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# APPENDIX A

## FORM 1

- 12-month period under Review: _____through_____
1. Name of facility :_____
2. Location of facility:_____
3. Contact information:_____

| |
|---|
| 4. Type of facility (a) Hospital _____ (b) Maternity _____ ( c) Health Center____ (*check one*) (d) Clinic _____ (e) Other(specify) _____ |
| 5. Type of operating agency: (*check one*) (a) Government _____ (b) Private_____ |

| | |
|---|---|
| 6. Total deliveries during 12-months period | |
| 7. Normal deliveries during 12-months period | |
| 8. Cesarean sections during 12-months period | |

| Check Yes or No for <u>each</u> of the following items (a-h) | | |
|---|---|---|
| 9. **Were the following services performed at least once during the last 12 months?** | Yes | No |
| (a) Parenteral antibiotics | | |
| (b) Parenteral oxytocics | | |
| (c) Parenteral sedatives/anticonvulsant | | |
| (d) Manual removal of placenta | | |
| (e) Removal of retained products | | |
| (f) Assisted vaginal delivery | | |
| (g) Blood transfusion | | |
| (h) Cesarean section | | |

**Box : Determination of EmOC status**
(use Q 9. Check only one)

- if **ALL** of 9 a-h= **Yes**, check:
  _____ **Comprehensive** EmOC
- if **ALL** of 9 a-f= **Yes**, **AND** 9g **OR** 9h = No, check:
  _____ **Basic** EmOC
- if ANY of 9 a-f= No, check:
  _____ **NOT** EmOC

10. What sources of data were used to complete this form ?
(e.g., maternity ward register, delivery book, general admissions register, interviews)

_____

# APPENDIX B

## FORM 2

## COMPLICATED OBSTETRIC CASES DURING 12-MONTHS PERIOD

| Complications | Months | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | July | Aug | Sep |
| 1. Hemorrhage(ante or postpartum) | | | | | | | | | | | | |
| 2. Prolonged/obstructed labor | | | | | | | | | | | | |
| 3. Postpartum sepsis | | | | | | | | | | | | |
| 4. Complications of abortion | | | | | | | | | | | | |
| 5. Preeclampsia/eclampsia | | | | | | | | | | | | |
| 6. Ectopic pregnancy | | | | | | | | | | | | |
| 7. Ruptured uterus | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 8. Monthly totals | | | | | | | | | | | | |

# APPENDIX C

## FORM 3
## LIST OF EMERGENCY OBSTETRIC CARE FACILITIES

1. Name of area :_____
2. Population size of area :_____
3. Source of information :_____
4. Form completed by :_____
5. Form completed on :_____

Data below is calculated by counting number of facility from FORM 1.

1. Total number of BASIC EmOC facilities = [ ]

2. Total number of COMPREHENSIVE EmOC facilities = [ ]

**Basic EmOC** includes the following procedures: parenteral administration of medications(antibiotics, oxytocics, sedatives); manual removal of placenta; removal of retained products; and assisted vaginal delivery (vacuum extraction, forceps).

**Comprehensive EmOC** includes all of the procedures of Basic EmOC plus surgery (cesarean section, curettage, hysterectomy) and blood transfusion

# APPENDIX D

## FORM 4

## MATERNAL DEATHS DURING 12-MONTH PERIOD

| Cause of Deaths | Months | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Total |
| 1. Hemorrhage(ante or postpartum) | | | | | | | | | | | | | |
| 2. Prolonged/obstructed labor | | | | | | | | | | | | | |
| 3. Postpartum sepsis | | | | | | | | | | | | | |
| 4. Complications of abortion | | | | | | | | | | | | | |
| 5. Preeclampsia/eclampsia | | | | | | | | | | | | | |
| 6. Ectopic pregnancy | | | | | | | | | | | | | |
| 7. Ruptured uterus | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 8. Total direct obstetric deaths from selected causes (not including Other) | | | | | | | | | | | | | |
| 9. Other (all other cause) | | | | | | | | | | | | | |
| 10. Total maternal deaths | | | | | | | | | | | | | |

## APPENDIX E

Patient Register

Ward: _____ Month(s) &Year: _____

| No | Name of Patient | Add-ress | Age | Parity | Admission date/time | Reason for admission | Obstetric Com-plications | Treat-ment* | Out-come mother | out-come Baby | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

* (Include type of delivery listed below)

N-Normal; N.E.-Normal with Episiotomy; F.E.-Forceps with Episiotomy; M-Surgical Manipulation; C.S.-Caesarean Section; An -Any Other

# APPENDIX F

## Data Collected from Panathnikom District

### FORM 1

- 12-month period under Review: Oct 1995 through Sept 1996

1. Name of facility : **Panathnikom District Hospital**
2. Location of facility: **Panathnikom District, Chonburi Province**
3. Contact information: **Dr. Sirikit Yingywan Yong**

| |
|---|
| 4. Type of facility (a) Hospital √___ (b) Maternity _____ ( c) Health Center____<br>(*check one*) (d) Clinic ___ (e) Other(specify) _____ |
| 5. Type of operating agency: (*check one*) (a) Government ___√_____ (b) Private_____ |

| | |
|---|---|
| 6. Total deliveries during 12-months period | 1629 |
| 7. Normal deliveries during 12-months period | 1333 |
| 8. Cesarean sections during 12-months period | 173 |

Check Yes or No for each of the following items (a-h)

| 9. **Were the following services performed at least once during the last 12 months?** | Yes | No |
|---|---|---|
| (a) Parenteral antibiotics | √ | |
| (b) Parenteral oxytocics | √ | |
| (c) Parenteral sedatives/anticonvulsant | √ | |
| (d) Manual removal of placenta | √ | |
| (e) Removal of retained products | √ | |
| (f) Assisted vaginal delivery | √ | |
| (g) Blood transfusion | √ | |
| (h) Cesarean section | √ | |

**Box : Determination of EmOC status**
(use Q 9. Check only one)

- if **ALL** of 9 a-h= **Yes**, check:
  __√___ **Comprehensive** EmOC
- if **ALL** of 9 a-f= **Yes, AND** 9g **OR** 9h = No, check:
  _____ **Basic** EmOC
- if ANY of 9 a-f= No, check:
  _____ **NOT** EmOC

10. What sources of data were used to complete this form ?
(e.g., maternity ward register, delivery book, general admissions register, interviews)

INTERVIEW_____

## Data Collected from Panathnikom District

### FORM 1

- 12-month period under Review: **Oct 1995** through **Sept 1996**

1. Name of facility : **Sashelean Health Center**
2. Location of facility: **Panathnikom District, Chonburi Province**
3. Contact information:**Sashelean H.C.**

| |
|---|
| 4. Type of facility (a) Hospital _____ (b) Maternity _____ ( c) Health Center_√___ (*check one*) (d) Clinic _____ (e) Other(specify) _____ |
| 5. Type of operating agency: (*check one*) (a) Government ____√____ (b) Private_____ |

| | |
|---|---|
| 6. Total deliveries during 12-months period | 0 |
| 7. Normal deliveries during 12-months period | 0 |
| 8. Cesarean sections during 12-months period | 0 |

Check Yes or No for each of the following items (a-h)

| 9. **Were the following services performed at least once during the last 12 months?** | Yes | No |
|---|---|---|
| (a) Parenteral antibiotics | | √ |
| (b) Parenteral oxytocics | | √ |
| (c) Parenteral sedatives/anticonvulsant | | √ |
| (d) Manual removal of placenta | | √ |
| (e) Removal of retained products | | √ |
| (f) Assisted vaginal delivery | | √ |
| (g) Blood transfusion | | √ |
| (h) Cesarean section | | √ |

**Box : Determination of EmOC status**
(use Q 9. Check only one)

- if **ALL** of 9 a-h= **Yes**, check:
  _____ **Comprehensive** EmOC
- if **ALL** of 9 a-f= **Yes, AND**
  9g **OR** 9h = No, check:
  _____ **Basic** EmOC
- if ANY of 9 a-f= No, check:
  __√___ **NOT** EmOC

10. What sources of data were used to complete this form ?
(e.g., maternity ward register, delivery book, general admissions register, interviews)

INTERVIEW_____

## Data Collected from Panathnikom District

### FORM 1

- 12-month period under Review: **Oct 1995** through **Sept 1996**

1. Name of facility : **Hathanoon Health Center**
2. Location of facility: **Panathnikom District, Chonburi Province**
3. Contact information:**Mr. Surapol Aekwanit Sakunporn.**

| |
|---|
| 4. Type of facility (a) Hospital _____ (b) Maternity _____ ( c) Health Center__√___ (*check one*) (d) Clinic _____ (e) Other(specify) _____ |
| 5. Type of operating agency: (*check one*) (a) Government _____ (b) Private_____ |

| | |
|---|---|
| 6. Total deliveries during 12-months period | 0 |
| 7. Normal deliveries during 12-months period | 0 |
| 8. Cesarean sections during 12-months period | 0 |

Check Yes or No for each of the following items (a-h)

| 9. **Were the following services performed at least once during the last 12 months?** | Yes | No |
|---|---|---|
| (a) Parenteral antibiotics | | √ |
| (b) Parenteral oxytocics | | √ |
| (c) Parenteral sedatives/anticonvulsant | | √ |
| (d) Manual removal of placenta | | √ |
| (e) Removal of retained products | | √ |
| (f) Assisted vaginal delivery | | √ |
| (g) Blood transfusion | | √ |
| (h) Cesarean section | | √ |

**Box : Determination of EmOC status**
(use Q 9. Check only one)

- if **ALL** of 9 a-h= **Yes**, check:
  _____ **Comprehensive** EmOC
- if **ALL** of 9 a-f= **Yes, AND** 9g **OR** 9h = No, check:
  _____ **Basic** EmOC
- if ANY of 9 a-f= No, check:
  ___√__ **NOT** EmOC

10. What sources of data were used to complete this form ?
(e.g., maternity ward register, delivery book, general admissions register, interviews)

*INTERVIEW*_____

# FORM 3
# LIST OF EMERGENCY OBSTETRIC CARE FACILITIES

1. Name of area :**Panathnikom District**
2. Population size of area :**152138**
3. Source of information :**Panthnikom District Office**
4. Form completed by :**from Interview with Director of Panathnikkom Hospital**
5. Form completed on : **19.3.1997**

Data below is calculated by counting number of facility from FORM 1.

1. Total number of BASIC EmOC facilities = 0

2. Total number of COMPREHENSIVE EmOC facilities = 1

**Basic EmOC** includes the following procedures: parenteral administration of medications(antibiotics, oxytocics, sedatives); manual removal of placenta; removal of retained products; and assisted vaginal delivery (vacuum extraction, forceps).

**Comprehensive EmOC** includes all of the procedures of Basic EmOC plus surgery (cesarean section, curettage, hysterectomy) and blood transfusion

## FORM 2

## COMPLICATED OBSTETRIC CASES DURING 12-MONTHS PERIOD IN PANATHNIKOM DISTRICT HOSPITAL (OCT/1995-SEP/1996)

| Complications | Months | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | July | Aug | Sep |
| 1. Hemorrhage(ante or postpartum) | - | 1 | 2 | 1 | 1 | 2 | - | - | 5 | 2 | 2 | 2 |
| 2. Prolonged/obstructed labor | 3 | 2 | 3 | 1 | 3 | - | 2 | 2 | 3 | 1 | 3 | 2 |
| 3. Postpartum sepsis | - | - | - | - | - | - | - | - | - | - | - | - |
| 4. Complications of abortion | 5 | 12 | 9 | 5 | 13 | 8 | 2 | 9 | 6 | 6 | 8 | 11 |
| 5. Preeclampsia/eclampsia | 2 | 2 | 1 | - | 2 | 1 | - | - | 1 | 1 | - | 10 |
| 6. Ectopic pregnancy | 1 | - | 2 | 1 | 1 | 3 | 1 | - | 2 | 1 | - | - |
| 7. Ruptured uterus | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | | | | | | | |
| 8. Monthly totals | 11 | 17 | 17 | 8 | 20 | 14 | 5 | 11 | 17 | 11 | 13 | 25 |

Total Complicated obstetric cases = sum of monthly totals=169

# APPENDIX G

## Training for Management of Obstetrical Complications in PHC

## (as defined by safe motherhood program)

The most important direct obstetric causes in developing countries are hemorrhage (antepartum/postpartum), complications of illicit induced abortion, pregnancy- induced hypertension, infection and obstructed labor (including ruptured uterus) as shown in Figure 2.3 in the essay section.

**Antepartum hemorrhage:**

(Bleeding per vaginum after 6 months of pregnancy till the beginning of labor pain.).

In admission room:

Nurse: Assess general condition of patient. Assess amount of blood loss and present status of bleeding. Send the call to doctor with important information. Keep intravenous therapy and sample collection material and emergency drugs box ready.

Doctor: Check bleeding and general condition quickly. Start intravenous drip with 5% dextrose. Collect blood for hemoglobin and blood grouping.

Nurse: Record time of every intervention.

The pregnant women should be referred to district hospital with the referral slip filled up completely and accurately.

**Postpartum hemorrhage PPH**

( Bleeding per vaginuum after the delivery of the baby ).

Nurse: Assess general condition, amount of blood loss and present status of bleeding, start I/V drip with 5% Dextrose and collect blood for hemoglobin and blood grouping, inform doctor and should be ready with emergency medicines, equipment.

Doctor: Give intravenous ergometrine 0.25 mg, at the delivery of the anterior shoulder of the baby. Deliver placenta without haste. If third stage is prolonged start intravenous fluid with 5% dextrose. Give injection Atropine 0.6 mg I/V. If placenta not delivered, remove the placenta manually. Give intravenous Ergometrine 0.25 mgm after delivery and make sure that uterine cavity is empty.

(The hemorrhage could be before the expulsion of the placenta or after the expulsion of placenta).

**PPH**: <u>After delivery of placenta</u>:

Palpate the fundus of the Uterus:

*If the uterus is soft and relaxed*;

a) Rub the uterus fundus to make it contract.

b) Inject Ergometrine 0.5mgm I/V

c) Re-examine the patient in general.

d) If low blood pressure start I/V fluid with 5% Dextrose.

e) Examine completeness of placenta.

f) If incomplete prepare for exploration.

g) If bleeding continues and general condition deteriorate refer patient to district hospital with the referral slip filled in completely.

h) If uterus relaxes again and again start oxytocic drip.

i) Examine for injury in genital tract, cervix or vagina treat accordingly.

*If uterus is hard and contracted;*

a) Examine for injury of the birth canal if so repair the tear and injury.

b) Re-examine the placenta for completeness.

c) Assess the patient generally.

d) If shock present treat with intravenous fluid and refer patient to district hospital with the referral slip filled in completely.

Retained Placenta

*With Hemorrhage*;

a) Rub the uterus till it contracts.

b) If still soft give I/V Ergometrine 0.5 mgm.

c) Start I/V fluid therapy with 5% dextrose.

d) If placenta is separated deliver placenta with controlled cord traction.

e) If not separated give Inj. Atropine 0.6 mgm I.V. and prepare (MRP). If cervical Os is open, with intravenous sedation, if Os is not open under general anesthesia MRP to be done hence refer patient to District hospital.

*Without Hemorrhage*;

a) If placenta is not expelled within 30 min. of delivery of the baby, prepare to intervene.

b) Make sure bladder is empty.

c) Examine if placenta is separated. Then deliver it by controlled cord traction.

d) If not separated inject Atropine 0.5 mgm. I/V.

e) Start I/V drip with 5% dextrose.

f) Follow step (e) of retained placenta with hemorrhage.

**Infection**

Most common cases of infection are seen in the following conditions:

a) Premature rupture of membrane.

b) Prolonged labor.

c) Operative delivery like forceps and cesarean section.

d) Septic abortion.

*Premature Rupture of Membrane*:

It is defined as the rupture of membrane usually spontaneously before the onset of labor.

Nurse; Take thorough history of pregnancy. Watery discharge from when, how much. Associated temperature with chill and rigor. Ask patient about fetal movement. Then inform doctor.

Doctor;

- Vaginal examination is avoided in admission room and carried out under strict aseptic condition.
- Prophylactic antibiotic like Ampicillin 500mgm given orally every 6 hours.
- If operative procedures are to be carried out, in these patients Inj. Ampicillin is given I/V at the beginning of the procedure.

- If delivery of the baby is not affected within 24 hours after 37 weeks of pregnancy, labor is inducted with oxytocic drip.
- If pregnancy is below 37 weeks of pregnancy, pregnancy is continued under cover of antibiotics and close watch for sign of infection is kept.

*Prolonged labor:*

Prophylactic antibiotic are given to the patient with prolonged and difficult labor. They usually have assisted delivery like forceps, vacuum and if cesarean section is needed refer patient to District hospital.

*Forceps or Vacuum Delivery*:

- Strict care is taken in a septic and antiseptic technique.
- Tissue injury is repaired with care.
- Blood loss is minimized and homeostasis is well secured like in episiotomy repair.
- General condition of the mother is assessed and treated according to the need.

*Septic Abortion*:

The following cases should be treated as septic abortion;

- Abortion of more than 24 hours duration.

- Abortion with purulent discharge and/ or (fever) i.e. temperature more than 100 F or 35.5 C.

⇒ Give Inj. Ampicillin 500 mg I/V.

⇒ Give oral capsule Ampicillin 500 mgm 6 hourly.

⇒ Assess status of anemia and malnutrition and treat them effectively.

⇒ Blood transfusion is the treatment of choice in patient with hemoglobin below 8 gm% and PCV below 28. Thus transfer the patient to District Hospital immediately with the referral slip filled in completely.

- If operative procedure is carried out, antibiotic should be augmented with metronidazol 400 mg 8hrly for 5 days. If the patient is on intravenous antibiotics.
- If patients' general condition is not improved evacuation of the uterus should be done and if laparotomy should be carried out as soon as possible refer the patient to district hospital as soon as possible with the referral slip filled in completely.

**Pregnancy induced hypertension**

*Severe preclamptic toxaemia;* (in second stage of labor)

Nurse;

- Give intravenous injection of Diazepam 10 mgm and start intravenous fluid with 5% dextrose.

- Check blood pressure every half hour.
- Check urine albumin on admission or after 2-4 hours.

Doctor;

- Assist second stage by vacuum or forceps.

Nurse

- Give injection pethidine 100 mgm intramuscularly, just after delivery of the baby.
- Repeat sedation after 4 hours provided indicated early by rise of blood pressure.
- Keep the patient in a quiet room.

Doctor; If the condition does not stabilize refer patient to district hospital with the referral slip filled in completely.

*Eclampsia*;

Eclampsia cases can be antepartum or postpartum, when a women has a fit (convulsion) with toxaemia i.e. hypertension with edema and/or albuminurea the case is labeled as Eclampsia.

Nurse;

- Clear air passage.
- Keep the patient in a wide bed or place with enough space.

Doctor;

- Use airway or spoon covered with gauge between the teeth to prevent tongue biting and injury.

- Check pulse, blood pressure and uterine contraction and vaginal discharge.
- Give intravenous injection of Diazepam 10 mgm.

Nurse;

- Set up an I/V line with the canula and 5% dextrose.
- Refer the patient to district hospital with the referral slip filled in completely. A medical personnel should accompany the patient. Check blood pressure every ½ hr. Insert an indwelling catheter and check urine for albumin.

Nurse; If the patient is in labor, it is enhanced by oxytocic drip (5 unit of syntocinon in 540 ml of 5% dextrose 40 drop per minute)

Doctor; Second stage is shortened by forceps or vacuum.

Suggested schedule for treatment of hypertension:

Cap Niphidepine 10 mg squeezed sublingually if blood pressure (diastolic) does not come down to 90 mm of Hg to add 10 mgm core after 30 minutes. Close monitoring is done to bring blood pressure (diastolic up to 90 of mm Hg ). There after Nifedipine 10 mg every 2 to 4 hours is given orally or sublingually according to the need to keep blood pressure at desired level.

**Obstructed Labor**

- Give intravenous fluid either 5% dextrose or plasma volume expander like Haemacele.
- Give injection pethidine 50 mgm. Intramuscularly.

  Doctor: Find out at which level of the pelvic cavity obstruction has occurred and examine the fetal heart sound.
- Transport of the patient in horizontal position to District hospital.
- Give referral slip.
- If possible she should be accompanied by medical personnel.

## APPENDIX H

### Operational Definitions

*Emergency Obstetric Care(EmOC):*

Various terminology's are used to refer to care for women with obstetric complications, including "essential obstetric care" (EOC) (WHO, 1994a), "essential care for obstetric complications" (ECOC) and "emergency care for obstetric complications" (EMCOC) (Ramsay, 1996).

Because the purpose of this thesis is to facilitate the monitoring of programs, it has been necessary to identify a short list of "signal functions" with which to measure the care being provided for obstetric complications in a given setting. Thus the term " Emergency Obstetric Care" (EmOC) to refer to the short list of services that can save the lives of the majority of women with obstetric complications (WHO & UNICEF, 1996).

*Maternal Death* : is defined by WHO as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration or site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental causes" (WHO, 1997). Thus, a death from

complication of induced abortion is a maternal death, since it is considered to be due to the "management" of the pregnancy.

*Maternal Mortality Rate*: is calculated by the number of maternal deaths per 100,000 live births (Cunningham & et al., 1989).

*Complicated Cases:* When reviewing records, a complicated case will be defined as one that meats one or more of the following:

- The woman has a complication that should be treated with one of the emergency services that define basic or comprehensive EmOC.
- The woman receives one of these services:
- The women is transferred to another facility so that she receives EmOC or
- The woman dies.

(Haque & Mustafa, 1993).

*Basic and Comprehensive EmOC:*

**Signal functions used to identify** Basic and Comprehensive EmOC **facilities**

| **Basic EmOC Services** | **Comprehensive EmOC Services** |
|---|---|
| 1. Administer parenteral antibiotics. | (1-6) All of those included. in Basic EmOC |
| 2. Administer parenteral oxytocic drugs | (7) perform surgery (cesarean section) |
| 3. Administer parenteral anticonvulsant for preeclampsia and Eclampsia | (8) perform blood transfusion |
| 4. Perform manual removal of placenta | |
| 5. Perform removal of retained products (e.g., manual vacuum aspiration) | |
| 6. Perform assisted vaginal delivery | |

A Basic EmOC facility is one that is performing all of functions 1-6.

A Comprehensive EmOC facility is one that is performing all of functions 1-8.

The list of signal functions is, by definition, not comprehensive. It does not include every service that ought to be

provided to women with complicated pregnancies. This list is intended for monitoring activities, not for designing programs. The word "emergency" is intended to characterize the urgent need for these services. It does not imply that people should wait until complication becomes a full-blown emergency before seeking and/or providing care.

# APPENDIX I

## Curriculum Vitae

| | | |
|---|---|---|
| Name | : | Dr. Karuna Thapa |
| Nationality | : | Nepali |
| Date of Birth | : | 27th June 1966 |
| Education | : | MBBS, Calcutta, India. |
| | | D.G.O., Dhaka, Bangladesh |
| Area of Interest | : | Health System Development |
| | | Gynecology and Obstetrics |
| Work Experience | : | Advisor to the Ministry of Women and Social Welfare of Nepal |
| | | Gynecologist and Obstetrician |