

Reducing Maternal and Neonatal Mortality in Secondary level Institutions

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Outline of Presentation

- Introduction
- Introduction of the institutional model for the reduction of maternal and Neonatal mortality.
- The Change package
- Outcomes at Ridge Hospital
- Challenges and the way forwards

Introduction

- Ghana has implemented a lot of interventions to promote access to maternal services (eg Amb service, NHIS, free maternal, scaling up of EmONC etc)
- There is now a changing landscape of greater facility utilization (eg). The question is what happens when the patient gets to the hospital.
- The Impact study:
 - In 2007, the WHO Framework for Action identified “quality of health services” as a key component in improving outcomes.
 - Ghana seems to have placed high emphasis on access without equal measure of attention to **quality of care within institutions.**



GHS-Kybele Institutional Framework of Change

Srofenyoh Int J Gynecol Obstet 2012.

Partnership

Identify systematic challenges	Strengthen leadership	Motivate & empower staff	Improve knowledge & skills	Initiate triage & patient flow processes	Maximize physical workspace	Improve resources & logistics	Improve service quality & clinical standards	Improve communication within & between departments	Facilitate communication & feedback with referral centers	Monitor implementation
Process Map	Personnel-Based Bundles			Systems-Management Bundles			Quality & Communication Bundles			Process Map

Advocacy at all levels
Frequent monitoring visits

OUTPUTS

Appropriate & timely referrals Improved patient surveillance Clinical protocol & guideline use Timely intervention & reduction of delay Improved responsiveness towards patients

SECONDARY OUTCOMES

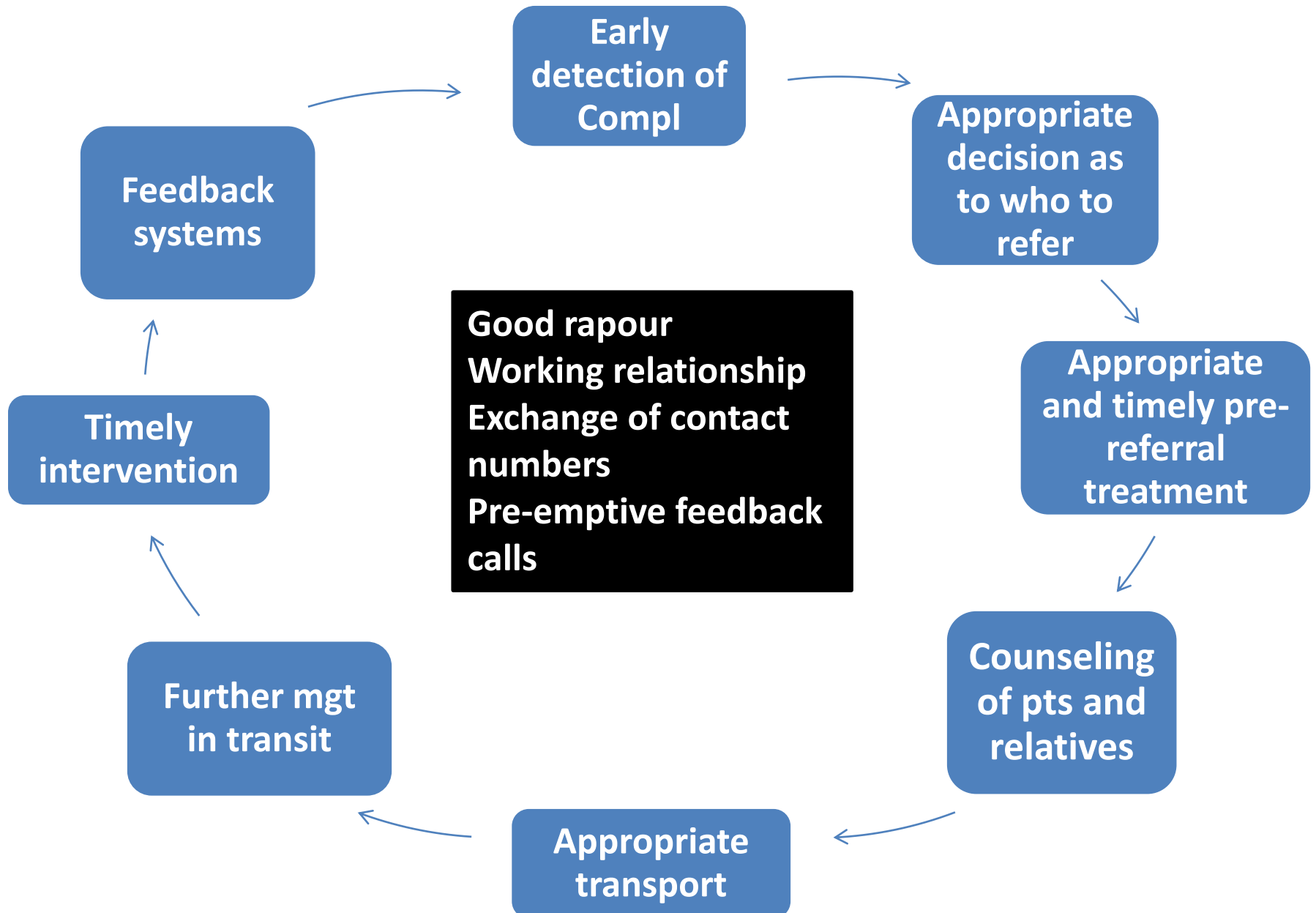
Improve patient satisfaction Improve institutional reputation Produce local trainers & experts

PRIMARY OUTCOME

Reduce maternal & newborn morbidity & mortality

1. Appropriate and timely referrals

Elements of Good referral cycle



Interventions to improve referrals

- Quarterly regional maternal and neonatal conferences
- Collection of relevant data for provision of feedback (data on SB, MM, referral issues)
- Training programs for medical officers from lower level institutions
- Rotational attachment of midwives from lower levels to empower and engender confidence in performing certain procedures
- Creating and sharing of referral guidelines

Demonstration of breech extraction

Small group Tutorials with FGHP official sitting in.



Quarterly conference



2. Improved Patient Surveillance

**Through investment in
appropriate monitoring
equipment**

Examples of improved clinical Surveillance

- Morning report
- Improved Fetal monitoring (Doppler, CTG, & ultrasound)



Kick Chart



Continuous electronic monitoring of sick in HDU



HDU



1. The creation of High dependency unit with continuous electronic monitoring and 24 hr monitoring chart
2. Use of Kick chart for high risk cases (both in patient and outpatient)
3. Promoting the use of latent phase monitoring chart and the partograph initiation at triage before admittance to labour ward.

3. Protocol Driven Care

**The core of our efforts to
improve clinical care
processes**

Institutionalization of Protocol driven care

- Protocols standardize care and empowers young members of clinical teams.
- Many randomized controlled trials have demonstrated improve outcomes when protocols are implemented into clinical care decision making.
- Evidence based protocols were designed for each major clinical conditions
- Protocol hand book was developed and made available to new entrants to the dept

RIDGE REGIONAL HOSPITAL
ACCRA, GHANA

MIDWIVES OBSTETRIC EMERGENCY TRIAGE PROTOCOLS

Materials Developed by
Dr. Emmanuel Srofenyoh, Ridge Regional Hospital

In collaboration with
GHANA HEALTH SERVICE and KYBELE, INC.

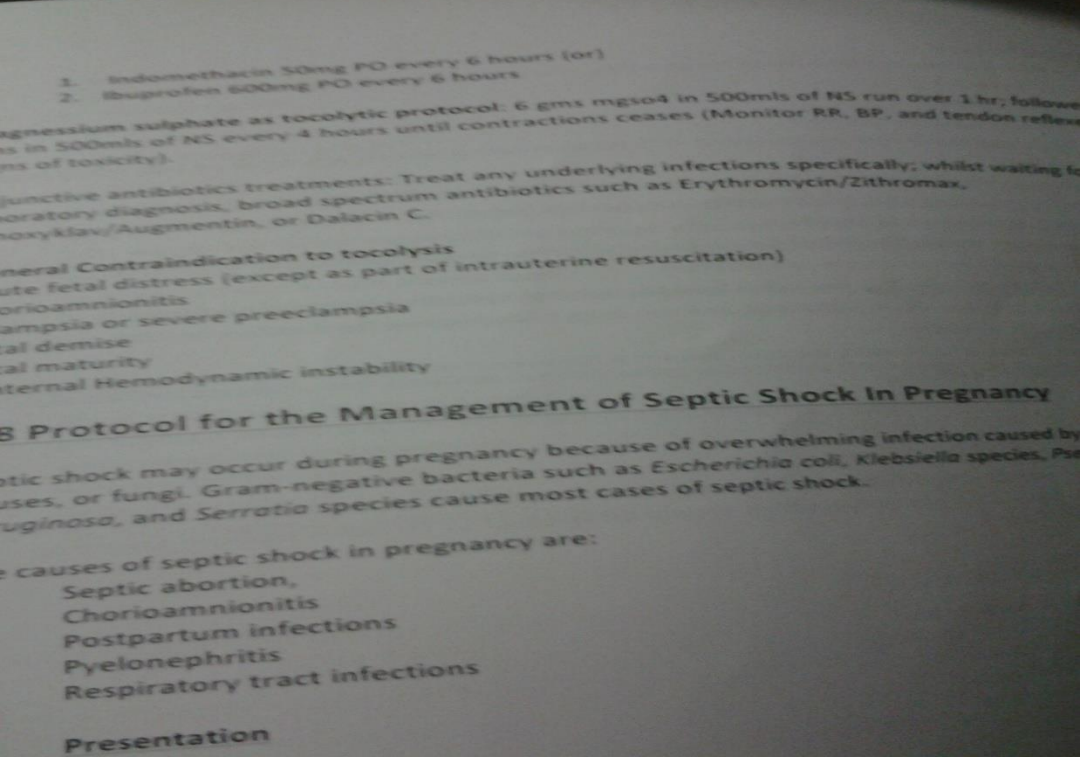


A HAND BOOK FOR
CLINICAL STAFF OF OBSTETRICS

AND

GYNAECOLOGY DEPARTMENT OF
RIDGE REGIONAL HOSPITAL

Protocol Discussion forum



4. Timely intervention

Through the establishment of a system of triage, empowerment of staff and emergency preparedness

Obstetric Triage

Ridge Hospital Triage

- **Primary survey** – identify life-threatening problems, ABC, take vital signs, take history, make a plan.
- **Resuscitation** – deal with identified problems.
- **Secondary survey** – full pregnancy assessment, top-to-toe examination, reassess vital signs.
- **Definitive care** – specific management, carry out the formulated plan.

Triage is useful in Units with high case load, enables prompt care for the seriously ill, and provides fair and equal chance of survival for all

RED	YELLOW	GREEN
Eclampsia/seizure	Sickle cell not in crisis	Generalized complaints
Hemorrhage/heavy vaginal bleeding	Decreased or no fetal movement	Normal labor
Antepartum/postpartum hemorrhage	Multiple pregnancy in labor	
Coma/unconscious	Preterm labor	
Abnormal vital signs	Preterm rupture of membranes	
Sickle cell crisis	Stable/managed hypertension	
2 or more previous c/s in active labor	Previous c/s	
	Diabetic	
	HIV Positive	

THIS IS NOT A COMPREHENSIVE LIST
ASSESSMENT OF THE INDIVIDUAL WOMAN IS ESSENTIAL

Advances in Triage at Ri



ANC triage Point

Emergency Stabilization unit



Labour Triage Nurse



Labour Triage Waiting Area

Achieving A State of Emergency Preparedness

- Staff Empowerment
- Ensuring Sustainable Availability of Emergency drugs
- 24 hr dedicated emergency staff
- A system to facilitate reception of emergencies
- Establishment of trigger systems for call up of seniors.
- Linkage of teams on WhatsApp Platform for rapid communication during emergencies

5. Promoting Responsive Service

**That aspect of service that responds to
non-medical needs of all clients
Is the main factor that provides
satisfaction to clients**

Operational Capacity Building

- **Leadership Development** (Coaching skills, promoting accountability and compassionate care), Creation of leadership Ambassadors, Perinatal Leadership Forum and clinical Champions
- **Quality Improvement** (trained 2 senior members as QI leaders, QI training for Clinical Champions, establishment of QI projects throughout maternal neonatal units of the hospital)
- **Monitoring and Evaluation** (establishment of maternal and neonatal data base)

Examples of QI projects running in the Maternal/Neonatal units

- Improving decision to incision time of CS by improving prioritization of emergencies
- Reducing infectious complications in NICU through hand hygiene
- Reducing infectious complications of labour and delivery
- Project to improve steroid administration for preterm labours
- Successful introduction CPAP in NICU for Respiratory Support (initiated at ridge since 2024)

AIM

Improved IPC processes in order to reduce infectious complications associated with labour and delivery

DRIVERS

Clean Delivery: Hand Washing

Clean Delivery: Clean Surfaces

Clean Delivery: Clean Cord Cutting

Clean Delivery: Clean Perineum

Appropriate/Timely Antibiotics Prophylaxis

IPC Processes Around Newborns

IPC Processes in Theater

Proper Wound Care

Education of Family on Home IPC care

INTERVENTIONS

Ensure availability of Hand sanitizing agents in LW
Discuss hand washing behaviour survey outcome with staff

Ensure all clients coming up to LW has bed mats and clean and ironed cot sheets.

Ensure availability of sterile cord scissors or surgical blades at all times. Promote swabbing of vulva with chlohexidine at least 3 times before each vaginal examination and delivery

Frequent ward discussion on indications for antibiotics prophylaxis in L/D

Prudent mgt of LW emergency stock of antibiotics
All patients reporting in LW to have at least 1 vial of parenteral ABT in their packs

Hand washing/hand sanitizer use/use of sterile gloves to handle newborns

Eye care/cord care

Resuscitation surface cleaned after each use

Skin preparation/timely prophylactic antibiotics use

Education of mother on home care (hand hygiene, baby bathing, cord care)

AIM

DRIVERS

INTERVENTIONS

Reduced incidence of infection in NICU

- Proper Hand Hygiene
- Proper Diaper Change
- Adherence to Visiting Parent Protocol
- Sanitary Suction Machine
- Sanitary/Proper Access of IV Cannula
- Proper Storage of Breast Milk
- Sanitary Bag and Mask
- Minimal and Sanitary Sharing of Cots and Incubators

SANITATION EDUCATION OF NICU STAFF

- Any Ridge employee (every house officer, new staff member of NICU, etc.) who will be working in NICU is required to complete a sanitation training using curriculum developed specific to Ridge NICU
- Infection control reinforcement reminder at each Tuesday all staff meeting
- Visual reminders placed around NICU for infection control measures

ADHERENCE TO CLEANING PROTOCOLS

- Create cleaning protocols for (1) hand washing, (2) suction machinery, (3) feeding equipment, (4) bag and mask
- Train all NICU staff on proper cleaning protocols

ADHERENCE TO CLINICAL CARE PROTOCOLS

- Create clinical care protocols for (1) IV cannula usage/access, (2) breast milk storage, (3) cot sharing, (4) changing of diapers, (5) changing of sheets
- Train all NICU staff on proper clinical care protocols

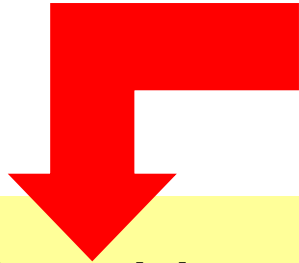
FUNCTIONING EQUIPMENT

- Repair (1) second suction machine in isolation NICU, (2) sink in sluice room
- Purchase (1) replacement refrigerator for breast milk storage (2) replacement tubing for suction machine, (3) additional hand towels, (4) dryer for after hand washing, (5) additional gowns for visiting parents, (6) washing machine for NICU use

ROUTINE AND UNBIASED MONITORING

- Create appropriate processes for monitoring each of these change packages that (1) do NOT over burden staff and (2) that allow for continuous checks (random audits) for compliance with protocols relating to identified infection drivers

Kybele – Ridge Change Package



Pre-training activities

Operational Capacity Building

Leadership Development

Quality Improvement

Monitoring & Evaluation

Baseline data collection – Needs assessment

Baseline observations of clinical care / operations

Determinants of key performance indicators/ clinical champions

Design of module content / training materials

Clinical Capacity Building

Clinical Care Modules

YEAR 1		YEAR 2			YEAR 3	
Triage	Neonatal Resuscitation	Labor & Delivery and Immediate Newborn Care	Neonatal Intensive Care Unit	Theatre and Recovery Room	High Dependency Unit	Obstetric Ultrasound

Post-training Activities

Real time coaching / mentoring

Clinical champions integrated into training teams

Clinical assessment based on performance indicators

Data collection to assess impact

Outcomes

Results: Case Fatality Rates

Year	Total Deliveries	Pre-eclampsia		Hemorrhage	
		Prevalence (%)	Case Fatality Rate (%)	Prevalence (%)	Case Fatality Rate (%)
2007	6049	5.3	3.1	0.8	14.8
2008	7465	7.9	1.3	1.3	5.1
2009	8230	12.1	1.1	3.9	1.9
2010	8133	12.8	1.1	4.2	2.0
2011	9357	14.5	1.1*	5.2	1.6[#]
2012	11032	16.3	1.0	7.2	1.9
2013	7591	16.1	0.6	5.5	2.1
2014	9113	15.5	1.2	6.0	1.8

89% ↓ in hemorrhage mortality; 65% ↓ in pre-eclampsia mortality

#P < 0.05 for 2011 compared to 2007 using Fisher's exact test

Types of hypertensive disorders: 2010. 2011. 2012. 2013. 2014

Type	2010	2011	2012	2013	2014
Imminent Eclampsia	92	114	196	141	235
Eclampsia	175	223	205	113	124
a	(17%)	(16.4%)	(11.4%)	(9.3%)	8.9%
Pre-eclampsia	520	594	836	632	541
Pre-existing HPT	59	87	75	71	75
PIH	185	342	484	264	414
Total	1031	1360	1796	1221	1389

Eclampsia prevalence continue to decline (implies early diagnosis and better mgt of pre-eclampsias)

Comparative analysis of RRH SBs

year	Total del	Ridge Hosp SB	SBR
2012	11032	130	1.2%
2013	7591	72	0.95%
2014	9113	71	0.78%

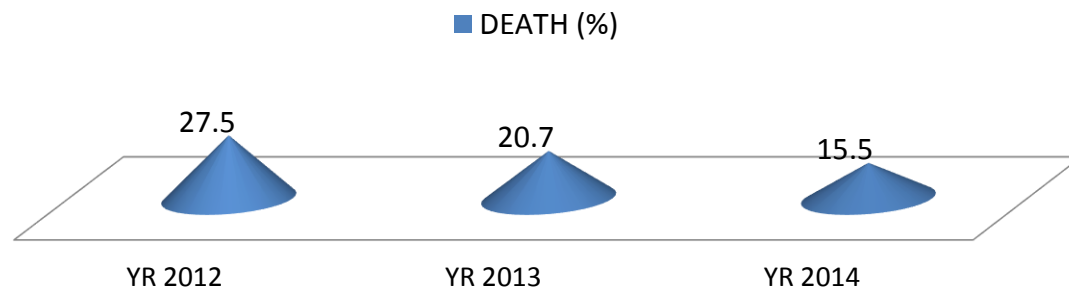
Comparative full yr Analysis of cases referred with no FH (as IUFD)

year	Total del	IUFD	SBR
2012	11032	412	3.7%
2013	7591	272	3.6 %
2014	9113	340	3.7 %

Overall NICU Mortality rate

YEARS	2012	2013	2014
TOTAL DEATH	389	228	202
TOTAL ADMISSION	1412	1102	1305
Crude Mortality Rate	27.5	20.7	15.5

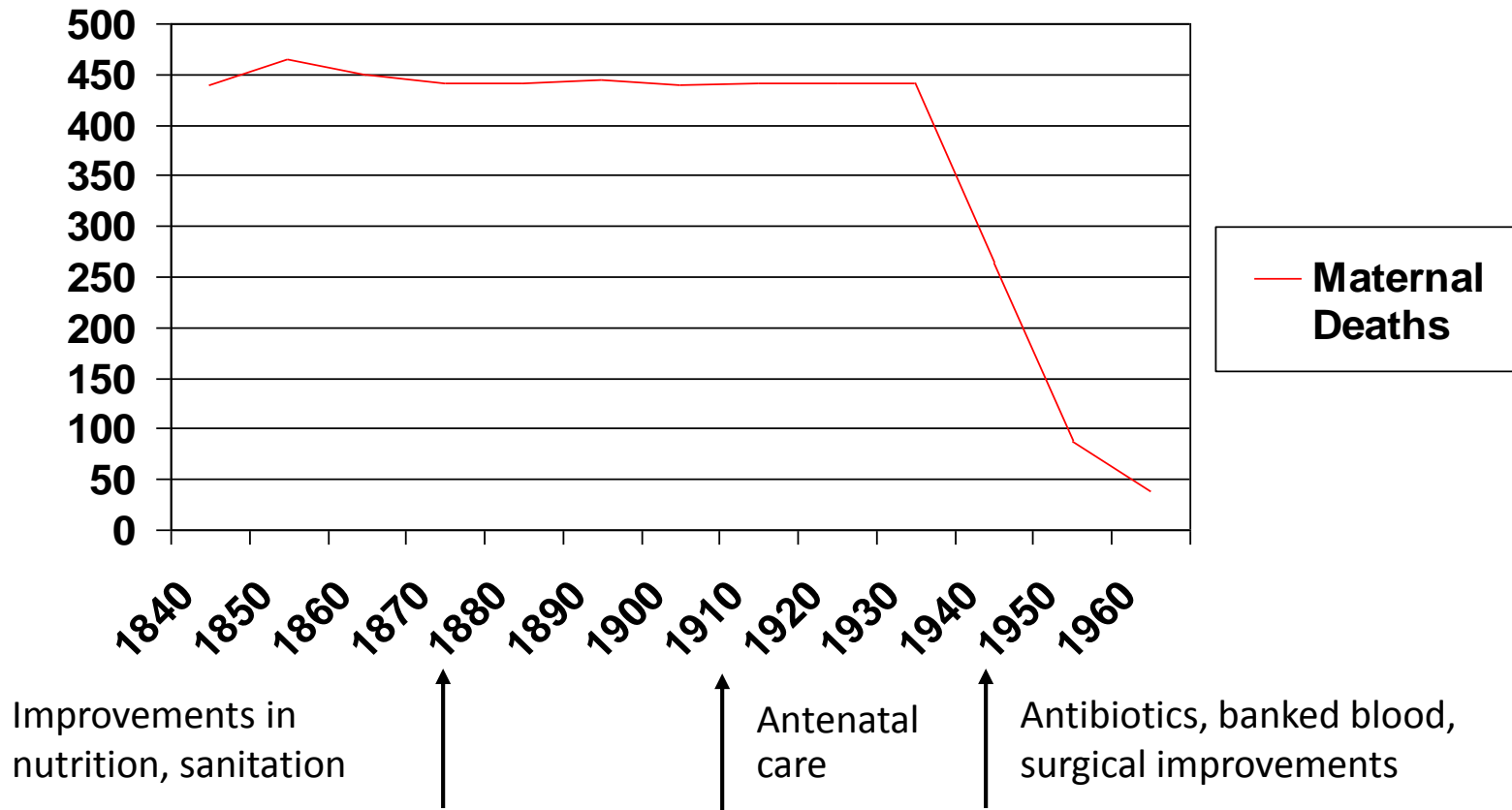
GRAPHICAL REPRESENTATION OF 3 YEARS COMPARISON MORTALITIES
2012-2014



Challenges and Way forwards

- Seasonality of delivery Volume/congestions
- Late referrals E.g. very high no. of cases referred late in the night.
- Inadequate staffing (DOCTORS and Midwives)
- Challenges in the management of emergency drug stocks
- Blood and blood products

Maternal Mortality: UK 1840–1960



Summary and conclusion

- **Maternal and Neonatal Morbidity and Mortality can be reduced by A new theory of Change Management that is comprehensive and encompasses **clinical, Operational and leadership capacity** building in Emergency Obstetric care**
- **There is the need to replicate this approach in all regional and sub-regional centres across the country**

Thank You