

BACKGROUND DATA

Maternal characteristics:

Year of birth Age Country of birth: _____

Height cm

Booking weight kg

BMI at booking . kg/m²

If BMI not available, was the woman judged to have been obese? yes no not known

Marital status

Married/Co-habitation

Single

Not known

Current smoker/moist snuff user

yes no

not known

Education

Primary or less

Secondary school

Higher education

Not known

Occupation

Her occupation: _____

Her partner's occupation: _____

Not known

Factors increasing vulnerability (anything positive below):

Recent (<1 year) immigrant

Asylum seeker/Refugee

Language problem

Drug addiction

Late booking (after 16 completed weeks)

Non-regular attendance to antenatal care

Known to social services

Unemployed

Partner unemployed

Alcohol abuse

Intimate partner violence/honor violence

Other: _____

Prescription drugs, please specify _____

Known allergy, please specify _____

OBSTETRIC HISTORY and INDEX PREGNANCY

Gravida Para Abortions Miscarriage Ectopic
Number of previous CS Stillbirth Live birth Neonatal death
Did the woman know she was pregnant? yes no
Was pregnancy confirmed by US? yes no in gestational week
Multiple pregnancy? yes no
Infertility: yes no
ART: yes no
 IVF ICSI Embryo donation FER (frozen embryo replacement)
 Ovarian stimulation (FSH/Clomiphencitrate) IUI (intrauterine insemination)
 Donor semen used PGD (preimplatation genetic diagnostics) Other: _____

Family history

Congenital defects Hypertension
 Consanguinity Heart disease
 Mental health problems Preeclampsia
 Diabetes Thromboembolism

Was the woman positive for any of the following?

Hepatitis B/C
 HIV
 Other, please specify _____

Level of antenatal care /Number of visits

Midwife-led care
 Midwife/GP care
 Midwife/Obstetrician
 Consultant unit only

Antenatal booking at completed gestational weeks

Professional interpreting services used regularly yes no
Family members used for translation regularly yes no
Repeat attendance at antenatal clinic for trivial complaints yes no

Level of Hospital care

Local Hospital/Clinic
 County Hospital/Clinic
 University Hospital

PRE-EXISTING MATERNAL DISEASE/condition

Please, specify disease/condition:

- Congenital cardiac or vascular disease _____
- Acquired cardio-vascular disease (e.g. hypertension) _____
- Endocrine (e.g. diabetes, thyroid disorder) _____
- Gastrointestinal/liver disease _____
- Hematological disease (e.g. anemia) _____
- Immune (e.g. SLE, antiphospholipid syndrome) _____
- Infections (e.g. tuberculosis, HIV, hepatitis, malaria) _____
- Renal/Genitourinary _____
- Respiratory (e.g. asthma) _____
- Neoplastic _____
- Neurological (e.g. epilepsy, multiple sclerosis) _____
- Metabolic _____
- Physical disability/ Learning disability _____
- Mental health problems _____
- Known genetic disease (e.g. Marfan's) _____
- Previous bariatric surgery _____

Pre-pregnancy counselling? yes no

Multidisciplinary care during pregnancy? yes no

Was there poor compliance with care and medication? yes no

Where there any antenatal hospital admissions? yes no

If yes, please specify _____

Was there any referral to facility with higher competence? yes no

If yes please specify: _____

Ambulance transport to hospital? yes no

Transfer to ICU? yes no

Transfer to specialized cardiac unit? yes no

Transfer to specialized neurosurgery unit? yes no

Any delay in referral/transport/transfer? yes no

If yes please specify:

Please describe any transportation between hospitals and departments:

LABOR and DELIVERY

Not applicable

Date of Delivery (dd/mm/yyyy) / /

Ultrasound Estimated Date of Delivery (EDD) / /

Gestational age at delivery (weeks and days)

Onset of labor

Spontaneous PPRM/PROM to delivery interval _____ hours

Cesarean before labor

Induction:

Amniotomy Oxytocin Balloon catheter Prostaglandin E2 Misoprostol

Indication for labor induction:

- Post dates IUDF
- Preeclampsia Maternal request
- Antenatal hemorrhage Diabetes
- Other, please specify _____

Mode of delivery

- Normal vaginal
- Ventouse/forceps
- Cesarean section

Duration of labor: First stage :
 Second stage :
 Third stage :

Any signs of hyperstimulation: yes no

Third stage

- Uncomplicated
- Retained placenta/accreta/percreta
- Atonic bleeding
- Severe lacerations/rupture
- Estimated blood loss at delivery (ml)
- Hemoglobin level (g/L)
- Blood products received (Units)

Puerperium

- Uncomplicated
- Pyrexia/Endometritis
- Secondary postpartum hemorrhage
- Postpartum depression/psychosis
- Hypertension/Preeclampsia
- Discharged home postpartum day
- Re-admitted to hospital PP day
- Reason: _____

Type of CS

- Elective
- Urgent
- Emergency
- On Request - Doctor/Provider/Woman
- Perimortem CS: minutes from circulatory collapse

Indication for CS

- Maternal
- Fetal

COMPLICATIONS arising during this pregnancy, being an initial underlying condition, not necessarily causing death (please, tick all that apply).

- No problem
- Hemorrhage in early pregnancy (<22 weeks)
- Obstetric hemorrhage (≥ 22 weeks)
- Heart failure
- Stroke
- Gestational diabetes
- Uterine rupture
- Sudden collapse
- CS surgical/infectious complications
- Hypertensive disorder of pregnancy
- Renal or liver dysfunction
- Hyperemesis in late pregnancy
- Unexplained pain requiring opiates
- ARDS//Pulmonary edema
- Amniotic fluid embolism
- Anaphylactic shock
- Fetal disease
- Excessive loss of weight?

Highest blood pressure recorded /

Oral antihypertensive medication yes no

Intravenous antihypertensive medication yes no

Severe hypertension was successfully treated within 2 hrs yes no (target BP ≤ 150)

Eclampsia yes no

Magnesium sulphate treatment yes no

Other anticonvulsants used yes no

Did she have signs of HELLP syndrome yes no

Was there inappropriate delay of delivery yes no

Thromboembolism

Did she have any known risk factors? yes no

Did she have a thrombophilia screen? (add result?) yes no

Did she receive thromboprophylaxis? yes no

Genital tract Sepsis (please, tick all that apply)

Pyrexia $>38^{\circ}\text{C}$ Tachycardia $>90\text{bpm}$ Tachypnea, $\text{RR} \geq 20$

Abdominal pain Diarrhea/vomiting Leucocytosis/leucopenia

PPROM/significant vaginal discharge Uterine or renal angle pain

Features of septicemic shock (please, tick all that apply)

Hypotension ($\text{Bp} < 90$) Tachycardia Pyrexia/hypothermia ($>38^{\circ}\text{C}$; $<36^{\circ}\text{C}$)

Oliguria Hypoxemia Poor peripheral perfusion

Elevated lactate Tachypnea Abnormal coagulation (DIC)

Was any chart for early recognition of serious illness used? yes no

The pathogen identified: yes no If yes please specify _____

Mental illness/depression

If known psychiatric illness please provide details of:

Diagnosis_____Age at onset_____Treatment provided_____

The highest level of psychiatric care that this woman received:

- Inpatient maternity ward Outpatient polyclinic
 Inpatient psychiatric ward Counselling/Psychologist None

Was this psychiatric illness apparent in a previous pregnancy? yes no

Was a new psychiatric illness diagnosed during:

- this pregnancy
 during the postnatal period
 no new psychiatric illness diagnosed

Had this woman prior to her death any violent acts yes no

If yes please provide details _____

If this was a suicide, what was the method used?

- Self-poisoning/Overdose Jumping from the height
 Hanging Jumping/lying before a train or a road vehicle
 Drowning Other, please specify_____

Sudden collapse

- At home At emergency department
 In ambulance At postpartum ward
 At delivery ward At ICU
 At operating theatre Other, specify:

Interventions in hospital (please, tick all that apply)

- Cardio-pulmonary resuscitation (CPR) Use of continuous vasoactive drugs
 Intubation/Ventilation not related to anesthesia Use of inotropic drugs
 Intravenous antibiotics Dialysis for acute renal failure

In case of sepsis/septic shock, antibiotics started within one hour yes no

In case of general anesthesia did she receive antacid prophylaxis yes no

Was a capnograph used during tracheal intubation yes no

Uterotonics used:

- Oxytocin
 Ergometrine
 Prostaglandins

Blood products received:

- Units red cells
 Plasma
 Platelets

Hemostatic drugs used:

- Factor VII (Novo Seven®)
 Fibrinogen (cryoprecipitate)
 Tranexamic acid (Cyclokapron®)

Surgical/other treatment:

- | | |
|--|--|
| <input type="checkbox"/> Bakri balloon tamponade | <input type="checkbox"/> Hysterectomy following infection/hemorrhage |
| <input type="checkbox"/> B-Lynch sutures | <input type="checkbox"/> Abdominal re-operation |
| <input type="checkbox"/> Removal of placenta/retained tissue | <input type="checkbox"/> Neurosurgery |
| <input type="checkbox"/> Artery ligation | <input type="checkbox"/> Thrombosis prophylaxis |
| <input type="checkbox"/> Other, specify_____ | <input type="checkbox"/> Angiographic embolization |

Treatment of early pregnancy complications

- Medical methods for uterine evacuation
- Curette/Vacuum aspiration
- Laparoscopy for ectopic pregnancy
- Other uterine surgery

Treatment of abortion

- | | |
|---|---|
| <input type="checkbox"/> Medical | <input type="checkbox"/> Day care unit |
| <input type="checkbox"/> Surgical | <input type="checkbox"/> Overnight stay |
| <input type="checkbox"/> Two-stage abortion | <input type="checkbox"/> Home |

Please specify_____

Was there any difficulty in obtaining: (please, tick all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Consultant obstetrician help | <input type="checkbox"/> Ambulance services |
| <input type="checkbox"/> Consultant anesthetist | <input type="checkbox"/> Blood products |
| <input type="checkbox"/> Consultant other | <input type="checkbox"/> Delay in laboratory testing |
| <input type="checkbox"/> Bed at ICU | <input type="checkbox"/> Other, specify_____ |
| <input type="checkbox"/> Any shortage in available staff | |

PERINATAL OUTCOME

Status:

- Stillbirth (\geq week 22)
- Live birth
- Not known

Birth weight: g Apgar score at 1,5,10 min: / /

Gender: Male Female Care at NICU yes no not known

Corticosteroids for fetal lung maturation yes no not known

Survived early (7 days) neonatal period yes no not known

Survived late (8-28 days) neonatal period yes no not known

CLASSIFICATION OF MATERNAL DEATH CAUSE

DIRECT OBSTETRIC CAUSE

Early pregnancy

- Miscarriage
- Legal abortion
- Ectopic pregnancy

Hemorrhage

- Uterine atony
- Placental abruption
- Placenta previa
- Retained placental tissue
- Placenta accreta/increta/percreta
- Tear or rupture of genital tract

Genital tract sepsis

In pregnancy

- Septic abortion
- Chorioamnionitis/PPROM
- Other, specify: _____

Pueperal

- After surgical procedure
- After vaginal birth

Amniotic fluid embolism

Peripartum dilated cardiomyopathy

A very rare condition (e.g. air embolism, acute fatty liver of pregnancy, choriocarcinoma, ovarian hyperstimulation syndrome). Please specify _____

Complications to anesthesia

- General anesthetic complication (e.g. failed intubation, aspiration of gastric contents)
- Regional anesthetic complication (e.g. local anesthetic toxicity, subdural/spinal hematoma)

Please, specify _____

Other direct cause, specify _____

INDIRECT OBSTETRIC CAUSE

Cardiac or vascular disease

- Idiopathic pulmonary hypertension
- Congenital cardiomyopathy:
 - hypertrophic (HOCM)
 - arrhythmogenic right ventricular (ARVCM)
- Myocardial infarction (MI)
- Valvular disease
- Myocarditis (viral or autoimmune)
- Obesity and sudden arrhythmic death syndrome (SADS)

Systemic hypertension (RV/LV hypertrophy)

Arterial dissection

- Aortic
- Coronary artery
- Other: _____

Diseases of the CNS

- Subarachnoid hemorrhage
- Intracerebral hemorrhage
- Cerebral infarction
- Epilepsy

Diseases of the gastrointestinal system

- Intestinal obstruction
- Cirrhosis of the liver
- Other, specify _____

Infectious disease - non genital

- TBC
- HIV/AIDS
- Community acquired sepsis, incl. GBS,GAS
- Other, specify _____

Respiratory diseases

- Asthma
- ARDS
- Pneumonia
- Other, specify _____

Endocrine, metabolic and immunity disorders

(e.g. hypoglycemic death in diabetes, SLE, antiphospholipid syndrome, TTP)

Please specify _____

Psychiatric (incl. suicide). Provide main psychiatric diagnosis _____

Malignant disease worsened by pregnancy (e.g. breast, cervical, ovarian cancer)

Other indirect cause(s), specify _____

COINCIDENTAL CAUSE

Accidental drug overdose

Road accident

Homicide

Other malignant disease

Other, specify _____

LATE MATERNAL DEATH (Direct and Indirect death between 43 -365 days)

Please specify _____

ASSESSMENT

Substandard care?

<input type="checkbox"/> No	<input type="checkbox"/> Major	<input type="checkbox"/> Minor	<input type="checkbox"/> Insufficient data
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No: No substandard care

Minor substandard care: Was a relevant contributory factor. Different management might have made a difference, but the mother's survival was unlikely in any case.

Major substandard care: Contributed significantly to the death of the mother, i.e. different management would reasonably have been expected to alter the outcome.

Insufficient data to assess:

Suboptimal factors:

- Maternal/social/cultural (distrust, non-compliance, withheld important information)
- Organisation/transport/communication (patient-caregiver or between caregivers)
- Medical care/provider level

BRIEF SUMMARY OF THE CASE ON ENGLISH:

BRIEF SUMMARY OF THE CASE ON SWEDISH:

"LEARNING POINTS":

PROFESSIONALS involved in the woman's care CHECKLIST of relevant documentation

- | | |
|--|---|
| <input type="checkbox"/> Midwife | <input type="checkbox"/> Antenatal booking records |
| <input type="checkbox"/> General Practitioner | <input type="checkbox"/> Antenatal maternity notes |
| <input type="checkbox"/> SHO/Registrar in Obst & Gyn | <input type="checkbox"/> Intrapartum notes |
| <input type="checkbox"/> Obstetrician | <input type="checkbox"/> Postnatal record sheet |
| <input type="checkbox"/> Anesthetist | <input type="checkbox"/> Neonatal discharge summary |
| <input type="checkbox"/> Critical care specialist | <input type="checkbox"/> Report from consultants involved |
| <input type="checkbox"/> Pathologist | <input type="checkbox"/> Root Cause Analysis |
| <input type="checkbox"/> Psychiatrist | <input type="checkbox"/> Autopsy report |
| <input type="checkbox"/> Emergency medicine specialist | <input type="checkbox"/> Death certificate |
| <input type="checkbox"/> Ambulance staff | <input type="checkbox"/> Ambulance report |
| <input type="checkbox"/> Consultant level of involvement | <input type="checkbox"/> Summary Emergency Department |
| Specify _____ | <input type="checkbox"/> Other, specify _____ |

CRITERIA FOR A SATISFACTORY AUTOPSY (Modified from CEMACH)

- | | |
|---|--|
| Autopsy is performed as soon after death as possible
(and not delayed by several days) | <input type="checkbox"/> yes <input type="checkbox"/> no |
| Consideration of possible clinical-pathological correlations | <input type="checkbox"/> yes <input type="checkbox"/> no |
| Sepsis screen | <input type="checkbox"/> yes <input type="checkbox"/> no |
| Toxicology screen (in unexplained death and in epilepsy) | <input type="checkbox"/> yes <input type="checkbox"/> no |
| MCT (mast cell tryptase) to prove or exclude anaphylaxis | <input type="checkbox"/> yes <input type="checkbox"/> no |
| Search for the source of emboli | <input type="checkbox"/> yes <input type="checkbox"/> no |
| Careful evaluation of the heart | <input type="checkbox"/> yes <input type="checkbox"/> no |
| Full histopathology | <input type="checkbox"/> yes <input type="checkbox"/> no |
| Immunochemistry (e.g. mucins or squames to prove/exclude AFE) | <input type="checkbox"/> yes <input type="checkbox"/> no |

Excellent: a thorough, detailed autopsy report with histology, microbiological and toxicological investigations with careful exclusions of alternative diagnosis and thinking about the clinical-pathological correlations.

Satisfactory: Established the cause of death but did not necessarily address all the clinical issues.

Poor: There are discrepancies between the minimally described pathology and the pathological conclusions, there are no supporting investigations and there is no evidence of any knowledge of clinical problems or of any attempt to exclude differential diagnoses.

Name of investigator: _____ E-mail: _____
Date: _____