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FOREWORD



In Ghana a death of any child or pregnant woman that could have been prevented is an entirely unacceptable death. As a country, a Government, a health service and as a people we all have our roles to play in preventing such tragedies from occurring in our communities. We know from the data trends that we are together making progress. Preventable deaths in Ghana are decreasing. Much of this is due to improvements in our health policies, health systems and practices, changes in our health behaviours and even our health beliefs. These improvements have not occurred by chance and 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 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 on families and communities and is in fact a tragedy for the whole nation. 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 seriously 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 needed difference. High quality research evidence is one such critically important tool to help us to do that. In Ghana we have invested in three Health Research Centres 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. This symposium is an important opportunity for our countries research experts and academics to show case this work and bring 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 Ghana National Health Research Dissemination Symposium 2015, consider the relevance of the findings for what you do and what you can influence and share the work widely with those who have been unable to attend. There remains much to be done, the evidence we learn here over the next two days and that is contained within this book will help us ensure that, going forward, we target every effort and resource to maximum, live saving and life enhancing, effect.

Hon. Alexander Segbefia
Minister of Health
27th May 2015

ACKNOWLEDGEMENTS



Ending preventable child and maternal deaths is one of the most pressing health goals for our nation. The USAID/Ghana Evaluate for Health (E4H) project has been privileged to work alongside the Ministry of Health and Ghana Health Service to bring this Health Research Dissemination Symposium to reality. In Ghana there is a thriving health research tradition and research community of active experts who produce excellent work and a growing body of knowledge and vital evidence needed to guide the elimination efforts. This isn't necessarily well known and the research community has not always had the platform to show case this important work. Policy makers, planners and health professionals do not always have easy access to this work. This Ghana National Health Research Dissemination Symposium (NHRDS) 2015 has provided that platform.

Our gratitude and thanks go to many for their contributions to this important event. Particularly the steering committee members for their vision, encouragement and expert inputs into the design, content and planning of the event, to the abstract review committee for giving their time and expertise in the review of the very many submissions, to those who submitted their work including those whom may not have been selected for presentation but whose contributions are none the less valuable and included in the Symposium Book. The response to our call for registration and submission of abstract was excellent and as a result we have a very interesting and diverse programme of presenters including NGOs, UN organizations alongside the Ghanaian research community.

Special thanks must go to our keynote and guest speakers for their contribution to ensuring the event is up to date, well informed, thought provoking and topical. To our Chairpersons of the plenary and parallel sessions for ensuring the sessions run to time, remain focus and engender valuable discussion. Thanks go to the MSI team both in Ghana and the U.S., and Jacqui Moller Larsen, consultant, for their tirelessness and attention to detail in the making of this event.

Final acknowledgement goes to USAID for the funding of the event and Melanie Luick-Martins, Deputy Director of Health, Policy and Nutrition Office, USAID/Ghana who initiated the idea in the first place.

A handwritten signature in black ink, appearing to read 'Frank Nyonator'.

Dr Frank Nyonator
Project Director
USAID/Ghana Evaluate for Health Project
Management Systems International

ACRONYMS

DHIMS	District Health Information Management System
DHRC	Dodowa Health Research Centre
DHS	Demographic Health Survey
E4H	USAID/Ghana Evaluate for Health Project
GHS	Ghana Health Service
HPNO	Health, Population and Nutrition Office
IPTp	Intermittent preventive treatment
KHRC	Kintampo Health Research Centre
MDG	Millennium Development Goals
MNCH	Maternal, neonatal and child health
MOH	Ministry of Health
NGO	Non-Government Organization
NHRC	Navrongo Health Research Centre
NHRDS	Ghana National Health Research Dissemination Symposium
PMTCT	Prevention of mother-to-child transmission
PNC	Postnatal care
PPME	Policy, Planning, Monitoring & Evaluation
RAMOS	Reproductive Age Mortality Survey
SDG	Sustainable Development Goals
UN	United Nations
USAID	United States Agency for International Development
WHO	World Health Organization

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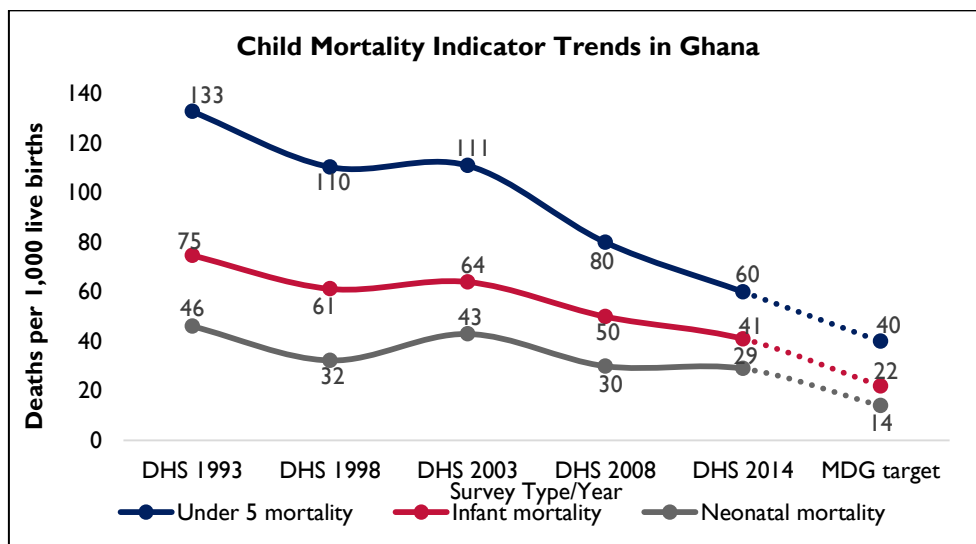
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NATIONAL HEALTH RESEARCH DISSEMINATION SYMPOSIUM 2015, “ENDING PREVENTABLE CHILD AND MATERNAL DEATHS IN GHANA”

Background

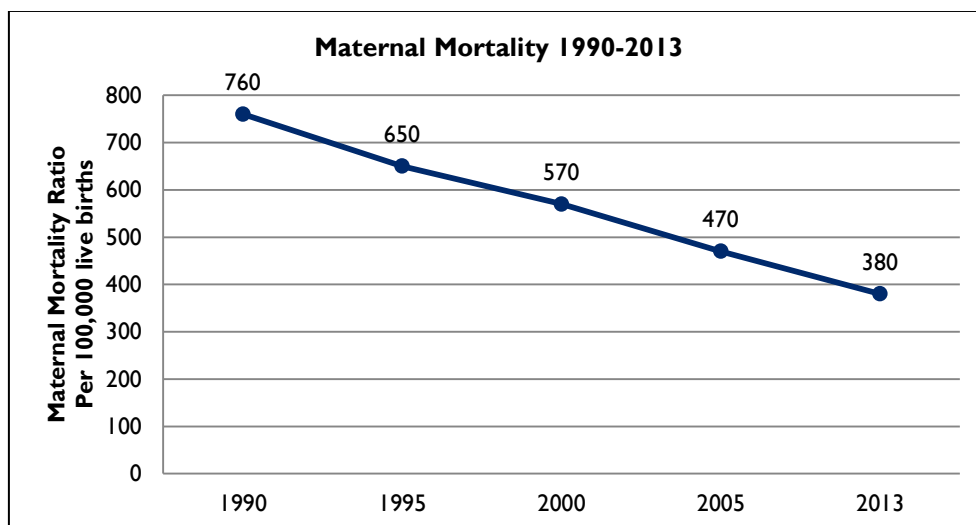
Ghana’s current investments in health are notable and have resulted in substantial reductions in child mortality and malnutrition and increases in life expectancy at birth (Fig.1&2). However, the prevalence of avoidable maternal, neonatal and child deaths remains unacceptably high. Ghana continues to confront unmet needs for expanded access to quality child and maternal health services and strengthened national and community-based health systems. Furthermore, some prevailing wider social and cultural determinants further constrain efforts to reduce preventable child and maternal deaths.

Fig. 1 Child mortality indicators in Ghana



1 Trends in Early Childhood Mortality rates in Ghana (per 1,000 LB). GDHS 1988-2008

Fig. 2 Maternal Mortality Trends in Ghana



2 Maternal Mortality Trends in Ghana 1990 – 2013 (Millennium Development Goal 5)–Source WHO http://www.who.int/gho/maternal_health/countries/gha.pdf?ua=1

The Government of Ghana is clear on the challenges in relation to needed improvements in the Ghanaian health system and changes in the social and cultural beliefs, norms and practices. These include: increased access to and utilization of integrated health services; expanded availability of community-based resources; strengthened and responsive health systems; and improved health sector governance and accountability. The transformation of prevailing social norms that constrain health promoting and enabling community environments is also important. Such a transformation can lead to empowered and informed parenting, self-care in pregnancy and appropriate use of services.

To help realize these critical improvements, USAID is supporting evidence-based interventions to end child and maternal mortality. Goals include: a reduction of post-partum haemorrhage through the use of uterotonics and increased skilled birth attendance; supporting the implementation of the essential newborn care within the context of the Accelerated Newborn Action Plan; supporting high impact nutrition interventions such as vitamin A supplements and community and facility based management of under nutrition; supporting the expansion of CHPS; and increasing access to prompt treatment and prevention of malaria at the community level, amongst other important efforts.

In furtherance of these goals, the USAID/Ghana Evaluate for Health (E4H) Project worked alongside the Government of Ghana and other stakeholders to organize this two-day research symposium to showcase important research findings from Ghanaian experts and bring it closer to practice and policy makers. The Research Directorate of the Ghana Ministry of Health, Health Research Development Division and PPME Division of the Ghana Health Service (GHS) and the E4H project are co-hosting the symposium.

This symposium book includes the programme and abstracts detailing all research submissions for presentations and poster displays. It will be made widely available in paper and electronic format following the event.

Purpose

The nature of the public health challenges Ghana has yet to overcome are complex and deeply interconnected. They require continued commitment to fundamental and transformational change in the systems, structures, professional accountabilities, practices, policies, and people's hearts and minds. As part of the overall effort, this symposium will unite stakeholders to reflect 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 eliminate preventable maternal, neonatal and child deaths in our country.

Focus and Themes

The overarching theme 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

Objectives

The 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.

Participation

The NHRDS is expected to bring together 200 -250 participants, made up of researchers (including young researchers), policymakers, educators, senior health service professionals, development partners and selected research students. More than 32 oral presentations and 12 poster presentations are scheduled to be delivered.

Special arrangements have been made to have the GHS's three leading health research institutions – Navrongo Health Research Centre (NHRC), Kintampo Health Research Centre (KHRC) and Dodowa Health Research Centre (DHRC) – showcase their work to support health development in Ghana. 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 on application through the normal channels.

PROGRAMME AGENDA

WEDNESDAY, MAY 27, 2015

8:45am – 10:30am	<p>First Plenary and Opening Session</p> <p>Master of Ceremony, Dr Ivy Osei, Deputy Director, Research and Development Division, GHS: <i>Welcome, opening prayer and introduction of the Chairperson. (5 minutes)</i></p> <p>Chairperson: Professor Fred Newton Binka, Vice Chancellor, University of Health Allied Sciences</p> <ul style="list-style-type: none">• Chairperson’s response (5 minutes)• Dr Frank Nyonator, Chairman National Steering Committee for NHRDS 2015 <i>Welcome and introduction. (10 minutes)</i>• Dr Appiah Denkyira, Director General, GHS <i>Ending preventable child and maternal deaths: notable successes and notable challenges – the data story told over two decades. (25 minutes)</i>• Akua Kwateng-Addo, Director, Health, Population and Nutrition Office, USAID, <i>Statement of support (10 minutes)</i>• Special Guest Speaker: Dr Magda Robalo, WHO Country Representative, representing the UN system in Ghana <i>Succeeding in ending preventable maternal, neonatal and child deaths: the tasks ahead as we move from the MDGs to SDGs (20 minutes)</i>• Keynote Address: Honourable Alexander Segbefia, Minister of Health, Ghana <i>Strategic direction for the eliminating maternal, neonatal and child death in Ghana. (15 minutes)</i>• Chairman’s Closing Remarks (10 minutes)• Vote of Thanks (5 minutes)
10:30am – 10:50am	<p>Refreshment Break</p>
11:00am – 1:00 pm	<p>Parallel Session One of Research Presentations</p> <p>Session 1a: Providing Leadership and Governance/Organising Health Services for Child and Maternal Health</p> <p>Chair: Dr George Amofah, Former Deputy Director General, GHS and part time Senior Lecturer at University of Ghana, School of Public Health</p> <ul style="list-style-type: none">• <i>An insight into Tema General Hospital causes of maternal mortality. A descriptive mixed method study on causes of maternal mortality in Tema General Hospital.</i>• <i>A qualitative study exploring barriers to exclusive breastfeeding among “nurse mothers” in Koforidua, Ghana.</i>• <i>Socio-economic status and the prevalence of fever in children under age five: evidence from four sub-Saharan African countries.</i>• <i>A focused ethnographic study of infant and young child feeding and their context in rural Ghana.</i> <p>Session 1b: Organizing Health Services for Child and Maternal Health</p> <p>Chair: Dr Linda Vanotoo, Regional Director of Health, GHS, Greater Accra Region</p> <ul style="list-style-type: none">• <i>Medical transport for women and children in rural settings: modified motorcycle as a</i>

	<p><i>promising option.</i></p> <ul style="list-style-type: none"> • <i>An assessment of the implementation of prevention of mother-to-child transmission (PMTCT) of HIV in the Volta region.</i> • <i>Ghana EMBRACE implementation research: is continuum of care in MNCH feasible and effective?</i> • <i>Mother's education, health insurance coverage and inequality in child malnutrition: evidence from the Ghana Multiple Indicator Cluster Survey.</i>
1:00pm – 2:00pm	Lunch
2:15pm – 4:15pm	<p>Parallel Session Two of Research Presentations</p> <p>Session 2a: Developing and Utilizing Human Resources for Child and Maternal Health</p> <p>Chair: Dr Patrick Aboagye, Director, Family Health Division, GHS.</p> <ul style="list-style-type: none"> • <i>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.</i> • <i>Determinants of skilled birth attendant at delivery in rural southern Ghana.</i> • <i>Let's start where we begin: e-Learning in pre-service education.</i> • <i>Food-based dietary modifications to improve the dietary intake of infants and young children in Ghana.</i> <p>Session 2b: Financing and Provision of Social Protection for Child and Maternal Health</p> <p>Chair: Dr Erasmus Agongo, Director of Policy Planning Monitoring and Evaluation Division, GHS</p> <ul style="list-style-type: none"> • <i>Analysis of health and economic benefits of family planning in Ghana.</i> • <i>Socio economic correlates and choice of treatment for childhood fevers.</i> • <i>Randomized control trial to ascertain impact of behaviour change interventions.</i> • <i>Predictors of abortions in rural Ghana: cross sectional study.</i>
4:30pm – 5.45pm	<p>Second Plenary Session: Global Research Evidence to Support Ending Preventable Child and Maternal Deaths.</p> <p>Master of Ceremony: Welcome back, energiser, and introduction of the Chairperson.</p> <p>Chair: Dr Gloria Quansah Asare, Deputy Director General, GHS</p> <ul style="list-style-type: none"> • Guest Speaker 1: Dr Joses Muthuri Kirigia, PhD: Programme Manager Research, Publications and Library Services programme. World Health Organisation, Regional Office for Africa: <i>Using evidence to make an investment case for interventions to end preventable child and maternal deaths.</i> • Guest Speaker 2: Professor Cyril Engmann, Global Program Leader and Director for Maternal, Newborn, Child Health and Nutrition, PATH: <i>Are we re-inventing the wheel? Aren't there solutions out there?</i> • Chairman's Closing Remarks and opening of the Poster Session
6.00pm	Symposium Reception and Poster Presentation.

8:45am – 10:30am	<p>Third Plenary Session: Local Evidence and Challenges to Ending Preventable Child and Maternal Deaths</p> <p>Master of Ceremony: Dr Ivy Osei, Deputy Director Research and Development Division, GHS: <i>Welcome, opening prayer and introduction to the chairperson.</i></p> <p>Chair: Dr Sam Adjei, Chief Executive, Centre for Health and Social Services and formerly Deputy Director General of GHS</p> <ul style="list-style-type: none"> • Welcome • Jacqui Moller Larsen, Public Health Consultant: Brief summary of the key issues emerging from day one: • Guest Speaker 1: Prof Kodjo Sena: <i>Local socioeconomic determinants to ending preventable child and maternal death</i> • Guest Speaker 2: Dr Koku Awoonor-Williams: <i>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.</i> • Chairman’s Closing Remarks
10:30am – 12:30pm	<p>Parallel Session Three of Research Presentations</p> <p>Session 3a: Developing and Organizing Health Information for Child and Maternal Health</p> <p>Chair: Dr Charity Sarpong, Regional Director of Health Services, Eastern Region</p> <ul style="list-style-type: none"> • <i>District Health Information Management System (DHIMS-2).</i> • <i>Child and maternal deaths in Northern Ghana: evidence from the Navrongo Health and Demographic Surveillance System.</i> • <i>Improving maternal mortality reporting at the community level with a 4-question modified reproductive age mortality survey (RAMOS).</i> • <i>Effect of timely initiation of breastfeeding on child health in Ghana.</i> <p>Session 3b: Innovations and Health Technologies for Child and Maternal Health</p> <p>Chair: Dr Abraham Hodgson, Director, Research and Development Division, GHS</p> <ul style="list-style-type: none"> • <i>Adverse events following immunization with newly introduced measles rubella vaccine- Jirapa district, Ghana, 2013.</i> • <i>Can mobile phone messages to licensed chemical sellers increase prescription use of ORS and zinc? A randomized controlled trial in Ghana.</i> • <i>Impact of malaria vaccine candidate RTS, S/AS01 on malaria in African infants and children 18 months post-primary vaccination.</i> • <i>Effect of MenAfriVac meningococcal A vaccine on pregnancy outcome: An assessment conducted at the Navrongo Health and Demographic Surveillance site.</i>
12:30pm – 2:00pm	<p>Lunch</p>

2:30pm – 4:00pm

Parallel Session Four of Research Presentations

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

Chair: Dr Joseph Nuerthey, 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.*

4:30pm – 5.30pm

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

Master of Ceremony: *Welcome back, energiser, and introduction of the Chairperson.*

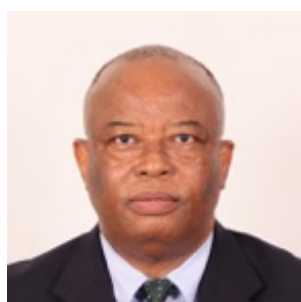
Chair: Dr Sylvester Anemana, Chief Director, MoH, Ghana

- **Jacqui Moller Larsen, Public Health Consultant:** *Brief summary of emerging themes and issues from the day.*
- **Guest Speaker: Dr Awudu Tinorgah, Public Health Expert:** *What have we learnt and where do we go from here? Setting an agenda within the SDGs to end preventable child and maternal deaths.*
- **Dr Victor Bampoe, Hon. Deputy Health Minister:** *Concluding Remarks.*

SPEAKER BIOGRAPHIES



Koku Awoonor-Williams is Regional Director of Health Service for the Upper East region of Ghana. For decades, he was District Director of Health Services in the Nkwanta District where he implemented several health systems innovations to bring health services closer to communities. Dr Awoonor-Williams was one time the National Coordinator of the Ghana Community-based Health Planning and Services Program. He is currently Chair of the Navrongo Health Research Centre Institutional Ethics Review Board, Co-Principal Investigator of Ghana Mobile Technology for Community Health Project and a contributor to several other local and international health projects and initiatives. He is Co-PI of the Ghana Essential Health Intervention Program. Dr Awoonor-Williams is Governing Board member of Global Doctors for Choice, a collaborating scientist of the Averting Maternal Death and Disability Project of Columbia University Mailman School of Public Health and a founding faculty of Advancing Reproductive and Community Health Systems, a program of the Heilbrunn Department of Population and Family Health, Mailman School of Public Health, Columbia University.



Fred Binka is Vice-Chancellor, University of Health Allied Sciences, Ho and Professor of Clinical Epidemiology. He previously held the position of Dean School of Public Health, University of Ghana and worked with the Ghana Ministry of Health for over 20 years in several capacities, including Director of the Navrongo Health Research Centre. He was a member of the initial team that developed the Roll Back Malaria Initiative at World Health Organization in Geneva. He established the Indepth-Network, an international health research NGO. His research interests are in malaria (epidemiology, control) and intervention studies (drugs and vaccines of tropical diseases). He is a recipient of the Ronald Ross medal 2010 from the London School of Hygiene and Tropical Medicine, and the first recipient of the Rudolf Geigy Medal (2000) by the Swiss Tropical Institute. Binka is a strong advocate for research capacity strengthening in Africa, through support from African governments and their partners. He received his medical degree, MB. ChB (Ghana); MPH (Jerusalem) and PhD in Epidemiology (Basel).



Professor Cyril Engmann is the Global Program Leader and Director for the Maternal, Newborn, Child Health and Nutrition program at PATH. Prior to this appointment, he led the Bill and Melinda Gates Foundation Newborn Health Strategy. He is credited with initiating a number of global efforts including the Every Newborn Action Plan recently adopted by all 194 signatory countries of the United Nations, the Global Preterm Research Consortium and the Kangaroo Mother Care Acceleration Group. Cyril has practiced medicine in Asia, Africa and Europe, and continues to be a board certified active neonatologist. He is a Fellow of the American Academy of Pediatrics and the Society for Pediatric Research. He graduated from University College and Middlesex School of Medicine in London, and undertook his postgraduate medical training in the UK and the USA, where he completed his Pediatrics Residency and a Fellowship in Neonatal-Perinatal Medicine at the University of Michigan in Ann Arbor.



Akua Kwateng-Addo is a Foreign Service Officer and Office Director of the Health, Population, and Nutrition team at USAID/Ghana. Prior to this posting, Ms. Kwateng-Addo was the Office Director for five years in Senegal and three years in Nigeria. In Senegal, Ms. Kwateng was a key contributor in the development of the Joint Planning Cell (JPC) for the Sahel, which is expected to save up to ten million lives. Before joining USAID, Ms. Kwateng worked for Save the Children and as a pharmacist in Saudi Arabia, Washington, and Ghana.

Akua holds a B.Sc. in Pharmacy from Howard University and a MPH from the University of Ghana School of Public Health.



Dr Magda Robalo is the WHO Representative to Ghana since February 2014. She previously served as WHO Representative in Namibia and Acting WHO Representative in South Africa and Zambia. Between 2002 and 2007 she was the Malaria Regional Advisor at the WHO Regional Office for Africa. Dr Robalo trained as a medical doctor and earned a Postgraduate Diploma in Public Health and Tropical Medicine and an MSc degree in Epidemiology. She has over 25 years' experience in public health at national and international levels, working in positions of progressive leadership with the Ministry of Health of her native country, Guinea- Bissau, UNICEF and Plan International before joining WHO in 1998. Dr Robalo is married and has three children.



Professor Kodjo Senah obtained the B.A. (Honours) degree in Sociology from the University of Ghana in 1974 and the MPhil degree in Sociology from the same University in 1981. In 1997 he was awarded the PhD degree in Medical Anthropology by the University of Amsterdam in The Netherlands.

Prof Senah is in his 30th year as a lecturer in the Department of Sociology, University of Ghana. In academic circles, he is commonly known as a Medical Anthropologist/Sociologist. However, he also lectures in Criminology, Rural Sociology and Rural Development. He has published extensively on health- related issues on Ghana and has consulted for a number of international agencies.



Dr Awudu Tinorgah is a public health and development professional with leadership, technical and managerial experience. He was a key team member that drove the Ghana Health Sector reforms in the 1990s in various capacities in the Ministry of Health as External Aid Coordinator, Director Policy Planning Monitoring and Evaluation and Ag. Director Medical Service. Very early in his public health career, Dr Tinorgah worked as the Sector Head for health in the Northern Region Rural Integrated Programme. In this position, he was involved in leading and managing broader development issues, working with rural water, agriculture and community development sectors.

Dr Tinorgah worked with WHO Geneva for two years in the Evidence and Information for Policy cluster. He was involved in building the evidence base on pro-poor health policies and strategies and contributed to the development of training materials and guidance for countries. He then worked with UNICEF for more than 10 years as Chief of Child Survival in Nigeria, Tanzania and Kenya. During this period, he led the UNICEF's health, nutrition and water and sanitation teams to support governments and collaborate with other UN and development partners.

ORAL PRESENTATIONS

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

An insight into Tema General Hospital; causes of maternal mortality. A descriptive mix-methods study on the causes of maternal mortality in Tema General Hospital, Ghana

Presenter

Mrs Laura Jane van Dijk, Ghana Health Service and University of Maastricht, Netherlands.
laurajane.vandijk@gmail.com

Introduction

The deadline of the Millennium Development Goals is almost near and so far the fifth goal of reducing maternal mortality by three-quarters is far from being met. Ghana is unlikely to meet the objective before the 2015 deadline.

Objective

The aim of this study was to identify the factors that contribute to the relatively high level of maternal mortality in Tema General Hospital (TGH), the district hospital in the Tema Metropolis of Ghana.

Methods

A combination of quantitative and qualitative research methods were used to investigate the situation at TGH. For the quantitative part, the 2013 maternal death audit reports were analysed while the qualitative aspect consisted of interviews with healthcare workers of TGH and Focus Group Discussions with pregnant women visiting the health facility. Topics discussed included preparation for delivery, referral system, facilities to help save women, and the pull-push factors of TGH.

Results

Data showed that the key direct obstetric causes of maternal mortality are haemorrhage and hypertensive diseases while the main indirect cause was anaemia. The women expressed concerns about malaria. The underlying systemic cause of maternal mortality in TGH is that the only one functional theatre is woefully inadequate to help save pregnant women who may need surgical interventions. The maternity unit lacks enough space to contain the large number of pregnant women and increasing number of referrals from other health facilities.

Conclusion

The study revealed some systemic causes, which are not commonly discussed in the literature such as the high workload of health care personnel and the pressure on facilities. There is the need to provide additional space through expansion to reduce the challenge. Therefore equipping and expanding Tema General Hospital is largely required to reduce maternal mortality.

Sub-theme

Organizing health services for child and maternal health

Authors

Mrs Laura Jane van Dijk, Ghana Health Service and University of Maastricht, Netherlands
Dr John Yabani, Ghana Health Service
Ms Ivy Asoku, Ghana Health Service

A qualitative study exploring barriers to exclusive breastfeeding among nurse mothers in Koforidua, Ghana

Presenter

Dr N'Dauguie Armel Evrard Abou, St Joseph Hospital Koforidua, Ghana.
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Introduction

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. The decline of EBF rate in Ghana from 98 percent at birth to 63 percent at six months constitutes a serious public health concern. There is little known in Ghana about the reasons for this decline. The aim is to explore barriers to EBF of nurse mothers in Koforidua, in order to make recommendations to support the development of feasible and sustainable national policies and local health professional supportive interventions.

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, twelve participants from the three major hospitals in Koforidua were selected for in-depth interviews. Framework analysis was used for data analysis.

Results

Four themes emerged from analysis of data. Nurse mothers were knowledgeable about EBF, and their decision to breastfeed was influenced mainly by their confidence in EBF benefits. Barriers described were short maternity leave, absence of crèche, and when crèche was available the quality of crèche services, issues related to safety of breast expression and reliable caretakers, non-conducive working environment and psycho-physical problems. Respondents suggested interventions at institutional, local community and national levels.

Discussion

EBF is seen as the gold standard in infant nutrition. This study highlighted numerous barriers that prevented working nurses from achieving EBF. Recommendations for improvement in EBF in the workplace have been addressed which could contribute to interventions to increase EBF rates at 6 months.

Sub-theme

Organizing health services for child and maternal health

Authors

Dr N'Dauguie Armel Evrard Abou, St Joseph Hospital Koforidua, Ghana
Dr Gillian Woolhead, University of Liverpool, United Kingdom

Socioeconomic status and the prevalence of fever in children under age five: evidence from four sub-Saharan African countries

Presenter

Mr Jacob Novignon, University of Ibadan Worldwide.
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Introduction

The burden of fevers remains enormous in sub-Saharan Africa. The relationship between socioeconomic status (well-being) and fever prevalence has been inconclusive at the household and individual levels. The purpose of this study was to examine how household well-being influences the prevalence of fever among children under age five in four sub-Saharan African countries.

Methods

The study used data from the 2008 Demographic and Health Survey (DHS) from Ghana, Nigeria, Kenya and Sierra Leone with a total of 38,990 children below age five. A multi-level random effects logistic model was fitted.

Results

The results showed that children from wealthier households reported lower prevalence of fever in Ghana, Nigeria and Kenya. Result from the combined dataset shows that children from wealthier households were less likely to report fever. In general, vaccination against fever-related diseases and the use of improved toilet facility reduces fever prevalence.

Conclusions

Poverty is a major driver of childhood fever prevalence. Policies directed towards preventing childhood fevers should take a close account of issues of poverty alleviation. There is also the need to ensure that prevention and treatment mechanisms directed towards fever related diseases (such as malaria, pneumonia, measles, diarrhoea, polio, tuberculosis etc.) are accessible and effectively used.

Sub-theme

Organizing health services for child and maternal health

Authors

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A focused ethnographic study of infant and young child feeding and their context in rural Ghana

Presenter

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Introduction and objectives

Achievement of goals to improve infant and young child nutrition (IYCN) requires that foods fed to children are available, affordable, culturally acceptable and feasible in relation to the context in which feeding occurs. The focused ethnographic study (FES) is a methodology developed by GAIN to aid decision-making for interventions to improve IYCN. This FES investigated feeding practices in relation to key context factors in rural Ghana to support identification and planning of IYCN interventions.

Methods

The FES modules were used to interview 40 caregivers with children 6 – 23 months each in Karaga in northern Ghana and Gomoa East in southern Ghana. Data collected included IYC food intake, preparation and sources of acquisition, factors influencing IYC food choices and management and caregiver health and food perceptions. Data analysis employed qualitative and quantitative methods.

Results

Core IYC foods in Karaga were predominantly cereal and legume based while those in Gomoa East were cereal, roots and tuber based. In both locations, fish was the predominant animal source food consumed in soups and relishes containing vegetables. Milk consumption was extremely low. Consumption of fruits was virtually non-existent. IYC food was acquired from household farms and the market but significantly the core components were almost entirely purchased. Main challenges to IYC food acquisition were seasonal food availability and lack of money to buy food. Caregivers demonstrated some knowledge of nutrition although awareness of vitamins was low; importantly they perceive a causal relationship between food quality on one hand and child growth and survival on the other. Some potentially negative practices were also identified.

Conclusion

The study documented considerable concordance between caregivers' knowledge and beliefs and their feeding practices. Challenges for intervention planning include sustaining and supporting positive features of current feeding practices, alleviating the agricultural and economic constraints affecting availability of preferred, appropriate IYC foods while addressing the need to ensure the relevance and feasibility of the current IYCF counselling package.

Key words:

Focused Ethnographic studies, Infant and young child feeding behaviours, rural Ghana, social, economic and cultural context of IYC nutrition

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Session 1b: Organising Health Services for Child and Maternal Health

Medical transport for women and children in rural settings: modified motor-tricycle as a promising option

Presenter & Author

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Introduction

Rural women in Ghana often have limited physical access to health facilities, contributing to unpredictable pregnancy outcomes and impacting negatively on maternal and child health (MCH). Rural ambulances in most rural Ghana are either not feasible or affordable due to non-availability of equipped vehicles, poor road conditions and high operating costs. To address this challenge, USAID-funded maternal and child survival project titled Encouraging Positive Practices for Improving Child Survival (EPPICS) Project in East Mamprusi District introduced modified motor tricycles (MMTs). MMTs equipped with a cabin to safely transport pregnant women and other health emergency cases to referral centres. The community managed MMTs serve both host communities and provide outreach services to other communities within a cluster.

Objectives

To assess if the use of modified motor tricycle in rural settings is financially sustainable.

Methods

Data was compiled from July 2013 to February 2015 on utilization of four MMTs for forty rural communities. Seven-member management committee (MMC) and two drivers were trained to operate and manage each MMT. Drivers and Link Providers trained in standardized protocols for patient transport and conduct emergency deliveries. Also examined were operational costs of the MMTs in comparison with service fees recovered from users.

Results

The cost of each MMT plus MMC was valued at \$2,250. During this twenty-month period, 908 pregnant women, 987 mothers with newborns/children and 254 other emergency medical conditions utilized the MMTs. Each MMT averagely recorded 107 transport events with a cost per event at \$5±.5 on the average. The fee was divided to cover fuelling-\$3.3±.2, maintenance-\$1±.2 and driver/link provider motivation fee-\$0.7±0.1. Total average fees collected over the period equalled \$2,686.25 per MMT, with minimum fuel and maintenance requirements of approximately \$35/month.

Conclusions

The use of MMTs for medical care enjoys high patronage in targeted communities and seems to ease transport related challenges. The cost appears to be within reach and presents a great potential to increase ongoing physical access to health facilities.

Sub-theme

Organizing health services for child and maternal health

An assessment of the implementation of prevention of mother-to-child transmission (PMTCT) of HIV in the Volta region

Presenter

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Introduction

One of the key ways of assessing the effectiveness of PMTCT programme is to verify to what extent the various service components in the cascade are accessed by pregnant women and their infants in the continuum of care from counselling and testing at ANC, right up to follow-up care for the infants.

Objective

To assess the state of implementation of the PMTCT program in the Volta region of Ghana for the period 2012 and 2013.

Methods

The study was ecological and descriptive in design. Aggregated data on PMTCT services in the District Health Information System (DHIMS2) database of the Volta Region for the years 2012 and 2013 were utilized. Data were analysed using pivot tables and the data visualizer within the DHIMS2 software and results presented using tables and graphs.

Results

A progressively lower proportion of women passed through the PMTCT cascade with some unable to access the subsequent service component in the continuum. The regional ANC coverage was 81.8% and 78.3% in 2012 and 2013 respectively. Of these, 60.8% and 58% received counselling and testing for HIV/AIDS for both periods. HIV/AIDS prevalence among pregnant women was about 1.4% for both periods under study. Overall, 49.6% and 38.8% of those found positive received anti-retroviral drugs (ARVs) in 2012 and 2013 respectively. Only 26% of exposed infants received a full course of ARVs with 6% being tested using DNA/PCR at 6-18 weeks for both periods under study. Finally, only 3.7% and 4.4%, respectively, of exposed infants had a follow-up test done in the periods under review.

Conclusion

This study revealed some important gaps in PMTCT cascade under routine programme conditions in the Volta region of Ghana. Optimization of opportunities to address these gaps in services will lead to a reduction in HIV/AIDS infection among newborns and improve maternal survival.

Sub-theme

Organizing health services for child and maternal health

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Ghana EMBRACE implementation research: Is continuum of care in MNCH feasible and effective?

Presenter:

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Background

The Millennium Development Goals seek to improve the maternal and child health status. However, progress has been minimal and uneven across countries. The Ghana EMBRACE Implementation Research seeks to improve the continuum of care (CoC) in maternal, neonatal and child health (MNCH) with the view of reducing morbidity and mortality.

Objectives

To create feasible and sustainable packages of interventions in order to increase CoC completion and improve MNCH outcomes. To test such packages in rural settings.

Methods

An Initial situational analysis was carried out followed by design of an intervention package. An effectiveness-implementation hybrid cluster randomized trial of the intervention package is currently being implemented. The effect of introduction of the interventions packages will be evaluated after one year in 2016. The outcome measures include CoC completion rate, perinatal/neonatal mortality, and feasibility of the interventions.

Preliminary Results

Formative results indicate that overall, only 8% of women completed the entire CoC care (4 antenatal care visits, facility delivery, postnatal care within 48 hours, at 2 weeks, and at 6 weeks postpartum) during their last pregnancy. The biggest gap was identified in postnatal care within 48 hours postpartum (26%). Based on these findings, a package of interventions that is expected to improve the CoC was developed. The package includes (1) CoC card utilization, (2) reorientation of health workers, (3) retention of mothers for 24 hours postpartum, (4) home visit PNC. Implementation has been on-going since October 2014 in the Dodowa, Kintampo, and Navrongo Health and Demographic Surveillance Areas in Ghana. Site-specific results of formative studies will be presented.

Sub-theme

Organizing health services for child and maternal health

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Mother's education, health insurance coverage and inequality in child malnutrition: evidence from the Ghana Multiple Indicator Cluster Survey

Presenter

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Introduction

Child malnutrition is considered to be one of the major causes of morbidity and mortality among children. Empirical evidence that decompose socioeconomic inequalities in childhood malnutrition is limited in Ghana. The study sought to examine inequalities in child malnutrition and to estimate the role of mother's education and health insurance coverage in this inequality.

Methods

Cross section data from the 2011 Multiple Indicator Cluster Survey (MICS) was used. A total sample of 7,176 children under age 5 was used in the analysis. Three different levels of analysis were conducted to examine inequality in child malnutrition. First, concentration curves were constructed to explore the nature of inequality in child malnutrition. Secondly, concentration indices were computed to quantify the magnitude of inequality. Thirdly, decomposition analysis was conducted to determine the role of mother's education and health insurance coverage in inequality of child malnutrition.

Results

The concentration curves showed that there exist a pro-poor inequality in child growth retardation or malnutrition measured by stunting and wasting. The concentration indices indicate that the magnitude of inequality was higher and significant at 1% for weight-for-age (WAZ) (-0.1641), relative to height-for-age (HAZ) (-0.1613). The results also show that mother's education and health insurance both exhibited pro-rich inequality. Mother's education contributed about 13% and 11% to inequality in HAZ for primary and secondary or above attainments, respectively (18.9% and 11.8% for inequality in WAZ). Health insurance contributed about 1.91% and 1.03% to inequality in HAZ and WAZ, respectively.

Conclusion

The findings suggest that to reduce childhood malnutrition, there is need to encourage policies directed towards improving female education in the country. Further, with the existence of a functional health insurance system in Ghana, improving coverage through public education will be a step in the right direction.

Sub-theme

Organizing health services for child and maternal health

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

Factors related to retention of community health workers in a community based management of fevers in children under-five years in the Dangme West district of Ghana

Presenter

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Background

In resource constrained settings of developing countries, promotion of community based health interventions through community health workers (CHWs) is an important strategy to improve child health. However, there are concerns about the sustainability of such programmes due to the high rate of attrition of CHWs. This study examined factors influencing retention of volunteer CHWs in a cluster randomised trial on community management of under-five fevers in a rural Ghanaian district.

Methods

Data were obtained from structured interviews (N =520) and focus group discussions (N = 5) with CHWs. Factors influencing CHWs' decision to remain or leave the program were analysed using a probit model and focus group discussion results to elucidate our findings.

Results

Attrition rate among the CHWs was 21.2%. Attrition was comparatively higher in younger age groups than the older ones: (26% in 15-25 age group, 18% in 26-45 age group and 16% in >46 age group). The approval of a CHW by community ($p<0.001$) and the CHW's immediate family ($p<0.05$) showed significant in influencing the probability of remaining in the program. Motivation for retention was related to the desire to serve their communities, humanitarian and religious reasons.

Conclusion

The relatively moderate rate of attrition could be attributed to the high level of community involvement in the selection process and other aspects of the intervention leading to high community approval and support. Attention for these aspects could help improve CHW retention in community based health interventions in Ghana and the lessons could be applied to countries within similar settings.

Sub-theme

Developing and utilizing human resources for child and maternal health

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Determinants of skilled birth attendant at delivery in rural Southern Ghana

Presenter

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Introduction

Maternal mortality is the subject of the United Nations' fifth Millennium Development Goal, which is to reduce the maternal mortality ratio by three quarters from 1990 to 2015. The giant strides made by western countries in dropping of their maternal mortality ratio were due to the recognition given to skilled attendants at delivery. In Ghana, nine in ten mothers receive antenatal care from a health professional whereas only 59% and 68% of deliveries are assisted by skilled personnel in 2008 and 2010 respectively. This study therefore examines the determinants of skilled birth attendant at delivery in rural southern Ghana.

Methods

This study comprises of 1,874 women of reproductive age who had given birth two years prior to the study whose information were extracted from the Dodowa Health and Demographic Surveillance System. The univariable and multivariable associations between exposure variables (risk factors) and skilled birth attendant at delivery were explored using logistic regression.

Results

Out of a total of 1,874 study participants, 98.29% of them receive antenatal care services during pregnancy and only 68.89% were assisted by skilled person at their last delivery prior to the survey. The result shows a remarkable influence of maternal age, level of education, parity, socioeconomic status and antenatal care attendance on skilled attendants at delivery.

Conclusion

Although sixty-nine percent of women in the study had skilled birth attendants at delivery, women from poorest households, higher parity, uneducated, and not attending antenatal care and younger women were more likely to deliver without a skilled birth attendants at delivery. Future intervention in the study area to bridge the gap between the poor and least poor women, improve maternal health and promote the use of skilled birth at delivery is recommended.

Sub-theme

Developing and utilizing human resources for child and maternal health

Authors

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Let's start where we begin: eLearning in pre-service education

Presenter

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Introduction

Ghana faces a human resource for health crisis; the volume and types of health workers being produced cannot meet the demand of the country. To address the national shortage of midwives, low pass rate on the national exam and improve access to learning materials, the Ghanaian Ministry of Health (MOH) prioritized eLearning methodology in pre-service education.

Objectives

1) To determine the feasibility (in terms of acceptability, usability, accessibility) of using eLearning in six midwifery schools in Ghana, 2) To understand the experience of tutors, students and information technology (IT) staff in implementing selected eLearning content as supplements to courses.

Methods

Human subject's approval was obtained from Johns Hopkins University and Ghana Health Service Ethical Review Committee for this observational pilot study of eLearning in six midwifery schools. Final year midwifery students and tutors were surveyed about module use while school and MOH IT staff and principals participated in in-depth interviews. Across all groups surveyed, acceptability of the eLearning program was high, though users reported some difficulties with access and challenges with the software and module completion. Over half of the students reported that eLearning modules helped them to understand target topics.

Results

Results showed a significant increase in workload of the MoH IT team and IT tutors at each school. Challenges with systems governance at the schools and server administration limited collection of data on student enrolment and usage rates of certain modules. There were barriers to complete usability and accessibility. To scale-up, it is necessary to address infrastructure, user errors, limitations of the learning platform and cost. Important evidence was collected to support national level scale up of eLearning and a deeper understanding of infrastructure needs and challenges at all levels. This study confirmed the feasibility of using eLearning to supplement educational materials in pre-service education.

Sub-themes

Developing and organizing health information for child and maternal health
Innovations and Health Technologies for child and maternal health

Authors

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Ms Martha Appiagyei, Jhpiego Ghana
Dr Catherine Carr, Jhpiego United States
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Food-based dietary modifications to improve the dietary intake of infants and young children in Ghana

Presenter

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Introduction and Objective

Despite the accelerated implementation of the infant and young child feeding recommendations in Ghana, 64% of children 6-23 months are inappropriately fed and malnutrition is still unacceptably high. Yet infant and young child feeding recommendations still remain global. The objective of this research was to identify a set of evidence-based, population-specific, food-based modifications for infants and young children in farming communities of Ghana.

Methods

Quantitative repeated 24-hour dietary recalls were conducted among 705 caregivers with children 6-23 months in Karaga in northern Ghana (n=338) and Gomoa East in southern Ghana (n=367). Energy and nutrient intakes and their adequacies were assessed using dietary assessment software Compl-eat. Market surveys were conducted to estimate cost per 100 g of each food item consumed by children. Anthropometric measurements were taken according to standard procedures. Optifood analysis was done to identify problem nutrients and food-based modifications needed to close the nutrient gaps. Analyses were done and presented separately for age groups i.e. 6-8, 9-11 (both breastfed) and 12-23 months (breastfed and non-breastfed).

Results

Children consumed a limited number of foods generally in small portion sizes, with a low percentage consuming quality foods such as meat, legumes, red palm oil, fruits, vegetables and dairy. The range of foods and portion sizes consumed by children increased with age. Average energy intake was about 560 kcal resulting in 100% of children not meeting their energy requirements. The Optifood results showed varying degrees to which the gaps of the problem nutrients could be closed. Different food-based modifications were identified depending on the age groups of the children. But, even when adopted fully, there will still be gaps in adequacy for iron, zinc, vitamin A, and for several B-vitamins.

Conclusion

Food-based modifications could improve nutrient adequacy of infants and young children but substantial multiple nutrient gaps will still remain. Alternative approaches extending beyond the use of food items currently included in infant and young child feeding in these populations are needed.

Key words

Optifood analysis, infant and young child feeding, problem nutrients, food-based modifications, dietary modelling

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

Analysis of health and economic benefits of family planning in Ghana

Presenter

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Background

The Government of Ghana has put in place comprehensive and people-centred family planning policies with aspiring targets to reduce the fertility rate and increase access to contraceptives. However, since 2003, the use of modern contraceptives has stagnated, and remains below the target goals set in policy documents.

Methodology

ImpactNow, a new model developed by USAID-funded Health Policy Project (HPP), estimates the near-term health and economic benefits of investments in family planning, as well as resources needed to achieve FP goals. This analysis presents key benefits associated with realizing family planning goals in Ghana.

Results

Meeting Ghana's family planning goals would result in significant social and health benefits for the country. Family planning helps women and couples achieve their desired family sizes, while also reducing the number of high-risk pregnancies that contribute to maternal and child mortality. Increasing the contraceptive prevalence rate in line with the targets set in Ghana's Population Policy and expanding contraceptive choices would avoid unintended pregnancies and save the lives of thousands of women and children. Increasing family planning use, and reducing unintended pregnancies and the unmet need for maternal and child healthcare services, can also result in significant cost savings in the health system in the near term, particularly if the contraceptive prevalence rate was met and method mix shifted somewhat toward long acting and permanent methods, when compared to current trends of family planning use in the country.

Conclusion

Our analysis shows that investment in family planning in Ghana can help women meet their reproductive health intentions in a highly cost-efficient manner. By providing equitable, high-quality family planning services, improved access to information, and voluntary access to a broader choice of family planning methods and services, women and men would be able to achieve their fertility intentions and realize improved health and well-being.

Sub-theme

Financing and provision of social protection for child and maternal health

Authors

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Socioeconomic correlates and the choice of treatment for childhood fevers in Ghana

Presenter & Authors

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Background

In Ghana, 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. These diseases are mostly preceded by fever. Thus, seeking appropriate treatment for the sick child upon noticing the presence of fever is a first step in dealing with these childhood diseases in Ghana.

Objective

The study investigated the effect of household socioeconomic factors on the choice of treatment for childhood fever among children under age five in Ghana.

Methods

Using the Grossman (1972) demand for health care model, the study sourced data from the 2008 Ghana Demographic and Health survey. The study employed the multinomial probit model and considered three treatment choices for the sick child: Government health facility, Private health facility and traditional/self-medication.

Results

The results suggest that the treatment of childhood fever is related to household wealth, health insurance status, birth order of the child and residence. Government health facilities are mostly used by households within the higher wealth quintiles, households with health insurance, and for higher birth orders. The results also indicate that rural households are more likely to use traditional/self-medication, except households with health insurance, who tend to use government health facilities.

Conclusion

The results show the significant impact of socioeconomic status in the choice of health facility for the sick child. Of particular importance is health insurance, which seems to encourage the rural folks to use appropriate health care. Thus, the health insurance policy should be strengthened to encourage enrolment as a means of encouraging the use of appropriate health care for the child and to reducing childhood mortality and morbidity in Ghana.

Sub-theme

Financing and Provision of Social Protection for child and maternal health

Randomized control trial to ascertain impact of behaviour change interventions

Presenter

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Description

In 2012, Ghana Health Service (GHS), in collaboration with UNICEF and other partners, launched the Communication for Development (C4D) project with the goal of increasing awareness and practice of key health behaviours such as exclusive breastfeeding and sleeping with an insecticide-treated net. The C4D strategy uses a multi-pronged approach that includes community radio, live dramas, household visits, and mobile messaging.

Innovations for Poverty Action (IPA) partnered with GHS and UNICEF to conduct a randomized control trial to evaluate the C4D program. In 2012, IPA performed a baseline survey of 4320 mothers with children under 5 across three regions: Northern, Upper East, and Upper West. A randomly-selected half of these households were in villages that received the C4D program. The surveys included questions on each of the 5 key health behaviours, including knowledge, attitudes, and practices. In 2014, a midline survey visited the same respondents and asked similar questions.

The baseline survey indicated a difference between the level of knowledge and level of practice. The majority of respondents knew about the benefits of breastfeeding and the cause of malaria, but 33.8% reported giving their infants water in the first 6 months and just 34.5% reported sleeping under a bed net. The midline results show positive trends for all behaviours, with the most striking being an increase in bed net usage to 66% and an increase of 72% in using soap before eating.

While it is too early to decide whether the C4D program or any particular approach has been effective, there are some promising trends. However, the impact is not yet strong enough in some areas and will encourage extra effort before the endline survey. In this time, implementation and monitoring will be strengthened to effect more change and allow for more detailed analyses on what does and does not work.

Sub-theme

Developing and organizing health information for child and maternal health
Innovations and Health Technologies for child and maternal health

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Predictors of abortions in rural Ghana: a cross-sectional study

Presenter

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Introduction

The complications of unsafe abortions are a major contributor to maternal mortality in sub-Saharan Africa, including Ghana.

Objective

The study explored the influence of socio-demographic characteristics on abortions within 156 communities in the middle part of Ghana.

Methods

A survey on sexual and reproductive health among a representative sample of females aged 15–49 years was conducted in 2011. They were asked about the outcome of pregnancies that occurred between January 2008 and December 2011. Data on their socio-demographic characteristics including household assets were accessed from the database of the KHDSS. The two main outcomes of the study were abortion (induced or spontaneous) and induced abortion respectively.

Results

A total of 3,554 women were interviewed. Of this total, 2,197 women reported on the outcomes of 2,723 pregnancies that occurred over the period.

Unmarried women were more likely to have abortion as compared to married women (aOR = 1.77, 95% CI [1.21-2.58], $p = 0.003$). Women aged 20–29 years were 43% less likely to have abortion in comparison with those within the ages 13–19 years (aOR = 0.57, 95% CI [0.34-0.95], $p = 0.030$). Women with primary, middle/junior high school and at least secondary education had higher odds of having abortion as compared to women without education. Compared with the most poor women, wealthiest women were three-fold likely to have abortion. Unmarried women had higher odds of having induced abortion as compared to married women (aOR = 7.73, 95% CI [2.79-21.44], $p < 0.001$). Women aged 20–29 years, 30–39 years and 40–49 years were less likely to have induced abortion as compared to those 13–19 years of age.

Conclusion

Extra efforts are needed to ensure that family planning services, educational programs on abortion and abortion care reach the target groups identified in this study.

Sub-theme

Service delivery

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Session 3a: Developing and Organising Health Information for Child and Maternal Health

District Health Information Management System2 (DHIMS2)

Presenter

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Introduction

On 1 April 2012 the Ghana Health Service (GHS) deployed a comprehensive web based District Health Information Management System DHIMS2 to all 216 districts in Ghana for use by health facilities and their district, metropolitan and municipal health directorates to collect and analyse routine health service data. This was among the many initiatives taken to address data and information flow difficulty within the Health Service to promote data visibility and eventually improve data quality and data use for decision making.

Methodology

DHIMS2, a free open software, was developed mainly with local capacity, with support from University of Oslo. Currently over 6,000 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 the community levels and input into DHIMS2 online. All service data on maternal and child health are made available online as real-time data, visible to registered managers at all levels. This facilitates evidence-based decision-making at all levels. This makes DHIMS2 a very meaningful resource to the GHS.

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. This forms a strong platform for information exchange, allocation and reallocation of services: a key component for strengthening health systems.

Sub-theme(s)

Developing and organizing health information for child and maternal health
Innovations and Health Technologies for child and maternal health

Authors

Dr Anthony Ofosu, Policy, Planning, Monitoring and Evaluation, Ghana Health Service
Mr Dominic Atweam, Policy, Planning, Monitoring and Evaluation, Ghana Health Service
Dr Erasmus Agongo, Policy, Planning, Monitoring and Evaluation, Ghana Health Service

Child and maternal deaths in Northern Ghana: evidence from the Navrongo Health and Demographic Surveillance System

Presenter

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Introduction

Over the last two and a half decades the Navrongo Health Research Centre has been undertaking research activities particularly in the northern parts of Ghana. The Centre runs a Health and Demographic Surveillance System (HDSS) that monitors vital events including deaths at all ages in its catchment areas. This presentation delineates major causes of child and maternal deaths, the determinants and the changes overtime using data from the HDSS platform.

Methods

The HDSS monitors all persons and involves regular visits to households in the districts every four months to interview household heads. Data on all deaths, live births, morbidity, pregnancies, migrations, vaccinations and verbal autopsies are collected. Field supervisors conduct verbal autopsies (VAs) on all deaths recorded at the household level by interviewing caregivers of the deceased on all that transpired from the time of illness till death. This includes a disease narrative, a checklist of signs and symptoms, using a structured standard verbal autopsy questionnaire. Then three physicians independently review the information to determine the probable causes of death when there is concurrence between at least two of the physicians using the codes of the International Classification of Disease as a guide.

Results

Overall deaths have decreased overtime but significant changes in the causes of maternal and child deaths have not occurred. Major causes of neonatal death included sepsis (30.3%), birth asphyxia (24.0%), and prematurity (17.5%) and that of <5 deaths were malaria (35.6%), diarrhoea diseases (9.9%) and acute respiratory infections (7.7%). The major maternal causes of death were pregnancy with abortive outcome (28.6%), maternal haemorrhage (21.4%), hypertensive disorders of pregnancy (11.9%), puerperal sepsis (7.1%), obstructed labour (2.4%) and other direct maternal causes (28.6%).

Conclusion

The HDSS and the VA techniques provides vital information on the cause of maternal and child deaths in resource poor settings.

Sub-themes

Developing and organizing health information for child and maternal health
Innovations and Health Technologies for child and maternal health

Authors

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Dr John E. Williams, Navrongo Health Research Centre, Ghana
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Dr Evelyn Sakeah, Navrongo Health Research Centre, Ghana
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Improving maternal mortality reporting at the community level with a four-question Modified Reproductive Age Mortality Survey (RAMOS)

Presenter & Author

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Introduction

The use of the full RAMOS at the community level is limited by the baseline educational level of the rural population and the implicit requirement of the survey for some literacy and understanding of the physiological and temporal details of a death. The aim of the present study was to review the experience of the Sene district with the RAMOS to determine whether it identified more maternal deaths and whether it could be shortened to a simpler subset of questions that can identify a community level pregnancy-related death for further investigation. The objective of the study 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 and to determine the most concise subset of questions for identifying a pregnancy-related death for further investigation.

Methods

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. In addition, 4 questions from the full RAMOS have the highest PPV for a maternal death including the question: "Was she pregnant within the last 6 weeks?" which had a 100% PPV and a 100% negative predictive value.

Conclusion

Active identification of maternal mortality at the community level by using a 4-question modified RAMOS that is systematically administered in the local language by health workers can increase understanding of the extent of maternal mortality in rural Ghana.

Sub-theme

Service delivery

Effect of timely initiation of breastfeeding on child health in Ghana

Presenter

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Background

Early initiation of breastfeeding and exclusive breastfeeding practices have been argued to be one of the important ways of ensuring child health. Unfortunately, owing to modernization, most nursing mothers fail to adhere to such practices. This is believed to be a factor contributory to poor child health in Ghana.

Objective

The study investigated the effect of timely initiation of breastfeeding on child health in Ghana.

Methods

Cross sectional data using secondary data based on the positivism approach to research was employed. The Ordinary least squares and the Instrumental variables approach were used in estimating the effect of breastfeeding and other socio-demographic indicators on the health of the child. Data for the study was sourced from the 2008 round of the Ghana Demographic and Health Survey.

Results

The results indicate that timely initiation of breastfeeding, both immediately and hours after birth are important factors that influence the child's health. Additionally, factors such as the wealth of the household, mother's education, age and size of the child at birth and age of the mother are important factors that also influence the health of the child in Ghana.

Conclusion

The findings imply that efforts should be made to encourage appropriate breastfeeding practices among nursing mothers to ensure proper child development and growth in Ghana.

Sub-theme

Organizing health services for child and maternal health

Authors

Mr Eric Arthur, University of Benin, Benin City, Nigeria Worldwide
Ms 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

Presenter

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Objective

To assess AEFI associated with measles-rubella vaccine in Jirapa District and characterize them by person, place and time and to assess sex and age effects on the risk of AEFI associated with measles rubella vaccine.

Method

A risk-interval cohort study was conducted. Children were recruited from five communities in Jirapa District using modified WHO Expanded Programme on Immunization coverage survey guideline. The children were followed for four weeks before and eight weeks after vaccination, for adverse events. An AEFI was defined as any medical incident, which occurred 28 days after vaccination with measles-rubella vaccine. AEFI was serious if it was life-threatening, required intervention and/or hospitalization or resulted in disability, incapacity or death. We calculated the risk of developing AEFI as well as association between age and development of AEFI using relative risk and corresponding 95% confidence interval. Data was analysed using Epi info 3.5.4

Results

Of 350 vaccinees, overall AEFI incidence was 18 (5.1%). Fever and headache accounted for 12 (66.7%) and 3 (16.7%) respectively. Febrile convulsion, skin rashes and pain at injection site accounted for 1 (5.6%) each. Two (11.1%) of AEFI were serious. Three (16.7%) of the AEFI occurred within 24 hours after vaccination while 11 (61.1%) occurred between the first and seventh day after vaccination. Children aged 9 months-3 years were 6.6 times more likely to develop fever than children aged 10-14 years [RR=6.6 (95% CI: 0.83-52.62)].

Conclusion

AEFIs associated with measles-rubella vaccine were few and generally mild. We encouraged the public to accept the vaccine whilst the Ghana Health Service sustained surveillance for AEFI.

Sub-theme

Community ownership, participation and decision systems for child and maternal health

Authors

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Can mobile phone messages to licensed chemical sellers increase prescription of ORS and zinc? A randomized controlled trial in Ghana

Presenter

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Introduction

Zinc supplementation and oral rehydration solution (ORS) are the WHO/UNICEF-recommended standard of care for the treatment of acute diarrhoea in children under five. However, drug sellers often incorrectly prescribe less effective and costlier treatments, including antimicrobials. The Strengthening Health Outcomes through the Private Sector (SHOPS) project worked in three regions in Ghana to train private sector over-the-counter medicine sellers (OTCMS) and shop assistants on diarrhoea management protocols. SHOPS supplemented this training with eight weeks of mobile phone text messages (SMS) sent to a randomly assigned group of trained OTCMS. SHOPS conducted this evaluation to determine to what extent the SMS intervention led to a change in knowledge and provision of appropriate diarrhoea treatment by comparing the prescription behaviour of the OTCMS who received both the messages and training versus those who received only training.

Methods

Using a randomized controlled trial design, we assigned half of the trained OTCMS (n=455) to receive text messages and interactive quizzes related to what they had learned in the training regarding correct treatments. The control group (n=455) did not receive the SMS intervention. We measured self-reported practices via face-to-face provider interviews and used mystery client surveys to assess provider behaviours.

Results

The OTCMS who received the SMS intervention were significantly more likely to report providing appropriate diarrhoea treatment (ORS and zinc) and less likely to report providing antimicrobials. However, the mystery client results showed that actual provider practices were no different between the intervention and control groups. In addition, actual practices deviated substantially from reported practices.

Discussion

SMS message interventions can improve knowledge among OTCMS regarding correct diarrhoea treatment protocols, but additional research is required to identify and address barriers to translating the knowledge into practice and to identify other interventions that may improve providers' behaviours related to correctly managing Paediatric diarrhoea.

Sub-themes

Developing and organizing health information for child and maternal health
Innovations and health technologies for child and maternal health

Authors

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Dr Willa Friedman, University of Houston
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Impact of malaria vaccine candidate RTS,S/AS01 on malaria in African infants and children 18 months post-primary vaccination

Author & Presenter

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This abstract is on behalf of RTS Clinical Trials Partnership

Introduction

New interventions such as malaria vaccines are required to make an impact on the burden of malaria.

Objective

To estimate vaccine efficacy (VE) and the potential public health impact of RTS,S/AS01 malaria vaccine candidate in infants and young children.

Method

The study was a phase 3 trial in 11 centres in Africa. 6537 infants and 8923 children (6-12 weeks and 5-17 months at the time of first vaccination, respectively) were enrolled and received at least one dose of three doses, one month apart, of either RTS,S/AS01 or a comparator vaccine. Malaria was detected by passive case detection. Vaccine impact was calculated as the difference in incidence of malaria between vaccinated and control participants, expressed per 1000 children, during an 18-month follow-up period.

Results

Among children, VE against clinical malaria was 46% [95%CI: 42-50] and significant at all centers (range: 40%-77%). VE was significantly different between centers ($p < 0.001$), but there was no evidence that VE heterogeneity was driven by differences in malaria burden between centers ($p = 0.66$). Among infants, VE against clinical malaria was 27% [95%CI: 20-32]). There was no evidence that VE differed by study center ($p = 0.17$). There was substantial impact of RTS,S/AS01 on the burden of malaria; during the 18-month follow-up period 941 cases of clinical malaria were averted per 1000 children vaccinated (range across centres: 47 to 2356). Although VE among infants was modest, still 444 cases of clinical malaria were averted per 1000 infants vaccinated (range across centers: -12 to 1429). Among both infants and children, the impact of RTS,S/AS01 on the burden of malaria increased with increasing incidence of malaria.

Conclusion

The RTS,S/AS01 malaria vaccine candidate can have a substantial impact on the burden of malaria, especially in areas where the incidence of malaria is high.

Sub-theme

Service delivery

Effect of MenAfriVac meningococcal A vaccine on pregnancy outcome: an assessment performed at the Navrongo Health and Demographic Surveillance (NHDSS) Site in Ghana Meningococcal

Presenter

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Summary

A disease occurs in large epidemics within the ‘meningitis belts’ of Africa. Although it is recommended that pregnant women be vaccinated because women of childbearing age are equally at risk, there has been no formal evaluation of the effect of MenAfriVac vaccine in pregnancy. There was a mass vaccination in Ghana using this vaccine and the Navrongo Health and Demographic Surveillance System (NHDSS) provided a platform and unique opportunity to obtain this assessment. Under the NHDSS, fieldworkers visit all households, numbering about 30,000 in the study area with a population of about 155,000 and register all pregnancies during their four monthly visits. These pregnancies are registered and observed during each visit till termination. Comparison was thus made between the vaccinated and unvaccinated pregnant women based on some key pre-specified outcomes such as pregnancy outcome type (live birth, still birth, miscarriage) birth weight, delivery mode, prematurity and maternal mortality. With respect to this study the population was composed of three cohorts of women: women who received the MenAfriVac vaccine during the national campaign in Ghana in October 2012, women who were pregnant during the vaccination campaign but did not receive vaccine, and a control group of unvaccinated women who were pregnant during the same time period in the prior year. This study was approved by the ethics review committee of the Navrongo Health Research Centre as well as by the WHO ethics review committee. A total of 2651 pregnant women were registered with 1730 immunized with the vaccine. After controlling for some key confounders such as age, education, place of residence of woman, the results showed no significant difference between the two groups of women. In conclusion, the evaluation has revealed no evidence of any safety concerns when this vaccine was used in pregnant women.

Sub-themes

Developing and organizing health information for child and maternal health

Innovations and health technologies for child and maternal health

Authors

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

Community maternal morbidity audits: evidence for an optimal community-based model for reducing maternal mortalities in northern Ghana

Presenter

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Introduction

A community maternal morbidity audit offers insights into the use of alternative care by women who fail to use skilled care. Periodic disseminations of the aggregate remedial causes of maternal morbidities and the survival strategies adopted by women and their families to communities could trigger community initiatives to save the lives of women.

Objective

To determine community leaders response to evidence from community maternal morbidity audits.

Methods

A grounded theory qualitative approach was employed. We conducted 10 focused group discussions with community leaders (chiefs, elders, assemblymen, leaders of women groups) and 16 in-depth interviews with healthcare providers (district directors of health, Medical assistants in-charge of health centres, district public health nurses and midwives). The interviews and discussions were audio recorded, transcribed verbatim and imported into NVivo 10 for content analysis.

Results

For delays in recognising maternal complications, community leaders proposed a family approach to antenatal care. To ensure utilisation of health facilities, they proposed fines on men whose wives deliver at home. For delays in arriving at the health facility, they proposed a community fund to be used to purchase a three wheeled motor bike (motor-king) for transporting referrals and to support poor households to take care of services outside the facility and indirect expenditures such as feeding. To reduce the prevalence of intimate partner violence during pregnancy, they proposed the naming and shaming of perpetrators before a council of elders, relocation of women to a neighbour's compound to starve the perpetrator of the woman's services, fines in the form of livestock and bans on alcoholic beverages such as akpeteshi.

Conclusions

Community maternal morbidity audits generate community-oriented actionable data on the context in which maternal morbidities occur and should therefore be integrated within the health system.

Sub-theme

Community ownership, participation and decision systems for child and maternal health

Authors

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Treating fever in children under five: caregiver perceptions of community health worker services in Dangme West District, Ghana

Presenter

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Background

Integrated community case management of childhood illnesses is a key strategy to help reduce mortality in children under five; particularly those with difficult access to treatment. However the success of such strategies depends on community utilisation of services. This study assessed community utilization, perceptions and related factors of Community Health Worker services.

Methods

Data were gathered from a cross sectional survey among 562 caregivers and focus group discussions among 84 caregivers. Factors related to utilization of Community Health Workers for management of childhood fevers were analysed using logistic regression and focus group discussions to explore caregiver perceptions of Community Health Worker activities.

Results

Utilization of Community Health Workers for management of fever in under-fives was 59.4%. Caregivers who were exposed to the communication intervention were about four times more likely to use the services of the Community Health Worker compared to those who were not exposed (OR=3.79, 95% CI (2.62, 5.49)), (P<0.001). Farmers were 84% more likely to use Community Health Worker services for the sick child with fever compared to those who were unemployed (OR=1.84, 95% CI (1.00, 3.39) (p-value=0.05). Caregiver perceptions of the program were generally positive; most caregivers expressed satisfaction with the Community Health Worker services, citing prompt treatment, friendliness and free medicines. Male involvement in the Community Health Worker program was comparatively low.

Discussion and Conclusion

Dissemination of information among priority groups can enhance utilization of Community Health Worker services. Exploring the perspective of both men and women to gain in depth understanding on their views on male involvement will be useful for planning appropriate strategies to get more males involved in community based child health programs.

Sub-theme

Community ownership, participation and decision systems for child and maternal health

Authors

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Prof L Kay Bartholomew, School of Public Health, University of Texas
Dr Matilda Pappoe, University of Ghana
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The Stillbirth and Neonatal Death Study (SANDS): implications and lessons learned from an interdisciplinary, mixed methods, four-institution collaborative

Presenter

Dr Cheryl Moyer, University of Michigan, United States.
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Background

The Stillbirth and Neonatal Death Study (SANDS) was conducted by the Navrongo Maternal and Newborn Health Consortium, through the Navrongo Health Research Centre to explore the clinical, social and cultural factors that impact the antenatal, intrapartum, and postnatal continuum of health in rural northern Ghana.

Methods

Quantitative data from the Navrongo Health and Demographic Surveillance System in the Upper East Region were combined with newly-conducted in-depth interviews and focus groups with more than 250 community members. Qualitative data were used to contextualize what was being learned quantitatively. This panel will describe not only study findings, but also implications and lessons learned for researchers, policy makers, and programmatic personnel. Findings from ten peer-reviewed manuscripts will be synthesized, with special emphasis on cross-cutting themes.

Results

Quantitative data describe multi-year trends in stillbirth, early neonatal mortality, and neonatal mortality; and qualitative data describe social factors influencing delivery location, recognition of pregnancy danger signs, clean delivery practices, infant nutrition, community perception of infant illness, midwifery maltreatment, and the disconnect between traditional and 'modern' providers when it comes to maternal and child health care provision. Additionally, results related to attitudes toward abortion and grandmothers as gatekeepers to care seeking will be shared.

Discussion

This research covered many facets of maternal and neonatal health, raising critical questions: 1) What are the cross-cutting themes from this study? 2) What are the implications for policy, program, research and clinical personnel? 3) How can these be optimally operationalized? 4) What are the lessons learned in executing this study?

Sub-theme

Community ownership, participation and decision systems for child and maternal health

Authors

Prof Cyril Engmann, PATH Worldwide
Prof Philip Adongo, University of Ghana
Mr Raymond Aborigo, Navrongo Health Research Centre, Ghana
Ms Sarah Rominski, University of Michigan, United States
Dr Cheryl Moyer, University of Michigan, United States

Commonly identified infectious agents and their sensitivity pattern: a threat to the development of children under five years

Presenter

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Introduction

Bacterial resistance to antimicrobials is a threat to the management of childhood infections. This study determined the antimicrobial susceptibility patterns in commonly isolated bloodstream organisms among children below five years of age who attend the Kintampo Municipal Hospital in the Brong-Ahafo Region.

Method

Blood culture isolates from a total of 1,965 children admitted at the children's ward and clinically diagnosed with septicaemia between 2008 and 2013 at the Kintampo Municipal Hospital were used. Bacteria isolates were identified using biochemical reactions. Antimicrobial susceptibility testing was performed using qualitative method and minimum inhibitory concentration for selected positive blood culture isolates.

Results

About 47.5% of participants were males. Their mean age was 24.6 ± 11.9 months. Three hundred and ninety two children had positive blood cultures and 66.6% (261/392) of these were considered pathogens. The predominant isolated organisms were non-typhoidal Salmonellae (NTS) (42.5%), *S. aureus* (38.7%), *S. Typhi* (4.6%) and *S. pneumoniae* (3.8%). Fifty three percent (19/36) NTS, were resistant to amoxicillin, 57.7% (30/52) to ampicillin, 56.3% (45/80) to chloramphenicol and 63.9 % (53/83) to cotrimoxazole.

Sixty-six percent (27/41) of *S. aureus* were resistant to ampicillin, 60.8% (49/74) to cotrimoxazole, 78.9% (41/52) to chloramphenicol, and 60.0% (9/15) to amoxicillin. Multi- drug resistance (resistance to amoxicillin, chloramphenicol and cotrimoxazole) was observed in NTS (65/111, 58.6%), *S. aureus* (64/101, 63.4%).

Conclusion

Non typhoidal Salmonellae and *S. aureus* are the commonest bacteria isolated in the study area. Bacterial resistance to commonly used antibiotics is high. Continuous monitoring of the incidence and susceptibility patterns of these aetiological agents is important.

Sub-theme

Organizing health services for child and maternal health

Authors

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Session 4b: Development Partnership for Child and Maternal Health

Rapidly increasing correct paediatric diarrhoea treatment in Ghana

Presenter

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Introduction

In 2004, the use of zinc and format oral rehydration solutions (ORS) were recommended by WHO/UNICEF to improve case management of diarrhoea in children under five. The Strengthening Health Outcomes through the Private Sector (SHOPS) program developed a program to introduce zinc into the commercial market in Ghana in 2012, which included ensuring supply, training over-the-counter medicine sellers, and supporting a mass media campaign to drive consumer demand for ORS and zinc. SHOPS conducted surveys to measure caregivers' knowledge, attitudes and practices related to diarrhoea management for children aged 6-59 months at two points in time, pre- and post-intervention, in the three SHOPS target regions (Greater Accra, Central, and Western).

Methods

We conducted baseline (n=754) and endline (n=751) household surveys. Eligible caregivers were those with a child aged 6-59 months who had diarrhoea in the two weeks prior to the interview date. All analyses were weighted to account for the multi-stage sampling design. We compared baseline and endline values of key indicators using t-tests and used multivariate regression to estimate the impact of the SHOPS program.

Results

The proportion and number of caregivers who used zinc to treat diarrhoea rose from 1.3 percent at baseline to 35.6 percent at endline, and ORS use also rose from 38 to 65 percent. Antimicrobial use decreased from 66 percent to 38 percent, and antidiarrhoeal use decreased from 10 to 5 percent. Among zinc users, just 34 percent also treated with ORS and gave zinc for the full 10 days recommended. Caregivers who recalled hearing zinc messages were significantly more likely to have used zinc than those who did not recall messages (55 vs. 18 percent).

Discussion

Results indicate that a multi-pronged programmatic approach that targets both health providers and community members can rapidly increase appropriate paediatric diarrhoea treatment and decrease incorrect treatment behaviours.

Sub-theme

Development partnership for child and maternal health

Authors

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Dr Kathryn Banke, Abt. Associates Inc. Worldwide
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Socio-economic and demographic determinants of under-five mortality in rural Northern Ghana

Presenter

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Background

In spite of global decline in under-five mortality, the goal of achieving MDG 4 remains largely unattained in developing countries. To accelerate the pace of mortality decline, proven interventions with high impact need to be implemented to help achieve the goal of drastically reducing childhood mortality. This paper explores the association between socioeconomic and demographic factors and under-five mortality in an impoverished region in rural northern Ghana.

Methods

We used survey data on 3,975 women aged 15-49 who have ever given birth. First, chi-square test was used to test the association of social, economic and demographic characteristics of mothers with the experience of under-five death. Subsequently, we ran a logistic regression model to estimate the relative association of factors that influence childhood mortality after excluding variables that were not significant at bivariate level.

Results

Factors that significantly predict under-five mortality included mothers' educational level, presence of co-wives, age and marital status. Mothers who have achieved primary or junior high school education were 45% less likely to experience under-five death than mothers with no formal education at all (OR =0.55, $p < 0.001$). Monogamous women were 22% less likely to experience under-five deaths than mothers in polygamous marriages (OR=0.78, $p=0.01$). Similarly, mothers who were between the ages of 35 and 49 were about eleven times more likely to experience under-five deaths than those below the age of 20 years (OR=11.44, $p < 0.001$). Also, women who were married had a 27% less likelihood (OR=0.73, $p=0.01$) of experiencing an under-five death than those not married.

Conclusion

Maternal education, age, marital status and presence of co-wives are associated with childhood mortality. The relationship of these indicators with women's autonomy, health seeking behaviour and other factors that affect child survival merit further investigation so that interventions could be designed to foster reductions in child mortality.

Sub-theme(s)

Developing and organizing health information for child and maternal health
Innovations and health technologies for child and maternal health

Authors

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Congenital malaria in newborn twins

Presenter & Author

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Introduction

Congenital malaria, defined as the presence of malaria parasites in the erythrocytes of newborns aged less than 7 days, was considered rare in endemic areas until recent studies started reporting high prevalence rates. Congenital malaria has been documented for many years but it was previously thought to be uncommon especially in indigenous populations. More recent studies, however, suggest that incidence has increased and values between 0.3 to 33% have been observed from both endemic and non-endemic areas.

Objective

This paper documents an episode of congenital malaria in newborn twins in a health facility in Ghana.

Method

Blood samples from a day old newborn twins and their mother were collected and tested for the presence of malaria parasites. A thumb prick of blood film was examined for malaria parasites. A laboratory technologist at the health facility did the microscopy.

Results

The mother was a 28-year-old woman (G2P1A), with 36 weeks gestation who reported to a health facility in Sunyani, on 22nd February 2009 with history of labour pains, without fever. According to the mother, even though she did not sleep in insecticide treated bed net during her pregnancy, she took all the recommended drugs of sulfadoxine/pyrimethamine-intermittent preventive treatment for malaria. A laboratory investigation for the twins and mother was positive for malaria parasites. The twins were treated with quinine and were successfully discharged. The mother was also treated with antimalarial drug and was discharged successfully.

Conclusion

Congenital malaria is real and it is therefore recommended that babies born to mothers with malaria should be screened for congenital malaria. Furthermore, all neonates with unexplained fever should be evaluated for congenital malaria.

Sub-theme

Development partnership for child and maternal health

Determinants of prenatal HIV testing and counselling as a component of quality maternal and child health services among rural women in Ghana: a population based survey

Presenter

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Background

The availability of HIV services in public health settings improve maternal and child health outcomes. In many developing and transition countries, coverage of essential antenatal and perinatal services is high; yet insufficient attention has been paid to improving the quality of services. This study examines the predictive factors associated with receiving HIV testing and counselling services (HTCS) as a component of quality maternal and newborn health care in rural Ghana. This can inform and improve the implementation of HTCS.

Methods

A retrospective cross sectional survey with data generated from longitudinal population-based registers among 1,500 women (15-49 years) using a two-stage random sampling. Multiple logistic regression models were calculated to ascertain sample characteristics and factors associated with receiving HTCS.

Results

Sixty-one percent of mothers received prenatal HIV testing and counselling (HTCS). Descriptive statistics and multiple logistic regression models found that education level increases with receiving HTCS and mother with secondary or higher education were 2.1 times (adjusted OR=2.1; 95% CI: 1.15-3.97) more likely to receive HTCS, compared to mothers with no formal education. Receiving other MNCH essential services such as care or knowledge on nutrition, malaria (intermittent preventive treatment), tetanus toxoid immunization, being in a least poor household ($p=0.019$) as well as having valid NHIS card ($P=0.015$) were all associated with receiving HIV testing and counselling services.

Conclusion

Although efforts have been made in making HTCS part of MNCH care services in Ghana, HTCS coverage among rural women remains unacceptable. There is the need to strengthen the health system in order to ensure universal provision for HTCS among pregnant women especially in rural settings. This will help in the control of HIV/AIDS through PMTCT and ART provision in the era of ending preventable maternal and child deaths.

Sub-theme

Organizing health services for child and maternal health

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POSTER PRESENTATIONS

Assessing vaccination coverage and delays in routine EPI in Kintampo Municipality and Kintampo South District

Presenter

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Introduction

Vaccines have been valuable to the health of society since the 18th century. This was demonstrated by Dr. Edward Jenner who first introduced the smallpox vaccine in 1792. Since then vaccines have been one of the most cost effective measures in improving child health and survival. In 1974, the Expanded Programme on Immunisation (EPI) was started by WHO with the aim of making vaccines accessible to all children for the improvement of child health and survival.

Objective

The aim of this study is to assess the coverage of routine EPI vaccination and delay in time to receiving the vaccination. It also assessed if there was sex differential in the coverage and the delay.

Methods

Cross sectional study nested on the Kintampo Health and Demographic Surveillance System. 5,630 children with date of vaccination were included in the analysis since information of their vaccination status was available.

Results

Coverage for Polio1 and Penta1 exceeded 90.0%. The coverage for Polio3 and Penta3, measles and yellow fever were also between 82.2% and 88.6%. Coverage for Polio0 was however less than 50.0%. 73.9% of children were fully vaccinated. Delay in BCG vaccination was 14.0% and Polio0 was 17.6%. The highest delay was with Polio1 and Penta1 exceeding 46.0%. Delay in measles and yellow fever vaccinations was about 11.0%. The median age for BCG is 17 days and Polio0 is 6 days. The main predictors significantly associated with delay were place of delivery, ANC visits and place of resident. Delay with BCG and Polio0 was 3 times higher if your resident is rural.

Conclusion

This study has demonstrated that in the presence of high vaccination coverage, there is still a significant delay in EPI vaccinations but there is no sex differential in the delay.

Sub-theme

Organizing health services for child and maternal health

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An assessment of the relationship between intermittent preventive treatment (IPTp) coverage and the incidence of malaria in pregnancy in the Greater Accra region of Ghana: a trend analysis from 2011-2013

Presenter

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Background

Malaria is a preventable cause of maternal and infant morbidity and mortality. The current prevention and control strategy includes intermittent preventive treatment (IPTp) using sulfadoxine-pyrimethamine in endemic regions of sub-Saharan Africa. This study assessed the relationship between IPTp coverage and the incidence of malaria in pregnancy in Greater Accra region of Ghana between 2011 and 2013.

Method

Analytical ecological time trend study design was used. The source of the data was the District Health Information System (DHIMS 2) database consisting of records of all pregnant women who utilized antenatal care services in any of the health facilities within the region. Pivot tables and the data visualizer within the DHIMS2 software were used for analysis. Data were exported to Excel for analysis. Descriptive and analytical methods were used.

Results

ANC coverage rose from 79.6% (2011) to 86.9% (2013) with a slight increase in 2012. The proportion of women receiving a minimum of two doses of Intermittent preventive treatment (IPT 2) generally increased over the same period while reported incidence of malaria among pregnant women fell from 7.3% (2011) to 4.7% (2013). A positive correlation was found between IPT coverage and the incidence of malaria among pregnant women in the region. A significant negative correlation was also found between ITN use at second visit and the incidence of malaria among the pregnant women.

Conclusion

An increase in the uptake of IPTp as well as the use of ITNs by pregnant women will lead to a reduction in the incidence of malaria in pregnancy in the region. Effort must be made to scale up IPTp coverage and promote ITN use among pregnant women in the Greater Accra Region.

Sub-theme

Organizing health services for child and maternal health

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Community members' and health workers' perception on antenatal care, skilled delivery and postnatal care services in two rural districts in Ghana: a qualitative study

Presenter

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Background

Many strategies have been implemented by the Ghana Health Service to increase the coverage of antenatal care (ANC), skilled delivery and postnatal care (PNC), yet, uptake of some maternal health services is low. This study explored the perception of community members on the issues that influence women's utilization of ANC, skilled delivery and PNC services in the Shai Osudoku and Ningo Prampram districts of Ghana.

Objective

This study seeks explored the factors that influence uptake of antenatal care, skilled delivery and postnatal care services.

Methods

Information was gathered using in-depth interviews with 10 health workers, 4 traditional birth attendants and 8 focus group discussions comprising of 60 mothers, 59 partners and 53 mothers-in-law. The data was analysed using thematic analysis and triangulation used to validate the information.

Results

Unlike skilled delivery and PNC, community members had positive attitudes towards ANC. Perceptions of healthy pregnancy, safe delivery, professional care and receiving appropriate health education had potential to increase the uptake of ANC, skilled delivery and PNC. Factors that hindered women from these services were access to traditional birth attendants (TBAs), and beliefs about who should attend to one's delivery, minimal male involvement in ANC and PNC, perceived poor attitude of health workers, geographical accessibility and transportation cost.

Conclusion

Accessing care services from pregnancy through delivery is influenced by socio-cultural and economic factors and attitudes of women and health workers. There is the need in formulating vibrant health system interventions to promote patronage of services. Priority should be given to educating women as well as significant others through active promotion of good health seeking behaviour during pregnancy and child birth within communities. Community perceptions should be continuously explored as they can alter and influence the utilization of the available maternal, newborn and child health services.

Sub-theme

Organizing health services for child and maternal health

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A conditional cash transfer programme in Shai-Osudoku & Ningo-Prampram Districts' lessons learnt

Presenter

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Introduction

In 2010, with the goal of improving health status and outcomes; and reducing poverty from catastrophic health expenditure of poor pregnant women and mothers of children under five, a pilot cash transfer Programme was introduced in two rural districts of Ghana. We assessed the effect of Conditional Cash Transfer (CCT) on use of maternal, newborn and child health (MNCH) services among poor pregnant women.

Methods

The study made use of quasi-experimental case control design to evaluate the CCT programme among selected 700 poor pregnant women (beneficiaries) with their respective controls (non-beneficiaries) using socio-demographic information from an existing population-based register. Baseline and Intermediate surveys were conducted in June 2010 and October 2013 - February 2014 respectively. Beneficiaries received monthly transfers in exchange for meeting specific MNCH conditionalities.

Results

Preliminary findings showed that there was a significant difference in the mean number of completed years of schooling. Beneficiaries had 4.2 completed years of schooling compared to 5.4 years for non-beneficiaries. Significantly, beneficiaries (80%) were holders of active NHIS cards compared to 27% of non-beneficiaries. Both beneficiaries and non-beneficiaries had a comparable mean attendance (ranged from 5.4 to 5.6) at antenatal clinic. There was some significant difference (61.7% compared to 51.7%) between non-beneficiaries and beneficiaries in relation to skilled delivery. Compliance with antenatal attendance, attendance at health education sessions, birth registration, immunization and vitamin A supplementation were all over 80% each among beneficiaries.

Conclusion and recommendation

The study preliminary findings have demonstrated that a cash transfer with attached conditionalities is associated with improved health seeking behaviour among mothers and their babies. Continuous independent monitoring and evaluations are necessary in assessing the effect of CCT as financial and political commitment to the programme strengthens.

Sub-theme

Financing and provision of social protection for child and maternal health

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Do the same factors account for four or more antenatal visits and skilled attendants at birth in Ghana?

Presenter

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Background

Maternal mortality remains a global challenge. In Ghana, the maternal mortality ratio was estimated at 380 deaths per 100,000 live births in 2013. Antenatal (ANC) attendance and skilled attendants at birth are proven ways of reducing maternal deaths. Using Continuum of Care situational analysis data from three Health and Demographic Surveillance System (HDSS) sites, this study examines whether the same factors are associated with ANC four and more visits and skilled attendants at birth.

Methods

We used a two-stage random sampling method to select 1500 women with infants (500 from each of the three HDSS sites). Women were selected from each cluster or sub-district using the probability proportional to the size sampling technique. Of these women, 1,497 were used in this data analysis.

Results

Nearly three quarters of the 1,497 women were supervised by a skilled attendant during delivery and 86% of them have had four or more ANC visits. Multivariable analysis revealed that women's wealth, national health insurance, and geographical location were shared predictors of four or more ANC attendance and skilled attendants at birth. Besides, marital status, timing of pregnancy and husband's education were significantly associated with four or more ANC visits and skilled attendants at birth respectively.

Conclusion

Majority of women completed four or more ANC visits and received skilled attendants at birth in the three HDSS sites of Ghana. Many of these women were National Health Insurance card holders who accessed maternal health services free of charge. The common determinants of four or more ANC visits and skilled attendants at birth were wealth, insurance and geographical location.

Sub-theme

Organizing health services for child and maternal health

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Factors influencing adherence to intermittent preventive treatment of malaria in pregnancy in Gushegu, Ghana, 2014

Presenter & Author

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Background

The coverage of at least two doses of Sulphadoxine-Pyrimethamine (SP) in Ghana is below the national target of 80% and that is a threat to reducing the incidence of malaria in pregnancy. Scaling up interventions has proven to reduce malaria incidence. Identifying Client and facility related factors to uptake of IPTp-SP will suggest approaches for improvement.

Methods

A cohort study was used in four Antenatal Clinics (ANCs) in Gushegu. A total of 372 women making first ANC visits were interviewed using questionnaires. The sample for each ANC was proportionate to their average monthly first ANC visits (IPTp1) registration for 2013. Respondents were followed up after thirty days. The outcome of interest was adherence to a second ANC visit (IPTp2). Questionnaires for health workers and ANC observations using a checklist were used. A relative risk analysis was used to evaluate the relationship between exposures and the outcome.

Results

Most, 237 (63.7%) of 372 made IPTp2 visits. At a 95% Confidence Interval, Relative Risk (RR) associations between the independent variables and failure to make an IPTp2 visit were determined. The Age range 35-44 showed: [RR3.8, (2.8-5.8)]. Multiple gravidae and late first ANC visit also showed: [RR2.3, (1.62-3.12)] and [RR1.5, (1.13-1.9)] respectively. Experience of side effects from SP use and making less than three visits during pregnancy showed: [RR1.6, (1.2-2.2)] and [RR1.4, (1.03-1.9)] respectively.

Discussion

Pregnant women in the age range 35-44, those with multiple gravidae and those making late first ANC visit have a greater risk of missing IPTp2 appointments. Also those who experienced side effects from SP use and those who failed to make up to 3 ANC visits in their last pregnancy have a greater risk of missing IPTp2 appointments. Older women who are more likely to have birth experiences have a greater risk of taking inadequate IPTp.

Sub-theme

Organizing health services for child and maternal health

Has the free maternal care policy promoted institutional-based delivery in rural settings? Evidence from a longitudinal population-based register in southern Ghana

Presenter

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Background

The place of delivery plays a significant role in reducing the risk of infant and maternal death. In order to ensure equitable access and acceptable quality of MNCH services for pregnant women in Ghana, the Free Maternal Care Policy in the 2000s was implemented.

Objective

This study investigates the associated factors in the choice of place of delivery among rural pregnant women in the mist of the maternal care policy implementation in Ghana.

Methods

Data source are from the Dodowa Health and Demographic Surveillance System (HDSS); a longitudinal population-based register comprising of 2,017 expectant mothers who delivered in 2011. Statistical methods including percentages, Chi Square test and multiple logistic regression models were used to analysis data.

Results

Nine-seven percent of the expectant mothers accessed Antenatal care (ANC) services with 78.2% attending 4 times or more. Fifty percent had first ANC visit during their first trimester. Two-thirds of the women delivered in a health facility. Associated factors with choice of place of delivery were education level, age and household socioeconomic status. Women with secondary and above education were 2.1 times (adjusted OR=2.1; 95% CI:1.63-2.81) higher to utilize a health facility for delivery relative to those with no education. Older women were 3 times more likely to deliver in a health facility compared with adolescents (< 20 years). Women from least poor households were over 3 times (adjusted OR=3.5; 95% CI: 2.33-5.17) higher to have institutional birth than women from poorest households.

Conclusion and recommendation

This study has demonstrated that non-institutional based delivery continuous to be in existence in rural settings in the mist of the maternal health care policy with the poor and young women (adolescents) being vulnerable. Doubled efforts are needed to improve access to maternal and child health services in fulfilling the health-related MDGs especially in rural communities.

Sub-theme

Organizing health services for child and maternal health

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How the customer-medicine seller dynamic shapes diarrhoea management in Ghana

Presenter

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Introduction

Diarrhoeal disease is highly prevalent among children under five in Ghana, accounting for an estimated 9 percent of childhood deaths. To address this issue the Ghana Health Service adopted WHO/UNICEF guidelines for treatment of acute paediatric diarrhoea with zinc plus format oral rehydration solution (ORS). In 2011 the USAID Strengthening Health Outcomes through the Private Sector (SHOPS) project introduced zinc through private sector channels, including training over-the-counter medicine sellers (OTCMS) who are a key source of diarrhoea treatment in Ghana. In 2014 the SHOPS project designed a qualitative study to explain results from a randomized controlled trial, which showed that OTCMS continue to recommend inappropriate treatments (antibiotics/antidiarrhoeals) for uncomplicated childhood diarrhoea despite demonstrated knowledge of appropriate treatment with ORS and zinc. SHOPS conducted focus group discussions with OTCMS (17 discussions) and their customers (9 discussions) that incorporated an indirect elicitation approach by presenting simulated OTCMS -customer interaction scenarios for discussion. Data were analysed using deductive and inductive coding in NVivo software. Findings led to the design of a model for OTCMS-customer interactions, which showed that factors influencing dispensing outcomes are complex. OTCMS are an accessible, first-line treatment provider, yet lack the status of a clinician and are motivated to maintain their customer base, ultimately leading to a power imbalance favouring customer requests. Moreover, many lack sufficient depth of understanding of why ORS and zinc are recommended, making negotiation with their customers difficult. Behaviour change efforts should address the role of OTCMS- customer dynamics in treatment outcomes. Further, training and marketing efforts should target greater depth of knowledge on pathology of childhood diarrhoea and why ORS and zinc are recommended, and position OTCMS as credible sources of diarrhoea treatment advice. These findings have implications for programs working to close the know-do gap among private providers globally.

Sub-theme

Developing and utilizing human resources for child and maternal health

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Monitoring and evaluating progress towards universal health coverage in Ghana

Presenter

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Introduction

Since independence in 1957, Ghana has explored sustainable ways of attaining the WHO-defined goal of Health for All. Following transition from a completely government-funded system post-independence, to a full cost recovery, out-of-pocket payment system, the government continues to pursue strategies to increase accessibility to health services. The objective of this study was to review Ghana's progress towards achieving Universal Health Coverage (UHC) and how this can be measured.

Methodology

Health reports, Policies, and publications on the health sector in Ghana were reviewed.

Results

Since 2003, the Government of Ghana has been implementing the National Health Insurance Scheme (NHIS) as the main strategy to progressively bridge financial access barriers. The scheme complements the Community-based Health Planning and Services programme the national strategy to progressively reduce geographical access barriers to health services. Ghana uses an elaborate system of periodic health sector reviews at district, regional, and national levels to assess progress on its sector-wide indicators outlined in its National Health Strategy. Routine administrative health service data are enhanced by periodic population-based surveys to generate the indicators needed for monitoring progress. NHIS coverage in 2012 was 34% of the population compared to the target of 70%. Overall, under-five mortality rates have declined by about one-third since 1990. Neonatal mortality rates declined much more slowly, with only a 5% reduction since 2003, while the gaps between the wealthiest and poorest households have widened in recent years.

Conclusions

To achieve UHC, increases in health sector resources should correspond to targeted investments in preventative, curative services and community-based care. In-country monitoring mechanisms and relevant evaluation tools are inadequate. National monitoring and evaluation frameworks should incorporate relevant global-level indicators that will define and track country progress in achieving UHC.

Sub-theme

Organizing health services for child and maternal health

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Paediatric anaemia in rural Ghana: a cross-sectional study of prevalence and risk factors

Presenter

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Introduction

Childhood anaemia is an important cause of morbidity and mortality. It accounts for up to half of malaria deaths in young children. Anaemia caused by iron deficiency has a long-term impact on physical and cognitive development. The aim of our study was to determine the prevalence and severity of anaemia in children <3 years of age in a rural area of Ghana, to assess associated risk factors and to determine the relationship between anaemia and growth parameters.

Method

Univariate and multivariate logistic regression of cross-sectional survey results from 861 children aged <3 years attending routine immunization services in Berekum district.

Results

Anaemia prevalence was 73.1%; most were either mildly (31.2%) or moderately (38.7%) affected. Risk factors for anaemia (haemoglobin < 11.0 g/dl) in multivariate analysis were malaria parasitemia and male sex; these factors and younger age were associated with anaemia severity. A partial defect in glucose-6-phosphate dehydrogenase was associated with decreased severity. Height-for-age, but not weight-for-age, was associated with anaemia and its severity.

Conclusions

Malaria parasitemia was strongly associated with anaemia and its severity, suggesting that malaria control may be the most effective way to reduce the burden of anaemia in rural Ghanaian children.

Sub-theme

Organizing health services for child and maternal health

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Repositioning traditional birth attendants as link providers improves uptake of maternal and child health services in rural Ghana

Presenter & Author

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Introduction

Access to emergency obstetric services in health facilities has been demonstrated to improve health outcomes. However, many women in rural Ghanaian communities are deterred from seeking care at health facilities due to the tradition of home birthing and preference for working with traditional birth attendants (TBAs).

Methods

To increase demand for obstetric services in health facilities, CRS employed a two-pronged strategy centred on the important influence of TBAs. As a part of the USAID-funded maternal and child survival project titled Encouraging Positive Practices for Improving Child Survival (EPPICS) Project in East Mamprusi District (EMD), 480 TBAs working in 240 communities were identified to reposition their roles to become 'Link Providers' to advocate for and ease the transition between home and facility-based care. Link Providers were trained in birth planning and identification of danger signs during home visits. Link Providers would then counsel patients and refer them to facilities for delivery. Simultaneously, adjustments were made at health facilities to increase patient comfort and satisfaction with the delivery experience, including allowing Link Providers, men and other family members to accompany women during deliveries; allowing mothers to choose their preferred delivery position; and facilitating access to traditional foods after delivery.

Results

Since the baseline was completed in 2011, institutional deliveries rose from 43% to 94% (as of December 2014). Mothers have also been shown to increase use of facilities for pre-and postnatal care, with four plus antenatal visit increasing from 47.7% to 63% and postnatal care improving from 32% to 69% during the same time frame. Conclusions: Appropriate adaptation of the role of Link Providers has the potential of making improvements to both supply and demand for formal health facilities for MCH services in rural Ghana.

Sub-theme

Community ownership, participation and decision systems for child and maternal health

Uterine condom tamponade for the management and control of PPH: a landscape review of current use and practices in Ghana

Presenter

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Background

This landscape study assessed the current use and practices with regard to the uterine condom tamponade (UCT) for the control and management of PPH. The study focused on identifying user patterns and practices, challenges and logistics barriers to safe and timely use of the UCT for the control and management of PPH in Ghana.

Method

Data was collected through in-depth interviews with health care providers trained in the use of, or using, the UCT, to assess patterns of use and key challenges to widespread adoption of this intervention for the treatment and management of PPH.

Findings

Providers showed willingness to use UCT. The readily available separate components have to be assembled before use, which requires teamwork. This situation was regarded as a challenge to use in our context where many facilities experience inadequate staff situations. Midwives tended to be reluctant to initiate UCT use and deferred decision to physicians. Physicians tended to engage in self-learning and did not seem to lack confidence in applying the UCT. The selection of providers for training may also contribute to UCT use. UCT-trained providers placed outside the labour ward may not get the opportunity to apply the acquired skills.

Conclusion

Providers regarded UCT as an important addition to the techniques in PPH management. However its current form where providers have to assemble the device from individual components requires teamwork and limits use in human resource constrained settings. A pre-assembled device may facilitate use. Pre-service and in-service trainings would strengthen the skills needed for quick insertion and increase providers' confidence especially for midwives.

Sub-theme

Service delivery

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OTHER SUBMITTED ABSTRACTS

Acceptability of complementary foods that incorporate Moringa leaf powder among Ghanaian infants

It is well recognized that the period between 6-24 months of age is one of the most critical time periods in the growth of the infant. Although several types of interventions can be targeted to this age range (e.g. micronutrient supplementation), a food-based, comprehensive approach may be more effective and sustainable than programmes targeting individual nutrient deficiencies. The objective of the study was to test the acceptability of novel complementary foods that incorporate Moringa leaf powder, advocated as an outstanding indigenous source of both macronutrients and micronutrients. Moringa leaf powder was either used as part of a cereal-legume (maize-soybean) complementary food formulation (MC), or was sprinkled as a food supplement (MS) on infants' usual diets. Participants were infants (N = 34, n=16 for the MS group and n=18 for the MC group) of mean age 10 months, drawn from the Asesewa community in the Eastern Region of Ghana. Infants in the MC group consumed 65g of a porridge made from MC, whilst infants in the MS group consumed maize porridge to which 2.0g of Moringa leaf powder (MS) was added as a supplement. Participants also used their respective MC or MS at home for 14 days. The primary outcome of the study was the daily proportion of the test meal consumed over the 14-day period. During the 14-day period, median percent daily consumption for MS was 86.2%, equivalent to 4.31g of Moringa leaf powder, which is very close to the recommended 5 g per day, while that of MC was 71.2% equivalent to 24.92g which is close to the 35g recommended daily intake for MC. We conclude that complementary foods incorporating Moringa leaf powder either as part of a cereal-legume complementary food formulation (MC), or when sprinkled as a food supplement (MS) on infants' usual diets were well accepted.

Sub-themes

Developing and organizing health information for child and maternal health

Innovations and health technologies for child and maternal health

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Assessing adherence to treatment of diarrhoea using ORS and zinc in a rural district in Ghana

Background

Every year, more than 500,000 children die from diarrhoea and dehydration. Diarrhoea alone accounts for an estimated 9% of childhood deaths worldwide. In Ghana diarrhoea often ranks third in the top ten reportable diseases. Zinc deficiency is a major risk factor for diarrhoea morbidity. The World Health Organization recommends a 10-14 days course of zinc supplementation for children during an acute diarrhoea episode in conjunction with use of low osmolarity ORS. Ghana recently incorporated these recommendations for the management of diarrhoea as part of its Child Health Policy. We undertook an operations research study to pilot test the new combined intervention in order to identify facilitating factors and barriers to caregiver and prescriber compliance before initiating national scale-up.

Objective

To determine the acceptability of and adherence to dispersible zinc tablets as an adjunct to the provision of ORS in the treatment of diarrhoea in children below the age of five years.

Methodology

The study was conducted in the Sene District, a rural district in the Brong Ahafo Region. Dispersible zinc tablets given for 14 days together with low osmolarity ORS were used for the management of diarrhoea in children aged 1 month to 59 months, over 6-month period. Evaluation of compliance of caregivers to the regimen was done at the health facility through exit interviews using a structured data collection tool.

Results

All children received the correct dosage of Zinc for their age. The majority of caregivers “ 87.5% (267/300) adhered to the zinc regimen. Overall adherence to instructions for administering both Zinc and ORS was 84.6% (258/300)

Conclusions/ recommendations

Caregivers' administration of Zinc together with low osmolarity ORS to children 1-59 months who have diarrhoea is both feasible and acceptable and achieved high adherence with the treatment regimen.

Sub-theme

Organizing health services for child and maternal health

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Causes of admissions and outcomes for children under-five at a referral public hospital in Southern Ghana

Background

Morbidity and mortality among children aged less than five years has remained high globally despite significant interventions in many parts of the world. Sub-Saharan Africa has seen slow declines. Current knowledge on the patterns of disease and mortality burden at the institutional levels is critical for health services planning and public health interventions. The main objective of the study was to describe the causes of inpatient admissions and outcomes among children under-5 years admitted at a regional referral hospital between January and June 2014.

Methods

All admissions to the Ridge Regional Hospital, a referral institution located in the capital city of Ghana aged below five years from January to June 2014 were analysed. Patient level data from the District Health Information Management System (DHIMS2) on admissions of under-fives were extracted and cleaned. Data was coded and analysed using MS Excel.

Results

A total of 1,457 entries were retrieved from the DHIMS2 for the period January to June 2014. Neonates formed the majority with a total of 1,118 (76%) admissions while those from the ages 1-11 months were the least admitted with a total of 130 (8.9%). Almost 13% of the admitted patients died. The leading cause of death was Neonatal Asphyxia (88% of deaths). Most of the deaths occurred within 72 hours of admission whereas survival was associated with a length of stay beyond 4 days of admission. The main causes of admissions were Neonatal Asphyxia, Prematurity and Neonatal Sepsis. Other causes of death were Hypoglycaemia (33.3%) and Prematurity (21.1%). Conclusions: Neonatal age and complications are the major cause of morbidity and mortality at Ridge hospital and interventions are needed to address them.

Sub-theme

Developing and organizing health information for child and maternal health
Innovations and health technologies for child and maternal health

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Determinants of place of delivery in predominantly rural communities in Ghana

Background

Maternal and neonatal mortalities remain high in Ghana and sub-Saharan Africa. Both maternal and neonatal health outcomes are known to be improved when skilled personnel provide supervised deliveries within health facilities, as they are most likely to provide needed emergency obstetric and neonatal care. This study explored factors that influenced venues of delivery in predominantly rural communities in Ghana.

Methods

In this cross-sectional study, data were collected from 1,500 women aged 15-49 years with live or still births that occurred between January 2011 and April 2013. The study was within the Health and Demographic Surveillance System (HDSS) catchment area of the Dodowa, Kintampo and Navrongo Health Research Centers in Ghana.

Results

Multivariable logistic regression showed that deliveries were 13 times more likely to happen within health facilities in Navrongo (Upper-East Region) compared to Dodowa (Greater Accra Region), with Kintampo (Brong Ahafo Region) showing no statistically relevant associations. When health providers influenced the decisions about the venue of delivery, women delivered babies 17 times more frequently in health facilities than those that were not. Women with valid health insurance coverage were about two times more likely to deliver in the health facilities than those without valid coverage. The least/less poor (11 times), the less poor (6 times) and the poor (3 times) were more likely to deliver in health facilities than the poorest. Educational attainment, marital status, wanting the pregnancy, religion and ethnic affiliation did not influence venue of delivery.

Conclusion

Healthcare providers influenced decisions on place of delivery. This influence should be leveraged to improve health facility delivery in rural communities.

Sub-theme

Organizing health services for child and maternal health

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District Health Planning and Reporting Tool (DiHPART): a tool for evidence based planning and budgeting at the district level in Ghana, West Africa

Introduction

The Ghana Health Service (GHS) collaborates with various stakeholders to ensure that access to basic essential health care is achieved. It is one of these collaborations that have given rise to the Ghana Essential Health Intervention Project (GEHIP). GEHIP is seeking to address gaps in service delivery and reduce maternal and under five mortality. The identification of the gaps to be addressed was informed by using the WHO six health system building blocks. One of the gaps identified was that planning and budgeting done at the district level did not address the actual needs of the district. A district planning tool District Health Planning Analysis and Reporting Tool (DiHPART) was developed and deployed in four districts for the 2010/2011 planning and Budget cycle

Objective

The objective for developing DiHPART was to give districts a planning tool for allocating health care resources according to burden of disease to facilitate rationale health care planning and decision making at the district level

Methodology

District Health Planning and reporting Tool (DiHPART) is software for planning budgeting and reporting on budgeting performance. As an example of South-South collaboration, Ghana in 2003 started collaborative work with Tanzania to adopt the PlanRep, an integrated planning, budgeting and reporting software used by districts in Tanzania. Through the GEHIP project, GHS adopted and customized the software for use in the GEHIP Project site.

Results

DiHPART links plans and budgets to district's disease intervention profile. It enhances resource allocation and prioritization of budgets at BMC level.

Conclusions

DiHPART is a useful tool for district managers with limited planning skills to better align their plans and budgets to address priority district needs. Further work is needed on it to align it to the new chart of accounts.

Sub-theme

Providing leadership and governance for child and maternal health

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Facilitating financial access to health care services: The National Health Insurance Scheme in Ghana. Do WHO benefits matter?

Introduction

The rationale for the study is to provide information that can be used to address gender associated factors in health insurance enrolment in Ghana.

Objective

The study aims to explore the relationship between male enrolment in the National Health Insurance Scheme (NHIS) and socio-demographic characteristics and health behaviour of these men and their families.

Methods

A cross-sectional analytic study using the Ghana 2008 Demographic and Health Survey (DHS) 2008 couples data set. The national health insurance status of the man was the independent measure in this study.

Analysis

Univariate followed by bivariate and stepwise multivariate modelling was used to identify the socio-demographic and health behaviours that are significantly associated with health insurance status.

Results

After Adjusting for all the factors found to be significantly associated with male enrolment into the National Health Insurance Scheme, the following factors were significantly associated with male enrolment into the insurance, being in the age group 35-59years (OR 2.729 95% CI 1.410 - 5.280 $p=0.003$), being educated (OR 1.434 95% CI 1.0711.920 $p=0.015$) and being classified as wealthy (OR 1.947 95% CI 1.467 - 2.586 $p= 0.000$). The national health insurance status of the male was found to be significantly associated with the following health seeking behaviour of partner after adjusting simultaneously for all the variables: attendance at antenatal care for the last child (OR 95% CI 1.483 - 6.307 $p= 0.002$), place of delivery of last child (OR 0.433 95% CI 0.331 - 0.567 $p= 0.000$), visiting a health facility in the last 12 months (OR 1.491 95% CI 1.127 - 1.974 $p=0.005$) and now using modern family planning methods (OR 1.545 95% CI 1.114 - 2.143 $p= 0.009$).

Conclusion

From the study, male enrolment in the NHIS in Ghana is significantly associated with better health behaviours for themselves and their spouses.

Sub-theme

Financing and provision of social protection for child and maternal health

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Factors affecting motivation, performance and job satisfaction of maternal and neonatal healthcare providers at primary care levels in rural Ghana

Background

Improving maternal and neonatal healthcare providers' motivation, job satisfaction and performance is very important in any health system. However, in Ghana, there is no up to date literature on what actually motivates MNH providers to perform their responsibilities. This study was carried out to unearth factors that affect maternal and neonatal healthcare providers' motivation, job satisfaction and performance in the Kassena Nankana and Builsa districts of northern Ghana.

Methods

We conducted a qualitative exploratory study using in-depth interviews with health providers and policy makers in the Kassena-Nankana and Builsa districts of Northern Ghana. Purposive sampling technique was used to recruit study participants. In all, we conducted 35 interviews. QSR NVivo 9 software was used to code the data. The data was analysed using thematic content analysis.

Results

Factors influencing motivation, job satisfaction and performance were categorized into management styles, patient related factors, and retention schemes. A manager who trains on the job and praises workers for their outputs and efforts was seen as motivating. Patients-related factors motivating health staff included conducting a successful delivery. Factors demotivating health providers were inadequate logistics, lack of appreciation from superiors, unfairness in distribution of social amenities and irregular promotion linked to salary increments. Despite these challenges, participants were generally satisfied with their jobs and were willing to contribute to improving the health system.

Conclusion

The study has provided some unique insights into factors affecting maternal and neonatal health providers' motivation, job satisfaction and performance in the Kassena Nankana and Builsa Districts. A holistic approach could be adopted to address the challenges and concerns highlighted by health providers. A combination of national human resource management measures and performance management tools such as salary, regular supervision, promotion and sound leadership should be strengthened.

Sub-theme

Developing and utilizing human resources for child and maternal health

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Male involvement in antenatal services at Tema General Hospital

Introduction

Research provides evidence that male involvement in maternal health services improves pregnancy outcomes. Though in Ghana, some hospitals have adopted this concept, few men comparatively participate in antenatal services. This study explored the attitude, subjective norms, perceived behavioural control, and behavioural intentions of men involved in antenatal services.

Methods

The study was explorative and descriptive. In-depth interviews using a semi-structured guide were conducted with ten men who participated in antenatal care (ANC) with their spouses at Tema General Hospital. Data was analysed using thematic content analysis and the Theory of Planned Behaviour as an organizing framework.

Findings

The men showed interest in the pregnancy when they knew of it. The positive behaviour of men towards the pregnancy and ANC influenced the well-being of the women and the men experienced these benefits. However, some men perceived pregnancy as a normal condition and ANC as a woman's world. Approval from significant others encouraged male involvement in ANC but employers' permission was a challenge. Service related issues such as disservice of fast services to couples, inadequate infrastructure and the unprofessional attitude of midwives impeded male involvement in ANC. Some men expressed that husband friendly facilities and health education will enhance male involvement.

Discussions

Improvement of service delivery in terms of infrastructure and procedures at the ANC is essential. Societal gender roles may have contributed to men's reluctant participation. Therefore, breaking the silence of gender roles through awareness creation among men will encourage more men to participate in ANC. Stakeholders of health should engage labour unions to grant permission for expectant fathers to be involved in ANC. As a result, policy development on male involvement will be beneficial to improving maternal health in Ghana.

Sub-theme

Community ownership, participation and decision systems for child and maternal health

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Maternal death in rural Ghana: a case investigation in the Upper East region of Ghana

Introduction

Maternal mortality remains a challenge to providing quality maternal and other reproductive healthcare services in Ghana. The occurrence of a maternal death in the Upper East region is a major setback in providing quality maternal care in the region. The purpose of this investigation was to determine the likely cause of the maternal death and to make the necessary recommendations to avoid similar occurrences in future.

Methods

Records of the deceased were reviewed from period of first antenatal care (September 15, 2014) to time of death (February 18, 2015). In-depth interviews with the medical team that managed the case (including two midwives and a physician assistant) as well as a focused group discussion with six relatives of the deceased to provide a richer picture of events leading to her death.

Results

The investigation found delay in seeking medical care and lack of quality care provided by health staff as the main cause of death. Lack of quality care was attributed to inadequate logistics and medical equipment, including laboratory equipment as well as non-adherence of healthcare workers to treatment protocols and standard operating procedures. Delay to seek care was due to inadequate knowledge on the benefits of antenatal care services.

Conclusion

The result of this investigation highlights the weakness of Ghanaian healthcare delivery system to provide quality of care to patients in rural areas. There is the need to invest in strengthening the healthcare delivery system especially in rural Ghana. This should include capacity building of medical staff and making available basic logistics, medical and laboratory equipment to improve the quality of healthcare. The investigation also revealed the need to intensify on maternal health education, especially on the benefits of antenatal care in rural areas.

Sub-theme

Organizing health services for child and maternal health

Authors

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Parental knowledge, attitudes and practices on childhood immunizations: a case study of Tema Metropolis

Introduction

Immunization is one of the most cost-effective health interventions to reduce child mortality, preventing two to three million deaths every year. Yet, many children still die from vaccine preventable diseases. As a result, Ghana, like other sub-Saharan African countries, will not meet the target of the fourth millennium development goal due to insufficient progress.

Objectives

To ascertain the underlying factors of low immunization intake, explore parental knowledge and attitudes regarding child vaccinations.

Methods

Data was gathered from a cross sectional survey among 102 caregivers attending four different health facilities in Tema Metropolis. The questionnaire assessed parental knowledge on childhood diseases, immunizations attitudes, and health seeking behaviour for sick children. Semi-structured interviews were added to complement the findings from the surveys.

Results

All the participants except one indicated they were in favour of vaccinations and 90% of participants believed vaccinations protect their children from childhood diseases. Difficulties with naming childhood diseases and indicating the purpose of vaccinations were observed in the results. The common childhood diseases mentioned were, malaria (37.6%), diarrhoea (34.7%) and measles (26.7%). Some suggested that vaccinations prevent all diseases (62.4%), while others attributed vaccinations to a cure for childhood diseases (63.7%). Data revealed that misconceptions regarding severe side effects were widely prevalent.

Conclusion

The findings showed that parents have a strong positive attitude towards childhood vaccinations but poor knowledge on the purpose of childhood vaccinations and the importance of this preventive method. To enhance the knowledge of parents on immunization programs, there is need to invest in parental education on the topic of childhood vaccinations.

Sub-themes

Developing and organizing health information for child and maternal health

Innovations and health technologies for child and maternal health

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Quality of antenatal and childbirth care in Northern Ghana

Introduction

The QUALMAT project was aimed at improving the quality of antenatal and childbirth care by addressing the existing know-do gap by implementing two interventions; (1) performance-based incentives to increase health workers motivation and (2) a computer-assisted clinical decision support system to help providers comply with standards of care. To demonstrate this, a quality assessment was conducted at all study health facilities in 2010, before the implementation of the QUALMAT interventions, and the same quality assessment was repeated at the end of the QUALMAT project in 2013/2014. Findings of these two assessments were analysed for changes in quality of care.

Methods

Study was an intervention project which was implemented in 12 rural primary health care facilities, six intervention and six non-intervention facilities, that provide ANC and childbirth services. We employed four sets of tools to measure quality of care: (1) health facility surveys, (2) direct observation studies, (3) satisfaction surveys (4) document reviews of patients records and maternal and child health (MCH) registers at the health facilities and districts.

Results

Overall a similar quality of ANC and childbirth care is found pre- and post-intervention and also in the non-intervention study sites. Important gaps in quality of ANC and childbirth care remain. Counselling and health education practices are poor; laboratory investigations are often not performed; examination and monitoring of mother and newborn during childbirth are inadequate; partographs are not or incorrect used. None of the surveyed health facilities performed assisted vaginal delivery meaning that none of the facilities fulfilled all the BEmOC requirements. Also, management of obstetric complications was found to be substandard.

Conclusion

Study results show that the QUALMAT interventions did not have an impact on the quality of ANC and childbirth care provided in the study primary health care facilities.

Sub-theme

Organizing health services for child and maternal health

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Strengths and weaknesses of the 2012 Ghana Health Service Maternal Death Audit Guidelines

Introduction

Pregnancy and childbirth should be times of joy: unfortunately Ghana continues to record huge numbers of preventable maternal and newborn deaths. Maternal death auditing can contribute towards the identification of gaps in service delivery and community factors that can be modified to reduce the delays associated with maternal and newborn morbidity and mortality. The Ghana Health Service (GHS) 2012 maternal death audit guidelines state that all institutional maternal deaths should be reported within 24 hours and audited within 7 days of occurrence. However, despite the availability of the guidelines and training of doctors and midwives there are still maternal deaths, which are not audited according to the guidelines.

Objectives

The objective of the study was to assess the strengths and weaknesses of the 2012 GHS institutional maternal death audit guidelines Methodology The 2012 maternal death audit guidelines document was critically analysed and the strengths and weaknesses assessed based on the GHS Governance structure and the benefits to be derived from death auditing

Findings

Strengths: The guidelines provide a standard way for conducting institutional maternal death audits. Can be used at all levels of health care It covers very key aspects of care of the pregnant woman.

Weaknesses: The responsibility of reporting a maternal death at the facility is given to the head of maternity unit The Nurse Manager of the hospital or his/her representative has the responsibility to chair the audit committee meeting. The Director of the facility does not have a key role in reporting a maternal death.

Conclusion

Despite strengths such as a well-structured GHS guidelines for auditing institutional maternal deaths there are weaknesses such as giving the responsibility of reporting within 24 hours or auditing within 7 days of occurrence to non-managers in variance to the governance structure of the GHS.

Sub-theme

Providing leadership and governance for child and maternal health

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Why do some women persistently prefer traditional birth attendants and domiciliary delivery? A qualitative study on delivery care services in Chirano and Bekwai sub-districts in the Bibiani Anhwiaso Bekwai District of the Western region

Introduction

According to a recent review, around 20-30% of neonatal mortality could be reduced by implementing skilled birth care services. The district recorded a total of 18 maternal deaths from 2008 to 2013. Chirano Health Centre PNC records between 2008 and 2013 show that 76.4% of births were done by TBAs. Actual live births that occurred for the same period at Humjibre clinic, health facilities (located outside the catchment area of Humjibre clinic) and TBAs were 23%, 36% and 41% respectively.

Methods

A qualitative study using FGDs and in-depth interviews was conducted in seven villages of the two sub-districts from February to May 2014. A total of 20 FGDs and 55 in-depth interviews were conducted involving 195 participants.

Results

From 173 participants (155 mothers and 18 fathers) interviewed, 92 (53%) of them used only TBAs throughout their childbirth (out of which 75 (82%) were multigravidas and 17 (18%) being primigravidas). Another 47 (27%) participants who were multigravidas used both skilled and TBAs while the remaining 34 (20%) participants used skilled delivery throughout childbirths. The most paramount factors for the use of TBAs and/or home delivery were (1) the economic and pragmatic reasons, since delivery costs with a midwife at health care facility or clinic were perceived unaffordable, (2) difficult access to health care personnel and facilities, because labour normally occurred at night, (3) fear of surgery and the inconvenience of labour positioning at the health facility, (4) inappropriate attitude of health workers

Discussion

The DHA must urgently review the items requested from expectant mothers and standardize it. An in-service training on interpersonal relations for the midwives could help get more skilled deliveries. Health education strategies are required to increase community awareness about the importance of skilled delivery. The use of CS surgery as a strategy to get women to push should be abolished.

Sub-theme

Community ownership, participation and decision systems for child and maternal health

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‘Your health our concern, our health whose concern?’ Perceptions of injustice in organizational relationships and processes and frontline health worker motivation in Ghana

Introduction

Taking a perspective of frontline health workers as internal clients within health systems, this study explored how perceived injustice in policy and organizational matters influence frontline health worker motivation and the consequent effect on workers’ attitudes and performance in delivering maternal and neonatal health care in public hospitals. It consisted of an ethnographic study in two public hospitals in Southern Ghana. Participant observation, conversation and in-depth interviews were conducted over a 16-month period. Ethical approval and consent were obtained from relevant persons and authorities. Qualitative analysis software NVivo 8 was used for coding and analysis of data. Main themes identified in the analysis form the basis for interpreting and reporting study findings. Findings showed that most workers perceived injustice in distributive, procedural and interactional dimensions at various levels in the health system. At the national policy level this included poor conditions of service. At the hospital level, it included perceived inequity in distribution of incentives, lack of protection and respect for workers. These influenced frontline worker motivation negatively and sometimes led to poor response to client needs. However, intrinsically motivated workers overcame these challenges and responded positively to clients’ health care needs. It is important to recognize and conceptualize frontline workers in health systems as internal clients of the facilities and organizations within which they work. Their quality needs must be adequately met if they are to be highly motivated and supported to provide quality and responsive care to their clients. Meeting these quality needs of internal clients and creating a sense of fairness in governance arrangements between frontline workers, facilities and health system managers is crucial. Consequently, intervention measures such as creating more open door policies, involving frontline workers in decision-making, recognizing their needs and challenges and working together to address them are critical.

Sub-theme

Providing leadership and governance for child and maternal health

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CONCLUDING REMARKS



It is both my pleasure and privilege to offer concluding remarks to this comprehensive documentation of an important and timely National Research Dissemination Symposium 2015. Child and maternal health has seen some considerable improvements in Ghana and these are well received. However preventable deaths will always be unacceptable and as such the elimination of child and maternal preventable deaths continues to be of a high priority status for the Ghanaian Ministry of Health and the Ghana Health Service.

This priority can be seen reflected in the substantive body of research that has been produced by professionals from our Health Research Centres, our universities and our collaborating partner organizations from outside of Ghana. It is gratifying to see in one document the high quality and highly relevant work that is being conducted within the country and also the interest the evidence from this work generates not only amongst the research community themselves but amongst policy makers, educators, health care professionals and managers. These are the very people for whom these findings have currency.

Evidence based policy and practice is one of the commitments of the Ministry of Health, it enables decisions to be made based on up to date knowledge, reflections and experience and technical expertise to ensure the greatest possible impact on the health of our citizens. Change however, as we can all attest to, is not always easy even for us as individuals let alone for organizations. But change we must in order to continue to improve, to be most effective and ensure our efforts and all we do is informed by the best possible evidence. This Symposium has provided us with an excellent platform and timely reminder to appreciate the evidence that is out there and value the excellent contribution our research community makes to the shared task of eliminating preventable child and maternal deaths in Ghana.

Our challenge going forward is to ensure that we are open to change and incorporating these evidence into our policies and practices. Let us embrace this challenge as we go forward to achieve this important goal for Ghana.

A handwritten signature in blue ink, appearing to read 'Anemana', with a horizontal line underneath.

Dr Sylvester Anemana
Chief Director
Ministry of Health
Ghana