



OBSTETRICS IN A RURAL SETTING

Making it safe for Mothers and their Babies

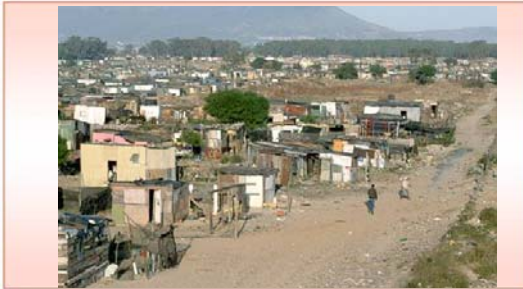
GS Gebhardt

Beaufort West 20 September 2008



What can a rural team do to make motherhood safe (district doctor, midwife, regional MCWH coordinator, clinic sister, hospital superintendent, nursing manager)

How can we give the best service with what we have



- BANC
- PPIP
- PEP
- ESMOE
- Partogram
- CTG
- VBAC
- Maternity case record

What is the problem?



- Increasing patient figures (deliveries)
- Shortage of trained midwives/nursing personnel and doctors, especially in rural areas
- Neonatal care (at all levels)
- Pessimism from colleagues in the service
- Rural patients/personnel do not have many people fighting for their cause

Where do deliveries take place (PGWC)?



Analysis of deliveries 2007

- 45% at district level (midwife only)
- 25-32% at district level (doctor)
- 18-25% at secondary level (specialist)
- 5% at tertiary level (sub-specialist)

Population-based incidence of disease in pregnancy (SA)

- Spontaneous onset of labour <34 weeks: 7%
- Hypertension in pregnancy 7%
 - Severe pre-eclampsia 3.6%
- Twins 1%
- Breech 3%
- Diabetes 1%
- Cardiac disease 1%

Saving Mothers
Confidential Enquiry into Maternal Deaths in South Africa (NCCEMD)
 Includes: Maternal deaths
 Inputs: 1,173 maternal deaths reported in 2004 (2,404 maternal deaths for 2003-2004)
 Frequency: One report for year 1998, and thereafter triennially
 Coordination: National Committee on Confidential Enquiries into Maternal Deaths in the office of the Minister of Health
 Report: www.doh.gov.za/fooi/reports/2004/savingp.pdf

Saving Babies
Perinatal Problem Identification Programme (PPIP)
 Includes: Stillbirths and pre-discharge neonatal deaths
 Inputs: 144 facilities reported information on 4,067 stillbirths and 2,887 neonatal deaths (576,065 births and 21,625 stillbirths for 2003-2005)
 Frequency: Annually 2000-2002, biennial since 2003
 Coordination: Compiled by the submit users and the Medical Research Council (MRC) Unit for Maternal and Infant Healthcare Strategies, with the National Department of Health
 Report: www.ppip.co.za

Saving Children
Child Healthcare Problem Identification Programme (Child PIP)
 Includes: Infants and children (up to 18 years), admitted to paediatric wards
 Inputs: 28 facilities across South Africa provided information on over 18,000 admissions with 4,238 audited deaths over 3 years (January 2005 – January 2008)
 Frequency: Annually since 2004
 Coordination: Compiled by the submit users and the MRC Unit for Maternal and Infant Healthcare Strategies, with the National Department of Health
 Report: www.chip.org.za

A unified call for action (www.chip.org.za)

- Report presents Situation and Solutions for reducing maternal deaths, perinatal morbidity and mortality as well as childhood deaths
- Despite good coverage of services, and extensive availability of protocols; we have poor outcomes. This paradox is explained by our poor quality of care.
- Quality of care is dependent on having adequate facilities (equipment, laboratory and medication) and skilled staff.
- Staff shortages is our single biggest issue in obstetric and neonatal care

Why do mothers die?

- Non-pregnancy related sepsis (HIV)
- Hypertension in pregnancy (eclampsia, pre-eclampsia)
- Bleeding: antepartum (abruptio) and postpartum bleeding
- Post partum sepsis
- Anaesthetic deaths

Health worker orientated problems at level 1

Description	% of deaths	Avoidable factor at level 1
Delay in referring	11.2%	73.8%
Incorrect diagnosis	7.2%	47.3%
Substandard management	27.8%	41.2%
Prolonged abnormal monitoring without action	7.2%	45.5%
Problem with recognition	23.1%	47.2%

Why do mothers die?

- Question is not “why do mothers die?” anymore, but “why are we not doing anything about it?”
- Rural doctor- obstetric management often limited to crisis management and not planning, organising, prevention.

What can we do?

- GOOD ANTENATAL CARE
- PROBLEM IDENTIFICATION IN TIME
- SKILLED INTRA-PARTUM CARE
- ADEQUATE MANAGEMENT OF EMERGENCIES
- HIV CARE

Systemic Inflammatory Response Syndrome (SIRS)

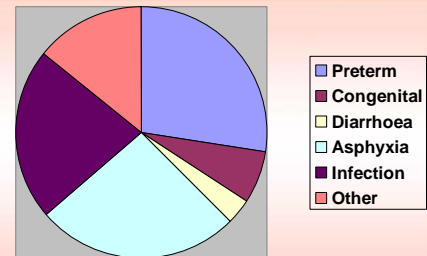
2 or more of the following:

- Temperature $>38^{\circ}\text{C}$ or $<36^{\circ}\text{C}$
- Pulse > 90 beats per minute
- Respiratory rate > 20 per minute or a PaCO_2 of $< 32\text{mm Hg}$
- White blood cells $> 12\ 000/\text{mm}^3$ or $< 4\ 000/\text{mm}^3$ or $>10\%$ immature forms

Postpartum sepsis

- SIRS due suspected or confirmed infection
 - 22% of direct deaths
 - 26% happened at district level
 - Not a sudden event (like bleeding)
 - Most cases after Caesarean section for poor progress, and mostly due to septic shock
- Septic shock: Sepsis induced hypotension despite adequate fluid resuscitation (=hysterectomy and ICU!)

Causes of newborn deaths- Western Cape



What can we do?

- | | |
|--------------------------|---|
| • Prematurity | • Hypoxia |
| – Basic Antenatal Care | – Staffing norms |
| – Problem identification | – Correct use of partogram |
| – Transport | – Recognition of intrapartum fetal distress |

Evidence based interventions that save lives

- BEFORE PREGNANCY
 - Nutrition promotion
 - Prevention and management of HIV and STI
 - Family planning
- DURING PREGNANCY
 - Focused antenatal care: STI, PMTCT, management of pre-eclampsia
 - Birth and emergency preparedness

Evidence based interventions that save lives

- **CHILDBIRTH CARE**
 - Skilled attendance at birth
 - Emergency obstetric care
 - Improved linkage between home and facility
 - Companion of women's choice at birth

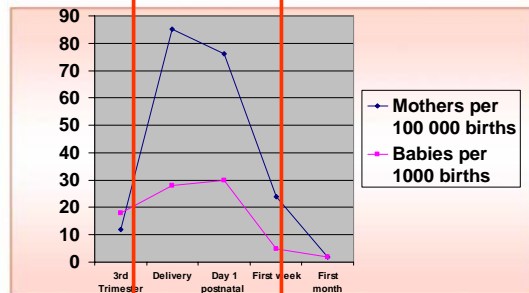
Evidence based interventions that save lives

- **POSTNATAL CARE**
 - Routine postnatal care
 - Mother: promotion of healthy behaviour, recognition of danger signs, family planning
 - Baby: hygiene, warmth, breastfeeding, eye prophylaxis, immunisations
 - Extra care for small babies or babies with other problems
 - Early and exclusive breastfeeding

Evidence based interventions that save lives

- **INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS**
 - Management of low birth weight babies including Kangaroo Mother Care
 - Emergency newborn care for illness, especially sepsis

Timing of obstetric deaths- Western Cape




Summary from PPIP meeting at district hospital X: near-misses (avoidable morbidity)- personnel related

- Oxytocin used in a multi-gravida patient to augment contractions
- Fetal distress not detected on CTG (fetus monitored)
- Patient on Oxytocin not monitored with continuous CTG
- RPR/Rh tests not noted on antenatal card
- No partogram used during labour
- Patient discharged post-partum with uncontrolled hypertension
- Patient with miscarriage/dead baby discharged without syphilis result known (test positive)
- HIV positive patient- CD 4 count not done, HAART not started
- Oxytocin not stopped with development of fetal distress

Oxytocin


- **The single most dangerous procedure any doctor can do to a pregnant women is induction or augmentation of labour, and the single most dangerous drug that can be given to a pregnant women is oxytocin**
- →use with care and according to standard protocol

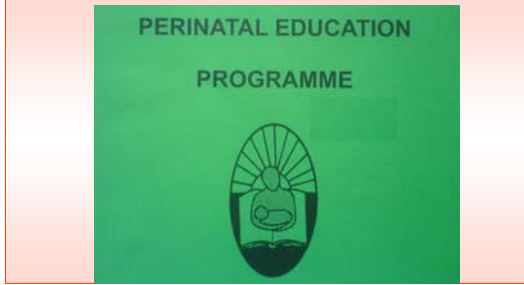
PROTOCOLS AND GUIDELINES






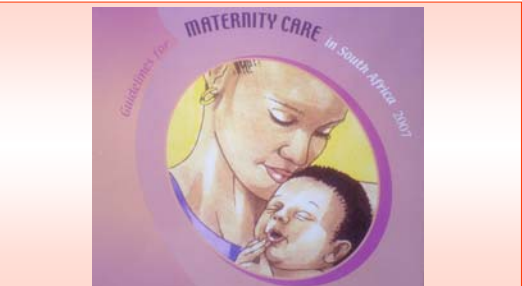
PROTOCOLS AND GUIDELINES






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PROTOCOLS AND GUIDELINES



PGWC:


- Evidence-based guidelines for the most common problems as identified by saving Mothers
- BANC protocols adapted for use
- Provincial Partogram and Antenatal card
- District doctor protocols
- Provincial policy on levels of care

BANC



Obstetric History	No	Yes
1. Previous stillbirth or neonatal loss?	<input type="checkbox"/>	<input type="checkbox"/>
2. History of 3 or more consecutive spontaneous abortions	<input type="checkbox"/>	<input type="checkbox"/>
3. Birth weight of last baby < 2500g?	<input type="checkbox"/>	<input type="checkbox"/>
4. Birth weight of last baby > 4500g?	<input type="checkbox"/>	<input type="checkbox"/>
5. Last pregnancy: hospital admission for hypertension or pre-eclampsia/eclampsia?	<input type="checkbox"/>	<input type="checkbox"/>
6. Previous surgery on reproductive tract <small>(Caesarean section, myomectomy, cone biopsy, cervical cerclage)</small>	<input type="checkbox"/>	<input type="checkbox"/>
Current pregnancy		
7. Diagnosed or suspected multiple pregnancy	<input type="checkbox"/>	<input type="checkbox"/>
8. Age < 16 years	<input type="checkbox"/>	<input type="checkbox"/>
9. Age > 37 years	<input type="checkbox"/>	<input type="checkbox"/>
10. Isoimmunisation Rh (-) in current or previous pregnancy	<input type="checkbox"/>	<input type="checkbox"/>
11. Vaginal bleeding	<input type="checkbox"/>	<input type="checkbox"/>

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BANC

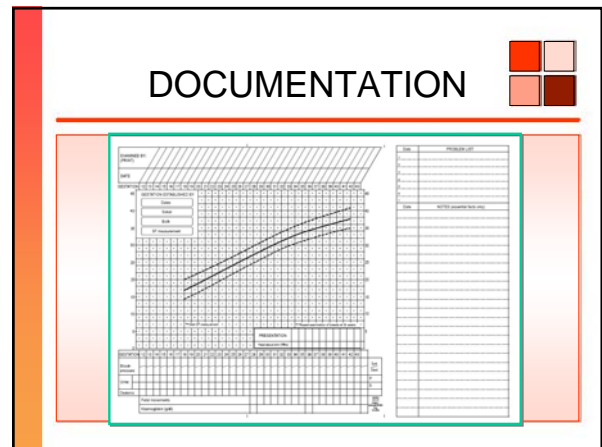
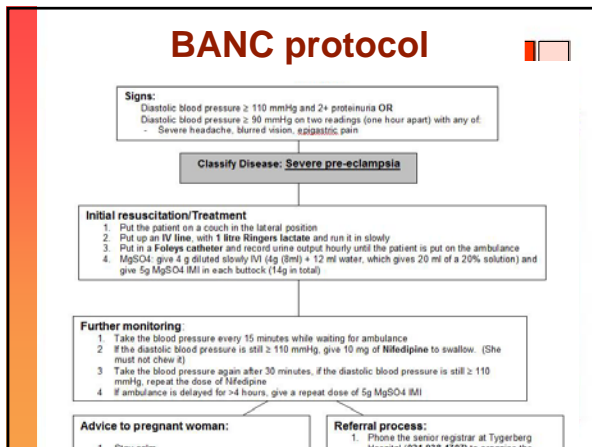
Obstetric History	No	Yes
1. Previous stillbirth or neonatal loss?	✓	
2. History of 3 or more consecutive spontaneous abortions	✓	
3. Birth weight of last baby < 2500g?	✓	
4. Birth weight of last baby > 4500g?	✓	
5. Last pregnancy: hospital admission for hypertension or pre-eclampsia/eclampsia?		✓
6. Previous surgery on reproductive tract (Caesarean section, myomectomy, cone biopsy, cervical cerclage)		

→Refer to a doctor

Current pregnancy	No	Yes
7. Diagnosed or suspected multiple pregnancy		
8. Age < 16 years		
9. Age > 37 years		
10. Immunisation Rh (-) in current or previous pregnancy		
11. Vaginal bleeding		

BANC

Approximate Gestational Age (in weeks)	(<12)	(20)	(28)	(34)	(38)
Classifying form which indicates eligibility for BANC					
History taken					
Clinical examination					
Estimated date of delivery calculated and noted on antenatal card					
Blood pressure taken					
Maternal height/weight and BMI					
Haemoglobin test					
Rapid syphilis test performed					
Urine tested					
Rapid Rh performed					
Counselled and voluntary testing for HIV					
Iron and folate supplementation provided					
Information for emergencies given					
Antenatal card completed and given to women					
Clinical examination for anaemia					
Urine test for protein and glucose					
Weight (SF) measured for excessive growth (?twins) or poor growth (IUGR)					



Level of care

- Management of a patient at the correct level of care appropriate for her condition
- Referral to specialised care in time; can skip a level if severe (e.g. district hospital with comatose patient after eclampsia-direct referral to tertiary hospital)

LOW RISK- book at BANC (Basic Antenatal Care) clinic

Delivery take place at the DISTRICT HOSPITAL.

- Antenatal Care rendered by REGISTERED NURSES, PRIMARY HEALTHCARE SISTERS, BANC SISTERS, or MIDWIVES
- Delivery managed by a midwife

ALL HEALTHY PREGNANT WOMEN, PARITY 4 OR LESS, FROM 16 YEARS OF AGE UP TO 37 YEARS OF AGE AT BOOKING.

LOW RISK- book at BANC (Basic Antenatal Care) clinic
Delivery take place at the DISTRICT HOSPITAL.



The following patients remain LOW RISK:

- Age 37-41 if genetic screening/detail sonar normal
- Alcohol misuse
- Asthma- good control and not on prednisone treatment
- Previous Caesarean section (up to 36 weeks)
- Family history of diabetes
- Glucosuria with normal glucose levels
- HIV positive and otherwise healthy, with CD 4 <250 and on HAART, when ARV clinic nearby
- HIV positive, with CD 4 count 250 or more (START WITH PMTCT at 28 weeks or refer to nearest PMTCT site)

Shared care
“district doctor’s clinic”



INTERMEDIATE RISK
(EXPERIENCED MIDWIFE, PRIMARY HEALTH CARE SISTER, INTERN, COSMO, MEDICAL OFFICER, GENERAL PRACTITIONER, FAMILY PHYSICIAN SPECIALIST; at a LEVEL 1 DISTRICT HOSPITAL)

Women are referred from primary care to a doctor/advanced midwife at the district hospital as per protocol, but can be referred back for antenatal care to the clinic once the problem is sorted out, to deliver at level 1 (district hospital)

Shared care
“district doctor’s clinic”



- Age 37-41 years (if genetic screening/detail sonar normal)
- Age 15 years or less
- Anaemia (Hb 8- <10g/dl)
- Asthma on prednisone or with poor control
- Contact with rubella (can go back to low-risk clinic once sorted out)
- Diabetes in previous pregnancy (if blood glucose normal in this pregnancy)
- Epilepsy
- Gravidity 6 or more (have delivered 5 term infants before)
- Previous Caesarean section (ONLY from 36 weeks ONWARDS)
- Previous midtrimester miscarriage (reclassify as BANC after 34 weeks)

High risk clinic at a secondary hospital



- (SENIOR MEDICAL OFFICER, REGISTRAR, CONSULTANT)**
- Age 42 years or older (if genetic screening/detail sonar normal)
 - All diabetic patients (When pharmacologically treated, if feasible, preferably at level 3)
 - All uncomplicated twin pregnancies (if monochorionic at level 3)
 - Anaemia (Hb <8g/dl)
 - Anti-thrombotic therapy (warfarin, heparin etc) (initial workup at level 3)
 - Auto-immune diseases (initial workup at level 3)
 - BMI (Body Mass Index) ≥40-49
 - Cervical incompetence (initial workup and cervical cerclage)
 - Congenital abnormalities on sonar (initial workup at level 3)
 - HIV positive with severe co-morbidity

Sub specialist outpatients



- Myasthenia gravis in pregnancy
- Auto-immune diseases
- BMI ≥50
- Epilepsy- poor control
- Asthma (or other severe lung disease) with poor lung function
- All patients with cardiac lesions (initial workup)
- Two or more previous abruptio placentae
- All patients with endocrine disease in pregnancy (initial workup)

Obstetric ultrasound at district level



- Determine intra-uterine pregnancy
- Placental location
- Basic gestational age scan (not fetal detail)
- Diagnose intra-uterine death
- Diagnose retained products
- Diagnose breech and twins
- Determine amniotic fluid volume

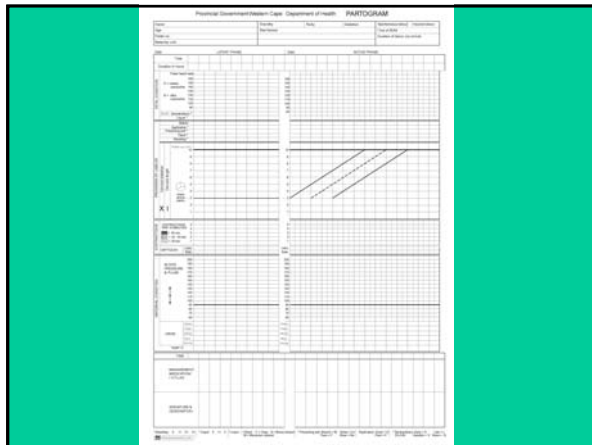
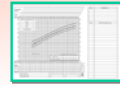
DOCUMENTATION



DOCUMENTATION



When a pregnant patient is transferred from one level of care to the next (or back), the case notes (including the partogram if in labour) as well as the antenatal card MUST accompany the patient. All relevant notes should be written in here and not on prescription charts or loose pieces of paper.

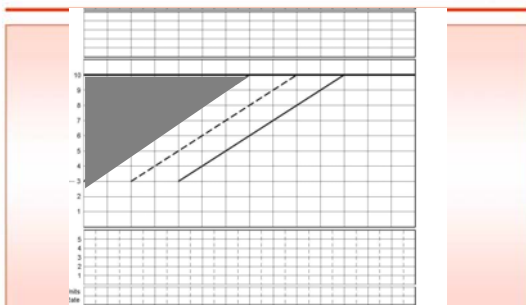


Active phase

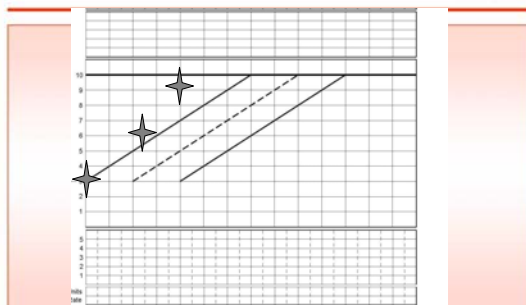


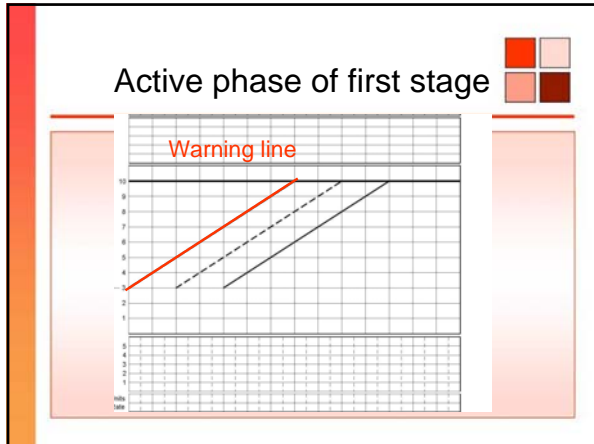
- Cervical dilatation at least 1 cm per hour
- Usually 1.5 cm per hour (multigravidae) or 1.2 cm per hour (primigravidae)

Active phase of first stage



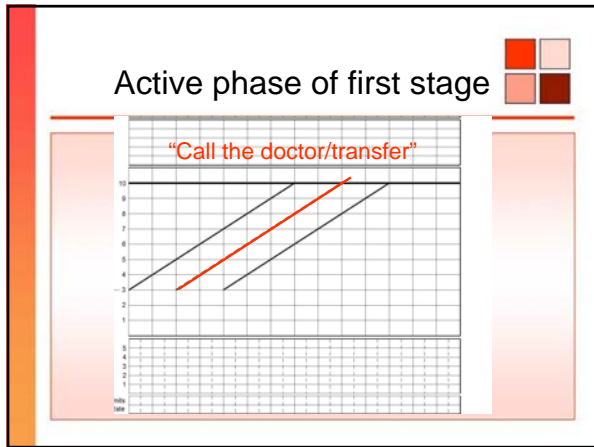
Active phase of first stage





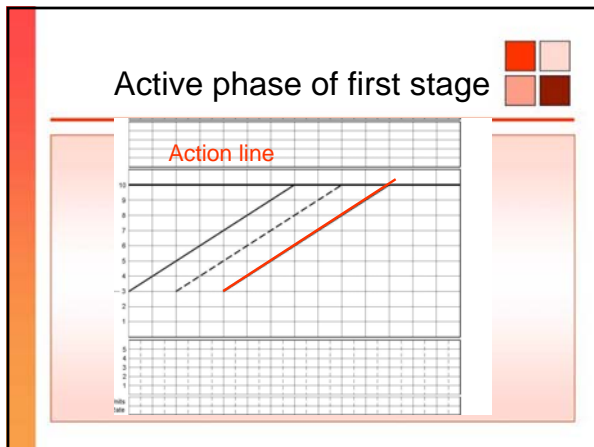
WARNING LINE

- ANY PATIENT THAT CROSSES THE WARNING LINE MUST BE EXAMINED FOR REASONS OF POOR PROGRESS AND REASONS MUST BE ADDRESSED



TRANSFER LINE

- ANY PATIENT THAT CROSSES THE TRANSFER LINE MUST BE EVALUATED BY A DOCTOR OR TRANSFERRED TO A NEXT LEVEL OF CARE (with theater facilities)
- APPROPRIATE NOTES MUST BE MADE IN THE PATIENTS FOLDER



ACTION LINE

- ANY PATIENT THAT CROSSES THE ACTION LINE MUST BE DELIVERED AS SOON AS POSSIBLE
- A DOCTOR MUST EVALUATE THIS PATIENT

Provincial Government Western Cape: Department of Health PARTOGRAM

Name: _____ Sex: _____ Parity: _____ Gestation: _____ Spontaneous labour: _____ Induced labour: _____
 Age: _____ Risk factors: _____ Type of HCM: _____
 Fetal no.: _____ Duration of labour (on arrival): _____
 Maternity Unit: _____

Date: _____ LATENT PHASE Date: _____ ACTIVE PHASE

Time: _____

Duration in hours: _____

Fetal heart rate: _____

Q = pulse contraction _____
 X = after contraction _____

100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540 560 580 600 620 640 660 680 700 720 740 760 780 800 820 840 860 880 900 920 940 960 980 1000

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PROGRESS OF LABOUR
 Cervical dilation _____
 Cervical length _____

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

X I

Descent of the fetal head

- Abdominal examination
- If head does not descent, but there is dilatation of cervix and improvement in the stage of the head, there may be cephalo pelvic disproportion with caput
- If 2/5 or less HAB, disproportion at pelvic inlet has been excluded

Intrapartum fetal monitoring

- **Low risk patient- CTG not needed.**
 - Latent phase- listen every two hours
 - Active phase- listen every hour (every half hour if possible)
 - During labour- before and after every second bearing down effort! (every 10 minutes)

Intrapartum fetal monitoring

- Every district hospital must have fetal monitoring (CTG) available
- Doctors and midwives must be able to interpret fetal heart rate patterns
- Indications for use:
 - Decelerations as diagnosed with auscultation
 - Oxytocin administration
 - Previous caesarean section (VBAC)
 - All patients with hypertension or pre-eclampsia
 - Any vaginal bleeding during labour
 - Meconium in the liquor
 - Breech delivery
 - Poor progress in labour
 - Any high risk patient (while waiting for ambulance)

ESMOE

- Developed from Royal College and adapted to South African standards
- "Essential steps in the management of Obstetrical emergencies"
- 12 modules consisting of a short lecture and then hands-on skills training (manikins) and simulated patient scenarios
- Maternal resuscitation, neonatal resuscitation, Sepsis, Abortion, HIV, Partogram, Surgical Skills, Haemorrhage, Eclampsia, Assisted delivery, Obstructed labour, Obstetric emergencies

ESMOE- PGWC

- Master trainers at all secondary hospitals
- Need money to buy manikins (R 50 000)
- Train interns and COSMO doctors at base hospital
- Train Family Physician registrars to be master trainers
- Upskill MO's at district hospitals as part of outreach activities



ESMOE guideline- Caesarean section



SECTION 1	PRE-OPERATIVE PREPARATION
SECTION 2	ABDOMINAL WALL INCISION
SECTION 3	PUSHING THE BLADDER DOWN
SECTION 4	ENTERING THE UTERUS
SECTION 5	DELIVERY OF THE BABY
SECTION 6	CLOSING THE UTERUS
SECTION 7	CLOSURE OF THE ABDOMEN
SECTION 8	REPEAT CS
SECTION 9	CLASSICAL CS AND CS WITH FIBROIDS
SECTION 10	POST-OPERATIVE ORDERS
SECTION 11	URINARY TRACT INJURIES
SECTION 12	PARALYTIC ILEUS
SECTION 13	WOUND INFECTIONS AND DEHISCENCE
SECTION 14	ELECTIVE CS
SECTION 15	CS RATES
SECTION 16	DEALING WITH BLEEDING AT CS
SECTION 17	CS FOR PLACENTA PRAEVIA
SECTION 18	CS FOR TRANSVERSE LIE

Caesarean section- VBAC



- If <50% of patients with previous CS deliver vaginally in a hospital it is not cost effective to do VBAC
- Large baby with head still completely above the pelvis at 38 weeks- rather do repeat CS. VBAC is rarely successful if the baby weighs more than 3200 grams (or SF >36 cm) at 38 weeks.
- Progress must be at 1cm per hour (no deviation from the **warning** line on the partogram) with progressively less head palpable above the pelvis.
- Evaluate progress 2 hourly
- A doctor must be immediately available throughout labour, capable of performing a Caesarean section, and theater facilities must be available to perform a CS within 30 minutes of decision.

Caesarean section- VBAC



- It is safer to do an elective CS delivery during office hours than an emergency CS at night. If facilities at night are not available to do a safe CS within 30 minutes of decision, it may be safer to do elective CS rather than VBAC, or to refer the patient to a hospital with the needed facilities.
- Decision for VBAC must be made at the doctors clinic (at 36-38 weeks) and not in labour!

Intern and COSMO training



- In 4 (or 6) months rotation should learn how to manage a labour ward including instrumental deliveries, manual removal of placenta, sterilisation, suturing of tears and management of obstetric emergencies
- Should be able to do a safe Caesarean section independently after 10 supervised operations
- Knowledge of common intra-operative complications and how to avoid (and manage) them
- Be able to do a midline diagnostic laparotomy for acute abdomen (ectopic pregnancy, pelvic infection)

Challenges



- PGWC: to implement detailed logbook for interns, COSMO, new MO (and family physician registrars) at secondary or tertiary hospitals
- Consultant supervision and training
- Coupled with 12 ESMOE modules (one per week)
- Self-evaluation lists
- Not signed off unless criteria fulfilled
- → Hard work (for consultant/trainer!)

Outreach and support



- More specialised hospital responsible for the clinical governance of all the more generalised hospitals in their drainage area
- ...in ensuring capacity at the less specialised level to deliver its own defined package of care independently

Outreach and support

- Ward Rounds- patient assessment and bedside training
- Outpatient Clinics- identify patients for referral to higher level/ consult (logistic reasons)
- Surgical procedures
- Morbidity and Mortality meetings and other measures to evaluate quality of care
- Educational meetings
- In-service training on guidelines and protocols
- Clinical governance

Clinical governance

- **The adoption of principles that lead to high quality care for patients by a workforce who are motivated to do this**
- This requires
 - Commitment at all levels of management including clinical care
 - A culture that is conducive to the provision of high quality care
 - Effective teamwork
 - All health care workers informed on how care is provided

Clinical governance: includes

- **Mortality and morbidity reviews**
- **Patient record reviews**
- **Clinical audits**
- **Peer reviews**
- **Adverse events and near misses reporting**
- **Standard treatment guidelines and protocols**
- **Measuring clinical performance using indicators**

Clinical governance at district level

- Knowledge of PPIP (Perinatal Problem Identification Program)
- National Confidential Enquiries into Maternal Deaths (Saving Mothers)
- Perinatal Education Program (PEP) manuals in obstetrics, HIV and neonatology
- BANC (Basic Antenatal Care) program including training and audit of BANC clinics/CHCs in the drainage area of the district hospital.
- Partogram training and audit of use
- CTG training

Advocacy

- District doctors should become active in the management of obstetric care in their community and not only focus on crisis management.
- Midwifery should be 1-on-1 nursing throughout labour
- Improve birthing experience for women (at least some dignity and privacy) and working conditions for midwives and doctors, especially at district level

Advocacy

- Midwifery training (two year green epaulette, bridging courses etc) to be expedited and driven nationally
- Need urgent increase in obstetric bed capacity at all levels but especially at level 1 and 2.
- Maternity capacity should increase as the deliveries increase; it can be calculated on a monthly basis.
- Larger district hospitals should have some form of specialist cover to maximise use of resources and minimise morbidity.

Advocacy



- Basic antenatal care with integrated HIV care should be offered at all clinics to reduce the load on hospitals and MOUs.
- Appoint/identify one additional sister per CHC/large clinic to drive BANC/PMTCT/Wellness/ Well baby/women's health/Postnatal care in one setting. This will dramatically decrease the number of visits to hospitals and increase contact between women's health, antenatal and postnatal care, HIV services and family planning.

Situational analysis and recommendations



- Develop midwives more
- Every pregnant patient should have at least one scan 18-22 weeks
- All hospitals/MOUs should have CTG's
- Busy MOU's should have Fetal evaluation clinics
- All hospitals must have high risk clinics run by MO or visiting specialist
- Uniform protocols should be available
- Detailed referral routes should be available
- A single structure or committee should advise provinces on Obstetric and Neonatal service

Summary



- Good intern training
- BANC and antenatal card, protocols
- Early ultrasound
- Level of care and when to refer (access to secondary and tertiary consultants)
- Good doctor's clinic at district hospital
- Labour ward- intrapartum monitoring, partogram, midwife retain skills (PEP)
- Management of emergencies
- Safe Caesarean section
- Appropriate referral
- Outreach and support
- Regular audits and feedback