEEKS OF GESTATION

Note: rates by country are available on the accompanying wall chart. Not applicable=non WHO Members State

Source: Blencowe et al National, regional and worldwide estimates of preterm birth rates in the year 2010 with time trends since 1990 for selected countries: a systematic analysis and implications

# 1.1 million preterm deaths each year

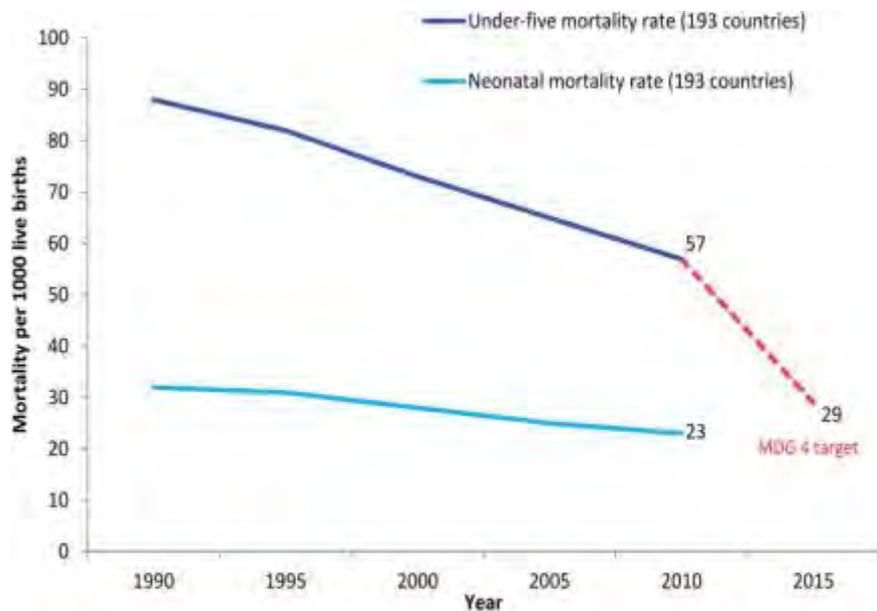
◇ > 125 deaths per hour

■ = Commercial liner crashing every 3 hours



# Neonatal mortality is declining slower than child mortality and prematurity is the leading cause of under-5 deaths

Neonatal mortality is not dropping as fast as under-five mortality

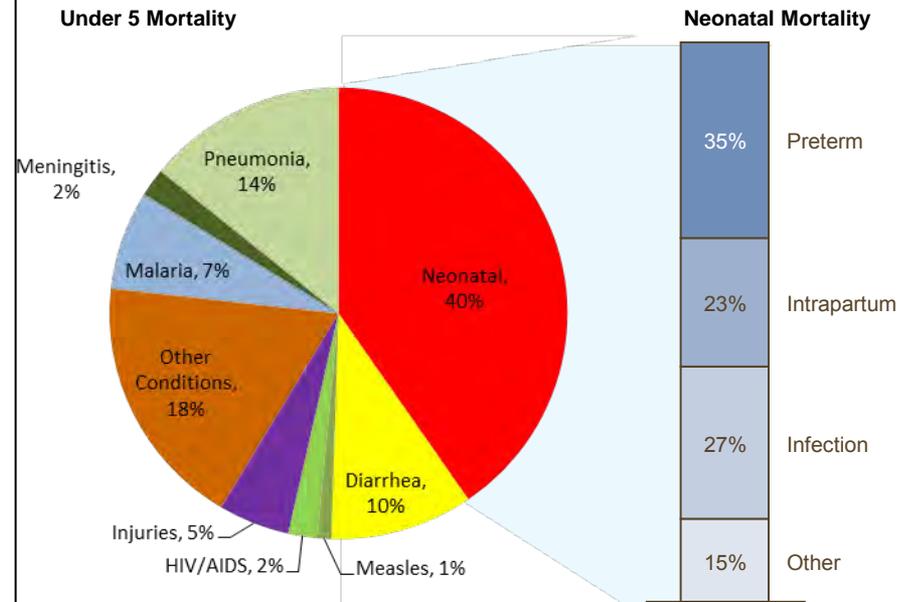


Average annual rate of reduction	1990-2010	2000-2010
Under-five mortality rate	2.2%	2.5%
Children 1-59 months mortality rate	2.5%	2.9%
Neonatal mortality rate	1.8%	2.1%

## 2010 Childhood Mortality

40% Neonatal Period

Preterm birth is the #2 cause of U5 death



Infection includes: sepsis, pneumonia, tetanus and diarrhea

# Two groups formed to channel momentum from Born Too Soon into actionable steps

## Research Group

---

- Purpose: Develop a preterm research solution pathway
- Core Conveners: NICHD, GAPPS, MOD, BMGF, WHO, & Researchers
- Next steps: Convene a funders meeting in summer 2013 to coordinate global preterm funding efforts

## Care Group

---

- Purpose: Accelerate implementation of priority interventions
- Core Members: UNICEF, WHO, SNL, USAID, BMGF, CIFF, AAP/IPA, PMNCH
- Next steps: Efforts feeding into Global Newborn Action...with a Plan

# The *Every Newborn* Action Plan: building a movement

A *roadmap* for change in countries...

A *platform for harmonized action* by all partners...

- Sets out a clear vision with mortality goals, strategic objectives, innovative actions within the continuum of care
- Supported by new evidence
- Inputs from more than 2,000 individuals
- A *movement for greater action* and accountability...



Photo credit: Save the Children

# Building a movement

Country action for newborn health



The end of MDGs brings new clarity about what is left behind on the agenda – newborns, stillbirths, adolescents

# Building from evidence to action

## Every Newborn Series

5 papers, 6 comments

55 authors from 18+ countries

60+ partner organizations

Published May 2014

[www.thelancet.com/series/everynewborn](http://www.thelancet.com/series/everynewborn)



Main funders: Bill & Melinda Gates Foundation, USAID, Children's Investment Fund Foundation

## Every Newborn Action Plan

Based on the evidence from the Series

Co-led by UNICEF & WHO

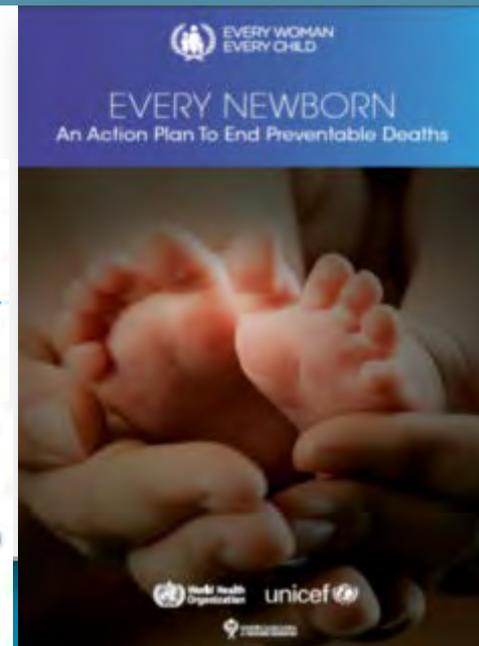
World Health Assembly 2014 resolution

Over 300 experts consulted

60+ partner organization

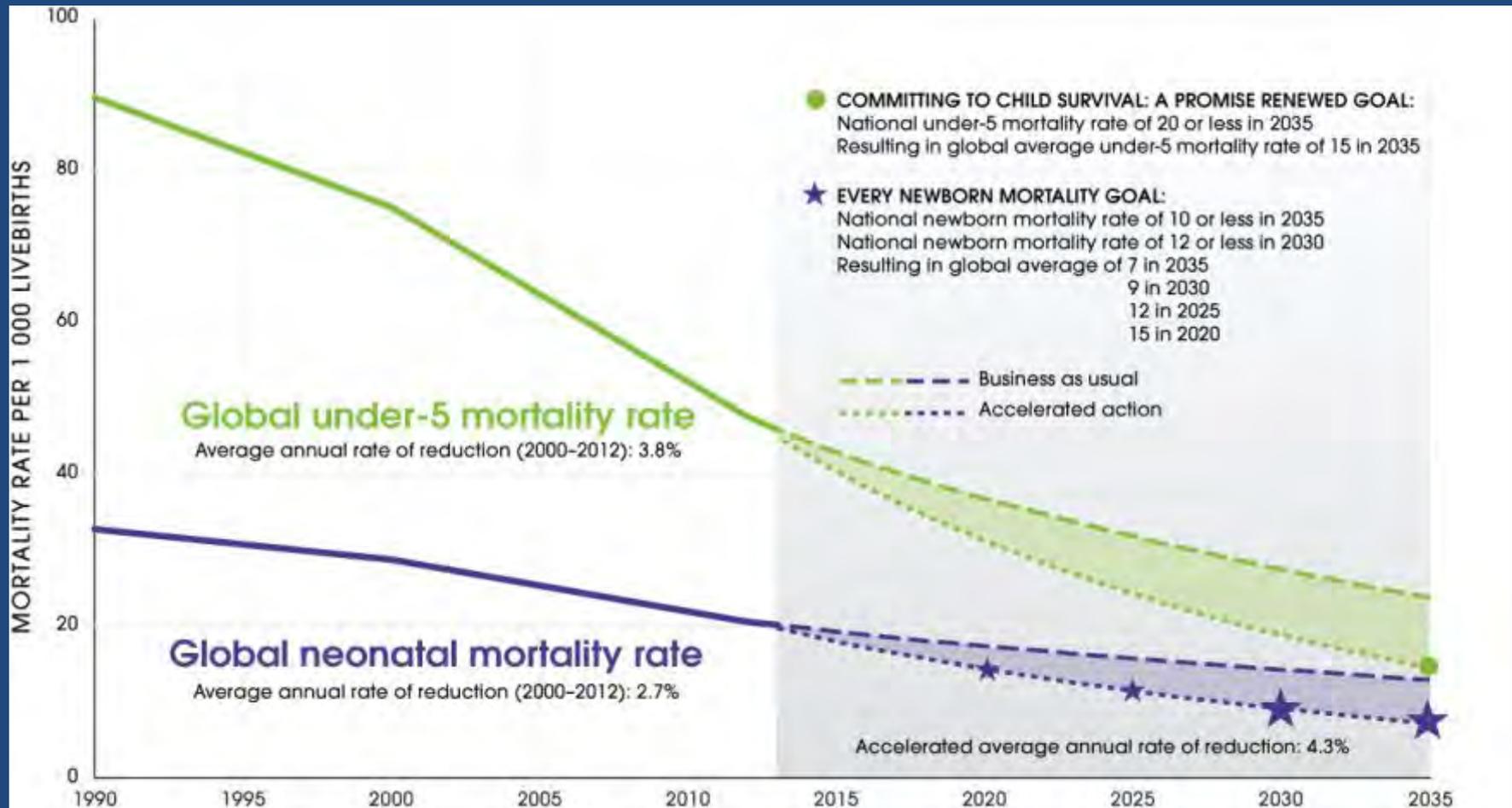
Launched 30<sup>th</sup> June 2014

40+ commitments to EWEC



# NEW NEONATAL MORTALITY GOAL

Unless we greatly accelerate newborn survival efforts, goal to end preventable child deaths by 2035 unreachable



Source: Special analysis detailed in The Lancet Every Newborn Series based on country and official online consultations and using neonatal mortality rate data from the UN Inter-agency Group for Child Mortality Estimation 2013 .

# EVERY NEWBORN

## Commitments

World Health Assembly Resolution  
194 member states endorsed the  
Every Newborn Action Plan in May  
2014

Now 40 new commitments, largest  
collection since launch of Every  
Woman, Every Child in 2010

**#EveryNewborn**

[www.lancet/series/everynewborn](http://www.lancet/series/everynewborn)

[www.everynewborn.org](http://www.everynewborn.org)



**The ENAP, ratified by all 194 countries of the UN, was launched by Her Excellency Graca Machel on June 30, 2014 in Johannesburg**

# *Every Newborn priority activities*

The partnerships forged during the development process for ENAP will work together on three main streams of activities:

- 1. Country implementation:** to identify and respond to technical support needs to ensure that the proposed strategies and evidence are translated into action
- 2. Data and metrics:** to improve and institutionalize metrics to track coverage and impact based on the goals and targets of the ENAP and the five strategic objectives
- 3. Advocacy:** to strengthen and track maternal and newborn health advocacy efforts globally and in countries.

**Research**



# Are we reinventing the wheel, aren't there solutions already out there?

- Research
- Funders
- Policies
- *Programs*
- Global, local (Ghana), global
- Reflections on future directions





American Academy of Pediatrics  
DEDICATED TO THE HEALTH OF ALL CHILDREN™



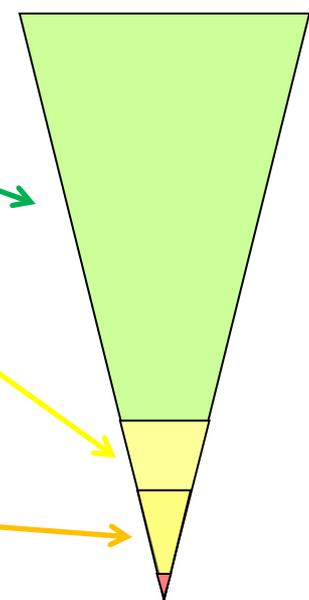
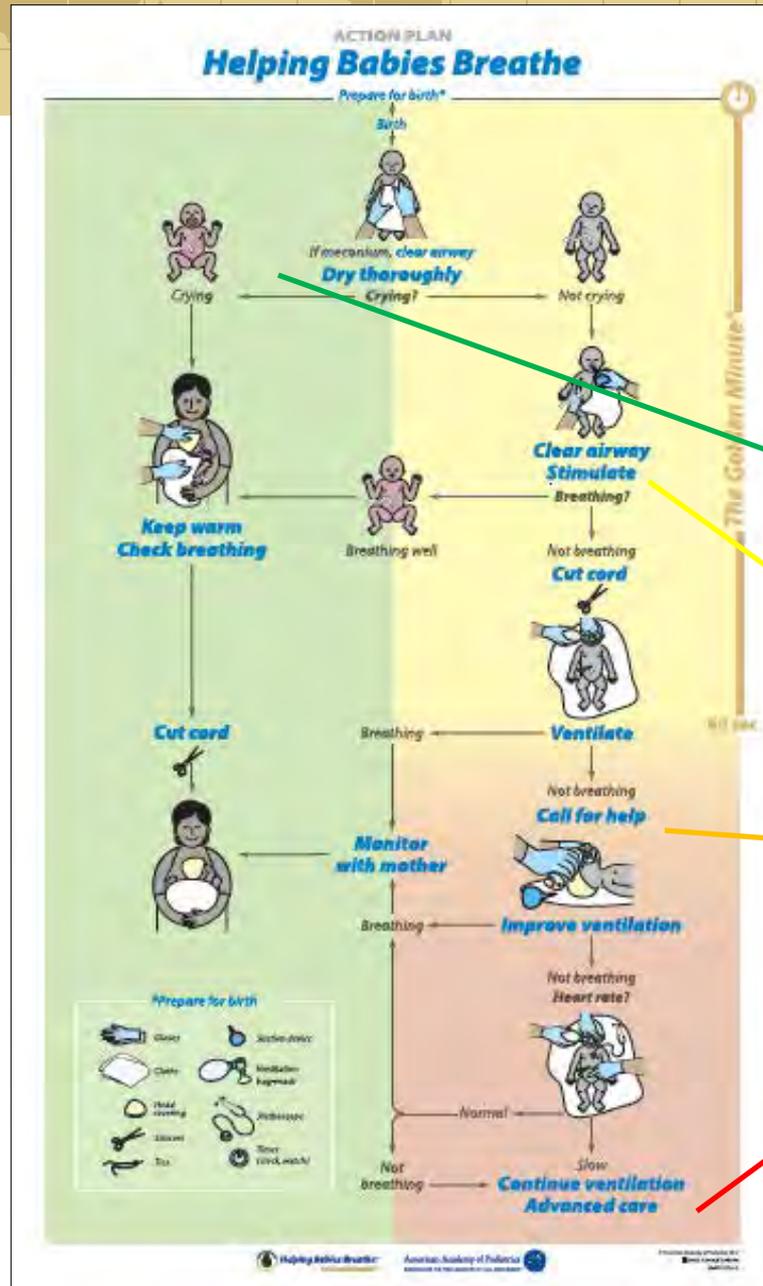
# Helping Babies Breathe

*a global educational program in neonatal  
resuscitation for birth attendants*

developed in collaboration with *USAID, NICHD, Saving Newborn Lives/Save the Children, Laerdal Foundation, WHO*

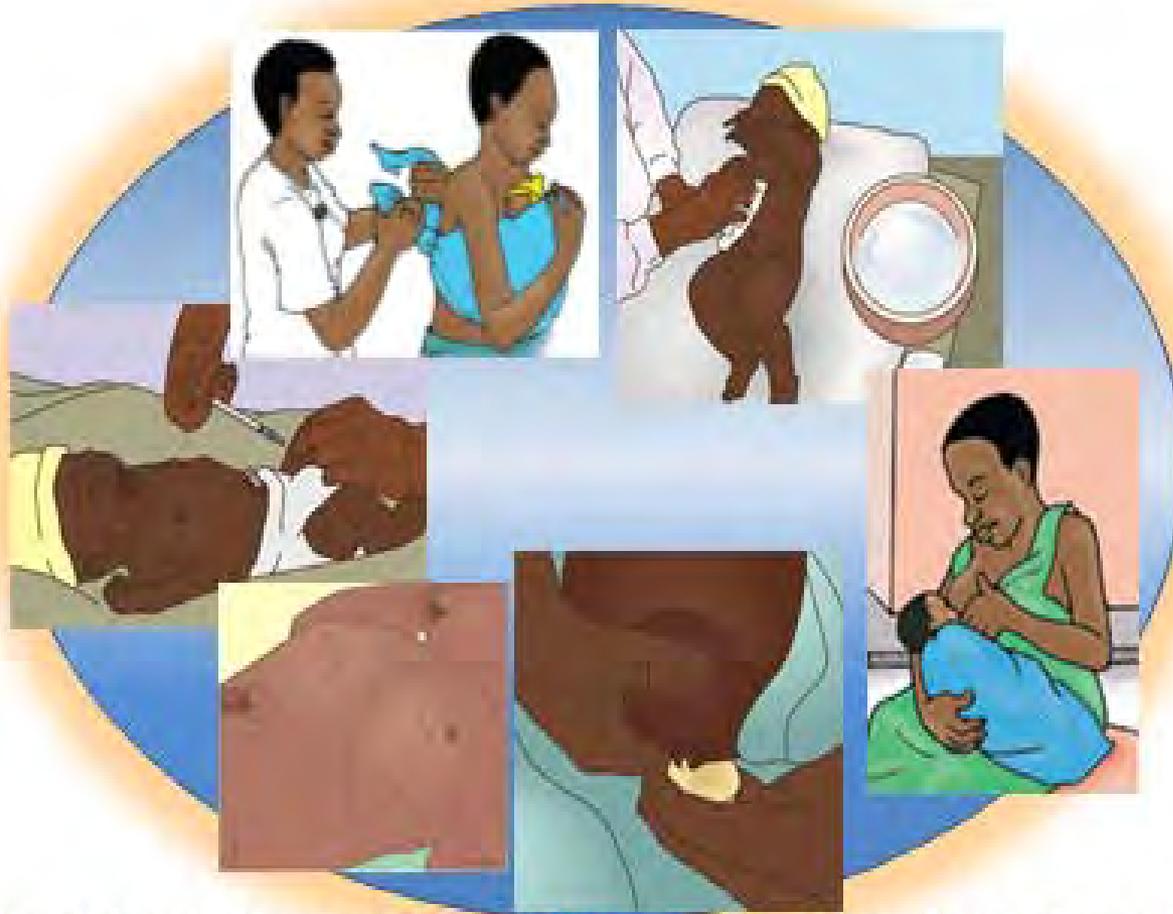


# Action Plan



# Helping Babies Thrive

Facilitator Flip Chart



*An Adaptation of the WHO Essential Newborn Care Course*

# PATH's Mission

Improving the health of people especially women and children around the world by:

- Advancing technologies
- Strengthening systems
- Encouraging healthy behaviors



# **PATH is the leader in global health innovation**

**We harness our  
entrepreneurial insight,  
scientific and public health expertise,  
and passion for health equity...**

**...to save the lives  
of women and children.**

# Transformative innovations



**Meningitis A  
vaccine: 300 million  
people immunized  
by 2016**



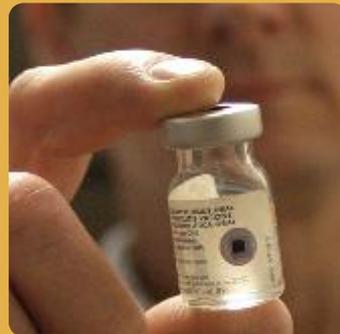
**Semisynthetic  
artemisinin: 125  
million malaria  
treatments per year**



**Rapid strip tests:  
neglected tropical  
diseases to HIV**



**Vaccine vial  
monitor: 5 billion**



**APHIAplus:  
community services  
in Western Kenya**



# PATH is the leader in global health innovation

- **Expertise in public health; epidemiology; technology design, development, transfer, and introduction; immunodiagnostics and vaccine development; vaccine distribution systems; business development; education and training; communication; advocacy; and procurement.**



# PATH's Maternal, Neonatal, and Child Health and Nutrition (MNCHN) Program

- **110 Staff worldwide**
  - 40 in USA: Seattle, Washington DC
  - 70 in countries Africa, Asia & the Far East



# Are we reinventing the wheel, aren't there solutions already out there?

- Research
- Funders
- Policies
- Programs
- *Global, local (Ghana), global*
- Reflections on future directions



# PATH in Ghana over past 20 years

## Current Projects

- **Better Immunization Data (BID) Initiative:** Accessing, Analyzing and Acting upon Accurate Immunization Data supported by Bill & Melinda Gates Foundation
- **Malaria Care Project – USAID**
- **Systems For Health- URC/PATH**
- **Making Every Baby Count Initiative (MEBCI) - CIFF**

# Making every baby count initiative

## MEBCI

- Duration: 2013 – 2018 (5 Years)
- Target regions: Ashanti, Volta, Eastern, and BA
- Target health facilities
  - Government and not-for-profit faith-based facilities with delivery services
  - Private midwives and for-profit delivery services (>5 deliveries/months)
- Intervention package
  - Essential newborn care
    - Neonatal resuscitation
    - Infection management and control
    - Management of preterm & low birth weight babies
- **Community level interventions**
  - Training (CHOs, CHNs, CHV, CHMC)
    - Community education
    - Counseling and follow-up visits

# Project goal and objectives

## Goal:

- By end of 2017, 90% of newborns born in health facilities in target regions will receive essential newborn care and appropriate interventions to address asphyxia, infection and prematurity according to the government guidelines

## Objectives:

1. Strengthen national leadership in newborn care
2. Strengthen capacity and skills in advance obstetric and newborn care at regional hospitals (**Ridge hospital as model**)
3. Strengthen regional leadership and action in newborn care

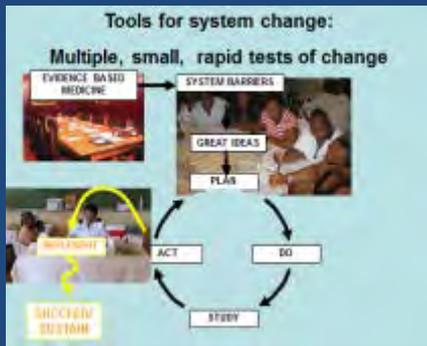


...for safe childbirth worldwide

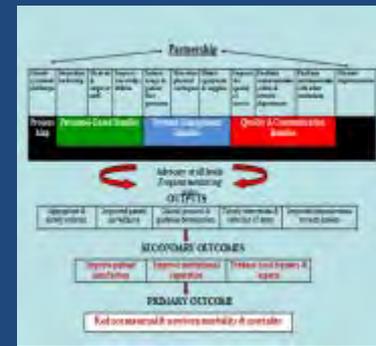
# Programmatic aspects of International Health: Kybele

Mission Statement: Nonprofit humanitarian organization dedicated to improving child birth conditions world wide (Turkey, Ghana, Georgia, Romania, Egypt, Brazil, Mongolia) through medical education & systems improvement partnerships



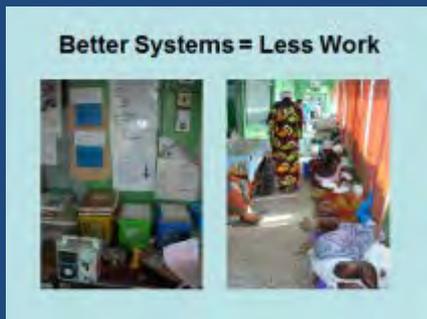
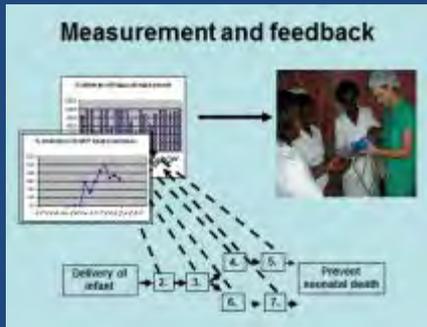


- Kybele outputs & systems strengthening work**
1. Process mapping
  2. Establish a Triage
  3. Improved triage triaging
  4. Resuscitation
  5. Theoretical protocols and kits
  6. Theoretical resuscitation training for all midwives
  7. Introduce labor analgesia
  8. Greater collaboration between obstetricians and anesthetists
  9. Regular monthly perinatal meeting - review of cases
  10. Advocacy for improvements
  11. Improve medical students
  12. Improving work ethics
  13. Introduction of a labor system
- Set up recovery for resuscitation
  - Repair and anesthesia machine
  - Supplied with needed equipment
  - Improve triage organization
  - Streamline referral pathway
  - Saveo fund!
  - Capture data!
  - Encourage communication among health facilities
  - Introduce data entry
- 



**“Nobody goes to work to do a bad job.”**

**Edward Deming**



- **Engmann C, Olufolabi A, Srofenyoh E, Owen M.** Multidisciplinary team partnerships to improve maternal and neonatal outcomes: the Kybele experience. *International Anesthesiol Clinics*. 2010
- **Bookman L, Engmann C, Srofenyoh E, Enweronu-Laryea C, Owen M, Randolph G, Price W, Barker P.** Educational impact of a hospital-based neonatal resuscitation program in Ghana. *Resuscitation*. 2010 Sep; 81(9):1180-2
- **Srofenyoh E, Ivester T, Engmann C, Olufolabi A, Srofenyoh E, Owen M** Advancing obstetric and neonatal care in a regional hospital in Ghana using continuous quality improvement, *International Journal of Gynecology and Obstetrics*, Jan 2012, 116 (1):17-21
- **Ivester TS, Donohue K, Engmann C, Haugh E, Kernodle A, Ramaswamy R.** Application of Continuous Quality Improvement Approaches to Improve Perinatal Outcomes in Low and Middle-income Countries: systematic review; Under review June 2014, *British Journal of Obstetrics and Gynaecology*

# Are we reinventing the wheel, aren't there solutions already out there?

- Research
- Funders
- Policies
- Programs
- Global, local (Ghana), global
- *Reflections on future directions*



# REFLECTIONS & THEMES - 1

## Guiding principles



- Capacity building
- Ownership “s’appropriier”
- Sustainability
- Poverty
- Political will
- Family planning

# REFLECTIONS & THEMES -2

## Funding



# REFLECTIONS & THEMES - 3

## Maximizing impact



- Demand generation from civil society: “every death is unacceptable”
- Political economy
- Harmonize our voices: World Pneumonia Day, GAPP-D, RMNCH, Every Mother, Every Newborn

A single spider weaves  
a web and catches one fly,

Many spiders weave a web and catch  
an elephant.

*-Ghanaian proverb*



# Improving neonatal mortality in sub-Saharan Africa: any cause for optimism?



## EDITORIAL

- *There IS cause for optimism*
- *Community-engagement, understanding local context, quantitative & qualitative methods, systems improvement, global attention, some countries on track to achieve MDG 4.....*

“Women (and children\*) in some parts of the world are not dying because of diseases we cannot treat; they are dying because societies have yet to make decisions that their lives are worth saving.”

-Professor Mahmoud Fathalla, recipient  
of the United Nations Population Award

\* added by speaker

**It always seems impossible until  
it is done – Nelson Mandela**



# DETERMINANTS OF INFANT/CHILD AND MATERNAL MORTALITY

KODJO SENAH (PHD)

DEPT. OF SOCIOLOGY

UNIV. OF GHANA

# ILL HEALTH

- Ill health is disruptive, costly and poses threat to life.
- Thus every society devises pragmatic and philosophical ways to deal with it.
- The medical anthropological position then is that concepts relating to disease definition, causation and therapy management are culturally constructed.

# HIPPOCRATES (CA 460 BC)

## ON AIRS WATERS AND PLACES

- *When one comes into a city to which he is a stranger, he ought to consider its situation, how it lies as to the winds and the rising of the sun; for its influence is not the same whether it lies to the north or the south, to the rising or setting of the sun. These things one ought to consider most attentively and concerning the waters which the inhabitants use, whether they be marshy and soft or hard and running from elevated and rocky situations and if saltish and unfit for cooking; and the ground whether it be naked and deficient in water, or wooded and well watered and whether it lies in a hollow, confined situation or is elevated and cold.....;*

**RESPECT YOURSELF**  
**DO NOT SHIT HERE**  
**DO NOT DUMP REFUSE**  
**HERE**  
**SPOT FINE GH₵ 100**



# POOR ENVIRONMENTAL SANITATION



# Residence of the Poor



**Waste deposited in a waterway at Mamobi**

# OPEN DEFECATION



# THE CHILDREN OF SODOM AND GOMORRAH



# VILLAGE CHILDREN'S TOILET



# Death by 'bentoa'

• Police quiz woman,  
23, over son's death

Story on  
Page 3



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# Prayer camps turned into maternity homes

• *And create more complications*

*From Moses Dotsey Aklorbortu,  
Sekondi*

**SOME spiritual churches operating within the Sekondi/Takoradi metropolis and other parts of the Western Region are creating anxiety for medical staff and workers in the area.**

The churches, particularly the 12 Apostles Church, popularly called "Nakaba" in Western Region parlance, are said to be persuading pregnant women, who visit their churches for prayers not to go to hospital to

are forced to push the baby when the time is not due and this results in injuries to the uterus which leads to excessive bleeding that sometimes leads to the death of some of these women," he noted.

He explained that "when you force the uterus, it bleeds and the expectant mother could die after delivery. In the process, many blood vessels are destroyed.

"They do not know the anatomy and the physiology of childbirth. They tell the women to push. Therefore, the uterus is forced to open up for the child to

# A CAUSE OF CHILD MORTALITY



# MORNING CHORE OF RURAL SCHOOL CHILDREN



# HOW POTABLE IS GHANA'S WATER?



# Treat Malaria with the recommended medicines



### Other options

Artemether -  
Lumefantrine (AL)



or

Dihydroartemisinin  
Piperazine (DP)



## AA

Artesunate -  
Amodiaquine

Let's come together and drive malaria away



CDC



USAID



ProVITA Ghana  
Promoting Malaria Prevention & Control



Ministry of Health  
Ghana Health Service  
Malaria Control Programme

BCS PROJECT

unicef



3

## The MOH Recommended Anti-Malaria Medicines



Let's come together and drive malaria away

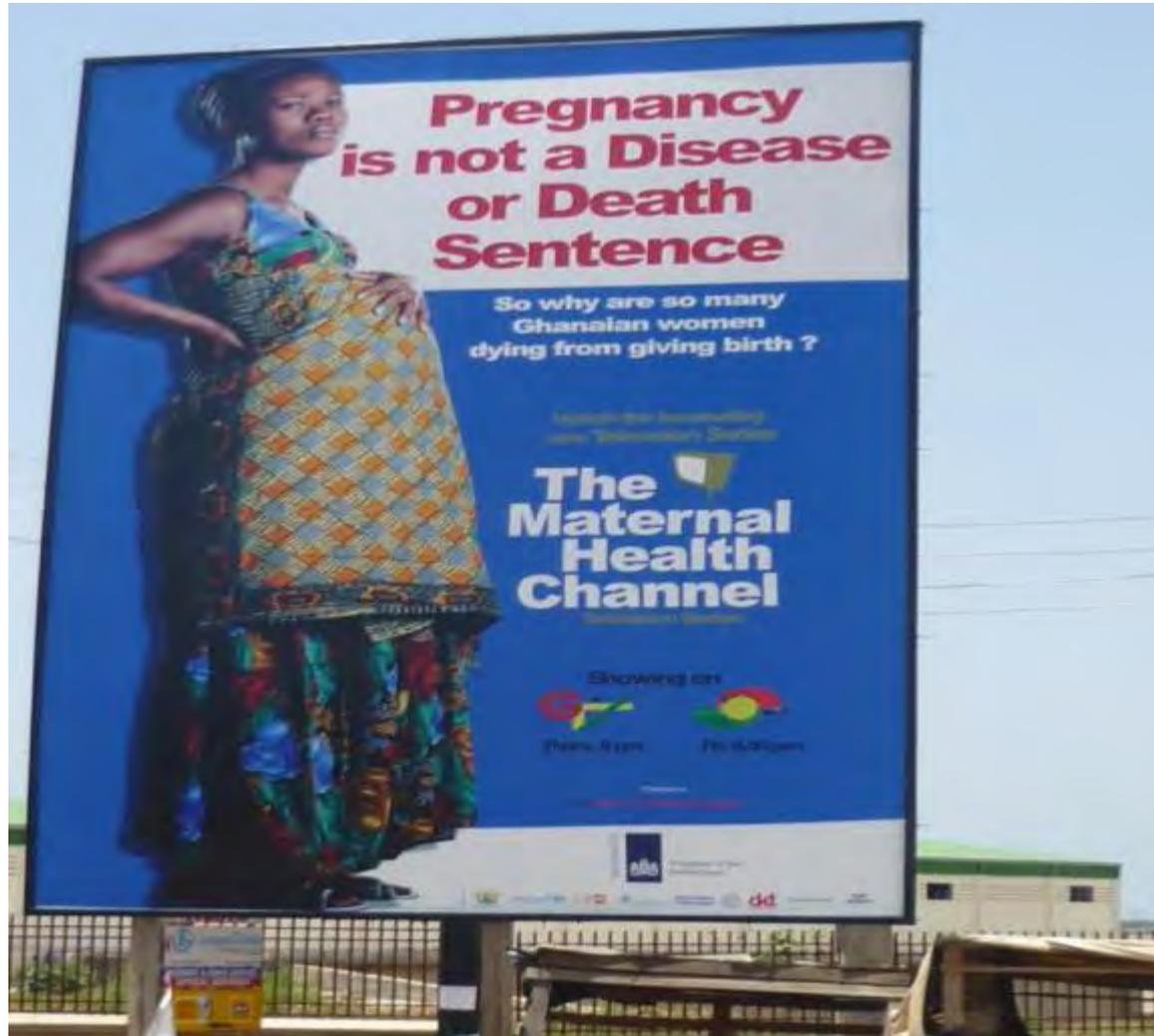
# VILLAGE 'CLINIC'



# A VILLAGE AMBULANT 'CLINIC'



# PUBLIC ADVERT



# CELEBRATION OF MEDIOCRITY

## Daily Graphic

GHANA'S BIGGEST  
SELLING NEWSPAPER  
SINCE 1950

FRIDAY, DECEMBER 31, 2004. NO. 149317. PRICE: ₵3,000

# K'BU EXCELS

Story: Rosemary  
Ardayfio

## • *No maternal deaths in 3 months*

**T**HE Maternity Department of the Korle-Bu Teaching Hospital has not recorded any pregnancy-related deaths in the past three months.

The Head of the department, Prof E. Y. Kwawukume, who made this known, said until this achievement, the department usually registered a few deaths mainly due to haemorrhage and hypertension.

According to him all the over 3,000 patients who were managed by the department over the three-month period, includ-

ing the Christmas season, survived.

According to him, the achievement was due to a multiple of factors, mainly improved counselling of the pregnant women on the danger signs of pregnancy and why they should report early to the hospital.

In addition, he said the department had also put in place a policy that required pregnant women to donate blood before they went into labour, to be used in emergencies.

Prof Kwawukume said apart

from that policy, some pharmaceutical companies donated free antibiotics to the department, so the pregnant women did not have to spend time going out to look for the drugs to buy, thereby reducing time wastage.

Prof Kwawukume further said that all the senior doctors now actively took part in the monthly internal audit of maternal mortality and how to prevent it.

Another critical factor which had contributed to quality care of pregnant women was the improved service being ren-

dered by doctors posted from the department to some polyclinics in Accra.

These are the La, Maamobi and Mampröbi polyclinics, which also serve as training grounds for postgraduate students.

As a result of this arrangement, Prof Kwawukume said, emergencies were handled on time and only complicated cases were referred to Korle-Bu.

He appealed to the health authorities to provide theatres in those polyclinics to enable them to improve their services.

That, he further said, should

be augmented by additional theatres and gadgets for the Maternity Department to enable it to maintain the current state of affairs.

Prof Kwawukume also suggested that district hospitals be strengthened to handle uncomplicated cases and normal deliveries and only refer emergencies to Korle-Bu.

He said the department often had to deal with situations where patients with severe complications were referred too late for their lives to be saved.

He said the department received between 300 and 400 referred cases a month.

# HIGH PROFILE MATERNAL MORTALITY

## Minister's Wife Dies

By A.R. Gomda

MADAM ABIBA Fuseini, wife of the deputy Minister of Energy, Inusa Fuseini who is also MP for the Tamale Central in the Northern region, has died through childbirth at the Police Hospital, Accra.

Abiba Fuseini was a staff of the Ghana National Fire Service (GNFS) and was fondly called 'Abiba Fire Service'. She left behind a girl.

Abiba was laid to rest at the Madina Public Cemetery yesterday where the interment saw a convergence of hordes of sympathizers who cut across the political divide.

A bugler from the GNFS sounded the last post to honour her before she was finally lowered into the grave.

Earlier, the family called for a post mortem following suspicion that there was negligence on the part of medical personnel who supervised her during labour.

Many have questioned why a Caesarian Section was not undertaken, considering her situation just before she yielded to death. Results of the post mortem were not made public at the time of filing this report.

President Mills was said to have broken the tragic news to the MP in whose company he was in Tamale at the time of the unfortunate development. The aftermath of the news was expectedly a pathetic reaction from the deputy Energy Minister who was inconsolable.

He was however able to hold himself together yesterday, receiving sympathizers who took turns to commiserate with him.

Expressing the family's position to the media, Alhaji Sumani said they were disappointed at the conduct of the hospital. He observed that if the hospital authorities had allowed a 'competent gynaecologist' to handle her, instead of a midwife, the woman would have survived through expert's inducement - who would have probably recommended a caesarean birth when she was in difficult labour.

DAILY GUIDE gathered that the late Abiba labored from about 3am until 6am on Wednesday 21st April 2010 when she passed away, with no doctor around to attend to her. The doctor arrived finally at about 8am, two hours after she drew her last breath.

She was in the hospital earlier on admission but discharged on Sunday

in spite of the insistence of her husband that she be kept there, especially since the doctor assured the family that the lady was due to deliver on Thursday.

A large number of sympathizers poured in yesterday to render the necessary consolation during such difficult times.

The Islamic burial service, officiated by the National Chief Imam at the Cantonments Police Mosque, attracted a cross-section of people, among who was the deputy Inspector General of Police, Mohammed Alhassan, Justice Tanko, NDC General Secretary Asiedu Nketia and Lands and Forestry Minister, Collins Dauda.

After the burial, President John Evans Atta Mills joined others in offering prayers for the soul of the deceased at the deputy Minister's residence, close to the Trade Fair Site and Zenith College.

The Islamic prayer for the soul of the departed Abiba has been scheduled for Sunday May 2 at the residence of the deputy Minister.

It will be recalled that the death of a baby boy, who died minutes after his birth at the Lister Hospital a fortnight ago, sparked an ugly row be-

tween his parents and the management of the health facility located along the Spintex road in Accra.

The boy's parents, Thomas and Elizabeth Vauh, publicly accused the

hospital of 'professional incompetence and negligence' by its staff, which they claim to have contributed to the death of their baby on March 9, 2010.



Madam Abiba Fuseini



Inusa Fuseini

Daily Guide 23/4/10 P5

# THE FREQUENCY OF MM

Wednesday, March 31, 2010



email: henlut@hotmail.com

## HEALTH MATTER

With Henrietta Abayie

# 156 Maternal Deaths In Ashanti



Dignitaries at the high table during the Light for Children Ghana programme to educate students on the dangers of early sex.

From I.F. Joe Awuah Jr., Kumasi

**A STAGGERING 156 cases of maternal deaths were recorded in the Ashanti Region during 2009, the Metro Director of Ghana Health Services has announced.**

Dr. Awudzi Yeboah disclosed that 36 out of the

number were as a result of illegal abortion adding "half of them were teenagers."

He lamented the disheartening news and attributed the soaring of maternal deaths to lack of "real care to these vulnerable girls which exposes them to early sexual intercourse."

Dr. Yeboah implored parents to take it upon themselves to educate their young girls about sex, high-

lighting to them the dangers they stand to suffer when they indulge in it at such a tender age.

Knowing the dangers involved in early sex, he maintained, would help prevent these minors from allowing themselves to be used by bad people to satisfy their sexual desires.

The occasion was the official launching of a year-long sex education pro-

gramme dubbed 'Yes and No Feeling' aimed at eradicating sexual abuse among young girls from basic to senior high schools in the Ashanti region.

The laudable programme is under the auspices of Light for Children Ghana, a Non Governmental Organization (NGO) which is collaborating with their volunteers.

Yaw Otchere Baffuor, Executive Director Light for Children Ghana said the programme would help empower young girls to expose insensitive people that take advantage of their young age and secretly have sex with them.

According to him society should not sit by idly until these young girls have been defiled before they act, calling on all and sundry to rally behind his outfit to eradicate the "defilement cancer from the country."

As part of the programme, Mr. Baffuor noted his outfit would be touring schools in the region to educate young girls to understand sex and the need for them to stay away from it so they may remain healthy.

Mavis Ansah of Methodist Education Unit highlighted the dangers that young girls go through whenever they are defiled and charged parents to find time to educate them about sex.



# TO HOSPITAL: HOW NEAR?



# MIRROR NEWS

## Pregnant woman paddles to deliver

From Victor Kwawukume,  
Kete-Krachi

BYSTANDERS in a fishing community near Grubi in the Krachi District of the Volta Region were astounded when on Monday, September 20, this year, a pregnant woman in pain in the final stages of her pregnancy jumped into a canoe and started paddling it to an unknown destination.

They were not so sure what was happening. While some thought she had been attacked by a demonic spirit and was acting hysterically, others thought she was on the verge of some kind of mental affliction.

No one really knew what was happening to 35-year-old Grace Yantem

until they heard later that she had surfaced at the Krachi Government Hospital where she delivered a set of triplets through Caesarean section.

According to Grace, she had been in labour on the eve of her paddling to the hospital, acknowledging that if she did not hurry to the hospital, disaster was sure to occur due to what she was experiencing, hence her singular decision to make for the hospital when it became apparent that help might not come from anyone immediately.

According to the medical superintendent in charge of the Krachi Government Hospital, Dr Samuel Abudey, who performed the surgery together with one of his colleagues, Dr James Ankomah, Grace Yantem had arrived

at the maternity unit of the hospital at about 8.30 am in labour pains, which she said had started the previous evening.

Dr Abudey said Grace told her that she had attended antenatal clinic only once at Yeji, adding that after examination, she was found to have a moderately raised blood pressure and swollen legs and that the abdomen was also exceptionally big and hanging.

A decision was therefore taken by the medical staff to operate on her since it was not possible for her to deliver naturally.

Moreover, the doctor said they

realised that she was expecting more than one baby.

Dr Abudey said during the operation, it was found that the babies, three of them, all had their buttocks towards the entrance of the womb, a situation he described as breech presentation.

He added that by the grace of God two girls weighing 2.4 kg each and a boy weighing 1.9 kg were successfully delivered, adding that the mother, who already has two children, on request was sterilised against further pregnancies.

# A GVT VILLAGE CLINIC



# THE TASK IS DIFFICULT BUT ACHIEVABLE.





**"Preventing Maternal and Child Deaths with Health System Strengthening Initiative: The Ghana Essential Health Intervention Program (GEHIP) Experience"**

**National Health Research Symposium,  
GIMPA, Accra  
May 28, 2015**



**GHANA  
ESSENTIAL  
HEALTH  
INTERVENTION  
PROGRAMME**

# Outline

## 1) Background:

- The Navrongo “Experiment”
- The problem: Constrained scale-up

## 2) The GEHIP design

- Complexity: The core challenge of health systems research on the WHO “Pillars.”
- Research systems

## 4) “Lessons learned”

- Baseline survey results
- Implementation research by pillar

## 5) Conclusion



# MNC Health Profile (Ghana & UER)

<b>Indicator</b>	<b>Ghana</b>	<b>UER</b>
Population	24-25 million	1,084,475
TFR	4.0	4.0
MMR	350/100,000	140/100,000
Skilled Birth Attendance	68%	67%
NMR	32/1000	34/1000
IMR	53/1000	58/1000
U5MR	82/1000	98/1000
Life Expectancy	63 years	

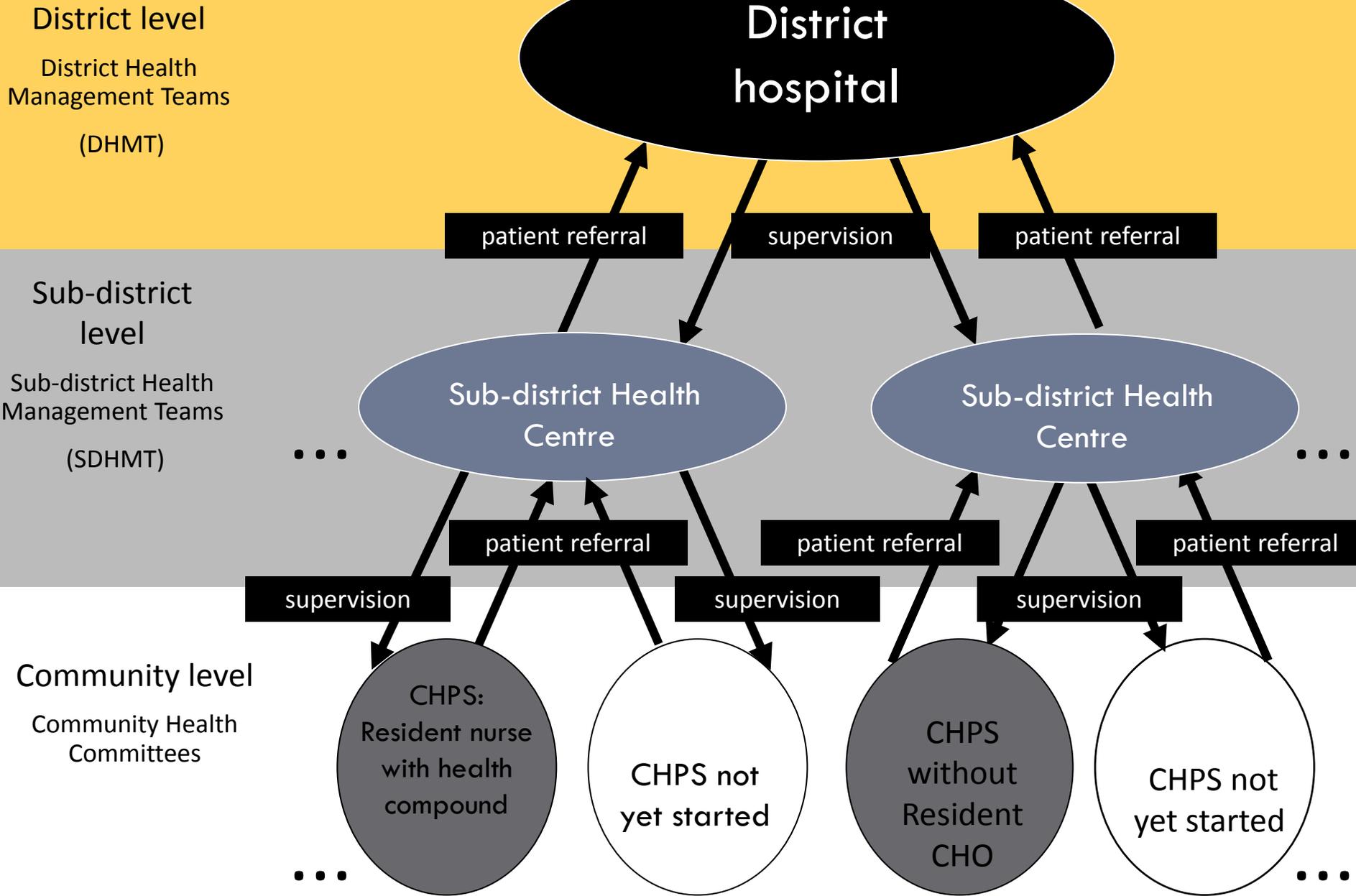
Source DHS (2008), (MICS 2011) (2014)

# The Problem:

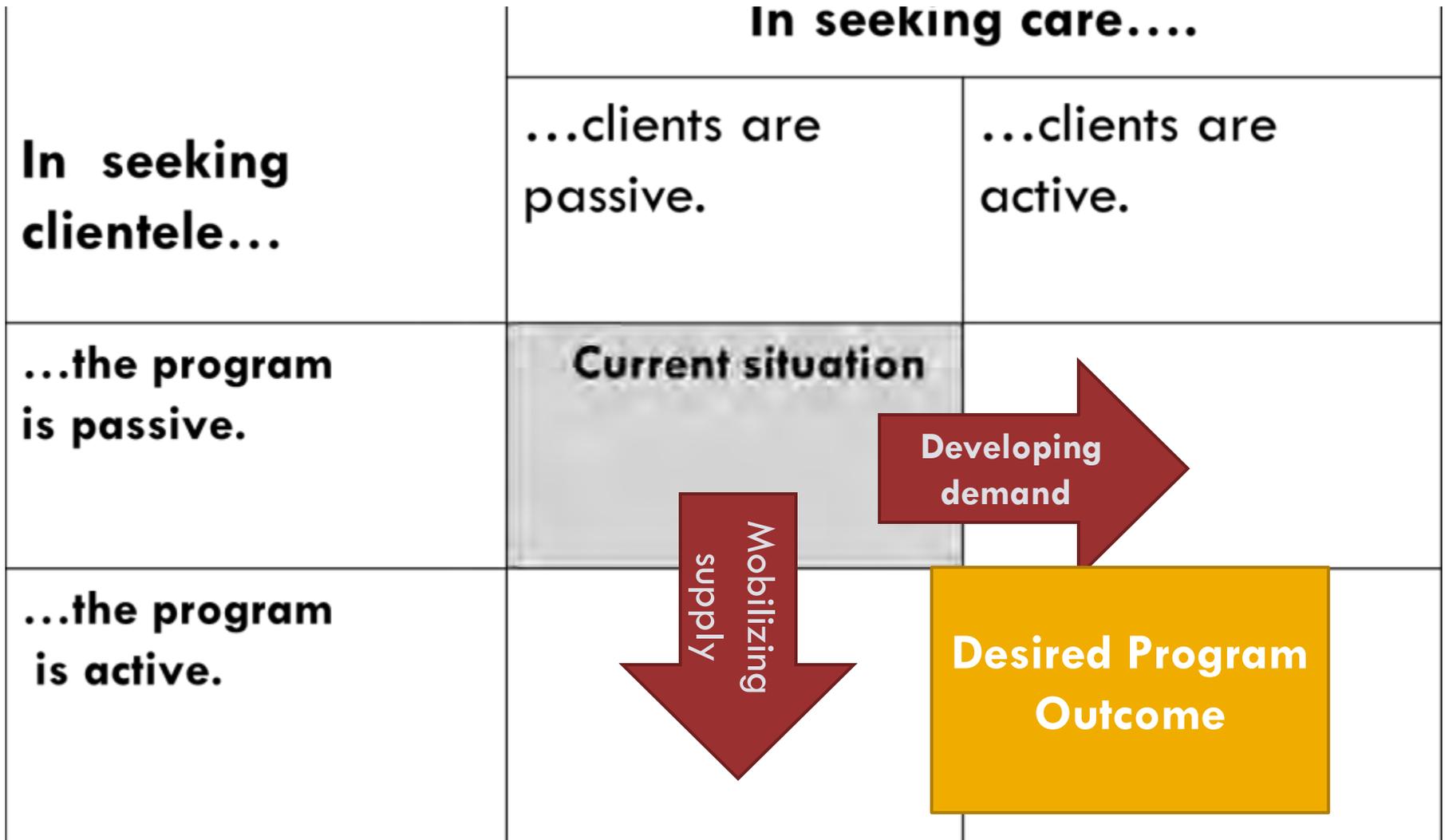


- 1) Access to primary health care services
- 2) Vertical programming and external ownership
- 3) “Weak systems”
  - “Bureaucratization” without an “open systems” perspective
  - Operational deficiencies
  - Resource constraints
- 4) Inadequate reliance on evidence-based strategies for strengthening systems

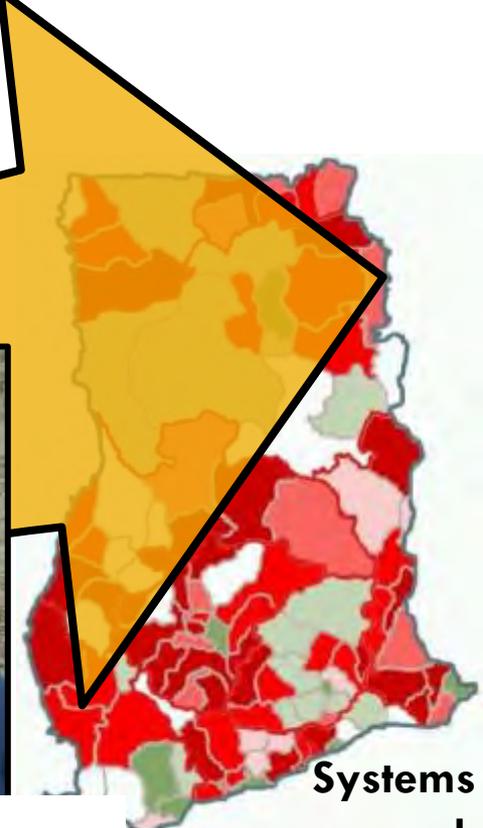
# Multi-level system challenges with its effects



# The Navrongo “Experiment”: Solving the access problem



# Research strategies for dealing with complexity: Phases with mixed methods



Systems research



Replication implementation research



Qualitative systems research with micro-piloting

Mobilizing Ministry of Health outreach	Mobilizing traditional community organization	
	No	Yes
No	Comparison 4	Zurugelu 1
Yes	Nurse outreach 2	Zurugelu & nurse 3



Quantitative experimental or plausibility trial

# Phases: Elements of the “Experiment”



# The community health service dimension



**Health infrastructure**



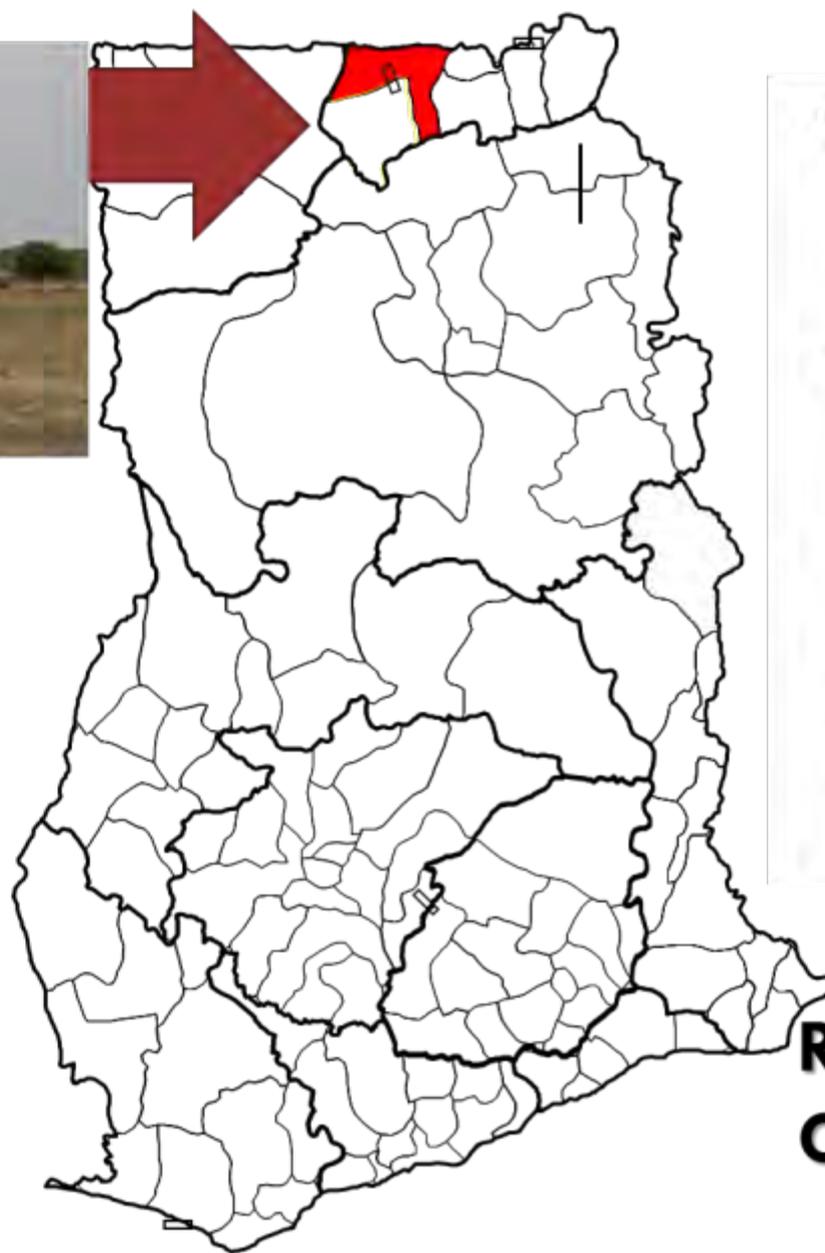
**Relocated nurses**



**Community-constructed health centers**



**Essential equipment**



**The Navrongo  
Experiment  
demonstrated  
low cost,  
feasible  
strategies for  
accelerating  
MDGs 4 & 5**

**Results show that  
CHPS saves lives  
and reduces  
fertility**

# What is CHPS?

- CHPS is the national scale up of the results and lessons learned from the original Navrongo Community Health and Family Planning Project (CHFP): “Navrongo Experiment”
- The Navrongo experiment was launched in 1994 to explore alternative strategies for developing effective community-based services.
- Provision of ‘doorstep’ services to communities including preventive care, health education, and treatment of common childhood and other disease



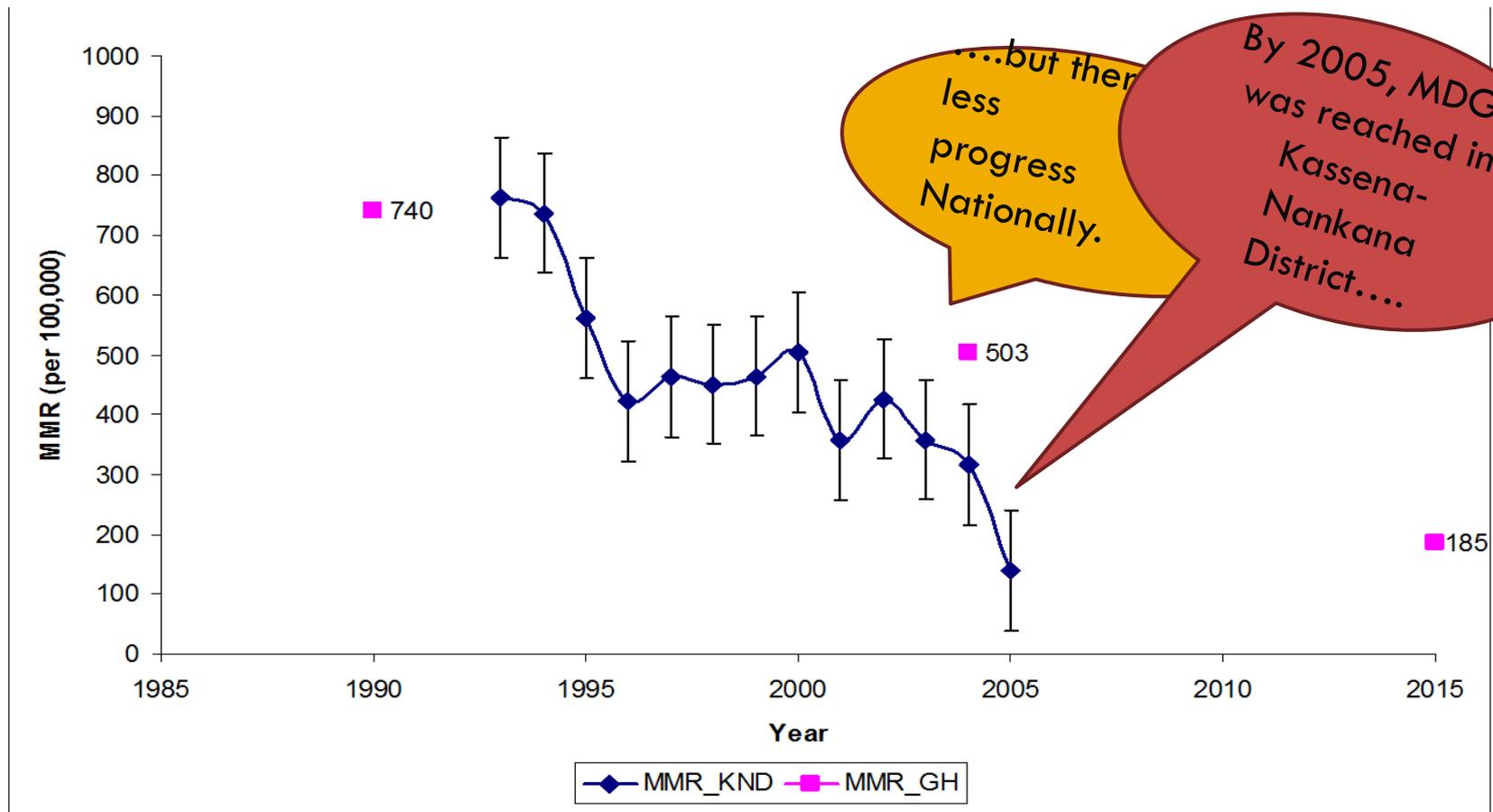
# Why CHPS?

**Increased Access to health services +  
Increased Access to Information +  
Community-centric +  
Increased Economic Access**  
**= CHPS is a key strategy for achieving MDGs 4, 5 & 6**

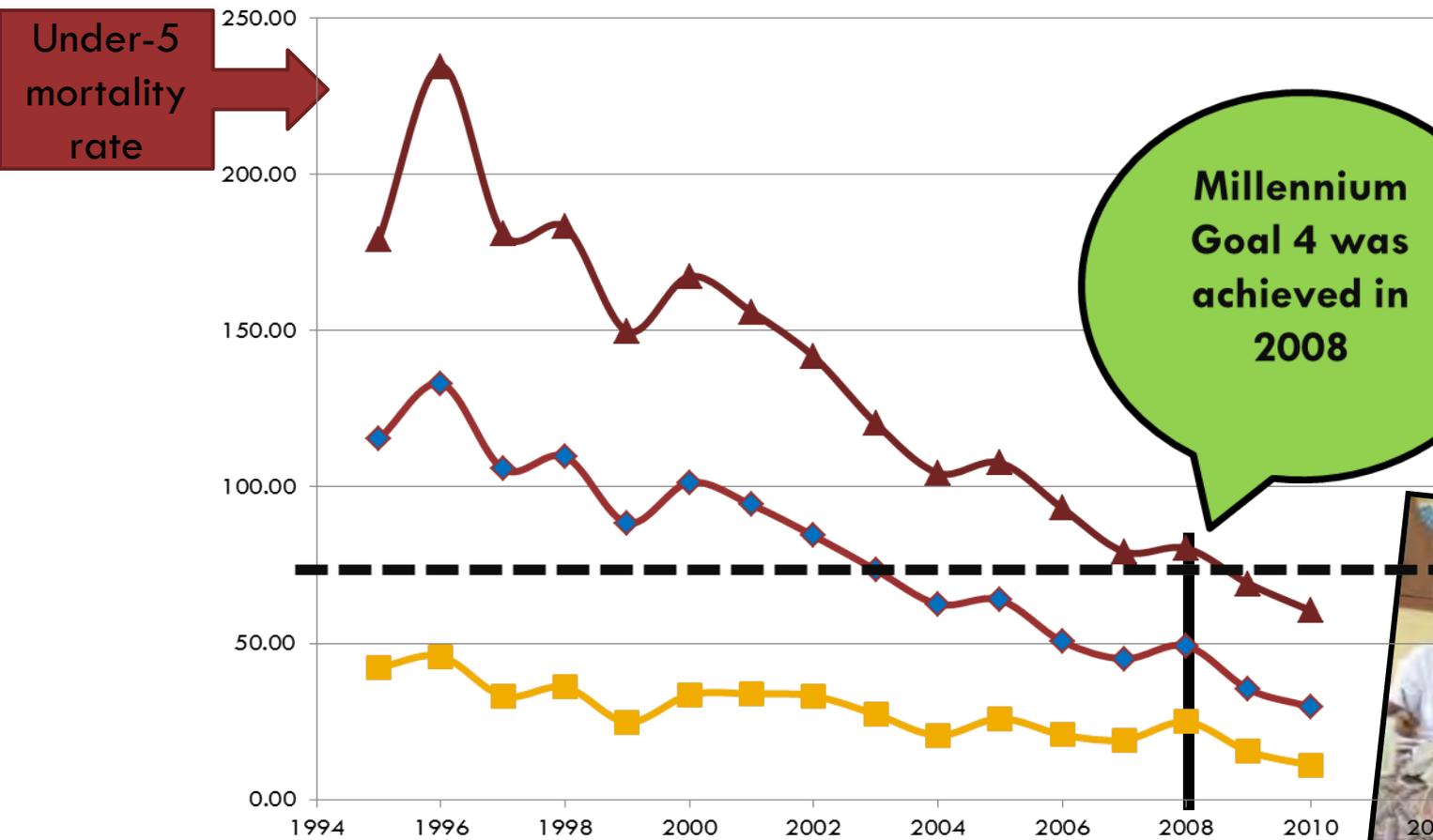


# Maternal Mortality declined...

In Kassena-Nankana District of northern Ghana the combination of clinical improvements and with referral services achieved MDG5 by 2005



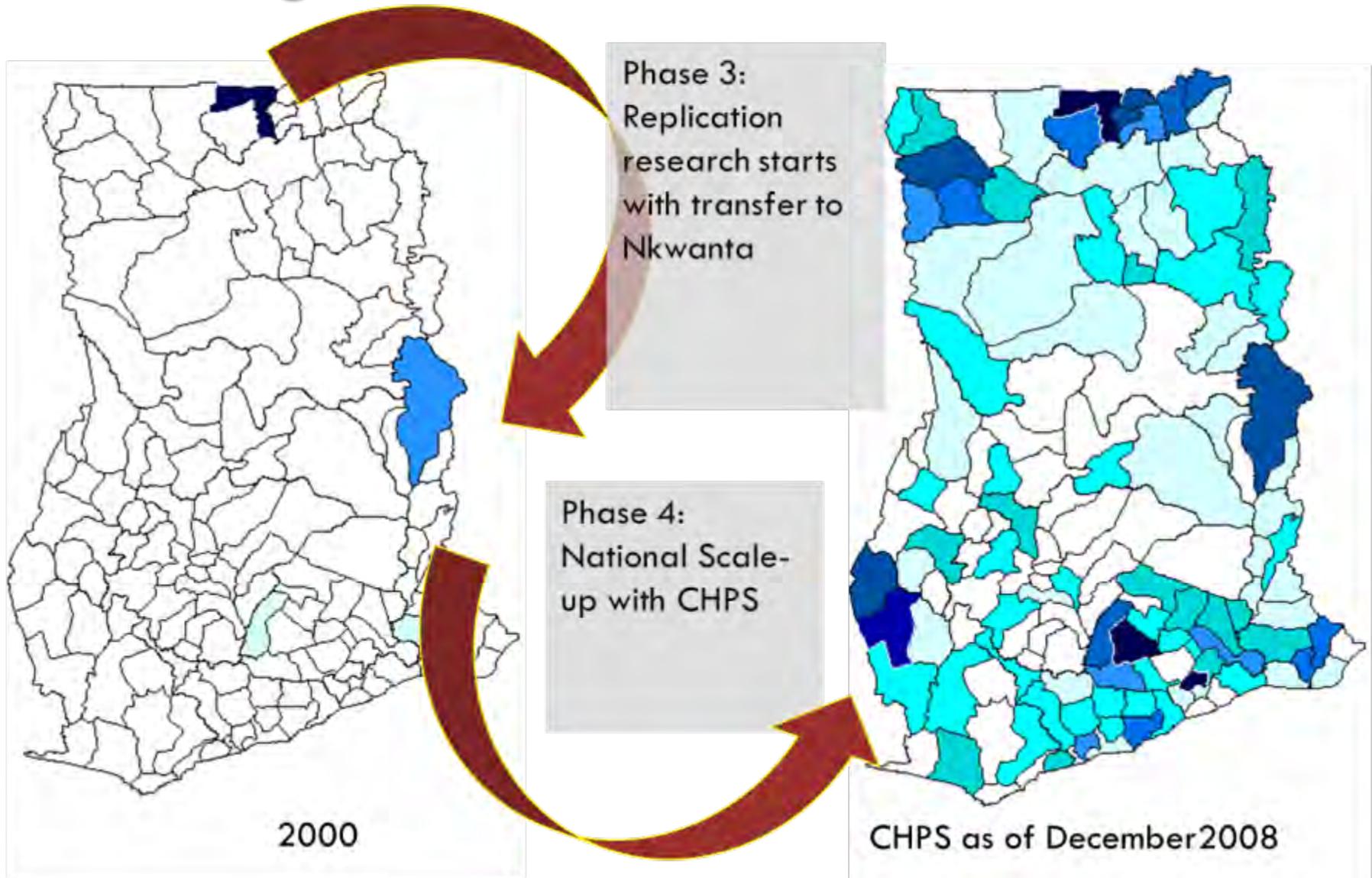
# ...as has childhood mortality also declined:



Millennium Goal 4 was achieved in 2008

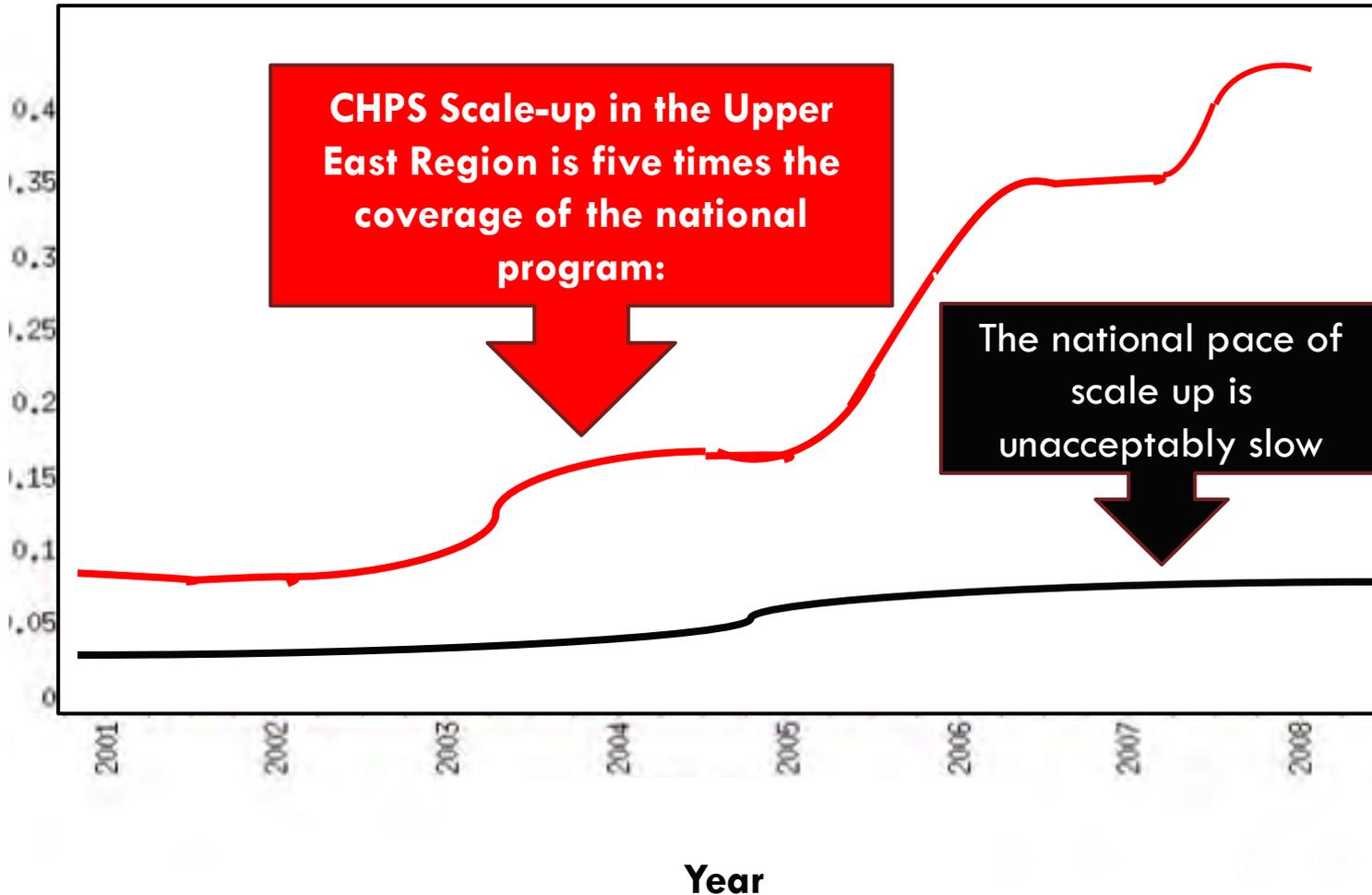


# What can we learn about scaling up in Navrongo?

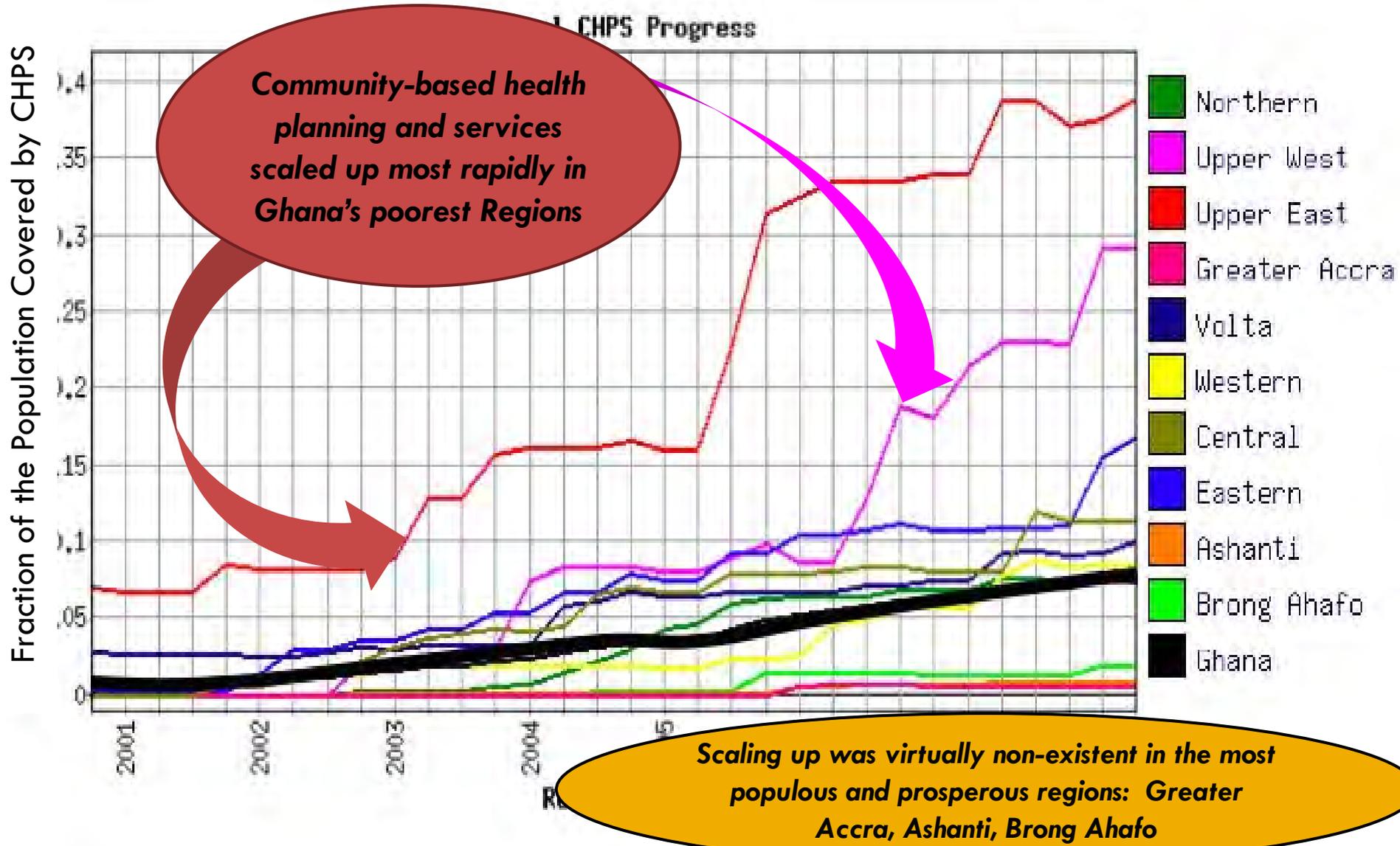


# Despite the evidence...the pace of scaling up CHPS as a national policy is slow...

Proportion of the population served by CHPS



# Slow pace of CHPS scale up

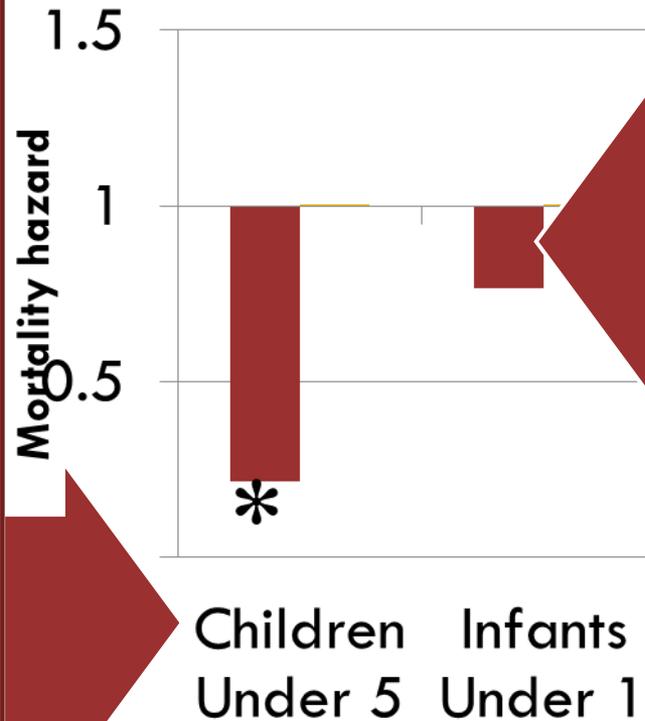


# Problem #1: CHPS is not achieving its full potential.

## *The potential:*

Baseline survey research shows that the implementation of community-based primary health care services could accelerate achievement of MDG4.

Community-based services reduces childhood mortality (ages 1-4) by two thirds for exposed children relative to children from households that are unexposed to this program of care.



***Baseline survey results: Survival odds for children from households exposed to community-based primary health care relative to the unexposed***

## *Problem #1:*

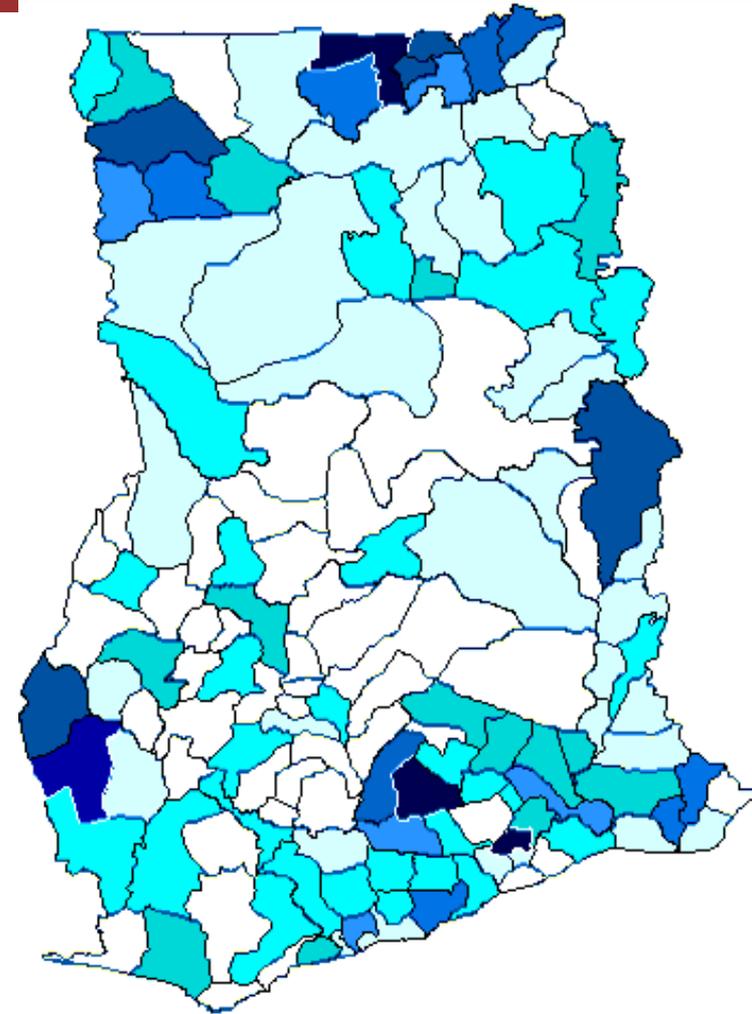
Community-based primary health care operations are not significantly reducing infant mortality. This is particularly problematic for neonates. There is a need for a more effective program of primary health care for neonates and infants. In particular, emergency care, and referral services were inadequate in the baseline period.

## Problem #2:

### Low coverage of community based health services

*“The Community Based Health Planning (CHPS) Initiative” is a core strategy for achieving universal health coverage (UHC). However....*

- ✓ Despite a decade of policy commitment to scaling up community-based primary health care in Ghana at the onset of GEHIP, coverage of CHPS across districts was highly variable.
- ✓ The pace of national scale-up of CHPS was unacceptably slow. At the 2010 pace of expansion, achieving total CHPS coverage would take 49 years,



# The GEHIP partnership:

- Part of DDCF funded Africa Health Initiative (IHI) to 5 African Countries
- The Ghana Health Service (UERHD & NHRC)
- The University of Ghana School of Public Health
- The Mailman School of Public Health, Columbia University, New York, USA



# The Ghana Essential Health Intervention Program (GEHIP)

- ❑ An *implementation research project* that seeks to strengthen elements of the six WHO 'pillars' of health systems development.
- ❑ *GEHIP aims to address operational flaws and systems constraints that prevent CHPS from achieving its full potential.*
- ❑ GEHIP is a **plausibility trial** for testing the hypothesis that health systems strengthening will accelerate achievement of MDG4 &5.



# Vision and hypothesis

## Vision :

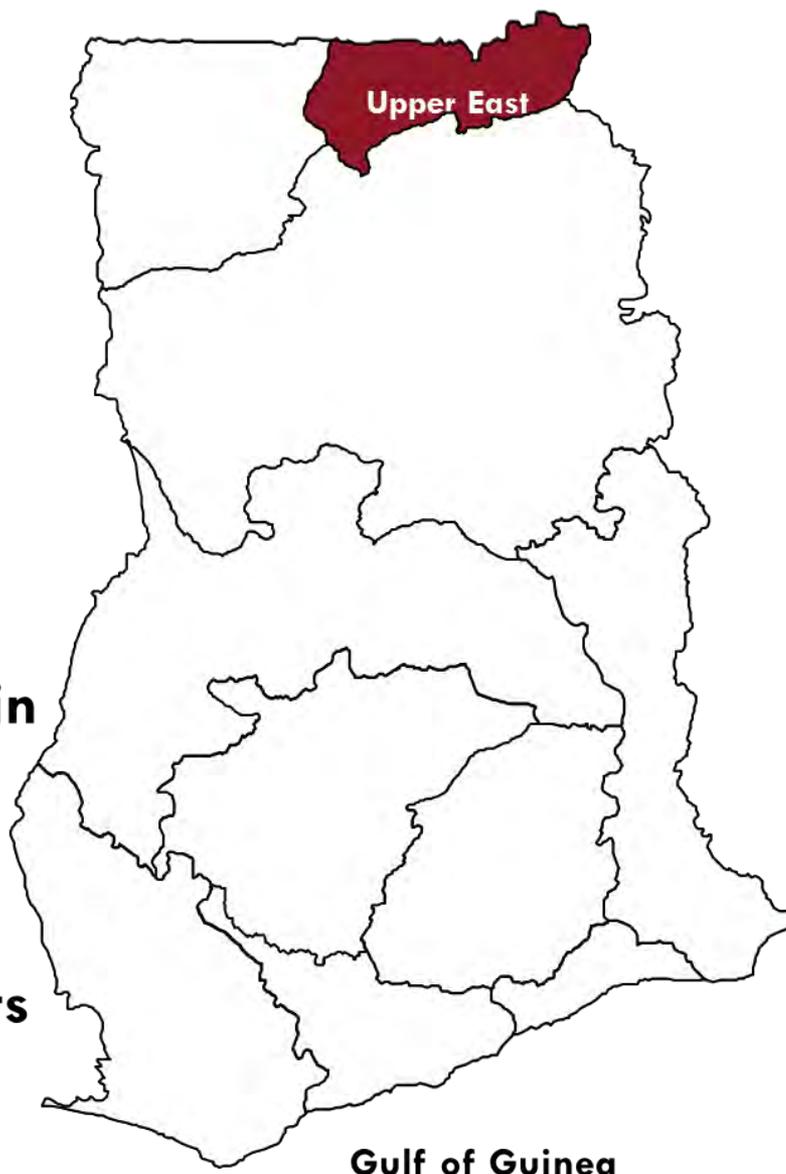
Strengthen the health systems capacity through support structures and training activities that enable district health systems to function most effectively.

## Hypothesis

...that integrated system initiatives across the health system can improve system performance to the point of effect on population and health outcomes and ensuring that 1) **essential health interventions reach under-served populations** and 2) **progress towards Millenium Development Goals is accelerated.**

# The Ghana Essential Health Intervention Program (GEHIP) Design:

“Plausibility trial” in  
3 districts of  
Ghana’s poorest  
region; 4  
comparison districts

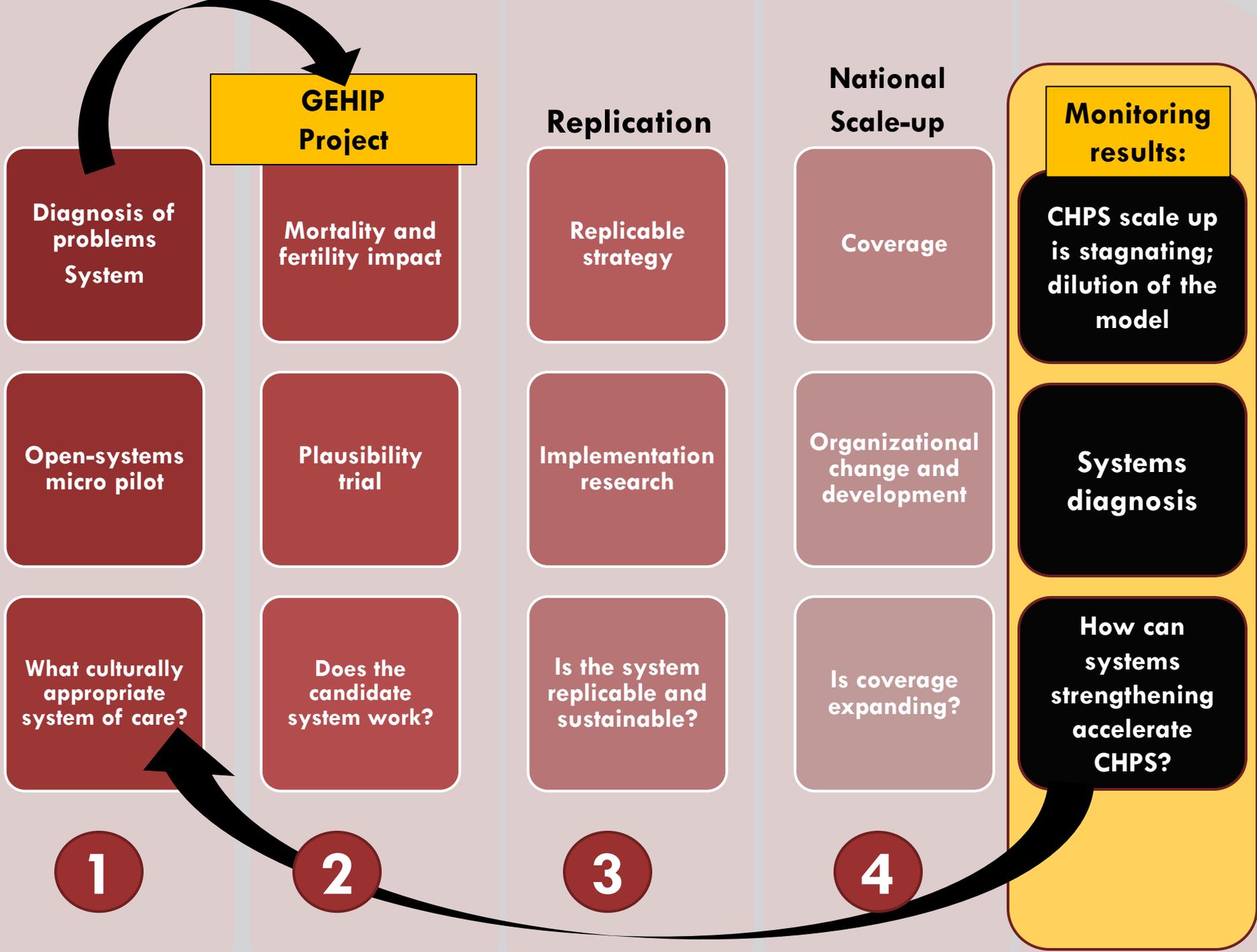


## The GEHIP systems strengthening approach:

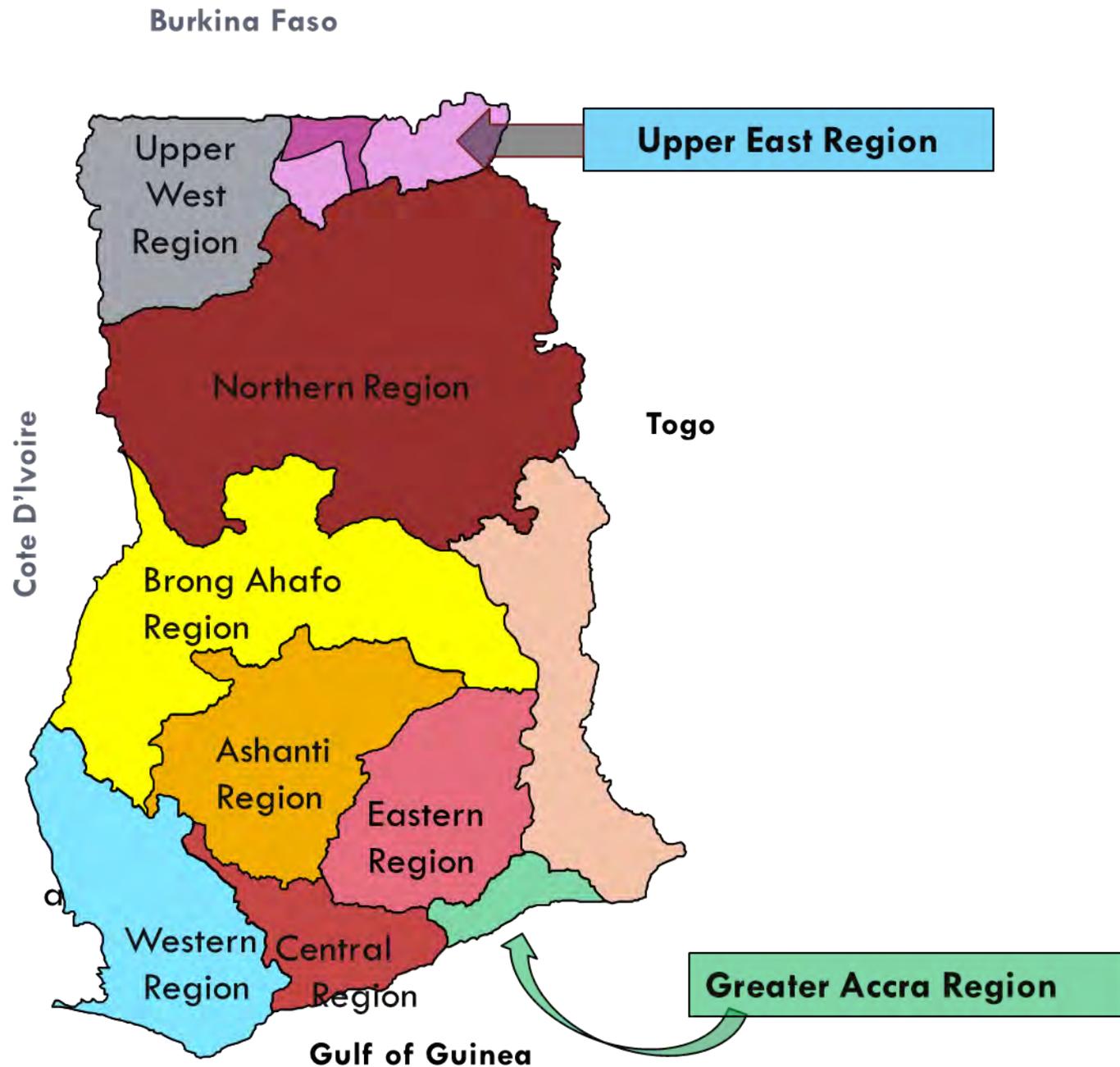
- 1) Develop the *quality and coverage of community-based service delivery* and referral operations.
- 2) Introduce methods for improving *district health system leadership capacity* to plan and implement operations and improve political support for investment in community-based primary health care scale-up costs with catalytic financing + community engagement

**GEHIP: A coordinated  
response for addressing  
challenges and  
facilitating the scale up  
of CHPS**





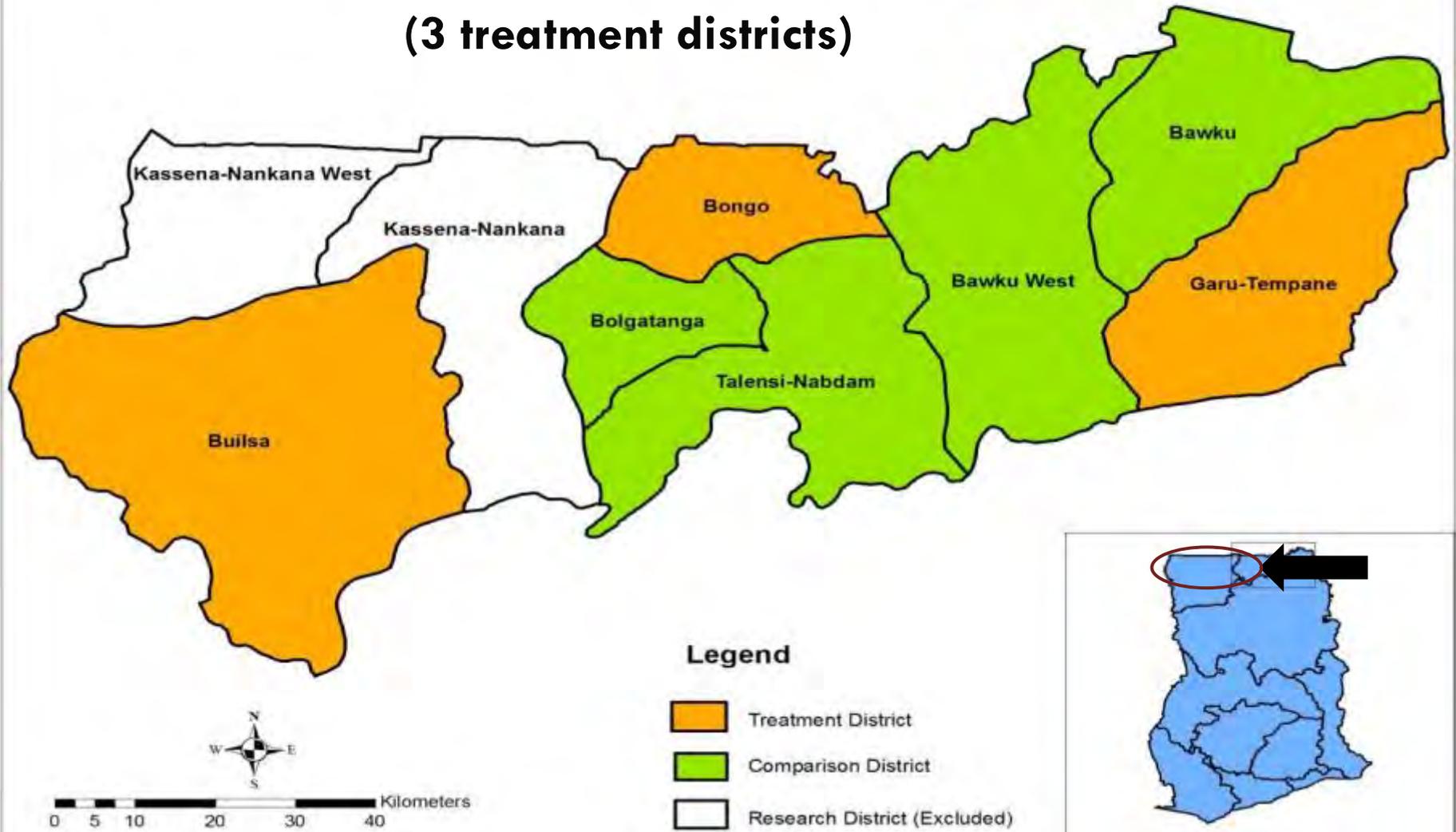
# Ghana & Project Site



# Upper East Region, Ghana

GEHIP Treatment and Comparison Districts in the Upper East Region, Ghana

(3 treatment districts)



# Outline

## 1) Background:

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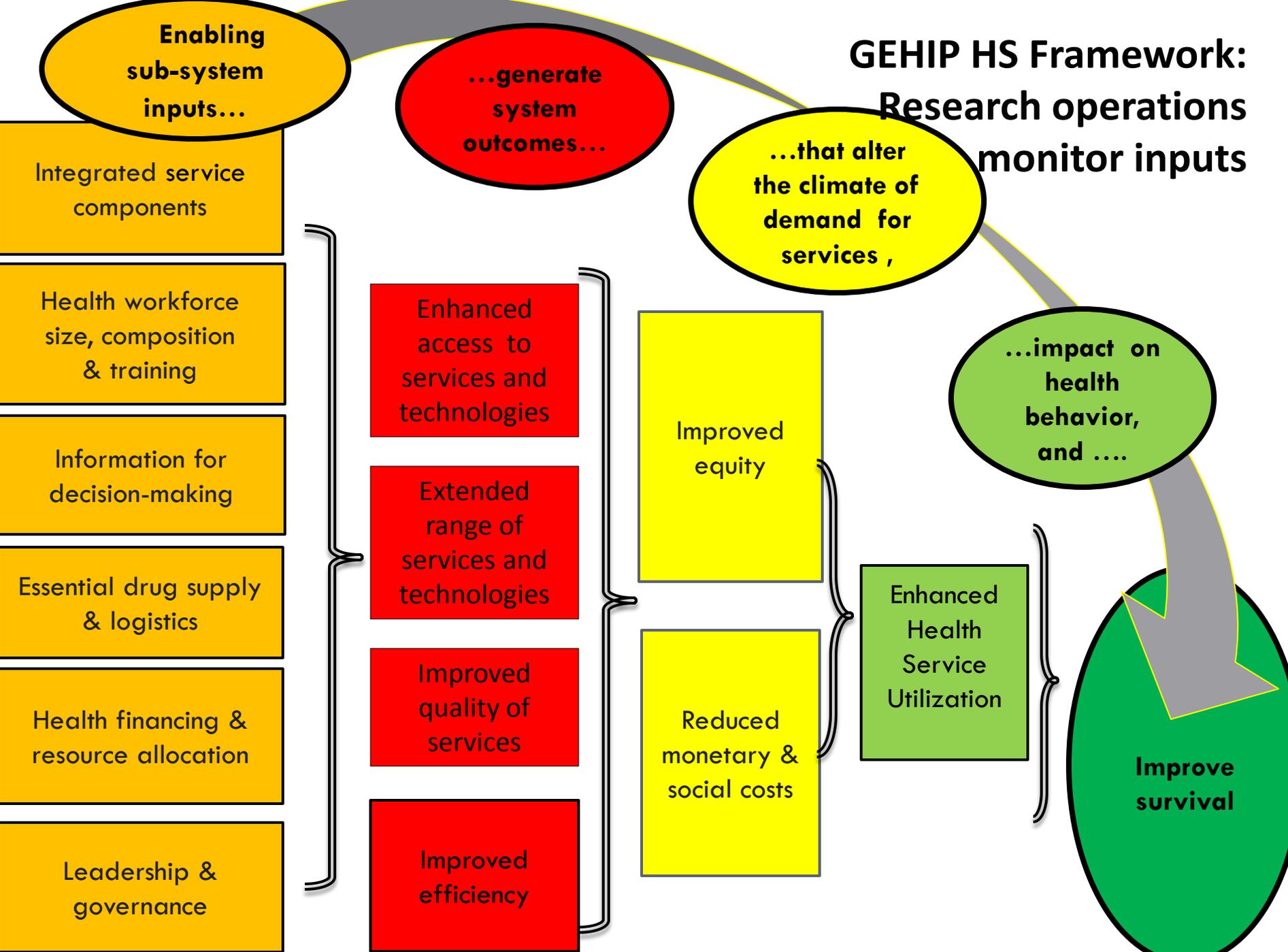
## 4) “Lessons learned”

- Baseline survey results
- Implementation research by pillar

## 5) Conclusion

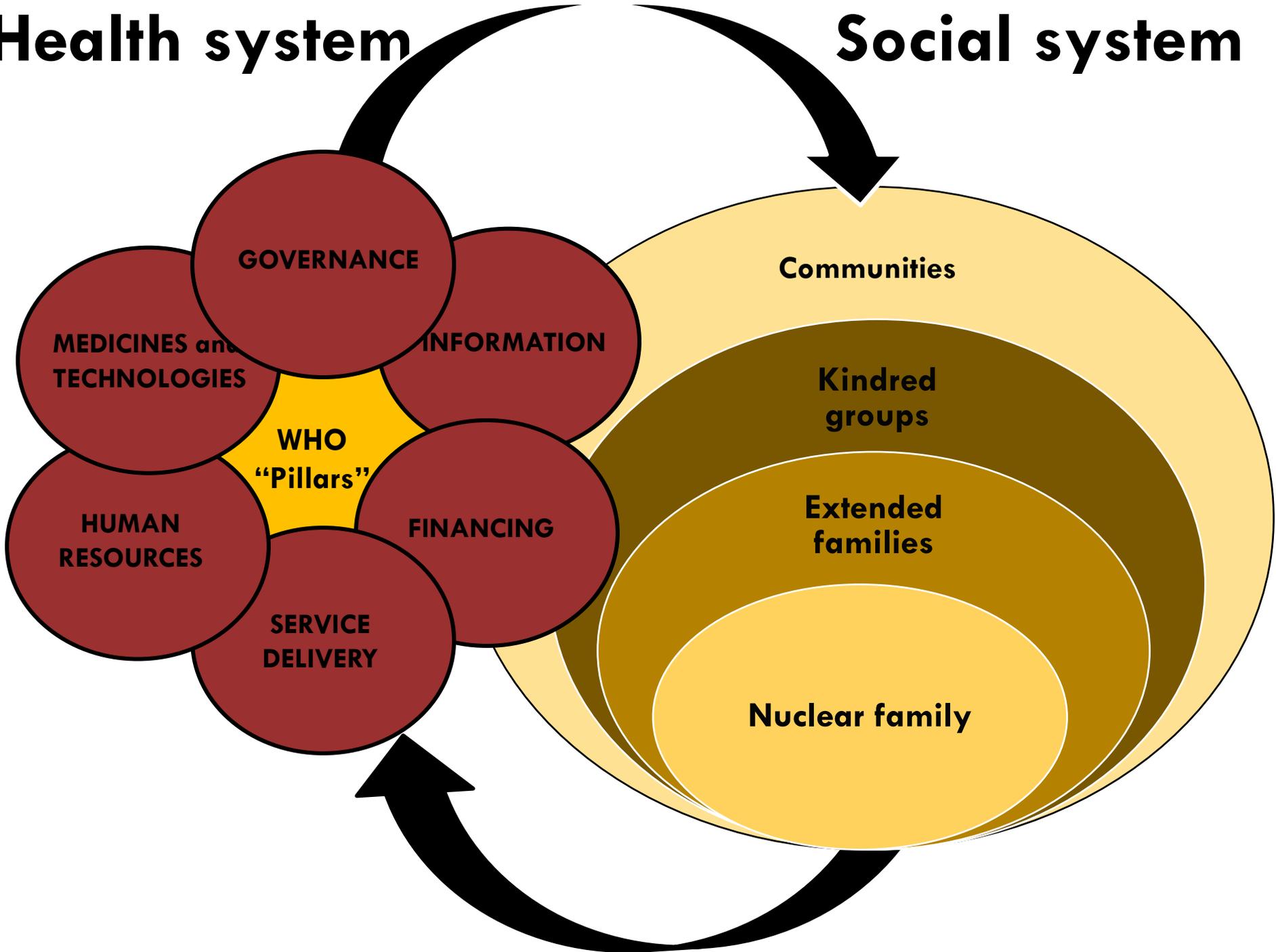


# GEHIP HS Framework: Research operations monitor inputs



# Health system

# Social system



# Priority problems and GEHIP solutions:

<b>System Problems:</b>	<b>GEHIP Strategies</b>
Childhood mortality remains unacceptably high	<ul style="list-style-type: none"><li>• Develop referral services and emergency management capacity</li><li>• Expand the range of services that volunteers can provide.</li></ul>
Proven interventions are not being scaled-up <ul style="list-style-type: none"><li>• Access is low; Leadership is lacking</li><li>• Resource allocation is inappropriate</li><li>• Budget lines for CHPS expansion are lacking</li></ul>	Accelerate community health service coverage by... <ul style="list-style-type: none"><li>• Developing leadership at all levels of the system</li><li>• Improving information systems</li><li>• Implementing evidence based budgeting</li></ul>



**Health systems problems**

Service delivery limitations and constraints

Manpower limitations

Information utilization & decision-making gaps

Stock-outs and logistics problems

Resource and planning problems

Organizational malaise

**Health system strengthening inputs**

#1 Improved Integrated services

#2 Strengthened health workforce size, composition & training

#3 Enhanced Information for decision-making

#4 Reliable provision of essential supplies

#5 Adequate financing & rational resource allocation

#6 Appropriate leadership & governance

**Health system strengthening outputs**

Enhanced access

Extended range of services and technologies

Improved quality

Improved efficiency

**Health system strengthening outcomes**

Improved equity

Reduced social costs

Enhanced Health Service Utilization \*

**survival**

# Components of GEHIP Intervention

**Develop enabling  
sub-system inputs  
for the six WHO  
“Pillars”.**

**Integrated service  
components**

**1. Strengthen community-based  
primary health care (“CHPS”) by  
developing a referral system and  
urban CHPS**

**Health workforce  
size, composition  
& training**

**2. Extend IMCI capabilities to volunteers  
Training of CHOs & Midwives in  
Neonatal Resuscitation**

**Information for  
decision-making**

**3. Simplify worker information  
systems and improve utilization of  
information for decision-making**

**Essential drug  
supply & logistics**

**Health financing &  
resource allocation**

**4. Develop and test evidence-based  
budget and decision-making tools**

**Leadership &  
governance**

**5. Implement leadership training that  
fosters district and community  
leadership for CHPS expansion**

WHO building block	Standard Ghana Health Service Approach (Comparison Districts)	GEHIP Health System Strengthening Strategies (GEHIP Implementation/Treatment Districts)
#1 Access to essential health technologies	Goal: Full CHPS Coverage by ???? (unattainable)	Target: Full CHPS Coverage by mid-2014
	Referrals provided via district hospital-based ambulances	Comprehensive attention to the organization of systems for emergency public health: Communication systems, basic equipment and emergency referrals provided, case management
	Standard services provided	Additional maternal and newborn services at CHPS, SDHCs, & DHs
# 2 Provision of trained manpower	1 Community health officer per community service zone	2 CHO per CHPS Zone Minimum (one with basic midwifery training) OR 1 CHO + 1 midwife per CHPS zone
	CHOs largely facility based (NHIS)	CHOs encouraged to focus on doorstep care; supervisors oriented to community-based services.
	Regular training for CHNs/CHOs	Additional refresher training for CHOs and midwives on maternal & neonatal care (neonatal resuscitation training, Kangaroo Mother Care, 4 visit package, etc.) Volunteers trained in IMCI and supplied with relevant essential drugs
#3 Information for decision-making	Existing paper-based information system	Reformed and simplified health management information system with provision for feedback and supervisory support
#5 Appropriate budgeting and adequate financing	Routine Gov of Ghana Funding	GOG Funding PLUS \$0.85 per capita over 3 years in flexible funding—with use to be determined by DHMT to fill gaps in CHPS scale-up and other district activities that can reduce child and maternal mortality.
	Standard budgeting process	Evidence-base planning via the “DiHPART tool” introduced for planning and budgeting according to local Burden of Disease
	GHS Leadership program for DHMT	GHS leadership program for DHMT Leadership workshop for SD health teams Peer exchanges for SD and District teams to CHPS leadership districts
#6 Leadership and Governance	Intra-sectoral leadership training without links to local governance	Participatory engagement of grass-roots politicians, outreach and leadership training for integrating development and health leadership

# GEHIP HSD Interventions

Enabling  
sub-system inputs...

Integrated service  
components

Health workforce  
size, composition  
& training

Information for  
decision-making

Essential drug supply  
& logistics

Health financing and  
planning

Leadership &  
governance

**Pillar #1: Improvement  
in the range of health  
modalities that are  
provided.**

**Strengthening CHPS:  
Expanding the role of CHO and volunteers in Maternal  
and Child Health**



**Enabling  
sub-system inputs...**

Integrated service  
components

Health workforce  
size, composition  
& training

Information for  
decision-making

Essential drug supply  
& logistics

Health financing and  
planning

Leadership &  
governance

**Subsystem #1**  
**Changes in service activities  
& content: (e.g.. Kangaroo  
mother, maternal health  
care, improving access to  
preventive health  
technologies etc)**

**GEHIP HSD  
Interventions**

- *Train frontline workers to provide evidence-based maternal and neonatal health services that are currently not being provided.*
- *Implement interventions that are proven to reduce under-five mortality by increasing the capacity of providers at community, sub-district, and district-level service points.*
- *Coordinate community and clinic-based activities to standardize access to anti-malarial preventive measures and therapeutic regimes.*

**Enabling  
sub-system inputs...**

Integrated service  
components

Health workforce  
size, composition  
& training

Information for  
decision-making

Essential drug supply  
& logistics

Health financing and  
planning

Leadership &  
governance

**Subsystem #2**  
**Changes in workforce inputs**  
**(investment in staff, staff**  
**composition, deployment**  
**and in-service training on**  
**essential services to address**  
**personnel gaps in service**  
**delivery)**

**GEHIP HSD  
Interventions**



***Strengthen referral systems to reduce maternal  
and neonatal mortality.***

# “Pillar #1 & 2:” Responding to evidence of high NNMR: Strengthening CHPS Operations

- New emphasis on emergency PH
  - ▣ Introduction of emergency referral pilot project
  - ▣ Improving skills in life saving interventions for newborns...
  - ▣ New training focused on child survival and neonatal resuscitation training - Helping Babies Breathe Curriculum
  - ▣ Build capacity of midwives to carry out neonatal resuscitation (e.g. using Helping Babies Breathe model)
  - ▣ Pre-service training for midwifery students



# Pillar #1&2: Expanding the range and coverage of services provided by the Community-based Health Planning and Services (CHPS) Initiative

## Strengthening neonatal life saving skills of Community Health Officers

### Evidence:

Neonatal mortality remains high owing to asphyxia and other preventable causes

### GEHIP response:

- ✓ Launch mortality audit program
- ✓ Train all frontline workers to manage asphyxia
- ✓ Introduce and monitor “kangaroo mothercare”
- ✓ Refresher training for midwives.



# Pillar #1&2: Expanding the range and coverage of services provided by the Community-based Health Planning and Services (CHPS) Initiative (continued)

## Strengthening reproductive health services of Community Health Officers



## Evidence:

**CHPS exposure is not improving family planning use**

## Intervention response:

- ✓ Train all frontline workers to provide sub-dermal methods
- ✓ Drop fees for all methods
- ✓ Investigate ways to accelerate outreach for men.

# Pillar #1&2: Expanding the range and coverage of services provided by the Community-based Health Planning and Services (CHPS) Volunteers

*Strengthening child health service capabilities of volunteers and improving their contribution to family planning services*



**Pre-GEHIP Evidence:**  
Volunteers contribute to family planning if trained and supervised to provide outreach to men.

**Volunteers are not effective health service providers**

**GEHIP response:**

- ✓ Train & deploy volunteers in community IMCI
- ✓ Retrain CHO in volunteer supervision.
- ✓ Review and assess the role of volunteers in family planning promotion and support

# The GEHIP Referral System.... SERC

- Improved communication
- Reformed triage and community engagement.
- “Trust as insurance” for financing
- Low cost emergency transport by introducing SERC Motorking Ambulance



**Enabling  
sub-system inputs...**

Integrated service  
components

Health workforce  
size, composition  
& training

Information for  
decision-making

Essential drug supply  
& logistics

Health financing and  
planning

Leadership &  
governance

**Subsystem #3:  
Changes in HMIS  
procedures for data  
capture, data content,  
feedback, visualization,  
and data access**

**GEHIP HSD  
Interventions**

***Strengthen information capabilities  
below the district level with  
simplified paper procedures and  
mobile technology.***

# GEHIP HSD Interventions

Enabling sub-system inputs...

GEHIP Response: Develop procedures that simplify data capture, feedback, visualization, and data use

Integrated service components

Health workforce size, composition & training

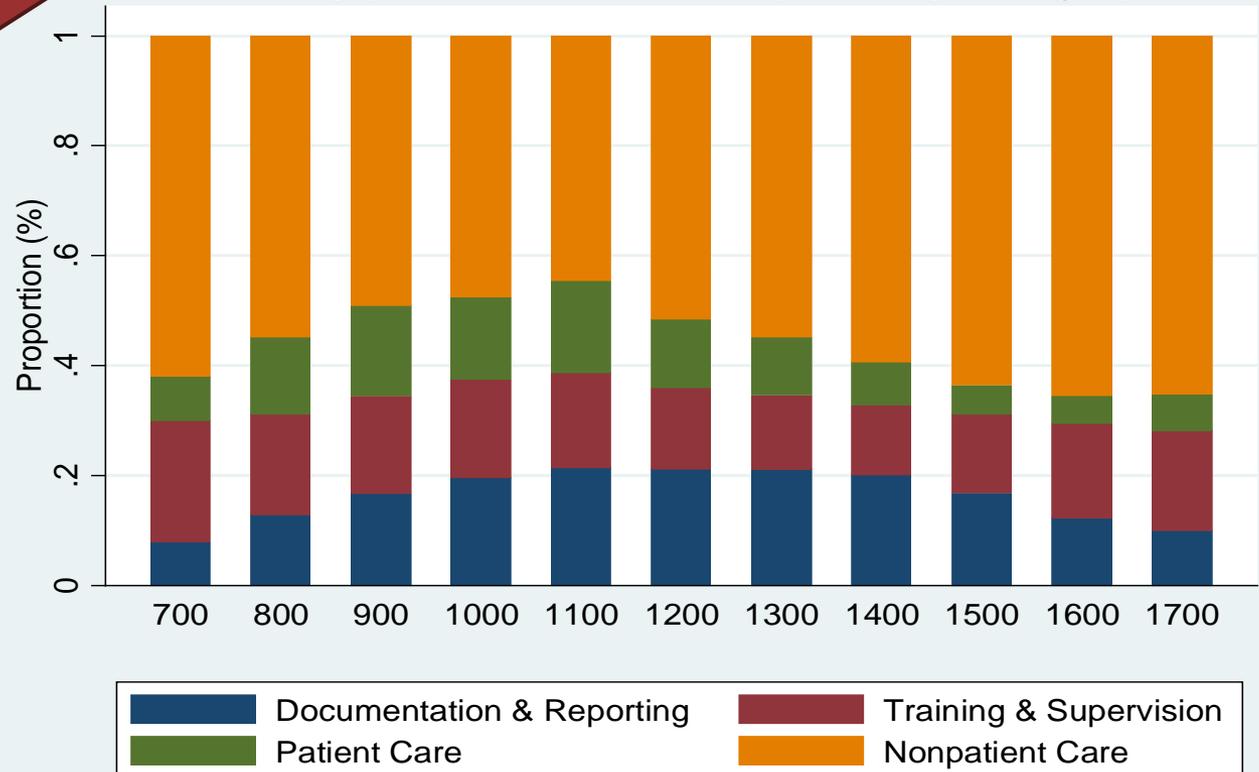
Information for decision-making

Essential drug supply & logistics

Health financing and planning

Leadership & governance

Hourly profile of time-use by activity category



***Pillar #3: Easing information capture for community-based healthcare workers and provide supportive information feedback***



**Enabling  
sub-system inputs...**

Integrated service  
components

Health workforce  
size, composition  
& training

Information for  
decision-making

**Essential drug supply  
& logistics**

Health financing and  
planning

Leadership &  
governance

**Pillar #4: Develop a  
supply monitoring  
system for essential  
drugs and equipment.**

***•Strengthen the operation of  
the essential medicine  
distribution system in GEHIP  
districts, Training and  
Schedule Delivery***

# GEHIP HSD Interventions



# Fees prior to the policy change were...

	<b>Modality:</b>	<b>Ghana Cedis</b>	<b>US Dollar Equivalent</b>
1	Depo Provera (Vial)	GH¢0.50	\$0.26
2	All Types of Pills (Packet)	GH¢0.20 for 3 packets	\$0.05
3	Condom (Pieces)	GH¢0.10 for 3 pieces	\$0.05
4	Inplanon (Single)	GH¢2.00	\$1.04
5	Jadelle (Single)	GH¢2.00	\$1.04
6	Female Condom (Pieces)	GH¢0.30	\$1.56
7	Norigynon (Vial)	GH¢0.50	\$0.26
8	Vasectomy	GH¢2.00	\$1.04
9	Tubectomy	(discretionary, by facility) but < \$10	

“Nuisance parameters”

Newly registered FP clientele

Repeat acceptance by continuing users

Coefficient

t

Coefficient

t

Reference

2010

-40.3

-3.71\*\*\*

-13.0

-0.47

2011

-74.0

-7.78\*\*\*

-106.3

-4.17\*\*\*

2012

-35.8

-1.15

-14.7

-0.44

2013

-33.5

-1.02

109.2

+2.62\*

February

-16.2

-0.94

-89.9

-1.79

March

0.39

-82.1

-1.28

April

0.5

109.2

+2.62\*

May

June

July

August

September

October

November

December

As yet, no significant impact on the case volume of new users

On the average, about 94 repeat users per district were added to the volume of care each month.

After policy change=1

-26.4

-0.81

93.7

+3.18\*\*

Reference

Builsa N & S

-81.1

-4.01\*\*\*

47.5

+2.16\*

Garu-Tempene

46.4

+2.22\*

139.8

+5.61\*\*\*

Bongo

-36.8

-1.56

78.2

+4.24\*\*\*

Constant

257.9

+8.17\*\*\*

419.9

+8.22\*\*\*

# GEHIP HSD Interventions

Enabling sub-systems

## Pillar #5

Adapting Tanzania's district planning and reporting toolkit to Ghana: PLANREP.  
The District Health Planning and Reporting Tool (DiHPART)

- *Utilize DiHPART for informing district resource allocation at Levels A, B & C*
- *Facilitate rational healthcare planning and decision-making at the district level:*
  - *Add \$0.85 per year to the Common Fund*



Integrating  
co

Health work  
size, composition  
& training

Information  
decision-m

Essential drug supply  
& logistics

Health financing and  
planning

Leadership &  
governance

# **“Pillar #5” :The DiHPART Tool...**

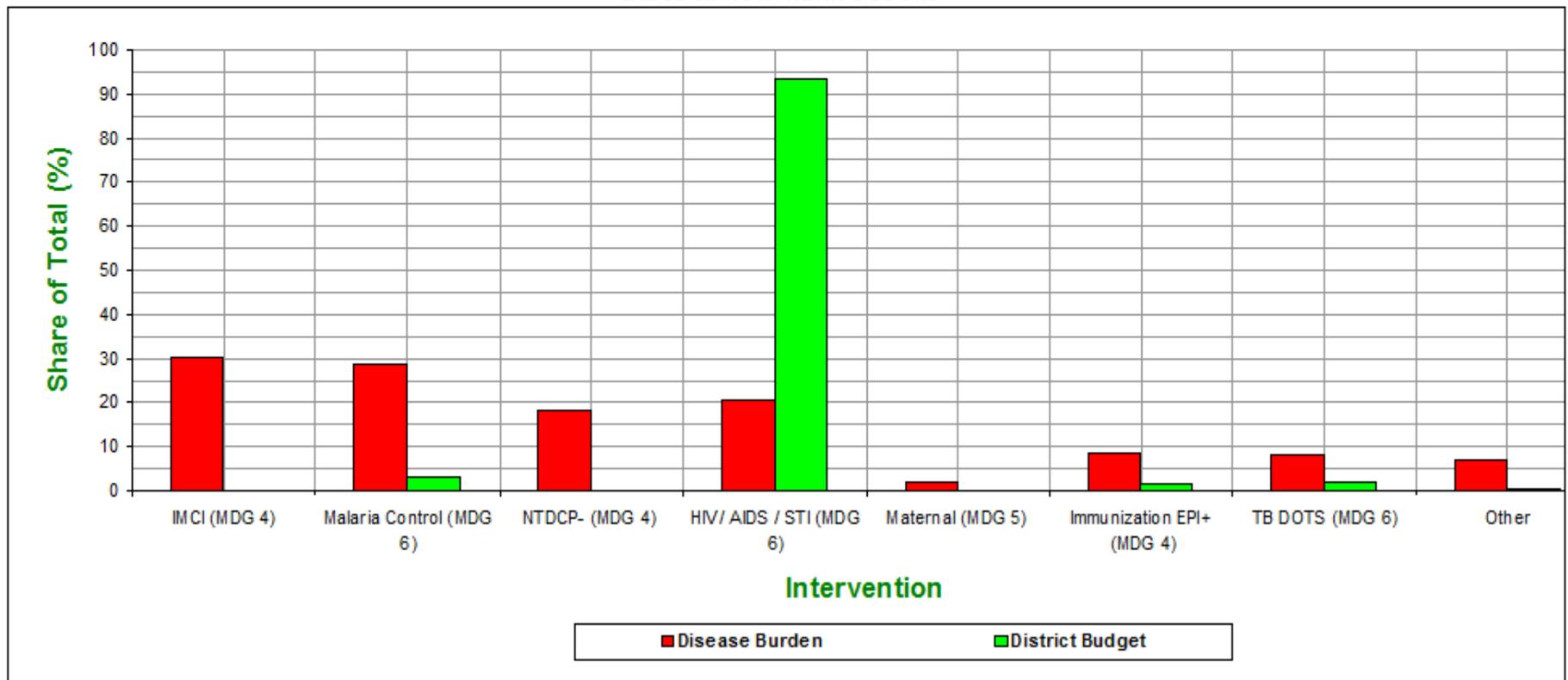
- ..... allows plans and budgets to be aligned to Intervention addressable shares of the disease burden or health needs of the population, using district health intervention profile developed from DSS sites.**
- Monitoring the effect of DiHPART on health systems strength involves assessing the discrepancy between the actual pattern of expenditure and expected pattern, based on the district Burden of Disease profile.



## GARU-TEMPANE, UPPER EAST

# Intervention Burden and Budget Shares, 2010

Based on NORTHERN DSS site



# Pillar #5: Improving budgeting with a burden of disease-based tool: The District Health Planning and Reporting Tool (DiHPART)

## Fostering evidence-based resource allocation

**Evidence:**

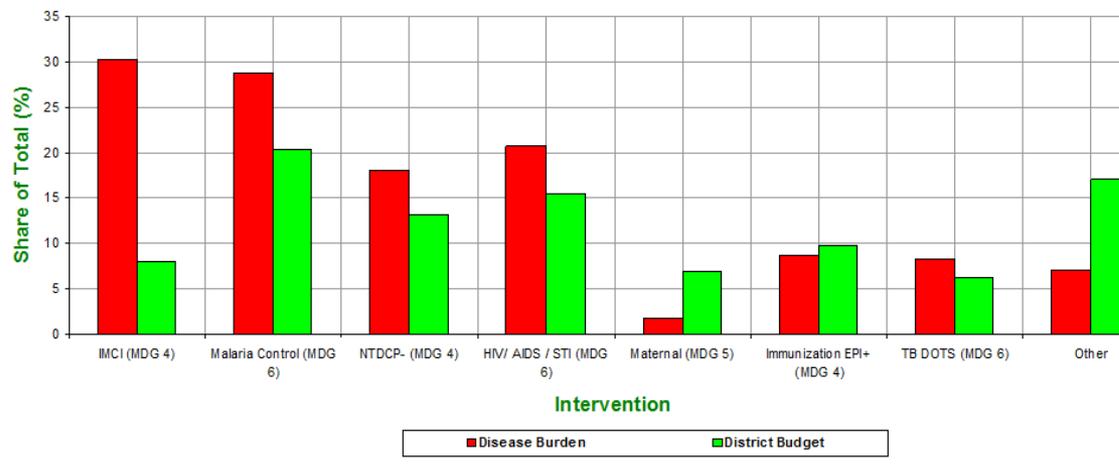
**Budgeting is based on ad hoc decision that lack evidence**



**BONGO, UPPER EAST**

### Intervention Burden and Budget Shares, 2010

Based on NORTHERN DSS site



**GEHIP response:**

- ✓ Train volunteers in community IMCI
- ✓ Retrain CHO in volunteer supervision.
- ✓ Review and assess the role of volunteers in family planning promotion and support

**Implementation research finding:**

DiHPART has not worked as planned.

**Enabling  
sub-system inputs...**

Integrated service  
components

Health workforce  
size, composition  
& training

Information for  
decision-making

Essential drug supply  
& logistics

Health financing and  
planning

**Leadership &  
governance**

**Changes in  
leadership and  
governance  
capabilities at each  
level in the system.**

# GEHIP HSD Interventions

*•Improve health system leadership  
by developing a public health  
leadership program that promotes  
integrated health care at each level  
of the system.*



# Building strong partnership with the development sector:

Development revenue can co-finance health systems development. This requires developing health system partnership with political and development officials involving....

- ❑ DHMT engagement with District Chief Executive and others (including DiHPART demonstration)
- ❑ Joint planning CHPS scale-up (construction & capital costs)
- ❑ Joint sponsorship of community “durbars” with “District Assemblymen”
- ❑ Community Health Officer engagement of traditional leaders



# “Pillar #6”: Leadership for the rapid Expansion of CHPS Coverage

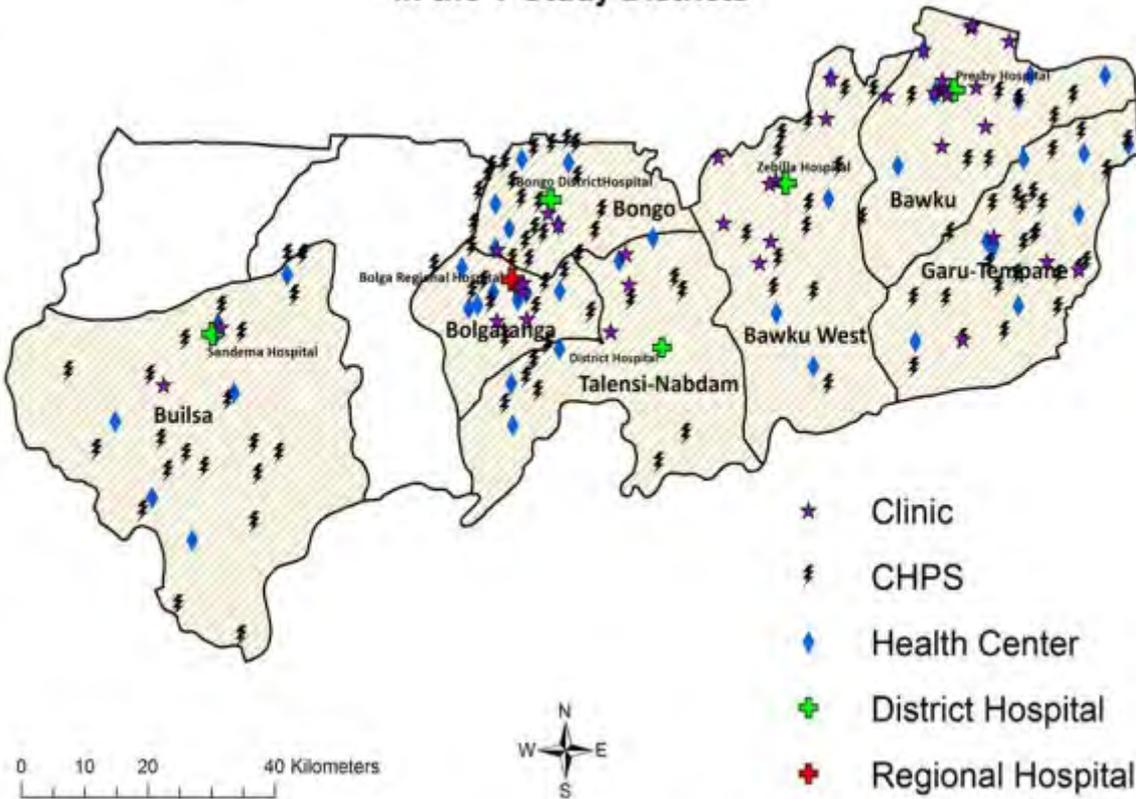
GEHIP expansion catalyzed by:

- **Health workforce development.** Coaching DHMT leadership on how to shift away from compound dependence for CHPS development.
- **Integrating local governance structures with the health sector.** Liaison for increased linkages between District Chief Executives & District Assemblies with health system operations & decision making.

- **Increased monitoring & evaluation of CHPS scale up.** Introduced a new monitoring scheme to more accurately assess CHPS development by district.
- **Developed health system leadership training** and tools (LDP, BNA) that build **teamwork** across all levels including:
  - ▣ District Directors & Health Management Team members
  - ▣ Community Health Officers
  - ▣ Supervisors, Disease Control Officers, Nutrition, etc.
  - ▣ Registered nurses, midwives
  - ▣ Community Health Officers



Map of the Upper East Region Showing the Various Health Facilities in the 7 Study Districts



# GIS Capability

All health facilities including CHPS zones have been mapped including areas that lack functional services.

Data is being used for:

Facility mapping;

CHPS and household mapping;

Multi-level analysis of the determinants of childhood survival in the baseline

Building  
Geographic  
Information  
Systems  
Capability



# Overview

- The Partnership
- Background
  - ▣ Location
  - ▣ About Ghana
  - ▣ Health system innovations and implementation challenges
- What is GEHIP?
  - ▣ Strategies & intervention
  - ▣ **Evaluation**
- Some Implementation Highlights



# Evaluation of GEHIP

- Implementation & process documentation on the determinants of
  - ▣ Roll out of operational changes
  - ▣ Performance/service provision
- Health system strength: resources, staffing, etc.
- Impact Evaluation
  - ▣ Baseline & Final surveys
  - ▣ Health System Strength: resources, staffing, etc.
  - ▣ Qualitative systems appraisal
  - ▣ GIS data
- Economic Evaluation
- Pilot studies/operations research



# Baseline Survey: Some key research themes derived from initial analysis

- ***Reproductive preferences and contraceptive use among women.*** Contraceptive usage in UER remains low and unmet need pervasive. Further, the demand for contraceptive is generally for spacing rather than limiting practices.
- ***National Health Insurance Scheme.*** Preliminary findings indicate that although the NHIS is intended as a 'pro-poor' policy, in reality it is proving to be largely benefitting the more affluent.
- ***Female autonomy and child survival.*** Counter intuitively, the findings indicate that women with more constrained autonomy have higher neonatal health outcomes. Deriving a plausible explanation of this unexpected finding requires further analysis of geographic accessibility and its interaction with the autonomy variable.
- ***Immunization status and child survival in Ghana.*** Preliminary results show that children who have had at least one or more vaccination have higher chances of survival compared to those who have not had any immunization at all

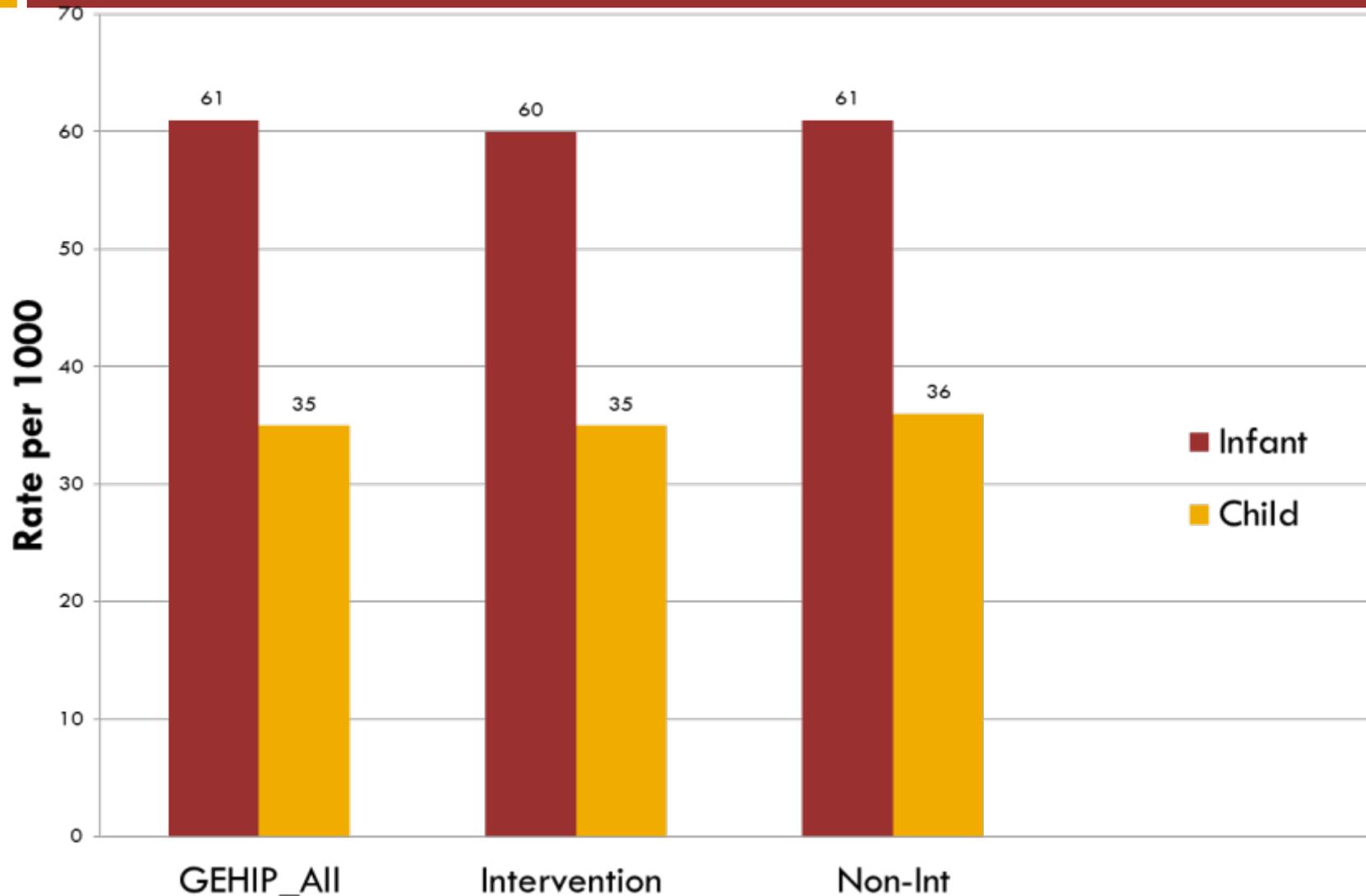
# Example of GEHIP Baseline Survey Results (2010)



## Educational Background of Women of Reproductive Age

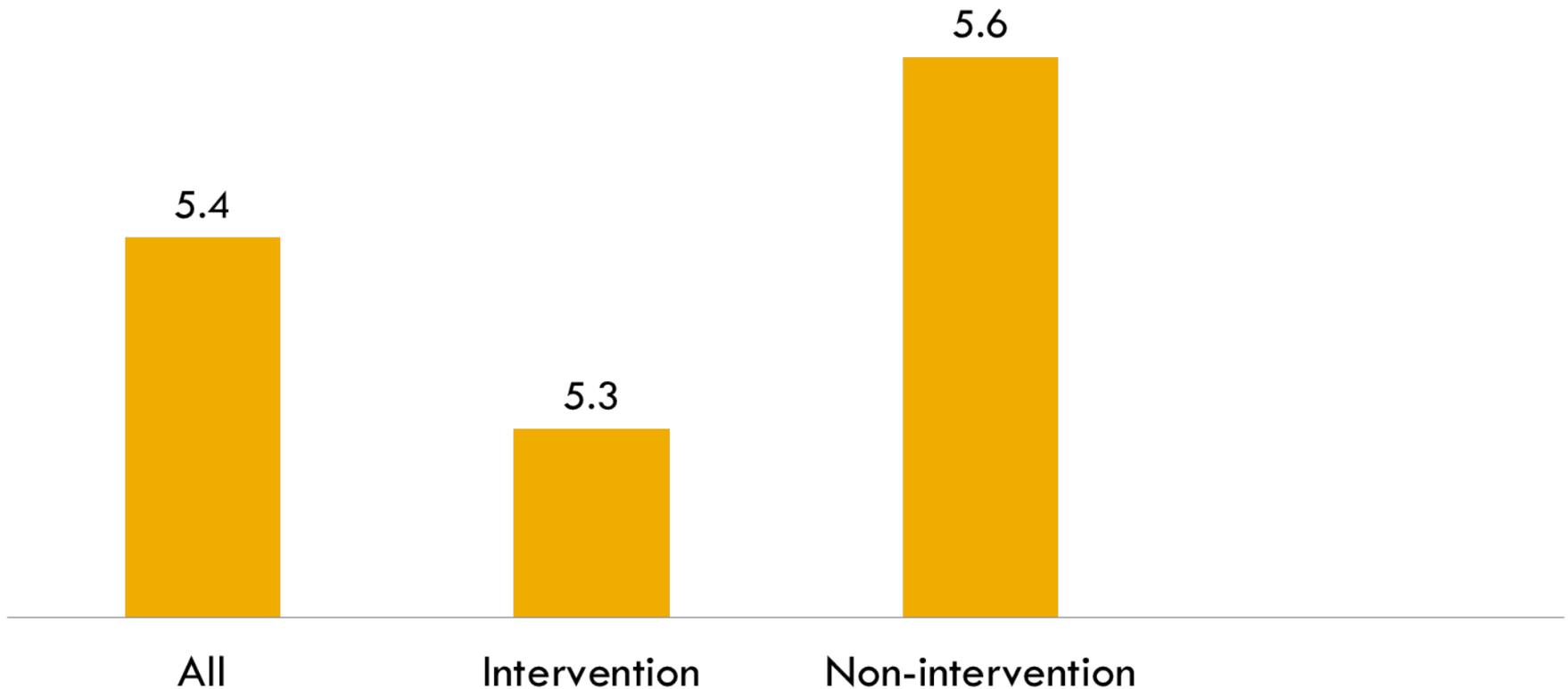
Highest Education Attended	Non-Intervention N=2753	Intervention N=2756	Total N=5,509
None	65.4	56.2	60.8
Primary	18.1	21.0	19.6
Junior High	12.6	16.5	14.5
Secondary & over	4.0	6.2	5.0

# Baseline Survey Results: Childhood mortality indicators (2010)

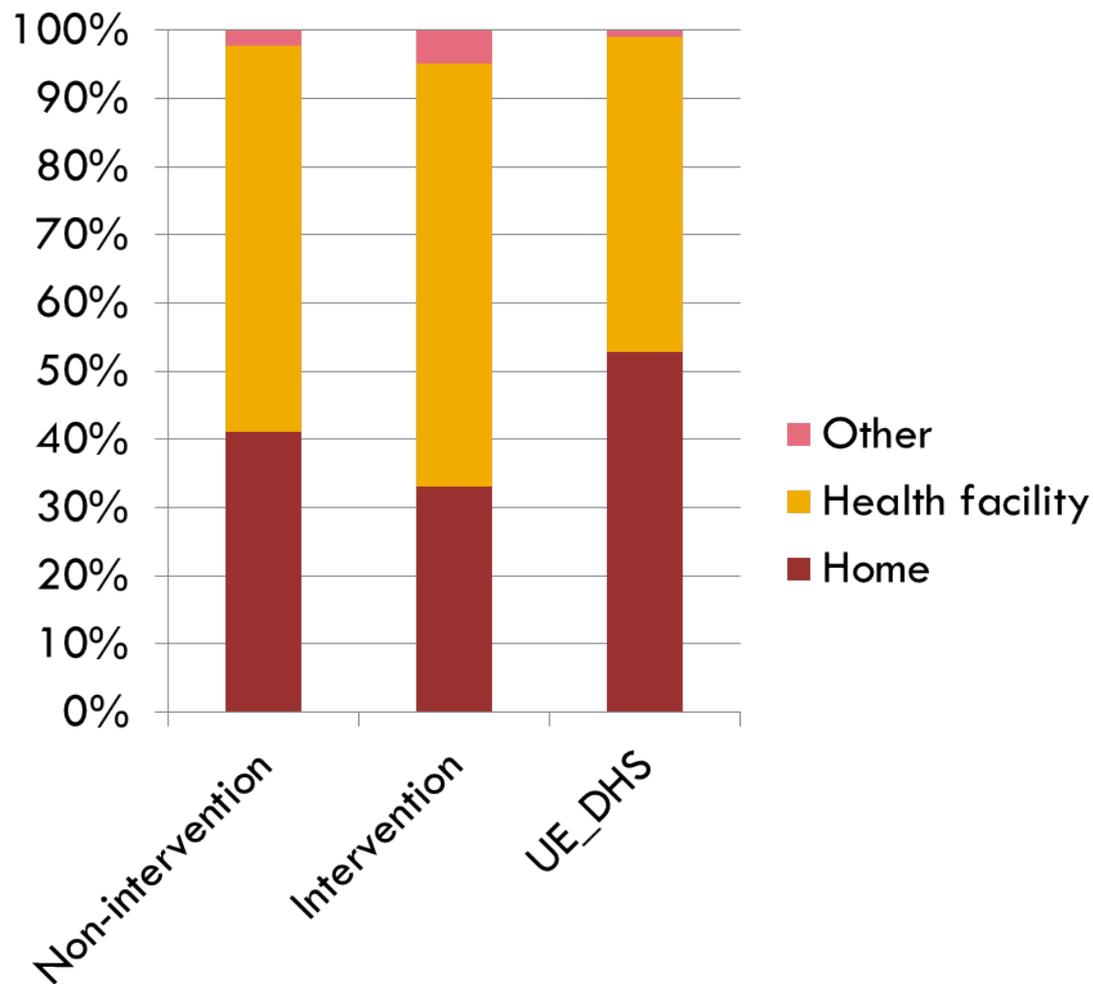


# Rural Baseline Survey Results: Total Fertility Rates by treatment and non-treatment area (2010)

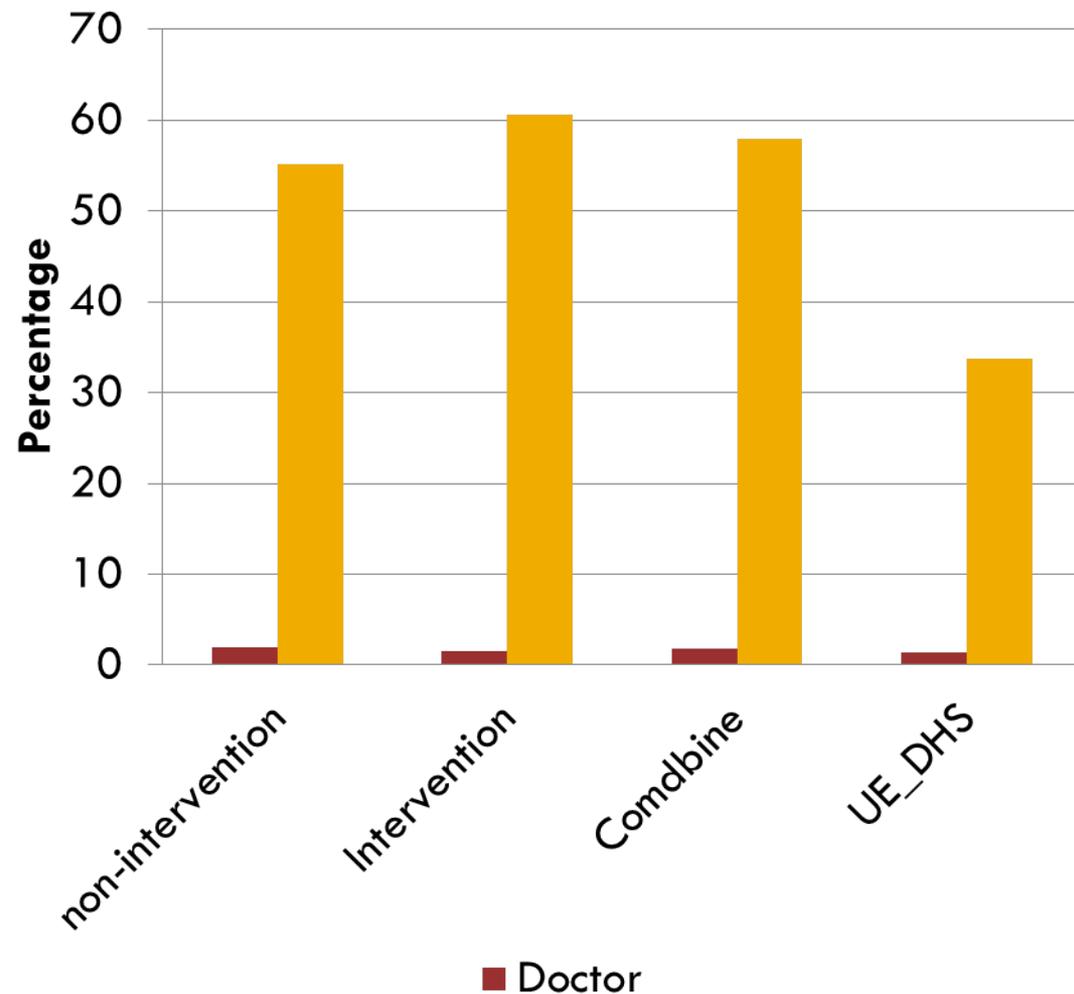
Total fertility rates, by area



# Place of birth-last born child by treatment area (2010)



# Skilled Assisted Delivery by treatment area (2010)



# Outline

## 1) Background:

- The potential: Navrongo Project long term results
- The problem: Constrained scale-up

## 2) The GEHIP design

- Complexity: The core challenge of health systems research on the WHO “Pillars.”

## □ Research systems

- Survey research
- Qualitative systems appraisal
- GIS
- Monitoring & facility research

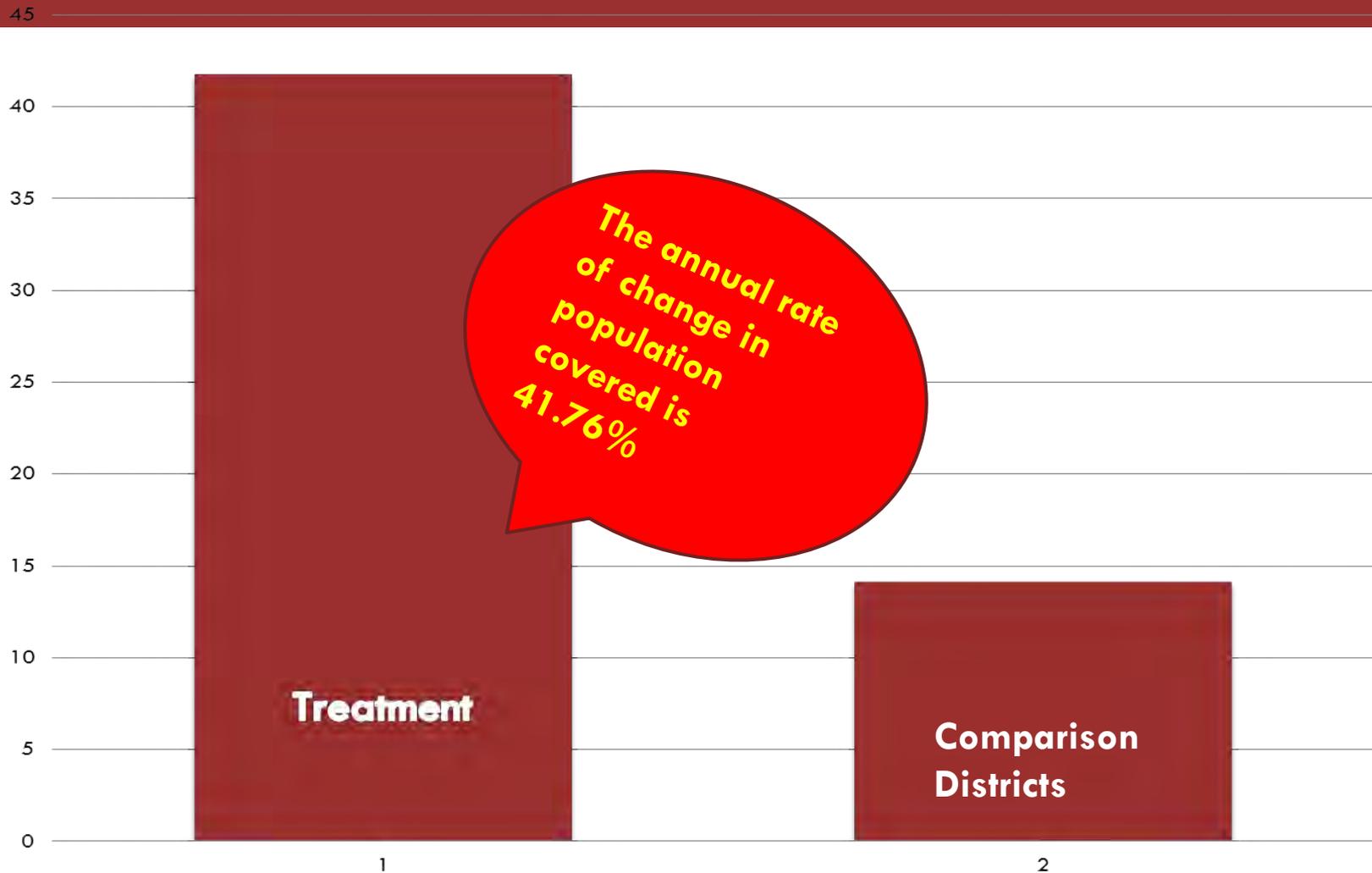
## 4) “Lessons learned”

- Baseline survey results
- Implementation research by pillar

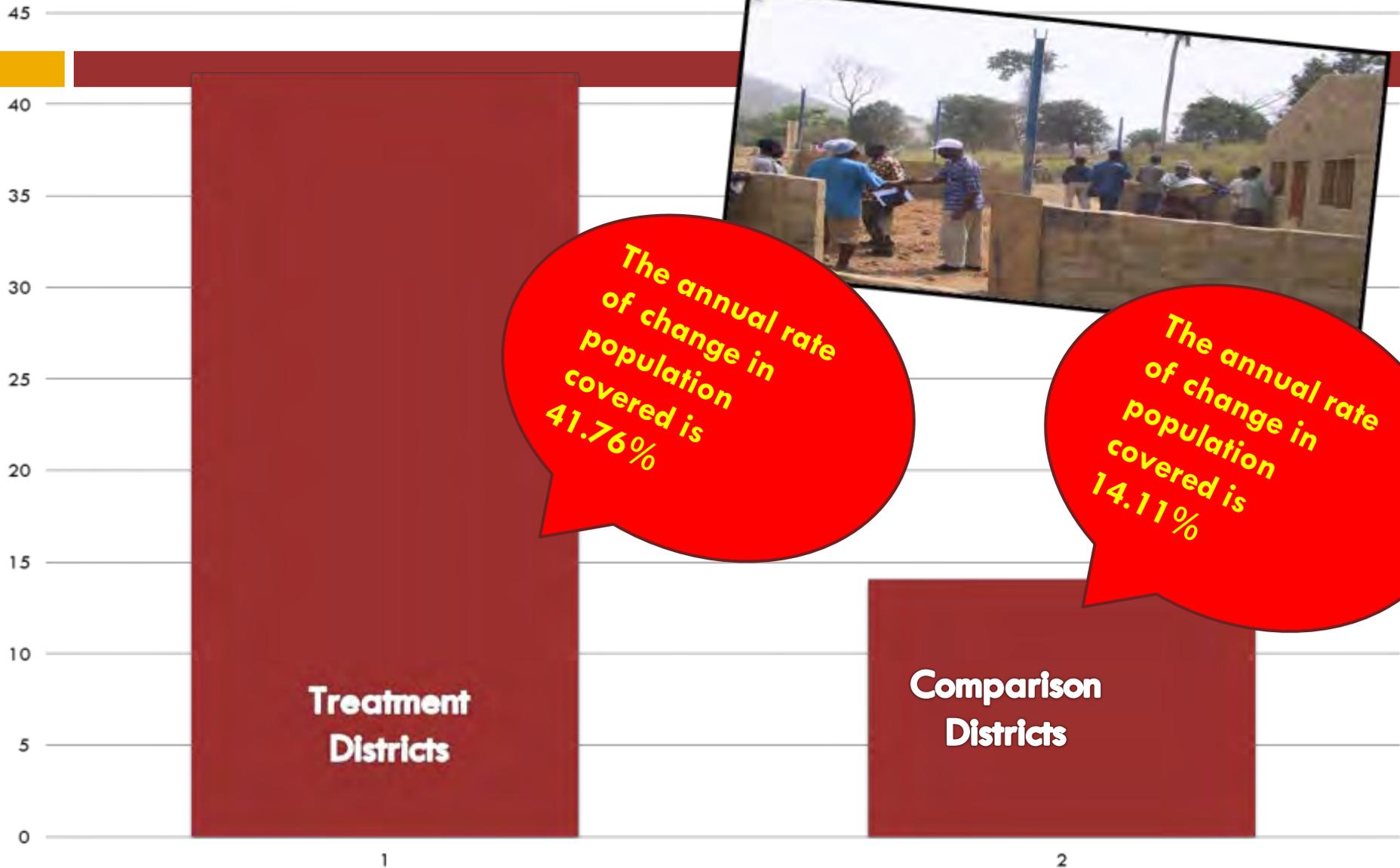
## 5) The future



## Annual Rate of Change, Treatment and Comparison District Populations Covered by Functional CHPS, March 2010-June 2012



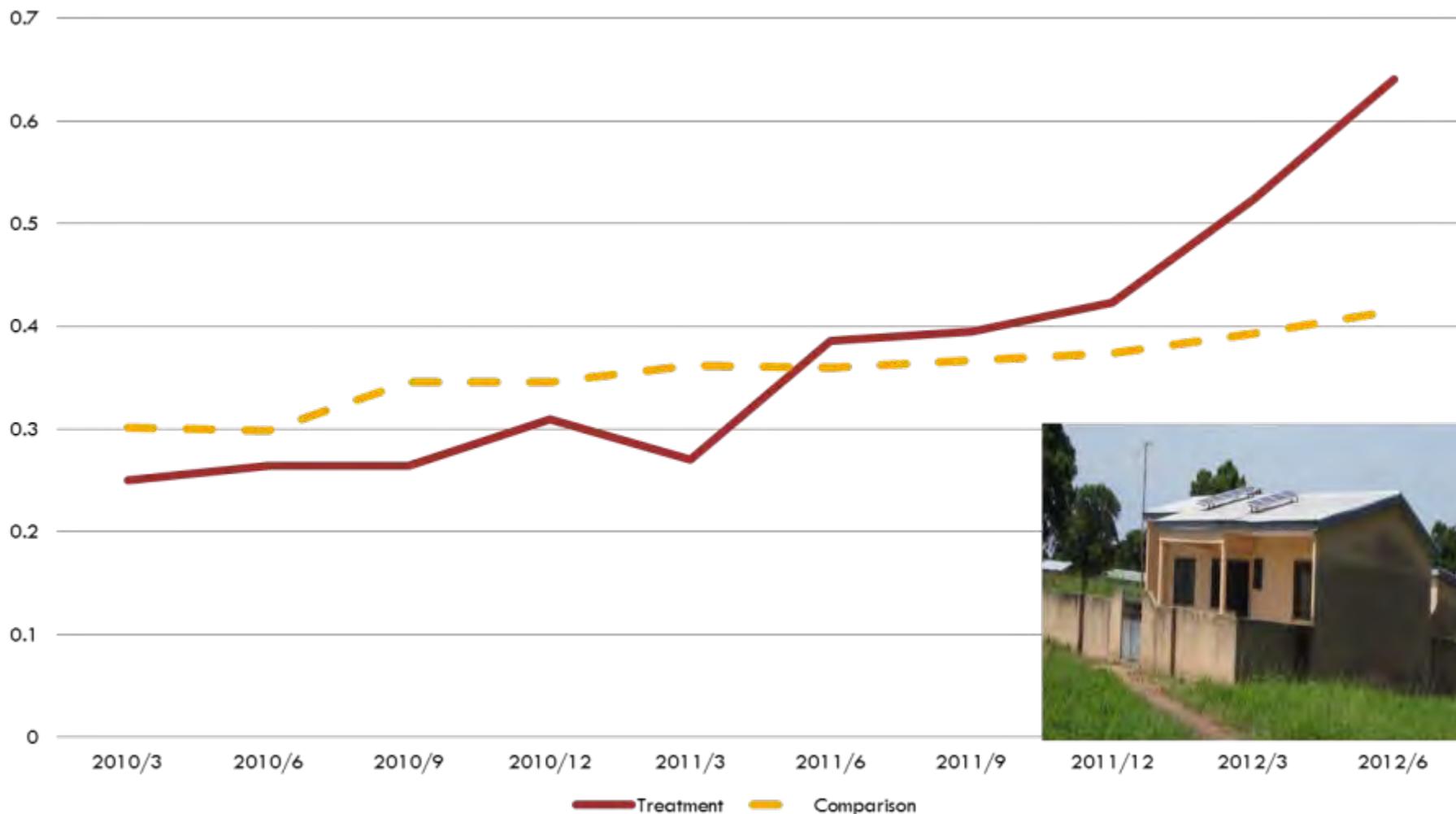
# Annual Rate of Change, Treatment and Comparison District Populations Covered by Functional CHPS, March 2010-June 2012



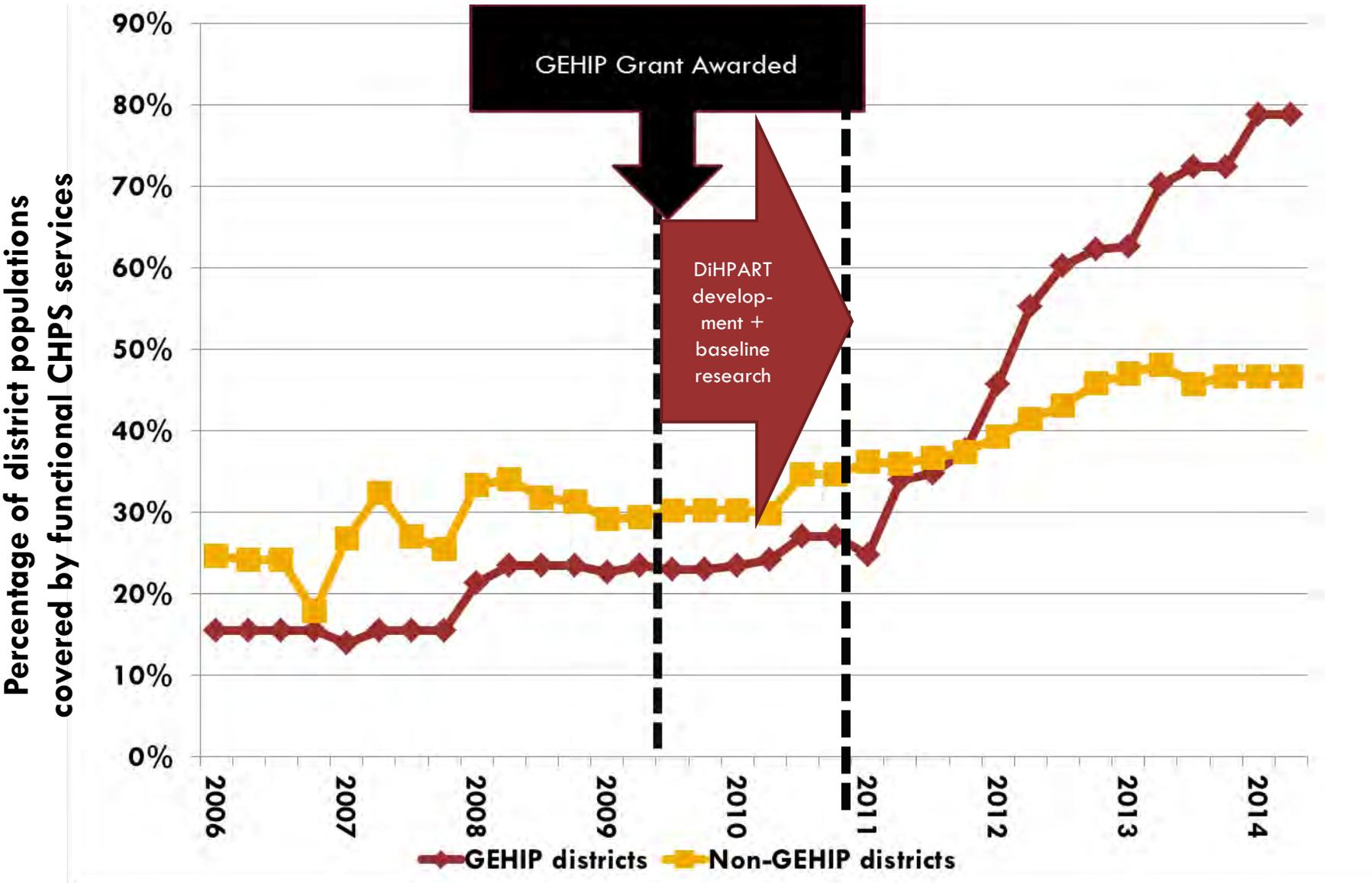
# Implementation Progress: Treatment and Comparison

## District Populations Covered by Functional CHPS

### March 2010 - June 2012



# Percent of the population covered by CHPS, 2006- June 2014, GEHIP Treatment and Comparison Districts



# Overview of key interventions

- Subsystem #1: Extending the range of essential health services to include emergency public health



# Overview of key interventions

- Subsystem #2: Expanding workforce capacity
- Workers trained to expand coverage: Volunteer provided IMCI



# Overview of key interventions

- Subsystem #3: Information for Decision-making  
Ghana Health Service has institutionalized the Simplification of HMIS



# Overview of key interventions

- Ghana Health Service has institutionalized the Knowledge Management Program, which is developing and disseminating an understanding of ways to accelerate CHPS scale up.



# Overview of key interventions

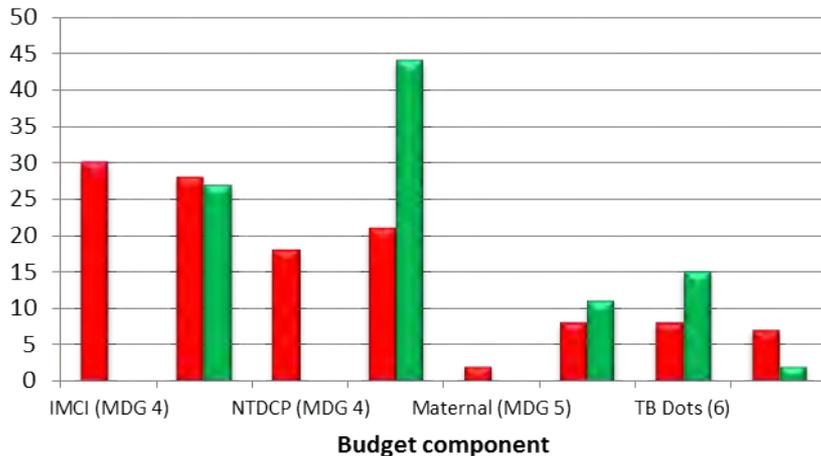
- Subsystem #4: Information for Decision-making
- GEHIP has piloted the national policy of free family planning commodities, tested the impact of this policy on the demand for and the procurement of supplies



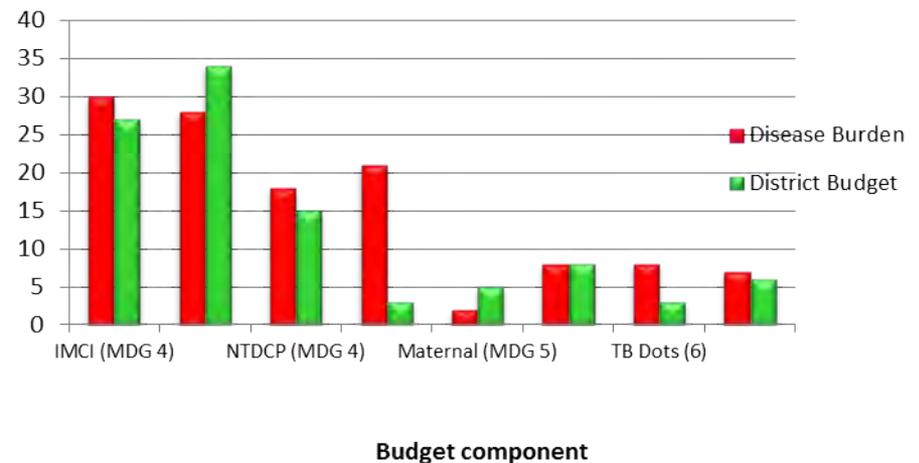
# Overview of key interventions

- ❑ Subsystem #5: Budgeting and Finance
- ❑ GEHIP has piloted a scheme for “evidence-based” planning and budgeted, identified problems, and clarified issues to be resolved for eventual re-engineering and scale-up

Intervention Burden & Budget Shares, 2011 (Based on Northern DSS Site) : Garu Tempene District, Before



Intervention Burden & Budget Shares, 2011 (Based on Northern DSS Site) : Garu Tempene District, After



# Overview of key interventions:

- Subsystem #6: Governance, leadership  
GEHIP has developed practical means of marshaling grass-roots political support and development revenue for scaling up community based primary health care on the CHPS model.



# Challenges?

- 5 years of implementation
- Endline Survey completed in March, 2015
- From the start: The original GEHIP design, then
- Detours: implementation challenges and responses
- “Learning by Doing”: The Evolution of the GEHIP Initiative
- Key lessons were learned



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## 1) Background:

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- Complexity: The core challenge of health systems research on the WHO “Pillars.”

### □ Research systems

- Survey research
- Qualitative systems appraisal
- GIS
- Monitoring & facility research

## 4) “Lessons learned”

- **Endline survey results**
- **Implementation research by pillar.**

## 5) Conclusion



# GEHIP's Response to Scale up Challenges:

**Challenge:** Failure to provide CHPS focused trainings to CHOs

**GEHIP Response:** Ensured that CHPS trainings are provided to all new CHOs and refresher trainings provided to all existing CHOs.



# GEHIP's Response to Scale up Challenges:

**Challenge:** Waning involvement of volunteers to support CHPS outreach.

**GEHIP Response:** Actively coach CHO's to promote volunteerism by engaging with local chiefs and establishing/or enhancing the volunteer cadre serving their CHPS zone. This include supporting the selection of new volunteers and providing routine orientations.



# GEHIP's Response to Scale up Challenges:

**Challenge:** Maintaining adequate supplies of motorbikes, basic equipment and other necessities.

## **GEHIP Response:**

- Ensuring that basic equipment, motorbikes, and supplies are available.
- Providing routine maintenance to motorbikes and equipment to enhance durability.



*“Like what I said the fuel is a challenge, if you have more CHPS compounds it means more motorbikes and then you have to provide fuel so that has also been helped by the GEHIP support .”*

# GEHIP's Response to Scale up Challenges:

**Challenge:** Failure to maintain the Navrongo project's model for 'learning by doing' in which exchange programs proved as effective tools for orientating and educating new CHPS implementers.

**GEHIP Response:** Reinstate the 'learning by doing' model, which included exchange visits and the promotion of information sharing of best practices as well as peer reviews



*Under tree CHPS services*

*Ga East District Health Staff on Study Tour to UER CHPS zones*

# GEHIP's Response to Scale up Challenges:

**Challenge:** Fixation on construction of compound as pre-requisite to initiate CHPS development

## **GEHIP Response:**

- Provide doorstep health service without necessarily being resident in a CHPS compound (CHOs commute from health centres)
- Promote the use of alternative venues, including existing structures and community-donated space to be used as interim service provision points.

Community constructed structures



*“Right now we have got some zones where the officers are not actually staying there – the building is not yet there but they move there daily to provide services which is a plus for us. Formerly they could not have done that because of what I mentioned – even the motorbike is there, fuelling is a challenge. But with GEHIP's support we can monthly provide them with the fuel.”*

# GEHIP's Response to Scale up Challenges:

**Implementation Research Result:** Lack of fidelity to the original Navrongo model which included **failures to sustain community engagement** both for initiating CHPS development and supporting its operations.

**GEHIP Response:** Revitalize the role of community mobilization through interactions with chiefs, local governance, and opinion-leaders. In addition, promote community engagement through CHPS-development focused durbars and community gatherings.



# GEHIP's Response to Scale up Challenges:

**Challenge:** Generating initial start-up revenue related to compound construction

**GEHIP Response:** Engage outside the health sector through promoting for continuous dialogue with District Assemblies & local NGOs to leverage support for CHPS implementation activities.



*A new CHPS compound provided by the District Assembly of Garu-Tempene*

*“You have to dialogue with the District Assembly always to let them understand the issue at hand. Before, they always said that when we are planning we don’t involve them – then when we are implementing we shouldn’t come to them. They want to be part of the planning process so that when the implementation comes they will be part. But if you finish your planning and just go, “Oh, we are doing this”, then they will not buy into it. So they all want to be recognized – recognition. Just know that they are the political head, give them that respect, dialogue with them. Then when you have your program then they will be part of it.*”



**Community Identified structures**

**Community Erected Shed**



# Outline

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## 2) The GEHIP design

- Complexity: The core challenge of health systems research on the WHO “Pillars.”

## 4) “Lessons learned”

- Implementation research key outcomes by pillar
- The impact of community health services on mortality

## 5) Conclusion



# Endline Survey Findings



# The Impact of GEHIP on the implementation of CHPS

Quarterly proportion of the population reached with doorstep provision of community-based primary health care (CHPS)



The impact of GEHIP on the pace of CHPS implementation was immediate and pronounced.

Total target coverage was achieved by September, 2014

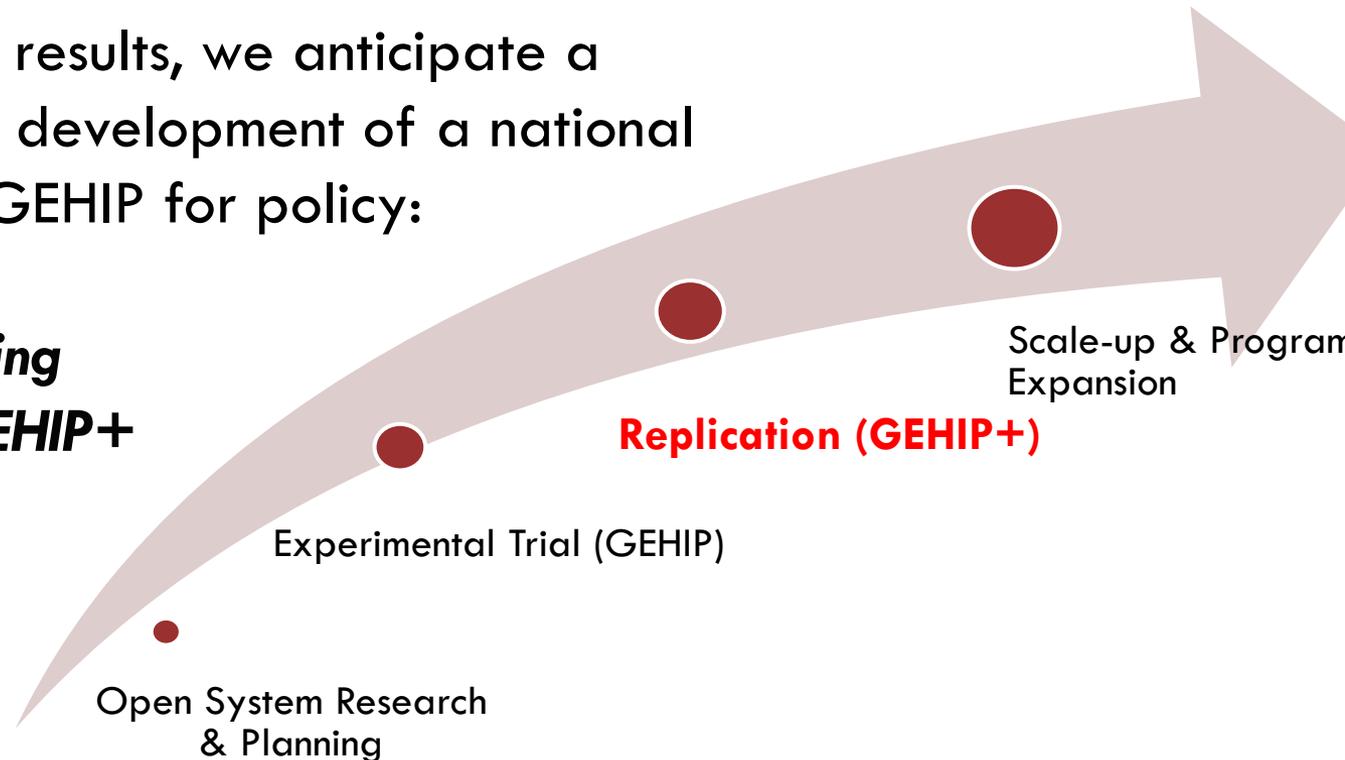
Baseline coverage of community-based care was low in the 3 GEHIP districts relative to coverage in 4 comparison districts

- 
- CHPS addresses the access problem by diminishing excess mortality in remote households
  - CHPS improves equity
  - ... but its impact is mainly among over age 1 children. There is a need to focus on neonates and post-nates
  - Therefore GEHIP should.....
  - Develop ways to accelerate CHPS coverage focusing priorities on zones that are far away at least 4km

# Conclusion: The phasing in of health system strengthening is a manageable design challenge

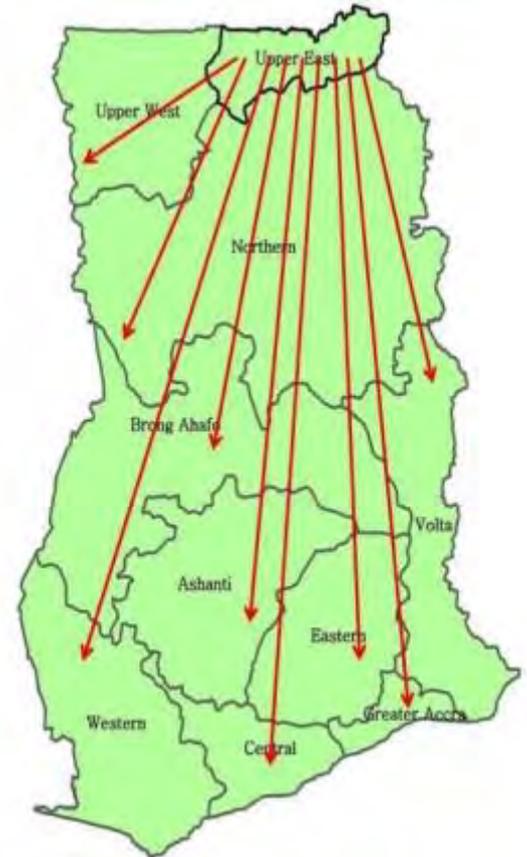
- By phasing in GEHIP, its design represents a relevant policy initiative of the Ghana Health Service
- Following the final results, we anticipate a process of phased development of a national program utilizing GEHIP for policy:

**REPLICATION**  
**for implementing**  
**scaling up: GEHIP+**



# Implications for the future

- GEHIP has demonstrated practical means of achieving total PHC coverage
- GEHIP must be transform into a replication program adapting its strategies and impact in a coordinated way in all regions of Ghana.
- By testing ways to replicate GEHIP success, we will develop means for accelerating the achievement of total CHPS coverage and universal health coverage nation-wide.



# Acknowledgement

I wish to acknowledge the contribution of all GEHIP Team and partners for this work.

Prof. James Philips, Columbia University GEHIP Principal Investigator, Prof. Bawah Ayaga, Columbia University, Project Director for Research, Dr. James Akazili, Navrongo Health Research Centre and Prof. Moses Aikins, University of Ghana School of Public Health, both Health Economists for Project Economic Evaluation, Dr. Patrick Asuming, Demographer, Project M&E Officer, Mr. Sebastian Asana, Project Data Analyst/Research Officer, Margaret Schmidt, Sneha Patel both Project Officers, Rofina Asuru, Project Implementation Coordinator, Robert Alirigia, Implementation Assistant and Mathias Aboba, Project Communication Specialist and Prof. Don deSavigny, Swiss Tropical and Public Health Institute

# Thank you



To learn more visit: [www.ghs-gehip.org](http://www.ghs-gehip.org)



# Summary of Emerging Themes

Jacqui Moller Larsen

# Plenary Session Emerging Issues: Macro

- There have been notable and commendable achievements in Ghana
- Minister applauds but says it is not enough we must all look to our roles and see where we can do things differently and influence: evidence must shape what we do to make the difference
- Akua Kwateng Addo reinforced the moral imperative

# Plenary Session Emerging Issues: Macro

- Dr Robalo: the decline in infant, child and under five mortality over last 2 decades clear
- BUT too slow, insufficient and uneven across the country
- Will not meet the MDGs even by 2040
- Question: Why are Ghana's maternal and new born health indicators potentially worse than countries with similar social and economic profiles and health expenditure per capita?

# Plenary Session Emerging Issues: Macro

- Dr Kirigia: 4% 80 million usd in Ghana lost to maternal deaths
- Can Ghana therefore afford to let the amount for health decline and not to put more money into it?
- Cost Effectiveness Investment Case to the Minister ?
- Prof Engmann: 125 pre term deaths every hour...are we really shocked enough?
- The rains and cholera come and go.... Korlu Bu maternal death rate ...are we aspirational enough?
- *Question: Ban Ki Moon says Governments can decide...Can Ghana want to do more...is it a political / societal choice not to? Do political decisions support the values of the MoH and GHS*

# Plenary Session Emerging Issues: Macro

- Prof Senah: Leaning Tower of Pisa Health Service...out of sync with reality of needs
- Access to clean water and sanitation remains a critical public health issue
- Irony of the health service is it is too service orientated....Solutions lie not just in the health sector alone...
- *Question: is the health sector too insular does it need to work more strategically with other sectors and disciplines to address wider determinants or basic building blocks of health such as education, the environment, social welfare and protection?*



# Inter-sectoral Partnerships

# Plenary Sessions: Emerging Challenges

- Dr Aboagye: 47% to 74% increase in skilled delivery. All regions have increased scores but stark regional differences 36% in NR
- Family planning is stagnating
- Anemia very high >70% in Ghana with 80% in NR
- High rates of teenage pregnancy in 3 regions.
- Still births, infant mortality is not declining fast enough.
- Only 51% of health centers are able to provide EMONC; much higher % among hospitals

# Plenary Sessions Emerging Challenges

- Transport to facilities 60-70% of mothers in NR live 3+ hours from HC: related to hemorrhages
- Stunting is serious problem: 20% in Ghana; 33% in NR
- Only 13% of children meeting the standard of minimum nutritional diet.
- Too few doctors and midwives available - many facilities only have 1 person who cannot be available 24 hours/day
- Social/cultural issues impede health seeking behaviors

# Plenary Sessions Emerging Themes: Suggested Actions

- Prof Engmann: Know/Do – reduce the gap between protocols and practice
- Dr Robalo: Learn and apply successes from within Ghana and other countries systematically
- Dr. Awoonor-Williams: We know CHPS is an effective people centred approach and connects the HS with the social structure and yet there are 3000 instead of the needed 6000 UER have achieved more through leadership and HSS action research at different levels within the service.
- *Question: Is it important to better understand the term leadership and the role of leadership in addressing this gap between know and do/evidence and policy decisions at the macro, meso and micro levels ?*

# Parallel sessions: evidence based recommendations

- ARV/PMTCT sites to be available nearer to community to avoid stigma and ensure attendance rather than at large specialist centres
- COC can be increased through use of WhatsApp groups and Lorry Park mail boxes connecting CHNs to women in extreme rural areas.
- Congenital malaria can be missed. Systems to report CM cases needed to be linked to the RC to further on going research.
- Including service users in re design can improve the service utilization and outcomes.

# Parallel Session: Research Based Recommendations

- Poor attitudes of Midwives are a key factor in poor utilization of delivery services. We need to know more about this and how to change this.
- The factors that constrain women need to be better understood if the rate is to be increased further.

# Parallel Session: Research Findings or Recommendations

- Community involvement and approval improves CHW retention.
- E- Learning platforms have a high accessibility and acceptability rating from students and tutors.

# Areas where we may want to see further research next time

- Inter-Sectoral Working
- Role of the Private Sector
- Understanding Implementation Science
- Using HSS research to make lasting changes
- Role of Leadership in Evidence into practice
- Role of Users and Communities in service re design/ making health improvements
- Strategic and operational approaches to getting research into practice.

# Evaluation Comments

- *'Brilliant first day symposium. Very interesting'*
- 'I enjoyed the symposium and look forward to be part of many such programmes in the future'
- *I just hope the Symposium continues at least every year'*

# Evaluation Comments

- ‘The Symposium has been very educative and informative therefore organizing it regularly will help improve health care in Ghana.’
- ‘The Poster sessions were varied and of high quality’
- ‘The research presentations have been an eye opener’
- ‘The Symposium should be every two years and more on nutrition and WASH’

# Evaluation Comments

- ‘Back up presenters for no show’
- Longer lead time for abstract submissions
- Poster presenters to develop their own to a standard specification
- Kudos to the organisers. More handouts from presenters would be appreciated
- A few on power outages...!
- Great Food !

# My Favourite

*“As a new researcher this Symposium has effectively built my research knowledge platform to enable me to kick start something in my region to add to the existing research image in our dear country”*



Presentations and  
Book of Abstracts.



Available from:

<https://dec.usaid.gov>

under the title “National  
Health Research  
Dissemination Symposium.”



Thanks to Note takers:

Angela Naa Ordoi

Isaac Amoah

Angela Boatang

Esther Vordzorgbe



Thanks to You

Photos: AfriKids Ghana

## **Parallel Session Research Presentations**

### **Session 1a: Providing Leadership and Governance/Organizing Health Services for Child and Maternal Health**

- An insight into Tema General Hospital causes of maternal mortality. A descriptive mixed method study on causes of maternal mortality in Tema General Hospital.
- A qualitative study exploring barriers to exclusive breastfeeding among “nurse mothers” in Koforidua, Ghana.
- A focused ethnographic study of infant and young child feeding and their context in rural Ghana.

### **Session 1b: Organizing Health Services for Child and Maternal Health**

- Medical transport for women and children in rural settings: modified motorcycle as a promising option.
- An assessment of the implementation of prevention of mother-to-child transmission (PMTCT) of HIV in the Volta region.
- Ghana EMBRACE implementation research: is continuum of care in MNCH feasible and effective?

### **Session 2a: Developing and Utilizing Human Resources for Child and Maternal Health**

- Factors related to retention of community health workers in community-based management of fevers in children under-five years in Dangbe West district of Ghana.
- Determinants of skilled birth attendant at delivery in rural southern Ghana.
- Let's start where we begin: e-Learning in pre-service education.
- Food-based dietary modifications to improve the dietary intake of infants and young children in Ghana.

### **Session 2b: Financing and Provision of Social Protection for Child and Maternal Health**

- Analysis of health and economic benefits of family planning in Ghana.
- Socio economic correlates and choice of treatment for childhood fevers.
- Randomized control trial to ascertain impact of behaviour change interventions.
- Predictors of abortions in rural Ghana: cross sectional study.

### **Session 3a: Developing and Organizing Health Information for Child and Maternal Health**

- District Health Information Management System (DHIMS-2).
- Child and maternal deaths in Northern Ghana: evidence from the Navrongo Health and Demographic Surveillance System.
- Improving maternal mortality reporting at the community level with a 4-question modified reproductive age mortality survey (RAMOS).
- Effect of timely initiation of breastfeeding on child health in Ghana.

### **Session 3b: Innovations and Health Technologies for Child and Maternal Health**

- Adverse events following immunization with newly introduced measles rubella vaccine-Jirapa district, Ghana, 2013.
- Can mobile phone messages to licensed chemical sellers increase prescription use of ORS and zinc? A randomized controlled trial in Ghana.
- Impact of malaria vaccine candidate RTS, S/AS01 on malaria in African infants and children 18 months post-primary vaccination.
- Effect of MenAfriVac meningococcal A vaccine on pregnancy outcome: An assessment conducted at the Navrongo Health and Demographic Surveillance site.

#### **Session 4a: Community Ownership, Participation and Decision Systems for Child and Maternal Health**

- Community maternal morbidity audits: evidence for optimal community based model for reducing maternal mortalities in Ghana.
- Treating fever in children under five: caregivers' perceptions of community health worker services in Dangbe West district.
- The stillbirth and neonatal death study (SANDS): implications of lessons learned from an interdisciplinary, mixed -method, four institutions collaborative.
- Commonly identified infectious agents and their sensitivity pattern: a threat to the development of children under five.

#### **Session 4b: Development Partnerships for Child and Maternal Health**

- Rapidly increasing the use of correct paediatric diarrhoea treatment in Ghana.
- Socioeconomic and demographic determinants of under-five mortality in rural northern Ghana.
- Congenital Malaria in newborn twins.
- Determinants of prenatal HIV testing and counselling as a component of quality maternal and child health services amongst rural women in Ghana: a population-based survey.



# **An insight into Tema General Hospital; The causes of maternal mortality**

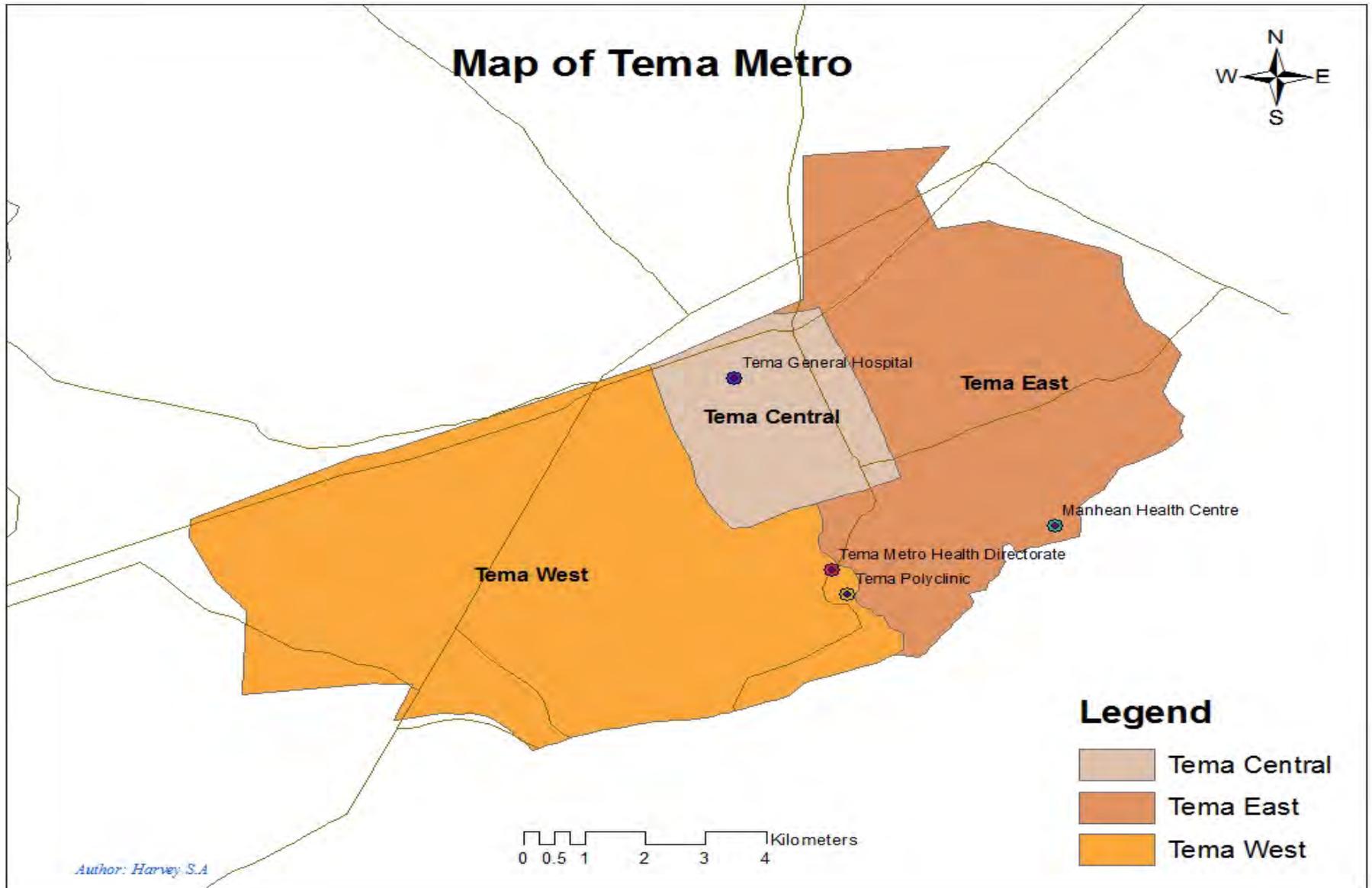
*A descriptive mix-methods study on the causes of maternal mortality in Tema General Hospital, Ghana*

Dr. John B.K Yabani  
Metro Director of Health Services Tema

# Presentation Outline

- Introduction
- The study
- Methods
- Results
- Discussion
- Conclusion

# Map of Tema



# Introduction

## **Background**

- End of Millenium Development Goal is approaching, but not yet to be reached

## **Tema General Hospital**

- Government hospital
- Referral hospital
- 21 maternal deaths out of 6,651 deliveries in 2013 (equal to 300 per 100,000)

# The study

- **Objective**
- The aim of this study is to identify the factors which contribute mainly to the relatively high level of maternal mortality in Tema General Hospital, Ghana
- **Focus on**
  - Direct obstetric
  - Indirect obstetric
  - Underlying causes

# The study

- **Research question**

- What are the main factors leading to maternal mortality in Tema General Hospital in the Tema Metropolitan, Ghana?

- **Sub questions**

- 1) What direct obstetric factors have led to maternal mortality in Tema General Hospital?
- 2) What indirect obstetric factors have led to maternal mortality in Tema General Hospital?
- 3) How do underlying risk factors influence maternal health in Tema General Hospital?

# Methods

- **Mixed methods study**
- Quantitative analysis
  - 21 Maternal mortality death audits
- Qualitative analysis
  - Focus group discussions with 26 pregnant women
  - Interviews with 11 health care workers

# Results

- **Quantitative analysis**
  - 20 out of 21 audits analysed

	NUMBER	Minimum	Maximum	Mean	Std. Deviation
Age	21	20	41	31.57	5.71
Parity	18	1	7	3.78	1.99
Gravidity	18	0	6	2.39	1.85

# Results

## – Main causes

- 1) Hypertensive disorders,
- 2) Haemorrhage,
- 3) Hypovolemic shock

Cause	Frequency
Haemorrhage shock	1
Hepatic failure	2
Hypovolemic shock	4
Haemorrhage	8
Cerebral hypoxia	1
HIV/AIDS	1
Septic abortion	1
Pregnancy induced hypertension	5
Pre-eclampsia	3
Cardiogenic shock	1
Acute Fatty Liver of Pregnancy	1
Acute Renal Failure	3
Cardiomyopathy	2
Chorioamnionitis	1

# What are the **indirect obstetric factors** that led to the maternal mortality in TGH?

- Delay in referral of patients and initiation of care
- Anaemia
- Attitude of midwives to pregnant women are better with the high socioeconomic class because they prepare better towards birth than the lower socioeconomic class who have financial difficulties

The underlying risk factor influencing  
maternal health in TGH

- **Overcrowding**

# How do the underlying risk factors influence maternal health in TGH

- ANC and Delivery is free of charge in government facilities under NHIS increased hospital attendance
- TGH has better personnel and few facilities work 24/7
- Other facilities do not handle complications
- The population in the city is increasing

# Conclusion

- Maternal mortality is, as in all situations, the result of a combination of factors
  - Direct obstetric ones are most visible
  - Overcrowding of hospital
  - Delay in initiation of care

# A QUALITATIVE STUDY EXPLORING BARRIERS TO EXCLUSIVE BREASTFEEDING AMONG 'NURSE MOTHERS' IN KOFORIDUA, GHANA

Dr. N'Dauguié Armel E. Abou  
MD ,MPH, specialist in International Public Health  
Clinical Coordinator, St Joseph Hospital Koforidua

# Outline

- **Background**
- **Aim**
- **Methods**
- **Results**
- **Conclusion**

# Background

- *“Exclusive breastfeeding (EBF) means that the infant receives only breast milk. No other liquids or solids are given – not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines”* (WHO, 2014 p. 1).
- Despite all the benefits of EBF (Quigley et al 2012), there is a worldwide low breastfeeding continuation (Cai et al 2012).
- Most studies showed that worldwide maternal employment was a hindering factor to continuing EBF (Danso 2014; Hirani and Karmaliani 2013; Kotb et al 2012).
- Most studies in the developing world were quantitative and admitted that the lack of breastfeeding policies and facilities, day-care services at workplaces was the most important barriers.
- The decline of EBF rate in Ghana from 98% at birth to 63% at six months (Idrissu 2013) constitutes a public health concern. There is also a crucial need to provide more evidence on EBF among working mothers. This study intends to bridge this gap by exploring the barriers to EBF among nurse mothers in Koforidua, Ghana.

# Aim

To explore barriers to EBF of 'nurse mothers' in Ghana, in order to make recommendations to support the development of feasible and sustainable national policies and local health professional supportive interventions.

## Objectives

- To review the literature on barriers to EBF among working mothers in the developed and the developing world.
- To conduct in-depth interviews with 12 'nurse mothers' from Koforidua on their experiences of EBF after resuming work.
- To identify key barriers and context-related initiatives of 'nurse mothers' to maintain EBF up to six months using 'framework analysis' of interviews.
- To disseminate findings to key health professionals, in order to inform policy on the barriers to EBF among 'nurse', and to develop comprehensive interventions to enhance EBF during the infants first six months of life.

# Methods

- A qualitative method, using social constructivism and phenomenology, provided the suitable epistemological approaches to understand the barriers faced by 'nurse mothers' from their own perspectives.
- Through purposive sampling, 12 participants from three hospitals in Koforidua, Ghana were selected. Adult nurses between 18 and 40 years who breastfed a child aged between birth and two years or are currently breastfeeding were included. Conversely 'Nurse mothers' who had sicknesses that prevented EBF, or whose babies were forced to supplementary feeding for health reasons were excluded from the study.
- In order to generate rich accounts, semi-structured in-depth interviews (duration 44 – 59 minutes) were carried out in English.
- Framework analysis was used for data analysis in order to preserve the integrity of participants' narratives (Green and Thorogood 2009).
- Ethics approval was obtained from the University of Liverpool ethics committee as well as from the Ghana Health Service ethics committee

# Results

Three themes emerged from the analysis of data:

## Theme 1: Factors involved in breastfeeding decision

The concept of EBF was well understood by all respondents, but only seven out of the twelve completed EBF. Mother's decision to breastfeed was influenced by positive experiences and beliefs, and motivated by their clear understanding of the benefits of EBF.

## Theme 2: Barriers after resuming work

- The three months **maternity leave** was a major hindering to the WHO EBF recommendation.
- Lack of breastfeeding rooms, crèche, fridge for storage of breast milk, lack of support from supervisors, administrators and colleagues nurses, inappropriate work schedule and heavy workload were mostly reported as **workplace EBF policy gaps**.

*R2: "...Sometime at the emergency, I am supposed to close at 12 pm when I come on morning shift, but because of the work schedule you have to close around 2 pm, but by the time you reach home it is 3 pm."*

## Results cited

- **Care taker and breast milk expression issues:**

Most respondents were afraid that expressed milk could be contaminated or poorly handled by caretakers at home and at crèche.

Access to a trustworthy caretaker was a major challenge for all respondents. A few resorted to the services of professional caretakers while the majority close family support.

*R3: “I remember the care taker who was with me decided to leave just one morning, she woke up and told me she wanted to leave; and then it was difficult for me, where do I leave the baby ...”*

- **Physical and psychological problems:**

Excessive tiredness and apprehension concerning workload induced early weaning after resuming work.

## Results Cted

### Theme 3: Improving EBF at workplace

#### **At the organizational level**

- **Sensitize employers on the effects of non EBF on work performance**

*R12: “It [non EBF] will affect performance because when you are working you would be thinking... When you are supposed to give medications 500mgs you can give 600 or lesser than that.”*

- **Establish quality day-care services**

*R7: “if every institution has a crèche with well trained people or personal that can take care of babies, I think that would go a long way to encourage mother to continue EBF.”*

- **Encourage institutional support**

Institutional support was described as providing breastfeeding rooms, as well as the authorities engaging mothers to find suitable arrangements to facilitate EBF at workplace.

*R5: “May be the institution should form breastfeeding mother friendly club to have the material to educate and encourage us...”*

## Results Cited

### **At the local community level**

#### **Health education on EBF**

*R9: "... the first thing is to make them [community members] understand the importance of EBF before they can give out their support (...) By giving them health education, radio program too can help sometimes."*

#### **Promote social support**

One respondent advocated for reinforcement of traditional family support:

*R5: ...The extended family, in this era of mother and father working, could encourage may be a brother who is not working to come around and help for that time period. (p.8)*

### **At the national level**

#### **Maternity leave**

For most respondents maternity leave should be extended to six months:

*R10: "I think maternity leave, the duration should be addressed ...If they could extend the maternity leave to six months so that every mother could be able to practice EBF very well;"*

#### **Workplace EBF policy**

All respondents believed that every health facility should develop and implement organizational EBF policies adapted to nurse mothers needs.

# Conclusion

- EBF is seen as the gold standard in infant nutrition. This study highlighted a number of barriers that prevented working nurses from achieving EBF. Recommendations for improvement of EBF in the workplace are addressed, which can contribute to interventions to increase EBF rates at six months.

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# A FOCUSED ETHNOGRAPHIC STUDY OF INFANT AND YOUNG CHILD FEEDING AND THEIR CONTEXT IN RURAL GHANA



[www.gainhealth.org](http://www.gainhealth.org)

**Margaret Armar-Klemesu**  
**Sawudatu Zakariah-Akoto**  
**Sarah Osei-Menya**



Neil Palmer (CIAT)



INVESTING IN PARTNERSHIPS TO STOP MALNUTRITION

## Objective

Identify opportunities to improve the dietary intake of children 6-23 months in rural farming communities

## Focused Ethnography Study (FES) Tool

A mixed method approach to study feeding patterns and practices among children 6 – 23 months

## Research questions

- a. What are infants and young children 6–23 months fed and how are these foods prepared?
- b. What are the inputs and how are they sourced?
- c. Why have caregivers chosen those foods
- d. What food and feeding related challenges do mothers of children 6-23 months face?
- e. Who and what influences caregivers feeding decisions?

# Research Methods

## Questionnaire

- To establish socio-demographic profile of respondent and of sample

## Qualitative dietary and consumption recall

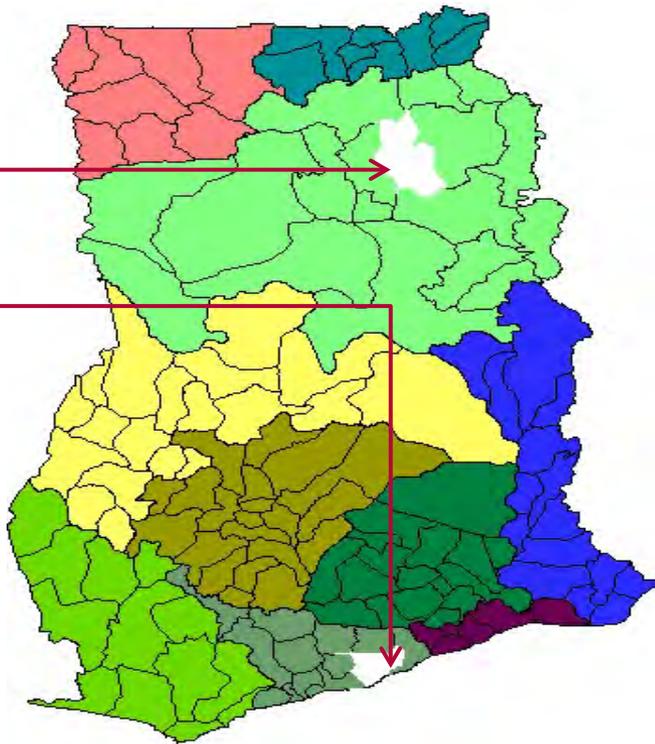
- Establishes the feeding and dietary practices and patterns among IYC using:
  - 24 –hour recall of IYC diet
  - 7-day recall of household consumption

## Ethnographic methods

- Open-ended questions with guided discussions
- Free-listing
- Cognitive mapping (and rating)

# Study Sites

1. Karaga (Northern Region)
2. Gomoa East (Central Region)



## Sampled Groups

80 caregivers from 4 age categories:

6 – 8 months

9 – 11 months

12 – 23 months (Breast fed)

12 – 23 months (Not breast fed)

# Caregiver Demographic Characteristics

Characteristics	Karaga%	Gomoa East%
No education	97	<10
Married	97	66
Household size of 6 – 10	70	50
<b><u>Main occupation</u></b>		
Farming	75	28
Trading/self-employment	13	53
Housewife/unemployed	13	13
<b><u>Income Sources (household)</u></b>		
Agriculture	81	72
Trading	53	78
Casual labour	43	22
Remittances	25	37

# 24 hour recall of foods consumed by IYC - KARAGA



[www.gainhealth.org](http://www.gainhealth.org)

Core Foods	Ingredients	% IYC consuming (n = 32)
<b>Koko</b>	Millet and/or maize porridge with sugar; dough/flour is usually fermented; older IYC may have guinea corn included	91
<b>Tuo zaafi (TZ)</b>	maize flour cooked as stiff porridge	75
<b>Ayoyo soup</b>	<i>Ayoyo</i> (GLV), onions, pepper, dried fish powder, bouillon cube	35
<b>Bra soup</b>	<i>Bra</i> (GLV), onions, pepper, groundnuts, dried fish powder, bouillon cube	31
<b>Rice</b>	Boiled	31
<b>Beans</b>	Cowpeas	25
<b>Tomato stew</b>	Oil, onions, tomato paste , pepper, dried fish powder, bouillon cube	31
<b>Tea</b>	teabag with sugar and milk	31

# 24 hour recall of foods consumed by IYC – GOMOA EAST



[www.gainhealth.org](http://www.gainhealth.org)

Core Foods	Ingredients	% IYC consuming (n= 32)
<b>Koko</b>	Fermented millet or maize flour porridge with sugar and milk (especially for younger age groups)	75
<b>Banku</b>	Fermented maize dough dumpling	44
<b>Rice</b>	Boiled	41
<b>Tomato stew</b>	onions, tomatoes , oil, peppers with fish/eggs	41
<b>Kontomire stew</b>	Kontomire (GLV) + onions, pepper, tomatoes/tomato paste, palm oil, fish, ground melon seeds (sometimes)	31
<b>Okro stew/soup</b>	Okra + onion + pepper, tomatoes, palm oil, fish	31
<b>fufu</b>	Cassava + plantain	22
<b>Palm nut soup</b>	Palm fruit (juice extract), onions, pepper, tomatoes, fish	25
<b>Gari soakings</b>	Dry-fried fermented cassava flour, sugar, milk	19
<b>Cocoa drink</b>	milk, cocoa, sugar	16

# Key features of food preparation and storage

## Foods specially prepared for IYC

- Porridges, Rice + tomato stew (+ kontomire stew in GE)
- Soft TZ + ayoyo soup (Karaga); soft banku + okro stew (GE)
- Fish powder (and eggs in Gomoa east)

## Modifications made to family foods

- Less spicy
- Cooked soft
- Mashed

## Additions to IYC foods

- Sugar to tea, porridges and gari soakings; for taste
- Milk to tea (Karaga) and to porridges and gari soakings (Gomoa East);
- Palm oil to ayoyo soup and boiled beans (Karaga); to make food look attractive

## Bulk cooking and storage

- Porridge stored in ordinary containers for up to 10 hours
- IYC special stew stored for up to 3 days, preserved by daily reheating

# Sourcing Core Food Ingredients

[www.gainhealth.org](http://www.gainhealth.org)

Karaga		
Core Food Ingredient	Source	
	Harvested	Purchased
Maize	X	X
Millet	X	X
Rice	X	X
Beans	X	X
Groundnut/groundnut paste	X	X
Ayoyo	X	X
Bra	X	X
Fish		X
Tin tomato puree		X
Sugar		X
Milk		X
Tea		X
Oil		X

Gomoa East		
Core Food Ingredient	Source	
	Harvested	Purchased
Maize	X	X
Cassava	X	X
Plantain	X	X
Rice	x	X
Kontomire	X	X
Palm fruit	X	X
Melon seeds		X
Gari		X
Palm oil		X
Herrings/mackerel		X
Tin tomato puree		X
Milk		X
Sugar		X
Oil		X

## Influencers of IYC feeding decisions

[www.gainhealth.org](http://www.gainhealth.org)

### Karaga

What influences	Mean rating	Ranking
Healthiness	4.1	1st
Cost	4.0	2nd
Easy to acquire	3.2	3rd
IYC acceptance	3.0	4th
Easy to feed	2.4	5th
Easy to prepare	1.8	6th
<b>Who influences</b>		
Health workers*	3.9	1st
Mothers	2.8	2nd
Husbands	2.5	3rd

\*75% of caregivers said health workers are the most credible source of nutrition information

### Gomoa East

Dimension	Mean rating	Ranking
Healthiness	4.8	1st
Cost	4.2	2nd
IYC acceptance	4.1	3rd
Easy to acquire	3.5	4th
Easy to feed	3.3	5th
Easy to prepare	2.7	6th
<b>Who influences</b>		
Health workers*	4.8	1st
Mothers	3.6	2nd
Husbands	3.1	3rd

\*84% of caregivers said health workers are most credible source of nutrition information

# Challenges to IYC feeding

## 1) Seasonal food availability and access

- Increased reliance on markets (rather than own produce)
- Reduced **quantities** of food consumed per sitting
- Reduced meal **frequency**
- Reduced **variety** of ingredients per dish
- **Substitution** of less-preferred staples
- IYC buffered to some extent

## 2) Difficulties relating to financial limitations:

- Inability to provide nutritious foods for IYC (As advised from CWC)
- Inability to feed foods IYC likes or prefers and easily accepts

## 3) Difficulties relating to IYC rejection/refusal of foods:

- IYC does not like solid foods and other family foods
- IYC is choosy and prefers certain foods
- Lack of appetite due to sickness

# Cultural aspects of IYCF

Local customs probably delaying timely transition to more nutritious family foods

- provision of “heavy” or “solid” foods is delayed until after child can walk – lest it actually “prevent” child from walking (especially in Karaga)
- Child’s stomach not well developed for solid food

There is consensus around the desirable/undesirable properties of IYC foods:

- Healthy foods “build” or “make” blood and make children grow
- Unhealthy foods cause diarrhea and stomach upset
- Caregivers generally not aware of the term “vitamins” but have some knowledge of functions

Caregivers are strongly committed to providing their IYC with the best foods they could afford.

- Engage in short-term activities to earn money (gathering firewood, collecting shea nuts, engaging in casual labor etc.)
- Assistance from extended family, neighbours, vendors from whom caregivers credit IYC preferred foods

# Implications of FES findings for Nutrition intervention planning

## Intervention

## Potential [www.gainhealth.org](http://www.gainhealth.org)

**Alleviating production and income constraints to improve acquisition IYC appropriate/preferred foods**

Requires multi-sectoral approach

**Feasibility of FBRs to improve IYC dietary adequacy**

- Can local feeding patterns and practices enable feasibility of FBRs
- Affordable fortified options (MNPs, milk, beverages, KOKO Plus?)

**Contextualization of National C-IYCF materials to enable implementation**

- Some practices/beliefs/customs run counter to some recommendations
- Need for targeted BCC for specific recommendations

Any food can be given to children after 6 months as long as it is mashed/chopped. Children do not need teeth to consume eggs, meat, and GLV

- Powdered fish is currently the most likely additive and probably deserves explicit mention
- Local custom/belief also prevents offering “heavy” foods before child walks (Karaga)



[www.gainhealth.org](http://www.gainhealth.org)

*This study was conducted by **GAIN** and the **Noguchi Memorial Institute for Medical Research**, University of Ghana. It was made possible through support provided by the Bureau for Global Health and the Bureau for Food Security, U.S. Agency for International Development, under the terms of Grant No. GHA-G-00-06-00002, as amended, to the Global Alliance for Improved Nutrition (GAIN). The contents are the responsibility of GAIN and do not necessarily reflect the views of USAID or the United States Government.*





# **Medical Transport for Women and Children in Rural Settings: Modified Motor-Tricycle as a Promising Option**

---

By Mohammed Ali, MPH

CRS Ghana Program

GIMPA

**faith. action. results.**

- Introduction
- The Problem
- Objective and Methods
- Results
- Conclusion



# Introduction

- *Funded by:* USAID
- *Goal:* To contribute to reduction in maternal/child morbidity/mortality
- *Geographic area:* East Mamprusi district
- *Target:* 51,000 direct beneficiaries



# Defining Target Area

- 1** Inability to recognize the problem and promptly seek care
- 2** Inability to reach the point of care (of 50% of community lives outside 8 km radius of formal facility)
- 3** Delay in receiving appropriate and quality care

MNCH/N Indicators EM, NR and National- 2010/11			
	East Mamprusi	Northern Region	Ghana
Antenatal visits (1 <sup>st</sup> trimester)	30	49	55
Antenatal visits(4 <sup>+</sup> )	46	58	78
Supervised deliveries	43	38	46
IPT <sup>2+</sup>	51	33	44
ITN use		36	45
Institutional MMR	275	95	68
Under 5 Mortality Rate	138	137	80

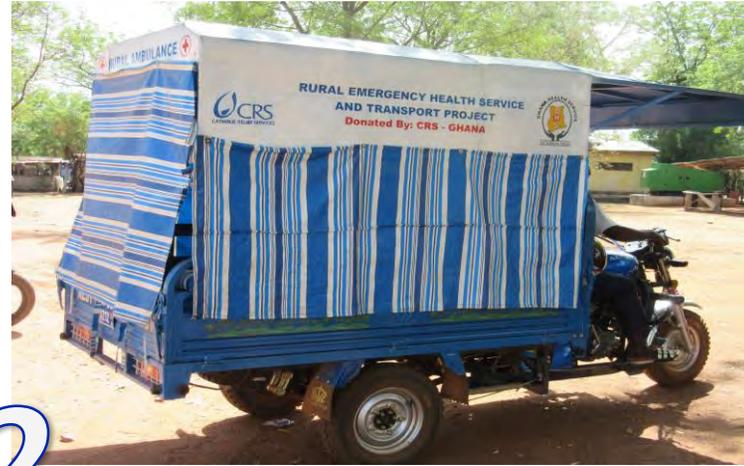
# EPPICS Key Strategies

## Pregnancy surveillance



1

## Use of Modified Motor-tricycles



2

## Council of Champions



3

## Quality Assurance Training



4

# Objective and Methods for MMTs



Map-out community baseline data



Mobilize and sensitize on MMTs



Form, Train and Deploy MMTs

Improved access to skilled professional at health facilities



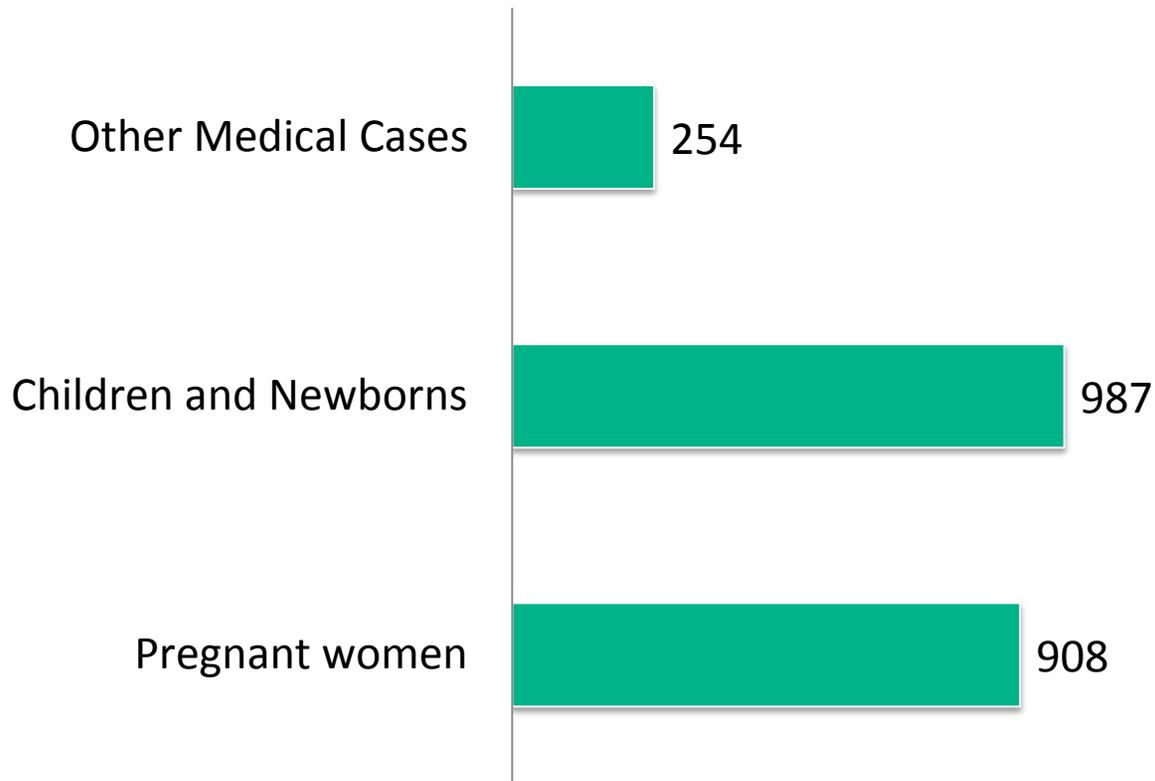
Monitoring/ supervision and feedback sessions



Provide and Train MMT Drivers

# Usage Statistics for 19 months (July 2013-February 2015)

## Modified Motor-Tricycle Clients



# Cost Analysis

## COSTS

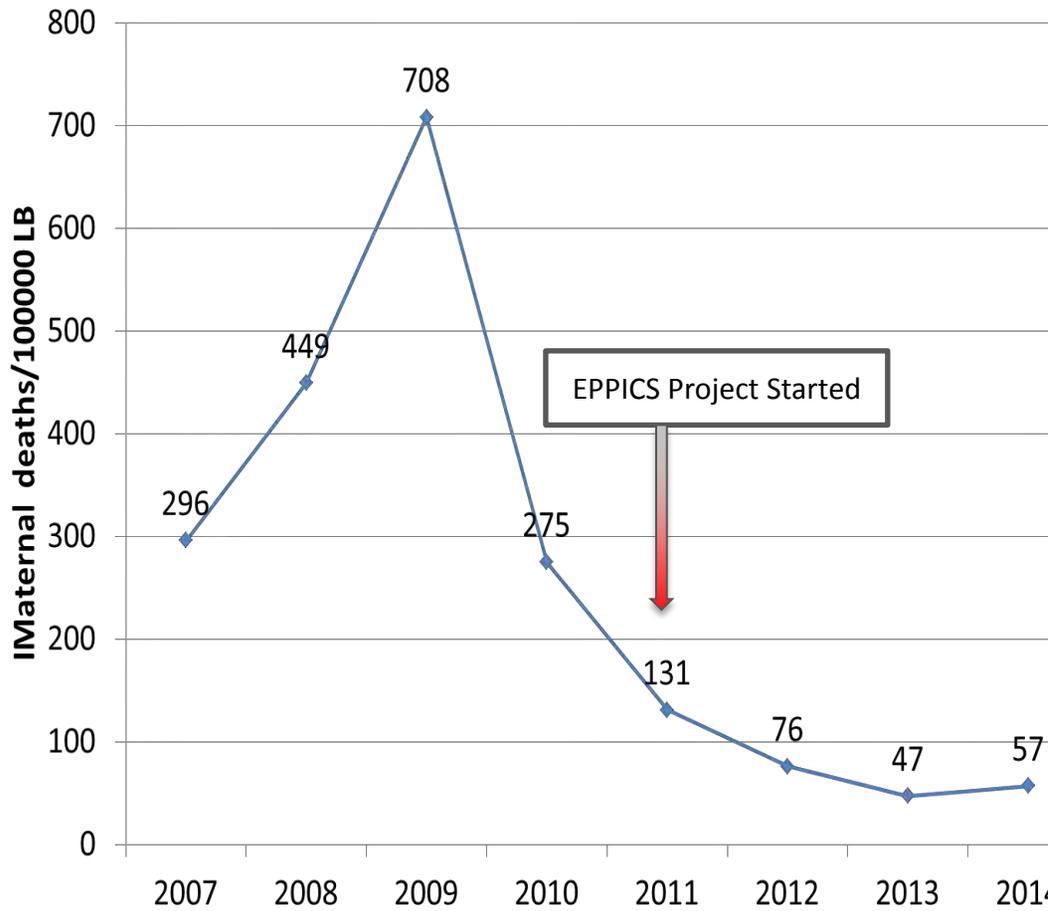
Initial Investment per MMT (Cost of motorcycle, fabrication and fitting of carriage, training of management committee)	\$2,250
Average fuel and maintenance cost over reported period (\$35 per month over 19 months)	\$665

## REVENUE

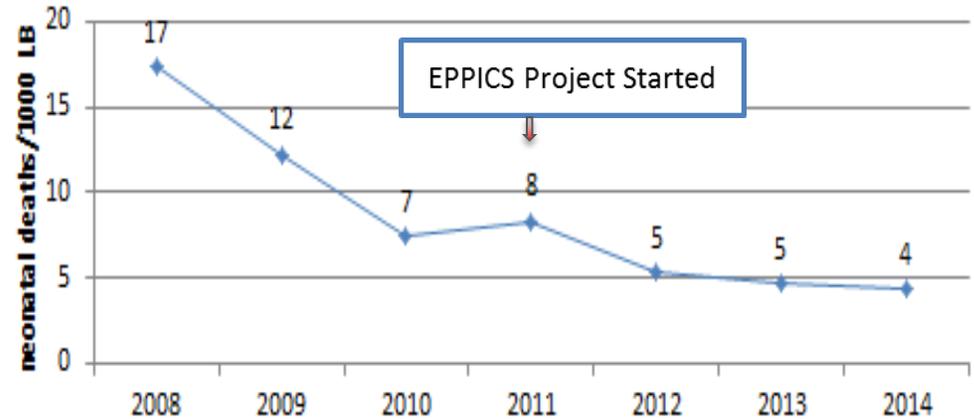
Average user fee paid for fuel, maintenance and motivation fee (for health facility staff, motorcycle driver, and link provider) per "transportation event"	\$5 ± 0.5
Average number of "transportation events" per MMT over 19 months	107
Average fees collected per MMT	\$2,682.25

# Positive Progress in institutional mortality rates among mothers, neonates and infants

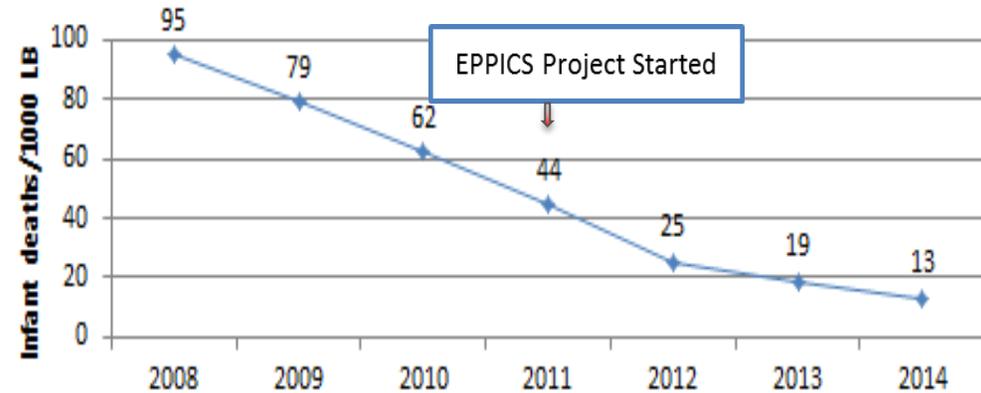
MATERNAL MORTALITY RATE COMPARED 2007 TO 2014 - DISTRICT



NEONATAL DEATHS COMPARED 2008 TO 2014 - DISTRICT



INFANT MORTALITY RATE COMPARED 2008 TO 2014 - DISTRICT



# Conclusions



- MMTs helped achieved the objective of addressing the second delay-inability to reach the point of care on timely basis
- The use of MMTs for medical care enjoys high patronage in targeted communities and seems to ease transportation challenges to address medical emergencies
- MMTs are financially sustainable: EPPICS experience demonstrates that users are able to manage ongoing operational costs to maintain good physical access to rural health facilities

# Acknowledgments

- USAID
- Project Implementation Partners: Ghana Health Service and University for Development Studies
- Chiefs and people of East Mamprusi District, Ghana
- The Catholic Diocese of Navrongo Bolgatanga, Ghana
- EPPICS Field Officers

For more information contact: Mohammed Ali, Health Program Manager, email: [mohammed.ali@crs.org](mailto:mohammed.ali@crs.org) mobile 0206475002

# AN ASSESSMENT OF THE IMPLEMENTATION OF PREVENTION OF MOTHER-TO-CHILD TRANSMISSION (PMTCT) OF HIV IN THE VOLTA REGION

***PRESENTATION BY:  
MR. ADAMS AGBEKO***



# PRESENTATION OUTLINE

- **Introduction**
- **Specific Objectives**
- **Methodology**
- **Results**
- **Conclusion**
- **Acknowledgements**



# INTRODUCTION

- The policy in Ghana, is for all ANC attendants to be counseled and tested for HIV unless they opt out
- The number of pregnant women counseled and tested for HIV in Ghana increased from 39% in 2009 to 70% in 2012 while access to ARV for eligible patients increased from 30.5% to 70% for the same period
- However, the Ghana PMTCT fact sheet indicates that only 27% of HIV exposed infants were put on ARV prophylaxis in 2009
- No study has however been carried out in the Volta Region to assess the success or otherwise of the implementation of the PMTCT of HIV programme.
- The study therefore set out to carry out this assessment to provide information for improvement of the programme



# SPECIFIC OBJECTIVES

- To find out the proportion of ANC registrants screened for HIV in 2012 and 2013 in the region
- To determine the proportion of ANC registrants who tested positive in 2012 and 2013
- To assess the proportion of ANC registrants who tested positive with HIV and were put on ARV treatment
- Determine the proportion of ANC registrants who tested positive with HIV and had their children screened at 6-8 weeks after delivery using DNA-PCR
- To determine the proportion of ANC registrants who tested positive and had their children screened at 18months
- To assess the proportion of HIV exposed infants who tested positive with HIV
- To determine the proportion of exposed infants given ARV prophylaxis



# METHODS - THE STUDY AREA

- The study was carried out in the Volta Region of Ghana
- The region had an estimated mid-year population of 2,281,126 in 2013
- It is comprised of 25 administrative districts
- Health service is delivered from a total of 358 Public sector HFs, 18 mission facilities, 45 private HFs, 1 NGO facility, and 1 quasi-government HF
- PMTCT services are delivered from 135 of these HFs - 106 are govt, 18 mission, 10 private & 1 quasi-govt.
- There are 19 ART sites & DNA/PCR is available only at the Reg. Hospital



# METHODS - THE STUDY DESIGN

- The study was ecological and descriptive in design
- Study utilized all available routine health services data in DHIMS2 on pregnant women who were reported as having received PMTCT services in the region during the study periods
- Aggregated data on PMTCT services in the region was extracted from DHIMS2, sorted and entered into Microsoft excel.
- Data was verified for gaps & measures taken to correct these gaps from the primary sources of the data.
- Pivot tables & the data visualizer within the DHIMS2 software version 2.16 were used to analyze data



# STUDY LIMITATIONS

- The study utilized routine health service data which represents those who chose to utilize the available health services and therefore findings are generalizable to this population and may not be generalizable for the rest of the population.
- The analysis was restricted to only available variables subject to the study from DHIMS2 and so does not completely explain the reasons behind the observed outcomes

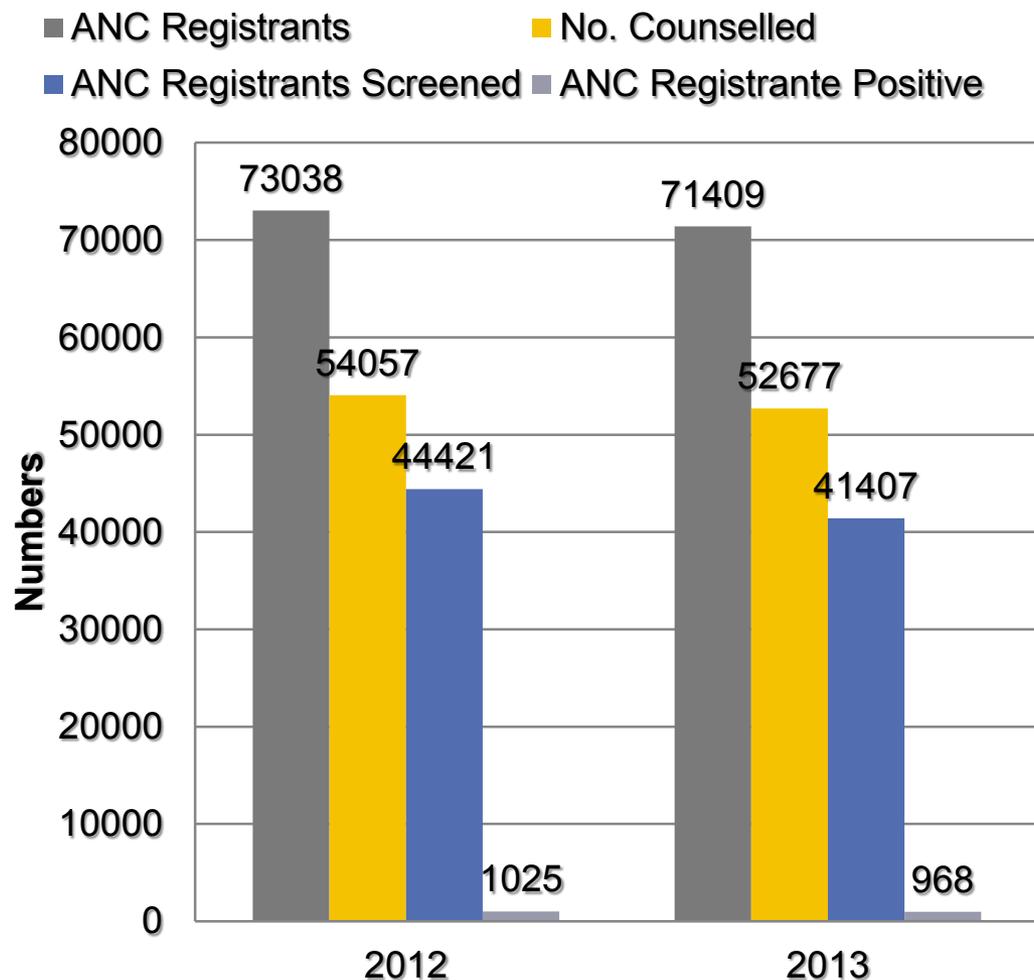


# RESULTS – BACKGROUND INFORMATION

Indicators	2012	2013
Population	2225489	2281126
WIFA	534117	570282
Expected Deliveries	89020	91245
% Skilled Delivery	60	58
% Still Births	1.9	1.8
% TBA Delivery	20	18
% PNC Coverage	62	69
No. Sites	134	135
Site Reporting	102	122
% PMTCT Site Reporting	76.1	90.4



## ANC coverage , by number screened and test result 2012 & 2013

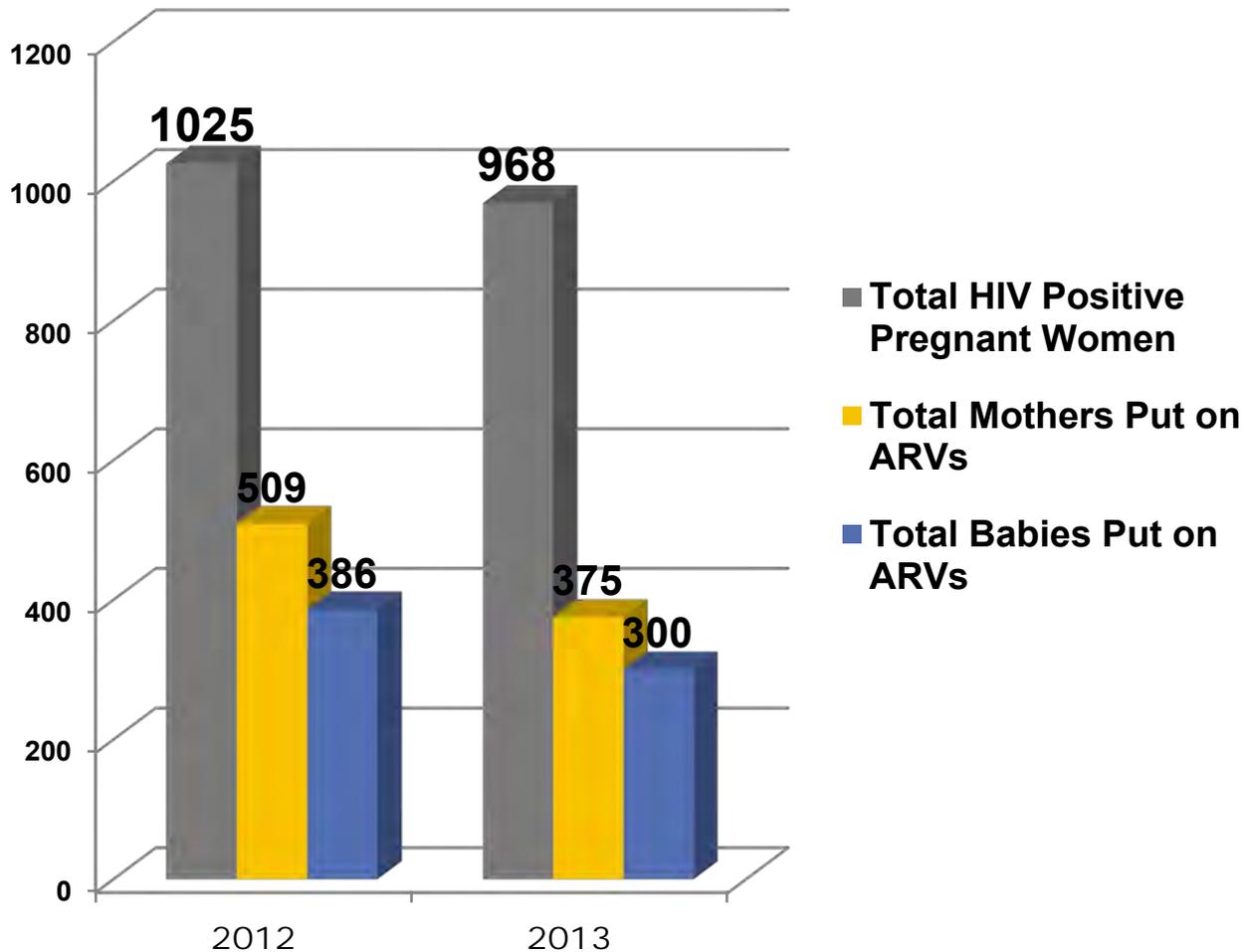


- ANC coverage for 2012 and 2013 were 81.8% & 78.3% respectively
- Proportion of registrants counselled in 2012 and 2013 were 74% and 73.8% respectively
- 60.8% in (2012) and 58% in (2013) of ANC registrants were screened for HIV at all the PMTCT delivery sites
- About 1.4% of the pregnant women were found to have tested positive out of those screened in 2012 and 2013 respectively .



# ARV TREATMENT & PROPHYLAXIS

## Mothers /Babies on ARVs

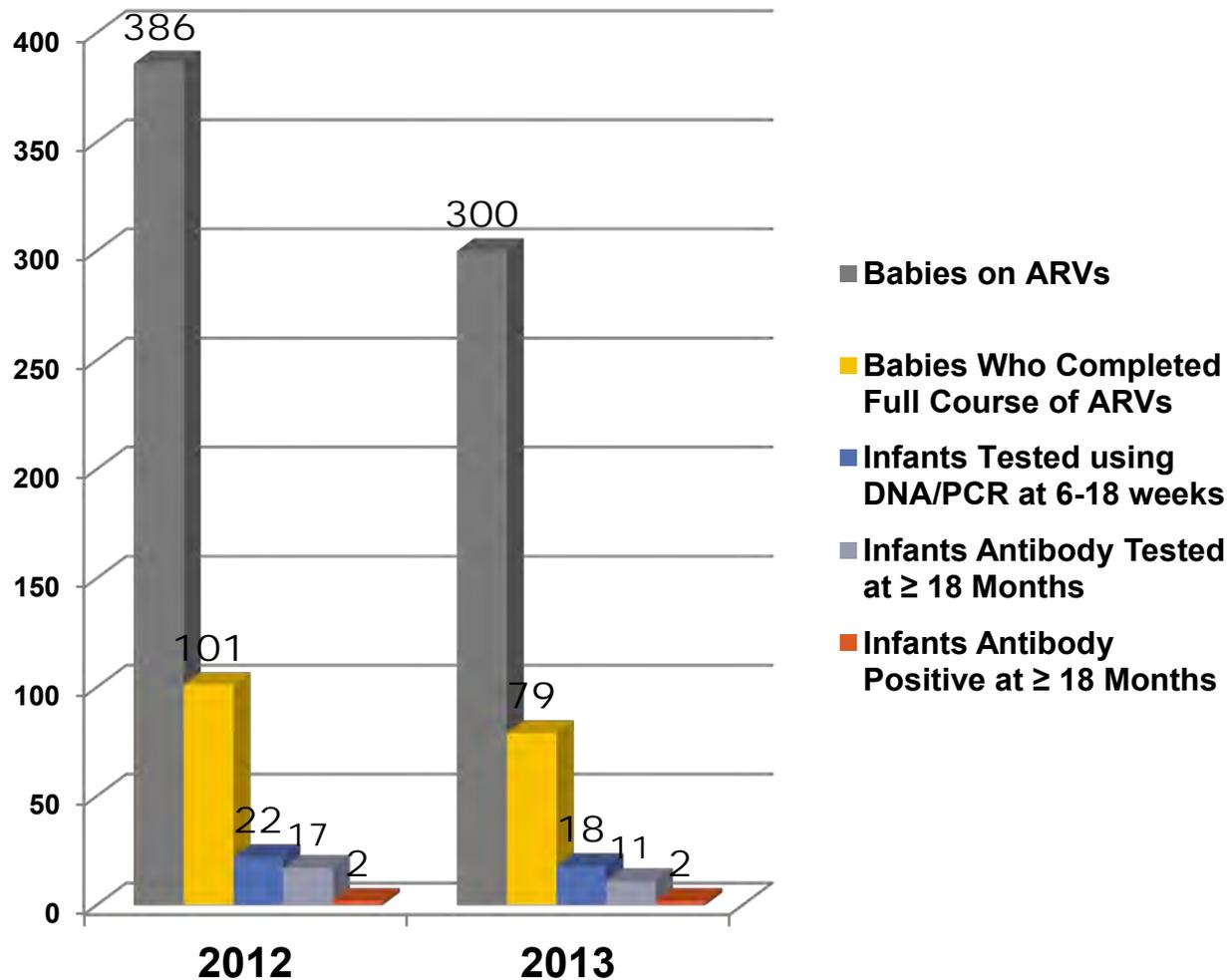


- With regards to ARV treatment & prophylaxis; out of the 1025 mothers who tested positive in 2012 only 49.6% (509) were put on ARVs
- In 2013, out of 968 mothers who tested HIV positive only 38.8% (375) were put on ARV prophylaxis.
- Babies on ARVs were 386 and 300 in 2012 and 2013 respectively



# FOLLOW-UP TESTING FOR EXPOSED INFANTS

Using DNA / PCR and Antibody Test



- And of the 386 infants put on ARVs in 2012, only 26.2% completed the full course of ARVs.
- 2013 saw 300 infants being put on ARVs and about 26.3% completed the full course.
- In 2013, only 6% of exposed infants were tested b/n 6-18 weeks by DNA/PCR whilst 3.7% had antibody test after 18mths.
- Also in 2012, only 5.7% of the exposed infants were tested by DNA/PCR whilst 4.4% had an antibody test after 18mths
- 2 chn were found to be antibody positive after 18mths in 2012 and 2013 respectively



# CONCLUSIONS

- The study provided a good picture of the state of the continuum of care cascade with regards to PMTCT services implementation in the region for the periods under study
- Study results will provide some basis for further planning and evidence-based decision making to improve PMTCT implementation in the region
- Further operational research is needed to generate an association between the outcomes variables and the causal factors.



# ACKNOWLEDGEMENT

- **RCS4FIVE Volta Team Mates**
- **RDD of GHS** for Technical Support
- **PPME of GHS** for Technical Support
- **WHO / TDR** for funding support for the RCS4FIVE Capacity Building Programme
- **Volta Regional Health Directorate**



THANK YOU



# Ghana EMBRACE Implementation Research



Ghana EMBRACE Implementation Research Team

# Maternal, Neonatal and Child Health Background in the World

- Globally 289,000 women died due to complications of pregnancy and child birth in 2013
  - 99% of maternal deaths occurred in MLIC countries
- 6.6 million children U5 died worldwide in 2012
  - **80%** of these occurred **within 48h postpartum**
- 2/3 of countries are unlikely to achieve their MDG4 targets (reduce child mortality)
- AARD\* for MDG5 (improve maternal health) is far below the needed (5.5%)

\*AARD: average annual rate of decline



(WHO data in 2013)

# The Ghana EMBRACE Implementation Research

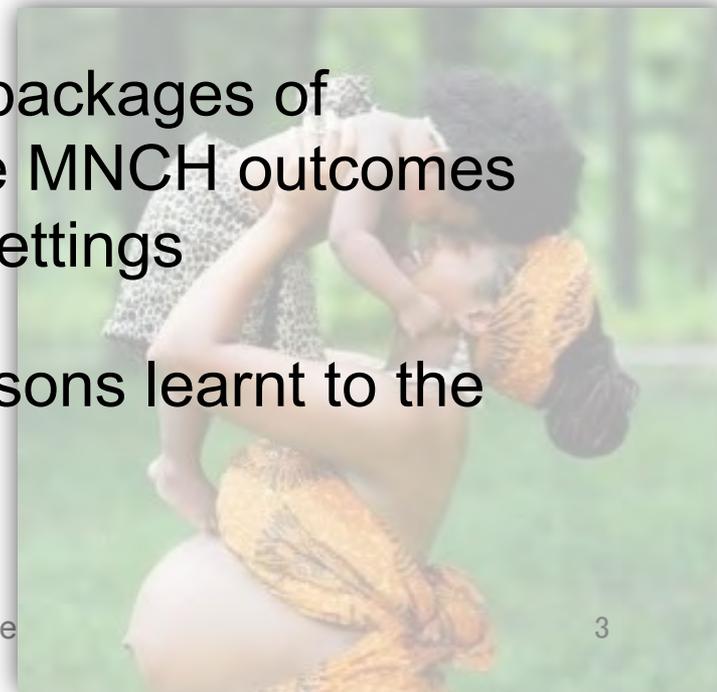


**E**nsure **M**others and **B**abies **R**egular **A**ccess to **C**are

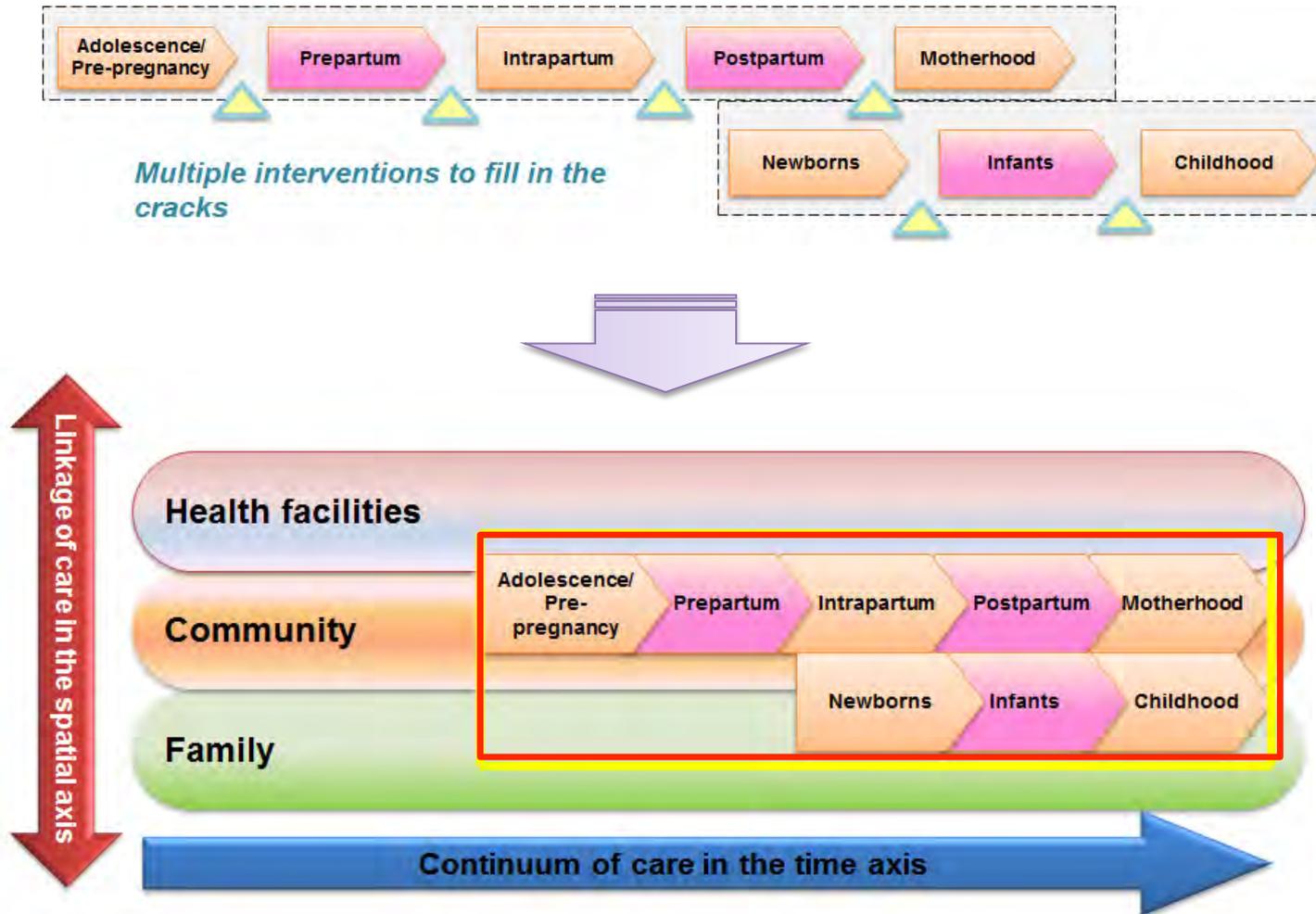
In 2012, the Japanese Govt in conjunction with Ghana Govt. launched the Ghana EMBRACE Implementation Research

## Aims

- To create feasible and sustainable packages of interventions with an aim to improve MNCH outcomes and to test such packages in rural settings
- To disseminate the findings and lessons learnt to the wider global health community



# EMBRACE Research Framework



# Continuum of Care (CoC) in MNCH



- Often explained by the time and space dimensions
- Up to 67% of newborn deaths could be prevented by improving CoC
  - Minimum of 4 ANC visits
  - Delivery assisted by Skilled birth attendants
  - PNC within 48h, at 7days, at 6weeks

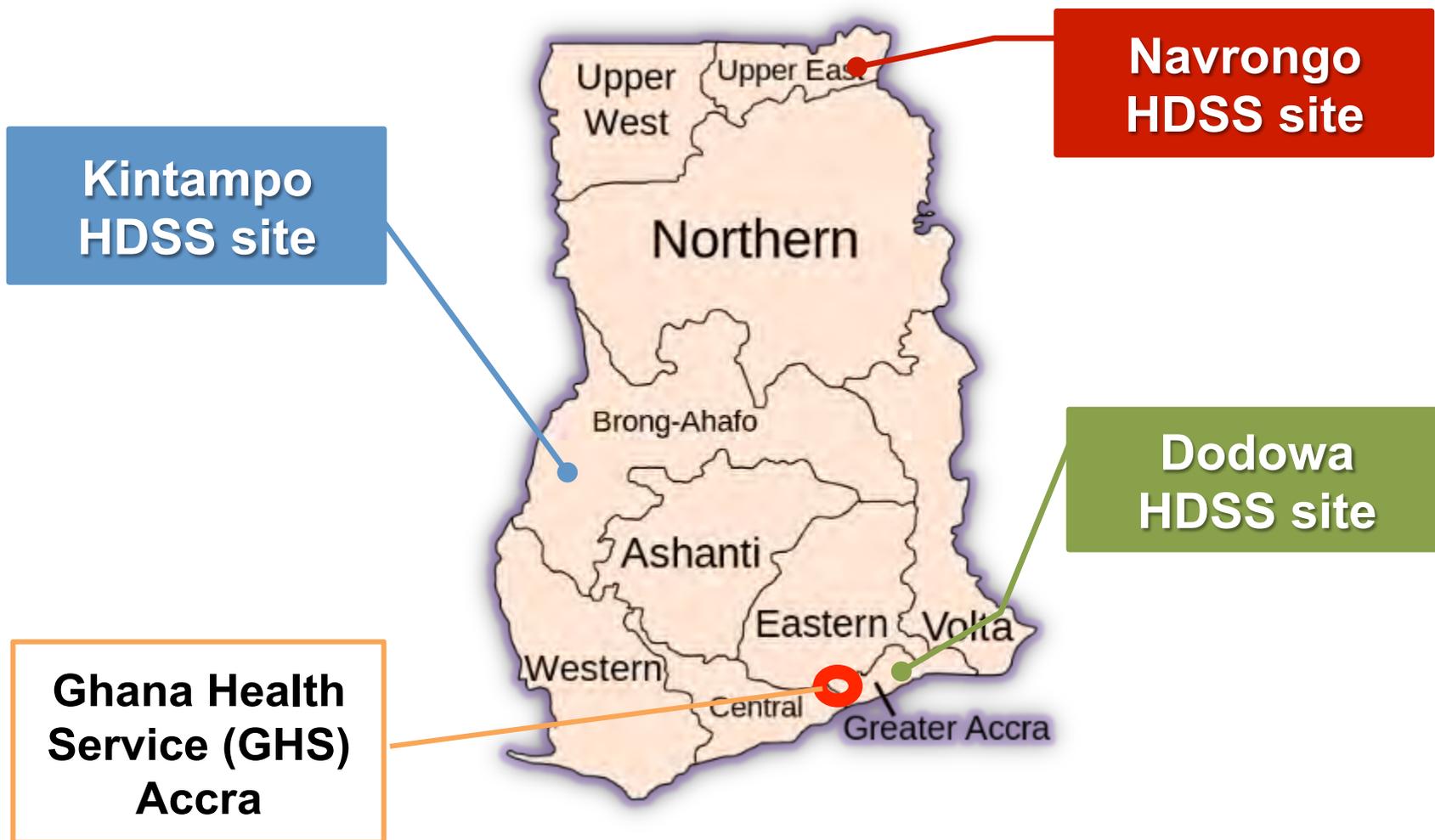


(Haggerty 2003, Kerber 2007, Darmstadt 2005)



# Study Sites in Ghana

(Health and demographic surveillance system: HDSS)



# Summary of Research Design

## **Formative Research - Situation Analysis of CoC in MNCH**

- Retrospective Survey (Quantitative)
- Qualitative Studies

Development of Intervention Package based on results of formative study

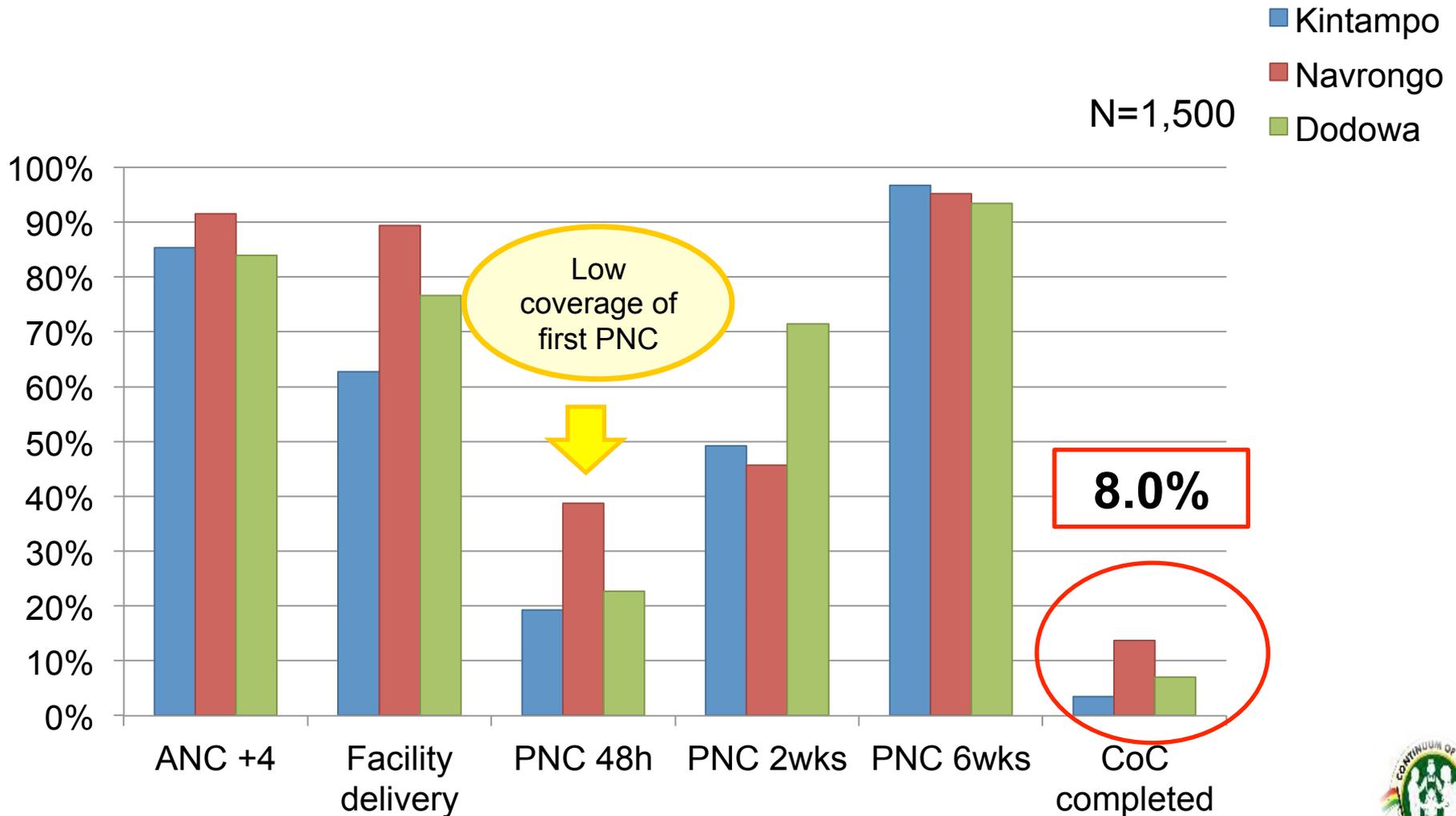
## **Main Implementation Research**

- Baseline survey prior to intervention
- Cluster Randomized Trial of Intervention package

## **Impact Evaluation through:**

Follow-up survey after implementation period

# Results of Situational analysis -Coverage of CoC related service indicators



# Findings from CoC Situation Analysis



Retrospective survey



Focus group discussion

## Factors negatively associated with CoC

- Low mothers' education
- Low partners' education
- Multi parity
- Non married status
- Lack of family support
- Long travel time to facility

## Barriers to CoC ANC/Facility Delivery/ PNC

- Financial difficulties
- Long distance & bad roads
- Attitudes of HWs
- Local beliefs
- Lack of preparedness
- Ignorance
- Perception of being well

## Promoters for CoC

- Easy access to facility
- Availability of professionals & equipments to manage complications
- Positive attitudes of HWs

# EMBRACE Intervention Package

## CoC orientation for HWs



## Utilization of CoC Card



## 24h retention at facility after delivery

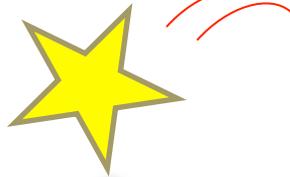


## Home visit PNC



# Continuum of Care Card

Stick me on!



**Continuum of Care Card** Health facility & ANC No: \_\_\_\_\_  
Name: \_\_\_\_\_

**CoC SERVICES**

ANC1 By 18 weeks (by 4 months)	ANC2 20-25 weeks (by 7 months)	ANC3 at 33 weeks (at 8 months)	ANC4 at 36 weeks (at 9 months)	Optimal delivery Timely delivery	PNC1 By 48 weeks (by 11 months)	PNC2 At 7 days	PNC3 at 6 weeks
Date at 18 weeks	Date at 20 weeks	Date at 33 weeks	Date at 36 weeks	Deposited pregnancy safe	Date at 2 days	Date at 7 days	Date at 6 weeks
How of service used	How of service used	How of service used	How of service used	How of service used			
Mother	Mother	Mother	Mother	Delivery	Mother	Mother	Mother
					Baby	Baby	Baby

**ESSENTIAL SERVICES**

	Blood test 1 (Hb 1)		Blood test 2 (Hb 2)
	Malaria Drug 1 (PT 1)	Malaria Drug 2 (PT 2)	Malaria Drug 3 (PT 3)
	Tetanus Toxoid Injection 1	Tetanus Toxoid Injection 2	

Blood group: \_\_\_\_\_  
Hemoglobin: \_\_\_\_\_

**HEALTH EDUCATION**

Info by District & Ashy	Transportation services	Contraception	Call card provider after delivery	Early infant stimulation (breastfeeding)	Family planning

**DANGER SIGNS** *If Yes, see the detail record*

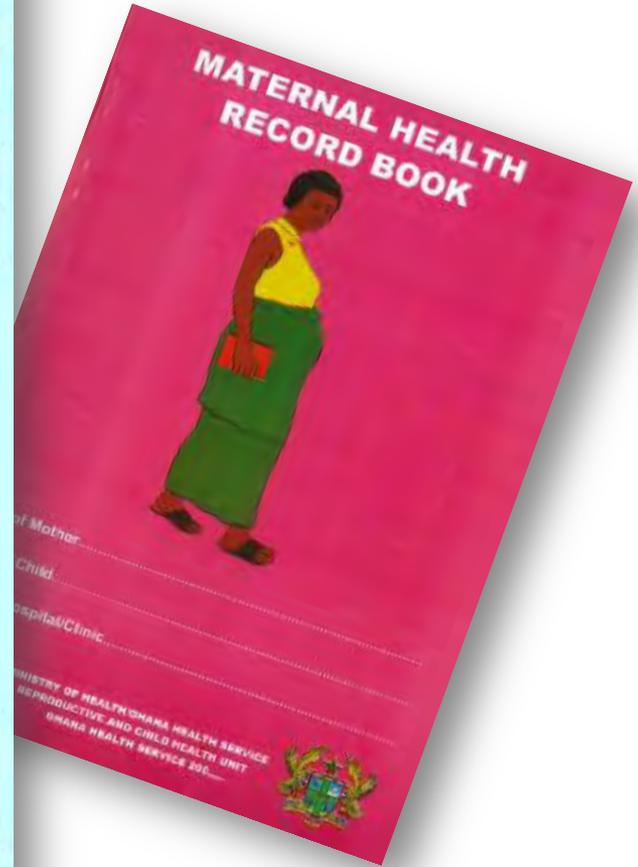
ANC1	ANC2	ANC3	ANC4	Delivery	PNC1	PNC2	PNC3
Mother							
<input type="checkbox"/> YES <input type="checkbox"/> NO							
				Baby	Baby	Baby	Baby
				<input type="checkbox"/> YES <input type="checkbox"/> NO			

Contact number of Health care provider: \_\_\_\_\_

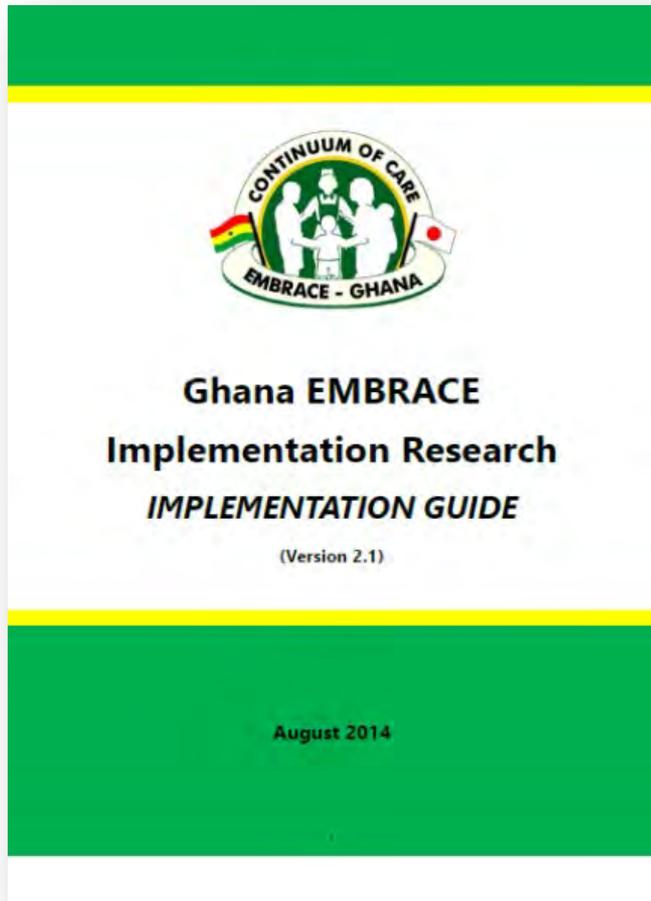
**Summary Table:**

ANC1	ANC2	ANC3	ANC4	Delivery	PNC1	PNC2	PNC3
★	★	★	★	★	★	★	★
★	★	★	★	★	★	★	★

Health facility & ANC number: \_\_\_\_\_ Name: \_\_\_\_\_



# Implementation Guide



Implementation Guide



Training slides



Training Highlights



Supervision and Monitoring



Role Play

## Outcomes

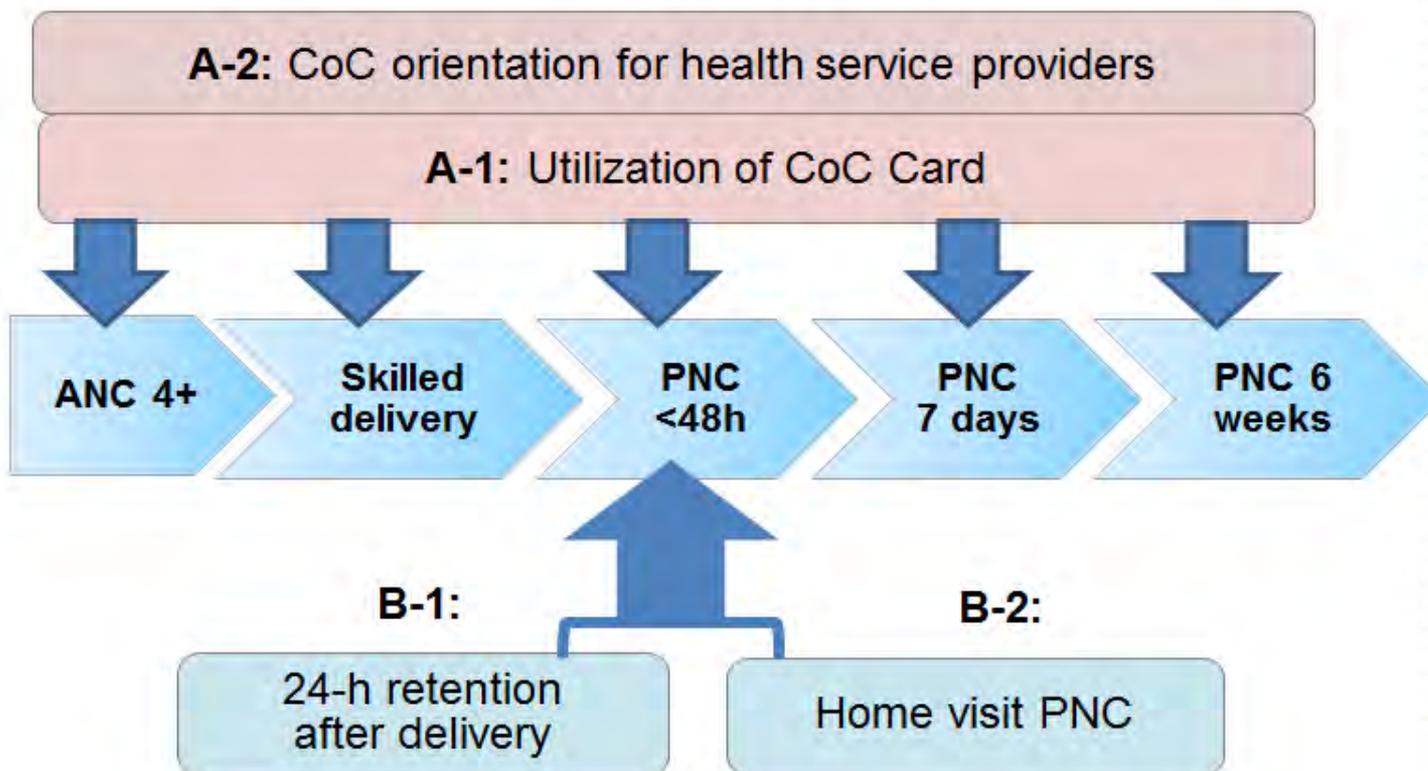
### Intervention Impact

1. CoC completion
2. PNC within 48 h
3. Complications which require  $\geq 24$ -h admission
4. PMR/NMR

### Implementation Impact

1. Intervention coverage
2. Intervention adoption
3. Intervention fidelity
4. Implementation cost
5. Sustainability

## Interventions (Oct. 2014~ Sep. 2015)



# Prep Activities-Orientation of Health Staff



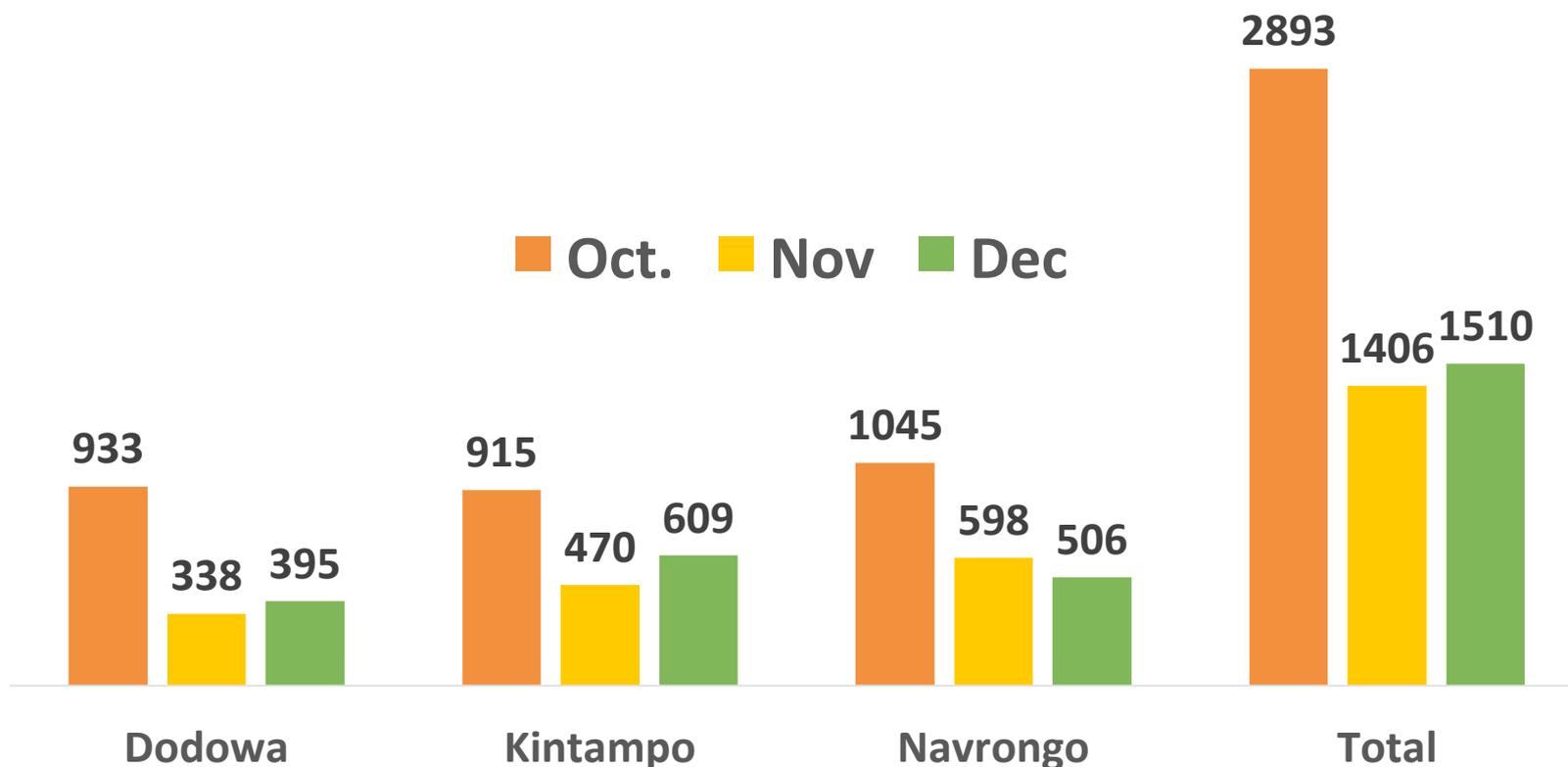
# Prep activities- Community Durbars





# Preliminary Results - Adoption of CoC cards (Oct.~Dec. 2014)

- Very high potential of adoptability
- 5,809 CoC cards were distributed

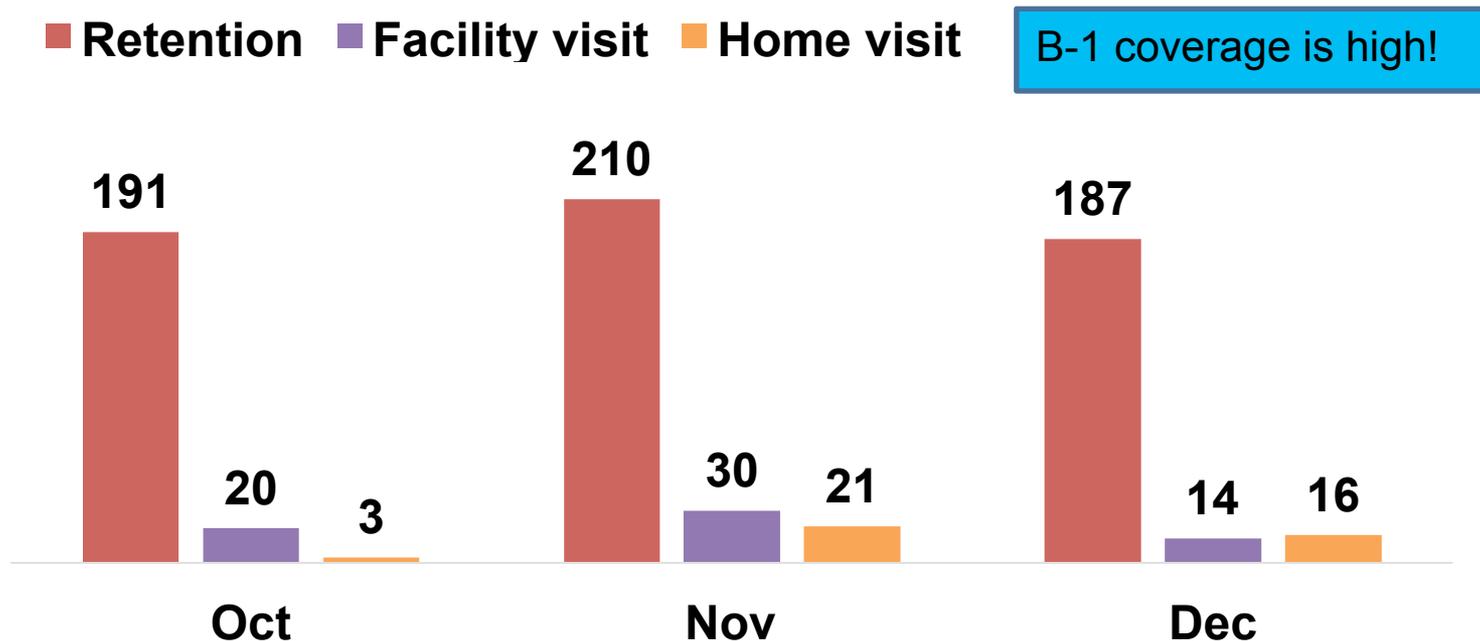




# Results- PNC within 48 hours – Navrongo

*(high facility delivery rate; CHPS birthplace)*

- Approx. 600 women stayed at health facility for 24 hrs. postpartum and all received PNC within 48 hrs.

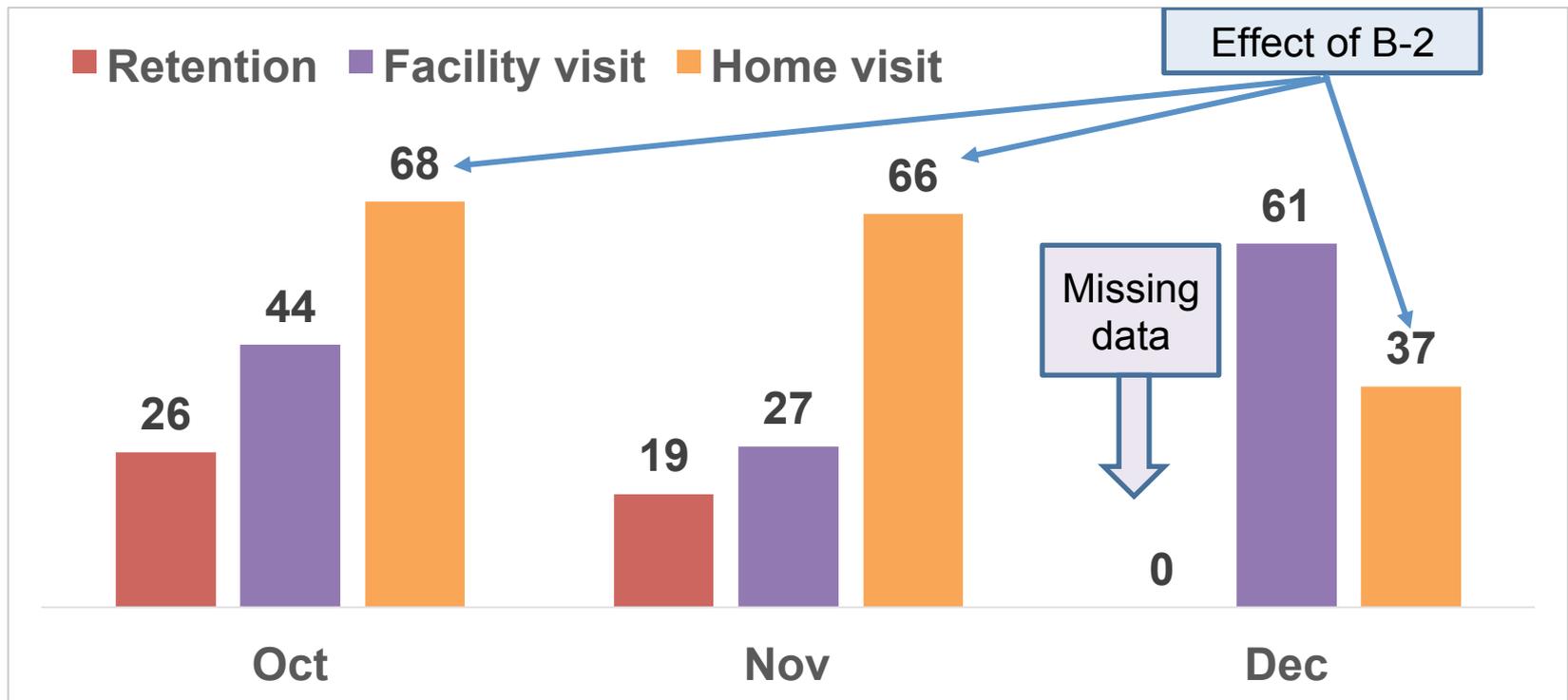




# Results-PNC within 48 hours –Kintampo

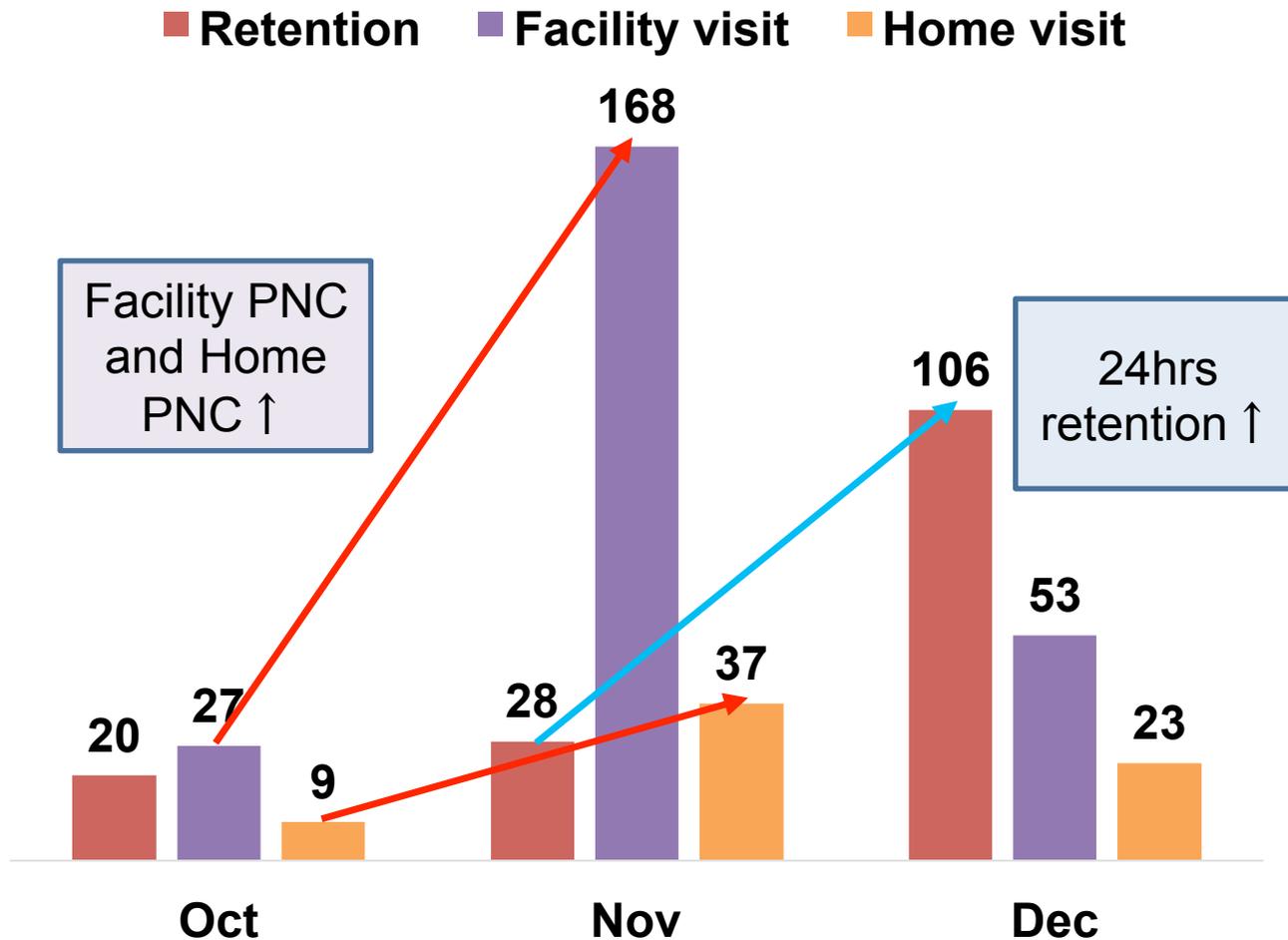
*(Low facility delivery rate; Very few midwives)*

- Home visit PNC has been favorably received, where women have custom to stay home for 6 weeks postpartum



# Results- PNC within 48 hours – Dodowa

*(Medium facility delivery rate; Most take place outside the area)*





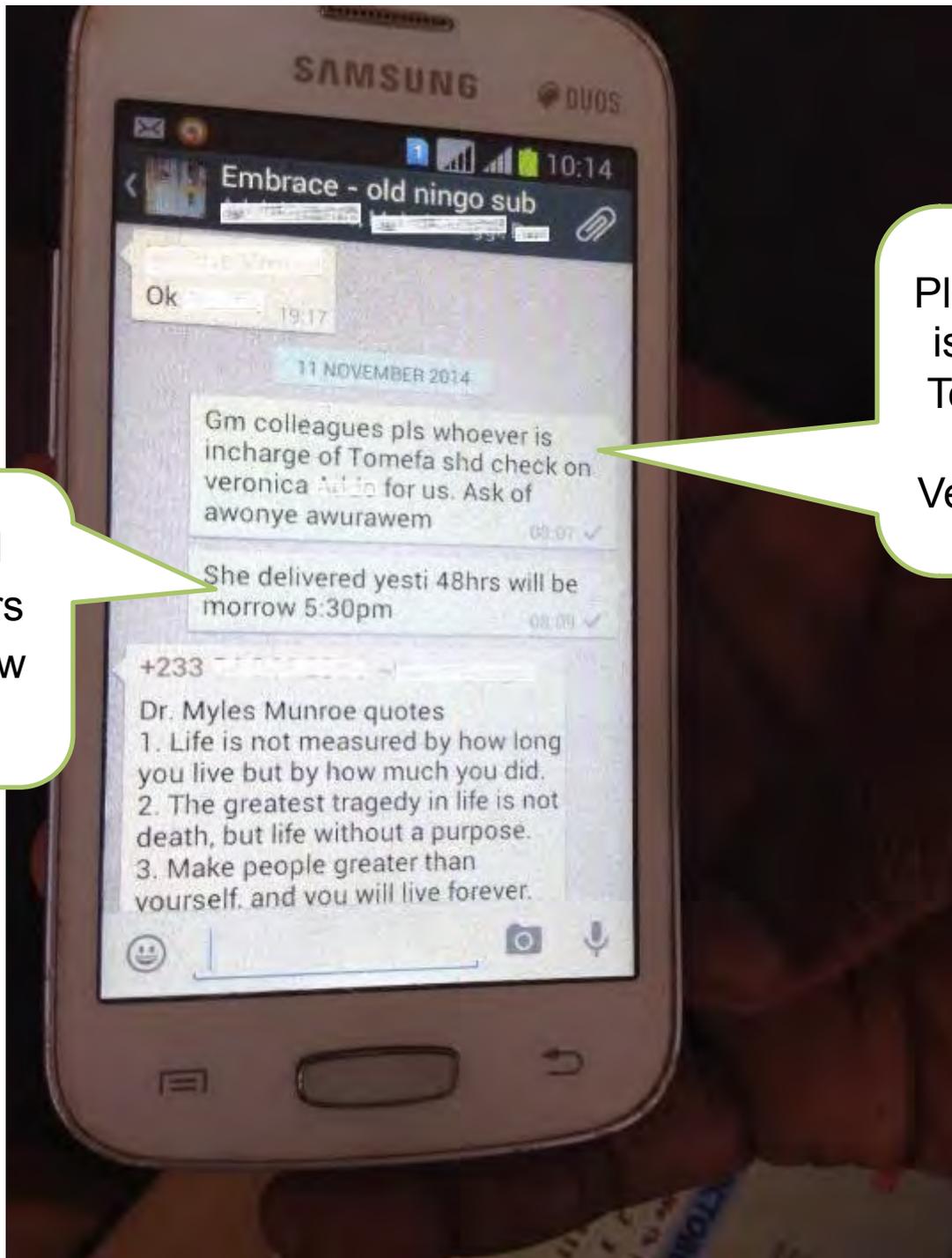
## Understanding CoC

“ When I properly follow the CoC card I can get a gold star”  
“I want to get all gold stars “



## Quality Time with each client

“Using the CoC card, we can now spend quality time on each mother.”



She delivered yesterday 48hrs will be tomorrow 5:30 pm

Please whoever is in charge of Tomefa should check on Veronica for us.

“Traditionally, women of this region do not go out for 40 days after delivery.

So, it is really good to visit their home and see if mother and baby are fine.

They seem very happy.”

## Moving Beyond the cultural barrier



## Discovering problems earlier

**“Through the home visits, many neonatal sepsis cases were found. It’s due to bad umbilical cord cutting practices, like use of salty sand and toothpaste”**



## Importance of 24h retention

“ Yesterday, I attended a delivery. In the evening, I found the baby had 38.6°C, so I referred.”

“Now, I know how important 24-hour retention is.”





# Study Protocol Registration & Publication

**RCT registration:** *ISRCTN90618993*  
<http://www.isrctn.com/ISRCTN90618993>

**Trials** 2015; 16: 22.  
Published online 2015 Jan 27.  
DOI 10.1186/s13063-014-0539-3



**STUDY PROTOCOL**

**Open Access**

## Ghana's Ensure Mothers and Babies Regular Access to Care (EMBRACE) program: study protocol for a cluster randomized controlled trial

Kimiyo Kikuchi<sup>1</sup>, Evelyn Ansah<sup>2</sup>, Sumiyo Okawa<sup>1</sup>, Akira Shibanuma<sup>1</sup>, Margaret Gyapong<sup>3</sup>, Seth Owusu-Agyei<sup>4</sup>, Abraham Oduro<sup>5</sup>, Gloria Quansah-Asare<sup>6</sup>, Abraham Hodgson<sup>2</sup>, Masamine Jimba<sup>1\*</sup> and for the Ghana EMBRACE Implementation Research Project

# Next Steps

- Sept 2015 :End of Intervention Trial**
- Sept 2015 :Advisory Board Meeting**
- Sept-Oct 2015:Follow-up survey**
- Feb 2016 :Dissemination of  
Preliminary results**

# Embrace Implementation Project Team

## Ghanaian Team

- Abraham Hodgson
- Ebenezer Appiah-Denkyira
- Frank Nyonator
- Gloria Quansah-Asare
- Margaret Gyapong
- Abraham Oduro
- Seth Owusu-Agyei
- Evelyn Ansah
- Shiela Addei (DHRC)
- Doris Sarpong(DHRC)
- Francis Yeji (NHRC)
- Cornelius Debpuur (NHRC)
- Charlotte Tawiah (KHRC)
- Yeetey Enuameh (KHRC)
- Kwame Adjei (KHRC)
- Kwaku Poku Asante (KHRC)

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- Junko Yasuoka
- Keiko Nanishi
- Akira Shibamura
- Kimiyo Kikuchi
- Sumiyo Okawa
- Yusuke Kamiya
- Sakiko Shiratori



***Thank you for your  
attention***

# **Factors Related to Retention of Community Health Workers Managing Fevers in Children under- Five s in the Dangme West District of Ghana.**

**Presented at the National Health Research Dissemination Symposium, GIMPA**

**by**

**Mercy Abbey**



**27th May 2015**



# Outline

Background & Rationale

Objectives

Methods

Results

Conclusion



# Background

A trial on community management of fevers in under-fives in the Dangme West district.

- Trained CHWs can identify and appropriately treat childhood illnesses.
- Contribution of CHWs to reductions in childhood morbidity and mortality
- High attrition rate among CHWs



# Objectives

- To examine the attrition rate among CHWs
- To determine factors contributing to the retention of CHWs



# Methods

## •Mixed Methods:

- Interview with CHWs (N =520 )
- Focus group discussions (N = 5) with 35 CHWs.
- Records review
- Field reports and informal discussions with project staff and neighbours of CHWs lost to attrition.



# Key issues explored

## External Factors

### Community

- Approval by community
- Approval by family and friends
- Job opportunities

### Society and Government

- Culture
- Policies

### Program Related

- Selection
- Training
- Supervision
- Remuneration

Attrition  
amongst  
CHWs

## Internal Factors

### Personal

- Age
- Gender
- Marital Status
- Number of Children
- Education
- Occupation

### Life Events

- Birth
- Marriage
- Illness
- Death



# Results: Attrition Rates

**.Overall 21.2% (140/660) CHWs lost in 30 months**

-At 12 months : 9.5% (63/660)

-At 18 months: 13.2% (87/660)

-At 24 months : 19.1% (126/660)

## **Sub district Attrition:**

-30.3% (54/178) Dodowa

-25.0% (27/108) Prampram sub district.

-16.2% (30/185) Osudoku

-15.3% (29/189) Ningo sub-district



# Results: Factors Related to Retention

- **Approval of a CHW by community** ( $p < 0.001$ )
- **Approval by CHW's immediate family** ( $p < 0.05$ ) significant in influencing the probability of remaining in the programme.



# Results: Factors Related to Attrition

## Demographic Characteristics and Attrition:

•higher in lower **age groups**

- (25.9% (55/212) in 15-25 age group,
- 18.2% (57/314) in 26-45 age group &
- 16.5% (20/121) in >46 age group) (P=0.04)

•higher among **single CHWs**

- (28.3% [64/226]) compared to married CHWs
- (15.1% [63/416])(P<0.001).



# Results: Factors Related to Attrition

- highest among **CHWs with post-sec education**

- (38.9% [7/18]) and lowest among JSS leavers

- (15.7% [67/427]) (P=0.009).

- higher in females

- (23.7% [74/312]) than males

- (19.0% [66/348]) but not significant



# Results (Qualitative)

## Main reasons for attrition:

### Non payment

*“Those who stopped complained of money saying they are suffering for nothing...”*

community’s broken promise to provide in-kind incentives : *“... during the durbar the community agreed to give us (CHWs) some incentive but up to now nothing...”*.

.Possible weak sense of social responsibility

.Negative attitude of caregivers.



# Results: Motivation for Retention

- Desire to serve, humanitarian, moral and religious reasons and

.realisation of expectations:

eg perceived reduction of childhood fever/malaria/death cases in their communities

*“There used to be a high rate of death among children who have fever, but now the rate has reduced in my community”.*

*“The Bible says we should love our neighbour as ... we love ourselves’, so whether the children vomit on me or not or I’m being paid or not I will still continue....”*



# Results: Motivation for retention

.Recognition by and cordial relationships with professional health staff, project staff and the community:

*“I have become so popular and respected by the people in the community ...”*

*“When I go to the community clinic some of the Nurses recognise me ... and I’m very happy for that.”*

*“I have become a friend to all children and mothers in the village. That is my benefit from this work”.*



# Conclusion

.Moderate level of attrition could be attributed to:

- the high level of community involvement
- high community approval and support.
- Perceived effectiveness

Attention to these aspects could help improve CHW retention in community based health interventions in Ghana

# **Determinants of Skilled Birth Attendants at Delivery in Rural Southern Ghana**

**Alfred Kwesi Manyeh**

# Presentation Outline

1. Background
2. Objective
3. Methodology
4. Results
5. Conclusion
6. Recommendations
7. Acknowledgements

# BACKGROUND (1)

- Improving maternal health is one of the eight MDGs adopted by the international community in 2000
- Under MDG5, countries committed to reducing maternal mortality ratio (MMR) by three quarters, 1990-2015
- Between 1990-2013 MMR declined by only 2.6% per year globally
- Far from annual decline of 5.5% required to achieve MDG5<sup>1</sup>

1. *Trends in Maternal Mortality: 1990 to 2013*, WHO, UNICEF, UNFPA and the World Bank

## BACKGROUND (2)

- Ghana has recorded a decline in its MMR by 49% between 1990 and 2013 <sup>2</sup>
- There remains a substantial amount of effort to reach the MDG 5 target of 185 deaths per 100,000 live births.
- Some 3,100 women died from pregnancy-related complications in Ghana between January and December 2013 <sup>2</sup>

## BACKGROUND (3)

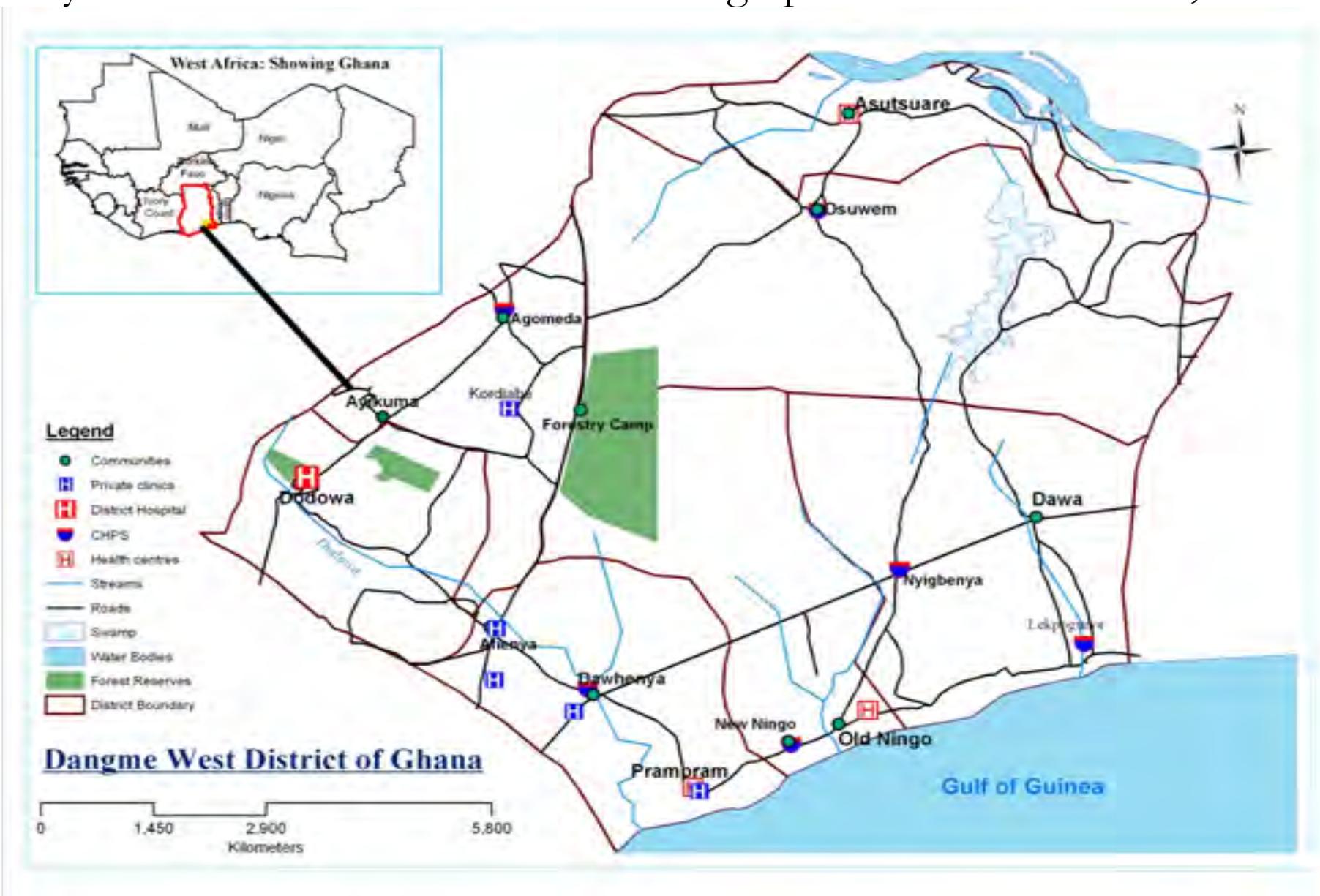
- The giant strides made by western countries in dropping their maternal mortality ratio were due to the recognition given to skilled attendants at delivery
- Most obstetric complications could be prevented or managed if women had access to skilled birth attendant (doctor, nurse, midwife) during childbirth.

# OBJECTIVE

To examine the determinants of skilled birth attendants at delivery in Dodowa HDSS.

# Methodology (1)

Study Area – Dodowa Health and Demographic Surveillance Area, Ghana



## Methodology (2)

- Study design:
  - Using secondary data from Dodowa HDSS
- Study participants:
  - All registered women aged 15 to 49 years in the Dodowa HDSS from 1<sup>st</sup> January 2011 to 31<sup>st</sup> December 2011
  - Who gave birth not more than two years prior to the study
  - A total of 1, 874 women.

## Methodology (3)

- The univariable and multivariable association were explored using logistic regression
- STATA 11 at 5% significant level
- Results are presented in tables and charts

# Results



# Socio-demographic characteristics of participants (1)

Characteristics	Frequency *	Proportion (%)
<b>Age Group</b>		
15-19	223	11.9
20-24	494	26.36
25-29	498	26.57
30-34	348	18.57
35-39	207	11.05
40+	104	5.55
<b>Mean=27.41 (SD=6.87)</b>		
<b>Ethnicity</b>		
Ga-Dangme	1,370	73.11
Akan	101	5.39
Ewe	298	15.9
Northern	97	5.18
Others	8	0.43

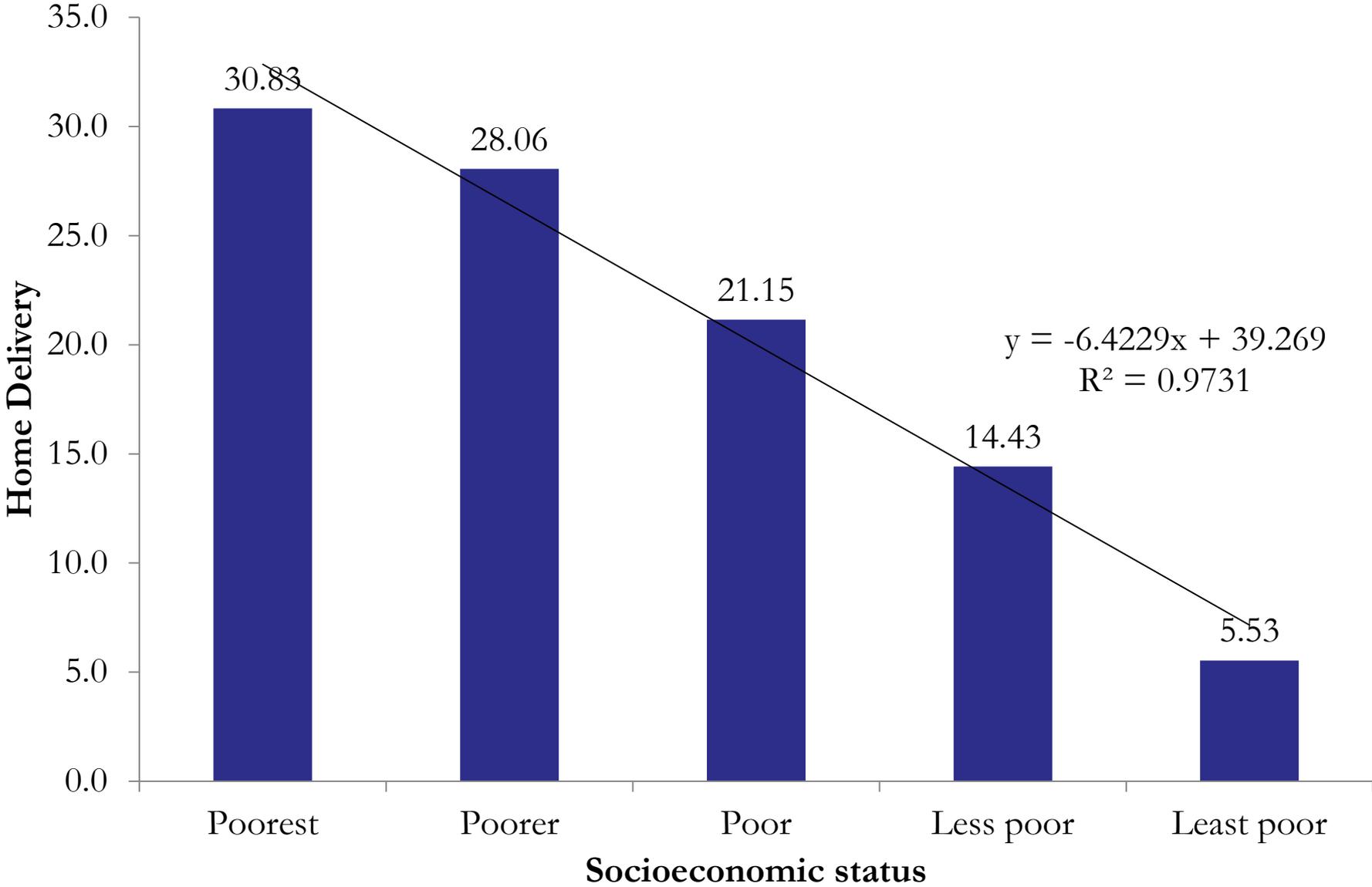
## Socio-demographic characteristics of participants (2)

Characteristics	Frequency *	Proportion (%)
<b>Religion</b>		
Christianity	1,727	92.16
Islamic	100	5.34
Traditional	22	1.17
Others	25	1.33
<b>Occupation</b>		
Unemployed	477	25.45
Farmer	299	15.96
Artisan	252	13.45
Petty Trader	510	27.21
Civil Servant	30	1.60
Student	265	14.14
Others	41	2.19
<b>Level of Education</b>		
No Education	512	27.32
Primary	567	30.26
Junior High /Middle school	646	34.47
Senior High and above	149	7.95

# Socio-demographic characteristics of participants (3)

Characteristics	Frequency *	Proportion (%)
<b>Marital Status</b>		
Single	550	29.35
Married	349	18.62
Separated/Divorced	32	1.71
Cohabiting	907	48.40
Widowed	9	0.48
Missing	27	1.44
<b>Parity</b>		
Parity1	543	28.98
Parity2	464	24.76
Parity3	329	17.56
Pariy4	223	11.90
Parity5+	315	16.81
<b>Socio Economic Status</b>		
Poorest	326	19.90
Poorer	357	21.79
Poor	305	18.62
Less poor	355	21.67
Least poor	295	18.01
<b>Assisted Delivery</b>		
No Skilled person	583	31.11
Skilled Person	1,291	68.89
<b>ANC Attendance during last pregnancy</b>		
Yes	1,841	98.29
No	32	1.71

# Percentage distribution of home delivery by socioeconomic status



# Crude and adjusted OR of determinants of skilled birth attendants at delivery (1)

	Crude		Adjusted*	
Characteristics	OR	P-Values (95% CI)	OR	P-Values (95% CI)
<b>Age Group</b>				
15-19	1.00		1.00	
20-24	1.34	0.079(0.97-1.85)	1.53	0.039(1.02-2.30)†
25-29	1.87	<0.001(1.34-2.60)†	2.12	0.002(1.31-3.42)†
30-34	1.74	0.002(1.22-2.48)†	2.44	0.002(1.40-4.24)†
35-39	2.15	<0.001(1.42-3.25)†	4.00	<0.001(2.10-7.61)†
40+	1.45	0.139(0.89-2.36)	4.25	<0.001(2.08-8.71)†
<b>Marital Status</b>				
Single	1.00		1.00	
Married	1.69	<0.001(1.25-2.29)†	1.32	0.192(0.87-1.10)
Separated/Divorced	1.56	0.289 (0.687-3.54)	3.40	0.036(1.08-10.68)†
Cohabiting	1.09	0.460 (0.87-1.36)	1.20	0.246(0.88-1.64)
Widowed	1.82	0.459(0.37-8.836)	2.19	0.490(0.24-20.38)
Missing	0.88	0.760 (0.40-1.97)	0.97	0.956(0.39-2.42)

OR: Odd Ratio †: statistically significant. CI: Confidence Interval. \* Correct classification rate of the model=72.65%,

# Crude and adjusted OR of determinants of skilled birth attendants at delivery (2)

	Crude		Adjusted*	
Characteristics	OR	P-Values (95% CI)	OR	P-Values (95% CI)
<b>Level of Education</b>				
No Education	1.00		1.00	
Primary	1.61	<0.001(1.26-2.05)†	1.52	0.006(1.13-2.06)†
Junior High /Middle school	3.09	<0.001(2.40-4.00)†	2.07	<0.001(1.51-2.83)†
Senior High and above	8.88	<0.001(4.90-16.10)†	3.41	<0.001(1.65-7.04)†
<b>Occupation</b>				
Unemployed	1.00		1.00	
Farmer	0.63	0.003(0.47-0.85)†	0.69	0.050(0.48-1.00)
Artisan	2.30	<0.001(1.59-3.33)†	1.04	0.856(0.67-1.63)
Trader	1.43	0.010(1.09-1.88)†	1.25	0.200(0.89-1.75)
Civil Servant	7.20	0.007(1.69-30.60)†		
Student	0.95	0.756(0.69-1.30)	0.87	0.533(0.56-1.34)
Others	1.40	0.355(0.69-2.87)	1.25	0.609(0.53-2.91)

OR: Odd Ratio † statistically significant. CI: Confidence Interval. \*Correct classification rate of the model=72.65%,

# Crude and adjusted OR of determinants of skilled birth attendants at delivery (3)

	Crude		Adjusted*	
Characteristics	OR	P-Values (95% CI)	OR	P-Values (95% CI)
<b>Parity</b>				
Parity1	1.00		1.00	
Parity2	0.74	0.029(0.56-0.97)†	0.46	<0.001(0.32-0.66)†
Parity3	0.76	0.075(0.56-1.03)	0.34	<0.001(0.22-0.52)†
Parity4	0.84	0.331(0.59-1.19)	0.50	0.008(0.30-0.83)†
Parity5+	0.41	<0.001(0.30-0.55)†	0.24	<0.001(0.14-0.39)†
<b>Socio Economic Status</b>				
Poorest	1.00		1.00	
Poorer	1.39	0.034(1.03-1.88)†	1.17	0.342(0.84-1.63)
Poor	1.70	0.001(1.23-2.34)†	1.31	0.129(0.92-1.86)
Less poor	3.54	<0.001(2.53-4.96)†	2.55	<0.001(1.77-3.69)†
Least poor	8.75	<0.001(5.60-13.67)†	4.80	<0.001(2.96-7.77)†
<b>ANC Attendance</b>				
Attend ANC	1.00		1.00	
Don't attend ANC	0.03	<0.001(0.01-0.12)†	0.05	<0.001(0.01-0.22)†
<b>Type of live birth</b>				
First live birth	1.00		1.00	
Not first live birth	0.65	<0.001(0.52-0.82)†		

OR: Odd Ratio † statistically significant. CI: Confidence Interval. \*Correct classification rate of the model=72.65%,

## Conclusion

- Although 69% of women in the study area had skilled birth attendants at delivery,

women from:

- Poorest households,
- Higher parity,
- Uneducated,
- Not attending ANC and
- Younger women

Were more likely to deliver without a skilled birth attendants at delivery.

# Recommendation

- Future intervention in the study area to bridge the gap between the poor and least poor women
  
- Girls should be encourage to have more than junior high school level of education

These recommendations may apply to similar rural settings in Ghana.

To...



# Acknowledgement



DHRC – Ghana

**INDEPTH Network**



INDEPTH Network

Thank You



**USAID**  
FROM THE AMERICAN PEOPLE



# Let's start where we begin: eLearning in Pre-Service Education

Alison R. Trump, MSPH

Martha Appiagyei, RN/RM

Catherine Carr, DrPH

Richard Okyere Boadu, MSc

Chantelle Allen, RN, MSc

# Introduction

- Ghana faces a shortage of healthcare workers especially midwives The shortage expected to worsen with large number of retirements
- Between 2010 and 2012, number of midwifery schools increased (28 MTSs with annual intake of 824)
- Now, we have 34 midwifery schools with number per class as high as 470
- However, output of newly licensed midwives did not have comparable increase (e.g. 54%, >90% passed in 2011 and 2014)



# Study Objectives

- To determine the feasibility (in terms of acceptability, usability, accessibility) of using eLearning in six midwifery schools in Ghana
- To understand the experience of tutors, students and information technology (IT) staff in implementing selected eLearning content as supplements to courses

# Methods

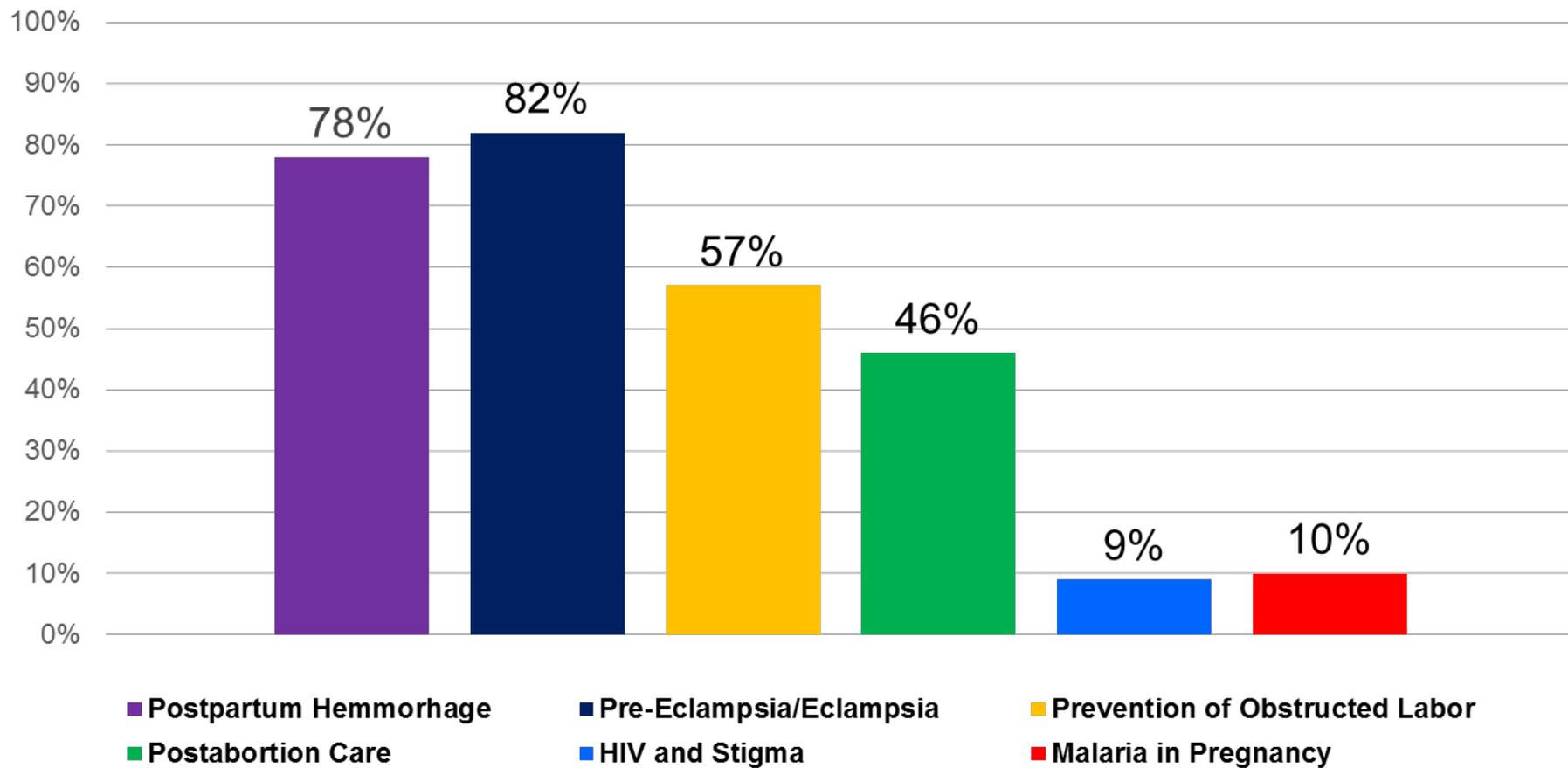
- Pilot feasibility study conducted in May 2014
- Sample size (students = 328/336, tutors = 12/13)
- No attempt made to achieve statistical power
  
- Data sources
  - Self administered surveys (students)
  - In-depth interviews (IT tutors, Principals, MOH staff)
  
- Ethics
  - Human subject's approval obtained from Johns Hopkins University , GHS-ERC

# Acceptability

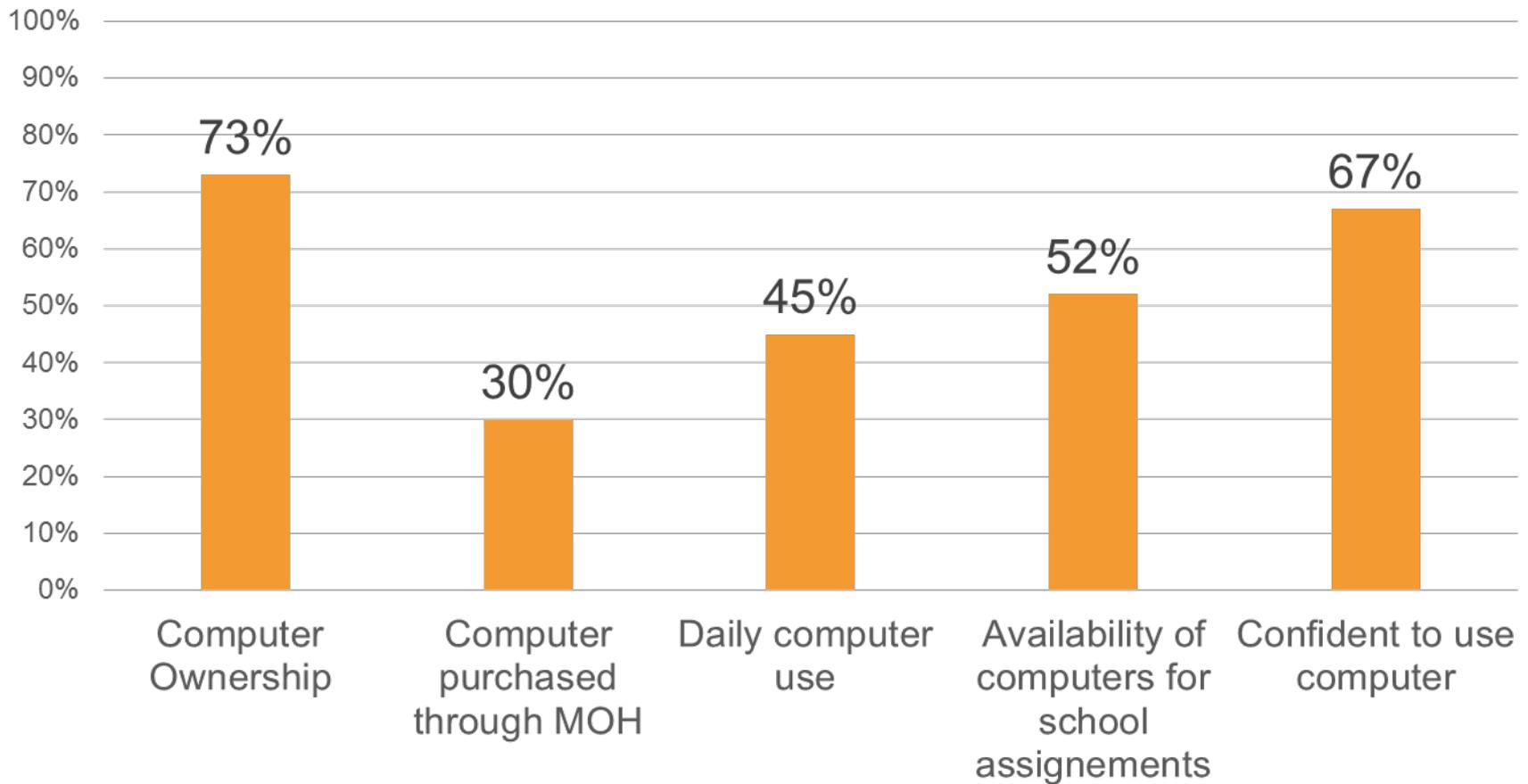
- Large number reached, high acceptability, enthusiasm; request for more modules
- Structured introduction and roll out empowered IT tutors



# Usability - Overall use of Modules



# Accessibility



# Conclusions

- Barriers to limited complete usability and accessibility. To scale-up, must address infrastructure, user errors, platform limitations and cost
- Important evidence was collected to support national level scale up of eLearning
- Confirmed the feasibility eLearning to supplement educational materials in pre-service education



# Recommendations

1. Greater school level support for resources, staff
2. Enhance training on the Skooool™ platform
3. Guidelines for content approval and development
4. Assess impact

# Thank you



**He who would learn to fly one day must first learn to stand and walk and run and climb and dance; one can not fly into flying.**

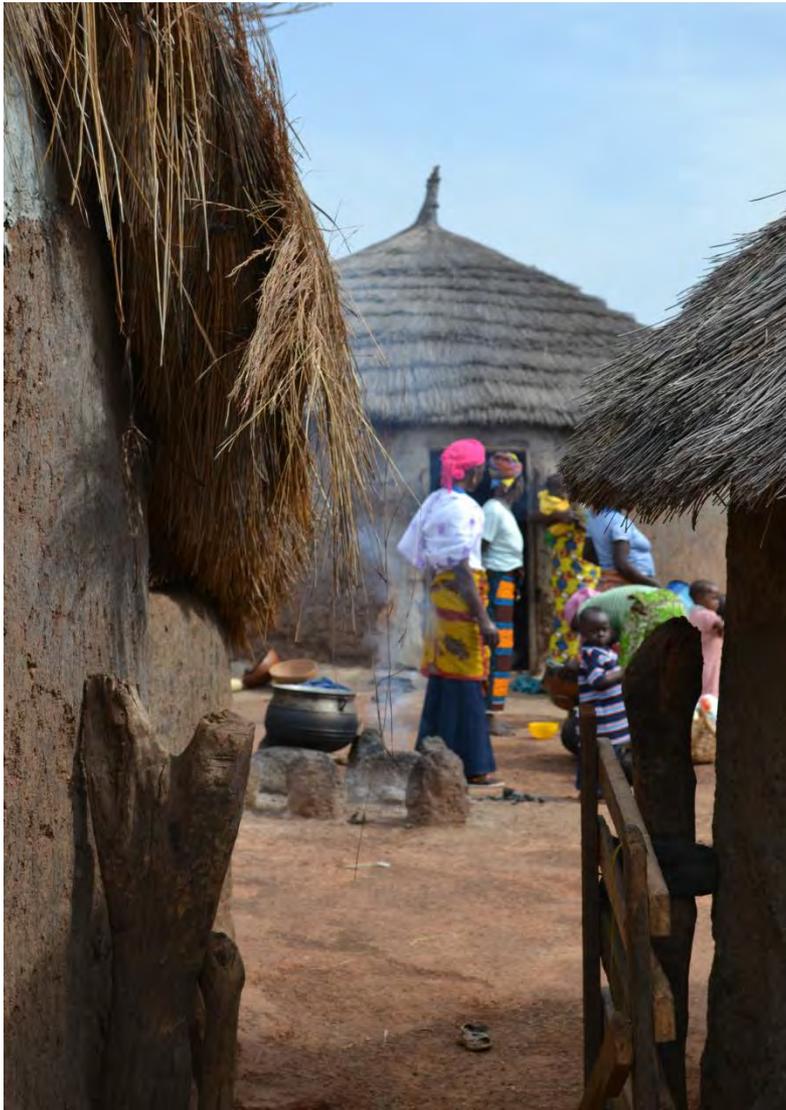
**Freidrich Nietzsche**  
Maternal and Child Health Integrated Program

# Food-based dietary modifications to improve the dietary intake of infants and young children in Ghana

Abdul-Razak Abizari, Ilse de Jager, Karin J. Borgonjen-van den Berg, Fusta Azupogo, Gloria Folson, and Inge D. Brouwer



# Background



- Half of infants below 6 months not exclusively breastfed
- Only 13% of children 6-23 months meet the minimum acceptable diet



- About 20% percent of children are stunted
- High rates of micronutrient deficiencies, child anaemia >70%

GDHS 2014

# Objectives of the study

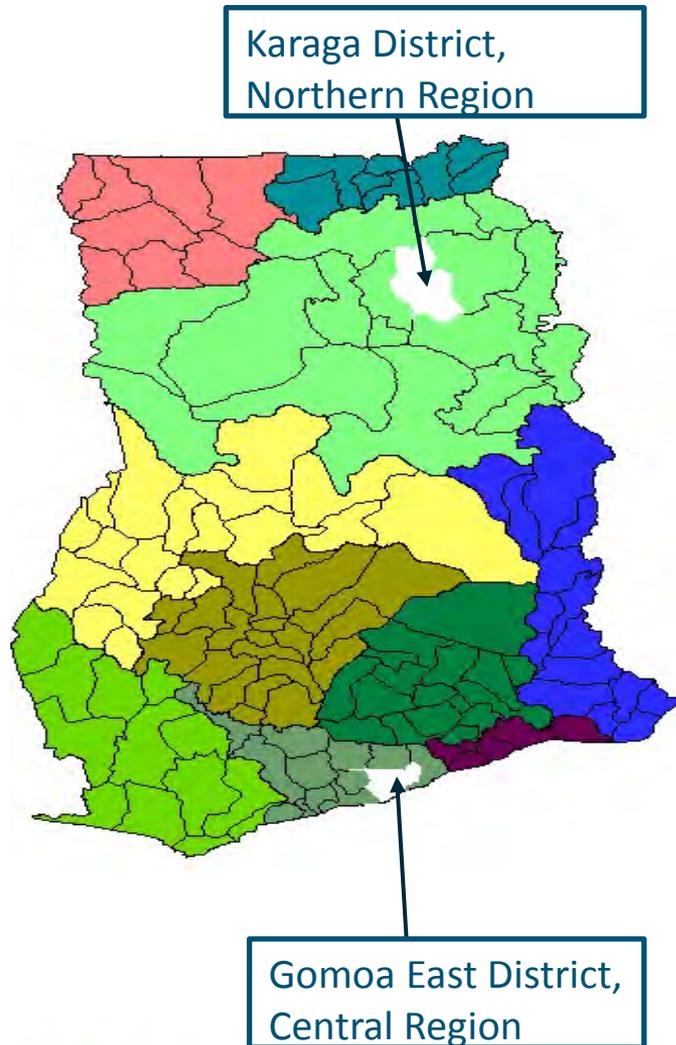
- To describe the diets of young children in farming communities of Northern and Southern Ghana
- To describe the extent to which these could be modified to improve nutrient adequacy



# Methods



# Study sites and population



Dietary survey sample groups	Karaga	Gomoa East
6-8 months	103	87
9-11 months	98	97
12-23 months (breastfed)	108	99
12-23 months (non-breastfed)	29	84

# Optifood analysis: what it does.....

## Mathematical modelling using linear programming

(developed by WHO in collaboration with LSHTM/FANTA/Blue-Infinity, see also Ferguson et al, 2006)

Based on locally available foods and local food patterns (average serving size and frequency of consumption):

- Identify nutrient gaps, “problem nutrients”
- Identify foods that are the best sources to fill nutrient gaps
- Describe the extent to which local diets could be modified to improve nutrient adequacy
  - Identify nutrient gaps that would still exist and require looking outside the current infant and young child feeding patterns

# Data collection

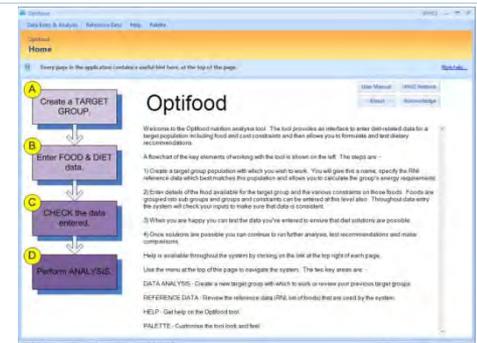
- Socio-economic indicators
- Repeated quantitative 24-hr recall (July/Aug, end of rainy season)
- Market survey for price data (major district market and community markets)
- Anthropometry (weight/height)
- FCT composed from WAFCT, Ghana 1992, USDA sr27



# Optifood parameters

- Non-condiment foods, consumed by >5% children in first 24-hr recall
- Median daily amounts (g/day)
- Breast milk intake from WHO 1998 (average minus 2SD)
- min and max # servings per week (5<sup>th</sup> and 95<sup>th</sup> percentile)
- Max cost of daily diet (75<sup>th</sup> percentile)
- RNI from FAO/WHO 2004 and IZiNCG 2004, low bioavailability for iron and zinc

# Nutrients analysed



- Macronutrients: total fat, total protein
- Minerals: iron, zinc, calcium
- Vitamins: vitamin A, vitamin C, thiamin, riboflavin, niacin, vitamin B-6, folate, vitamin B-12

# Results

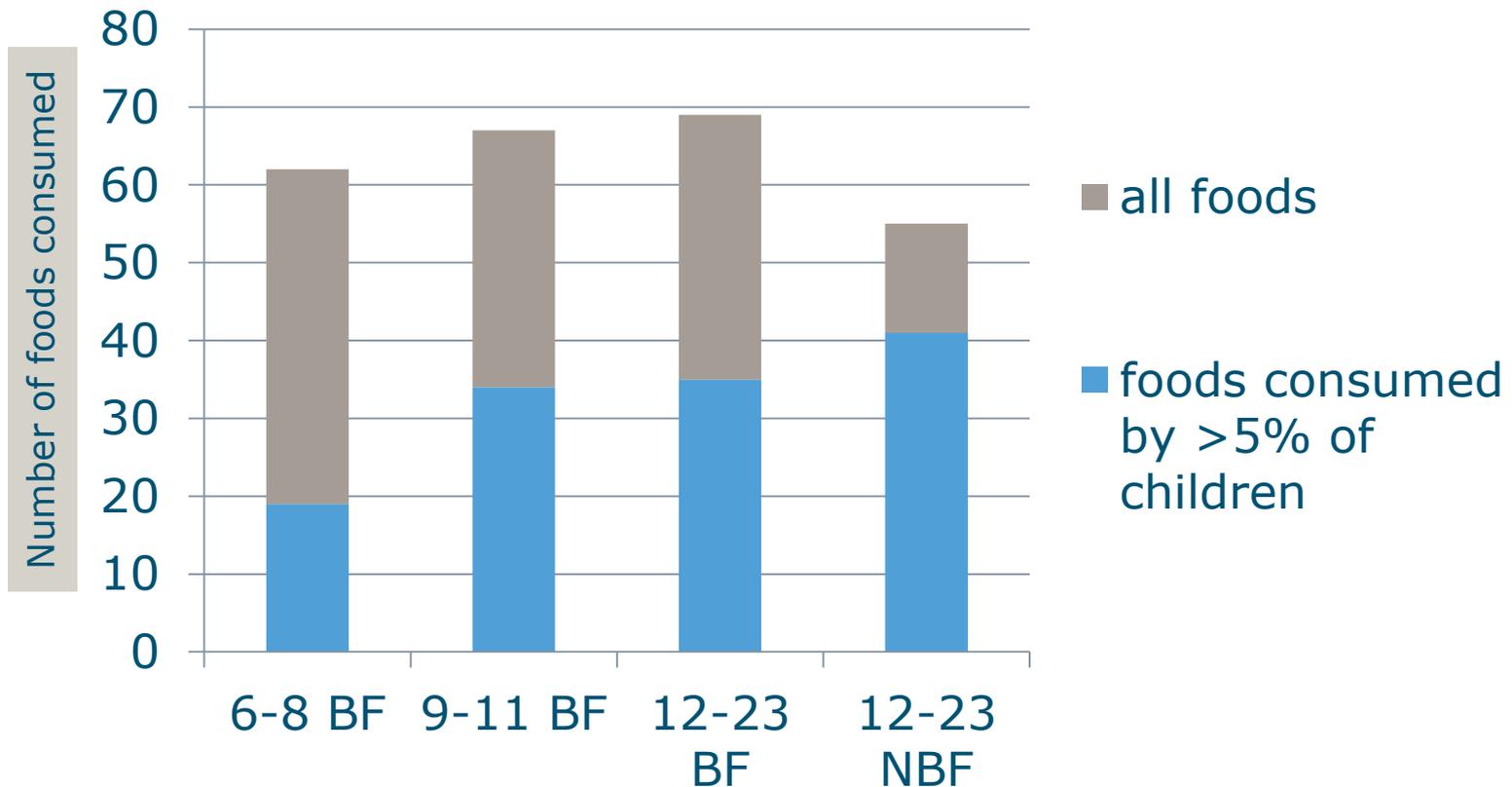


**WAGENINGENUR**  
*For quality of life*



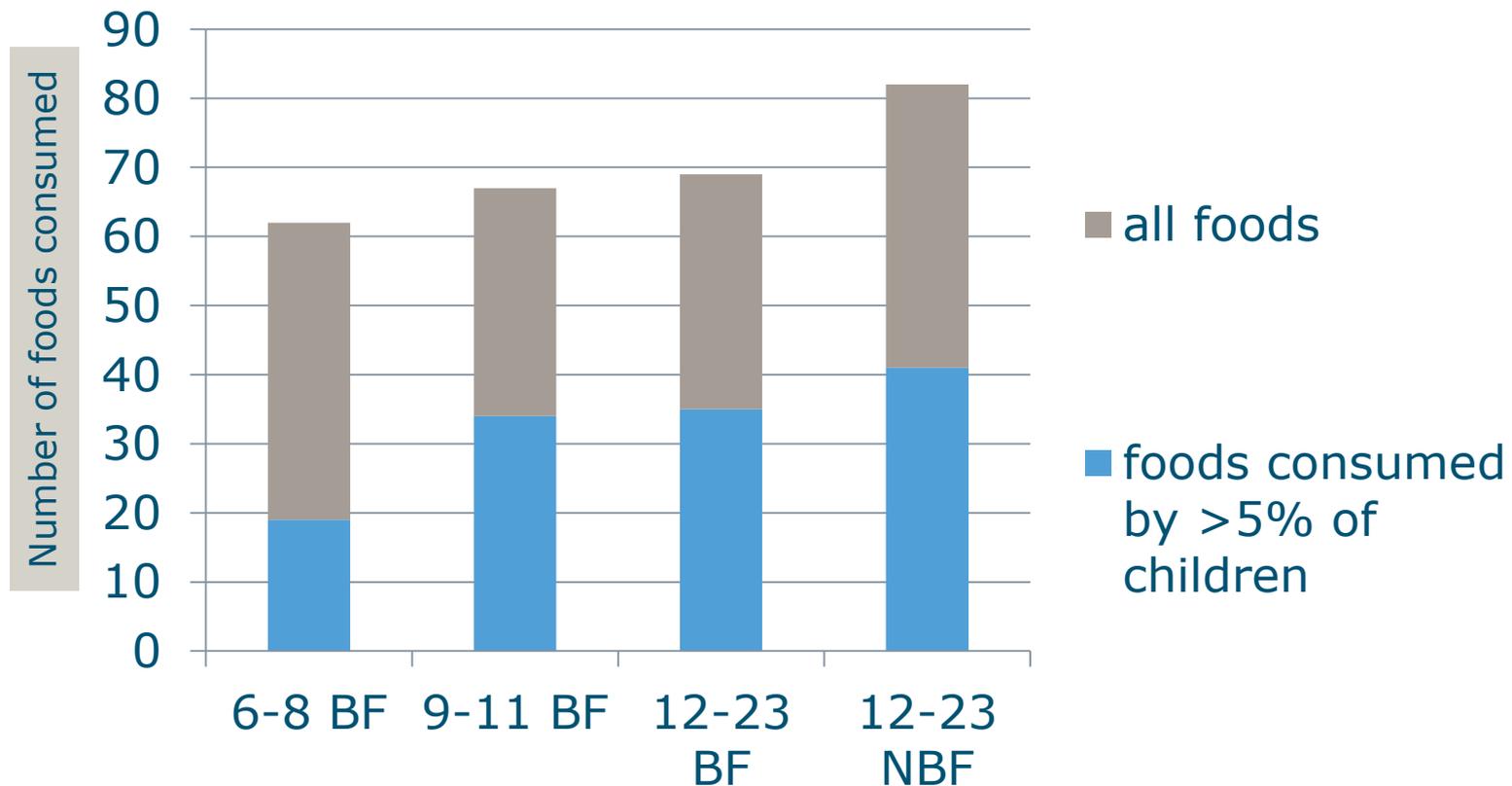
# Dietary characteristics

Number of different foods consumed per age group and breastfeeding state  
Karaga District

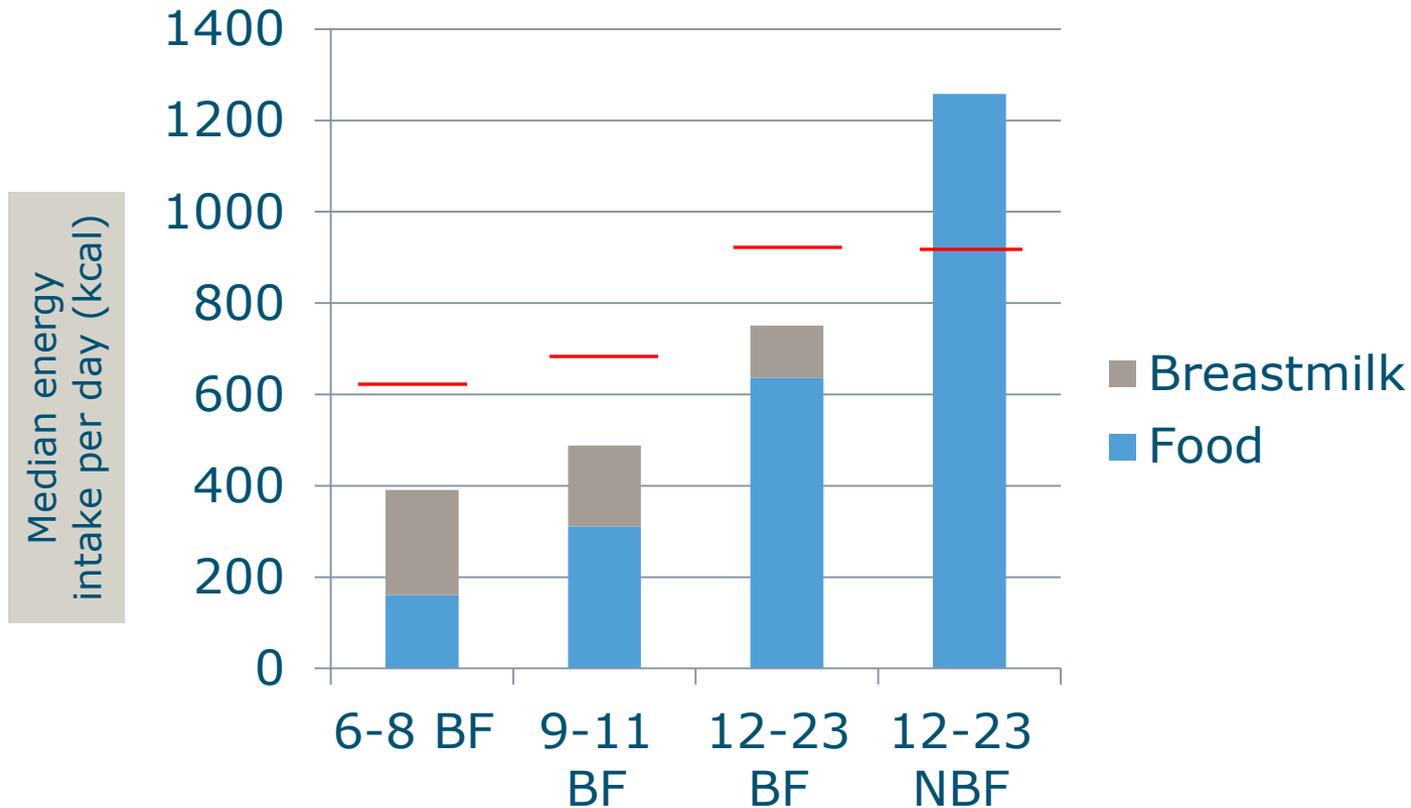


# Dietary characteristics

Number of different foods consumed per age group and breastfeeding state  
Gomoa East District



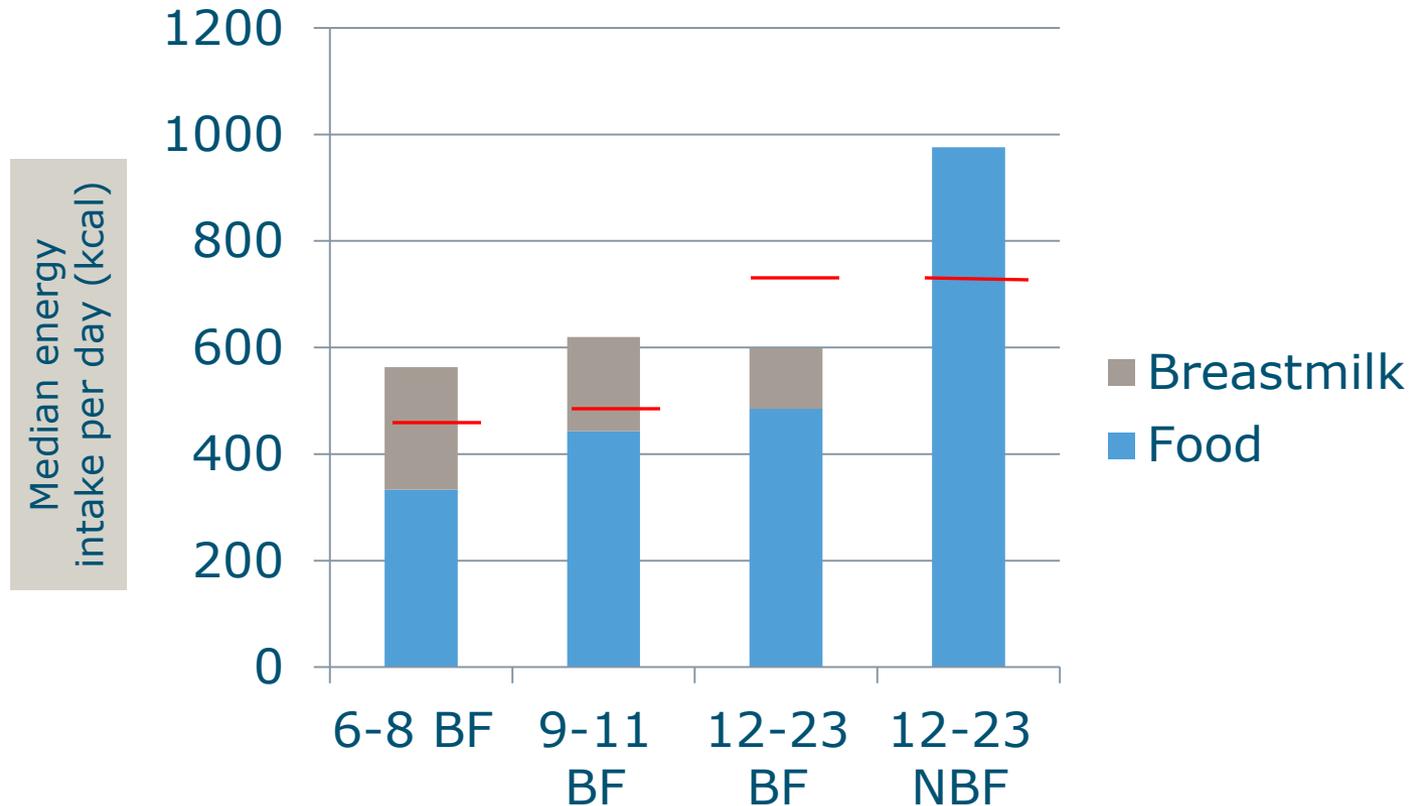
# Total daily energy intake (kcal), Karaga



BF: breastfed; NBF=non-breastfed



# Total daily energy intake (kcal), Gomoa East



BF: breastfed; NBF=non-breastfed



# Problem nutrients in Karaga District

Nutrients	6-8m BF	9-11m BF	12-23m BF	12-23m NBF
Calcium	Red	Red	Red	Yellow
Vitamin C	Red	Red	Red	Yellow
Thiamin	Yellow	Yellow	Yellow	Yellow
Riboflavin	Red	Red	Red	Yellow
Niacin	Yellow	Yellow	Yellow	Yellow
Vitamin B6	Yellow	Yellow	Yellow	Yellow
Folate	Yellow	Yellow	Red	Yellow
Vitamin B12	Red	Red	Red	Yellow
Vitamin A RAE	Red	Red	Yellow	Yellow
Iron	Red	Red	Red	Yellow
Zinc	Red	Red	Yellow	Yellow



# Problem nutrients in Gomoa East District

Nutrients	6-8m BF	9-11m BF	12-23m BF	12-23m NBF
Calcium	Yellow	Yellow	Red	Red
Vitamin C	Yellow	Yellow	Yellow	Yellow
Thiamin	Yellow	Yellow	Yellow	Yellow
Riboflavin	Yellow	Yellow	Yellow	Yellow
Niacin	Red	Yellow	Yellow	Yellow
Vitamin B6	Yellow	Yellow	Yellow	Yellow
Folate	Yellow	Yellow	Yellow	Yellow
Vitamin B12	Yellow	Yellow	Yellow	Yellow
Vitamin A RAE	Yellow	Yellow	Yellow	Yellow
Iron	Red	Red	Red	Yellow
Zinc	Red	Red	Red	Yellow

 Nutrient requirements could be met with local foods

 Nutrient requirements could be met but may require changes

 Nutrient requirements cannot be met with any combination of local foods

# Food-based dietary modifications

- Changes to the diet that could improve the adequacy of nutrient intake (especially that of problem nutrients)
- Demonstrate the extent to which it is possible to improve nutrient intake through modifications of current diets
- Modelling using (local) foods that have potential to contribute most to intake of problem nutrients
  - Identified by studying the best diets and foods that are consumed but by <5% of children

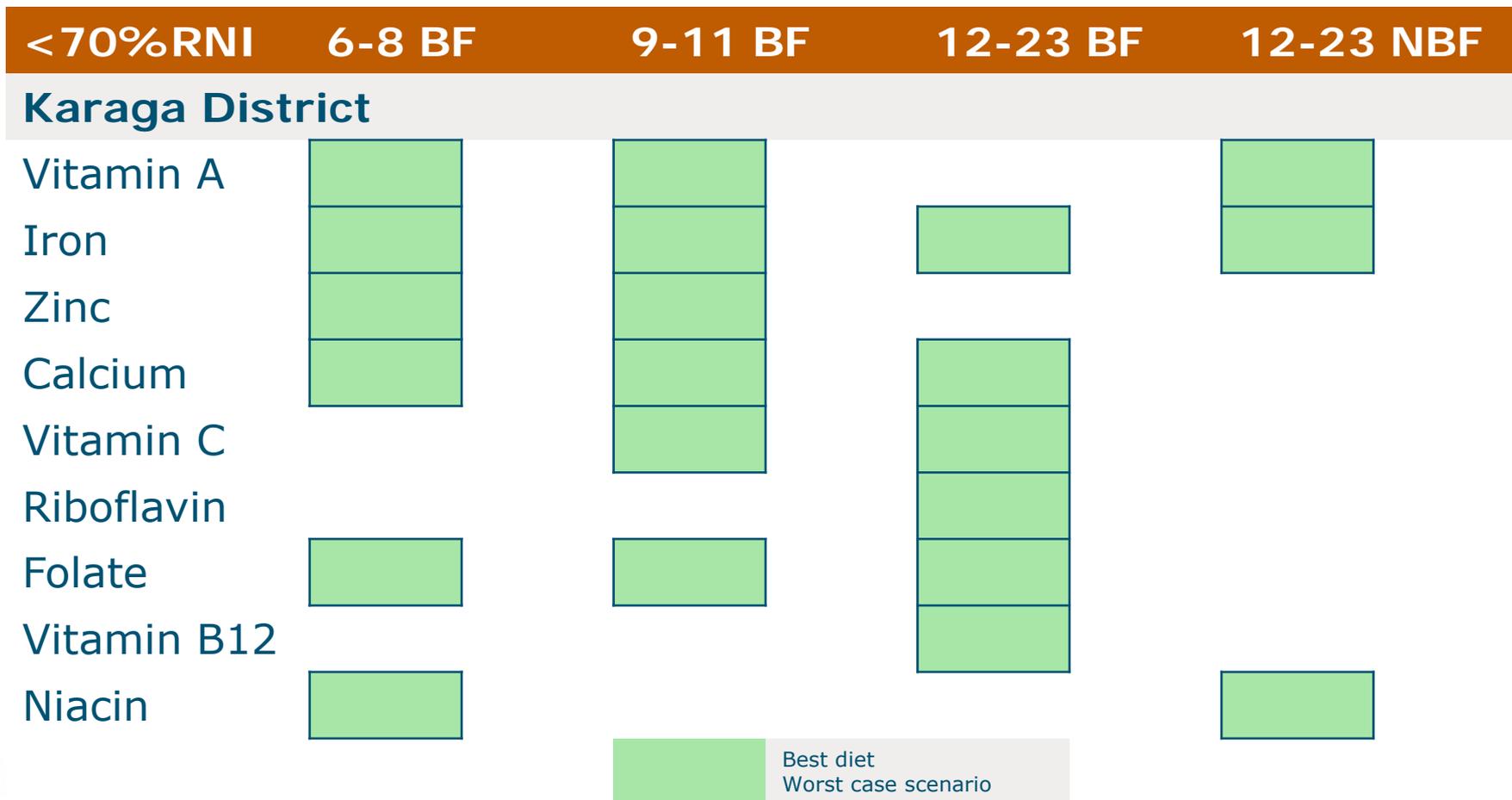
# Food-based dietary modifications for Karaga District, number of daily serves

	6-8 BF	9-11 BF	12-23 BF	12-23 NBF
Breast milk	Every day	Every day	Every day	
Chocolate beverage	1 serve			
Vegetables	3 serves	2 serves of dark green leafy vegetables	2 serves	7 serves (of which 2 serves dark green leafy vegetables)
Dairy	1 serve	1 serve		1 serve
Grains (preferably whole grains)		4 serves	3 serves	1 serve
Fruits		1 serve	1 serve	
Meat, fish or eggs		3 serves		
Nuts and/or seeds			3 serves	
Red palm oil			1 serve	
Beans				1 serve

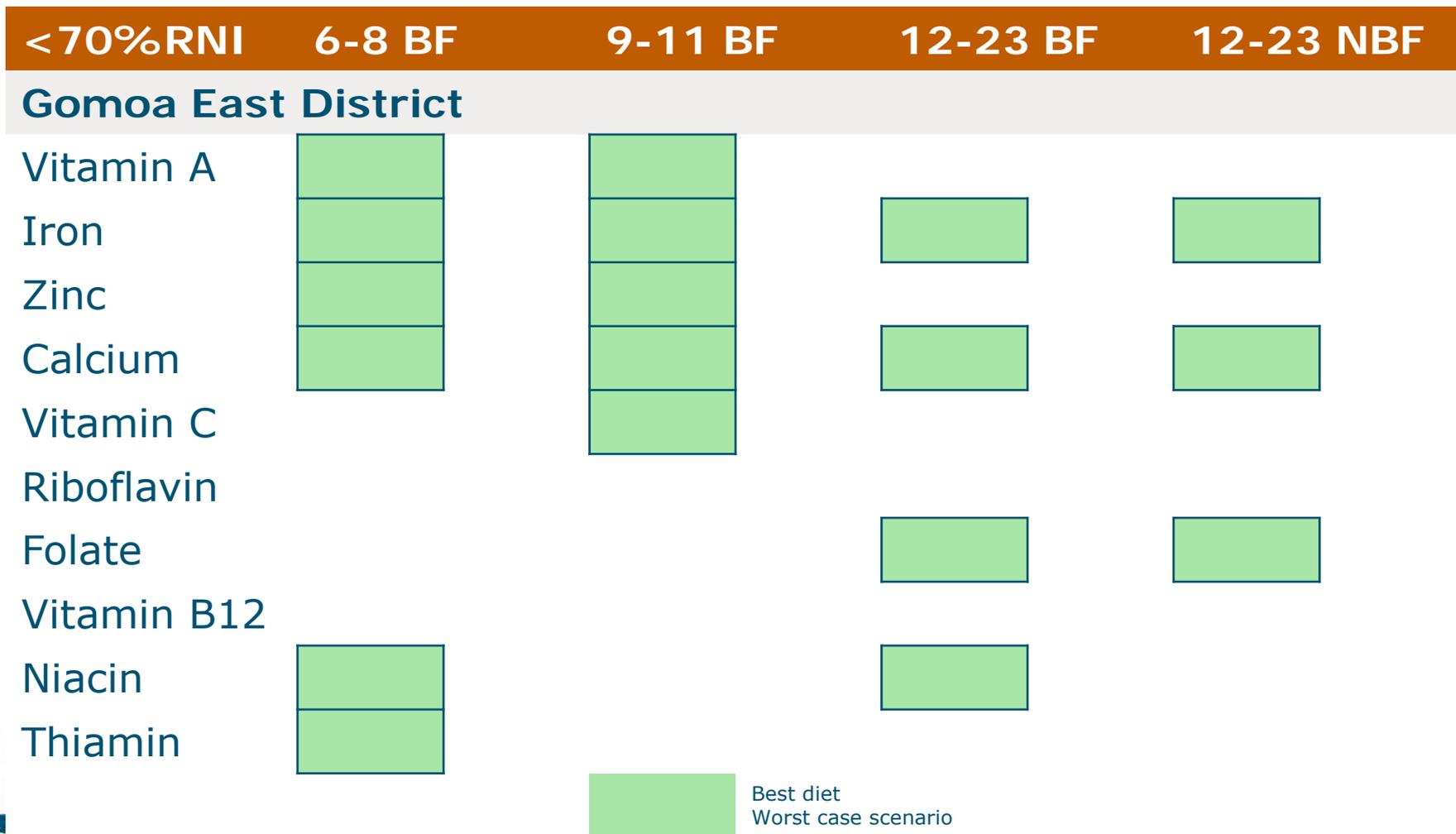
# Food-based dietary modifications for Gomoa East District, number of daily serves

	6-8 BF	9-11 BF	12-23 BF	12-23 NBF
Breast milk	Every day	Every day	Every day	
Fats			1 serve (of red palm oil)	3 serves (of which 1 red palm oil)
Legumes			2 serves	
Starchy foods	1 serve of cassava tuber		2 serves	2 serves
Dry Green Leafy Vegetables	1 serve	1 serve	1 serve	1 serve
Fish	1 serve (small whole fish)	2 serves (small whole fish)	1 serve (small whole fish)	3 serves (fish without bones)
Chocolate beverage			1 serve	
Grains (preferably whole grains)	1 serve	3 serves	2 serves	2 serves

# Nutrient requirements that could not be met with food-based modifications



# Nutrient requirements that could not be met with food-based modifications



# Feasibility of food-based modifications

- The suggested modifications need to be further harmonized to reflect less drastic differences across age groups
- The food-based modifications resulting from Optifood analysis are very informing, but
  - They are theoretical and feasibility need to be tested out in the local context
- The feasibility is uncertain as the modifications deviate substantially from the average food pattern (although stay within the boundaries on what is possible in the local context)
- The suggested modifications do not account for alternative solutions (f.e. not (yet) consumed foods, CF, MNPs)
  - These can be modelled, modifications will be adjusted, maybe to more feasible changes



# Conclusions

- Food-based modifications could improve nutrient adequacy
- Feasibility of the proposed modifications is yet unknown since all require a significant increase in frequency (or portion size)
- But, even when adopted fully, there are still gaps in adequacy for iron, zinc, vitamin A, and for several B-vitamins that need to be addressed.
- Solutions must be found outside the local food pattern beyond the use of foods already consumed by infant and young children

This study was carried out by **GAIN** and the **Noguchi Memorial Institute for Medical Research - University Ghana, University for Development Studies** and **Wageningen University**.

It was made possible through support provided by the Bureau for Global Health and the Bureau for Food Security, **U.S. Agency for International Development**, under the terms of Grant No. GHA-G-00-06-00002, as amended, to the Global Alliance for Improved Nutrition (GAIN). The contents are the responsibility of GAIN and do not necessarily reflect the views of USAID or the United States Government.



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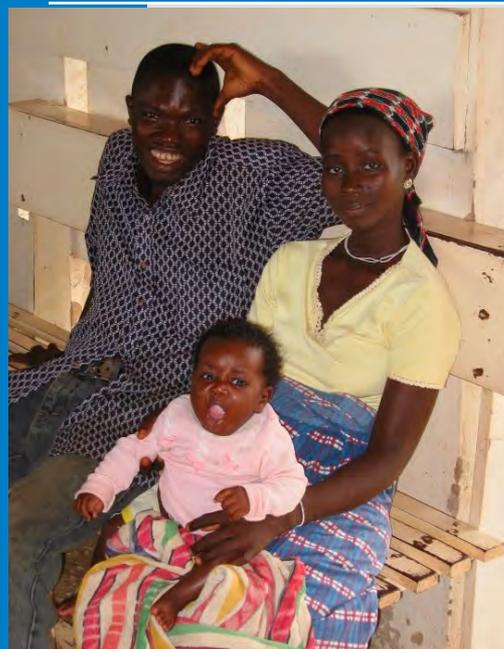
Thank you



# policy



## Analysis of Health and Economic Benefits of Family Planning in Ghana



May 2015

Dr. Nichole Zlatunich (Futures Group)  
Dr. Tewodros Bekele (Futures Group)  
Dr. Yaa Asante (Ghana Health Service)  
Ms. Joyce Amedoe (National Pop Council)  
Ms. Esther Cofie (National Pop Council)  
Mr. Jasper Sablah (Consultant)

# Ghana Family Planning Program

- Pioneer in political commitment and support since 1960's
- Recent success stories
  - Sharp fertility decline, from 6.4 in 1988 to 4.2 in 2014
  - Among the highest contraceptive prevalence in West Africa
- Clear vision, policy goals, and strategy
- Strong donor support and partnership initiatives
- Significant progress in expansion of access
- More women and men choose to use FP

What would be the **health** and **economic** benefits of achieving FP2020 goals and targets in Ghana?

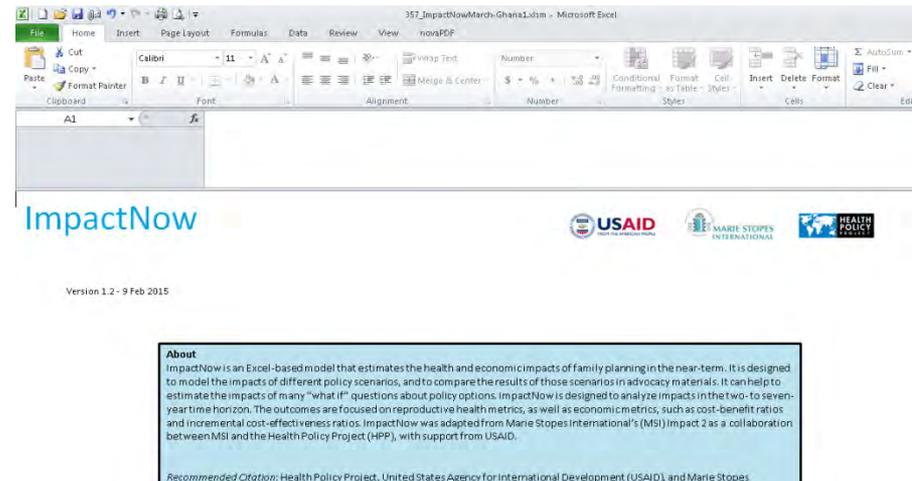
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# Methodology, Modeling Scenarios and Assumptions

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# ImpactNOW

- User-friendly model projects the near-term benefits of family planning (FP)
  - Health benefits
  - Economic benefits
- Accepts goals for contraceptive prevalence rate (CPR), unmet need for FP, or overall FP budget
  - Can also model changes in method mix and unit cost of FP
- Based on Marie Stopes International's Impact 2 methodology



# Model Scenarios for Ghana

	Baseline 2014		Scenario 1: Continue same rate to 2020		Scenario 2: Medium Progress to 2020		Scenario 3: High Progress to 2020	
	married	unmarried	married	unmarried	married	unmarried	married	unmarried
CPR	26.8%	44.5%	30.3%	47.7%	33.0%	50.4%	34.7%	55.2%
Modern CPR	22.2%	31.7%	27.8%	39.0%	30.0%	39.5%	31.6%	46.2%



# Other Key Inputs

- Women of Reproductive Age (WRA)
- Percentage of women in union
- Maternal Mortality Ratio
- Contraceptive effectiveness
  - Trussell, 2007. Cleland et al., 2006.
- Access to and cost of maternal and child healthcare services
  - Reproductive Health Costing Tool, UNFPA
- Costs of contraceptive methods
  - Local costs in Ghana (2015 CPT)

# Results

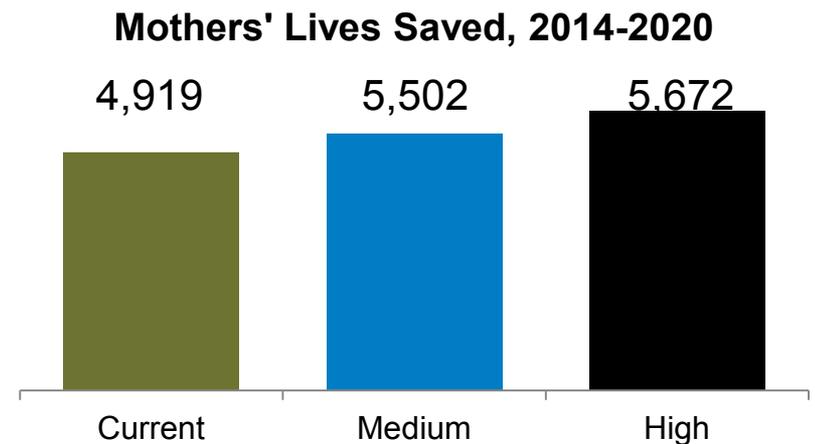
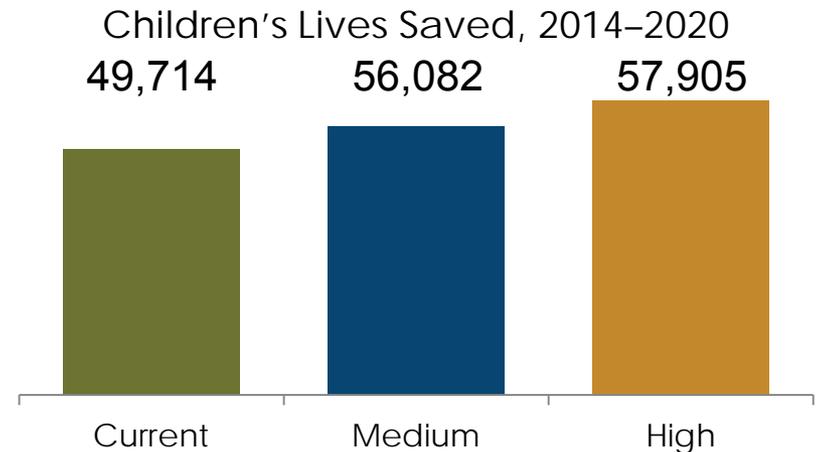
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## Health and Economic Benefits of Family Planning

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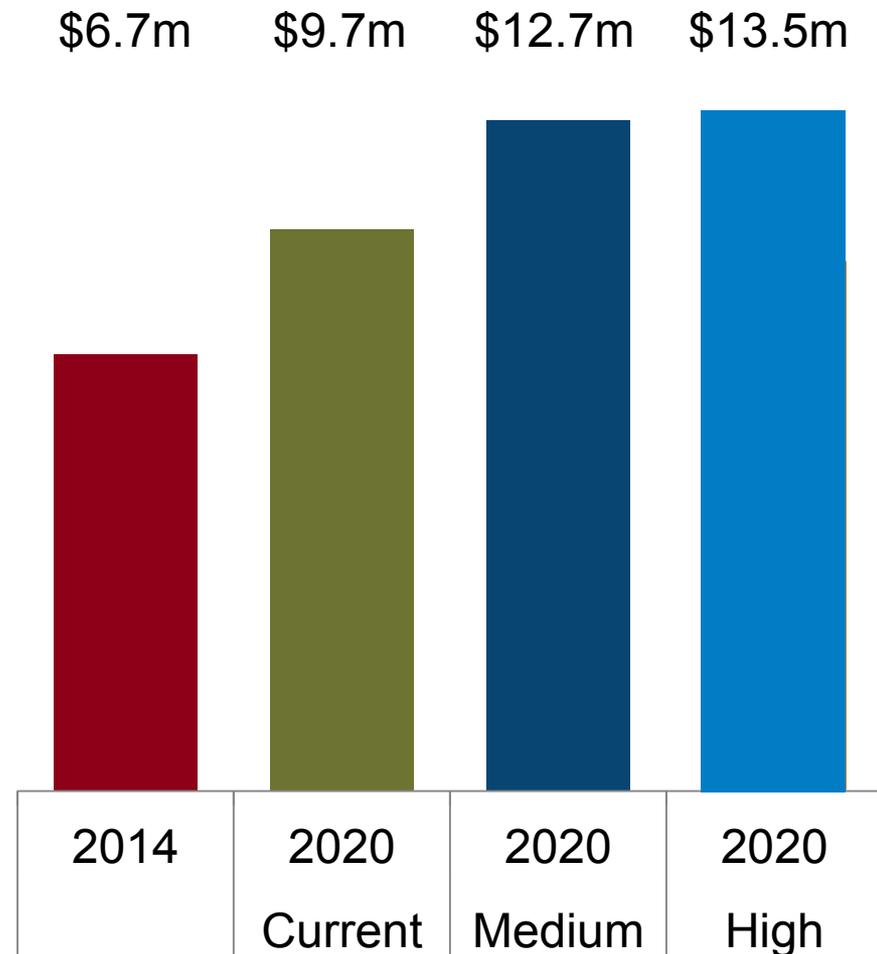
# Child and Maternal Lives Saved

- Increasing the uptake of FP, in line with CIP goals, can save an additional 6,368 children (medium scenario) and an additional 8,191 (high scenario) by the year 2020
- Achieving national goals could save an additional 583 mothers' lives in Ghana by the year 2020 (medium scenario) and an additional 753 (high scenario) by the year 2020



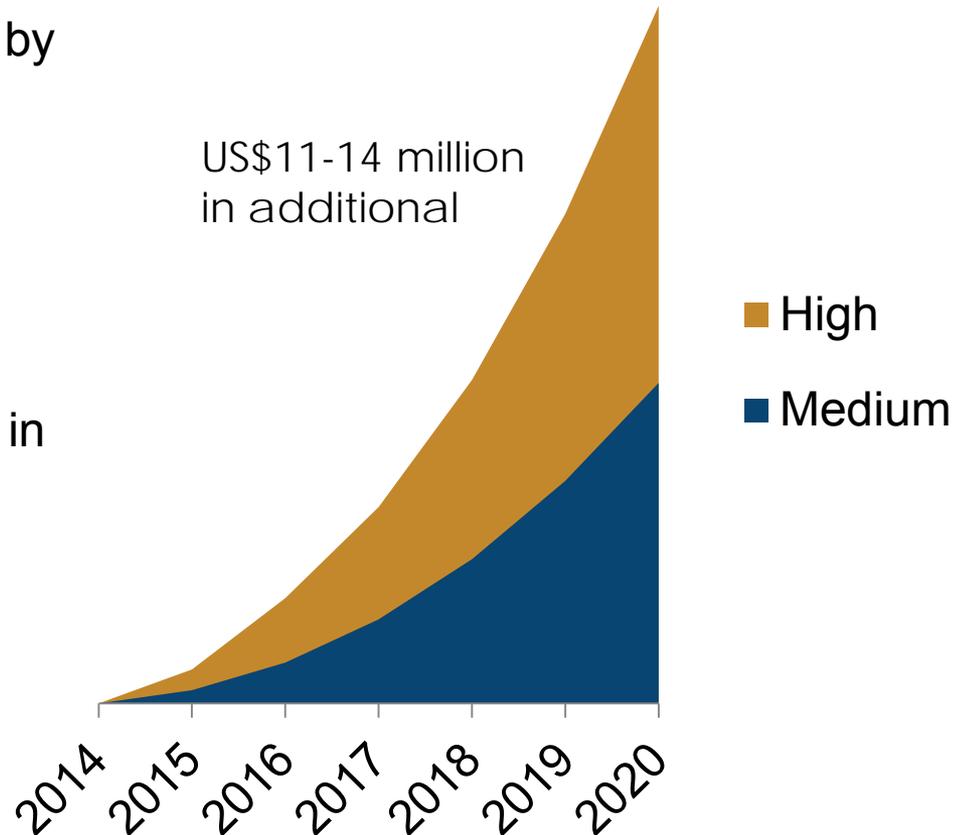
# FP Commodity Costs in Ghana

- FP commodity costs (not including condoms for HIV prevention) are estimated at US\$6.7 million in 2014
- If current trends continue FP costs will increase to US\$9.7 million in 2020
- Medium Scenario will cost \$12.7million in 2020
- High Scenario will cost US\$13.5million in 2020



# Healthcare Cost Savings

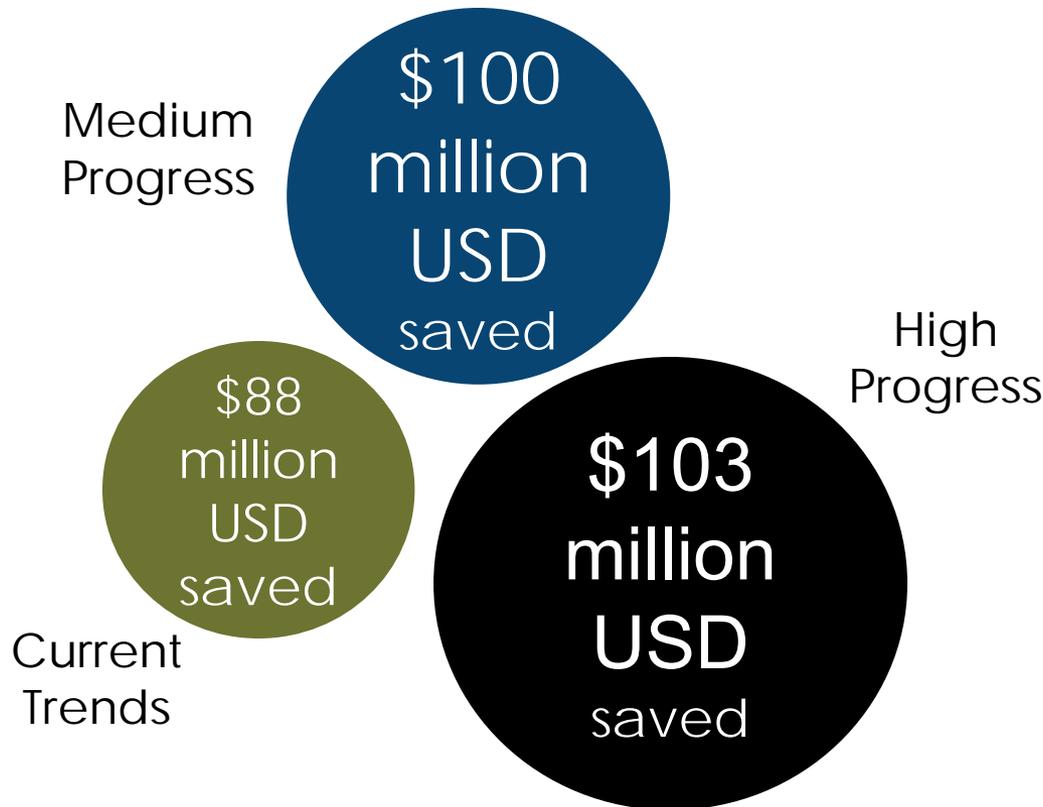
- Maintaining current trends (vs. no FP programme) will save US\$88,313,253 million in Ghana by 2020
- By achieving the High Progress scenario, Ghana can save an additional US\$11,311,665 million in costs (medium scenario) or \$14,550,825 (high scenario)



# Cost-benefit Analysis

Healthcare savings per dollar spent on family planning in Ghana, 2020

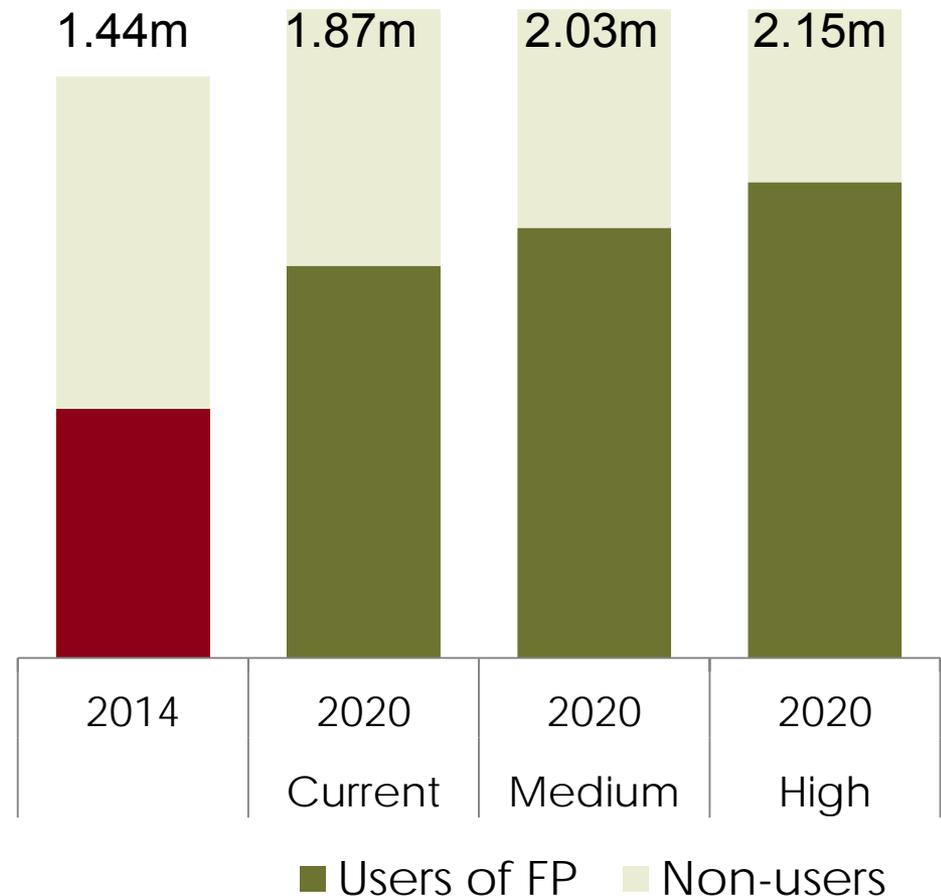
Currently, every US\$1 spent on FP saves US\$2 in direct maternal and infant healthcare costs in Ghana (and even larger cost saving seen in entire health system, education, infrastructure, etc.)



# Users of Family Planning

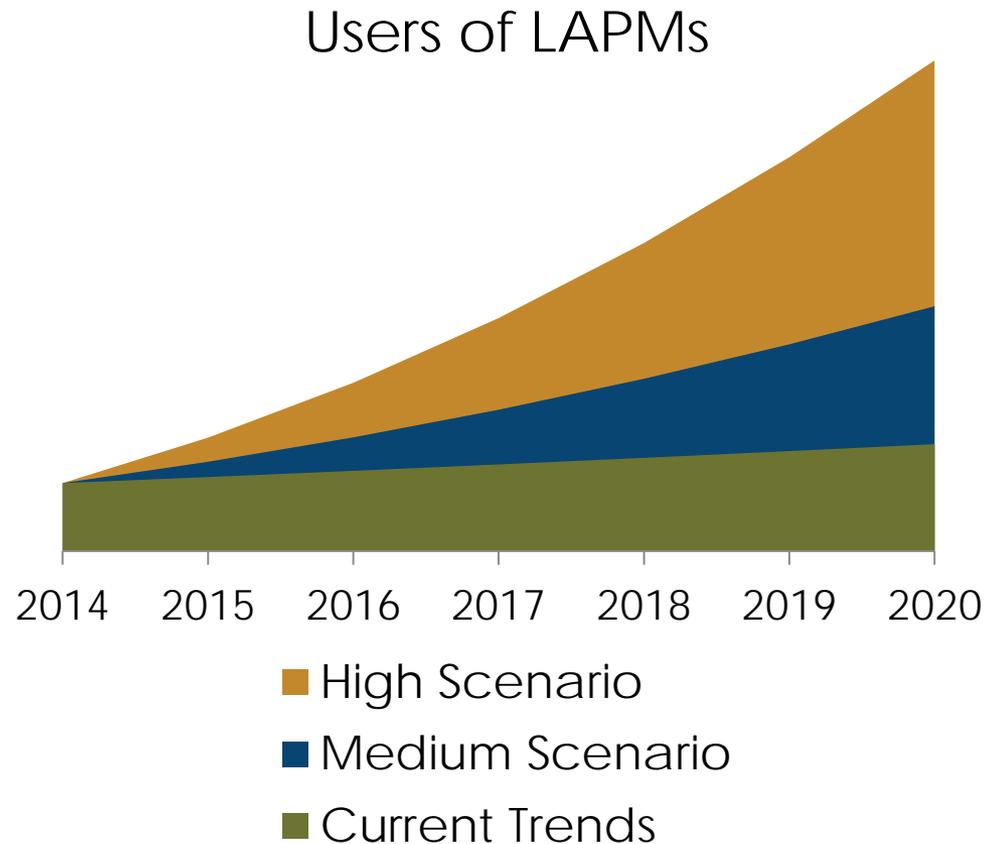
- To maintain current trends in scale-up, the number of FP users in Ghana must increase from 1.44 in 2014 to 1.87 million women by 2020.
- To achieve the Medium Progress scenario, there must be 2.03 million FP users in Ghana by 2020.
- To achieve the High Progress scenario, there must be 2.15 million FP users in Ghana by 2020.

Users of Family Planning  
(all methods)



# Users of Long-Acting and Permanent Methods (LAPMs)

- LAPMs are more effective in preventing unintended pregnancies and are easier to maintain
- Currently, only 374,000 women in Ghana use LAPMs (2014)
- To achieve the desired method mix in the High Progress scenario, the number of **users of LAPMs must increase to 864,000 million** by 2020



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# Conclusion

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# Conclusion and Next Steps



- When compared to current, trends by 2020, Ghana could save up to:
  - An additional 8,191 children's lives
  - An additional 753 mother's lives
  - An additional \$14 million dollars in direct maternal and child healthcare costs
- To realise these outcomes, we must increase the number of FP users from 1.44 in 2014 to 2.15 million FP users in Ghana by 2020

# Thank You!

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[www.healthpolicyproject.com](http://www.healthpolicyproject.com)

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The Health Policy Project is a five-year cooperative agreement funded by the U.S. Agency for International Development under Agreement No. AID-OAA-A-10-00067, beginning September 30, 2010. It is implemented by Futures Group, in collaboration with CEDPA (CEDPA is now a part of Plan International USA), Futures Institute, Partners in Population and Development, Africa Regional Office (PPD ARO), Population Reference Bureau (PRB), RTI International, and the White Ribbon Alliance for Safe Motherhood (WRA).





# SOCIO ECONOMIC STATUS AND THE CHOICE OF TREATMENT FOR CHILDHOOD FEVER IN GHANA

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# Objective

- ✓ To investigate the socioeconomic factors that influence the choice of facility for the treatment of childhood fever in Ghana.

## ➤ **Background**

- Under-five mortality is still high in Ghana. Yet, most of the deaths are caused by factors that can be controlled if appropriate care is sought for and on time from the appropriate facility.
- Malaria and pneumonia are leading causes of childhood morbidity and mortality.
  - Malaria accounts for the majority of childhood hospital admissions and 26 percent of childhood deaths,
  - while pneumonia is responsible for about 22 percent of hospital admissions in tertiary health facilities and 18 percent of childhood deaths (Nonvignon et al, 2010)

# Background ...

- Fever, which is a common symptom in malaria, pneumonia and other causes of childhood deaths is easily recognized by parents and care-givers.
- In most cases, the child is given pain killers, or the mother uses cold water to clean the body of the child.
- This is however not enough as fever is only an indication of the presence of an underlying cause that needs to be addressed.
- Acquiring information on the factors influencing health-seeking behavior for childhood diseases is important as part of actions needed to achieve the Millennium Development Goal 4 aimed at reducing child mortality by 2015.

# Background

- Some studies have discussed some factors that can influence one's demand for health care for the sick child. These studies have identified factors such as
  - Education,
  - Wealth,
  - Residence,
  - Birth order and
  - Accessibility of health care services
- Grossman (1972), Arif (2007), Nonvignon et. al., (2010), Kazembe et. al., (2007)

# Data and methods

- The data for the study was sourced from the Ghana Demographic and Health Survey (GDHS 2008).
- The descriptive analysis is carried out with a chi-square to identify whether differences in the use of the various facilities are significant among the socio-economic characteristics.
- The multinomial probit regression model was further used to investigate the determinants of choice of facility for the sick child.
  - Three choice are considered:
    - Government health facility
    - Private health facility
    - Self medication/traditional healer

# Results – Chi square test

<b>Explanatory Variables</b>	<b>Government hospital/ Clinic/health centre</b>	<b>Private/ Mobile clinic</b>	<b>Traditional/ self-medication</b>	<b>Pearson's Chi square</b>
<b>Education</b>				
<b>No education</b>	59.18	28.57	12.24	chi2(4) = 6.26
<b>Primary</b>	48.6	40.19	11.21	
<b>Secondary/ Higher</b>	56.67	36.11	7.22	
<b>Wealth Quintile</b>				
<b>Poorest</b>	58.72	20.18	21.1	chi2(8) = 37.57*
<b>Poorer</b>	56.12	36.73	7.14	
<b>Middle</b>	53.01	34.94	12.05	
<b>Richer</b>	58.43	38.2	3.37	
<b>Richest</b>	47.27	52.73	0	
<b>Health Insurance</b>				
<b>Not insured</b>	69.65	25.87	4.48	chi2(2) = 32.77*
<b>Insured</b>	43.35	42.06	14.59	
<b>Residence</b>				
<b>Rural household</b>	49.45	46.7	3.85	chi2(2) = 27.08*
<b>Urban household</b>	59.92	25.79	14.29	
<b>Employment status</b>				
<b>Not working</b>	55.87	33.42	10.7	chi2(2) = 3.39
<b>Working</b>	52.94	43.14	3.92	
<b>Marital status</b>				
<b>Not married</b>	56.35	33.86	9.79	chi2(2) = 0.81
<b>Married</b>	50	39.29	10.71	
<b>Total</b>	55.53	34.56	9.91	
<b>Distance</b>				
<b>Not a problem</b>	51.32	40.4	8.28	chi2(2) = 15.60*
<b>Big problem</b>	65.15	21.21	13.64	
<b>Transport</b>				
<b>Not a problem</b>	50.82	39.67	9.51	chi2(2) = 12.02*
<b>Big problem</b>	66.67	22.48	10.85	
<b>Gender of child</b>				
<b>Male</b>	53.25	35.06	11.69	chi2(2) = 2.08
<b>Female</b>	58.13	33.99	7.88	
<b>Total (434)</b>	55.53	34.56	9.91	

# Results – chi square continued

- ✓ Within the period of analysis, (Table 1)
  - 55.53% of the respondents sought care from a government health facility
  - 34.56 received care from private health facilities.
  - 9.91% of the respondents sought care from a traditional healer/self medication.
  
- ✓ The decision to seek appropriate care for the sick child from the chi square test (Table 1) is highly related to
  - income/wealth quintiles
  - health insurance status (insured or not)
  - access to health facilities (distance and transport).

## Results – Multinomial probit (reference –Government health facility)

VARIABLES	Private/ mobile clinic	Traditional/self-medication
Wealth quintile	0.091 (0.098)	-0.307** (0.14)
Age of mother	0.396* (0.22)	0.872*** (0.30)
Education of mother	-0.092 (0.13)	0.079 (0.17)
Health Insurance (Not insured)	-0.981*** (0.28)	-0.206 (0.47)
Gender of child (Male)	0.003 (0.19)	-0.256 ( 0.25)
Birth order of child	-0.165*** (0.06)	-0.208*** (0.07)
Residence (rural resident)	-0.377 (0.30)	0.682* (0.411)
Rural with health insurance	-0.161 (0.38)	-1.217** (0.58)
Employment status (not working)	-0.070 (0.29)	-0.823* (0.45)
Marital Status (Not Married)	-0.006 (0.27)	-0.068 (0.38)
Distance to health Centre (big problem)	-0.41 (0.28)	0.222 (0.40)
Transport to health Centre ( big problem)	-0.28 (0.28)	-0.539( 0.42)
Constant	-0.027 (0.60)	-1.725** (0.76)

# Results – multinomial probit (continued)

- ✓ The results from Table 2 indicate that;
  - Wealth
    - Wealthier mothers use government health facilities for the sick child.
  - Birth order
    - Parents are more likely to seek care from government health facilities for higher order births.
  - Residence (rural or urban)
    - Mothers in rural areas are less likely to seek appropriate care, however, mothers from rural with health insurance do seek care from government health facilities.
  - Employment status (working or not working)
    - Working mothers are more likely to seek care from government health facilities
  - health insurance status (insured or not)
    - Insured mothers are more likely to seek care from government health facilities.

# Recommendations

- ❑ As a first step, the existing health insurance policy should be strengthened as it has a huge potential of helping the nation deal with the high rate of under-five mortality through the use of child health care services.
- ❑ Secondly, the use of traditional healers and self medication in the rural centres needs to be addressed. This might be due to the distance to the health facility, or inability to pay for the service which is confirmed by the use of government health facility for those with insurance. Hence, efforts should be made to establish health centres closer to the communities.
- ❑ As a long term policy, it might be necessary to encourage women labour force participation in well paid jobs to enhance the income/wealth of mothers. This will also involve encouraging female education in the country for such jobs.



Thank You

# GHS/UNICEF

## Communications for Development (C4D)

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*Randomized Control Trial to Ascertain Impact  
of Behaviour Change Interventions*

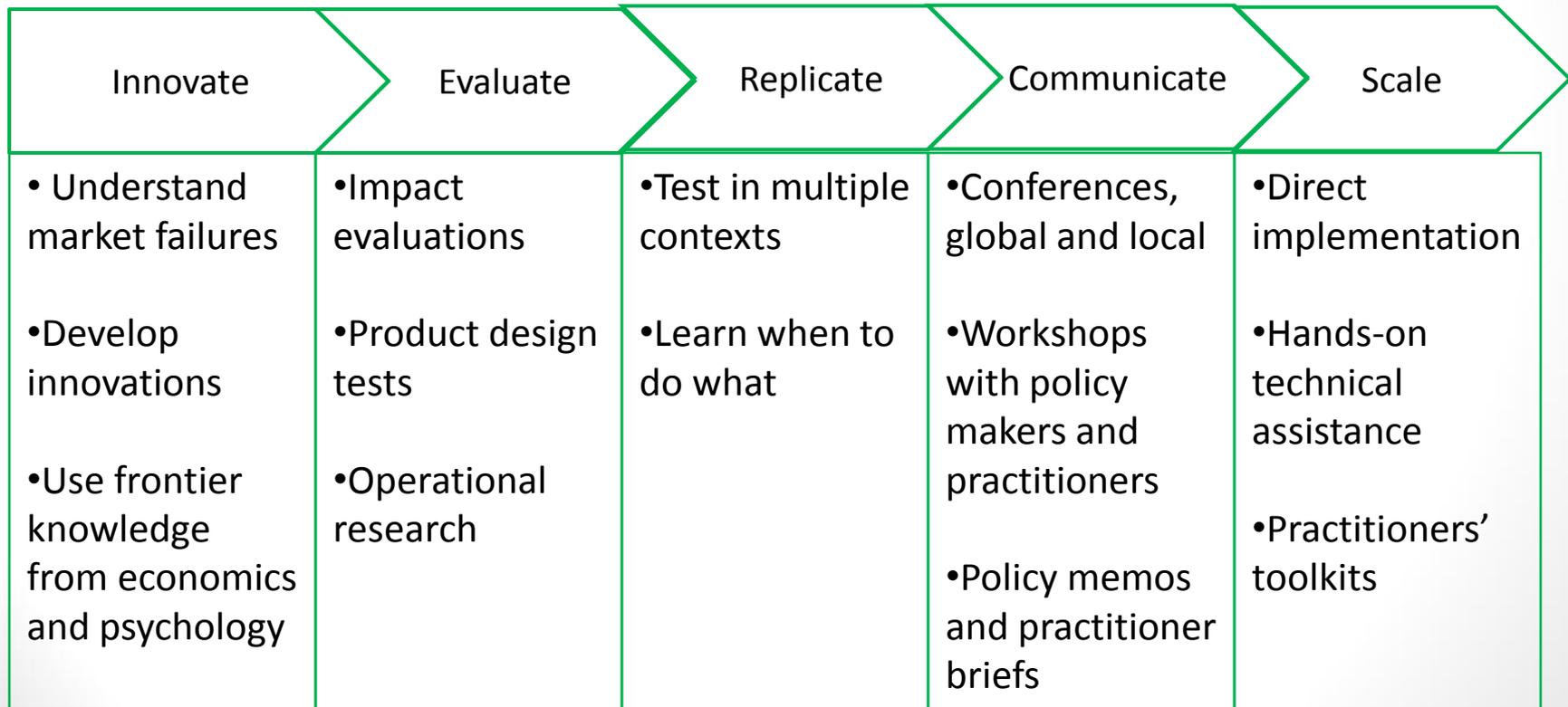
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May 27th, 2015

# About IPA

*We generate insights on what works and what does not through randomized evaluations, and ensure that those findings will be useful to, and used by practitioners and policy makers*

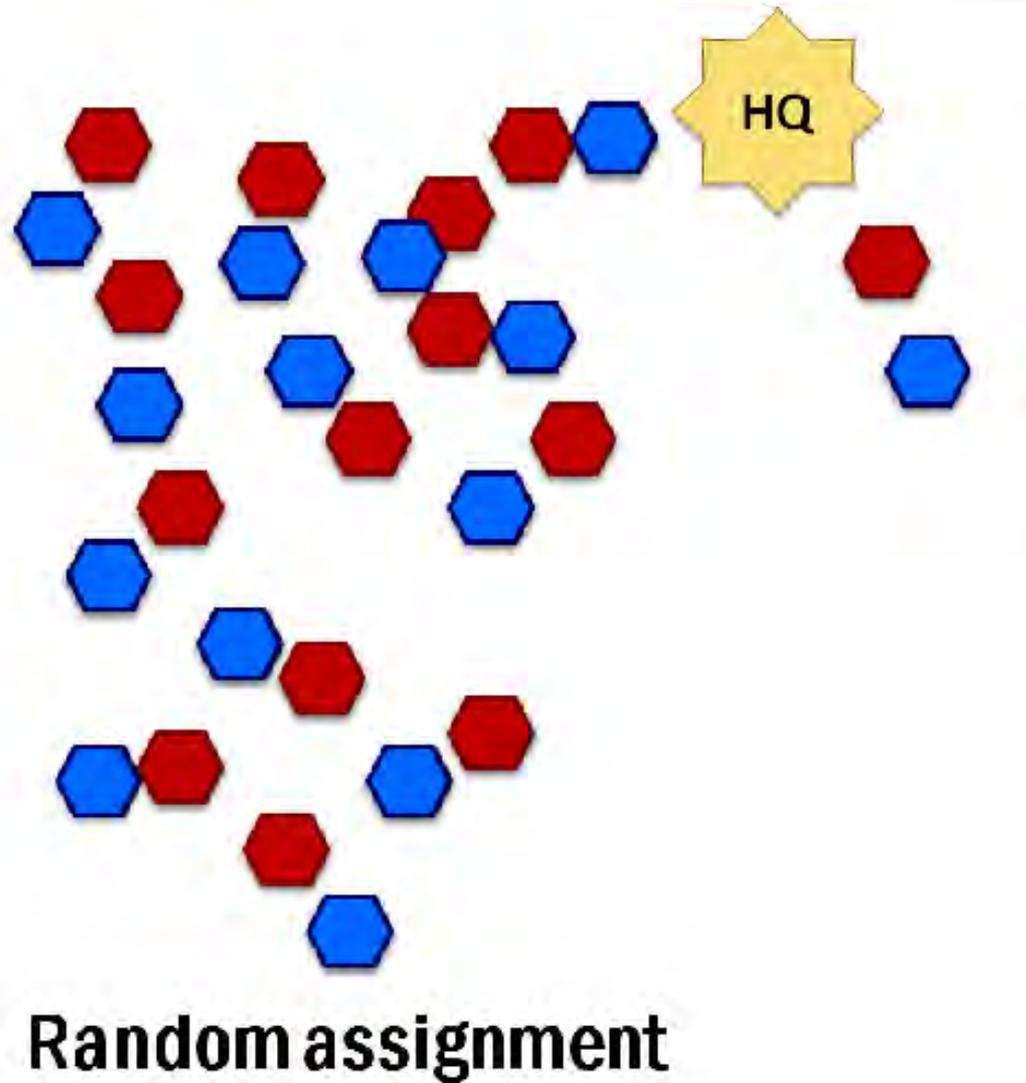
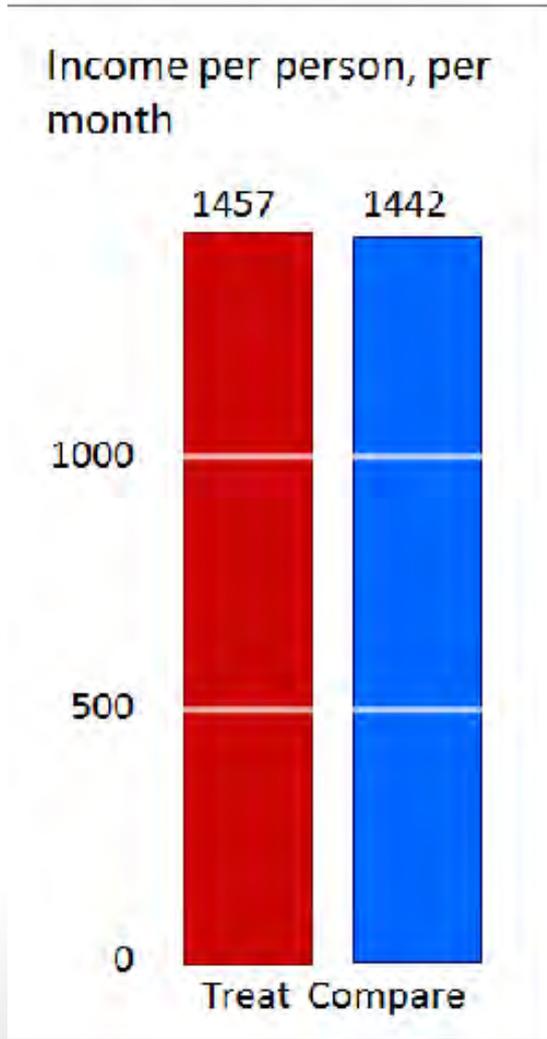


# Communications for Development

## Intervention to Evaluate

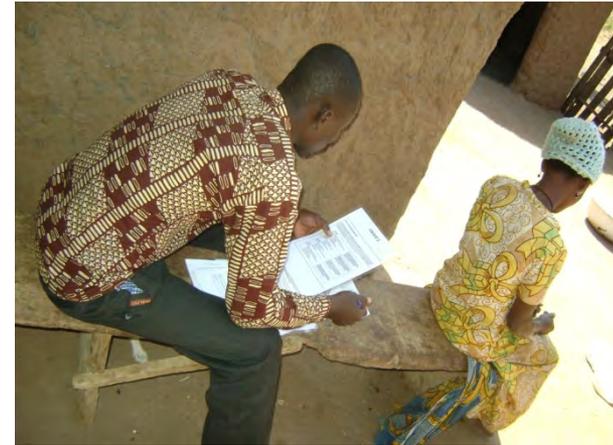
- Targets maternal and child (under 5) health
- “Five Key Behaviours” ONLY
  - Hand washing with soap
  - Long-lasting insecticidal nets
  - Exclusive breast-feeding
  - ORS
  - Skilled birth attendants
- Led by Health Promotion and UNICEF C4D
- Implemented by GCRN, CNC and Voto Mobile with key support from numerous other organizations
- Components:
  - CBAs
  - Dramas
  - Community Radio
  - Mobile messaging (M4D)

# What is an RCT?



# Sample and Randomization

- 9 districts in 3 regions (Upper East, Upper West, Northern)
- 216 communities chosen randomly
- Census to find potential households
- 4,269 households chosen randomly
- Principle Respondents:
  - Women between 18-49
  - One or more children under 5
  - Randomly selected from list of households in each community
- Messaging for Development sub-sample (VOTO Mobile)
  - 2380 households with cell-phone access (from original sample)
  - 1/3 control, 1/3 single-voice message, 1/3 multiple voice messages





# Measurement

## What do we measure?

- Behavior
- Knowledge
- Attitudes
- Norms
- Beliefs
- Barriers
- Motivators/enablers
- Context
- Implementation patterns
- Exposure to interventions

## How?

- Quantitative
  - Self-reports/direct questions
  - Message recall
  - List randomization
  - Health measurements
  - Proxies
- Qualitative
  - Focus groups
  - In depth interviews
- Monitoring
  - Field visits
  - Implementation monitoring
  - Call data

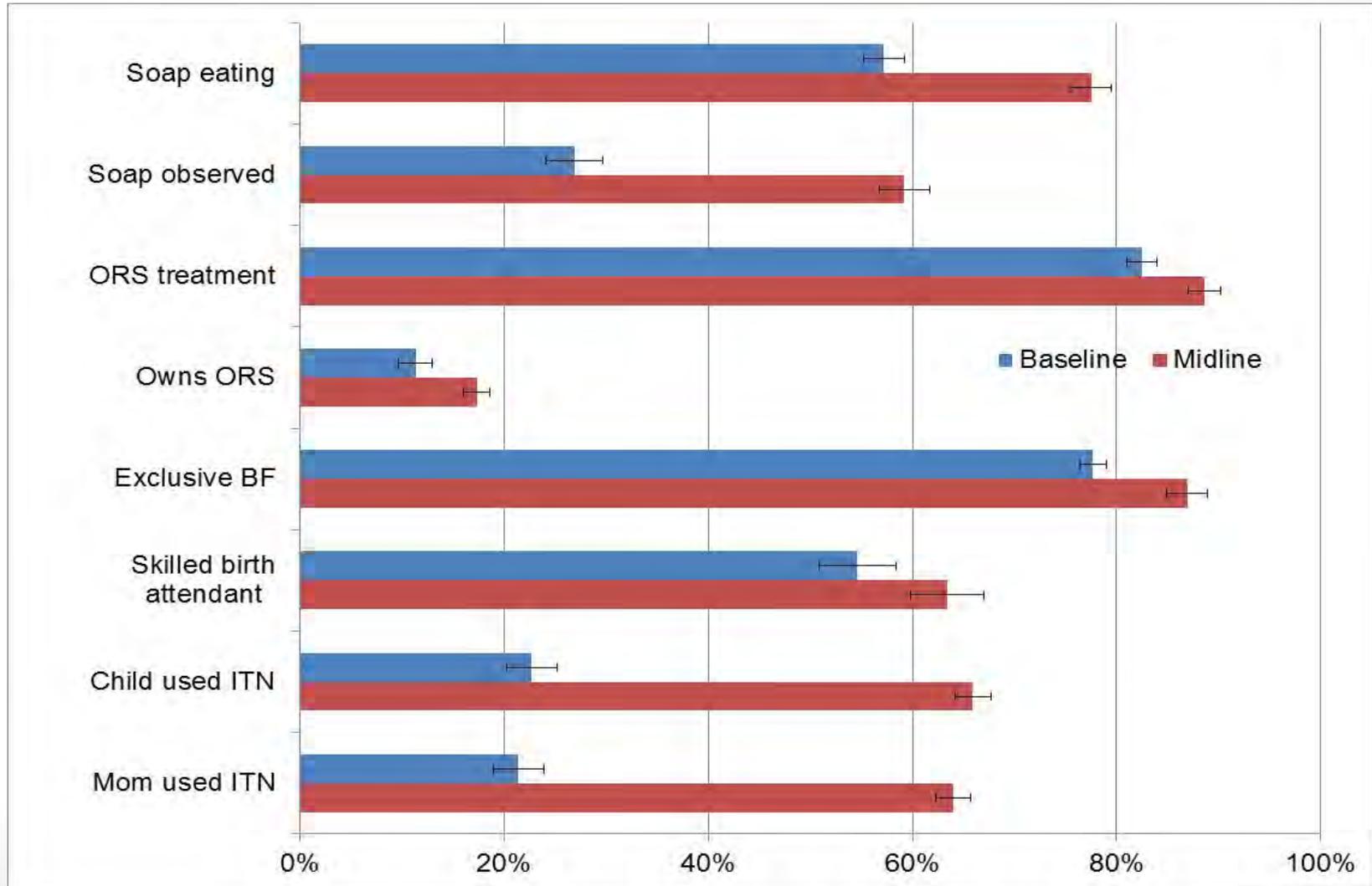
# Baseline Results

- **Knowledge:**
  - Consistently high across all health behaviours
  - E.g. Respondents know about importance of breastfeeding, the causes of malaria, and the importance of delivering in a clinic
- **Practices:**
  - Much more varied, often in contrast to reported knowledge
  - E.g. One third of respondents gave water before 6 months of age, 13.7% had their child sleep under a treated bed net, 52.7% last delivered in a health facility
- **Perceived Severity vs Susceptibility:**
  - Respondents believed malaria was very dangerous (4.24 out of 5) but most believed it was “somewhat likely” or “a little likely” that their child would get it in the next 6 months
  - A similar relationship was present for diarrhea

# Qualitative Approach

<b>Key Health Behaviour</b>	<b>Reported Barriers</b>
<b>Exclusive Breastfeeding</b>	Traditional practices around giving water, negative view of colostrum
<b>Skilled Birth Attendants</b>	Transportation issues, cultural influence, patient-provider interaction
<b>Insecticide-treated Bed Nets</b>	Heat when sleeping, availability of nets, inconvenience, skin irritation
<b>ORS and Zinc Treatment for Diarrhea</b>	Minimal financial or accessibility issues, lack of knowledge and trust in zinc
<b>Hand-washing with Soap</b>	Financial barrier of buying soap, accessing soap when needed, inconvenience

# Midline Trends



Only includes respondents who reported a youngest child who had eaten food.

# Challenges and Next Steps

Implementation Challenge	Research Challenge
Focusing multifaceted intervention	Spillover effect
Working in a community repeatedly	Monitoring for real change
Consistent implementation over many years	Attrition
Targeting changeable behaviours using informational approach	Discrepancy between knowledge and practice
Working in low-development communities	Improvement in all areas

# Conclusion

- *“We didn’t know the first yellowish milk was so important but now we know”*
- *“At first we didn’t know you were supposed to wash with soap, so now know”*
- *“Shortage of blood at the facility can be restored but delivery at home may result into death of both mother and un-born baby”*

**THANK YOU**

# Questions?



[www.poverty-action.org](http://www.poverty-action.org)



# Predictors of abortions in rural Ghana: a cross-sectional study

George Adjei, Yeetey Enuameh, Kwaku P. Asante, Frank Baiden, Obed Ernest A. Nettey, Abubakari Sulemana, Emmanuel Mahama, Stephaney Gyaase, Seth Owusu-Agyei

Kintampo Health Research Centre (KHRC), Kintampo, Ghana

**Presenter : George Adjei**



# Outline of Presentation



- Background
- Objectives
- Methodology
- Statistical Analysis
- Results
- Limitations
- Conclusion
- Acknowledgement



# Background

- Unsafe abortion is a major contributor to maternal mortality in sub-Saharan Africa and also the second largest cause of maternal mortality in Ghana
- Unless concerted effort is made to reduce abortions, Ghana can not achieve MDG 5 of reducing maternal mortality by half.
- Major factors contributing to unsafe abortions in Ghana are due to continued: (a) stigmatization of abortion (b) varied interpretation and ignorance of the current abortion law
- Unsafe abortions in Ghana are significantly influenced by socio-demographic factors
- However, most of the studies that explored the association of socio-demographic factors with abortion were hospital-based.



## Background cont.

- Their findings may not be representative of the general population due to the influence of other factors that influence access to healthcare.
- The current study which was a population-based and cross-sectional explored the influence of socio-demographic characteristics on abortions

## Objectives

- To explore the socio-demographic predictors of abortions (induced or spontaneous)
- To explore the socio-demographic predictors of induced abortions



# Methodology

- Between July 2011 and December 2011, a Sexual and Reproductive Health Survey was conducted among randomly selected individuals using the Kintampo Health and Demographic Surveillance System (KHDSS) as a platform.
- The questionnaire administered to 3554 women aged 15-49 yrs enquired about their pregnancy outcomes in the past (live birth, still birth, spontaneous abortion, induced abortion)
- To reduce recall errors, 2197 women with pregnancy outcomes from January 2008 (i.e 3 years prior to the study) to December 2011 were selected for this study.
- For each episode of pregnancy outcome, a corresponding socio-demographic characteristic close to the time of the outcome was also accessed from the database of the KHDSS.

# Statistical Analysis



- **Main outcomes (binary dependent variables)**
  - Abortion (spontaneous or induced)
  - Induced abortion
- **Covariates (independent variables)**
  - Marital status
  - Educational level
  - Age
  - Household wealth
- Univariate and multivariate random effects logistic regressions were used
- Clustering was adjusted because of multiple pregnancy outcomes



# Results



- **Predictors of abortion (induced or spontaneous)**
- The marital status of the women significantly influenced whether they had abortion or not (Table 1) .
- The age of the women was also associated with abortion (Table 1).
- The level of education of the women was found to be associated with abortion (Table 1).
- The household wealth of the women significantly influenced abortion (Table 1).

**Table 1: Socio-demographic factors associated with abortion  
(spontaneous or induced)**



Variables	Univariate model OR (95% CI)	p	Multivariate model OR (95% CI)	p
<b>Marital Status</b>				
Married	1		1	
Unmarried	2.08 (1.503-2.873)	<0.001	1.77 (1.213-2.578)	0.003
<b>Age</b>				
13-19	1		1	
20-29	0.48 (0.305-0.759)	0.002*	0.57 (0.340-0.946)	0.030 <sup>β</sup>
30-39	0.43 (0.266-0.705)	0.001*	0.69 (0.391-1.214)	0.198 <sup>β</sup>
40-49	0.62 (0.322-1.206)	0.160*	1.13 (0.537-2.382)	0.746 <sup>β</sup>
<b>Educational Level</b>				
No Education	1		1	
Primary	2.03(1.333-3.097)	0.001*	1.87 (1.169-3.001)	0.009*
Middle/JSS	2.60 (1.770-3.820)	<0.001*	2.06 (1.334-3.195)	0.001*
Secondary+	3.48 (1.882-6.426)	<0.001*	2.29 (1.139-4.605)	0.020*

**Table 1 cont.**

Variables	Univariate model OR (95% CI)	p	Multivariate model OR (95% CI)	p
<b>Household wealth</b>				
Most poor	1		1	
More poor	1.11 (0.653-1.905)	0.690*	1.12 (0.655-1.907)	0.684*
Poor	2.11 (1.257-3.547)	0.005*	1.49 (0.880-2.536)	0.137*
Less poor	2.12 (1.247-3.603)	0.005*	1.56 (0.905-2.690)	0.110*
Least poor	4.78 (2.720-8.396)	<0.001*	3.31 (1.853-5.916)	<0.001*

**\* Wald**

# Results cont.



- **Predictors of induced abortion**
- Marital status of the women had significant influence on induced abortion (Table 2)
- Age of the women was associated with induced abortion (Table 2)

**Table 2: Socio-demographic factors associated with induced abortion**



Variables	Univariate model OR (95% CI)	p	Multivariate model OR (95% CI)	p
<b>Marital Status</b>				
Married	1		1	
Unmarried	14.26 (1.035-2.719)	<0.001	7.73 (2.790-21.440)	<0.001
<b>Age</b>				
13-19	1		1	
20-29	0.17 (0.061-0.488)	0.001*	0.26 (0.115-0.601)	0.002*
30-39	0.05 (0.012-0.198)	<0.001*	0.19 (0.064-0.542)	0.002*
40-49	0.03 (0.003-0.285)	0.002*	0.12 (0.017-0.821)	0.031*
<b>Educational Level</b>				
No Education	1		1	
Primary	5.49 (2.043-14.730)	0.001*	2.61 (1.027-6.630)	0.044 <sup>φ</sup>
Middle/JSS	6.39 (2.437-16.744)	<0.001*	2.40 (0.994-5.773)	0.051 <sup>φ</sup>
Secondary+	16.92 (3.660-78.226)	<0.001*	5.51 (1.523-19.963)	0.009 <sup>φ</sup>

**Table 2 cont.**

Variables	Univariate model OR (95% CI)	p	Multivariate model OR (95% CI)	p
<b>Household wealth</b>				
Most poor	1		1	
More poor	0.89 (0.275-2.869)	0.842*	1.04 (0.335-3.211)	0.950 <sup>0</sup>
Poor	2.47 (0.830-7.365)	0.104*	1.49 (0.505-4.390)	0.470 <sup>0</sup>
Less poor	2.61 (0.878-7.770)	0.084*	1.85 (0.641-5.333)	0.255 <sup>0</sup>
Least poor	6.90 (2.208-21.576)	0.001*	4.02 (1.287-12.540)	0.017 <sup>0</sup>

**\* Wald**

## Limitations

- Induced abortion are likely to be under-reported
- The respondents may find it difficult to accurately recall some of the past pregnancy outcomes
- The study did not also ascertain from respondents whether the induced abortions done were unsafe or not
- The study being cross-sectional was not able to establish the fact that the associated factors led to the outcomes.

## Conclusion

- Younger and unmarried women experience more unwanted pregnancies that leads to : (a) *induced abortions* (b) *all reported cases of abortions*
- The household wealth and educational level of women were found to be a correlate of only: *all reported cases of abortion*



# Acknowledgement

- The Director & Staff of KHRC
- INDEPTH Network
- The Community Members
- Sponsors and organizers of NHRDS 2015





# Thank you





# **DISTRICT HEALTH INFORMATION MANAGEMENT SYSTEM2 (DHIMS2)**

**Anthony Oforu, Dominic Atweam, Erasmus Agongo**

**POLICY PLANNING MONITORING AND EVALUATION DIVISION GHANA HEALTH SERVICE**

# OUTLINE

1. Introduction
2. Methodology
3. Results
4. Conclusion

# Introduction

- ✦ On April 1<sup>st</sup> 2012 the Ghana Health Service (GHS) deployed a comprehensive web based District Health Information Management System DHIMS2 to all 216 districts in Ghana
- ✦ It was to be used by health facilities and their district, metropolitan and municipal health directorates to collect and analyze routine health service data.
- ✦ This was among the many initiatives taken to address data and information flow difficulty within the Health Service
- ✦ It was to promote data visibility and eventually improve data quality and data use for decision making

# Methodology

- \* DHIMS2 was built on dhis2, which is a free open software.
- \* It was developed mainly with local capacity, with support from University of Oslo.
- \* Currently over 6000 users from government, quasi-government, private and faith-based facilities submit their service report each month through DHIMS2.
- \* Senior Managers at the headquarters and regional level now use DHIMS2 to monitor the service utilization and inputs to generate their own reports.

# Results

- \* At the end of each month, all health facilities collect service data from their registers into summary forms
- \* Input into DHIMS2 online.
- \* All service data are made available online as real-time data, visible to registered managers at all levels.
- \* The Ministry of Health/Ghana Health Service works with a well-structured decentralized health delivery from national, regional, district, sub-district to community (CHPS) levels and this structure has been adopted to make DHIMS2 a very meaningful resource to the Health Sector.
- \* Data extracted from the DHIMS2 has facilitated the rapid assessment of the performance of the Health Sector using the Holistic Assessment Tool.

**REPORTING RATE SUMMARIES  
FOR SOME SELECTED REPORTING FORMS FROM INTRODUCTION ON  
DHIMS2 FOR DATA CAPTURE AND REPORTING COMPARATIVE 6-  
MONTH TREND/YEAR**

<b>Period</b>	<b>Statement of Outpatients</b>	<b>Monthly Nutrition Report</b>	<b>Monthly Vacc Report</b>	<b>FCMCH Returns</b>	<b>Form B - FP Returns</b>
<b>Jan to Jun 2012</b>	<b>84.5</b>	<b>49.9</b>	<b>63.9</b>	<b>64.5</b>	<b>65.5</b>
<b>Jul to Dec 2012</b>	<b>82.9</b>	<b>49</b>	<b>63.2</b>	<b>63.1</b>	<b>65.2</b>
<b>Jan to Jun 2013</b>	<b>92.1</b>	<b>66</b>	<b>71</b>	<b>70.8</b>	<b>72.6</b>
<b>Jul to Dec 2013</b>	<b>91.2</b>	<b>64.7</b>	<b>70.4</b>	<b>70.2</b>	<b>72</b>
<b>Jan to Jun 2014</b>	<b>97.1</b>	<b>90.7</b>	<b>92.6</b>	<b>92.1</b>	<b>94.7</b>
<b>Jul to Dec 2014</b>	<b>97</b>	<b>94.6</b>	<b>96.6</b>	<b>94.7</b>	<b>96.7</b>

# Conclusion

- \* DHIMS2 now offers managers involved in intervention programmes the opportunity to use routine service data to monitor and compare the performance between interventions and controls with regards to service utilization.
- \* Results are visible to managers timely for prompt action on achieving Ghana's health-related MDGs.
- \* DHIMS2 provides a strong platform for information exchange, allocation and reallocation of services. a key component for strengthening health systems.

## GHANA HEALTH SERVICE DHIMS2 eTRACKER

### BACKGROUND

Ghana Health Service (GHS) works with a structured decentralized health delivery from national,

- Regional
- District
- Sub-district
- Community (CHPS)

These levels and structure has been adopted to make DHIMS2 a very meaningful resource to the GHS.

DHIMS2 is accessible in all 216 districts and is being used by health facilities and district health directorates to collect, collate, transmit and analyze routine health service data

At the end of each month, trained staff in all health facilities and district health directorates manually summarized Child Health Records data into the monthly reporting forms. Example, Monthly EPI form) by tallying and aggregating for input into DHIMS2 at the facility level or district level and sub district for a facility.

- Even though data are immediately uploaded and made available online in the DHIMS as real-time data.
- Visible to DHIMS2 registered health service managers at all levels in the Health Sector **BUT** accuracy, completeness and timeliness of the data has always been questioned.
- Secondly primary data collection tools at the Health Facilities are usually service registers which capture transactional individual clients data
- This register is not available to the district, regional level or national level.
- The district level keeps data in electronic form in the DHIMS2, which is only aggregated data, making detailed analysis on Child and Maternal Health Service limited.

**For this reasons it has become necessary to develop client based individual CHILD AND MATERNAL HEALTH RECORDS case management record system**

**The DHIMS2 eTRACKER to collect, manage and analyze transactional case based records at the community level.**



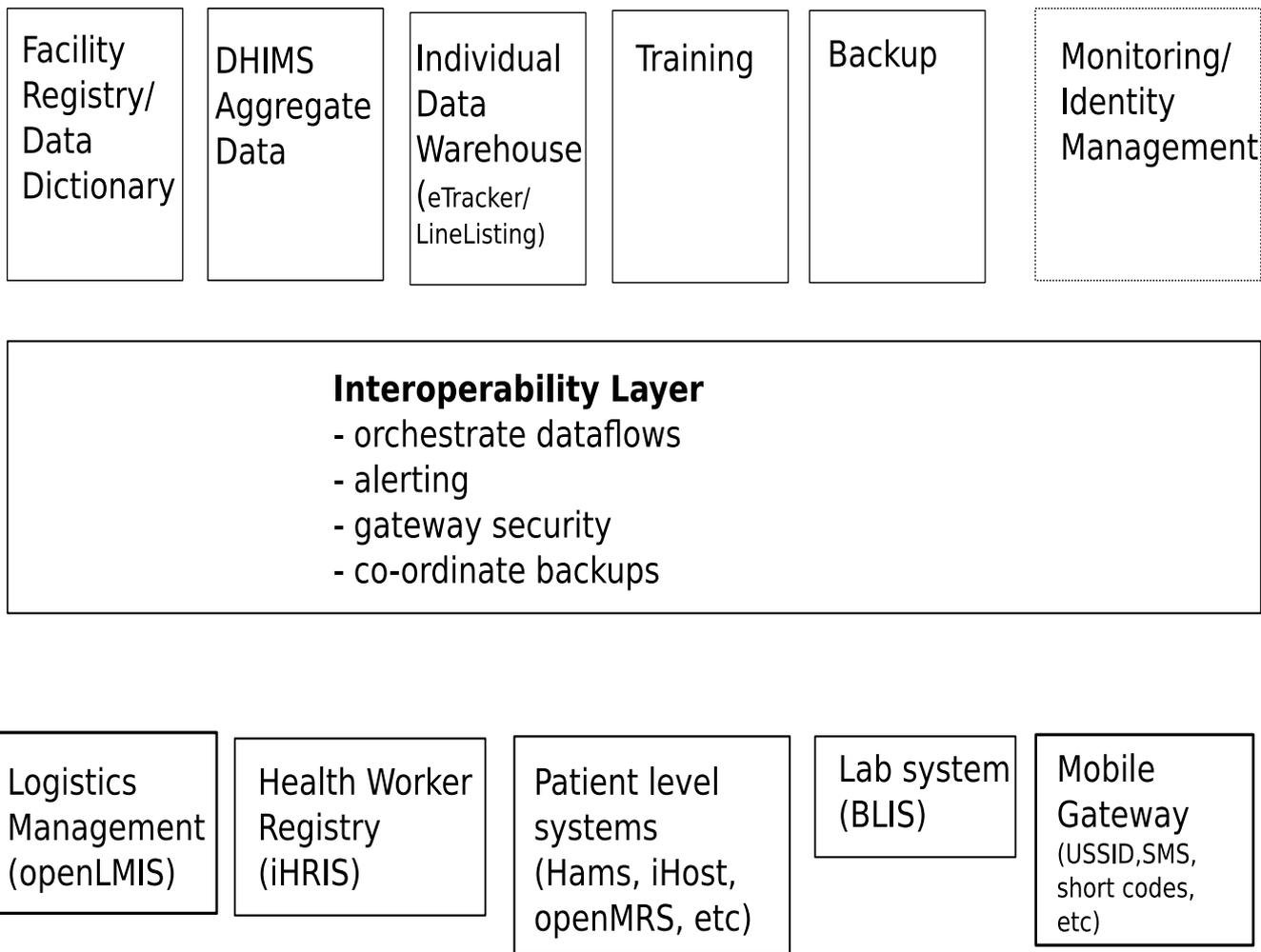
### WHAT WILL THE eTRACKER DO?

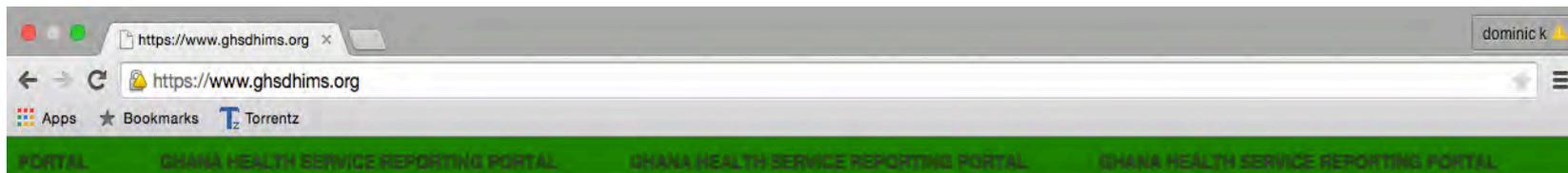
- The system will allow services providers for the Child and Maternal Health program to collect, manage and analyse transactional, case-based data records.
- It will store information about individuals and track these persons over time using a flexible set of identifiers.
- The system can capture information about anonymous events and cases as well.
- The tracker can let you
  - send SMS-reminders,
  - Track missed appointments
  - generate visit schedules.
- You can create dynamic reports based on cases and generate on-the-fly statistical reports. The Child Health programme for instance and their users can easily create statistics and summaries on participation and completion.

### WHERE ARE WE WITH IMPLEMENTATION

PHASE	No. of facilities	Implementing districts & regions	Time lines	Funding support	Programme Areas
PHASE 1	25	Awutu Senya west municipal	August 2014	GAVI & MAF	Maternal and Child Health (MCH)
PHASE 2	100 +	4 MCHIP districts for PBF	Q2 & Q3 2015	MCHIP-World Bank (4 districts)	MCH(PBF)
		Awutu senya east Gomoa west	Q2 & Q3 2015	Global fund (2 districts )	TB , HIV AIDS & MCH
		Asuogyaman Upper Menya Krobo	Q2 & Q3 2015	Gavi (2 district)	MCH
		3 ENI Foundation supported districts (elembela, Jomoro & Ahanta west	Q2 , -Q4 2015	ENI Foundation	MCH
		4 UNICEF districts in Upper East region	Q2 & Q3	UNICEF	MCH
PHASE 3	500+	All districts in a region (minimum 25 districts )	Q3 & Q4 2015	GAVI	MCH
			Q3 & Q4 2015	Global Fund	MCH
PHASE 4	2000+	5 Regions	2016	None	MCH, TB & HIV/AIDS

**Ghana Ministry of Health Information Exchange  
implemented by Ghana Health Service  
Centre for Health Information Management**





Welcome To Minsitry Of Health Information Exchange  
Implemented By  
Ghana Health Service Center For Health Information Management.

Systems

<b>DHIMS 2</b>	<a href="#">Dhims 2</a>
<b>e-TRACKER</b>	<a href="#">e-Tracker</a>
<b>TRAINING</b>	<a href="#">Training</a>
<b>Facility Registry</b> <ul style="list-style-type: none"><li>To be posted soon, but available on request through GHS/CHIM</li></ul>	<a href="#">Facility Registry</a>
<b>Dhims 2 Data Dictionary</b> <ul style="list-style-type: none"><li>To be posted soon, but available on request through GHS/CHIM</li></ul>	<a href="#">Facility Data Dictionary</a>



Thank you

# **Maternal and Child Deaths in Northern Ghana:**

## **Evidence from the Navrongo Health and Demographic Surveillance System**

**ABRAHAM ODURO** BSC MBChB MSC PhD FGCP

Director, Navrongo Health Research Centre



# Presentation outline

- Background of Navrongo Health Research Centre (NHRC)
- The NHRC Research Platform
- Navrongo Health Demographic Surveillance System
- Maternal Deaths
- Child Deaths
- Others
- Acknowledgements

# Navrongo Health Research Centre (NHRC)

## Background:

Started as Ghana Vitamin A Supplementation Trial site in 1988

Ministry of Health, Ghana

London School of Hygiene and Tropical Medicine,

Kwame Nkrumah University of Science and Technology

In 1992, MOH converted the site into a Research Centre:

**Navrongo Health Research Centre (NHRC)**

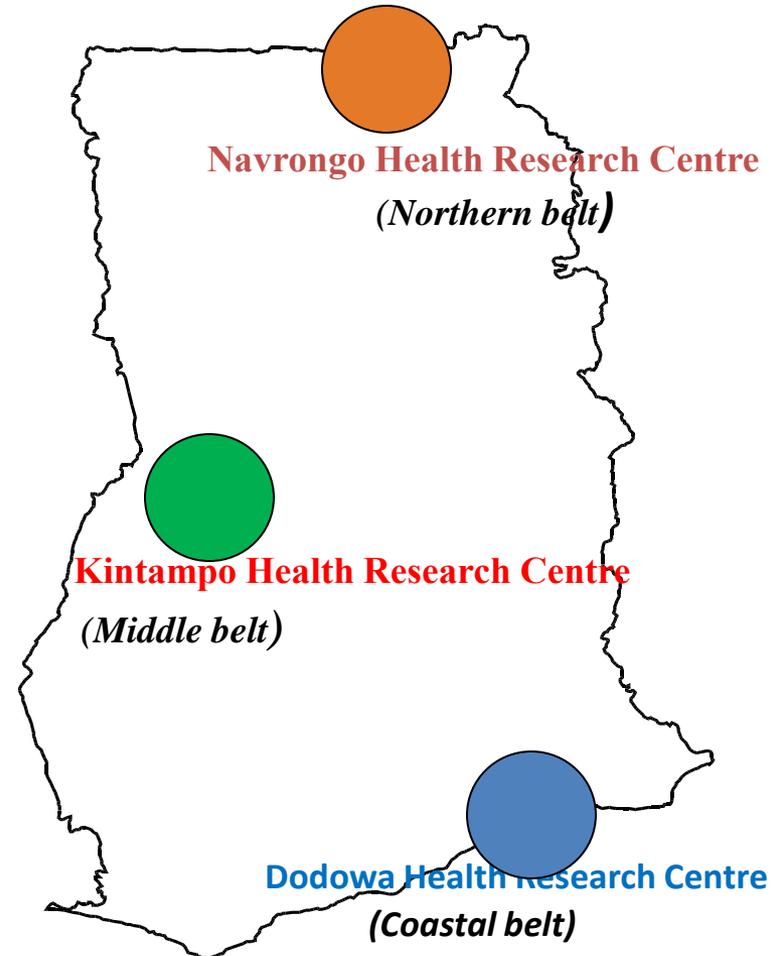
**Kintampo and Dodowa Research Centre**

**Research & Development Division / GHS**

**Mission:** To undertake health research in major national and international health problems with the aim of informing policy for the improvement of health

**Vision :** To become Centre of excellence for the conduct of high quality research and training for national and international health policy development.

## Research Centres of GHS



# NHRC Research Platform



**Administration block**



**Computer centre**



**Laboratory complex**



**Library and JCR complex**



**Data processing centre**



**Demographic surveillance block**



**Research officers block**



**Clinical trial centre**



**Fellows block**



**Guesthouse**



**Hospital**

# Navrongo Health & Demographic Surveillance System

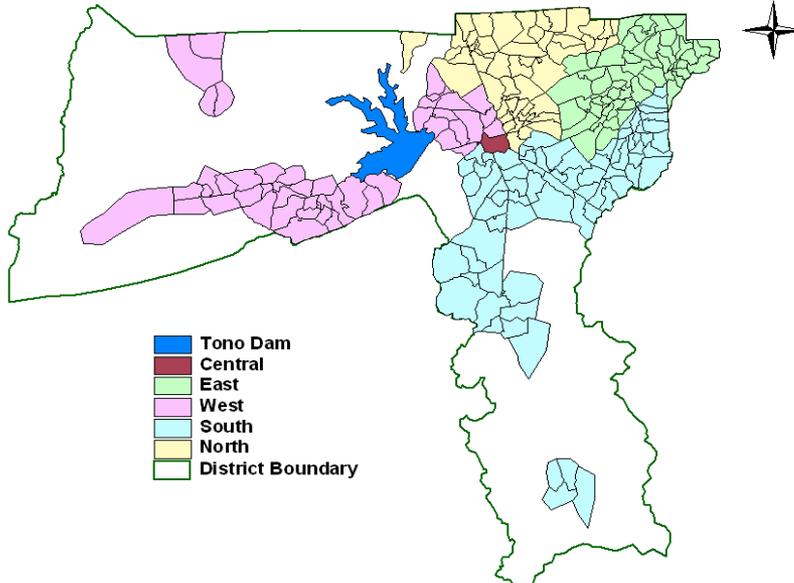
## Characteristics

- Established in 1992
- Two KN districts and 160 000 People
- Zones (5): East, West, Central, South & North
- 247 clusters, /18,800cps / 33,000 HHs
- 77<sup>th</sup> round; Three rounds a year

## Core Indicators during rounds

- Births
- Deaths
- Pregnancies
- Migrations
- Vaccinations/Other interventions
- Socio-Economics Characteristics
- **Verbal Autopsy!**

Map of Kassena Nankana District showing the DSS zones



# Verbal Autopsy Techniques

- As part of the **Surveillance System** Trained field supervisors conduct verbal autopsies (VA) on all deaths recorded at the household level
- This is to help ascertain the probable causes of deaths.
- Interviewers collect information on deceased individuals on all that transpired from the time of illness till death occurred.
- This includes
  - **a disease narrative**
  - **a checklist of signs and symptoms**
  - **Using a structured standard verbal autopsy questionnaire**
- Three physicians determine the probable causes of death.
- Using the codes of the International Classification of Disease as a guide
- Cause of death is assigned when there is concurrence between at least two of the physicians

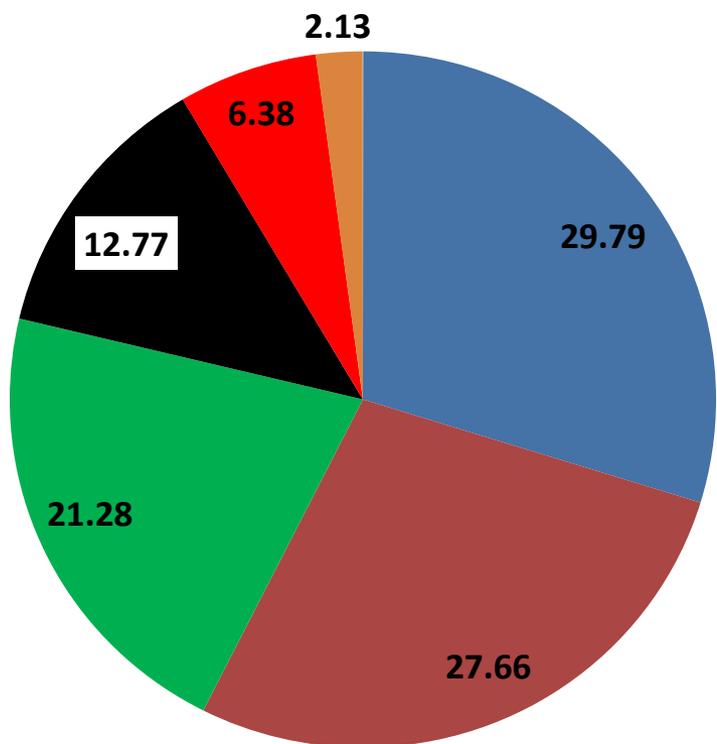
Data on maternal and child deaths from the Navrongo  
Health and Demographic Surveillance System :

Causes

Trends

Others

# Causes of Maternal Deaths in Navrongo DSS

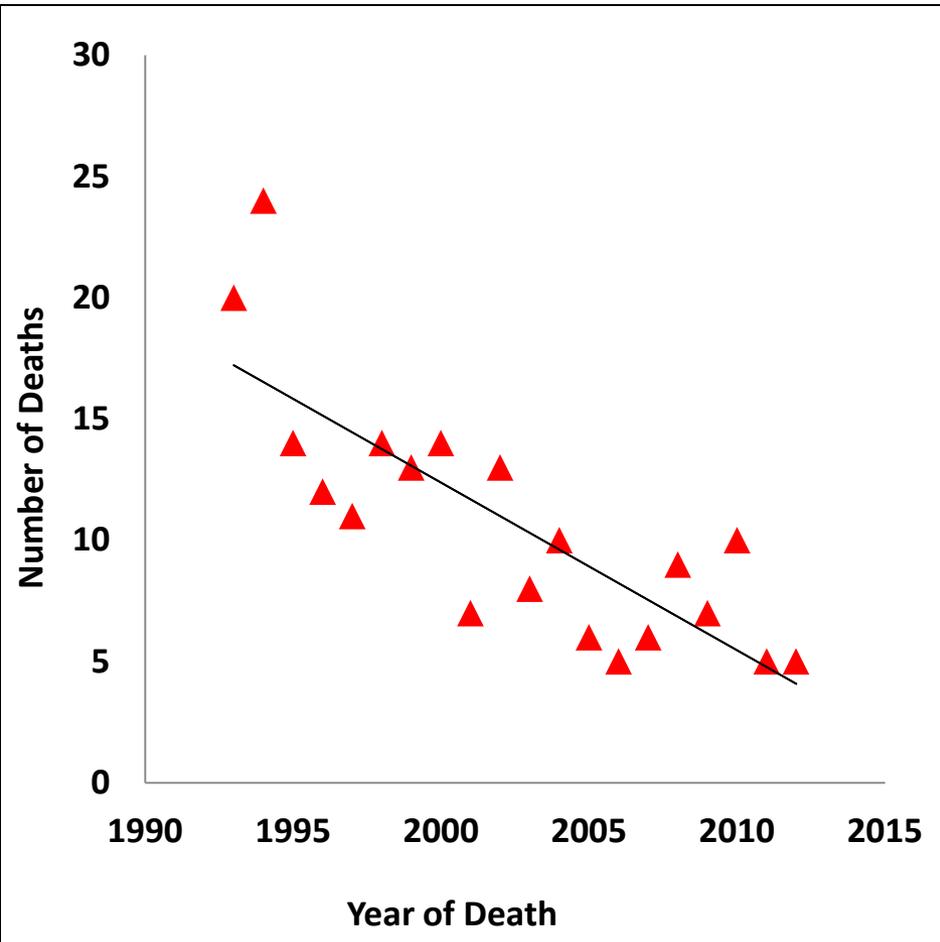


- Other maternal causes
- Pregnancy with abortive outcome
- Maternal haemorrhage
- Hypertensive disorders of pregnancy
- Puerperal sepsis
- Obstructed labour

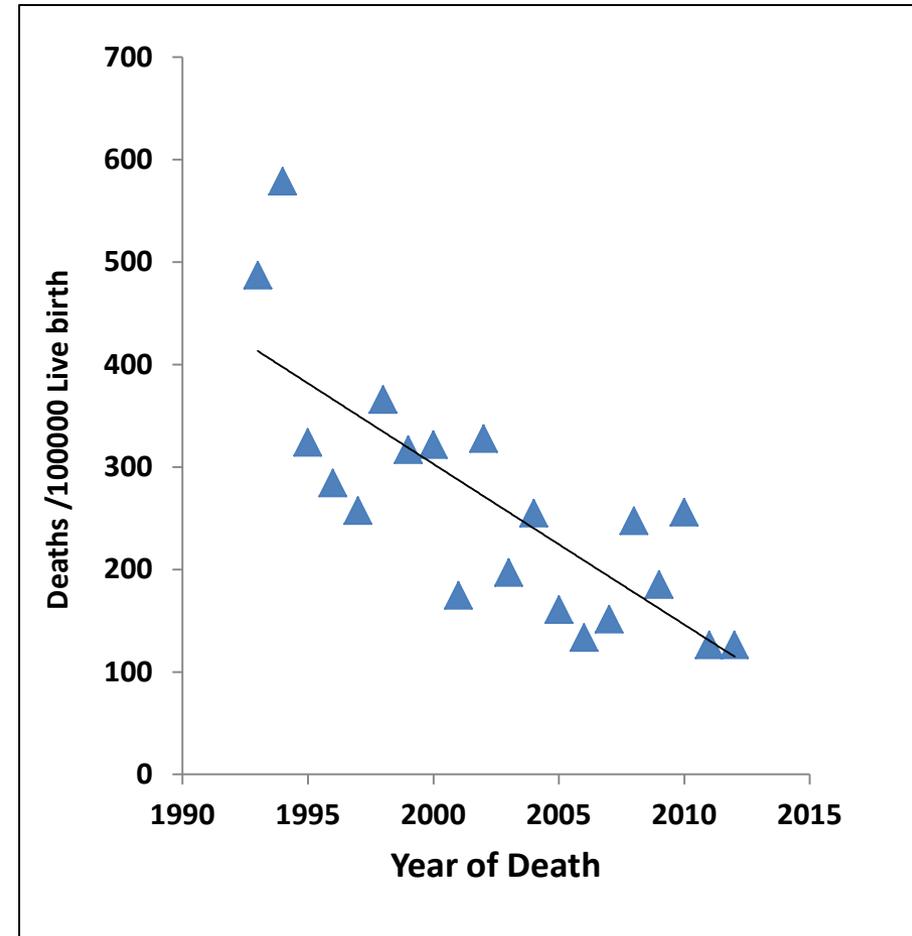
Causes	%
Pregnancy with Abortive Outcomes	27.66
Maternal Haemorrhage	21.28
Hypertensive Disorders of Pregnancy	12.77
Puerperal Sepsis	6.38
Obstructed Labour	2.13
Other Maternal Causes	29.79

# Trends In Maternal Mortality in Navrongo DSS: 1992-2012

Number of deaths per Year

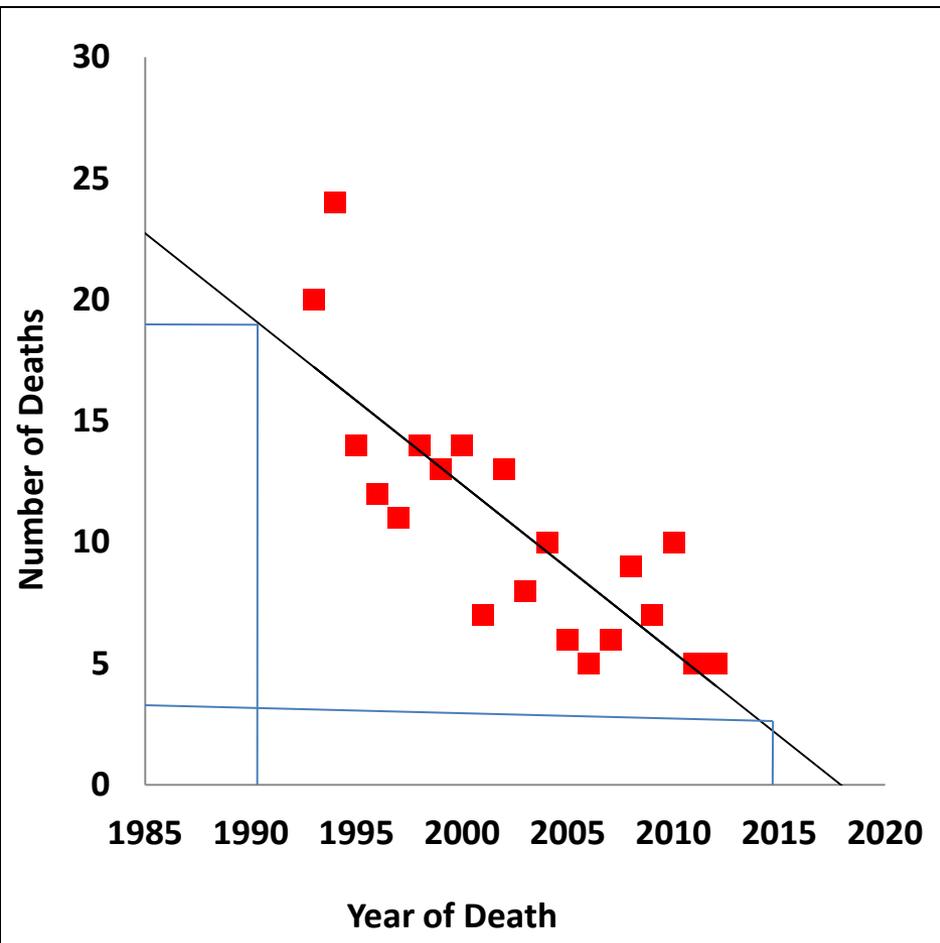


Number of deaths per 100000 Live Birth

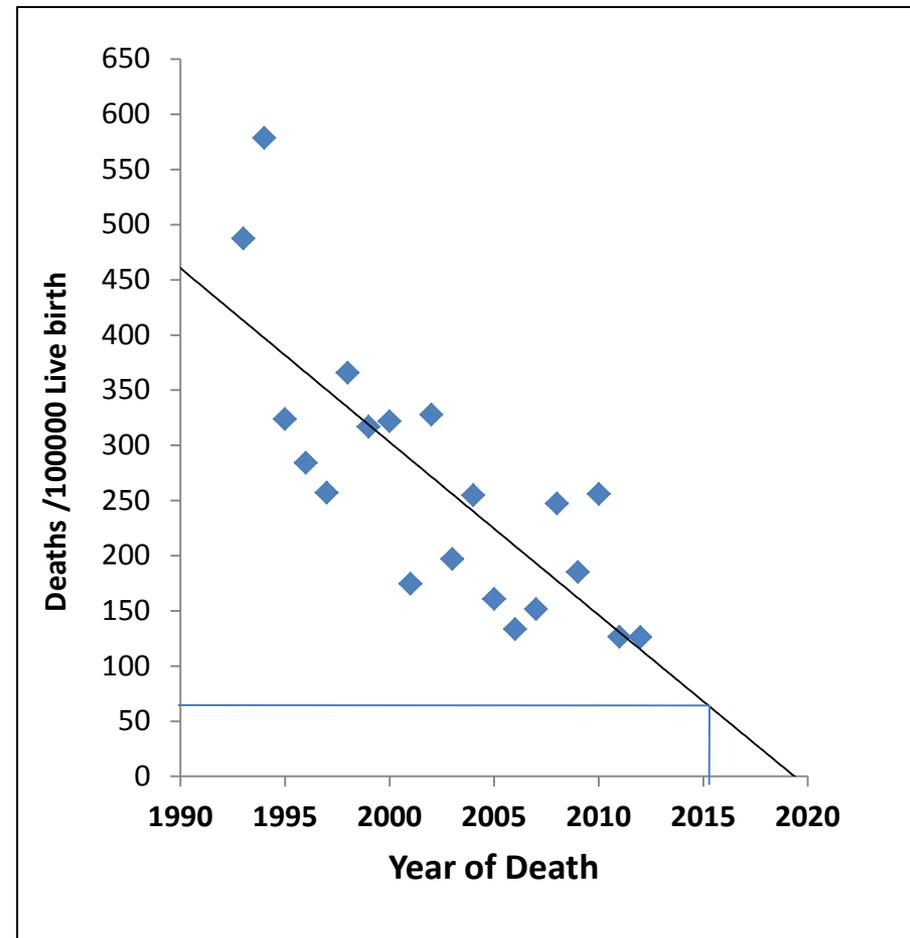


# Trends In Maternal Mortality in Navrongo DSS: 1992-2012

## Number of deaths per Year

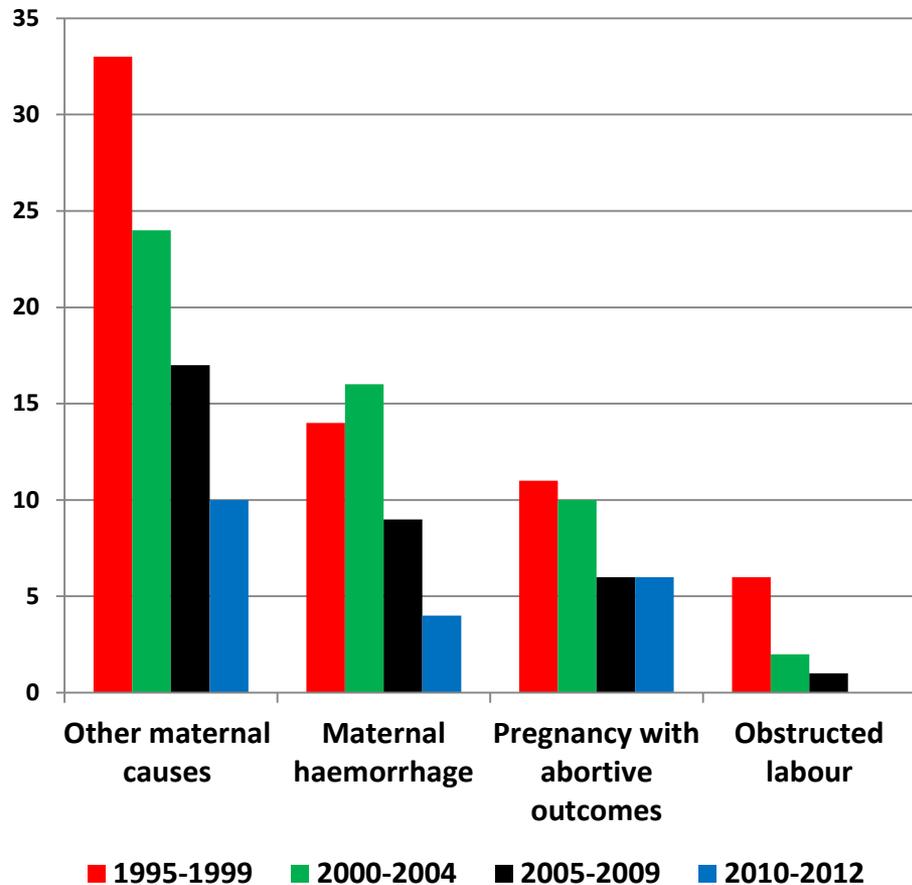


## Number of deaths per 100000 Live Birth

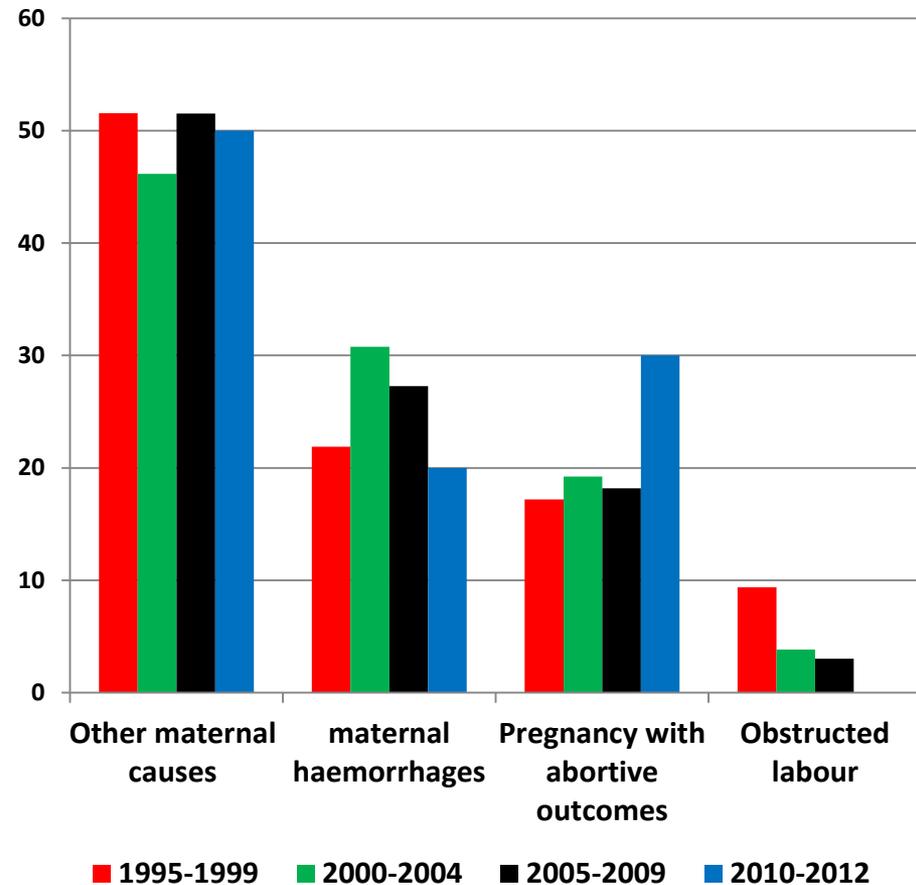


# Changes in Maternal Deaths over time

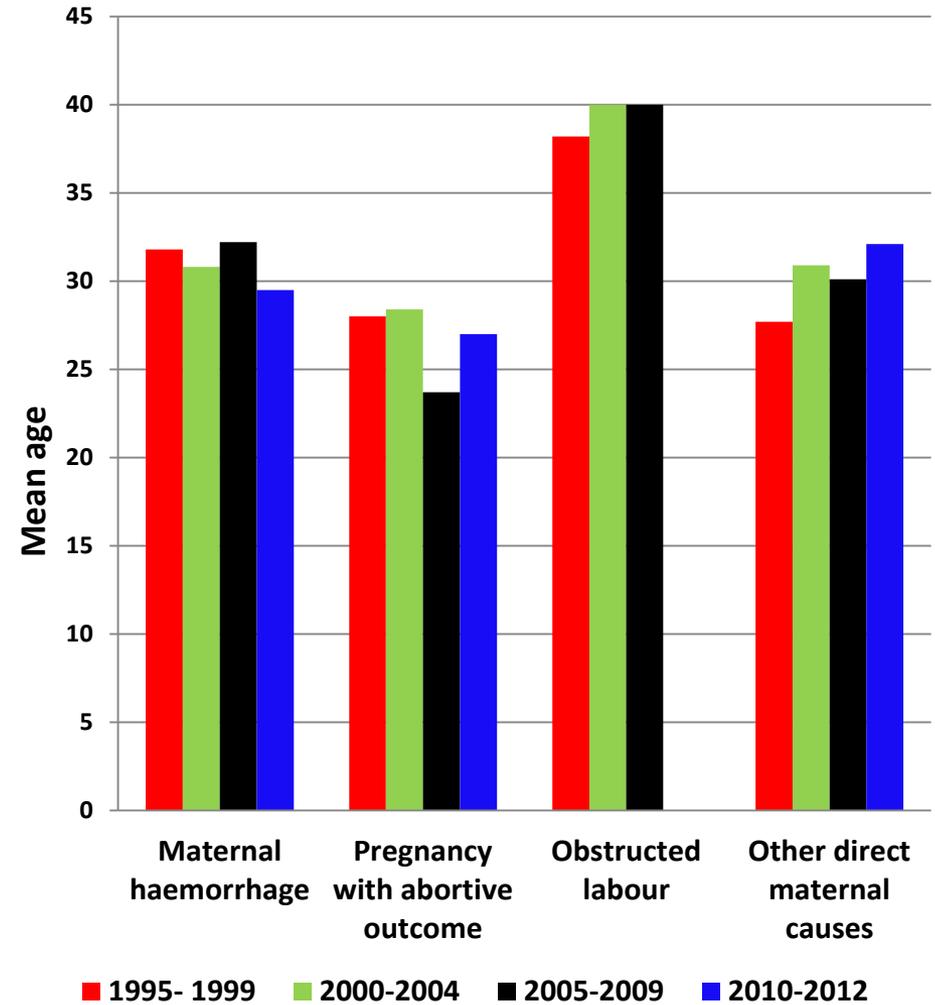
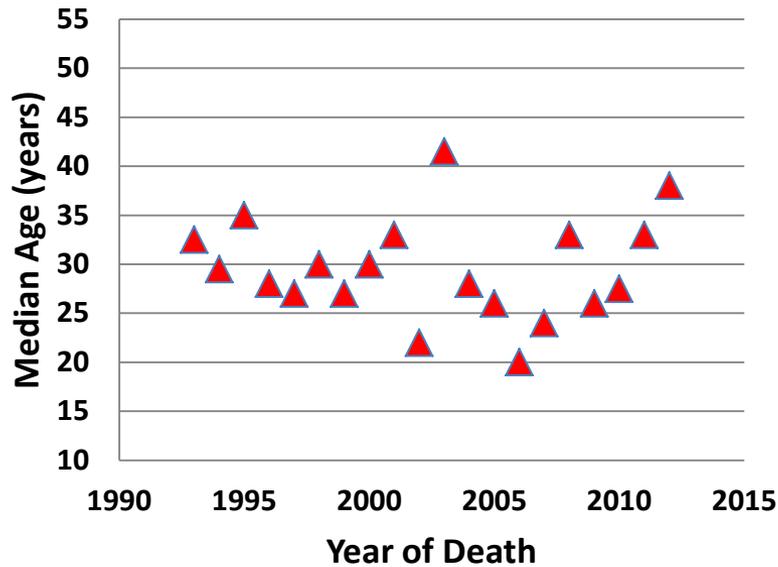
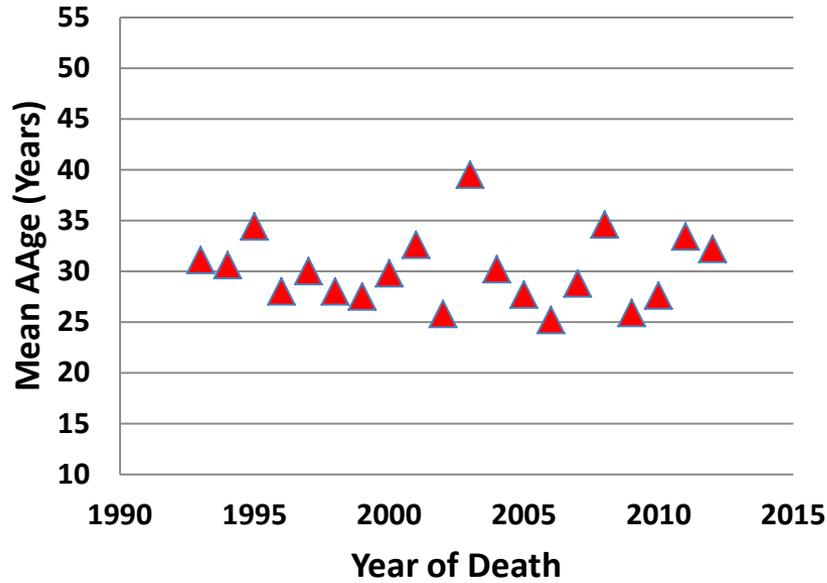
## Change in Numbers



## Change in Proportions



# Mean and Median ages of Maternal Death over time



# Age-specific cause of child deaths

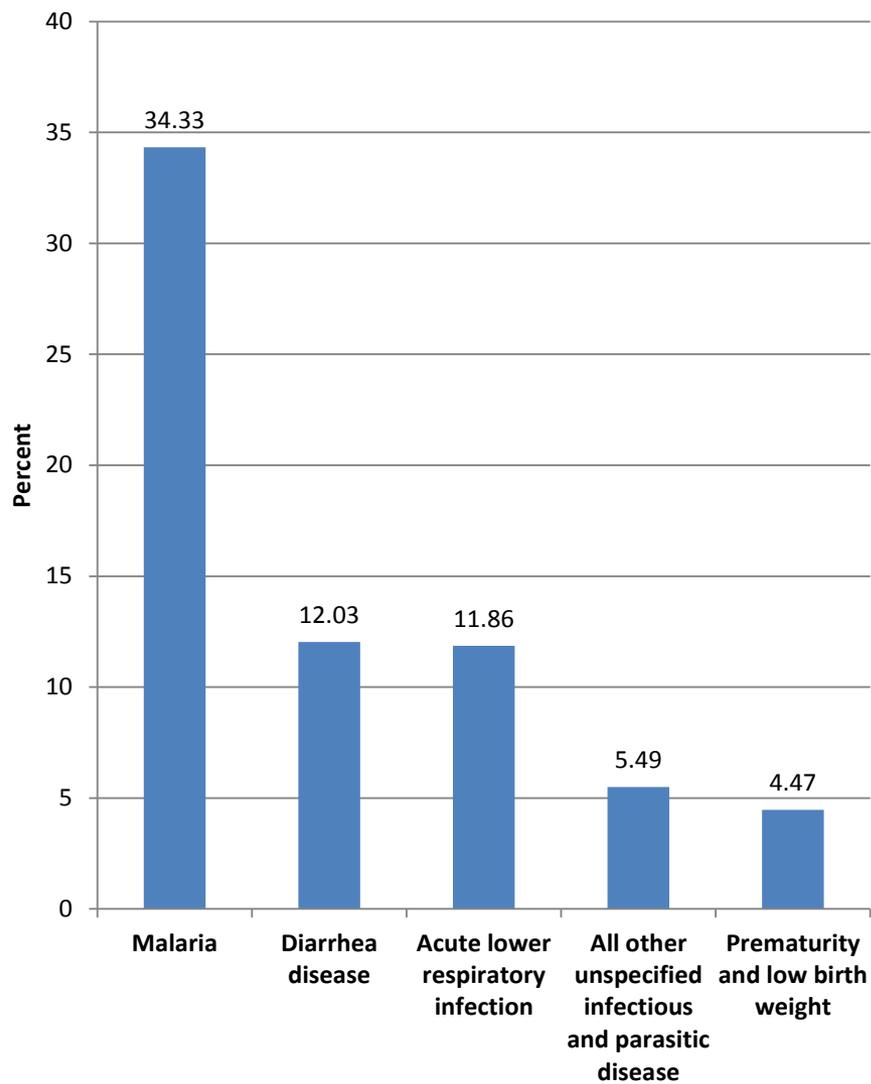
<b>Neonatal deaths ::1990-2012</b>		
<b>Cause of death</b>	<b>No.</b>	<b>%</b>
Infections	648	27.63
Prematurity and low birth weight	516	22
Birth asphyxia and birth trauma	394	16.8
Acute respiratory infection	153	6.52
Infanticide/spirit child	85	3.62

<b>Infant deaths: 1990-2012</b>		
<b>Cause of death</b>	<b>No.</b>	<b>%</b>
Malaria	2,066	28.95
Acute lower respiratory infection	995	13.94
Intestinal infectious diseases (incl. diarrhea)	646	9.05
All other specified infectious diseases	615	8.62
Prematurity and low birth weight	543	7.61
Birth asphyxia and birth trauma	427	5.98
Infanticide/spirit child	215	3.01
Anaemia	195	2.73
Malnutrition	147	2.06
Neonatal Jaundice	134	1.88

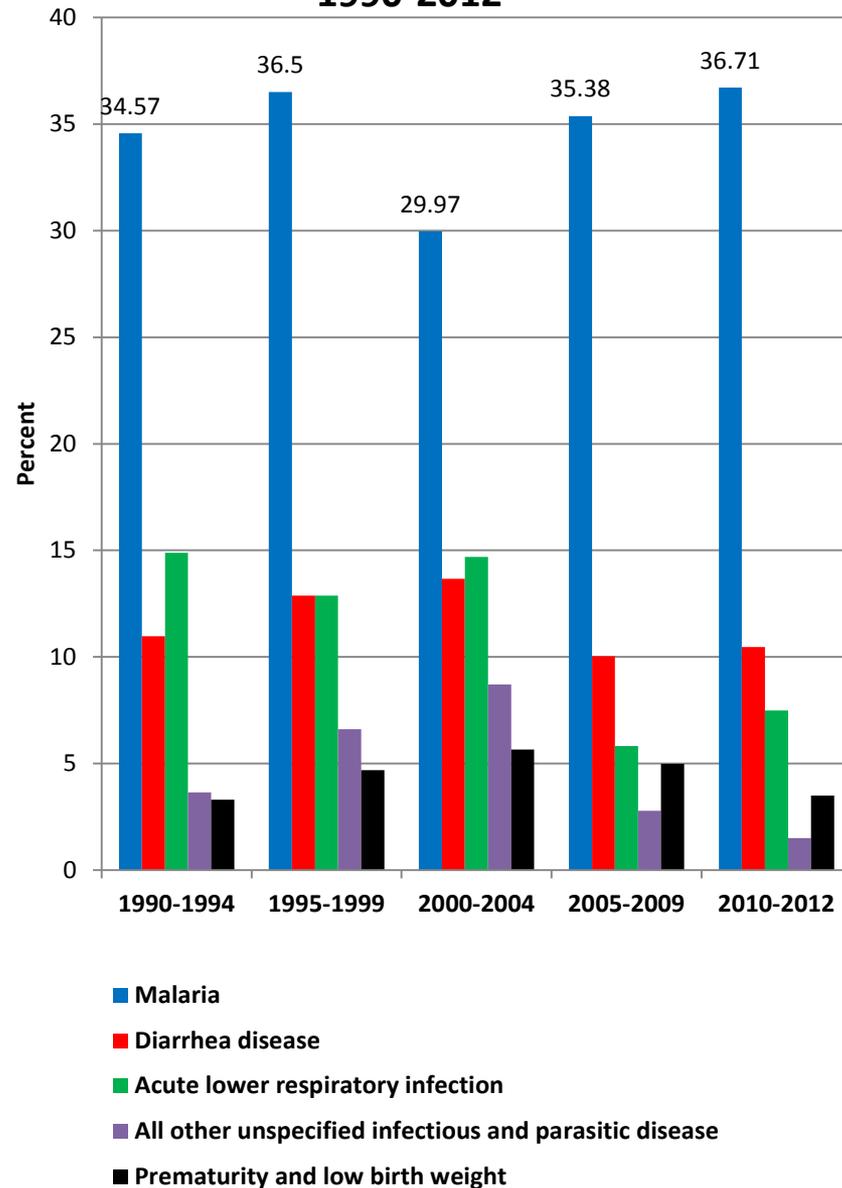
<b>Under five deaths: 1990-2012</b>		
<b>Cause of death</b>	<b>No.</b>	<b>%</b>
Malaria	4,299	34.33
Intestinal infectious (incl. diarrhea)	1,506	12.03
Acute lower respiratory infection	1,484	11.85
Other specified infectious diseases	688	5.49
Prematurity and low birth weight	560	4.47
Anaemia	518	4.14
Birth asphyxia and birth trauma	450	3.59
Malnutrition	356	2.84
Infanticide/spirit child	312	2.49
Measles	213	1.7

<b>Children 5-12 years : 1990-2012</b>		
<b>Cause of death</b>	<b>No</b>	<b>%</b>
Malaria	547	25.35
Accidental fall	228	10.57
Intestinal infectious diseases (incl. diarrhea)	191	8.85
Meningitis	164	7.6
Acute lower respiratory infection	127	5.89
Anaemia	83	3.85
Measles	67	3.1
Other specified infectious diseases	48	2.22
Unspecified non-communicable disease	43	1.99
Malnutrition	40	1.85

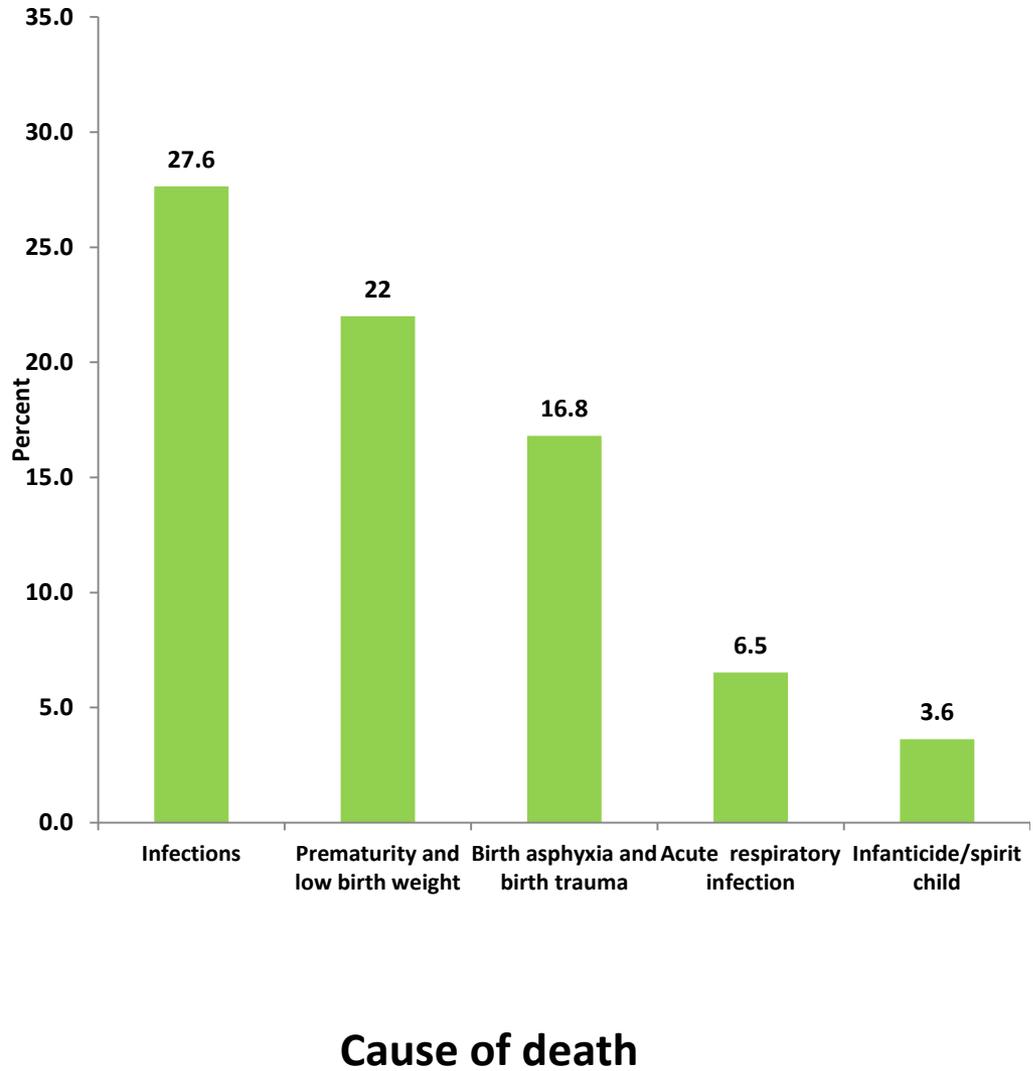
**Percentage distribution of the leading causes of under-five deaths in Navrongo HDSS : 1990-2012**



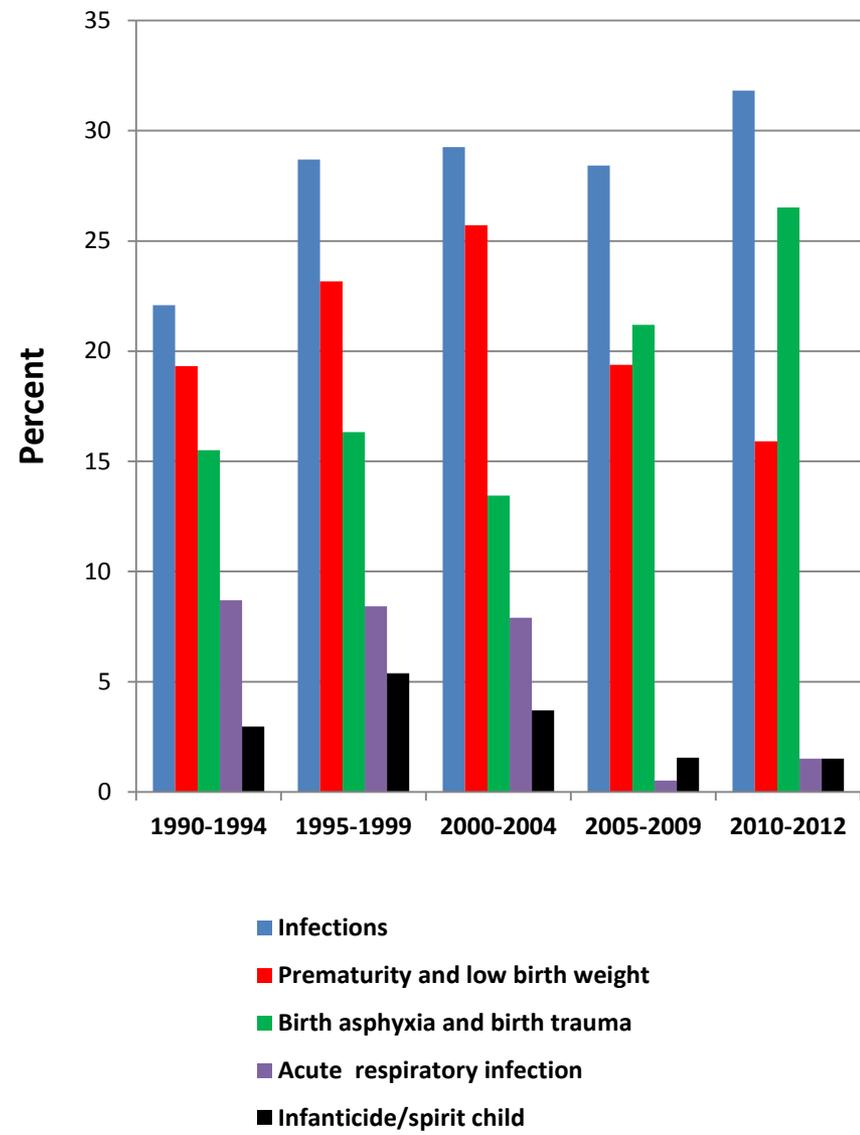
**Trends in the leading causes of under-five deaths in Navrongo HDSS : 1990-2012**



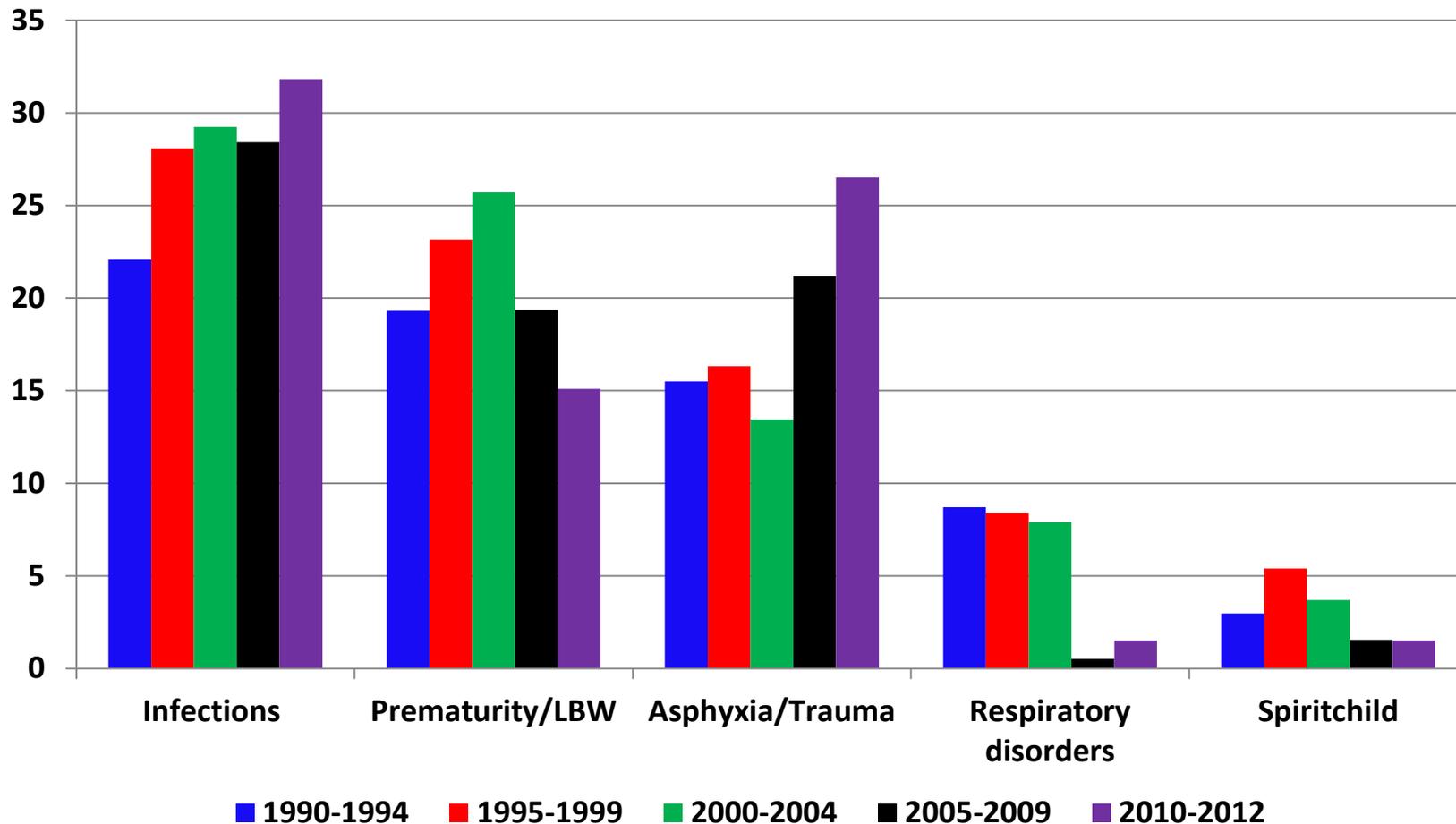
### Leading causes of neonatal deaths : 1990-2012



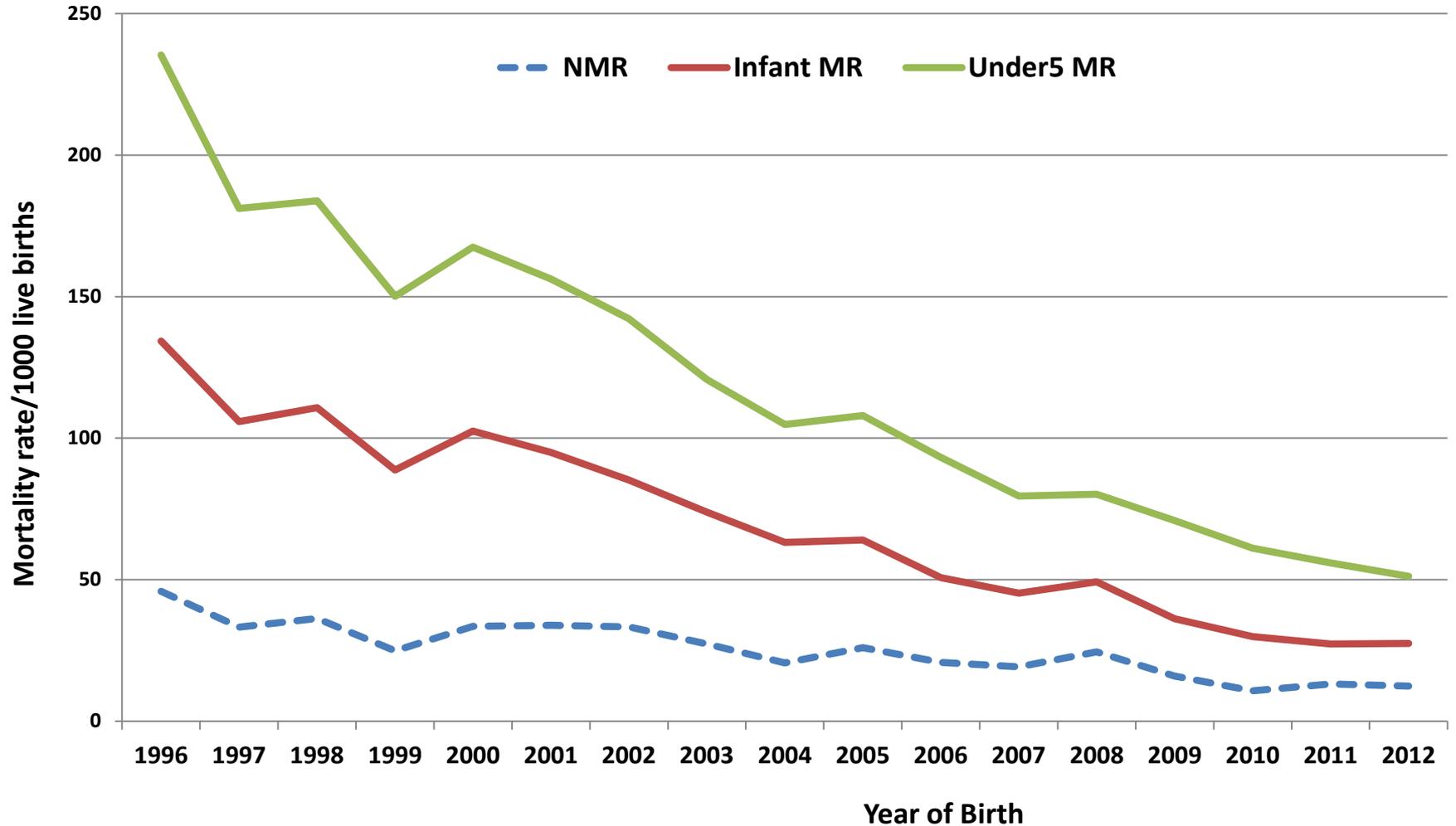
### Trends in the leading causes of neonatal deaths : 1990-2012



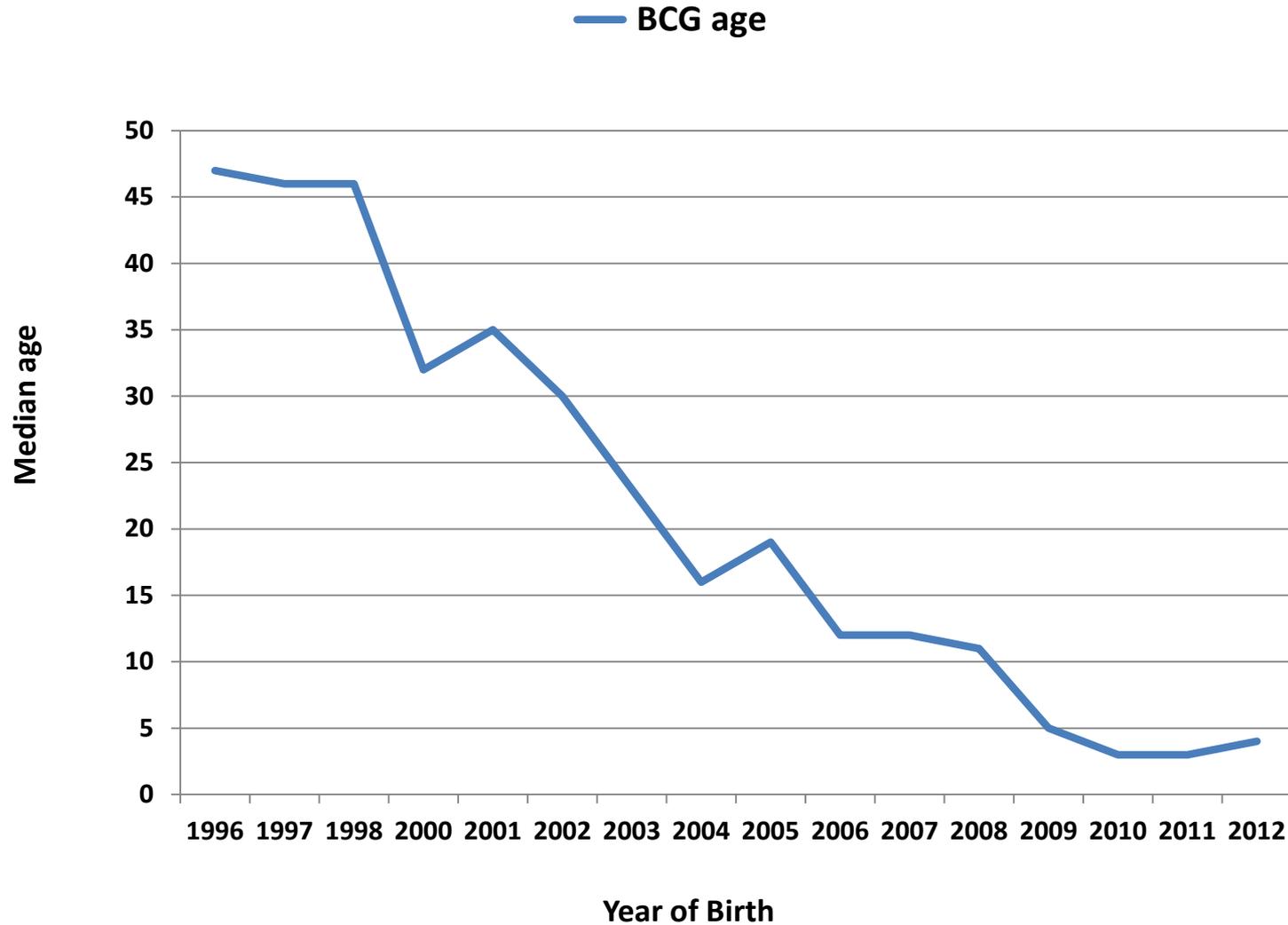
# Change in Proportion of Neonatal Deaths



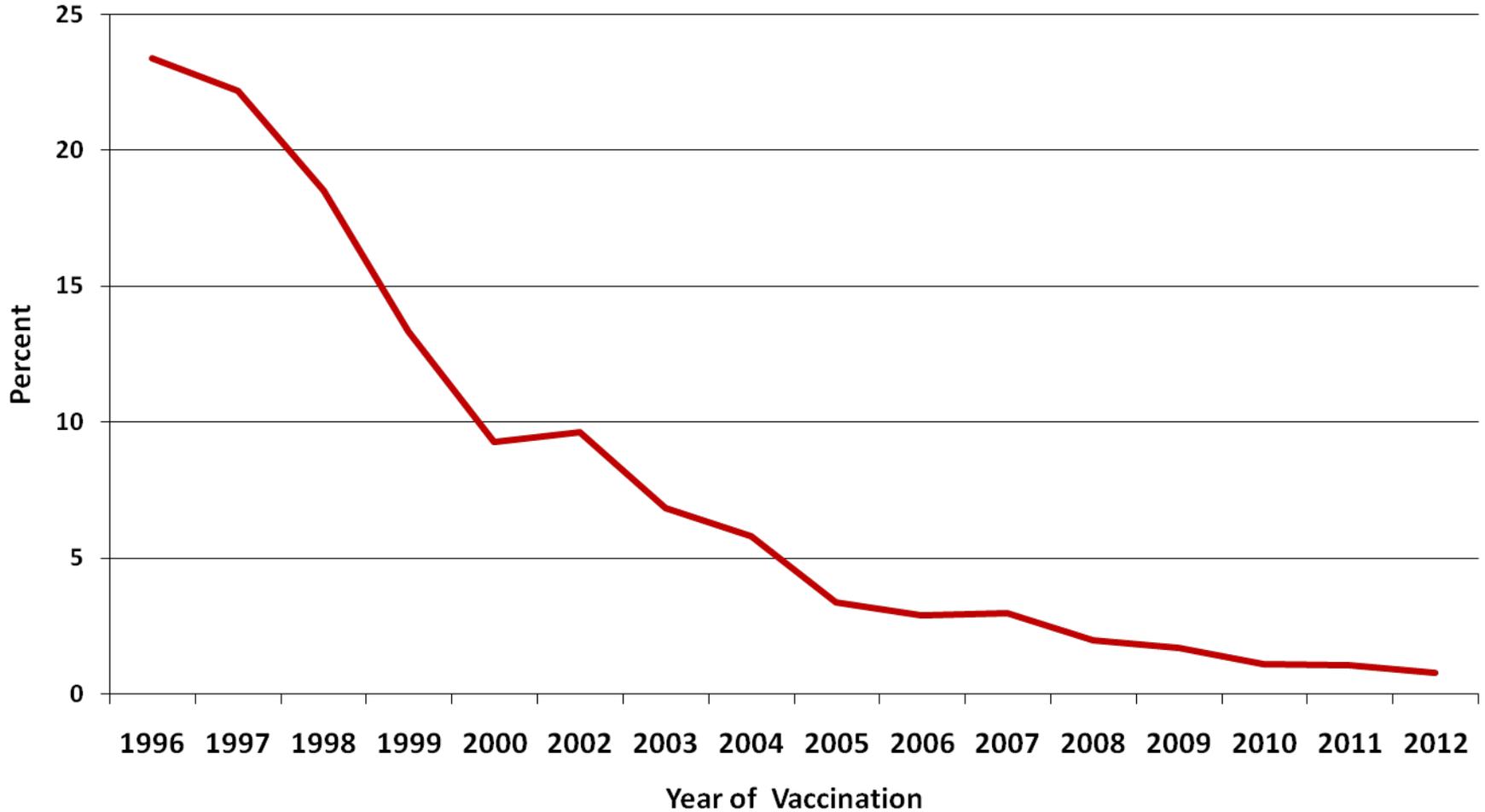
# Trends in Neonatal, Infant and Under-five mortality rates in Navrongo HDSS



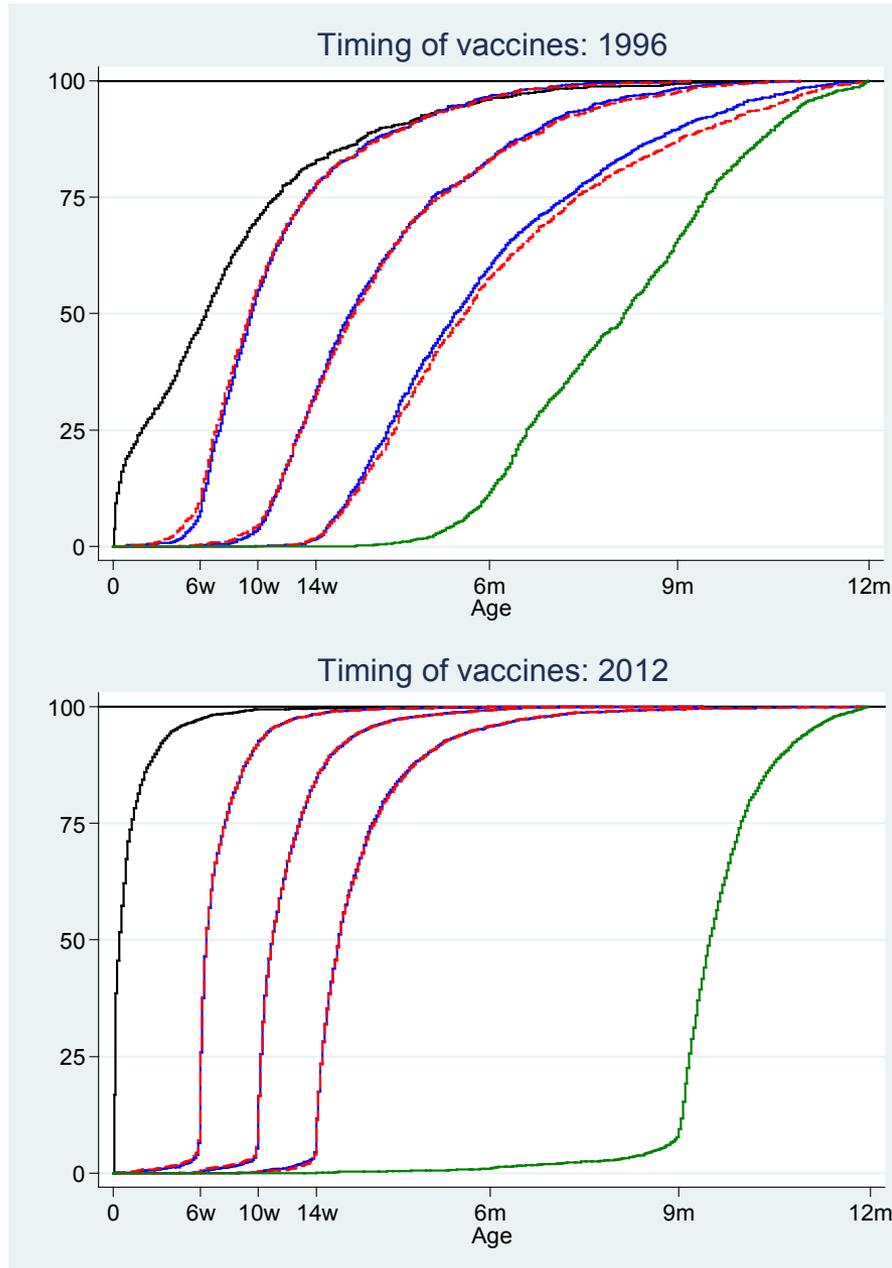
# Trends in Median age at BCG vaccination in Navrongo HDSS



## Trends in out of Sequence DTP/Penta and Measles vaccination in Navrongo HDSS, Ghana



# Age at vaccination for fully vaccinated children (12-23 months)



# What else about the Research Centres?

## Contribution to national economy:

- Employment Generation
- Human Resource Development
- Health Care and Education
- Health Research Tourism

## Consultancies:

- Demographic surveillance
- Health System Research
- Monitoring and Evaluation
- Data Processing
- Proposal, report & manuscript developmnet

## Contact information

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Projects:

➤ [www.navrongo-hrc.org/projs/projects.html](http://www.navrongo-hrc.org/projs/projects.html)

Publications:

➤ [www.navrongo-hrc.org/pubs/publications.html](http://www.navrongo-hrc.org/pubs/publications.html)



Paga Crocodile Pond

# Thank you!

## Acknowledgments

- **Study Participants**
- **Community Elders**
- **Former & Current Staff**
- **Collaborators & institutions**
- **Funders, Sponsors & Donors**
- **Regional Health Directorates**
- **Ghana Health Service**
- **Ministry of Health**
- **All others**





# Improving maternal mortality reporting at the community level with a 4-question modified reproductive age mortality survey (RAMOS) Tool.

Julia Geynisman<sup>1</sup>, Andrew Latimar<sup>1</sup>, Anthony Ofosu<sup>2</sup>, Frank Anderson

1 University of Michigan 2 Ghana Health Service

# OUTLINE

1. Introduction
2. Methodology
3. Results
4. Conclusion

# Introduction

- ✦ Investigative studies routinely uncover significant underreporting of maternal mortality in low-resource countries
- ✦ Examining deaths to all women of reproductive age (WRA) is one strategic method for identifying maternal deaths because they will always be a subset of this group.
- ✦ The reproductive age mortality survey (RAMOS) is a 39-question survey, administered to the surviving spouse or next of kin to identify maternal deaths and their causes.
- ✦ The RAMOS has been used in assessments of maternal mortality in hospitals in several low-resource countries, including Surinam, Tanzania, Gambia, Mozambique,

# Objectives

The objectives of the study was to

- ✦ To determine whether there was a difference in active and passive surveillance for maternal deaths
- ✦ Investigate the identification of maternal deaths at the community level using the reproductive age mortality survey (RAMOS) in all households in which a women of reproductive age (WRA) died.
- ✦ Determine the most concise subset of questions for identifying a pregnancy-related death for further investigation to make the administration of the RAMOS tool easier.

# Methodology

- \* This study of the use of the RAMOS questionnaire in a community setting to identify potential maternal deaths in the rural population of Sene District, Ghana
- \* A full RAMOS survey was conducted with the families of 46 deceased WRA who died between 2005 and July 2009 and was compared with the cause of death confirmed by the maternal mortality review committee to establish the number of maternal mortalities.
- \* The positive predictive value (PPV) of each RAMOS question for identifying a maternal death was determined.

# Results

- \* Compared with years of voluntary reporting, active surveillance for maternal deaths doubled their identification.
- \* 4 questions from the full RAMOS have the highest PPV for a maternal death.

- \* The 4 recommended questions are
- \* "Was she pregnant within the last 6 weeks?" which had a 100% PPV and a 100% negative predictive value.
- \* the second question should be, "Was she bleeding from the vagina?";
- \* the third question should be "Was she pregnant when she
- \* died?",
- \* the fourth question should be "Has she ever had an induced abortion?"

# Conclusion

This 4-item questionnaire should be distributed to community health workers who are trained to use this questionnaire when assessing the death of a WRA in their catchment area.

If any of these questions is answered positively, further investigation into the cause of death should be initiated.

Active surveillance should be coupled with ongoing research into its impact on the reporting on maternal deaths



Thank you

# Effect of Timely Initiation of Breastfeeding on Child Health in Ghana

Rita Fosu-Brefo  
(University of Cape Coast, Ghana)

Eric Arthur  
(University of Benin, Benin City, Nigeria)

# Introduction

- What is child health?
- Timely initiation of breastfeeding has been identified as an important component for child development
- In a fast changing world with women pursuing their careers, there is the tendency to resort to supplementary foods at an early stage of child growth.
- Notwithstanding this, the health of the child has an importance consequence on adult life, and also on educational attainment.
- Good health is associated with proper growth and development, school performance, reduction in child mortality and economic growth and development.
  - Globally, less than 40% of infants under 6 months are exclusively breastfed (UNICEF, 2010)
  - Exclusive breastfeeding rate is about 34% in sub-Saharan Africa. (WHO, 2008)
  - In Ghana, 63 percent of babies less than 6 months of age are exclusively breastfed.( GDHS, 2008).

# Introduction . . . . .

- 22% of Neonatal death can be prevented if infants are put to breast. (WHO, 2010).
- WHO (2011) reported that, the world average for U5MR was 51/1000 representing (5.1%) in 2011 and 87/1000 representing (8.7%) in 1990 which shows a decrease.
  - However there are serious disparities with Africa having an U5MR of 150/1,000 while Europe and the US have an U5MR of less than 20/1,000.
- Some policies in Ghana directed to promote child health include;
  - Adoption of baby friendly hospital initiatives, Ghana breastfeeding promotion regulation 2000 and the high impact rapid delivery approach.
- The goals of Healthy People (2010); Initiation of breastfeeding; 75 percent, continuation of breastfeeding : 50 percent at 6 months and 25 percent at 12 months postpartum (Carothers & Hare, 2010).
- Timely initiation of Breastfeeding within one hour of birth has increased from 46 percent in 2003 to 52 percent in 2008 (GDHS 2008)
  - This is less than the desired target of 75 percent envisaged by the goals of Healthy people.

This paper therefore examines the effect of timely initiation of breastfeeding on child health in Ghana controlling for some socio demographic factors of the mother/family. ●<sub>3</sub>

# Literature review

- Edmond et al. (2006) reported that breastfeeding was initiated within the first day of birth in 71% of infants and by the end of day three in all but 1.3% of them: 70% were exclusively breastfed during the neonatal period.
- A non-breastfed child is 14 times more likely to die in the first six months than an exclusively breastfed child and breastfeeding in the first two years of life can help prevent child stunting ( Black, et al.,2008).
- Hong (2007) reported that the duration of breastfeeding had a **positive effect** on child health in Ghana.
- Annim (2012) on the other hand reported a **negative effect** of the duration of breastfeeding on child health in Ghana.
- Tampah-Naah and Kumi-Kyereme (2013) reported that mothers who perceived their infants to be average in size were more likely to practice exclusive breastfeeding.
- **Questions:** Does the time of initiation breast milk matter ?

# Data & Methods

- GDHS (2008)
- Model adopted from Mwabu and Ajakaiye (2007)

- $U = U (C, L, A, H (N; C), \varepsilon )$  ----- (1)

- $P_g G + P_h H = W$  ----- (2)

➤ Maximising equation 1 subject to equations 2 yields equation 3

- $H = H (P_g, P_h, N, W, A )$  ----- (3)

➤ specifically, a specific form of equation 4 to be estimated is specified in equation 5

- $H = \beta N + \Pi A + \delta C + \varepsilon$  ----- (4)

➤ Prices and goods consumption have been ignored in equation 4.

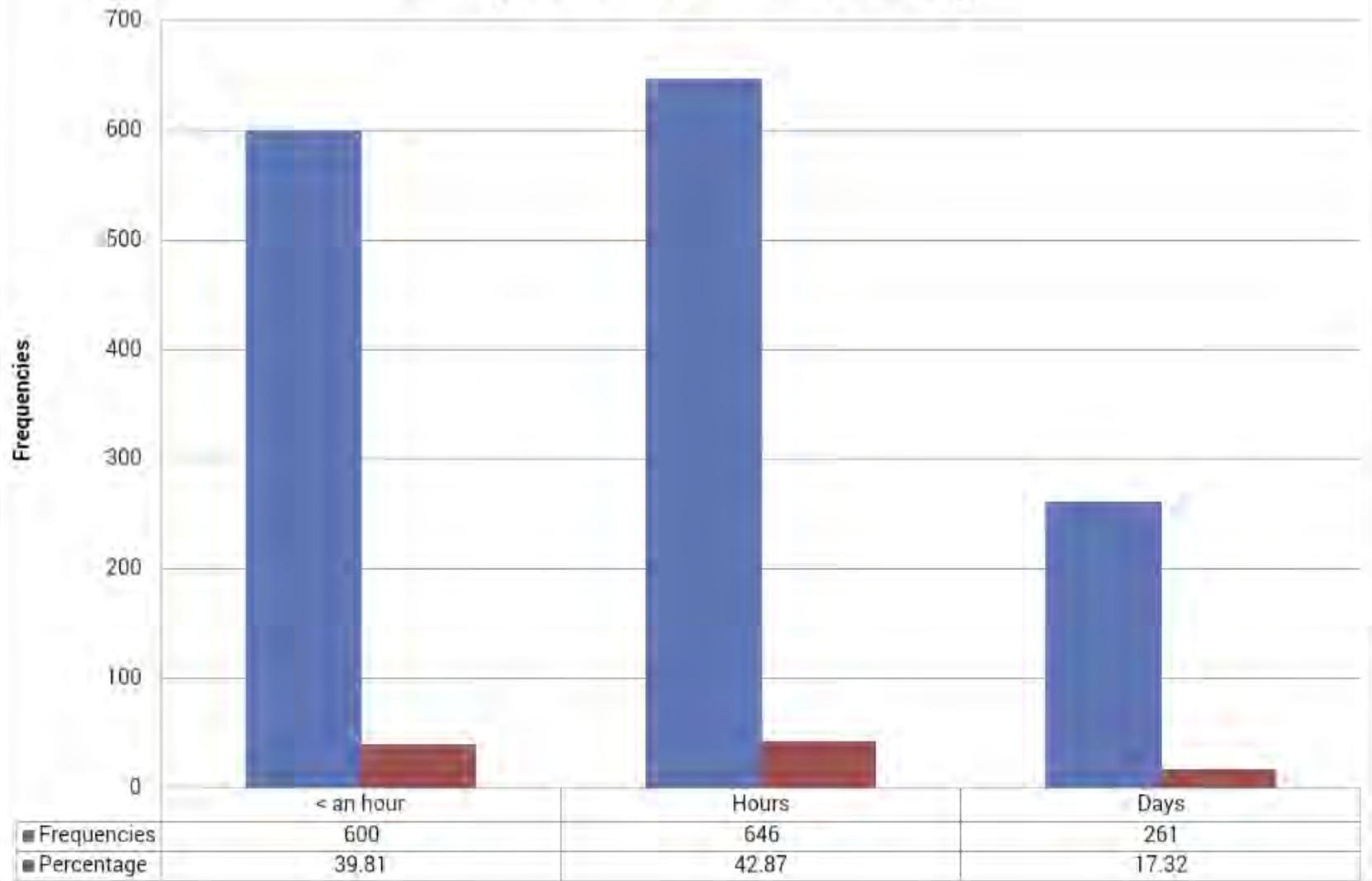
# Descriptive .....

Variables	Mean	Std. Dev.	Min	Max
Height-for-Age (n = 2441)	-1.054621	1.734183	-5.99	6
Duration of Breastfeeding (n = 2359)	16.33192	8.05792	0	58
Child Age (n = 2441)	28.64441	17.2299	0	59
Mother's Age (n = 2441)	30.19132	6.99671	15	49
Distance to water (n = 2441)	17.57804	21.89329	0	330

# Descriptive .....

Variable	Frequencies	Percentages	Cumulative percent
<b>Mother's Education</b>			
No education	930	38.1	38.1
Primary	569	23.31	61.41
Secondary	889	36.42	97.83
Tertiary	53	2.17	100
<b>Child Size</b>			
Small	345	14.28	14.28
Average	734	30.38	44.66
Large	1,337	55.34	100
<b>Mother's Occupation</b>			
Not Working	230	9.47	9.47
Informal Sector	2,136	87.98	97.44
Formal	62	2.55	100

## Timely Initiation of Breastfeeding



<b>Dependent Variable: Height for age</b>	<b>Model 1: OLS</b>	<b>Model 2: IV</b>
Estimated Timely Breastfeeding Timely Breastfeeding(Days) <b>Immediately</b>	<b>0.260***(0.0748)</b>	0.114(0.271)
<b>Hours</b>	<b>0.161*(0.0949)</b>	
<b>Duration of Breastfeeding</b>	<b>-0.0429***(0.00535)</b>	<b>-0.0428***(0.00539)</b>
Male	-0.0490(0.0673)	-0.0513(0.0672)
Mother's education (no education)		
Primary	-0.0887(0.0924)	-0.0893(0.0926)
Secondary	0.0157(0.0868)	0.0217(0.0930)
<b>Tertiary</b>	<b>0.511**(0.250)</b>	<b>0.521*(0.306)</b>
Wealth (Poor)		
Middle	0.137(0.0940)	0.143(0.103)
<b>Rich</b>	<b>0.376***(0.0898)</b>	<b>0.371***(0.112)</b>
Child Size (small)		
Average	0.131(0.102)	0.142(0.109)

<b>Dependent Variable: Height for age</b>	<b>Model 1: OLS</b>	<b>Model 2: IV</b>
<b>Large</b>	<b>0.286***(0.0943)</b>	<b>0.282***(0.0993)</b>
<b>Child age</b>	<b>-0.0179***(0.00246)</b>	<b>-0.0178***(0.00251)</b>
<b>Mother's age</b>	<b>0.0187***(0.00501)</b>	<b>0.0180***(0.00513)</b>
Distance to water	0.000905(0.00137)	0.000768(0.00163)
Mother's occupation (not working)		
Formal	0.0481(0.127)	0.0430(0.123)
Informal	-0.352(0.257)	-0.361(0.290)
Constant	-0.901***(0.215)	-0.943*(0.551)
<b>Observations</b>	<b>2,321</b>	<b>2,320</b>
<b>R-squared</b>	<b>0.133</b>	<b>0.131</b>
<b>Ramsey Reset Test</b>	<b>1.01(0.3887)</b>	<b>3.80(0.1512)</b>
<b>Mean Variance Inflation</b>	<b>1.51</b>	<b>1.65</b>
<b>Breusch-Pagan / Cook-Weisberg Test</b>	<b>52.48(.0.0000)</b>	
<b>Under Identification Test</b>		<b>70.847(0.0000)</b>
<b>Weak Identification Test</b>		<b>72.575(0.10)</b>
<b>Wu-Hausman F test</b>		<b>0.99566(0.10)</b>

# Findings of the study

- Early initiation of Breast feeding has an important effect (positive) on child health in Ghana.
- Duration of breastfeeding has a negative effect on the child health contrary to the expectation.
- Wealthier mothers are more likely to have healthier babies compared to poorer mothers.
- The age of the child is negatively associated with the child's health.
- Size of the child at birth is positively associated with the child's health.

# Recommendations

- The campaign for timely initiation of breastfeeding and exclusive breastfeeding should be encouraged in the Ghanaian society.
- Focus should be placed more on aging children by probably introducing food supplements at each stage that is appropriate for their growth.
- Attention should be paid to low birth weight babies and appropriate remedies found for them.

FULL WORK PUBLISHED IN THE:  
HEALTH ECONOMIC REVIEW JOURNAL

Thank you

# Adverse Events Following Immunization With Newly Introduced Measles-rubella Vaccine In Jirapa District

Godfrey Konnyebal

Dr. Priscilla Nortey

Dr. Samuel O. Sackey

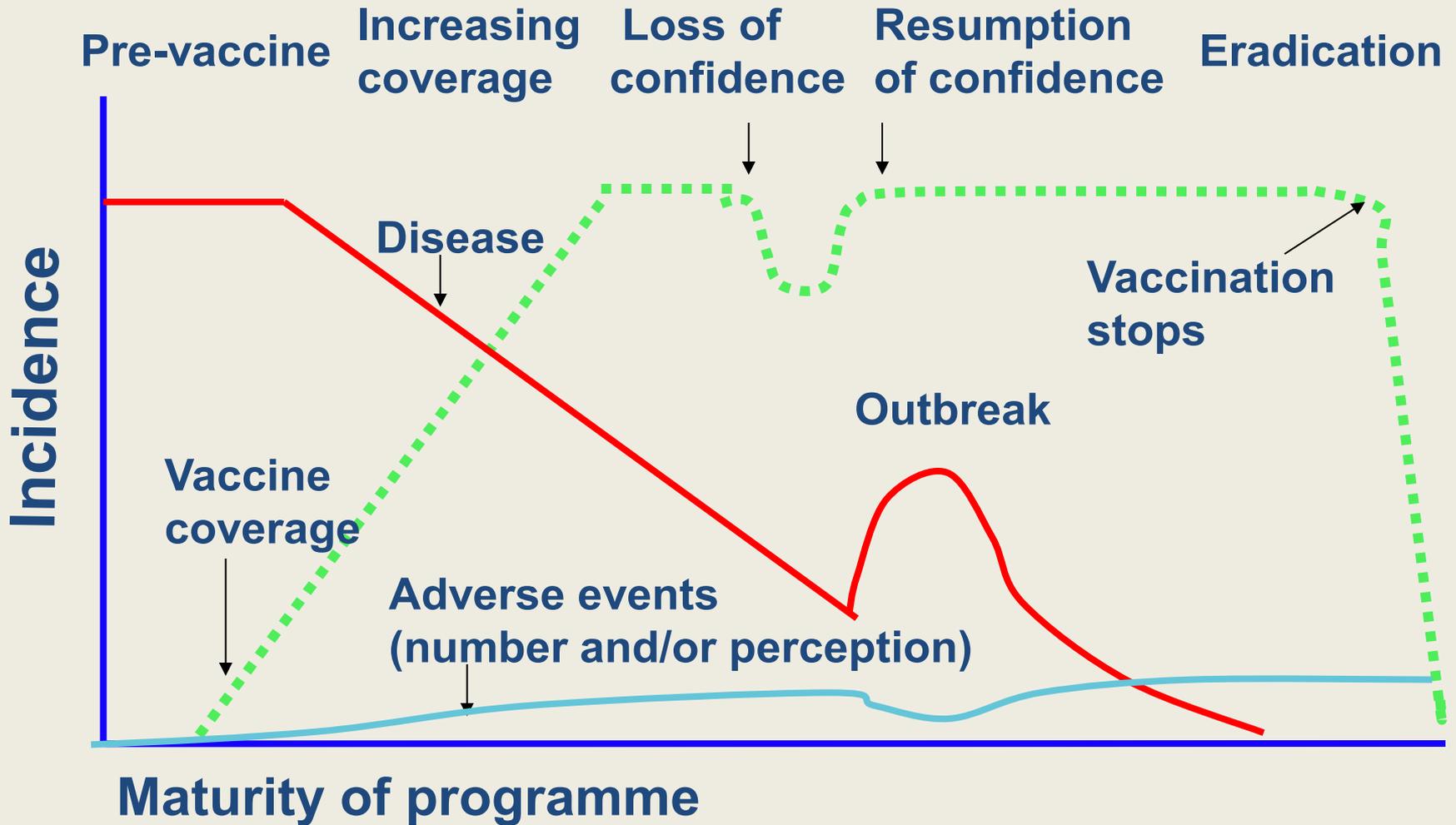
Dr. Chrysantus Kubio



# Introduction

- Vaccination is among the most cost effective and safe public health interventions
  - An estimated two million deaths are averted each year
  - Global measles mortality reduced from an estimated 750,000 -158,000 (2000-2011) (Measles and Rubella Initiative, 2012, WHO, 2013)
  - In Ghana measles cases reduced from over 82,000 to 120 (1980-2011) (GHS,2012)
- Adverse events following immunization (AEFI) can undermine immunization programmes
- Ghana rolled out measles-rubella (MR) combined vaccine in mass immunization campaign in September 2013
- The AEFI associated with the vaccine had not been characterized in the Ghanaian population

# Introduction



**Fig.1: Impact of AEFI on immunization programs**

*Adapted from: Chen RT et al, Vaccine 1994;12:542-50*

# Objectives

## **General objective**

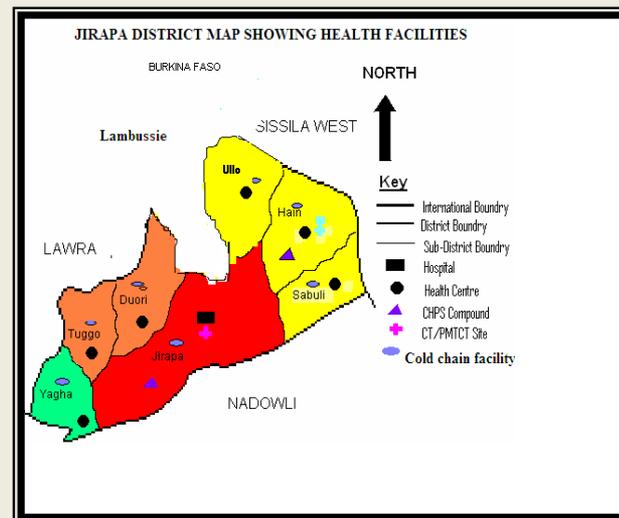
- To assess the AEFIs associated with the newly introduced MR vaccine in Jirapa District

## **Specific objectives**

- To determine the incidence of AEFI during the MR vaccination campaign
- To characterize the AEFI associated with MR immunization by person, place and time
- To assess sex effects on the risk of AEFI associated with MR vaccine
- To assess age effects on the risk of AEFI associated with MR vaccine

# Methods

- Study design - Risk-interval cohort study
- Study area - Jirapa District
- Study population - Children 9 months -14 years
- Sample size – 350
- Participants were selected using modified WHO EPI coverage survey guideline
- Participants were observed four weeks before and eight weeks after vaccination, for adverse events
- Data was analyzed using Epi info 3.5.4
- Risk and relative risk of AEFI were calculated at 95% confidence interval



# Results

- Overall AEFI incidence was 18 (5.1%) (95% CI: 3.2-8.2%)
- Attributable risk percent was 27.8%
- Two (11.1%) of the AEFI were serious
- No fatality was recorded

# Results

Table 1: AEFIs associated with MR vaccine in Jirapa District, 2013

AEFI	Frequency	Percentage	95% CI
Fever	12	66.7	41.0-86.7
Headache	3	16.7	3.6-41.4
Febrile convulsion	1	5.6	0.1-27.3
Pain at injection site	1	5.6	0.1-27.3
Rash	1	5.6	0.1-27.3
Total	18	100.0	

# Results

**Table 2: Time interval between vaccination and occurrence of AEFI**

Time Interval	AEFI						Total	Percentage
	Febrile convulsion	Fever	Headache	Pain at injection site	Rash			
Within 24 hours	0	1	2	0	0	3	16.7	
>24hrs<7 days	1	10	0	0	0	11	61.1	
>7<14 days	0	1	1	1	1	4	22.2	
>14<28 days	0	0	0	0	0	0	0.0	
Total	1	12	3	1	1	18	100.0	

# Results

Table 3: Risk of AEFI by age and place of vaccination in Jirapa District

	No. of children	No. of cases	Relative risk	95% CI	P-value
<b>Age group</b>					
9months-3yrs	90	7			
4-6 yrs	90	4	1.75	0.53-5.77	0.351
7-9 yrs	85	3	2.20	0.59-8.25	0.226
10-14 yrs	85	4	1.65	0.50-5.44	0.403
<b>Sex</b>					
Male	170	7	1.48	0.59-3.74	0.39
Female	180	11			
<b>Place of vaccination</b>					
Konkuo	70	8			
Akoro	70	3	2.67	0.74-9.64	0.12
Baazu	70	3	2.67	0.74-9.64	0.12
Dangbala	70	3	2.67	0.74-9.64	0.12
Yipaala	70	1	8.00	1.03-62.29	0.02

# Results

**Table 4: Risk of Fever following vaccination of children with MR in Jirapa District**

Age group	No. of cases	Relative risk (RR)	95% CI	P-value
9mth-3yr(n=90)	7			
4-6 (n=90)	2	3.50	0.75-16.39	0.09
7-9 (n=85)	2	3.31	0.71-15.47	0.10
10-14 (n=85)	1	6.61	0.83-52.62	0.04

# Conclusions/Recommendations

- The AEFI with new MR were few and generally mild
- Fever was the most common AEFI reported
- There was no differences in the risk of AEFI between males and females
- Based on these findings it was recommended that
  - The DHMT should effectively communicate the safety of MR and encourage the public to take the vaccine
  - The National Expert Committee should investigate all serious AEFI and communicate outcome to all stakeholders

Thank you



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FROM THE AMERICAN PEOPLE



# Can mobile phone messages to over-the-counter medicine sellers increase prescription of ORS and zinc? A randomized controlled trial in Ghana

Odartei Lamptey

National Health Research Dissemination Symposium

May 27, 2015



**SHOPS is funded by the U.S. Agency for International Development.**  
**Abt Associates leads the project in collaboration with**  
Banyan Global  
Jhpiego  
Marie Stopes International  
Monitor Group  
O'Hanlon Health Consulting

# Background: Pediatric diarrhea in Ghana

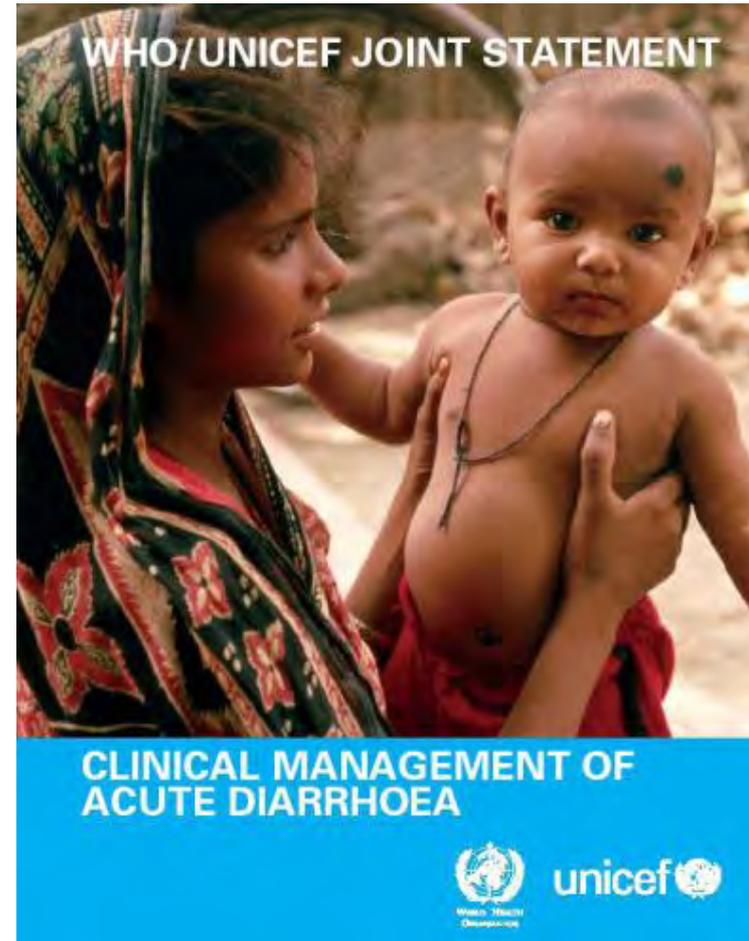
- In Ghana, diarrheal diseases are the 4<sup>th</sup> leading cause of infant and child mortality (9%) after neonatal causes, malaria, and pneumonia
- 2014 DHS:
  - 12% diarrhea prevalence for all children under five (down from 20% in 2008)
  - 55% of children with diarrhea either treated at home or not treated (up from 45% in 2008)
- Private sector provides ~50% of care for childhood illnesses
  - For diarrhea, most common private providers are pharmacies and over the counter medicine sellers (OTCMS)

# WHO/UNICEF Joint Statement 2004

Recommendation for  
childhood diarrheas:

- Oral rehydration solution (ORS)/oral rehydration therapy (ORT)
- 20 mg zinc for 10-14 days (10 mg <6 months)
- Antimicrobials ONLY for bloody diarrhea, shigellosis
- No antidiarrheals

**Adopted by Ghana MOH in  
2010**



# SHOPS zinc program introduced in Ghana in January 2012

- Public-private partnerships (GHS, UNICEF, regulatory agencies)
- Target regions: Central, Western, and Greater Accra regions
- Facilitated access to quality zinc products through partnership with local manufacturers



# SHOPS zinc program interventions

- Created overall consumer demand for zinc through national mass media (TV/radio) campaign
- Partnered with Pharmacy Council to train over-the-counter medicine sellers (OTCMS) in all 10 regions
- Partnered with professional associations to train pharmacists and private clinicians nationwide



# SHOPS SMS intervention overview

- SMS messages started immediately after trainings in June 2012, sent to personal phones
- Informational tips and quizzes sent three times weekly for 8 weeks
- Covered diarrhea and dehydration symptoms, ORS and zinc guidelines, discouraged antimicrobial use



# SMS intervention – example of a quiz

- Testing has been shown to increase knowledge retention
- Interactive format ensures messages are read
- Generates data to improve future campaigns



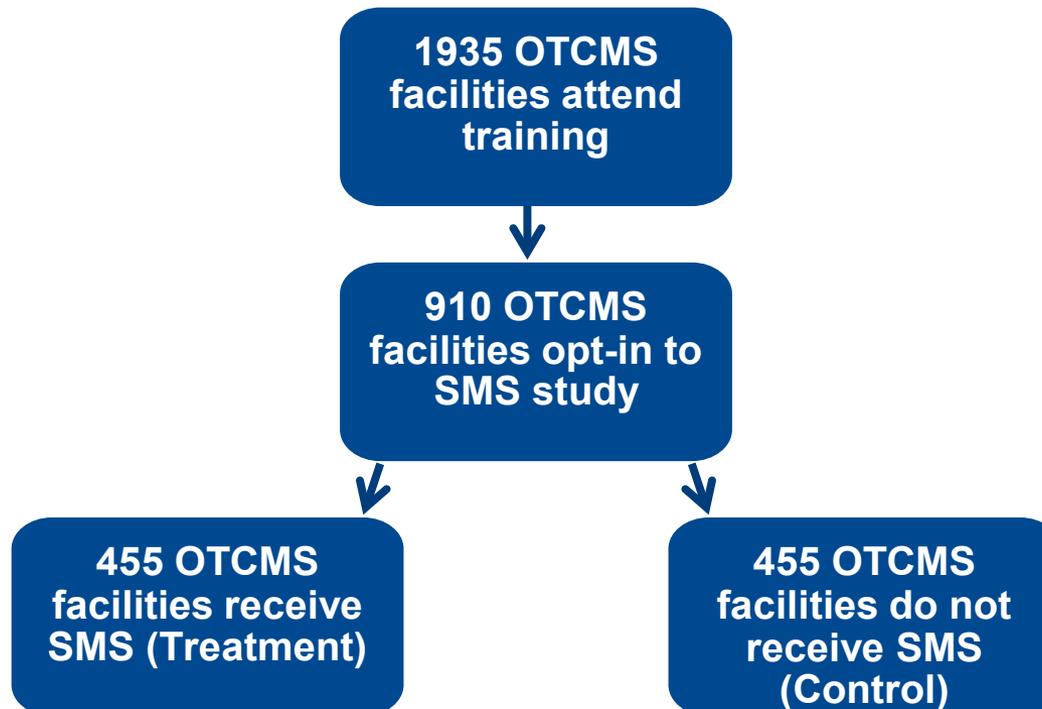


# Research questions

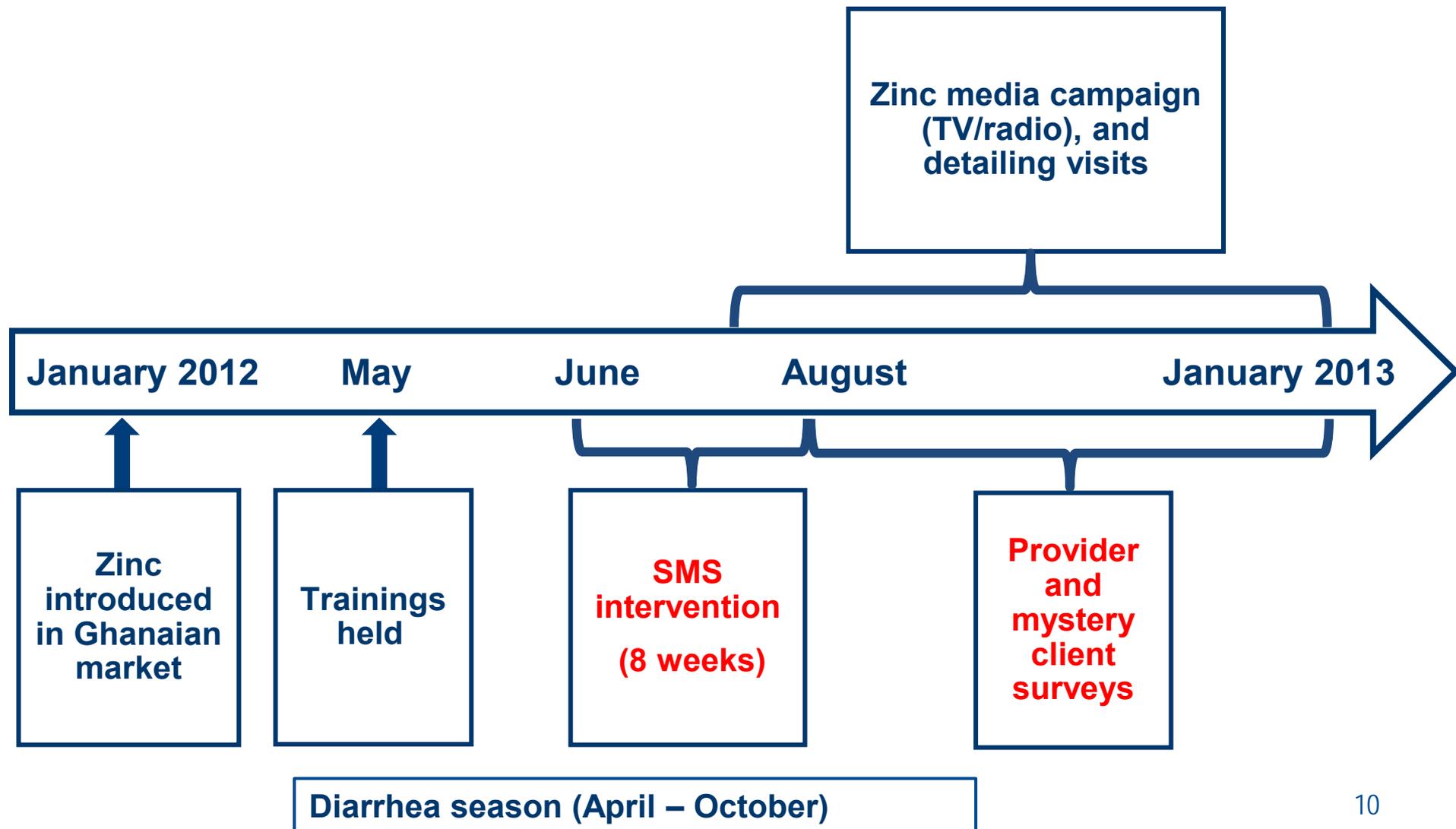
1. Did the SMS intervention lead to a change in:
  - a) Knowing the appropriate treatment to provide?
  - b) Providing the appropriate treatment?

# Study design

- All OTCMS and their assistants in 26 districts in Greater Accra, Central, and Western regions invited to attend training in May 2012



# Intervention and evaluation timeline



# Data: Mystery client and provider surveys

- Mystery client survey (n=699)
  - Woman poses as mother of child with uncomplicated diarrhea
  - Measures actual OTCMS behavior and treatments sold, and prices
- Provider survey (n=699)
  - Assesses whether OTCMS know the appropriate treatment
  - Obtain information about experiences and perceived caregiver preferences

# Results

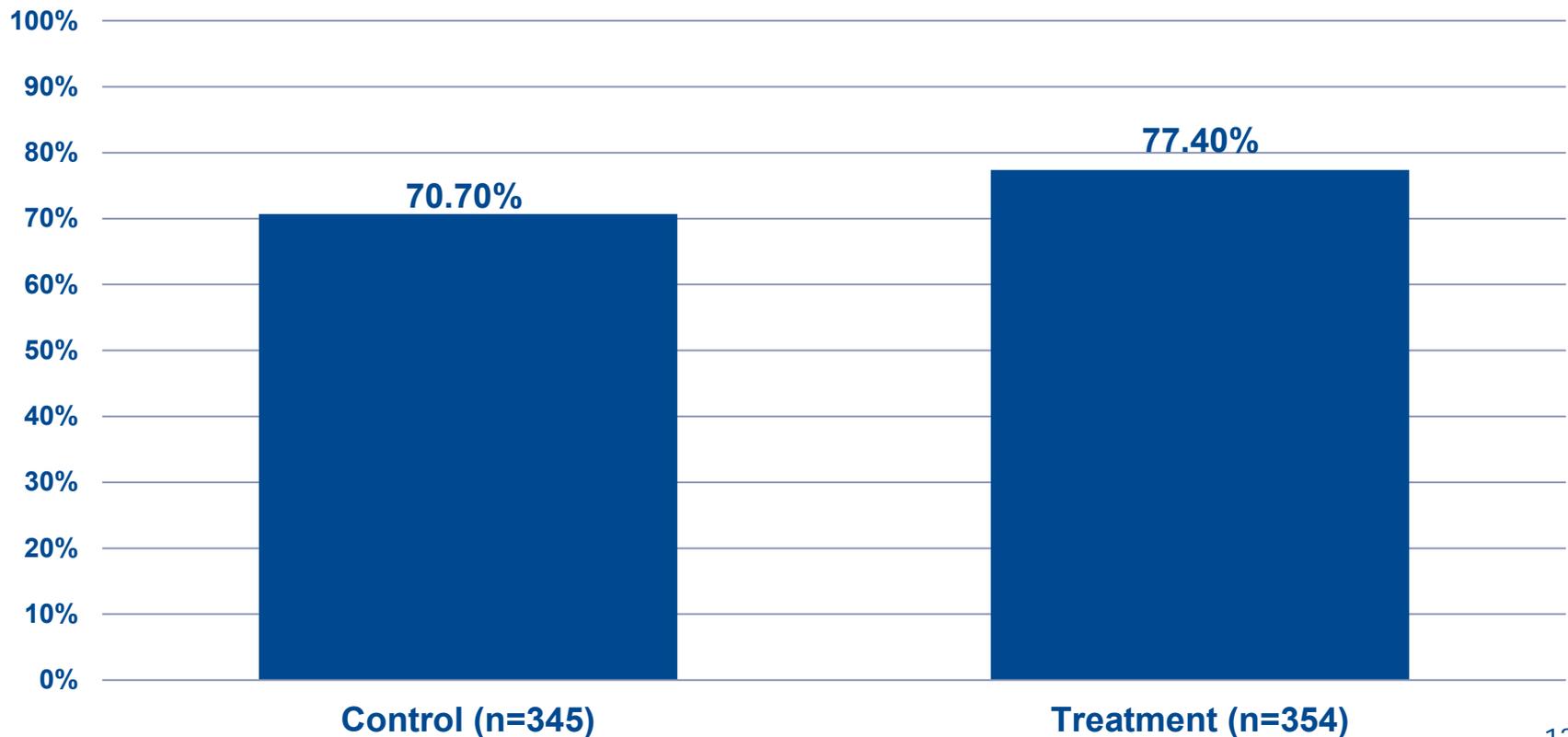
Did the SMS intervention lead to an improvement in:

a) Knowing the appropriate treatment to provide?

b) Providing the appropriate treatment?

# SMS had a positive impact on knowing appropriate treatment to provide (provider survey)

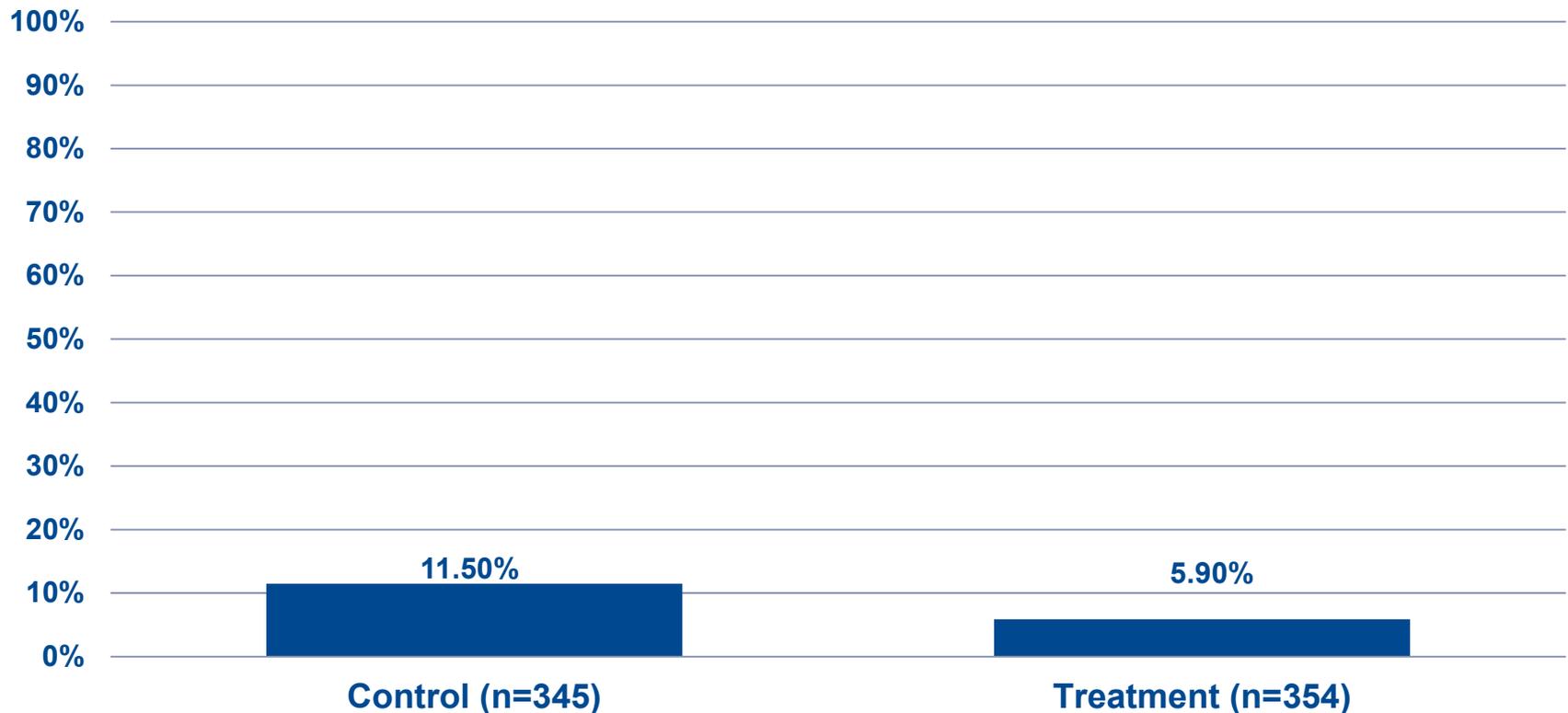
Statistically significant (6.6\*\* percentage points) difference between control and treatment groups (ORS & zinc only)



\* $p \leq 0.1$ ; \*\* $p \leq 0.05$ ; \*\*\* $p \leq 0.01$

# SMS had a positive impact on knowing appropriate treatment to provide (provider survey)

Statistically significant (5.6 percentage points \*\*\*)  
difference between treatment and control groups  
(antimicrobials)



\* $p \leq 0.1$ ; \*\* $p \leq 0.05$ ; \*\*\* $p \leq 0.01$

# No difference in providing appropriate treatment (mystery client)

Treatment provided by OTCMS	Treatment	Control	Difference
ORS	80.7%	78.5%	2.2%
Zinc	65.7%	66.0%	-0.3%
Antimicrobials	46.1%	49.5%	-3.4%
Total observations (n)	354	345	

\*p ≤ 0.1; \*\*p ≤ 0.05 ; \*\*\*p ≤ 0.01

# Large differences between knowing (provider survey) and doing (mystery client)

	Treatment cited in interview	Actual treatment provided
ORS	89.5%	79.6%
Zinc	78.6%	65.9%
Antimicrobials	8.7%	47.8%
Total observations (n)	699 (combined treatment and control groups)	

# Key findings

- Training, detailing visits, and BCC interventions led to large increase in provision of zinc (this is supported by 2014 endline findings, too)
- SMS intervention led to improvement in knowing the appropriate treatment
- Improvement in knowledge did not lead to improvement in providing the appropriate treatment
- Additional research needed to identify and address barriers to translating the knowledge into practice and identify interventions that may improve providers' behaviors

# Thank you!



[www.shopsproject.org](http://www.shopsproject.org)



**SHOPS is funded by the U.S. Agency for International Development.**  
**Abt Associates leads the project in collaboration with**  
Banyan Global  
Jhpiego  
Marie Stopes International  
Monitor Group  
O'Hanlon Health Consulting



# Impact of Malaria Vaccine Candidate RTS,S/AS01 on Malaria in African Infants and Children

**Kwaku Poku Asante on behalf of  
Kintampo and Agogo Teams  
The RTS,S Clinical Trials Partnership**





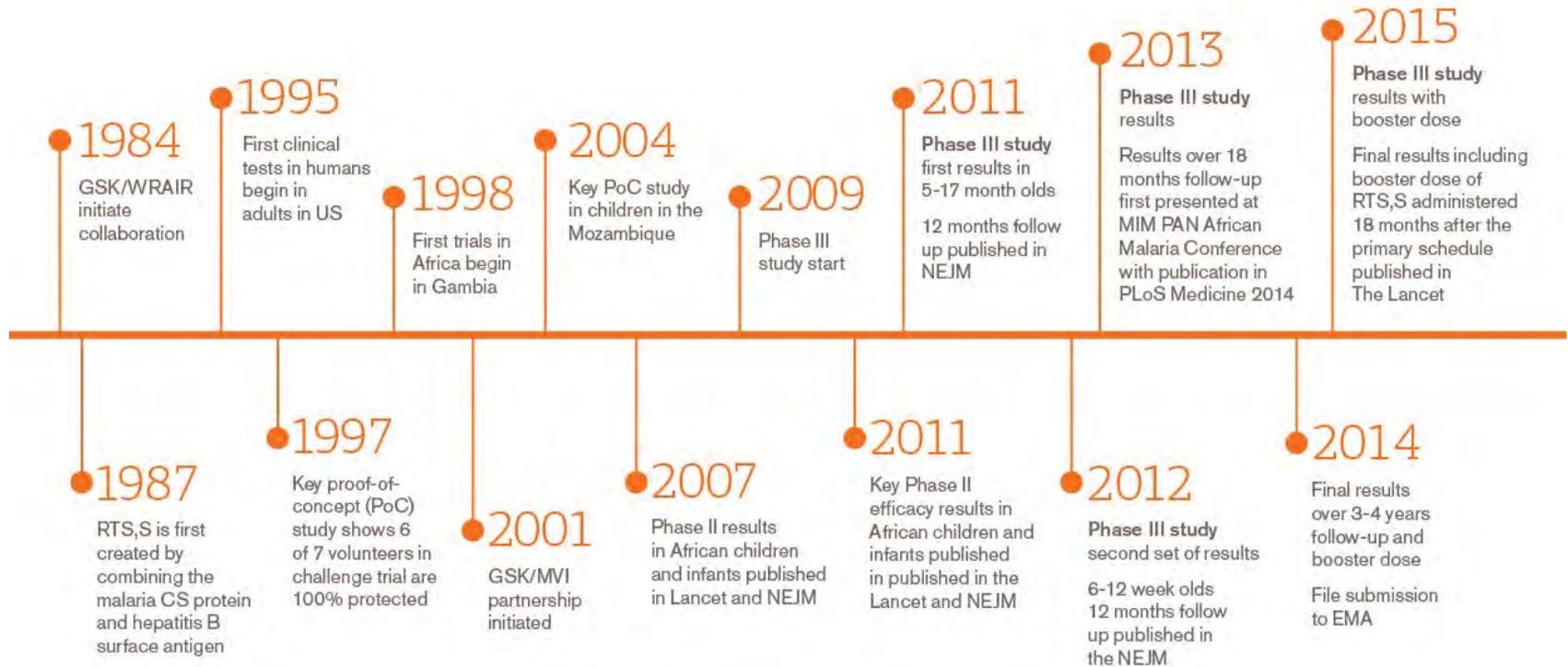
# Overview

## ***In this presentation:***

- The RTS,S malaria vaccine development program
- Final results from the Phase III efficacy and safety trial of RTS,S
- Next steps



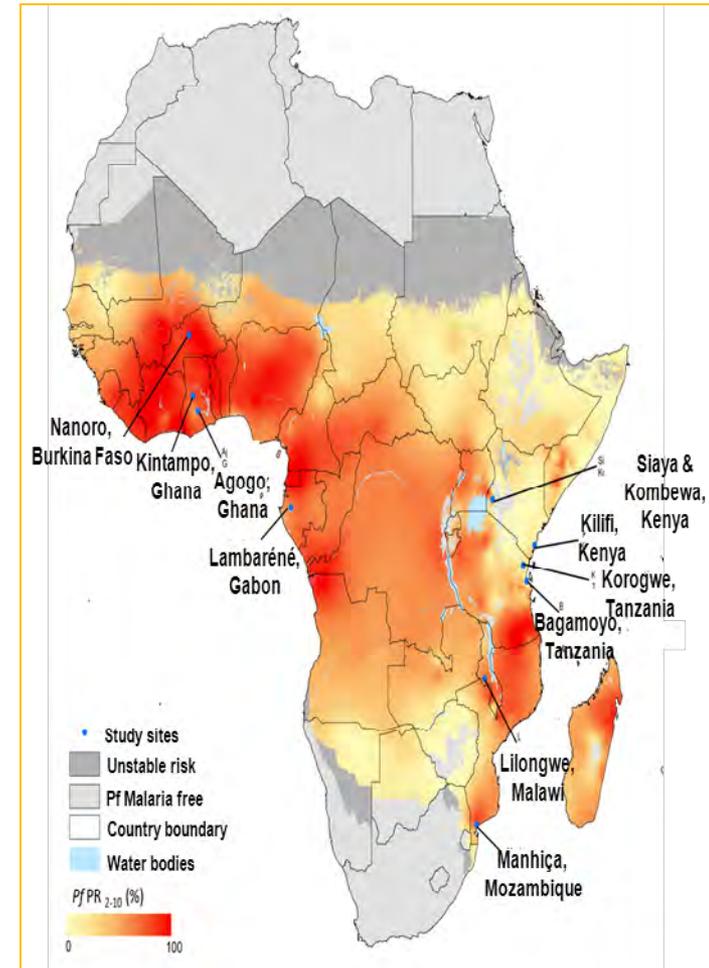
# The RTS,S malaria vaccine development program: A 30-year effort



**RTS,S Malaria-055 Phase III Efficacy and Safety Trial:  
Final results to study end**

# Phase III multicenter efficacy trial of RTS,S/AS01

- Double-blind, randomized, controlled trial.
- 11 centers in 7 African countries.
- Wide range of malaria transmission intensities by site: 0.03-4.27 clinical episodes per infant during first 12 months of follow-up.
- High ITN usage throughout the study: close to 80% in children and somewhat higher in infants.

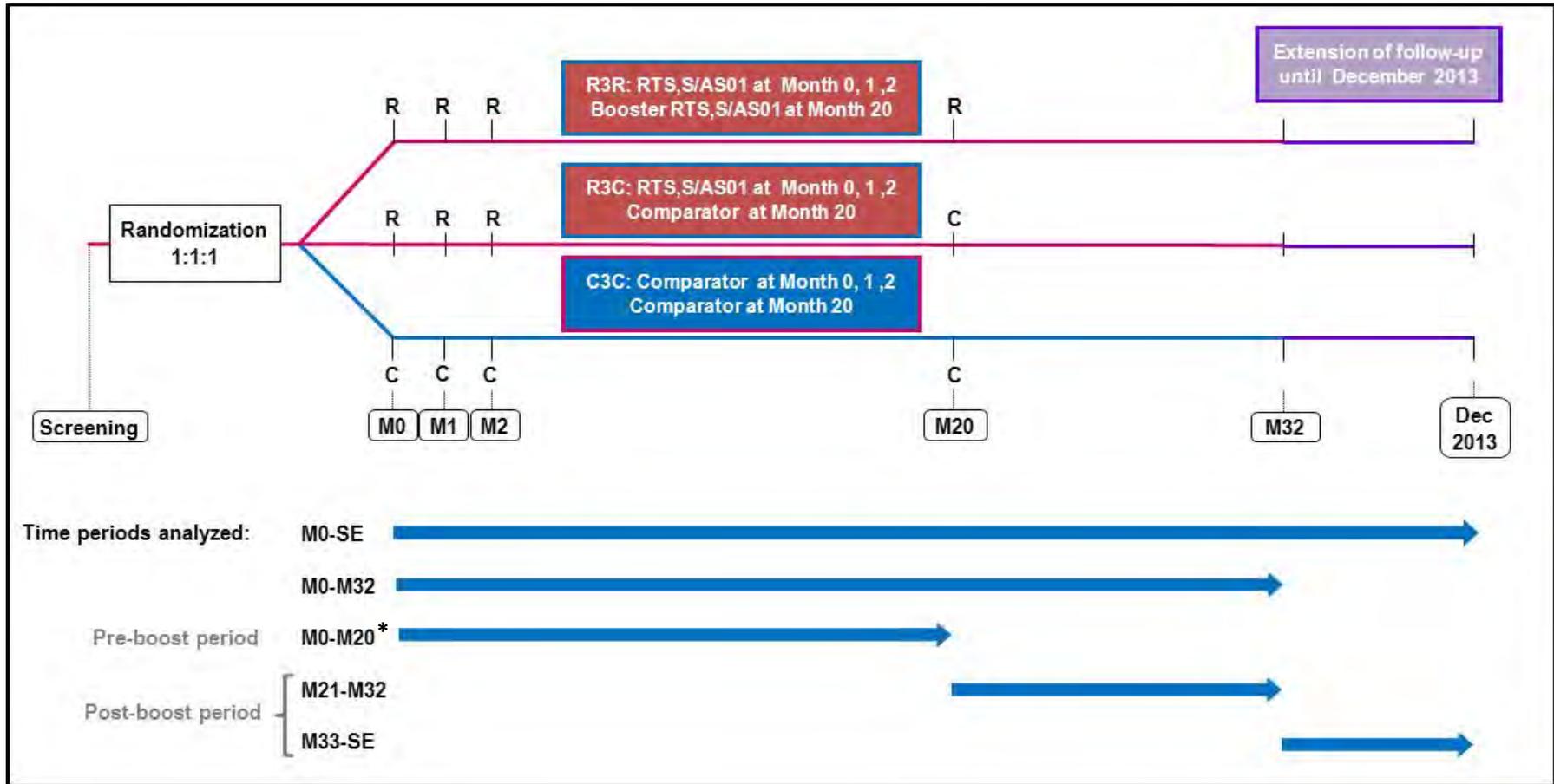


Leach A., et al. *Malaria J* 2011; 10:224 ; *PLoS Medicine* 2014; 11(7): e1001685; Hay SI, Guerra CA, Gething PW et al. *A World Malaria Map: Plasmodium falciparum Endemicity in 2007. PLOS Med* 2009;6:e1000048

# Phase III multicenter efficacy trial of RTS,S/AS01

- 15,459 children enrolled in two age categories:
  - Children aged 5–17 months (8,922)
  - Infants aged 6–12 weeks (6,537)
- Infants received the study vaccine co-administered with routine vaccines.
- High access to malaria diagnostics and treatment (ACT).

# Phase III study design



M = study month

M0-M20: both groups receiving RTS,S primary vaccination pooled (\*), reported in *PLoS Medicine* 2014

SE = study end

M0-SE: median 48 months in children, 38 months in infants

# Definitions - clinical malaria

Case definitions	Fever	<i>Plasmodium falciparum</i> parasitaemia
Primary case definition	$\geq 37.5^{\circ}\text{C}$	$> 5,000$ parasites/ $\mu\text{L}$
Secondary case definitions		
1	$\geq 37.5^{\circ}\text{C}$ or fever history	$> 0$ parasites/ $\mu\text{L}$
2	$\geq 37.5^{\circ}\text{C}$	$> 500$ parasites/ $\mu\text{L}$
3	$\geq 37.5^{\circ}\text{C}$	$> 20,000$ parasites/ $\mu\text{L}$

## Definitions -severe malaria

### Primary case definition of severe malaria:

- *P. falciparum* >5000 parasites/ $\mu$ L
- $\geq 1$  marker of disease severity:
  - prostration
  - respiratory distress
  - Blantyre score  $\leq 2$
  - seizures 2 or more
  - hypoglycemia <2.2 mmol/L
  - acidosis BE  $\leq -10.0$  mmol/L
  - lactate  $\geq 5.0$  mmol/L
  - anemia <5.0 g/dL
- No diagnosis of co-morbidity (radiographically proven pneumonia, meningitis on CSF examination, bacteremia on blood culture, gastroenteritis with dehydration)

# Key Results

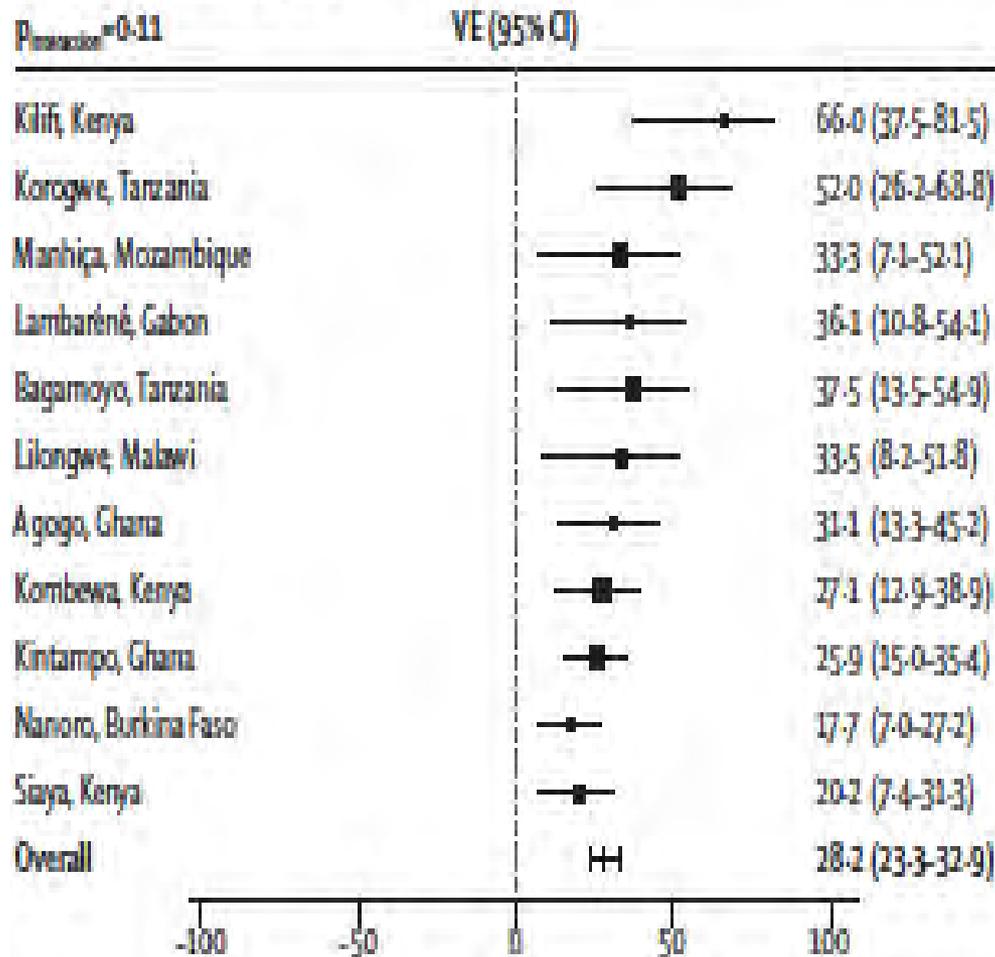
5 – 17 months

# Vaccine Efficacy, Impact and safety

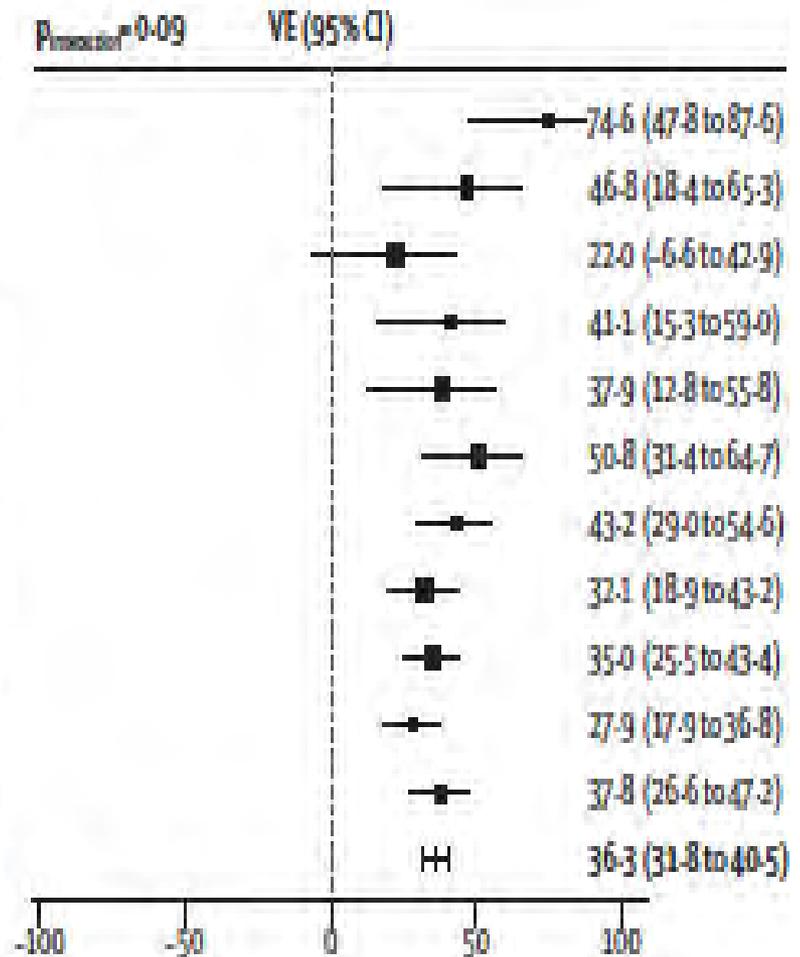
## Children 5 to 17 months

# 5 - 17 Mo: VE against Clinical malaria

**A** Clinical malaria, R3C group

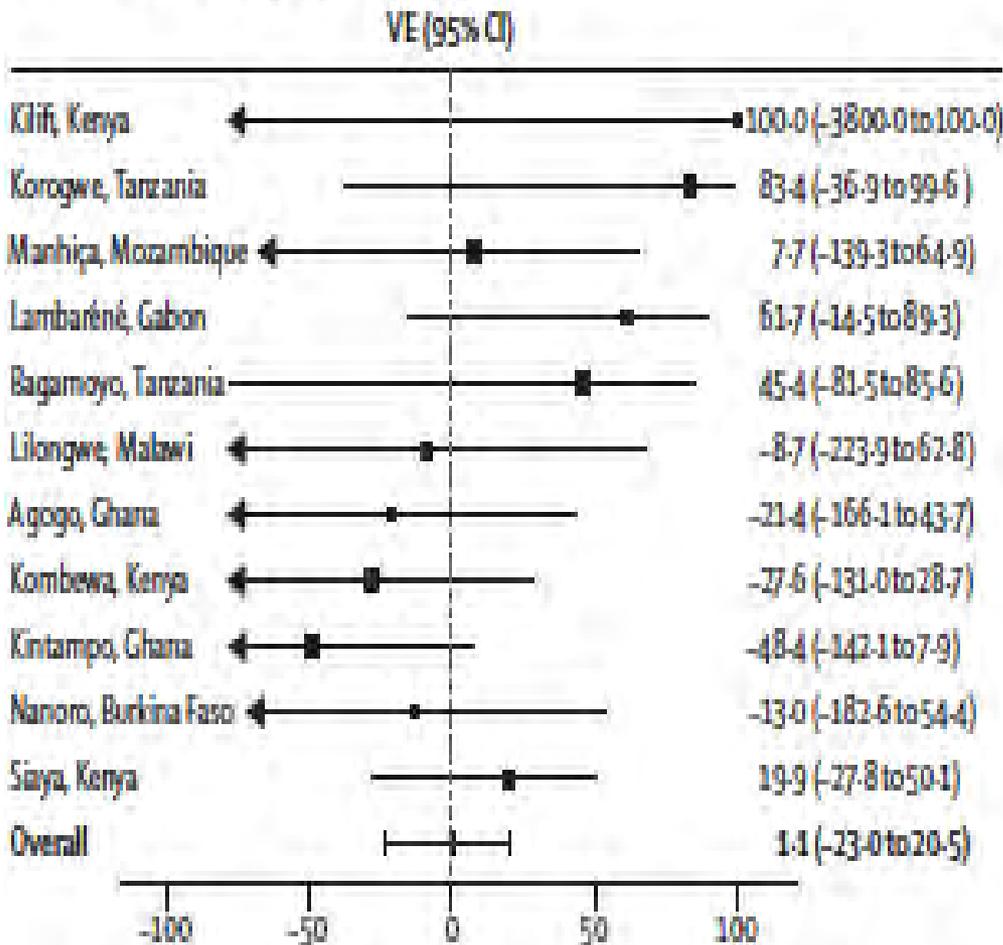


**B** Clinical malaria, R3R group

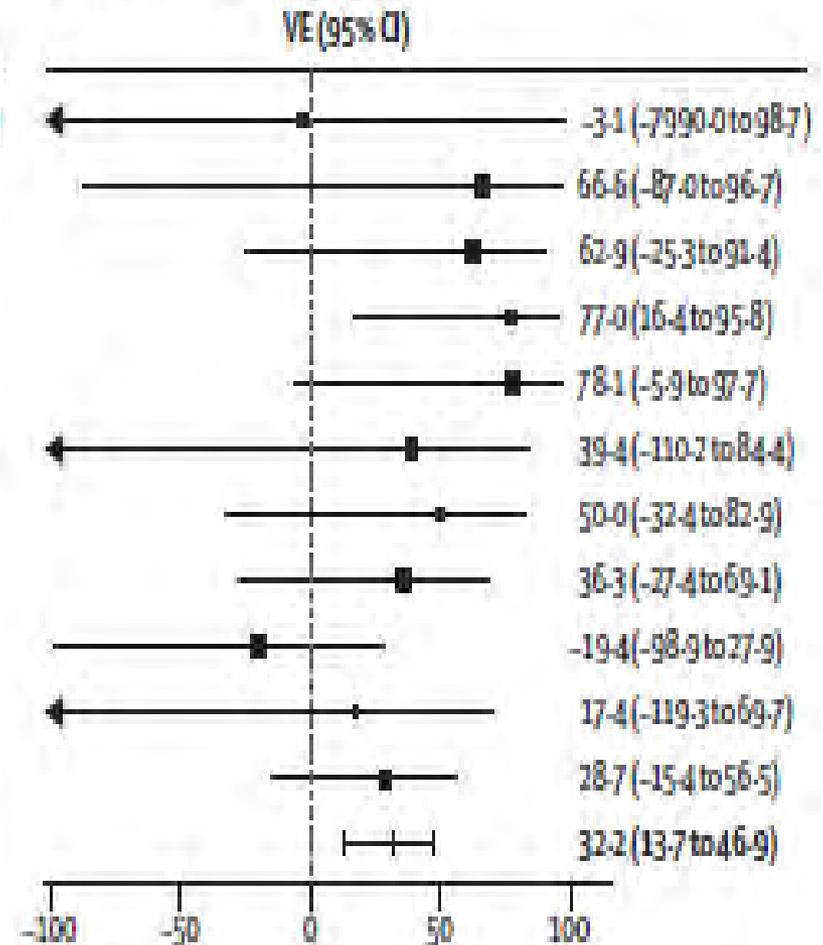


# 5 - 17 Mo: VE against Severe malaria

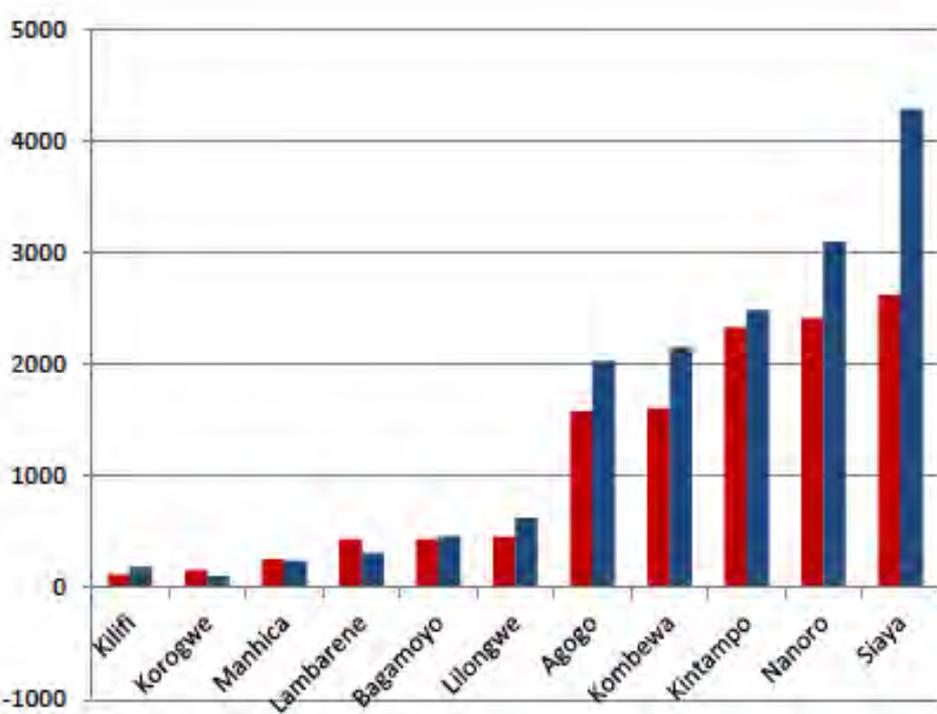
C Severe malaria, R3C group



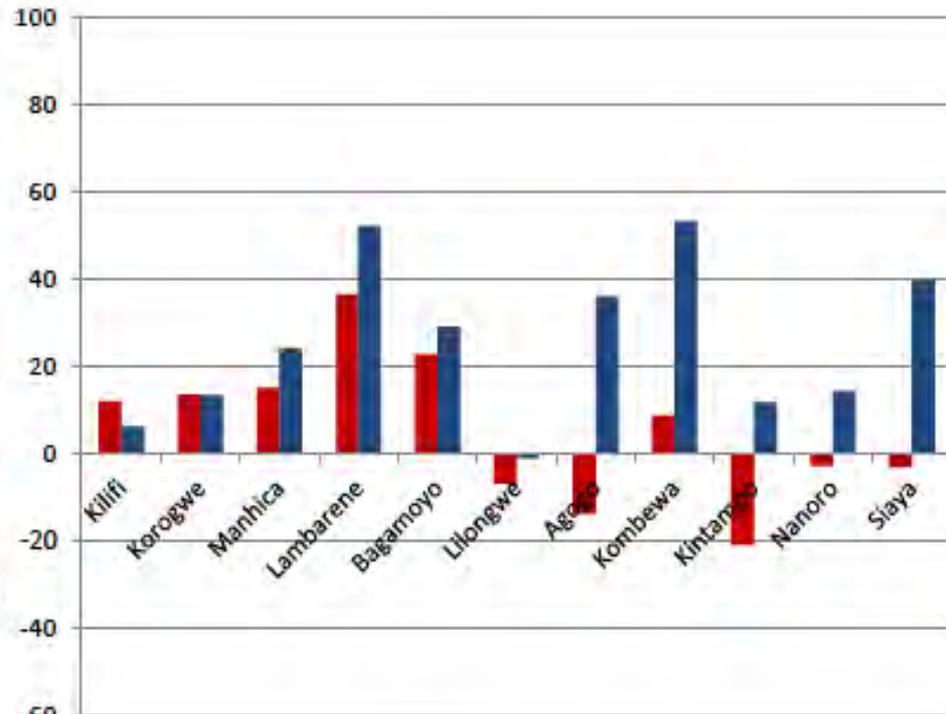
D Severe malaria, R3R group



# Children 5-17 months: Clinical and severe malaria cases averted in the trial population per 1000 vaccinated (ITT population [0-32])



Clinical malaria



Severe malaria

■ With boost  
■ Without boost

## Overall Children 5-17 months: Key safety findings

- RTS,S/AS01 was more reactogenic than comparator vaccine:
  - Grade 3 reactions were rare, except for fever  $\geq 39^{\circ}\text{C}$  which occurred in 5.3% of children following booster dose.
  - Febrile seizures ( within 7 days) occurred at 1/1000 doses during primary series and at 2.5/1000 doses after booster.
- The occurrence of serious adverse events (SAE) was similar in the three groups:
  - Any SAE: 24% (with booster), 25% (without booster), 28% (control).
  - Related SAEs were low, (0.3% for RTS,S mainly febrile seizures).
- Fatal SAEs occurred at similar frequency:
  - 2.0% (with booster), 1.7% (without booster), 1.5% (control).
- Meningitis remains a signal:
  - During the post-booster period, 5 new cases were observed\* (1 case after booster with RTS,S).
  - Overall number of cases (M0-SE): 11 (with booster) vs. 10 (without booster) vs. 1 (control).

\* All five cases were observed in children who received RTS,S in primary series.



# Summary for children 5-17 months

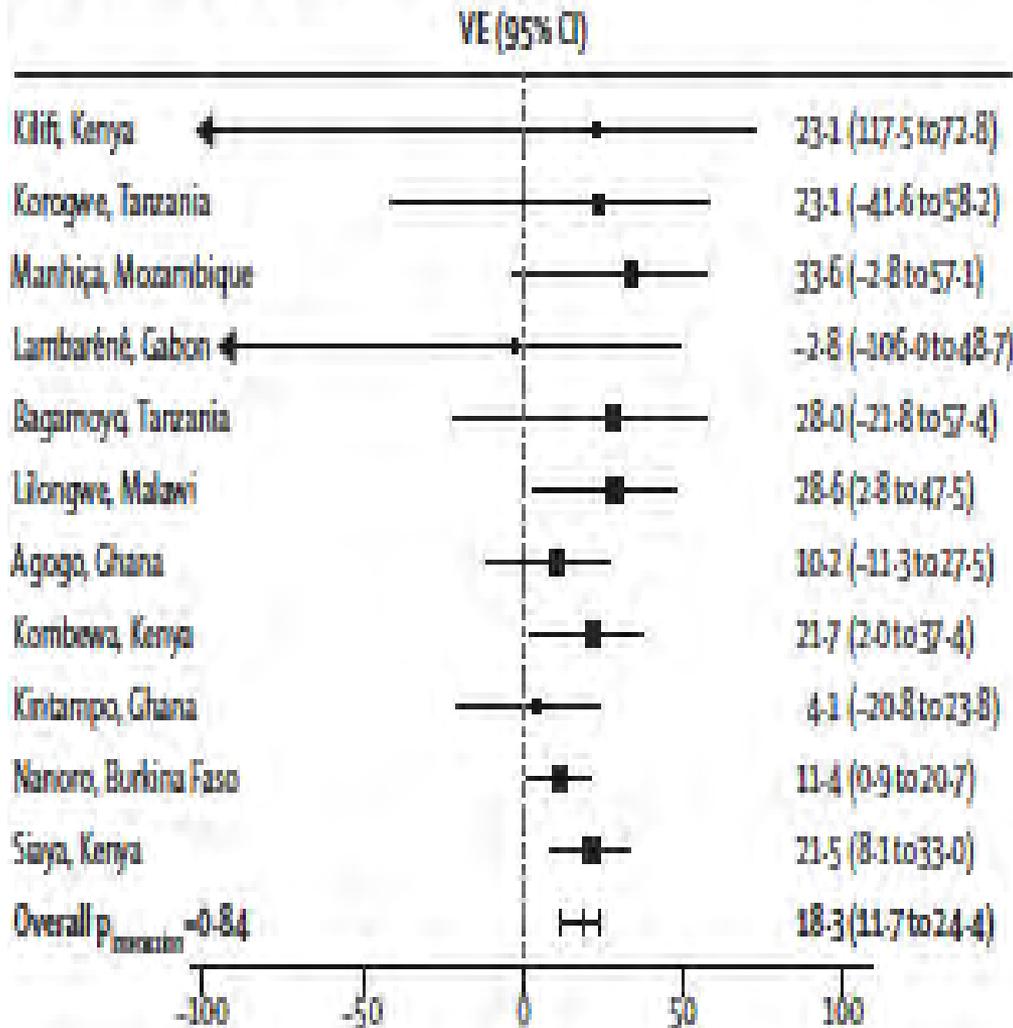
from first dose to study end (median 48 months, ITT), except as noted

BENEFITS	RISKS
<ul style="list-style-type: none"><li>• <b>Without booster:</b><ul style="list-style-type: none"><li>• VE clinical malaria: <b>M32: 35%</b> [95%CI:30;39] <b>SE(M48): 28%</b> [95%CI:23;33]</li><li>• Clinical malaria cases averted (SE): <b>1363/1000</b> vaccinees [95%CI: 995; 1797] range <b>215</b> to <b>4443</b></li><li>• VE severe malaria <b>SE(M48): 1%</b> [95%CI:-23;20]</li><li>• Severe malaria cases averted (SE): <b>8/1000</b> vaccinees [95%CI: -9; 26] range <b>-42</b> to <b>54</b></li></ul></li><li>• <b>With booster:</b><ul style="list-style-type: none"><li>• VE clinical malaria: <b>M32: 44%</b> [95%CI:40;48] <b>SE(M48): 36%</b> [95%CI:32;40]</li><li>• Incremental VE (M21-SE): <b>16%</b> [95%CI: 9; 23]</li><li>• Clinical malaria cases averted (SE): <b>1774/1000</b> vaccinees [95%CI: 1387; 2186] range <b>205</b> to <b>6565</b></li><li>• VE severe malaria <b>SE(M48): 32%</b> [95%CI:14; 47]</li><li>• Severe malaria cases averted (SE): <b>19/1000</b> vaccinees [95%CI: 4; 35] range <b>-15</b> to <b>57</b></li></ul></li></ul>	<ul style="list-style-type: none"><li>• Identified risks:<ul style="list-style-type: none"><li>• Febrile seizures<ul style="list-style-type: none"><li>• after primary vaccination (<b>1/1000</b> doses within 7 days of vaccination)</li><li>• after booster dose (<b>2.5/1000 doses</b> within 7 days of vaccination)</li></ul></li></ul></li><li>• Ongoing evaluations:<ul style="list-style-type: none"><li>• Meningitis safety signal</li><li>• Potential for increased risk for severe malaria</li></ul></li></ul>

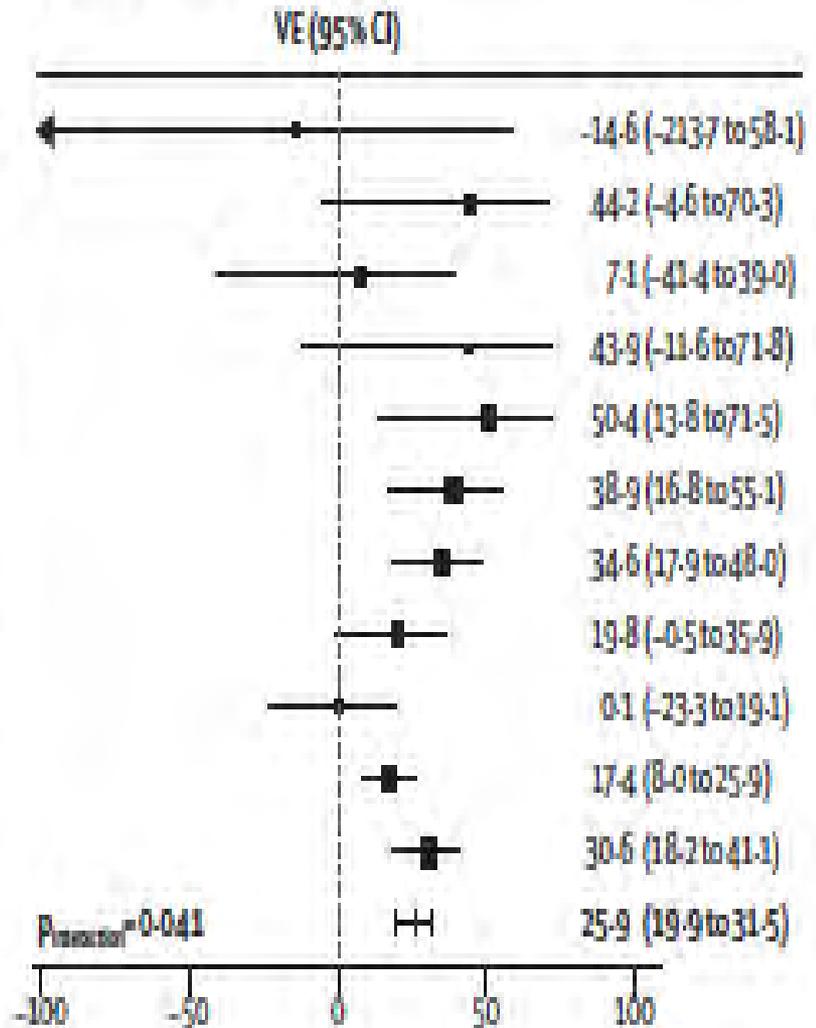
# Vaccine Efficacy, Impact and Safety in infants 6 – 12 weeks

# 6 – 12 Weeks: VE against Clinical malaria

A Clinical malaria, R3C group

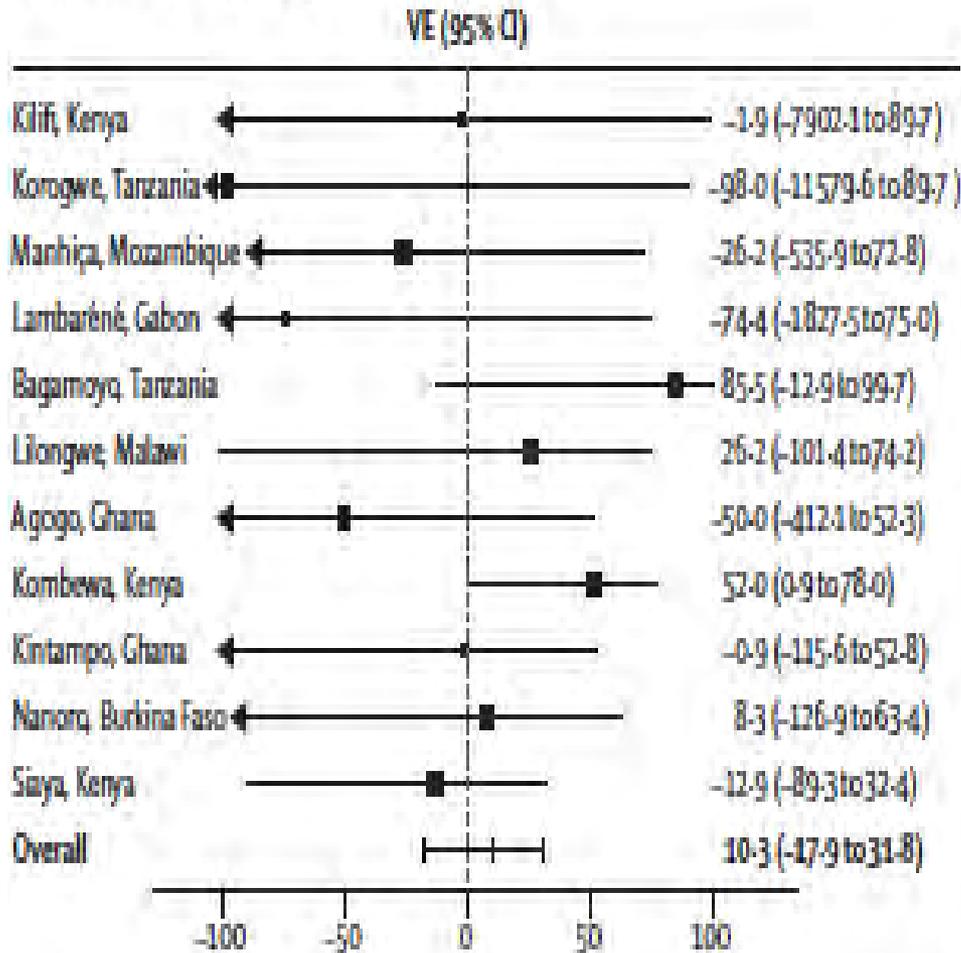


B Clinical malaria, R3R group

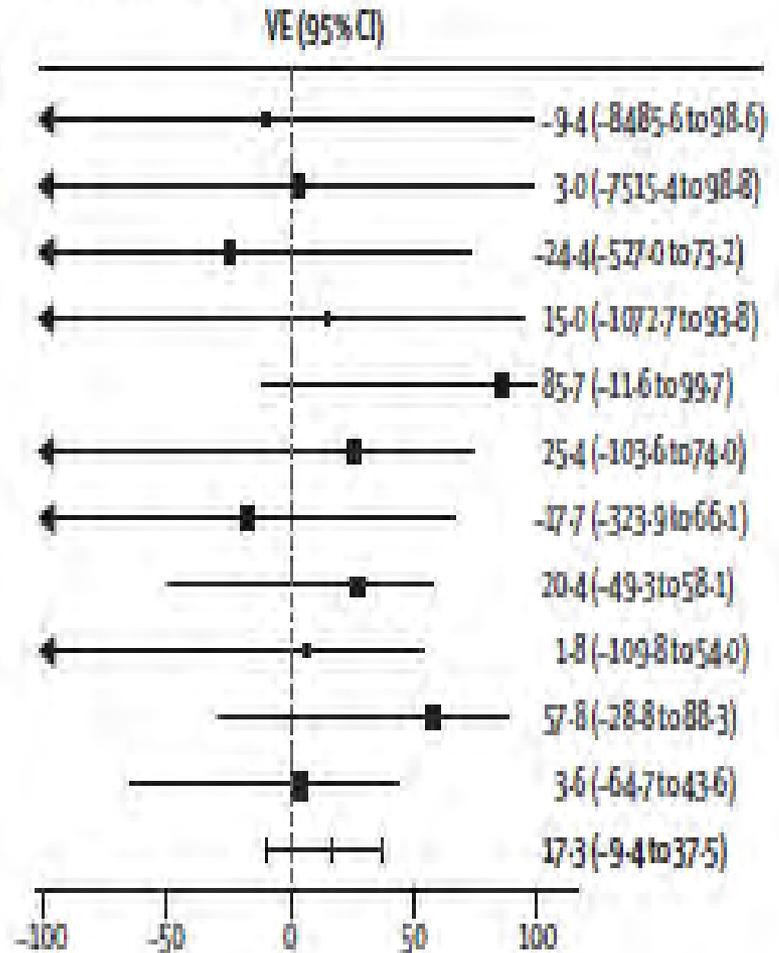


# 6 – 12 Weeks: VE against Severe malaria

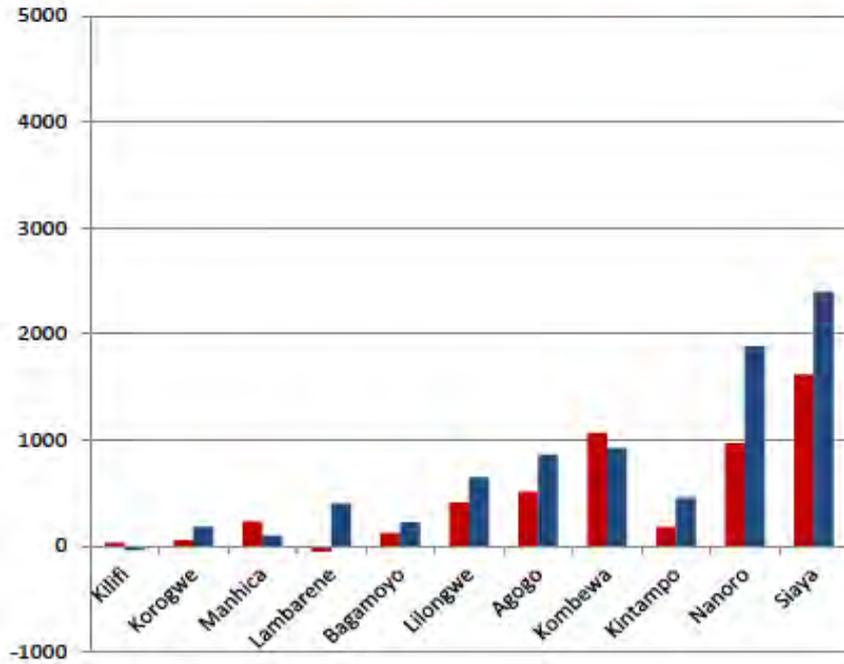
C Severe malaria, R3C group



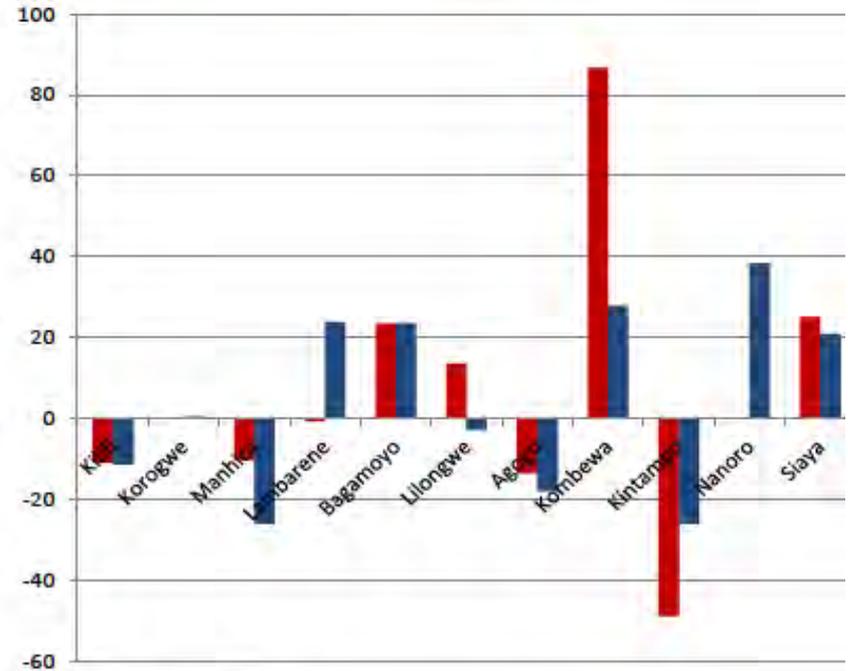
D Severe malaria, R3R group



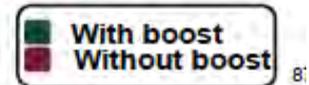
## Infants 6-12 weeks: Clinical and severe malaria cases averted in the trial population per 1000 vaccinated (ITT population [0-32])



Clinical malaria



Severe malaria





## Infants 6-12 weeks: Key safety findings

- RTS,S/AS01 was more reactogenic than comparator vaccine:
  - Grade 3 reactions were rare.
  - Febrile seizures (within 7 days) occurred after booster only at 2.2/1000 doses.
- The occurrence of SAEs was similar in the three groups:
  - Any SAE: 27% (with booster), 28% (without booster), 28% (control).
  - Related SAEs were low, (0.3% for RTS,S mainly febrile seizures).
- Fatal SAEs occurred at similar frequency:
  - 2.3% (with booster), 2.5% (without booster), 1.9% (control).
- No imbalance in cases of meningitis between groups.

# Overall summary for Infants 6-12 weeks

from first dose to study end (median 38 months, ITT), except as noted

BENEFITS	RISKS
<ul style="list-style-type: none"> <li>• <b>Without booster:</b> <ul style="list-style-type: none"> <li>• VE clinical malaria: <b>M32: 20%</b> [95%CI:14;26] <b>SE(M38): 18%</b> [95%CI:11;25]</li> <li>• Clinical malaria cases averted (SE): <b>558/1000</b> vaccinees [95%CI: 158;926] range <b>-172 to 2178</b></li> <li>• VE severe malaria <b>SE(M38): 10%</b> [95%CI: -17;32]</li> <li>• Severe malaria cases averted (SE): <b>8/1000</b> vaccinees [95%CI: -13; 28] range <b>-43 to 59</b></li> </ul> </li> <li>• <b>With booster:</b> <ul style="list-style-type: none"> <li>• VE clinical malaria: <b>M32: 28%</b> [95%CI:20;31] <b>SE(M38): 26%</b> [95%CI:20;32]</li> <li>• Incremental VE (M21-SE): <b>17%</b> [95%CI: 9; 25]</li> <li>• Clinical malaria cases averted(SE): <b>983/1000</b> vaccinees [95%CI: 592; 1337] range <b>-30 to 3406</b></li> <li>• VE severe malaria <b>SE(M38): 17%</b> [95%CI: -9;38]</li> <li>• Severe malaria cases averted (SE): <b>12/1000</b> vaccinees [95%CI: -6; 32] range <b>-62 to 56</b></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Identified risks: <ul style="list-style-type: none"> <li>• Febrile seizures <ul style="list-style-type: none"> <li>• after booster dose (<b>2.2/1000 doses</b> within 7 days of vaccination)</li> </ul> </li> </ul> </li> <li>• Ongoing evaluations: <ul style="list-style-type: none"> <li>• Monitor meningitis due to safety signal in older age category</li> </ul> </li> </ul>

# Key Conclusions (1)

- RTS,S/AS01 prevented a substantial number of cases of ***clinical malaria*** over a three- to four-year period in children and in young infants when administered with or without a booster dose, especially in areas with higher malaria transmission.
- Efficacy against ***severe malaria*** over the entire study period until study end was only observed in the older group of children who received a booster dose of RTS,S/AS01. An increased risk for severe malaria cannot be excluded in children not receiving a booster dose.

## Key conclusions (2)

- RTS,S has consistently shown a good safety profile, although a meningitis safety signal reported among older children will require further follow-up.
  - The significant imbalance in cases of meningitis between the RTS,S/AS01 and control groups, reported previously, remained in children. The imbalance in cases of meningitis was not seen in infants.
- An increased risk for febrile convulsions was observed within seven days after vaccination in children aged over 5 months; all children recovered.
- Close monitoring of trial participants and the high quality of clinical care resulted in an overall low mortality. An impact on mortality could not be detected.
- This vaccine if approved, recommended and correctly deployed, has the potential to prevent millions of cases of malaria.

# Next steps

- **Regulatory application** to the European Medicines Agency (**EMA**) submitted in June 2014 under Article 58 (*candidate manufactured, but not for use in European Union*) for a scientific opinion in collaboration with WHO.
- A positive scientific opinion from EMA on the quality, safety, and efficacy of RTS,S (mid-2015) would pave the way for:
  - **WHO recommendation** (possible by end-2015).
  - **WHO prequalification** (possible by end-2015).
  - Marketing Authorisation Applications to National Regulatory Authorities (**NRAs**) in **sub-Saharan Africa**.



# Next steps

- Initiate **epidemiological study** to establish **baseline** rates of potential future adverse events (late 2015).
- Determine **health economic value** of malaria vaccination.
- **GAVI Vaccine Investment Strategy for RTS,S.**
- Manufacturers to consolidate **demand forecasting** and secure manufacturing capacity.
- Use data to support **evidence-based decision-making**, at the country level, on the malaria vaccine in the context of other interventions.

# Acknowledgments

## Research Centers and Partners

Albert Schweitzer Hospital, Lambarene, Gabon  
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KEMRI - Wellcome Trust Research Program, Kilifi, Kenya  
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Participants and families  
Study staff  
Ghana Health Service  
Ghana FDA  
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Malaria Clinical Trials Alliance  
Bill & Melinda Gates Foundation



**Thank you**

# The Use of Meningococcal A conjugate Vaccine in Pregnancy

An evaluation conducted at Navrongo Health Research Centre, Ghana

George Wak

John Williams

Steve Black

Abraham Oduro



# Background

- Group A Meningococcal causes epidemic in the “Meningitis belt” of Africa.
- Infection rate is estimated to range between 100 to 800 per 100,000 population.
- These outbreaks also cause significant morbidity and mortality in pregnant women.
- However, pregnant women are often not vaccinated due to safety concerns.

# The Context

- There was a mass vaccination campaign in October 2012 and it was recommended that pregnant women should not be excluded from vaccination.
- There had been no formal evaluation of MenAfriVac in pregnant women.
- Ghana was the last country to begin widespread vaccination with this vaccine.
- This provided an opportunity for the evaluation of the effect of the vaccine in pregnancy.



# The Study Objectives

- Primary objective: To compare the rates of pregnancy related outcomes in women who received MenA conjugate with those in two control groups
  - Concurrent control group of pregnant women who did not receive vaccine
  - A historical control group of women who were under surveillance at Navrongo during the two years prior to the campaign.
- Exploratory objective: To assess the feasibility of identifying unanticipated AEs in the cohorts and perform this analysis if possible.



# HDSS procedures – Demographic/Health data collection

✓ Demographic and Health data are routinely collected in study area. These include:

- Pregnancies
- Pregnancy outcomes
- Migrations
- Educational status
- Marriages
- Vaccination status of children <3 years
- Deaths
- Verbal autopsies-to ascertain causes of death



# The Study Design – Outcome Measures

- Fetal/neonatal mortality overall and
  - Spontaneous abortions (< 28 week gestation)
  - Still births ( $\geq$  28 weeks gestation)
  - Perinatal deaths ( within 48 hours of onset of labor)
- Premature birth (< 36 weeks gestation)
- Very premature birth (< 28 week gestation)
- Low birth weight
  - SGA
  - Birth weight < 2500 grams for any cause
- C-section
- Maternal mortality



# The Study Design – Analysis

- Rates of events was compared between the vaccinated group and the two control cohorts using Poisson regression analyses which adjust for age
- Both 95% CI for rate ratios and nominal p-values was calculated for each comparison.

# The Primary Study Cohort

## Pregnant Women Navrongo

<b>Age group</b>	<b>Immunized Cohort 2012</b>	<b>Historical Controls</b>	<b>Unimmunized Concurrent Controls 2012</b>
15-19	276	562	114
20-24	463	950	191
25-29	431	880	170
30-34	330	676	219
35-39	153	320	135
40-44	60	127	68
45-49	17	36	24
Total	1,730	3,551	921

# Birth weight

In comparison with **Concurrent Controls**

Outcome	Men A Group (n)	Men A Rate/100	Events in Controls (n)	Control Rate/100	IRR	95% CI	P-value
Birth weight >2500 g	1591	92.0	843	91.7			
Low Birth weight <2500 g	132	7.6	70	7.6	0.98	0.82-1.17	0.82
Very Low Birth Weight <1500 g	7	0.4	6	0.7	0.85	0.40-1.78	0.66

# Birth weight

In comparison with **Historical Controls**

Outcome	Men A Group (n)	Men A Rate/100	Events in H-Controls (n)	Control Rate/100	IRR	95% CI	P-value
Birth weight >2500 g	1591	92.0	3219	90.7			
Low Birth weight <2500 g	132	7.6	309	8.7	0.90	0.75-1.08	0.25
Very Low Birth Weight <1500 g	7	0.4	23	0.6	0.78	0.39-1.56	0.49

# Birth Outcome and Delivery Mode

## In comparison with **Concurrent Controls**

Outcome	Men A Group (n)	Men A Rate/100	Events in Controls (n)	Control Rate/100	IRR	95% CI	P-value
Live Birth	1692	97.8	899	97.8			
Still Birth	22	1.3	14	1.5	0.95	0.62-1.46	0.80
Miscarriage	16	0.9	6	0.7	1.06	0.65-1.74	0.82
Maternal Mortality	0	0	3	0.3	-	-	-
Normal Delivery	1642	94.9	871	94.8			
C-section	37	2.1	23	2.5	0.95	0.69-1.32	0.77
Vacuum delivery	8	0.5	7	0.8	0.82	0.41-1.63	

# Birth Outcome

In comparison with **Historical Controls**

Outcome	Men A Group (n)	Men A Rate/100	Events in H-Controls (n)	Control Rate/100	IRR	95% CI	P-value
Live Birth	1692	97.8	4037	97.7			
Still Birth	22	1.3	42	1.30	0.97	0.64-1.48	0.89
Miscarriage	16	0.9	33	1.00	0.94	0.58-1.54	0.80

# Neonatal Outcomes

Outcome	Men A Group (n)	Men A Rate/100	Events in Controls (n)	Control Rate/100	IRR	95% CI	P-value
<b>CONCURRENT CONTROLS</b>							
Prematurity	62	3.6	29	3.1	1.0	0.81-1.34	0.76
Neonatal Mortality	12	0.7	9	1.0	0.88	0.50-1.54	0.65
<b>HISTORICAL CONTROLS</b>							
Prematurity	62	3.6	203	5.8	0.69	0.54-0.90	0.005
Neonatal Mortality	12	0.7	42	1.0	0.70	0.39-1.27	0.246

# Summary

- In this evaluation, the rates of pre-specified outcomes in pregnant woman receiving MenA conjugate were compared with both a concurrent and historical control group.
- The results show no significant difference between women who took the vaccine and those who did not take in respect of pregnancy outcome as well as all other variables.
- There were, therefore, no safety concerns identified.



# THANK YOU FOR YOUR ATTENTION





# **Community maternal morbidity audits: evidence for an optimal community-based model for reducing maternal mortalities in northern Ghana**

Raymond Aborigo

Navrongo Health Research Centre

[www.navrongo-hrc.org](http://www.navrongo-hrc.org)

# Outline

- Background
- Study objective
- Methods
- Results
- Conclusions



[www.navrongo-hrc.org](http://www.navrongo-hrc.org)



# Background

- Global reduction in MMR
- Slow reduction in Asia and Africa
- Lack of data for monitoring



[www.navrongo-hrc.org](http://www.navrongo-hrc.org)



# Background

Mortality enquiries:

- Civil registration systems
- Health information systems
- Population surveys
- Verbal autopsies



[www.navrongo-hrc.org](http://www.navrongo-hrc.org)

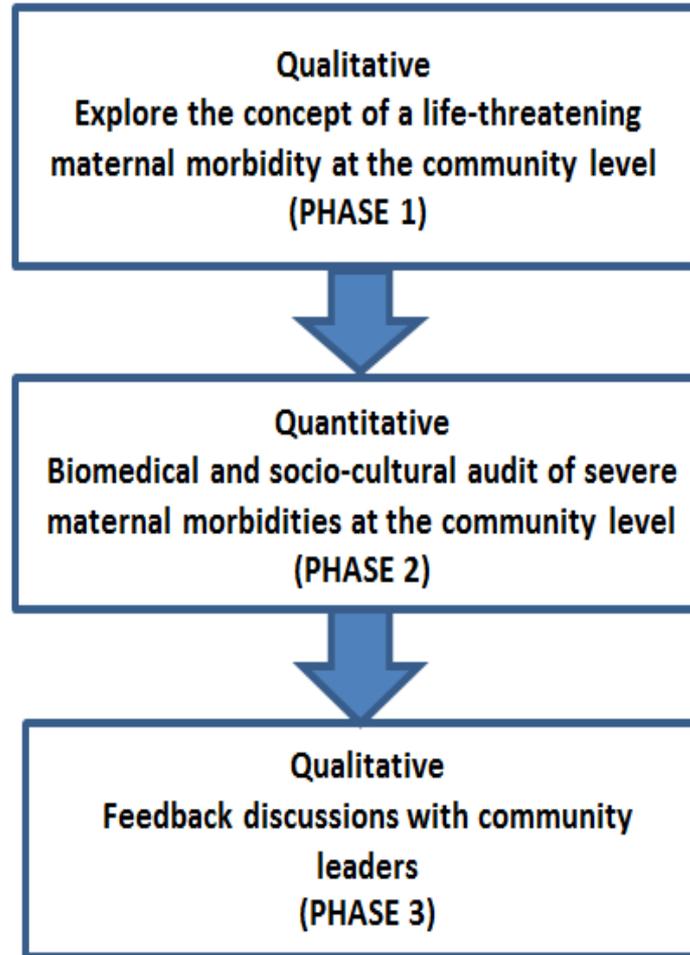


# Background

- Maternal audits
  - Health facility audits
    - Confidential enquiries
    - Facility deaths review
    - Near miss audit
  - Community audits
    - Community-based case reviews
    - Morbidities?



# The main study



# Study objective

To determine community leaders' response to evidence from community maternal morbidity audits



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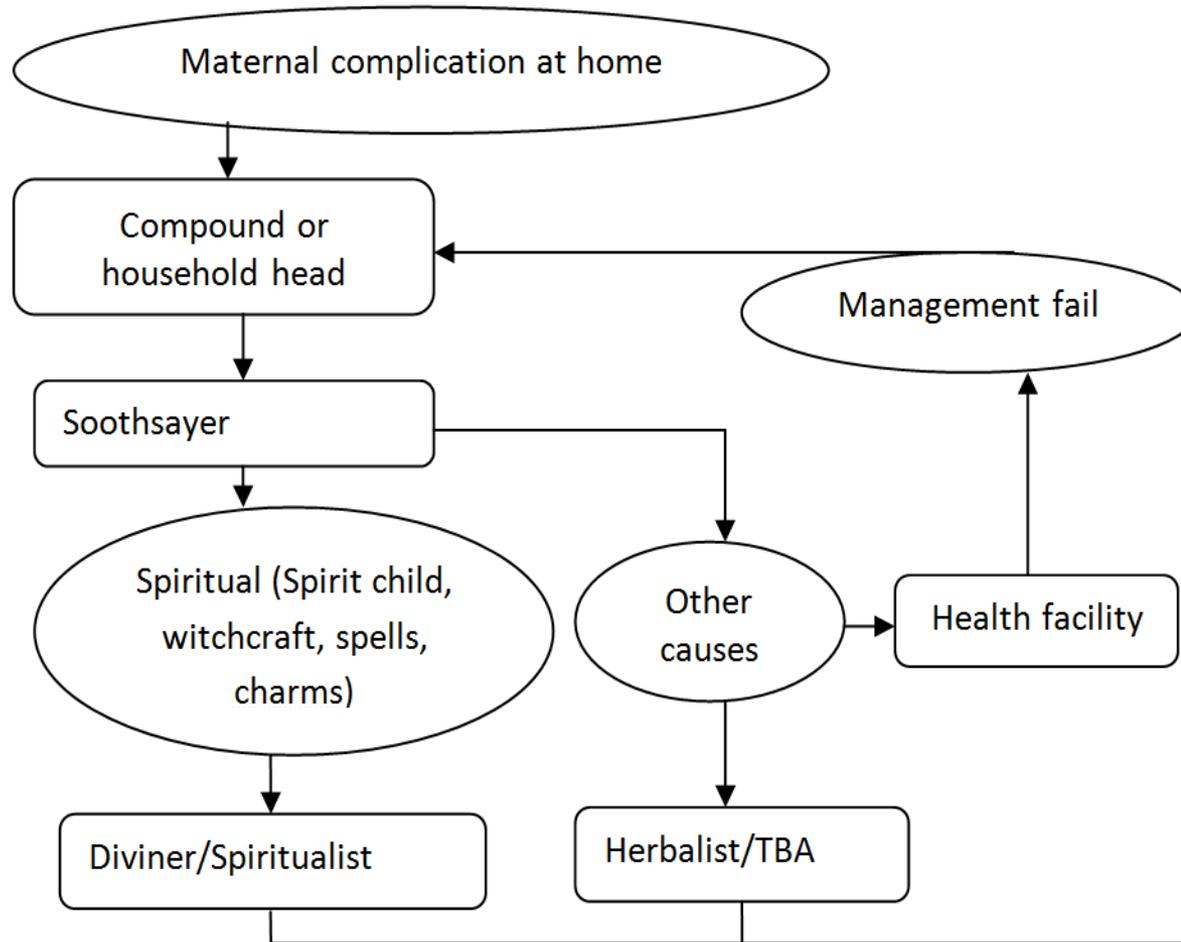
# Methods



# Summary of data collected

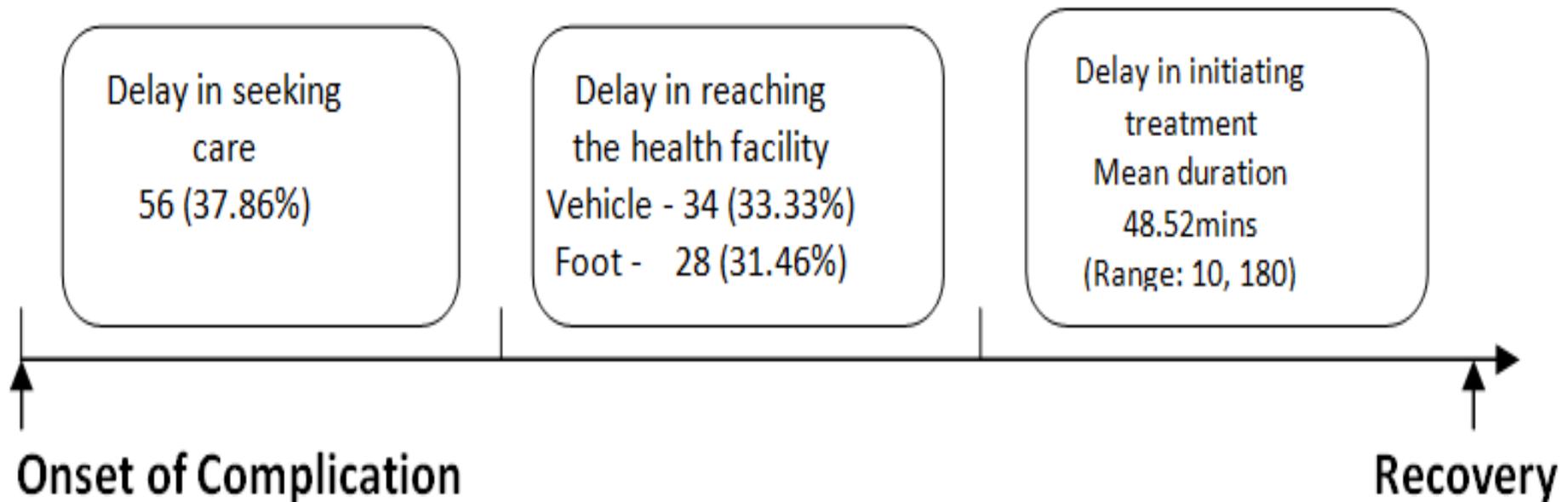
Phase	Type of interview of discussion	Number of interviews or discussions
One	FGDs	20
	IDIs	19
Two	Screening	903
	Social and biomedical Audit	148
Three	FGDs	10
	IDIs	16

# Audit results: Health seeking



# Audit results cont. – The three delays

## The 3 Delays Model of Maternal Mortality



# Audit results cont.: Utilisation of maternal health services

- 26% of women delivered at home
- Unmet need for family planning was 13%
- Fears and misconceptions about caesarean sections
- Beliefs surrounding maternal morbidities
- Intimate partner violence



# Results: Community response

- Community facilitated referral system
- Build a community fund
- Construction of CHPS compounds
- Build trust
- Strengthen the extended family system
- Ensure reciprocity of benefits



# Results: Community response cont.

- Community by-laws on home deliveries
- Family approach to ANC
- Couple approach to the use of contraception
- Use community leaders as advocates
- Involve the complete range of maternal health care providers within the community

# Results: Intimate partner violence

*"It is not good to beat a woman whether she is pregnant or not because through them the world multiplies; small and big people are born". FGD-OL-NAKOLO*

- Use of law enforcement agencies
- Relocate woman to neighbours compound
- Naming and shaming
- Fines
- Ban *akpeteshi*



# Conclusions/recommendations

- The health system should work closely with communities
- Communities need support to function as a cohesive unit
- Involve all stakeholders in maternal health within communities
- Community leaders are key in aligning health interventions with traditional norms
- Community leaders have authority to formulate by-laws to compel healthy behaviours



[www.navrongo-hrc.org](http://www.navrongo-hrc.org)



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- Navrongo Health Research Centre
- INDEPTH Network
- Chiefs and people of the Kassena-Nankana Districts



[www.navrongo-hrc.org](http://www.navrongo-hrc.org)



# Thank you for your attention!



[www.navrongo-hrc.org](http://www.navrongo-hrc.org)





**Ghana Health Service**  
Your Health - Our Concern

# **Treating fever in children under five: Caregiver Perceptions of Community Health Worker Services in Dangme West District, Ghana.**

Presented at the National Health Research  
Dissemination Symposium, GIMPA

by Mercy Abbey

28<sup>th</sup> May 2015



# Outline

- Background
- Rationale
- Methodology
- Results
- Conclusion

# Background

- Access to health care for children aged below five years is a major public health and development issue.
- Community Based interventions can increase coverage of child survival interventions
- Adequately trained and equipped Community Health Workers have made substantial impact.
- Success of such interventions depend on timely and appropriate care-seeking and treatment utilization

# Study background

- Study nested within the larger study on Community management of fevers in children under five

## **Overview of intervention**

- 660 trained CBAs deployed
- Treatment of fever
- Provided counselling
- Treated over 12,000 children
- More CBAs were retained

## **complementary communications program**

- disseminated using a multi media approach (audio messages, oral presentations , video)

# Study Questions

- Did caregivers know about CBA program?
- Did Caregivers utilize CBA services?
- How did caregivers perceive CBA services?
- What factors are related to the use of CBA for childhood fever?
- What did caregivers recommend for program improvement?

# Methodology

- Mixed methods
- Care givers of under- 5s
  - Household survey - 526 caregivers
  - FGDs 12 (84 Caregivers )  
55 females & 29 males



## Results

# Table 1: Awareness, Knowledge and Utilization of CBA Services among Caregivers (N=562)

Themes	Yes % (n)	No %(n)
<b>Awareness &amp; Knowledge</b>		
Awareness of campaign messages programs	56.05 (315)	43.95 (247)
Knowledge about CBAs in own community	<b>93.06 (523)</b>	6.94 (39 )
<b>Utilization</b>		
Ever used CBA services for child's fever	<b>59.43 (334)</b>	40.57 (228 )
Child had fever 4 weeks prior to survey	<b>43.8 (246)</b>	56.22 ( 316)
<b>Action Taken/Treatment Given</b>		
Use of left over medicine available at home	37.9 (208)	62.98 (354 )
Sought care from over-the-counter medicine seller	36.0 (202)	64.05 (360)
<b>Sought care from a CBA</b>	<b>34.88 (196)</b>	65.12 (366)
<b>Sought care from a health facility</b>	<b>30.3 (170)</b>	69.75 (392)
Tepid sponged the child	91.28 (513)	8.7 (49)

# Perceptions of messages delivered and Main learnings

## Main learnings include:

- CBA drugs are free of cost - 42.1% (237/562),
- How to sponge a child with fever - 41.2% (232/562),
- Avoid delay 38.6% (217/562),
- Prompt treatment - 30.0% (169/562),
- Proximity of CBA - 26.6% (150/562)
- Adherence to treatment- 17.7% (100/562)

# Perceived Quality of Service

- Good 45.0% (253/562)
- Excellent 13.7% (77/562)
- Fair 0.71% (4/562)

## The main positive aspects of care

- effectiveness of drugs - 40.75% (225/562),
- friendliness of CBA - 34.7% (195/562),
- free medication - 32.4% (182/562)

## Few of the dislikes were

- unavailability of CBAs - 1.25% (7/562)
- unfriendliness - 0.89% (5/562).

## Results- Recommendations for improvement

### Recommendations external

- Community members are poor
- Maintenance of CBA job
- Expansion of range of services
- Child eligibility criteria increased

## Focus Groups: Awareness of CHWs in the communities and source of information

- Awareness of program widespread
- differed in depth between female and male
- Women participated, men were informed

*“The CHWs were selected by us (the community) and they went for training to give medication to children with fever in the community. When they finished the training, they were introduced to the community for us to know” (female participant)*

- *“Yes, I know (about CHWs) from my wife, but I don’t deal with them” (male participant).*

## Focus Groups: Learnings from Campaign Messages

- *“I learned that when CHW gives medicine for the child’s ailment, the child should complete the full course.”(Female participant).*
- *“What I learned is that when a child has fever, not to tepid sponge from the head but from the feet upwards.”(Female participant)*
- *“Since I watched the video I always remember what I saw and never forget because it is like a picture in my mind” (Female participant)*

## Focus Groups: Learnings from Campaign Messages

- “Before the introduction of the drugs, children frequently fell sick, especially with hedola, but now the hedola has reduced in the community.”(Female Participant)
- “We used to spend money sending our children to the clinic, but now we have free access to drugs and we don’t travel long distances again.”(Female participant)
- “Some of us had beliefs that evil forces were the cause of fever and convulsion in children but with the education, that belief has changed” (Male participant”

## Focus Groups: reasons for not using CBA Services

- “I personally have nothing against them, but few community members who have problems with them refused to go there for treatment... also people complain that some (CHWs) behave as if they know it all (Female participant)
- “Some may prefer the clinic to the CHWs because of lack of trust”. (Female Participant)
- “My wife told me she sent our six year old sick child there but was told the boy was above age.” (Male participant).
- He (CHW) told me to give drug morning and evening for 3 days, when I gave the child the drug, the following day the fever was the same, so I sent the child to the clinic.” (Female participant)

## Results- factors related to utilization

- Caregivers exposed to the communication activities were four times more likely to use CBAs compared to the non exposed (  $P < 0.001$ ).

# Conclusion

Demand Generation activities among priority groups is key to promoting utilization of CBA services.

- - successful dissemination leads to exposure which in turn facilitates utilization therefore, adequate efforts are needed to generate demand.

# Quote

“... Even the most powerful diagnostic tests, drugs, and vaccines have little public health impact if they do not reach the people that need them the most”

H. Halwindi et al (2013)

**Factors Perceived by Caretakers as Barriers to Health Care for Under-Five Children in Mazabuka District, Zambia.**

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John Gyapong

Margaret Gyapong

Moses Aikins

Matilda Pappoe

Margaret A. Chinbuah

Justice Nonvignon

## **Study Site:**

Dangme West District, Through the Dodowa Health Research Centre.

Trial supported by: WHO and Dutch Government.

# The Stillbirth And Neonatal Death Study (SANDS): Implications and Lessons Learned from an Interdisciplinary, Mixed Methods, Four-Institution Collaborative



**Raymond Aborigo, Navrongo Health Research Centre**

**Philip Adongo, University of Ghana**

**Cyril Engmann, University of North Carolina**

**Mira Gupta, University of Michigan**

**Abraham Hodgson, Navrongo Health Research Centre**

**Cheryl A. Moyer, University of Michigan**

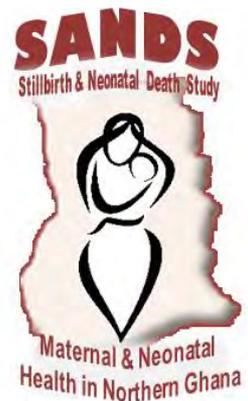
**Sarah Rominski, University of Michigan**

**Paul Welaga, Navrongo Health Research Centre**

**John Williams, Navrongo Health Research Centre**

# Overview

- Introductions
- Genesis of SANDS
- Brief paper-by-paper summary
- Overall implications
- Discussion of lessons learned



# The SANDS Team



**Raymond Aborigo, Navrongo Health Research Centre (NHRC)**



**Abraham Hodgson, former Director, Navrongo Health Research Centre**



**Cheryl Moyer, University of Michigan (UM)  
Cyril Engmann, University of North Carolina**

**Sarah Rominski, UM**



**Paul Welaga, NHRC**



**Philip Adongo, University of Ghana School of Public Health**

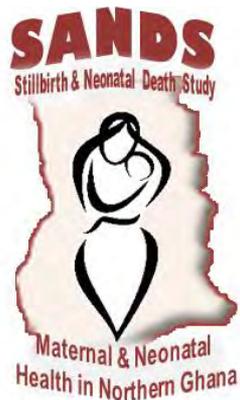


**“The Gideons”: Univ. of Development Studies**



# Genesis of SANDS

- Stillbirth / neonatal mortality are understudied
- DHS data are extrapolations
- DSS data give actual numbers, not modeled numbers
- But numbers are only part of the story – what's the context?



# Mixed-Methods

- Quantitative Data:
  - Source: Navrongo DSS
  - Focus: Stillbirth, Early neonatal mortality (1<sup>st</sup> 7 days), Neonatal Mortality (1<sup>st</sup> 28 days)
- Qualitative Data:
  - Source: 253 community members
    - Mothers with newborns, grandmothers, household heads, compound heads, TBAs, midwives, doctors, women's group leaders, herbalists, etc.)
    - Focus groups + IDIs
  - Focus: pregnancy through post-partum



# Guiding Principles / Priorities

- Identifying and meeting each team member's needs
- Ghanaian first- and second authors
- Meaningful inclusion of junior participants (even field staff) in analysis and manuscript process
- Encouraging identification and pursuit of individual ideas for manuscripts



# Paper 1

- Stillbirths: 23/1000 ; END: 16/1000
- Prematurity, 1<sup>st</sup> time delivery, multiple gestation associated with increased risk of perinatal death
- 70% of END occurred in 1<sup>st</sup> 3 days post birth
- Leading COD: birth asphyxia/injury, infection, prematurity

## Stillbirths and early neonatal mortality in rural Northern Ghana

Cyril Engmann<sup>1</sup>, Paul Walega<sup>2</sup>, Raymond A. Aborigo<sup>2</sup>, Philip Adongo<sup>3</sup>, Cheryl A. Moyer<sup>4</sup>, Layla Lavasani<sup>1</sup>, John Williams<sup>2</sup>, Carl Bose<sup>1</sup>, Fred Binka<sup>3</sup> and Abraham Hodgson<sup>2</sup>

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<sup>4</sup> University of Michigan, Ann Arbor, MI, USA

# Paper 2

- Neonatal mortality rate: 24/1000
- Neonatal deaths: 32% infection, 21% birth asphyxia/injury; 18% prematurity
- 46% of all neonatal deaths occurred in first 3 days

## Why Are Babies Dying in the First Month after Birth? A 7-Year Study of Neonatal Mortality in Northern Ghana

Paul Welaga<sup>1\*</sup>, Cheryl A. Moyer<sup>2</sup>, Raymond Aborigo<sup>1,5</sup>, Philip Adongo<sup>3</sup>, John Williams<sup>1</sup>, Abraham Hodgson<sup>1</sup>, Abraham Oduro<sup>1</sup>, Cyril Engmann<sup>4</sup>

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# Paper 3

- Community members know recommendations r.e. breastfeeding – don't always follow them
- Significant cultural traditions exist r.e. infant feeding
- Grandmothers are influential for infant feeding practices

Aborigo et al. *BMC Pregnancy and Childbirth* 2012, **12**:76  
<http://www.biomedcentral.com/1471-2393/12/76>



**RESEARCH ARTICLE**

**Open Access**

## Infant nutrition in the first seven days of life in rural northern Ghana

Raymond Akawire Aborigo<sup>1\*</sup>, Cheryl A Moyer<sup>2</sup>, Sarah Rominski<sup>2</sup>, Philip Adongo<sup>3</sup>, John Williams<sup>1</sup>, Gideon Logonia<sup>1</sup>, Gideon Affah<sup>1</sup>, Abraham Hodgson<sup>1</sup> and Cyril Engmann<sup>4</sup>

# Paper 4

- Local understanding of illness affects treatment practices (e.g. traditional vs. allopathic)
- Mothers are frequently blamed for infant illness
- Care seeking influenced by community members beyond infant's mother

Journal of Perinatology (2013), 1–6

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[www.nature.com/jp](http://www.nature.com/jp)



## ORIGINAL ARTICLE

Infant illness spanning the antenatal to early neonatal continuum in rural northern Ghana: local perceptions, beliefs and practices

C Engmann<sup>1</sup>, P Adongo<sup>2</sup>, R Akawire Aborigo<sup>3,4</sup>, M Gupta<sup>5</sup>, G Logonia<sup>3</sup>, G Affah<sup>3</sup>, P Waiswa<sup>6</sup>, A Hodgson<sup>3</sup> and CA Moyer<sup>5</sup>

# Paper 5

- Community members and providers know recommendations for clean delivery
- Hand washing and glove usage during delivery described infrequently
- Cord care practices included application of non-sterile substances

Moyer et al. *BMC Pregnancy and Childbirth* 2012, **12**:50  
<http://www.biomedcentral.com/1471-2393/12/50>



**RESEARCH ARTICLE**

**Open Access**

## Clean delivery practices in rural northern Ghana: a qualitative study of community and provider knowledge, attitudes, and beliefs

Cheryl A Moyer<sup>1,5\*</sup>, Raymond Akawire Aborigo<sup>2</sup>, Gideon Logonia<sup>2</sup>, Gideon Affah<sup>2</sup>, Sarah Rominski<sup>1</sup>, Philip B Adongo<sup>3</sup>, John Williams<sup>2</sup>, Abraham Hodgson<sup>2</sup> and Cyril Engmann<sup>4</sup>

# Paper 6

- Maltreatment in facilities described in 6 of 7 community focus groups, 14 of 43 community interviews, and 8 of 13 provider interviews
- Physical and verbal abuse, neglect, discrimination, and denial of traditional practices reported as barriers to care-seeking

Midwifery 30 (2014) 262–268



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Midwifery

journal homepage: [www.elsevier.com/midw](http://www.elsevier.com/midw)



‘They treat you like you are not a human being’: Maltreatment during labour and delivery in rural northern Ghana



Cheryl A. Moyer, PhD, MPH (Managing Director)<sup>a,\*</sup>, Philip B. Adongo, PhD (Senior Lecturer and Head)<sup>b</sup>, Raymond A. Aborigo, MPH (Health Research Officer, PhD Candidate)<sup>c,d</sup>, Abraham Hodgson, MD, PhD (Director)<sup>c</sup>, Cyril M. Engmann, MD (Associate Professor)<sup>e</sup>

# Paper 7

- Norms shifting in favor of facility delivery
- Respondents disagreed about women needing permission
- All agreed that obtaining facility delivery required women to rely upon their social networks
- Community-wide sense of responsibility for positive birth outcomes

Matern Child Health J  
DOI 10.1007/s10995-013-1240-y

## **“It’s up to the Woman’s People”: How Social Factors Influence Facility-Based Delivery in Rural Northern Ghana**

**Cheryl A. Moyer • Philip B. Adongo •  
Raymond A. Aborigo • Abraham Hodgson •  
Cyril M. Engmann • Raymond DeVries**

# Paper 8

- Differences between allopathic vs. traditional providers in approaches to maternal and newborn health
- Providers don't "speak the same language"
- Traditional providers have a much better understanding and appreciation for local customs



## ORIGINAL RESEARCH ARTICLE

### **“I don't know anything about their Culture”: The Disconnect between Allopathic and Traditional Maternity Care Providers in Rural Northern Ghana**

*Elizabeth Hill\*<sup>1</sup>, Rebecca Hess<sup>1</sup>, Raymond Aborigo<sup>2,3</sup>, Philip Adongo<sup>4</sup>, Abraham Hodgson<sup>2</sup> and Cyril Engmann<sup>5</sup> and Cheryl A. Moyer<sup>1,6</sup>*

# Paper 9



- Women and communities report knowing pregnancy danger signs, but often don't act
- Traditional remedies are common and often precede visits to western providers
- Increasing knowledge r.e. danger signs is necessary but not sufficient to change care seeking behavior

## ORIGINAL RESEARCH ARTICLE

### **Obstetric Danger Signs and Factors Affecting Health Seeking Behaviour among the Kassena-Nankani of Northern Ghana: A Qualitative Study**

*Raymond A. Aborigo<sup>1,5\*</sup>, Cheryl A. Moyer<sup>2</sup>, Mira Gupta<sup>2</sup>, Philip B. Adongo<sup>3</sup>, John Williams<sup>1</sup>, Abraham Hodgson<sup>4</sup>, Pascale Allote<sup>5</sup> and Cyril M. Engmann<sup>6</sup>*

<sup>1</sup>Navrongo Health Research Centre, Ghana; <sup>2</sup>University of Michigan, USA; <sup>3</sup>University of Ghana, Ghana; <sup>4</sup>Research and Development Division, Ghana Health Service, Ghana; <sup>5</sup>Monash University, Sunway Campus, Malaysia; <sup>6</sup>University of North Carolina, USA.

# Paper 10

- Despite the strong role of men, grandmothers play important role as gatekeepers to care seeking
- Grandmothers are typically closer to the pregnancy / child care duties than men
- Grandmothers are an important constituency for programmatic interventions

*Global Public Health*, 2015

<http://dx.doi.org/10.1080/17441692.2014.1002413>



## **Grandmothers as gatekeepers? The role of grandmothers in influencing health-seeking for mothers and newborns in rural northern Ghana**

Mira L. Gupta<sup>a\*</sup> , Raymond Akawire Aborigo<sup>b,c</sup>, Philip Baba Adongo<sup>d</sup>, Sarah Rominski<sup>a</sup>, Abraham Hodgson<sup>b</sup>, Cyril M. Engmann<sup>c</sup> and Cheryl A. Moyer<sup>a,f</sup>

# Implications...

- SANDS taught us a tremendous amount about the gaps in understanding and the important role of social and cultural factors in outcomes across the pregnancy and neonatal continuum
- It also suggested the importance of understanding site-specific differences





# PREMAND

Preventing Maternal and Neonatal  
Deaths in Northern Ghana

PREMAND is a USAID-Ghana-funded project that builds upon all we learned from SANDS:

*Using social autopsy and spatial visualization to foster locally relevant solutions for maternal and neonatal deaths and near-misses.*

***Co-Project Directors:***

***Cheryl Moyer (University of Michigan)***

***John Williams (Navrongo Health Research Centre)***

# PREMAND

Preventing Maternal and Neonatal  
Deaths in Northern Ghana

## Phase 1

Improve understanding of maternal and neonatal deaths through social autopsy and near-miss assessments

## Phase 2

Combine identified trends with locational data to make the results more actionable for communities, government leaders, and donor community

## Phase 3

To engage community members in programming tailored to address the challenges featured in their specific profile, as a means to locally sourcing and testing potential programmatic responses

# Implications ...

- Need for integrated, evidence-based reproductive, maternal, newborn, child health and nutrition intervention package brought to scale in Upper East
  - Could include operations research to maximize uptake
  - Could include effectiveness testing



# Implications ...

- Need an accountability framework, including monitoring, evaluation, incentives, and consequences
  - Social accountability
  - Provider accountability
  - Educational system accountability
    - Pre-service / in-service education
    - Patient-provider communication
    - Respectful care



# Implications ...

- Period between onset of labor and first 24 hours post delivery is critical from a morbidity and mortality perspective
- Need for high quality delivery care
- Need for post-natal care within 24 hours



# Key lessons learned?

- Framing everything in terms of “building an effective team”
- Clarify individual vs. project goals
- Identify and play to one another’s strengths
- Open / ongoing / transparent communication is key
- Good mentorship is rare – but it pays off for all involved



**THANK YOU!**





# Commonly identified infectious agents and their sensitivity pattern: a threat to the development of children under five years

Louisa F. Iddrisu, Kwaku Poku Asante, Kingsley Twum-Danso, Japhet A. Opintan, Zuwera Yidana, Farrid Boadu, Dennis Konadu- Gyasi, David Dosoo, Emmanuel Mahama, Elisha Adeniji, Sabastina Amoako, Seth Owusu- Agyei.



# Outline



- Introduction
- Objectives
- Methods
- Results
- Conclusion
- Limitation
- Acknowledgments



# Introduction



- Antimicrobial agents have played an essential role over the years in decreasing morbidity and mortality due to infectious diseases.
- Infectious diseases caused by bacteria are important cause of morbidity and mortality in young children worldwide (Prabhu *et al.*, 2010)
- Important childhood bacteria infections include:
  - Septicaemia caused by *S. aureus*, NTS, *S. Typhi*,
  - Meningitis caused by *N. meningitidis*, *S. pneumoniae*, *H. influenzae*
  - Pneumonia caused by *S. pneumoniae*, *H. influenzae*



# Con't introduction



- Antimicrobial resistance has increased greatly in recent years and is posing an increasing therapeutic problems worldwide
- Indiscriminate use and unlimited access contributes to the emergence and spread of bacteria resistance



# Objectives



1. To isolate and identify bacteria causing bloodstream infections from blood cultures
2. Determine their antimicrobial susceptibility patterns



# Methods



- **Study design**
  - Cross-sectional study
- **Study sites**
  - Kintampo North Municipal and Kintampo South Districts
- **Target population**
  - Children below the age of 5 years (0 – 59 months) admitted with fever



# Study Procedure



- Blood samples were collected from children enrolled in various studies from 2008 to 2013 at the research center.
- Blood samples of children who reported at the hospital with fever were collected into BACTEC culture vials (paeds plus) and transported to the research laboratory for analysis.

# Laboratory investigations

1-3ml blood into Paeds plus vials

BACTEC

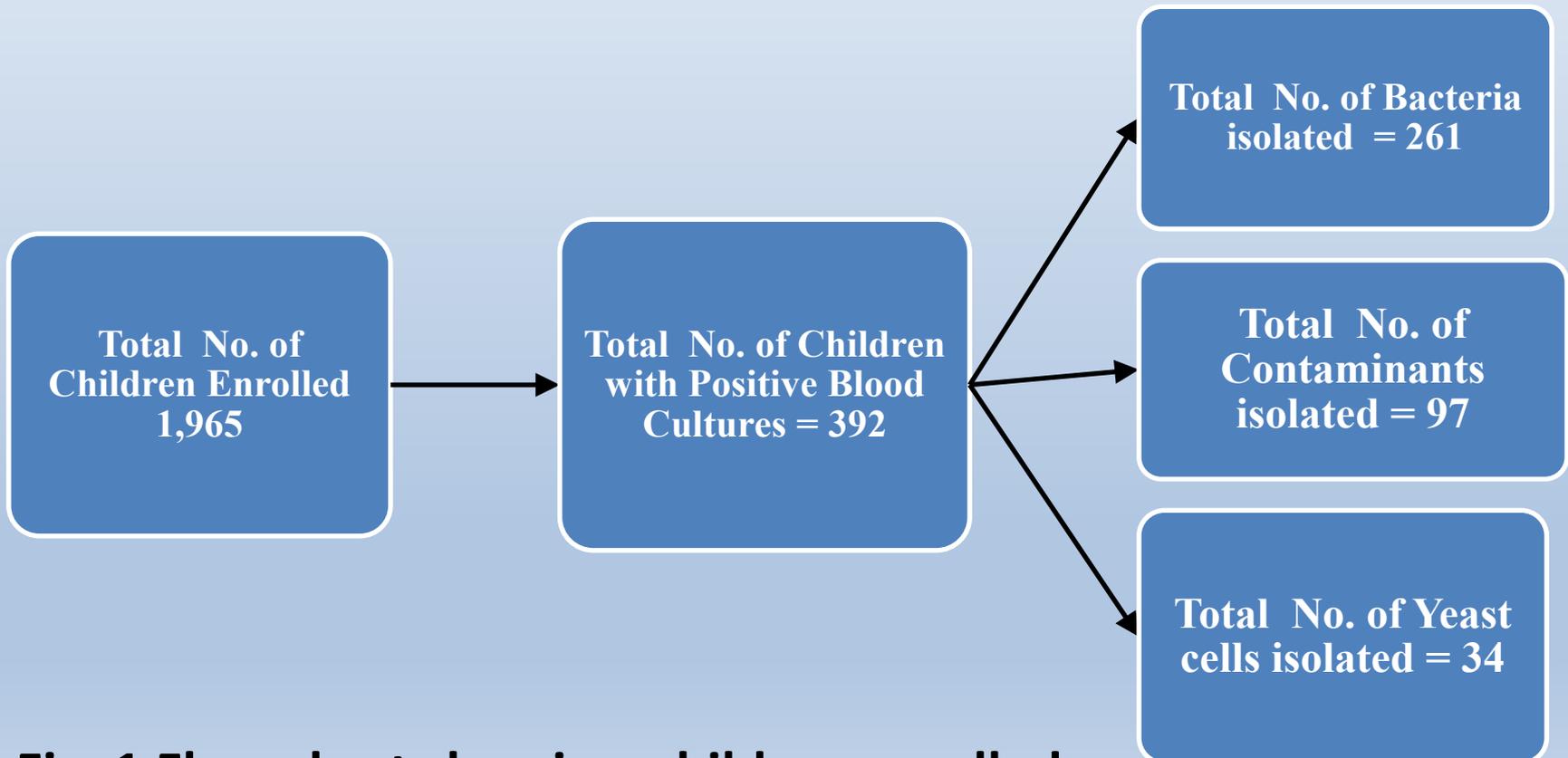
**Culture:** Blood, Chocolate and MacConkey

Identification

Antimicrobial susceptibility

MIC

# Characteristics of Study Population



**Fig. 1** Flow chart showing children enrolled

## Table 1. Organisms isolated from blood culture

Pathogen Isolated (n= 261)	n (%)	Age Category (months)					
		<1	1-11	12-23	24-35	36-47	48-60
Non Typhoidal <i>Salmonellae</i>	<b>111 (42.5)</b>	0 (0.0)	14 (26.9)	30 (41.7)	<b>48 (54.6)</b>	15 (45.5)	4 (26.7)
<i>Staphylococcus aureus</i>	<b>101 (38.7)</b>	0 (0.0)	26 (50.0)	<b>32 (44.4)</b>	28 (31.8)	11(33.3)	4 (26.7)
<i>Salmonella Typhi</i>	12 (4.6)	0 (0.0)	0 (0.0)	1 (1.4)	<b>5 (5.7)</b>	4 (12.1)	2 (13.3)
<i>Streptococcus pneumoniae</i>	10 (3.8 )	0 (0.0)	<b>5 (9.6)</b>	2 (2.8)	2 (2.3)	1 (3.0)	0 (0.0)
<i>Escherichia coli</i>	4 (1.5 )	0 (0.0)	1 (1.9)	1 (1.4)	0 (0.0)	0 (0.0)	<b>2 (13.3)</b>
<i>Viridans streptococci</i>	4 (1.5 )	0 (0.0)	1 (1.9)	<b>3 (4.2)</b>	0 (0.0)	0 (0.0)	0 (0.0)
<i>Haemophilus influenzae</i>	4 (1.5)	1 (100)	<b>2 (3.9)</b>	0 (0.0)	0 (0.0)	1 (3.0)	0 (0.0)
<i>Pseudomonas aeruginosa</i>	3 (1.2)	0 (0.0)	1 (1.9)	1 (1.4)	1 (1.6)	0 (0.0)	1 (6.7)

**Table 1 cont'd**

	n (%)	Age Category (months)					
		<1	1-11	12-23	24-35	36-47	48-60
<i>Enterobacter sp.</i>	3 (1.2)	0 (0.0)	0 (0.0)	1 (1.4)	1 (1.1)	0 (0.0)	1 (6.7)
<i>Enterococcus sp.</i>	2 (0.77)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.1)	1 (3.0)	0 (0.0)
<i>Listeria monocytogenes</i>	2 (0.77)	0 (0.0)	0 (0.0)	0 (0.0)	2 (2.3)	0 (0.0)	0 (0.0)
<i>Klebsiella pneumoniae</i>	1 (0.4)	0 (0.0)	1 (1.9)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<i>Klebsiella oxytoca</i>	1 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (6.7)
<i>Pseudomonas sp.</i>	1 (0.4)	0 (0.0)	1 (1.9)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<i>Serratia marcescens</i>	1 (0.4)	0 (0.0)	0 (0.0)	1 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)
<i>Streptococcus agalactiae</i>	1 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.1)	0 (0.0)	0 (0.0)

**Table 2. Antimicrobial Susceptibility Profiles of the four most frequent isolated pathogens**

Antimicrobial Agents	NTS	<i>S. aureus</i>	<i>S. pneumoniae</i>	<i>Salmonella ser. Typhi</i>
	(n = 111)	(n = 101)	(n = 10)	(n = 12)
	Susceptible %	Susceptible %	Susceptible %	Susceptible %
<b>Amoxicillin</b>	<b>17/36 (47.2)</b>	<b>5/15 (33.3)</b>	2/2 (100)	<b>1/8 (12.5)</b>
<b>Ampicillin</b>	<b>22/52 (42.3)</b>	<b>11/41 (26.8)</b>	1/1 (100)	<b>1/10 (10.0)</b>
<b>Amoxicillin Clavulanic Acid</b>	58/78 (74.4)	42/54 (77.8)	4/4 (100)	8/10 (80.0)
<b>Amikacin</b>	64/72 (88.9)	1/ 2 (50.0)	-	11/11 (100)
<b>Gentamicin</b>	95/102 (93.2)	65/76 (85.5)	-	10/10 (100)
<b>Erythromycin</b>	-	48/63 (76.2)	6/8 (75.0)	-
<b>Vancomycin</b>	-	60/ 60 (100)	7/7 (100)	-
<b>Chloramphenicol</b>	<b>26/80 (32.5)</b>	<b>11/52 (21.2)</b>	<b>4/5 (80.0)</b>	<b>1/10 (10.0)</b>
<b>Clindamycin</b>	-	48/54 (88.9)	6/7 (85.7)	-

**Table 2 cont'd**

Antimicrobial Agents and MDR	NTS	<i>S. aureus</i>	<i>S. pneumoniae</i>	<i>Salmonella ser. Typhi</i>
	Susceptible %	Susceptible %	Susceptible %	Susceptible%
Ciprofloxacin	12/12 (100)	96/99 (97.0)	54/55 (98.2)	4/4 (100)
Cotrimoxazole	<b>30/83 (36.1)</b>	<b>26/74 (35.1)</b>	<b>1/6 (16.7)</b>	<b>0/10 (0.0)</b>
Imipenem	74/74 (100)	3/5 (60.0)	-	11/11 (100)
Cefuroxime	30/36 (83.3)	12/16 (75.0)	2/2 (100)	7/9 (77.8)
Cefoxitin	64/69 (92.8)	41/51 (80.4)	3/3 (100)	9/11 (81.8)
Ceftriaxone	80/85 (94.1)	44/58 (75.9)	7/7 (100)	9/11 (81.8)
Ceftazidime	89/100 (89.0)	1/3 (33.3)	-	10/11 (91.0)
Cefotaxime	79/84 (94.1)	0/2 (0.0)	-	9/11 (81.8)
<b>MDR</b>	65/111 (58.6)	64/101 (63.4)	5/10 (50.0)	<b>12/12 (100)</b>

**Table 3. Antimicrobial susceptibility of Non Typhoidal *Salmonella* by MIC**

**MIC results for NTS (n=91)**

Antimicrobial Agents	MIC ( $\mu\text{g/ml}$ ) Interpretive criteria			Sensitive N (%)	Intermediate N (%)	Resistant N (%)
	Sensitive ( $\leq$ )	Intermediate	Resistant ( $\geq$ )			
Ampicillin (AM)	$\leq 8$	16	$\geq 32$	91 (100)	0 (0.0)	0 (0.0)
Amoxicillin clavulanic acid (XL)	$\leq 8/4$	16/8	$\geq 32/16$	88 (96.7)	1 (1.1)	2 (2.2)
Cefuroxime (XM)	$\leq 4$	8-16	$\geq 32$	75 (82.4)	16 (17.6)	0 (0.0)
Ceftriaxone (TX)	$\leq 1$	2	$\geq 4$	91 (100)	0 (0.0)	0 (0.0)
Ciprofloxacin (CL)	$\leq 1$	2	$\geq 4$	89 (97.8)	2 (2.2)	0 (0.0)
Imipenem (IP)	$\leq 4$	8	$\geq 16$	91 (100.0)	0 (0.0)	0 (0.0)

**Table 4. Antimicrobial Susceptibility of *Staphylococcus aureus* by MIC**

**MIC results for *Staphylococcus aureus* (n= 58)**

Antimicrobial Agents	MIC ( $\mu\text{g/ml}$ )			Sensitive N (%)	Intermediate N (%)	Resistant N (%)
	Interpretive criteria					
	Sensitive ( $\leq$ )	Intermediate	Resistant ( $\geq$ )			
Ampicillin(AM)	$\leq 0.25$	-	$\geq 0.5$	23 (39.7)	-	35 (60.3)
Amoxicillin clavulanic acid (XL)	$\leq 4/2$	-	$\geq 8/4$	56 (96.6)	-	2 (3.5)
Cefuroxime (XM)	$\leq 8$	16	$\geq 32$	58 (100)	0 (0.0)	0 (0.0)
Ceftiaxone (TX)	$\leq 8$	16-32	$\geq 64$	55 (94.8)	1 (1.7)	2 (3.5)
Vancomycin (VA)	$\leq 2$	4-8	$\geq 16$	57 (98.3)	1 (1.7)	0 (0.0)



**Table 5. Antimicrobial Susceptibility of *Salmonella* Typhi by MIC**

**MIC results for *Salmonella* Typhi (n= 12)**

Antibiotics	MIC ( $\mu\text{g/ml}$ ) Interpretive criteria			Sensitive N (%)	Intermediate N (%)	Resistant N (%)
	Sensitive ( $\leq$ )	Intermediate	Resistant ( $\geq$ )			
Ampicillin (AM)	$\leq 8$	16	$\geq 32$	12 (100)	-	0 (0.0)
Amoxicillin clavulanic acid (XL)	$\leq 8/4$	16/8	$\geq 32/16$	12 (100)	-	0 (0.0)
Cefuroxime (XM)	$\leq 4$	8-16	$\geq 32$	12 (100)	-	0 (0.0)
Ceftriaxone (TX)	$\leq 1$	2	$\geq 4$	11 (91.7)	-	1 (8.3)
Ciprofloxacin (CL)	$\leq 1$	2	$\geq 4$	12 (100)	-	0 (0.0)
Imipenem (IP)	$\leq 4$	8	$\geq 16$	12 (100)	-	0 (0.0)



# Conclusion



- Non typhoidal *Salmonellae*, *Staphylococcus aureus*, *S. Typhi* and *S. pneumoniae* were the commonest bacteria isolated.
- Although most of the antimicrobial drugs tested were active against the organisms, antimicrobial resistance was observed to be emerging among the common antimicrobials tested.

# Limitation

- Only one blood sample taken instead of the ideal three samples per patient due to logistics

# Recommendations

- Strict antimicrobial monitoring and surveillance policies should be put in place to reduce the over prescription and misuse of antimicrobials that can eventually lead to drug resistance in this area.
- Aetiological agents change with time and therefore, there is the need for a continuous review of the common agents of bacteria infections in this locality for effective treatment



# Acknowledgements



- Director and Head of Research, KHRC
- GlaxoSmithKline Biologicals
- Supervisors, UGMS
- Staff of Kintampo Health Research Center
- Staff of Microbiology Department, UGMS

**THANKS FOR YOUR AUDIENCE**



# Rapidly Increasing Correct Pediatric Diarrhea Treatment in Ghana

Joseph Addo-Yobo

National Health Research Dissemination Symposium

May 27, 2015



**SHOPS is funded by the U.S. Agency for International Development.**

**Abt Associates leads the project in collaboration with**

Banyan Global

Jhpiego

Marie Stopes International

Monitor Group

O'Hanlon Health Consulting

# Background: Pediatric diarrhea in Ghana

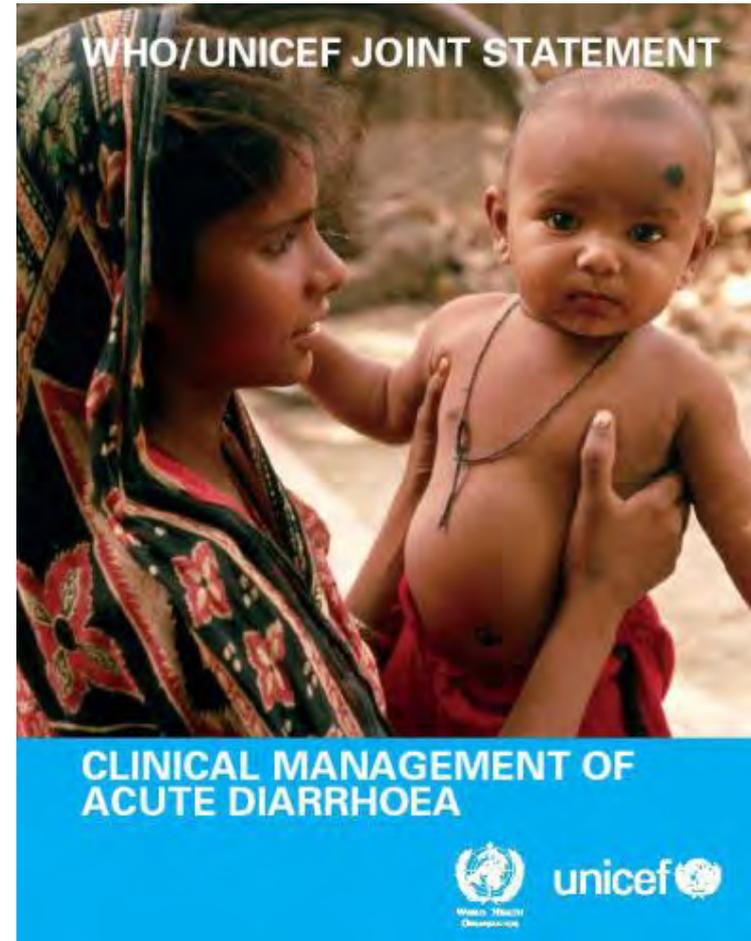
- In Ghana, diarrheal diseases are the 4<sup>th</sup> leading cause of infant and child mortality (9%) after neonatal causes, malaria, and pneumonia
- 2014 DHS:
  - 12% diarrhea prevalence for all children under five (down from 20% in 2008)
  - 55% of children with diarrhea either treated at home or not treated (up from 45% in 2008)
- Private sector provides ~50% of care for childhood illnesses
  - For diarrhea, most common private providers are pharmacies and over the counter medicine sellers (OTCMS)

# WHO/UNICEF Joint Statement 2004

Recommendation for  
childhood diarrheas:

- Oral rehydration solution (ORS)/oral rehydration therapy (ORT)
- 20 mg zinc for 10-14 days (10 mg <6 months)
- Antimicrobials ONLY for bloody diarrhea, shigellosis
- No antidiarrheals

**Adopted by Ghana MOH in  
2010**



# SHOPS standard zinc program introduced in Ghana in January 2012

- Public-private partnerships (GHS, UNICEF, regulatory agencies)
- Target regions: Central, Western, and Greater Accra regions
- Facilitated access to quality zinc products through partnership with local manufacturers



# SHOPS zinc program interventions

- Created overall consumer demand for zinc through national mass media (TV/radio) campaign
- Partnered with Pharmacy Council to train over-the-counter medicine sellers (OTCMS) in all 10 regions
- Partnered with professional associations to train pharmacists and private clinicians nationwide



# Research Questions



- Did diarrhea management practices among caregivers in Ghana change following the SHOPS interventions?  
Specifically, did use of zinc and ORS increase?
- What do we know about zinc users?  
Reasons for zinc use, acceptability of zinc use

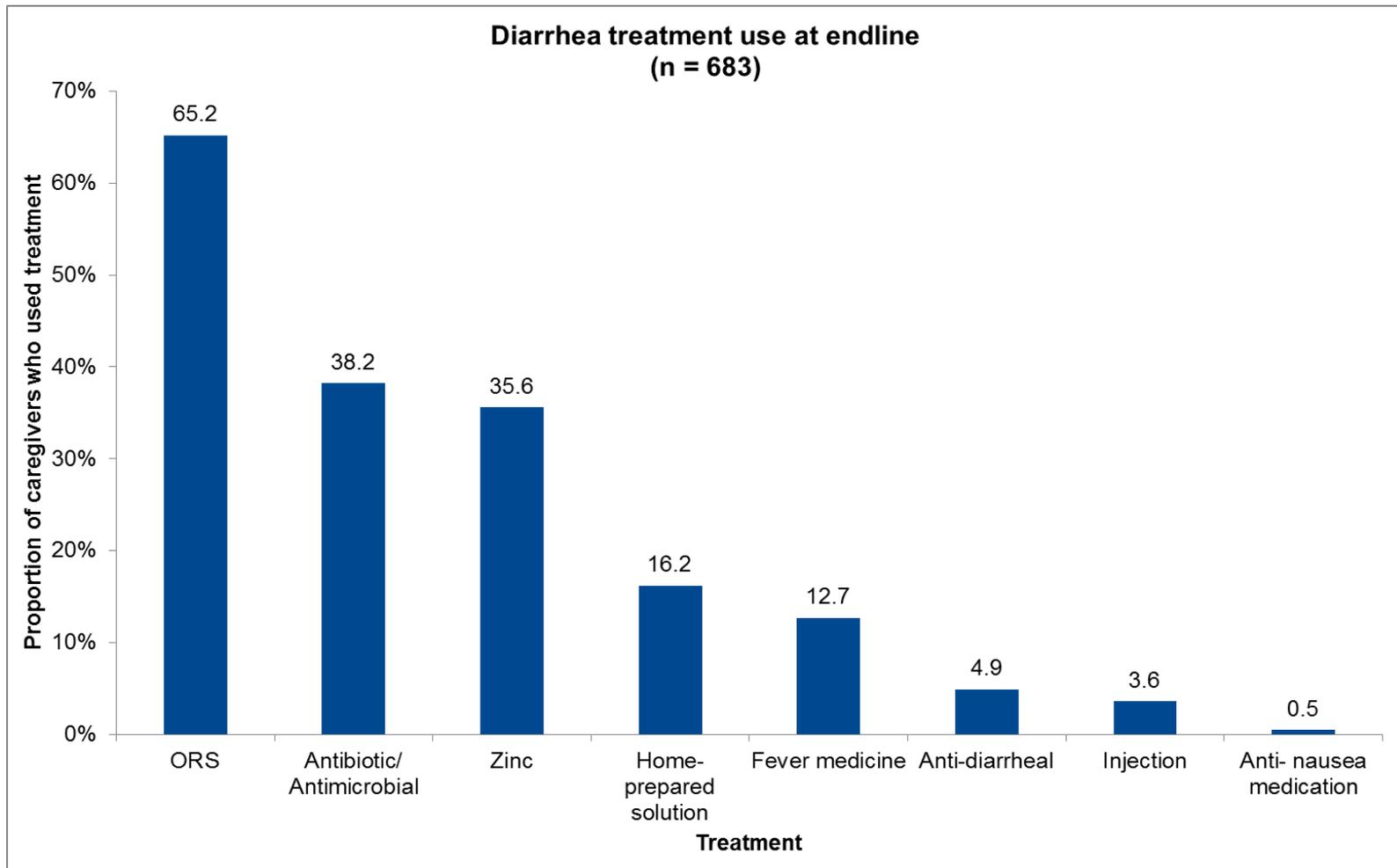
# Study design

- Pre/post intervention evaluation with baseline (2012) and endline surveys (2014)
- Target population: caregivers of children with diarrhea in last 2 weeks
- Multistage sampling design:
  - 3 regions (Greater Accra, Central, and Western)
  - 15 districts
  - 85 enumeration areas
- Sample size:
  - Baseline: 754 caregivers
  - Endline: 751 caregivers
- Baseline and endline samples independent but have similar characteristics
- Survey responses weighted according to sampling strategy

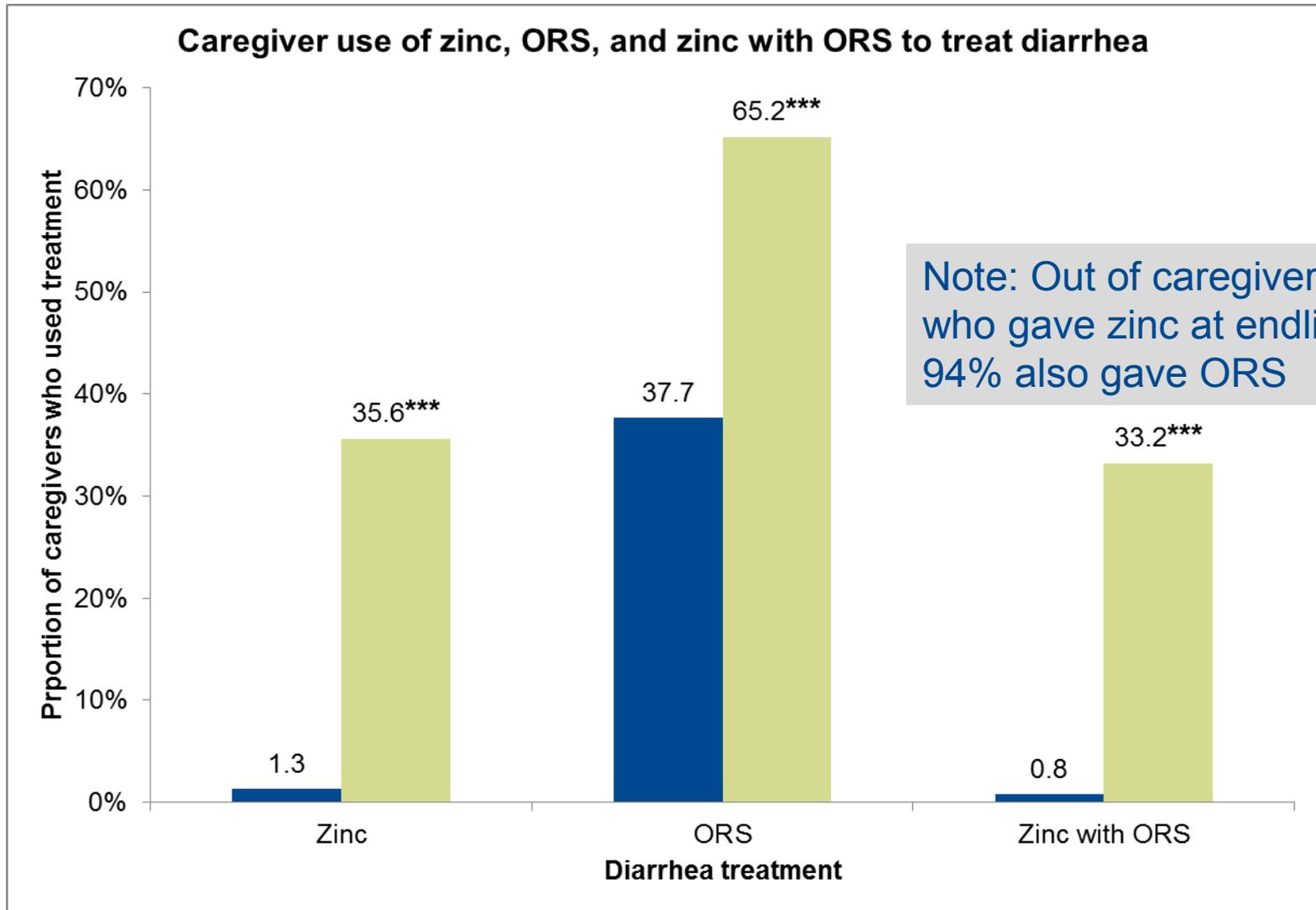
# Results

# At endline, most common treatments were ORS, antibiotics/antimicrobials, and zinc

- Majority of caregivers treated diarrhea (88% of 751 surveyed at endline)



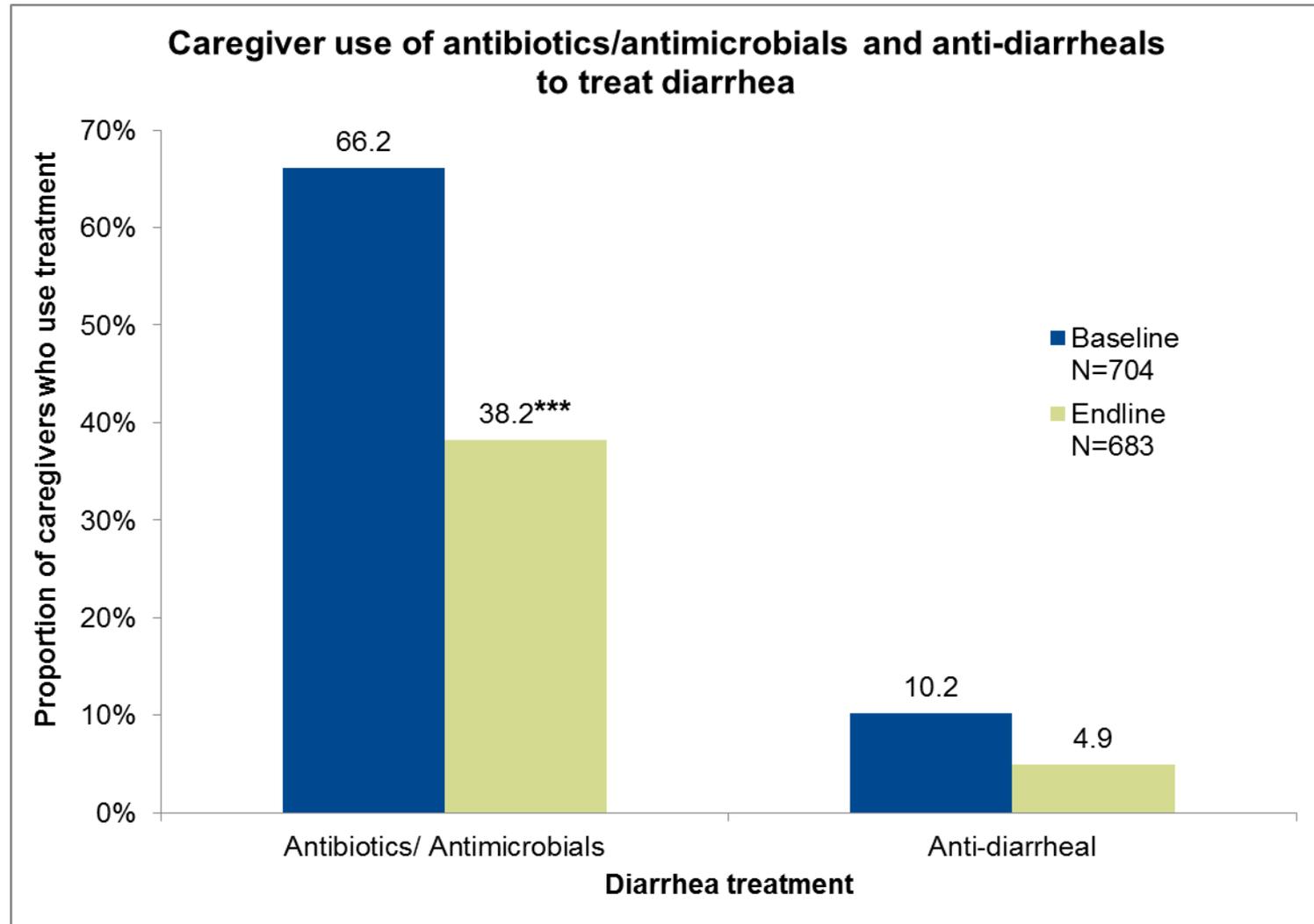
# Significant increases in caregiver use of zinc, ORS, and zinc with ORS



Note, denominator is all who treated the diarrhea episode

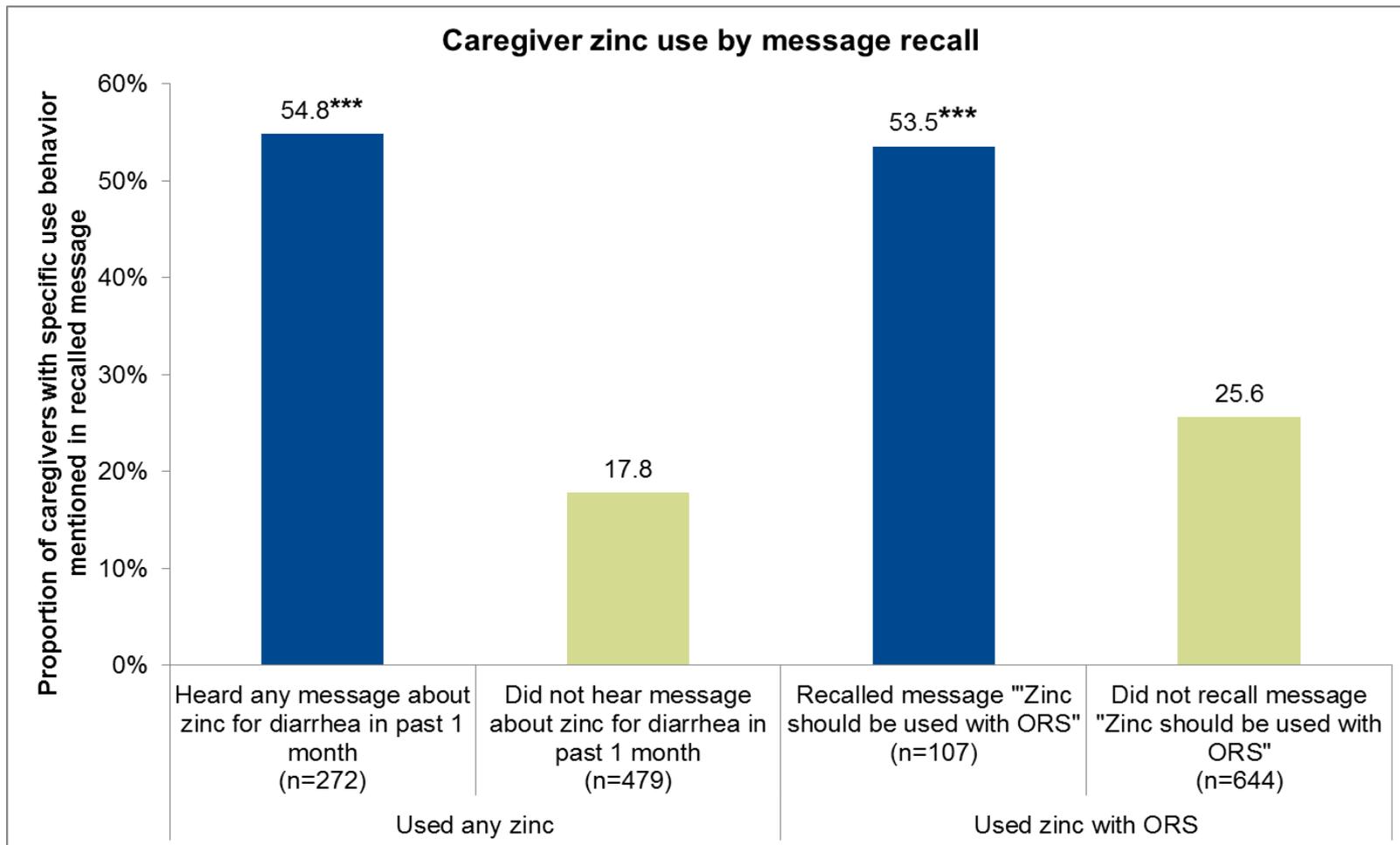
\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# Decreased caregiver use of antibiotics and anti-diarrheals



\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# Caregivers who recalled SHOPS zinc messages were more likely to use zinc or zinc with ORS

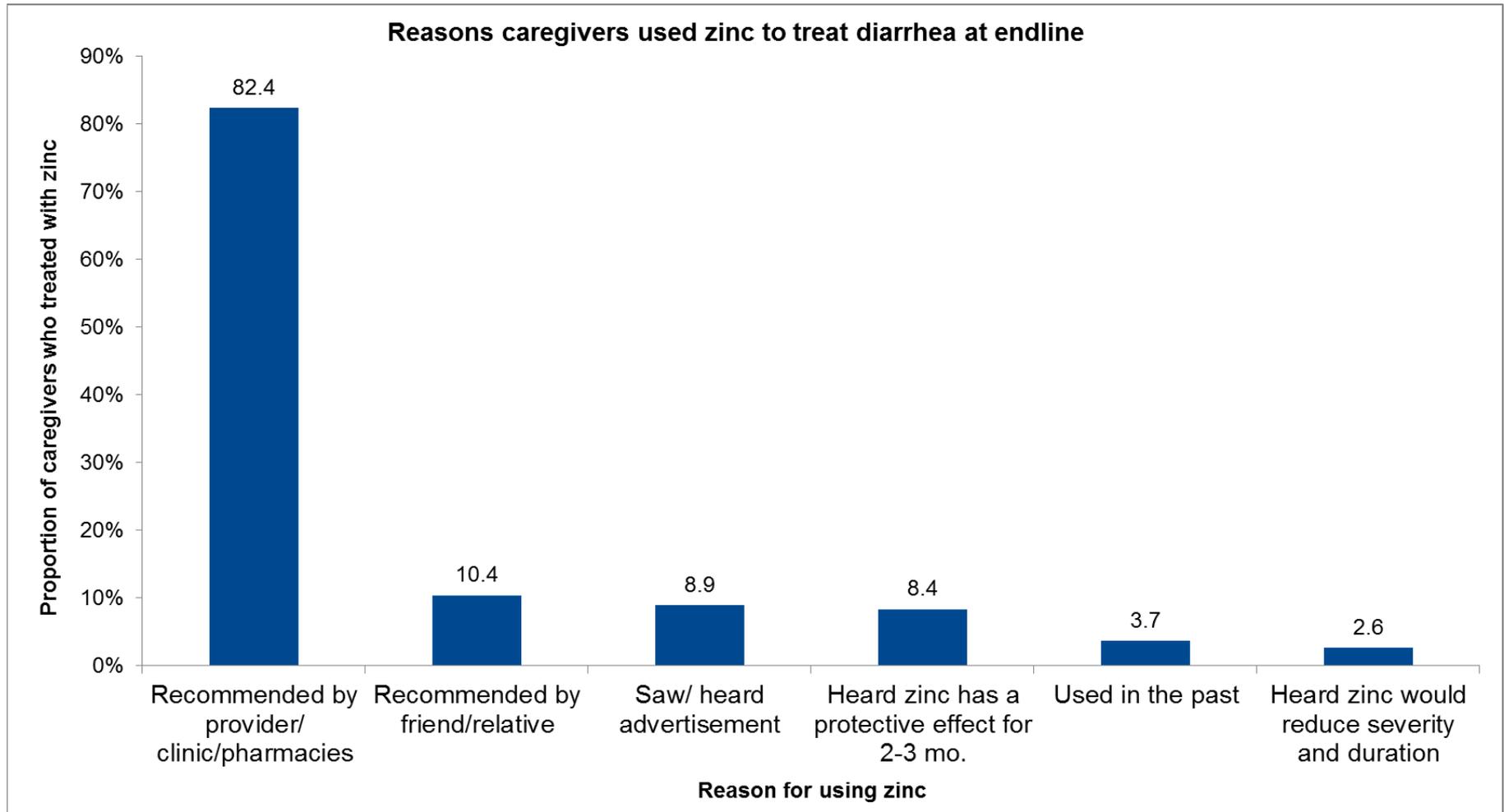


\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Zinc users would use zinc again

- 95% of caregivers who used zinc said that they plan to use zinc the next time the child has diarrhea
- 98% said they thought it was effective for treating that episode
- 96% said they experienced no side effects
- 78% of caregivers who used zinc considered zinc “affordable” or “not expensive”

# Caregivers choose zinc because it is recommended by providers



# Conclusions

- After 2 years of SHOPS program activities in Ghana, we see positive behavior change in how caregivers treat diarrhea
  - Increase in use of zinc, ORS, and zinc + ORS
  - Decrease in antibiotic use
- Evidence suggests that SHOPS interventions contributed greatly to these positive changes
  - Strong correlation between zinc message recall and zinc use
  - Caregivers reported choosing zinc because providers recommended it
- A multi-pronged programmatic approach that targets both health providers and community members can rapidly increase correct pediatric diarrhea treatment and decrease incorrect treatment behaviors

# Thank you



[www.shopsproject.org](http://www.shopsproject.org)



**SHOPS is funded by the U.S. Agency for International Development.**  
**Abt Associates leads the project in collaboration with**  
Banyan Global  
Jhpiego  
Marie Stopes International  
Monitor Group  
O'Hanlon Health Consulting

# Additional Slides

# Study caveats

- Pre/post design (not randomized)
  - We still have confidence in our results because:
    - Controlled for confounding factors in analyses
    - Zinc was not present in Ghanaian market at baseline
    - SHOPS was the only zinc/ORS program in Ghana
- Study representative only for 3 regions (Accra metro, Central, Western)
- Response data based on recall
- Zinc use results conflict with DHS data (2014)

# Ghana DHS (2014) vs SHOPS endline

	Ghana DHS	SHOPS endline
Data collection	Early Sept – Mid-Dec 2014	Aug 22 – Oct 15, 2014 (Rainy season went through 1 <sup>st</sup> week Nov)
Number of children with diarrhea in sample	Western: n=38 Central: n=51 Gr. Accra: n=63	Western: n=221 Central: n=224 Gr. Accra: n=306
% using zinc	Western: (9.2%) Central: 7.7% Gr. Accra: (4.6%) Total: 5.5% ( ) – unweighted because only 25-49 cases	Western: 33.3% Central: 19.1% Gr. Accra: 45.9% Total: 36%
% using ORS	49%	65%
Zinc questions	Given zinc? Yes/No	Photo card and double checked treatments

# Cost of Zinc



<b>Amount paid for Zinc</b>	<b>Endline (% caregivers)</b>
< 1 Cedi	44.4
1 Cedi	22.5
> 1 Cedi	19.1
Don't know	3.8
<b>Opinion about price of zinc</b>	
Not expensive	49.4
Affordable	29.0
Expensive	3.8
Too expensive	1.0
No opinion	6.6
Don't know	10.3
<b>Number of caregivers who purchased zinc</b>	195

- At endline, 78% of caregivers who used zinc considered zinc “affordable” or “not expensive”



# Results are similar when controlling for possible confounding factors

- In addition to t-tests, ran regressions controlling for:
  - Caregiver education
  - Caregiver age
  - Caregiver marital status
  - Household wealth quintile
  - District fixed effects
  - Region fixed effects
- None of these potentially confounding factors explain higher zinc use at endline

# ***SOCIO-ECONOMIC AND DEMOGRAPHIC DETERMINANTS OF UNDER-FIVE MORTALITY IN RURAL NORTHERN GHANA***

*Edmund Wedam Kanmiki, Ayaga A. Bawah, Isaiah Agorinya , Fabian S.  
Achana, John Koku Awoonor-williams, Abraham R. Oduro, James F. Phillips,  
James Akazili*

*National Health Dissemination Symposium, 27-28 May, 2015, Accra*



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# BACKGROUND

- Worldwide, decline in under-five mortality has improved from **1.2%** per year between 1990 and 1995 to **3.9%** per year between 2005 and 2012 (UNICEF, WHO and World Bank, 2013)
- In spite of this, over **6.6 million** children still die every year before their fifth birthday worldwide (WHO, 2013)
- These implies about **18,000** under-five children die each day
- Huge disparities however exist across the world, with **Sub-Saharan Africa** and **South East Asia** carrying the highest burden of under-five mortality (WHO 2006, Rahman et al 2010, You et al 2014).

# BACKGROUND CONT...

- Among **34 countries** where under-five mortality exceeded **100 out of 1000** live births in the year 2008, all except one are in sub-Saharan Africa. (You et al; 2010)
- The rate of improvement of child survival in sub-Saharan Africa is insufficient to meet the 4th MDG of reducing under-five mortality rate by two-thirds between 1990 and 2015. (WHO, 2013; You et al, 2012).
- It remains the region with the highest risk of death in the first month of life and globally is among the regions showing the least improvement in child mortality (WHO, 2013; You et al, 2012).



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# BACKGROUND CONT...

- Despite declining under-five mortality in Ghana it remains relatively high at **90 per 1000 live births**. (*Ghana Statistical Service, 2013*)
- But, disparities exist across the country with rates ranging from **72 per 1000 live births** in the Greater Accra region of southern Ghana to as high as **128 per 1000 live births** in the most impoverish and deprived Upper East region of northern Ghana (*Ghana Statistical Service, 2013*)
- Therefore there is the need for concerted efforts especially in resource poor settings if we hope to achieve the desired improvements in under-five mortality

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# BACKGROUND CONT..

- In order to accelerate the rate of under-five mortality decline, effective interventions are needed that target the most important causes of child mortality (Jones et al 2003; Darmstadt et al 2005 and Bhutta et al 2008).



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# BACKGROUND CONT..

- This paper examined the social, economic and demographic factors influencing under-five mortality in Upper East region of northern Ghana
- Our goal is to contribute an understanding of the intricate of factors related to childhood mortality so as guide strategic interventions



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# METHODOLOGY

- **Location**

- Data came from a baseline survey conducted as part of the Ghana Essential Health Intervention Project (GEHIP).
- Data was collected from all districts of the region, except Kasena-Nankana East and West Districts
- The two KNDs were excluded because of the intense research activities focused on there



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# Sampling procedure

- The survey was a household survey but targeted women of reproductive age and their children
- 2010 population census constituted the sampling frame
- The GSS sampled 66 enumeration areas (EAs) from the total universe of EAs in the region (except KND Eas)
- Total sample size estimated for interview was 6000 women but actual interviewed were about 5,400 women
- The sampling was a two-stage process and proportion to population size

# DATA ANALYSIS

- STATA 11.2 was used for all the analysis
- Unit of analysis for this paper is women with the **experience of Child birth**
- Outcome of interest is experience of **Under-five death**



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# DATA ANALYSIS CONT.....

- First, we conducted bivariate analysis using chi square test association between the independent outcome variables and ever experiencing under-five death
- All variables that showed significant association ( $p < 0.05$ ) from bivariate analysis were then included in the multivariate analysis (binary logistic regression model).
- Variables used in the logistic regression were first tested for multi co-linearity using the variance inflation factor (VIF) and this was found not to be a problem with an average VIF of **2.54.**

# ETHICAL CONSIDERATIONS

- Ethical clearance was sought from ethics committees of the Ghana Health Service and the Navrongo Health Research Centre Institutional Review Board (NHRC IRB) before the survey was carried out.
- Inform Consent was obtained from each participant before she was allowed to participant in the survey.
- Also data sets used were anonymous of participant identity.



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# RESULTS

## Background Characteristics of Respondents

Table 1; Background Characteristics of Respondents, [N=3975]

Background characteristics		Number (N)	Percent (%)
Age group	15-19	145	3.7
	20-34	2024	50.9
	35-49	1806	45.4
Highest Level of education	None	3005	75.6
	Primary/Junior High School	846	21.3
	Secondary/ Tertiary	124	3.1
Marital status	Not married (single/widowed/divorce)	511	12.9
	Married	3464	87.1
Occupation	Farming	1842	46.4
	Self Employed	1451	36.5
	Government Employed	482	12.1
	Student	68	1.7
	Other	130	3.3
Religion	Christianity	2057	51.8
	Traditional	670	16.9
	Islam	1078	27.1
	None Response	170	4.3
Place of Residence	Urban	497	12.5
	Rural	3478	87.5

# RESULTS

## Background Characteristics of respondents cont.....

District of Residence		Number (n)	Percentage (%)
	Bawku East	705	17.7
	Bawku West	432	10.9
	Bolga M.	352	8.9
	Bongo	488	12.3
	Builsa	692	17.4
	Garu/Tempani	810	20.4
	Talensi/Nabdam	496	12.5
Financial Autonomy			
	Autonomous	2547	64.1
	Not autonomous	1428	35.9
Polygamous partner			
	Yes	1355	34.1
	no	2139	53.8
	None Response	481	12.1
NHIS Coverage			
	Not Registered	2338	58.8
	Registered	1637	41.2
Socio economic Status (Wealth Index)			
	Poor	1742	43.8
	Middle	828	20.8
	Relatively Rich	1405	35.4
Contraceptive use			
	Yes	605	15.2
	No	2459	61.9
	None response	911	22.9

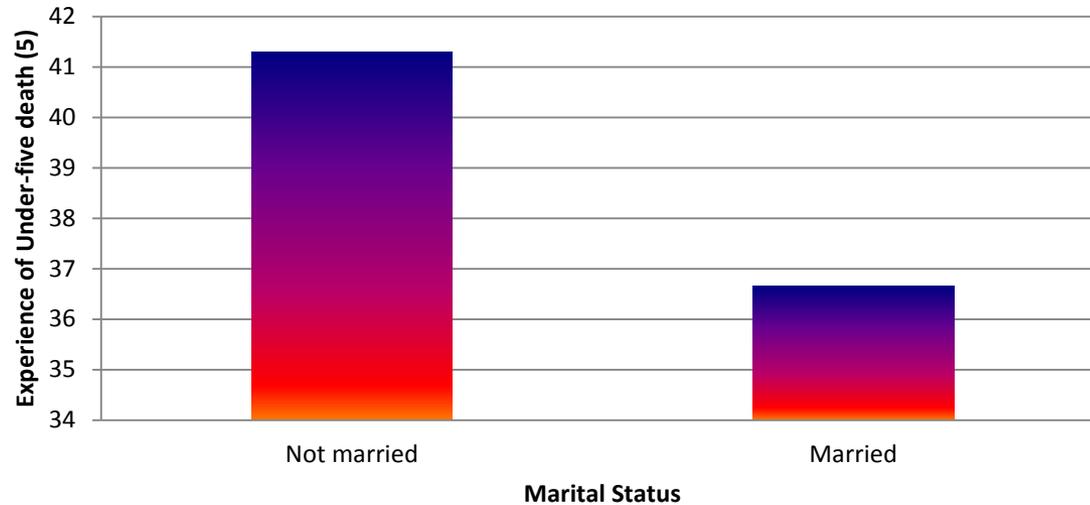
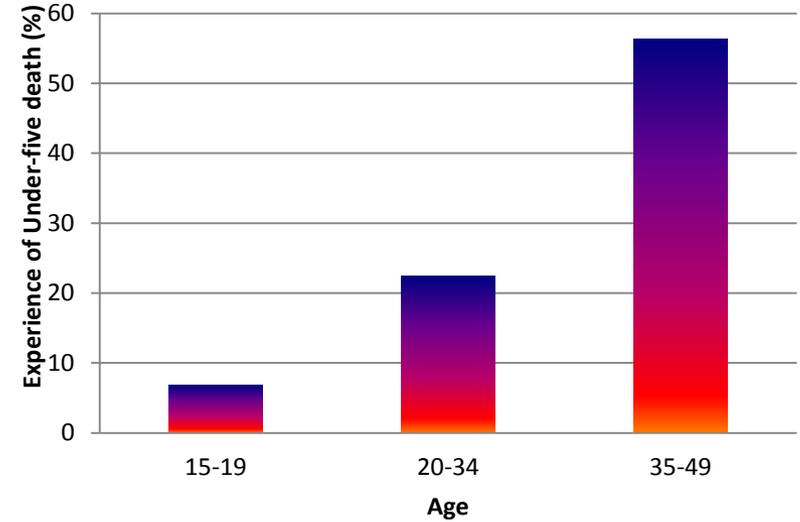
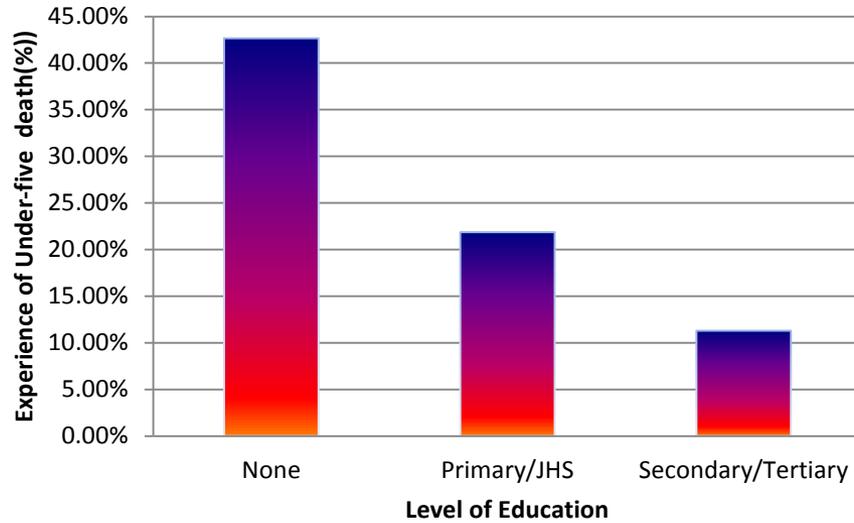
# MULTIVARIATE ANALYSIS

Respondents Experience of under-five death; Logistic regression model				
Determinants	Odds Ratio	P>z	[95% Conf. Interval]	
<b>Age group (compared to 15-19)</b>				
20-34	3.00	<0.001	1.41	6.37
35-49	<b>11.44</b>	<0.001	5.38	24.34
<b>Level of Education (Compared to No education)</b>				
Primary/JHS	<b>0.55</b>	<0.001	0.44	0.70
Secondary/Tertiary	<b>0.24</b>	<0.001	0.10	0.57
<b>Marital Status (compared with Not married)</b>				
Married	<b>0.73</b>	0.01	0.57	0.94
<b>Occupation (compared with Farming)</b>				
Self Employed	0.91	0.28	0.76	1.08
Housewife	0.98	0.86	0.75	1.27
Government Employed	0.43	0.13	0.14	1.29
Student	1.02	0.94	0.63	1.64

# MULTIVARIATE ANALYSIS CONT.....

	Odds Ratio	P>z	[95% Conf. Interval]	
Religion (compared with Christianity)				
Traditional religion	1.20	0.10	0.96	1.50
Islamic religion	0.96	0.70	0.79	1.17
None religion	1.10	0.62	0.76	1.60
Residence (compared with Urban)				
Rural	0.82	0.16	0.63	1.08
Autonomy (compared to Autonomous)				
Not Autonomous	1.02	0.80	0.86	1.21
Polygamous partner(compared with yes)				
No	<b>0.78</b>	0.01	0.66	0.93
Socio economic Status/wealth index( compared to poor)				
Middle	1.07	0.50	0.87	1.32
Relatively Rich	0.95	0.59	0.78	1.15
National Health Insurance (compared with Insured)				
Non insured	0.90	0.22	0.76	1.06
Contraceptive use (compared with yes)				
No	1.14	0.22	0.93	1.40
None response	0.22	<0.001	0.09	0.52

# A Percentage Distribution Of Women Respondents Who Experience Under-five Death By Education, Age and Marital Status



# DISCUSSION AND CONCLUSION

- The results showed that **women's age, level of education, marital status** and **polygamous status** of partner were significant predictors of under-five mortality.
- Factors act independently or interact in various ways to affect child survival in the region
- The causes of high under-five mortality in resource poor settings are multi factorial and needs concerted efforts in our bit to improve child survival



# DISCUSSION AND CONCLUSION

- Suggest the need for social and economic programs that target the individual needs and welfare of women as critical issues for improvement of child survival
- Specifically; promoting **female education, gender equity** and addressing the vast **socio-economic differentials** in northern Ghana are important social steps to improving under-five survival.



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To learn more about the Ghana Essential  
Health Interventions Programme  
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Thank you to our generous donors:  
Doris Duke Charitable Foundation,  
African Health Initiative and  
Comic Relief (UK)

# Congenital Malaria In Newborn Twins In Sunyani Municipality. -A case report

**Dr. David A. Opare**

(BSc, MD, MPH, MSc, DLSHTM, FGCP)

Senior Specialist(PH) & Medical Microbiologist.

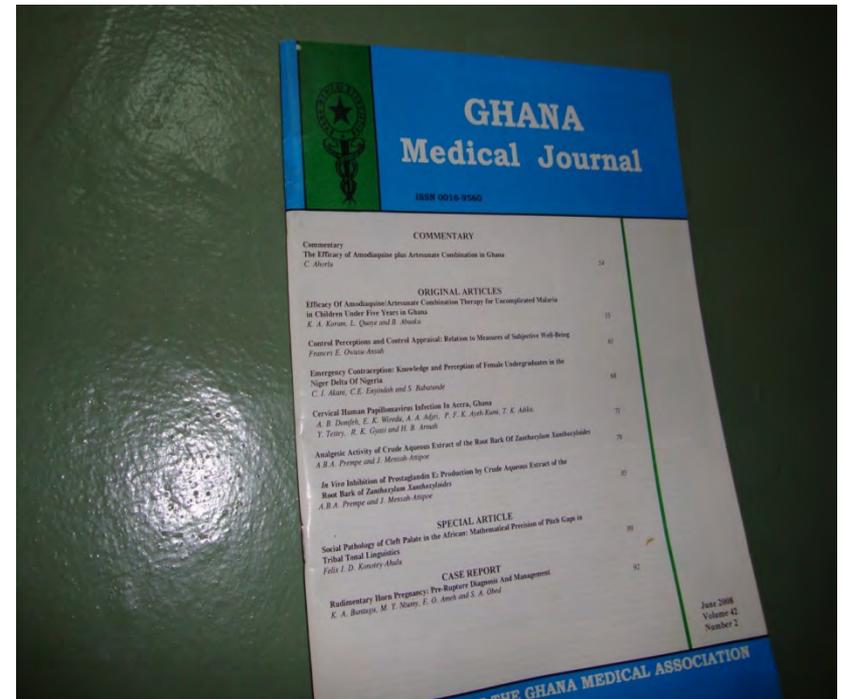
# Presentation menu

- Questions
- Definition
- Clinical features
- Case presentation
- Treatment/review
- Discussion
- Follow- up action
- Conclusion
- Reference



# Publication

- Published in the Ghana Medical Journal. June 2010 edition. Volume 44 number 2. page 76 to 78



# Questions

- Do we always get malaria from a direct mosquito bite?
- Can a day old baby get malaria?
- Can a foetus get malaria whilst in the uterus?
- Malaria could be gotten after Haemotransfusion. Yes we know.
- What other route again?

# Congenital Malaria-Definition

- Malaria parasites demonstrated in the peripheral smear of a new born up to seven days of life<sup>1</sup>
- Congenital malaria is rare<sup>2</sup>
- Only 300 cases are reported in literature<sup>3</sup>

# Clinical Features

- Clinical features in 80% cases are fever, anaemia and splenomegaly<sup>5</sup> .
- Other signs include hepatosplenomegaly, jaundice, regurgitation, loose stools, poor feeding, restlessness and cyanosis<sup>5</sup> .

# Case Presentation-1

- A 28 year old woman (G<sup>2</sup> P<sup>1A</sup>) with 36 weeks gestation reported on 22/2/09 at Sunyani Municipal hospital.
- With a complain of labour pains without fever
- The mother developed fever of 38.5°C during the course of labour on the second day.
- The mother had taken all the prophylaxis of malaria. IPT1, IPT2 IPT3.

# Case Presentation-2

- The mother never slept in ITN during the course of pregnancy.
- She delivered normal healthy male twins on 23<sup>rd</sup> February at 1.45pm.



# First Twin

- The first twin weighed 2.8kilos. Apgar score of 8/10 and 10/10 in 1st and 5th minutes respectively.
- The head circumference was 32cms and body length of 49cms



# Second Twin

- The 2nd twin had a birth weight of 2.5kilos and Apgar scores of 7/10 and 9/10 for the 1st and 5<sup>th</sup> minutes respectively.
- The head circumference was 31cms and the body length was 48cms



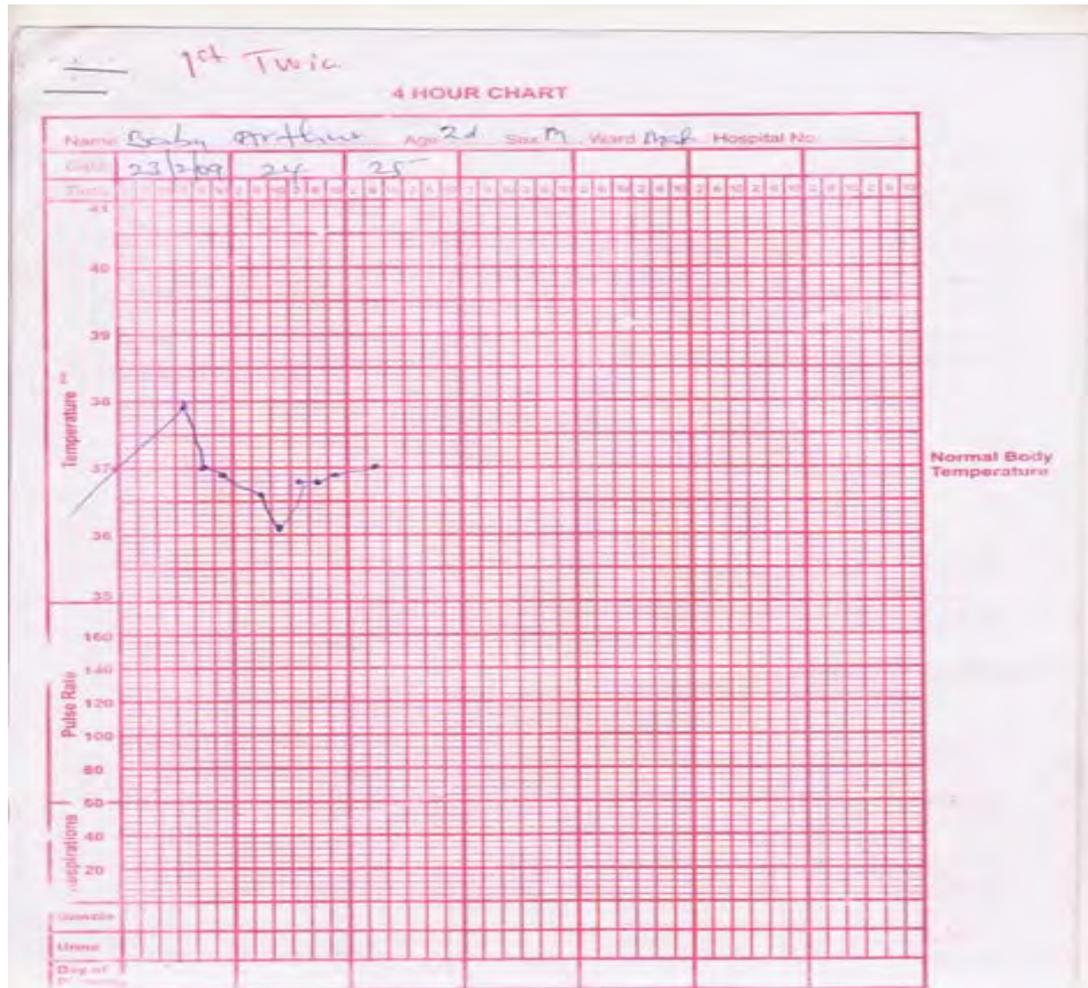
# Mother

- The mother developed fever of 38.5°C
- Mother had no history of blood transfusion.
- A blood film for malaria parasites was indicative of malaria parasites
- Thick blood film was used and ring forms of the *Plasmodium falciparum* were seen.

# First Twin

- On the day of delivery, he developed fever of 38°C. The fever was detected **one** hour after delivery
- On examination he was not pale, warm to touch, jaundiced. The liver and spleen were not palpable. The chest was clinically clear. The abdomen was soft without distension. Heart sounds were normal.

# Temperature pattern. First twin



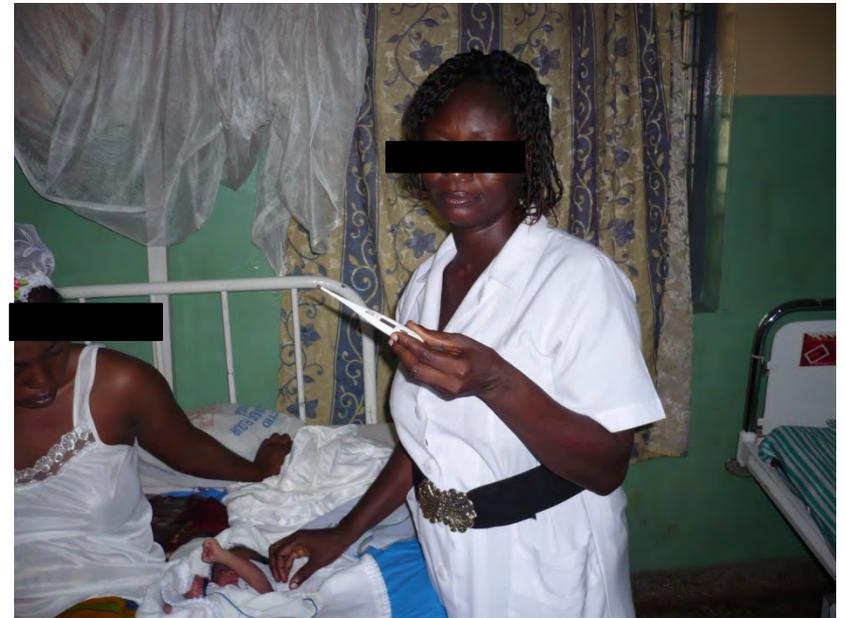
# First Twin's-Laboratory Investigation

- A blood film for malaria was examined.
- Positive for *Plasmodium falciparum*.
- A diagnosis of congenital malaria was made

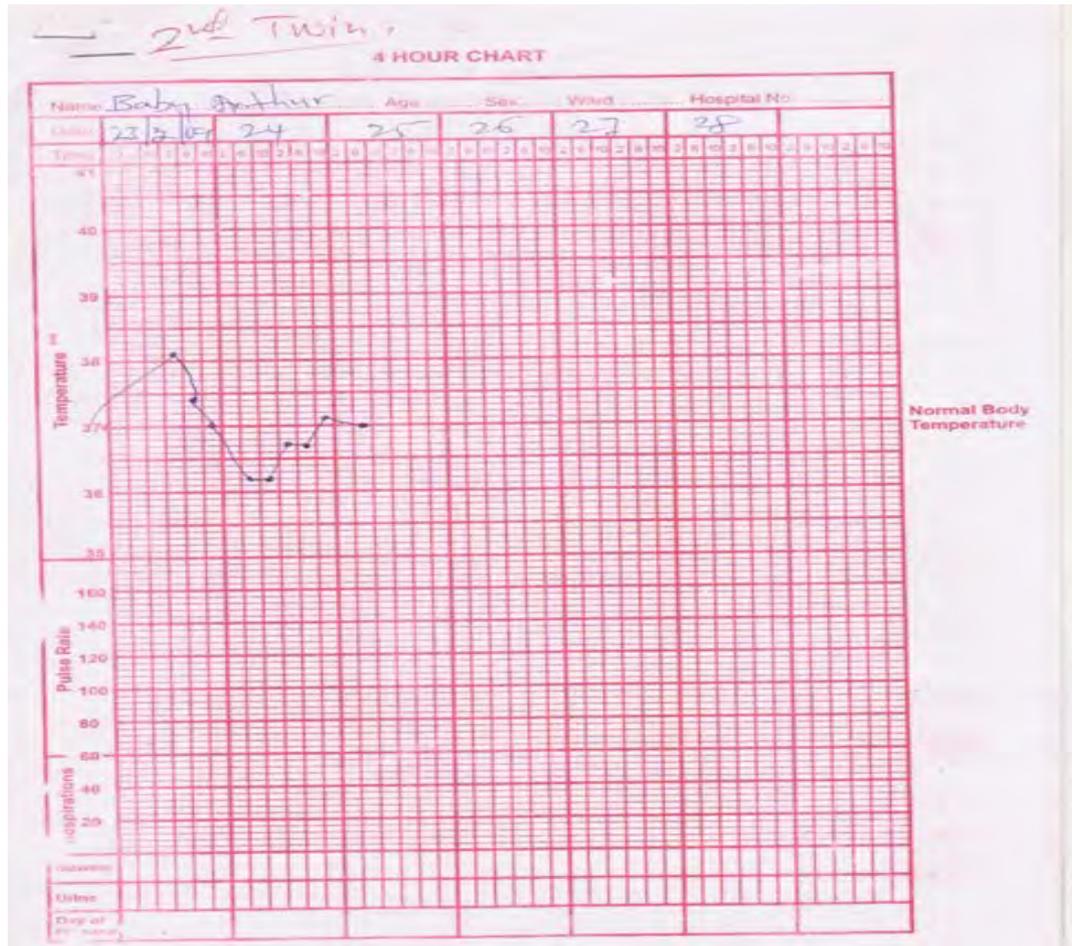


# Second Twin

- On the same day, the second twin developed fever of 38.1°C. On examination, he was warm to touch, jaundiced, the spleen and liver were not palpable.
- The chest was clinically clear.



# Temperature pattern. Second twin



# Laboratory Investigation



- A blood film for malaria parasites was positive for *Plasmodium falciparum*
- A diagnosis of congenital malaria was made
- Blood culture for c/s for both showed no bacteria growth.

# Treatment

- The mother was put on quinine tablets and the children on quinine syrup.
- The fever for all of them dropped to normal on the third day and they were discharged.

# Review

- A review after a week, all the jaundiced had cleared for the children.
- Laboratory investigation for the three was negative for malaria parasites.

# Discussion-1

- Congenital malaria is possible if there is leakage between the maternal blood and the foetal blood eg abruptio placentae, couvelaire uterus. Also during delivery where there is a tear
- Inferring from the incubation period of malaria it is unlikely that the twins had the malaria from a mosquito bite on the ward

# Discussion-2

- The twins had normal birth weights.
- Other studies had documented normal birth weights
- The mother had received prophylaxis for malaria in the form of SP
- The need to assess the effectiveness of the SP can be flagged

# Discussion-3

- Congenital malaria is normally not looked for.
- Because of the immunity being conferred to new born from mothers, congenital malaria is not looked for.
- Some neonatal deaths could be congenital malaria.
- Some Malaria cases from newborns are misdiagnosed as bacteria or viral infections.
- Some newborns have died from this.

# Discussion-4

- The fever of the twins resolved without any antibiotics.
- The issue of sepsis can be ignored.
- There are other causes of fever e.g. Bacteria, viral etc.
- Blood for culture and sensitivity showed no bacteria growth.
- Parasitaemia has been demonstrated in the new born twins.
- Asexual forms of the *P. falciparum* (trophozoites). The rings forms were seen.

# Follow -up action

- A format was developed at health facilities in B/A region where if a mother delivers and the baby has fever, the baby was tested for congenital malaria.
- 6 congenital malaria cases were recorded within two months.

# Conclusion

- Babies born to mothers with malaria should be screened for congenital malaria.
- Babies who develop fever less than 7 days of delivery should be investigated.
- All neonates with unexplained fever should be evaluated for congenital malaria.

# END

- Thanks

# Acknowledgement

- Grateful to the Mother for responding to the numerous questions
- Grateful to Dr Ivy Osei Frances for her critique.
- Grateful to the midwives at the maternity unit of Sunyani Municipal Hospital.
- Grateful to Dr Dery and Dr Anvoh Gervais

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# National Health Research Dissemination Symposium (NHRDS) (Accra : 27<sup>th</sup> – 28<sup>th</sup> May, 2015)

## Determinants of Prenatal HIV Counselling and Testing as a component of quality Maternal and Child Health Services among Rural Women In Ghana: A Population-Based Survey

Doris Sarpong<sup>1</sup>, Sheila Addei<sup>1</sup>, Vida Kukula<sup>1</sup>, Francis Yeji<sup>2</sup>, Charlotte Tawiah<sup>3</sup>,  
Clement Narh<sup>1</sup>, Georgina Badu-Gyan<sup>1</sup>, Abraham Oduro<sup>2</sup>, Seth Owusu-Agyei<sup>3</sup>,  
Margaret Gyapong<sup>1</sup>, Masamine Jimba<sup>4</sup>

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<sup>4</sup>University of Tokyo, Japan



# Outline

- Background
- Methodology
- Results
- Conclusion



<https://eacaravan2010.files.wordpress.com/2010/07/hiv-testing-for-pregnant-women.jpg> (Accessed 22nd May 2015)



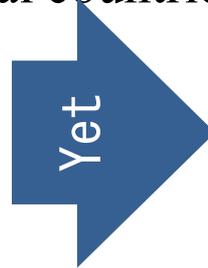
**National Health Research Dissemination Symposium (NHRDS)**  
**(Accra : 27<sup>th</sup> – 28<sup>th</sup> May, 2015)**



# Background



High coverage of essential antenatal and perinatal services in many developing and transitional countries



Insufficient attention has been paid to improve the quality of services



Adoption of various strategies to improve HIV counselling and testing among the general population with emphasis on pregnant women;  
- Internationally as well as nationally



Many of the empirical evidence of HIV-related testing services among pregnant women are usually health facility-based;

**This study therefore examines on the factors associated with HCT services as a component of quality MNCH care among women in rural Ghana**



# Methods

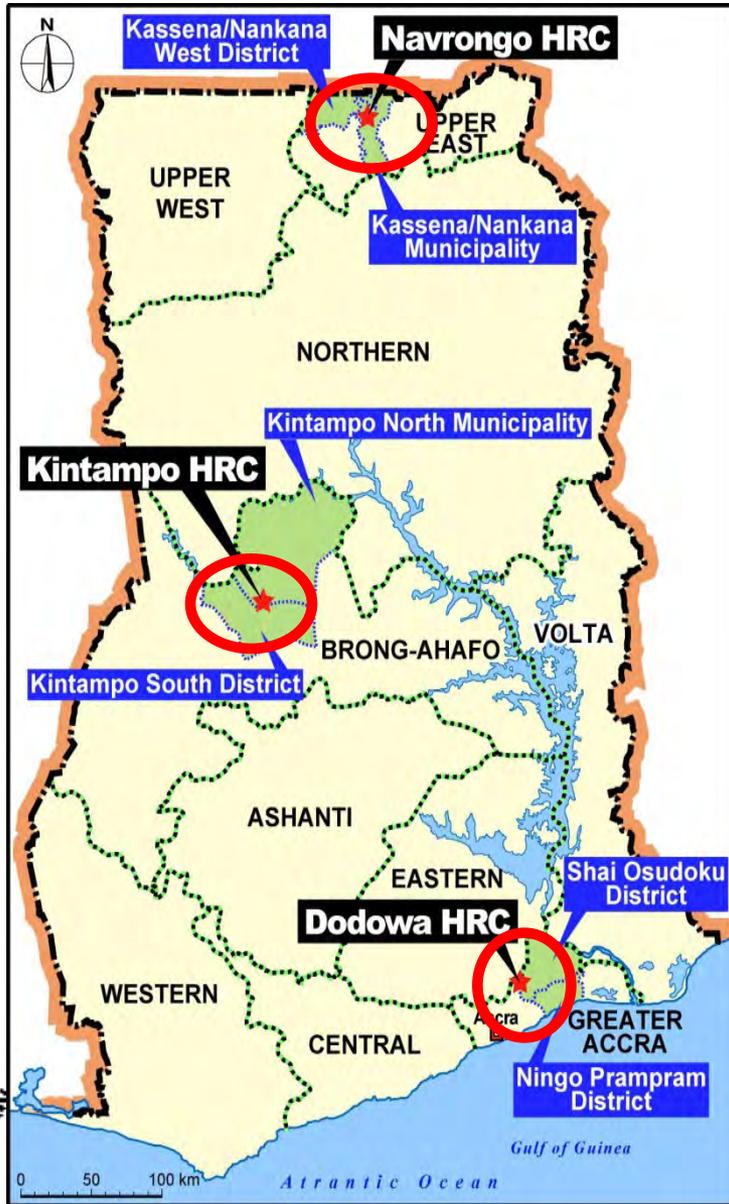


Figure 1: Study area

- **Study Site**
  - Communities in Dodowa, Kintampo & Navrongo HDSS sites as part of the Ghana-EMBRACE Study
- **Data collection method & period**
  - Structured questionnaire (face-to-face)
  - July 2013 – September 2013
- **Sampling Method and Sample Size**
  - Two-stage random sampling:
  - 1,500 women from 3 demographic surveillance sites
- **Inclusion criteria**
  - Women -15 to 49 years old
  - Resident at the three sites
  - experienced pregnancy between 2011 and 2012.
- **Statistical methods**
  - percentages, bivariate and multiple logistic regression
- **Ethical Considerations**
  - Ethics Review Committee, Ghana Health Service
  - Institutional Review Boards, 3 Research Centres
  - Research Ethics Committee, University of Tokyo, Japan
  - Written consents from participants



# Results - I

## Background Characteristics of respondents

### Socio-demographic characteristics

Mean age – 28 years

No education – 39%

Currently married (87.4%)

Parity – 2 to 3 (42.5%)

Mean age husband/partner – 34.6 years old

Education level of husband/partner – no education (29%)

One in 5 women from poorest household

### Health service-related factors

Long waiting time – 13.1%

Poor staff attitude – 10.6%

Sought alternative treatment – 12.0%

Referral during pregnancy – 9.0%

### Family-related factors

Receives **no** family support – 20.9%

Family accompanied mother to health facility – 46.5%

Family encourages mother to seek - 39.1%

### Health-related seeking behaviour

-Pregnancy intentions – 58.6% wanted it then

-ANC attendance (4+) – 86.2%

-Hospital - 40.4%

-Received Essential services – 60.6%

-Valid NHIS – 53.5%

-Believed all child illness can be treated – 37.8%



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# Results - II

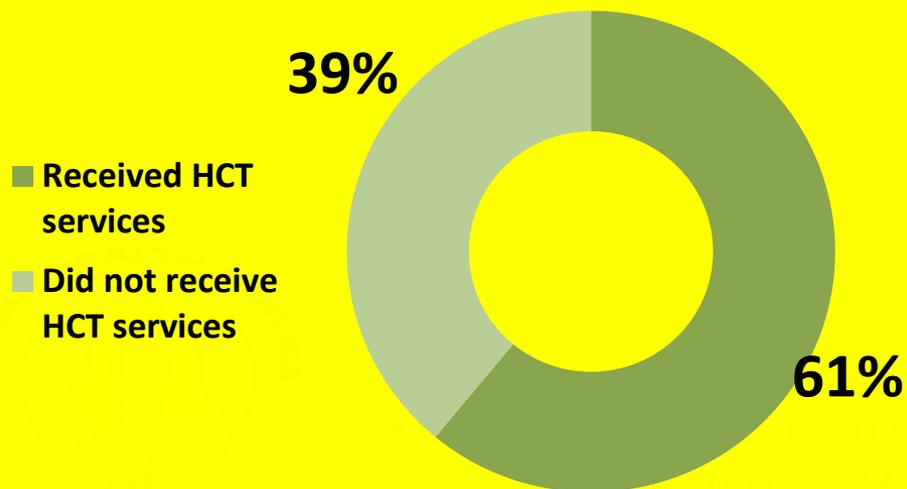
## Predictive factors of receiving HCTS [Adjusted]

- Mother's education [2.14 times for the secondary and above than women with no education]
- Socioeconomic status [1.85 times for the least poor than the poorest]
- Pregnancy intention [41% less likely for 'later' than those whose intentions were 'then']
- Parity [2.1 times for 6+ than those with < 2]
- Essential services [5 times for those who received all the 5 services]
- NHIS enrolment with valid card [1.5 times for those who had]

## Associated factors with HTC services [Crude OR]

- Mother's age for 20-29 years (OR 1.80, 95% CI: 1.24 – 2.62, p=0.002) and 30-39 years (OR 1.89, 95% CI: 1.28 – 2.79, p<0.001)
- Mothers with secondary or higher level of education were 2.1 times more likely to receive HCTS than mothers with no education.
- The odds of HCTS among those from least poor households were 1.59 times more than mothers from the poorest households.
- Mothers who received all essential services were about 6 times (crude OR 5.7, 95% CI: 4.49 – 7.10, p <0.001) more likely to receive HTCS when compared to those who did not receive all these essential services.

## Coverage of HCT Service among study population



- **Conclusion**

- HCT Services not universal;
- Inequity in HCT services.

Hence, the need for life-saving HIV Services (testing, prevention, treatment and care);

- **Recommendations**

- Strengthening the health systems
  - especially NHIS
  - Prioritizing of HCT services (fits into Continuum of Care (CoC))
  - Properly integrated HCT services into Health Care Services
  - \*innovative approaches –Demand side (re-vamping of health education)
  - \*Supply side (logistics, documentation, etc)
- Family planning

SRH & HIV services especially for the adolescent population (NHRDS)

(Accra : 27<sup>th</sup> – 28<sup>th</sup> May, 2015)



<https://eacaravan2010.files.wordpress.com/2010/07/hiv-testing-for-pregnant-women.jpg> (Accessed 22nd May 2015)



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- Opinion Leaders and Community members of the three Health and Demographic Surveillance Sites
- The six Health Directorates of the Navrongo, Kintampo and Dodowa HDSS sites
- Upper East, Brong Ahafo and Greater Accra Regional Health Directorates, GHS
- Research and Development Division, Ghana Health Service
- Navrongo, Kintampo and Dodowa Health Research Centres
- Ghana/Japanese EMBRACE Team
- JICA & University of Tokyo, Japan
- Organizers and Funders of the NHRDS, 2015

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Thank you for your attention



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