

RE-EXPLORATION AFTER CAESAREAN SECTION

IN BELGIUM

Data Collection Form

Hash code

# BACKGROUND

The prevalence of Caesarean Section (CS) is increasing worldwide1-3 with around 21% of births in Belgium today being carried out by CS4-6. Despite being a life-saving intervention in medically-indicated situations, research shows that a large proportion of these CSs are not medically advised7.

Although safety of the procedure is increasing, women undergoing CS are exposed to short and long-term risks7, 8. Surgical risks such as bleeding, wound infection or injury to surrounding organs might require a re-exploration. Re-laparotomy after CS comes with its own anesthetic and procedural risks, besides the increased risk of infection, blood transfusion, intensive care admission and increased length of hospital stay. The incidence of re-laparotomy is estimated to be between 0,1 and 1,0%, based on data obtained by retrospective single-center studies of small scope9-16. Some of these studies have tried to determine risk factors for re-laparotomy after CS. Previous CS, emergency CS, placenta praevia, pre-eclampsia and longer operating time seemed to be the most common risk factors9-17, *but due to small numbers results were not conclusive*. Therefore, larger, prospective investigations are necessary, as a better understanding of this severe complication is crucial to improve patient care.

The UKOSS (United Kingdom Obstetric Surveillance System) took the initiative to start up a survey on this complication within the International Network of Obstetric Survey Systems18. The current study takes part to this INOSS initiative, gathering information on re-laparotomy after CS in Belgium. The primary aim of this study is to get knowledge about the incidence of re-laparotomy after CS in Belgium. Secondary aims are to determine risk factors and outcomes associated with re-exploration after CS in order to give better obstetric care and find preventive measures to reduce morbidity and mortality.

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CASE DEFINITION

Any woman who has a Caesarean Section (CS) **AND** who returns to theatre **AND**

**EITHER**

An exploration of the CS wound with the rectus sheath (RS) re-opened (i.e. deep exploration of the wound because of a wound problem, requiring the rectus sheath to be opened)

**OR**

a formal laparotomy (opening of the peritoneum) (e.g. to control bleeding, deal with an abdominal/ pelvic infection, undertake a hysterectomy or for any other reason)

**WITHIN 28 DAYS OF CS**

# DATA COLLECTION FORM

1. **Woman’s details**
	1. Year of birth
	2. Etnicity

1.2.1. Current nationality

☐ 01. Belgian with Belgian background

☐ 02. Belgian with a foreign background

☐ 03. Non Belgian

1.2.2. Country of birth (see list to check the code)

☐ 01. Belgium

☐ 02. Neighbouring country (France, Germany, Luxembourg, the Netherlands, United Kingdom)

☐ 03. Europe, not neighbouring country

☐ 04. North-Africa

☐ 05. Eastern Mediterranean Region

☐ 06. Sub-Saharan Africa (South / East / West Africa)

☐ 07. South-East Asia

☐ 08. South America

☐ 09. Western Pacific

☐ 10. Other: please specify

☐ 11. Not known

* + 1. What are the roots of the parents of the patient? (see list to check the code)

Mixed: yes >> parent 1 parent 2

Mixed: no >> 1 set

☐ 01. Belgium

☐ 02. Neighbouring country (France, Germany, Luxembourg, the Netherlands, United Kingdom)

☐ 03. Europe, not neighbouring country

☐ 04. North-Africa

☐ 05. Eastern Mediterranean Region

☐ 06. Sub-Saharan Africa (South / East / West Africa)

☐ 07. South-East Asia

☐ 08. South America

☐ 09. Western Pacific

☐ 10. Other: please specify

☐ 11. Not known

Parent 2

☐ 01. Belgium

☐ 02. Neighbouring country (France, Germany, Luxembourg, the Netherlands, United Kingdom)

☐ 03. Europe, not neighbouring country

☐ 04. North-Africa

☐ 05. Eastern Mediterranean Region

☐ 06. Sub-Saharan Africa (South / East / West Africa)

☐ 07. South-East Asia

☐ 08. South America

☐ 09. Western Pacific

☐ 10. Other: please specify

☐ 11. Not known

* 1. Education: What is the highest degree of education of the patient?

[ ]  No formal schooling
[ ]  Primary school *(lagere school, école primaire)*
[ ]  Lower secondary school *(1e-3e middelbaar, secondaire inférieur 1ere-3eme annee)*
[ ]  Higher secondary school *(4e-6e middelbaar, secondaire supérieur 3eme-6eme annee)*
[ ]  College *(hogeschool, haute école)*
[ ]  University school *(Universiteit, University),* PhD
[ ]  Not known

* 1. Is the mother single?

[ ] Yes
[ ] No
[ ] Not known

* 1. Did the mother and/or partner have a steady income during pregnancy (excl. social security)?

[ ]  0 income

[ ]  1 income

[ ]  2 incomes

[ ]  Not known

* 1. What was the gestational age at first prenatal visit?      w
	2. Height at booking?      cm
	3. Weight at booking?      kg
	4. Smoking status

[ ] Never

[ ] Current

[ ] Gave up prior to pregnancy

[ ] Gave up during pregnancy

[ ]  Not known

1. **Previous obstetric history**
	1. Gravidity

Number of current pregnancy
Number of completed pregnancies ≥ 22 weeks

Number of previous Caesarean Sections (CS)

*If no previous pregnancy, please go to section 3*

* 1. Did the woman have any previous pregnancy problems?

[ ] Yes, if yes please specify

 [ ]  3 or more miscarriages

[ ]  Ovarian hyperstimulation syndrome

[ ]  Hyperemesis requiring admission
[ ]  Dehydration requiring admission

[ ]  Gestational diabetes
[ ]  late miscarriage/ extremely premature delivery (16-24 weeks)

[ ]  Premature delivery(24-37 weeks)

[ ]  Premature rupture of the membranes

[ ]  Pre-eclampsia

[ ]  Eclampsia

[ ]  Severe infection e.g. pyelonephritis

[ ]  Surgical procedure in pregnancy

[ ]  Antepartum haemorrhage

[ ]  Placenta praevia
[ ]  Significant placental abruption
[ ]  Post-partum haemorrhage
[ ]  Puerperal psychosis
[ ]  Thrombotic event
[ ]  Amniotic fluid embolism
[ ]  Stillbirth
[ ]  Baby with a major congenital abnormality
[ ]  Small for gestational age (SGA) infant
[ ]  Large for gestational age (LGA) infant
[ ]  Infant requiring intensive care

[ ]  Neonatal death
[ ]  Other:

[ ]  No

[ ]  Not known

1. Previous medical history
	1. Has the woman had any other previous uterine surgery?

 [ ]  Yes, please specify

[ ]  Myomectomy
[ ]  Endometriosis surgery
[ ]  Endometrial resection/ablation
[ ]  Septal resection
[ ]  Polypectomy

[ ]  Other:

 [ ]  No

 [ ]  Not known

* 1. Has the woman had any other previous abdominal surgery (other than CS)?

[ ]  Yes, please specify

[ ]  No

[ ]  Not known

* 1. Has the woman had other pre-existing medical problems? (≥ 1 possible)

[ ]  Yes

[ ]  Essential hypertension

[ ]  Cardiac disease

Please specify:

[ ]  Diabetes mellitus

Please specify:

[ ]  Other endocrine disorders e.g. thyroid disorders

Please specify:

[ ]  Respiratory disease

Please specify:

[ ]  Renal disease

Please specify:

[ ]  Inflammatory disorders *(e.g. Crohn, ulcerative colitis)*:

Please specify

[ ]  Hematological disorders

Please specify:

[ ]  Myeloproliferative disorders

Please specify:

[ ]  Auto-immune diseases

Please specify:

[ ]  I.V. drug use

[ ]  HIV

[ ]  Cancer

Please specify:

[ ]  Psychiatric disorder

Please specify:

[ ]  Other

Please specify:

[ ]  No
[ ]  Not known

1. This pregnancy
	1. Final Estimated Date of Delivery (EDD) (Date Prévue d’Accouchement/ due date / Verwachte VerlosDatum) dd/mm/yy
	2. Was this pregnancy a multiple pregnancy?

[ ] Yes

[ ] No

If yes, specify number of fetuses

* 1. Was placenta praevia diagnosed prior to delivery?

[ ]  Yes , if yes please specify the grade

 [ ]  Grade I Minor: lower edge of placenta inside the lower uterine segment [ ]  Grade II Marginal: lower edge of placenta reaching the internal os

 [ ]  Grade III Partial: placenta partially covers the cervix

 [ ]  Grade IV Complete: placenta completely covers the cervix

[ ]  No

* 1. Was abnormal placental insertion diagnosed prior to delivery?

[ ]  Yes

[ ] Placenta accreta

[ ] Placenta increta

[ ] Placenta percreta

[ ] No

* 1. Were there any other problems in this pregnancy?

[ ] Yes, please specify

[ ]  Ovarian hyperstimulation syndrome

[ ]  Hyperemesis requiring admission
[ ]  Dehydration requiring admission

[ ]  Gestational diabetes
[ ]  Late miscarriage/ extremely premature delivery (16-24 weeks)

[ ]  Premature delivery (24-37 weeks)

[ ]  Premature rupture of membranes

[ ]  Pre-eclampsia

[ ]  Eclampsia

[ ]  Severe infection e.g. pyelonephritis

[ ]  Surgical procedure in pregnancy

[ ]  Antepartum haemorrhage

[ ]  Placenta praevia
[ ]  Significant placental abruption
[ ]  Post-partum haemorrhage
[ ]  Puerperal psychosis
[ ]  Thrombotic event
[ ]  Amniotic fluid embolism
[ ]  Stillbirth
[ ]  Baby with a major congenital abnormality
[ ]  Small for gestational age (SGA) infant
[ ]  Large for gestational age (LGA) infant

[ ]  Other:

[ ] No

[ ]  Not known

* 1. Were any fibroids noted on ultrasound scans in this pregnancy?

[ ] Yes,

If yes, number

If yes, what was the maximum diameter recorded?      mm

[ ] No

[ ]  Not known

* 1. Was the woman prescribed any anti-coagulants/ antiplatelet agents during pregnancy?

[ ] Yes

[ ] No

[ ]  Not known

If yes, specify the anti-coagulant regime and anti-platelet agent *(tick all that apply)*

 [ ]  LMWH prophylactic dose

 [ ]  LMWH therapeutic dose

 [ ]  Warfarin

 [ ]  Aspirin

 [ ]  Clopidogrel

 [ ]  Other

If other, please specify

If yes, when was the last dose given prior to birth?

Anti-coagulant: [ ]  <24 hours [ ]  1-7 days [ ]  >7 days

Anti-platelet agent: [ ] <24 hours [ ]  1-7 days [ ]  >7 days

1. Delivery
	1. Duration of pregnancy in number of completed weeks and days: …w … d
	2. What was the planned mode of delivery?

[ ]  Vaginal

[ ]  Caesarean section

* Indication:
* Go to section 5.3
	1. Was delivery induced?

[ ]  Yes, If yes: Please specify the reason for induction:

[ ]  No

* 1. Did the woman labour? *(defined as having had continuous, progressive contractions that caused cervical changes (effacement, dilatation)*

[ ]  Yes

[ ]  No

If yes, what was the date/time of onset of labour? dd/mm/yy hh:mm

* 1. Did the membranes rupture prior to the CS?

[ ] Yes

[ ] No

If yes, what was the date and time of rupture of membranes?

dd/mm/yy hh:mm

* 1. What was the cervical dilation before the decision to perform CS?      cm
	2. Was an instrumental delivery attempted prior to CS?

[ ]  Yes

[ ]  No

* 1. What was the indication for CS?
	2. What was the grade of urgency?

[ ]  Category I
[ ]  Category II
[ ]  Category III
[ ]  Category IV



* 1. What was the grade of the most senior obstetrician scrubbed up & operating for the CS?

[ ]  Registrar (year 1-3) (assistant en formation 1ère-3ème année… assistant in opleiding, ASO)

[ ]  Registrar (year 4-5) (assistant en formation 4-5ème année… assistant in opleiding, ASO)

[ ]  Junior resident/ fellow / junior consultant (1st-2nd year post-graduation)

[ ]  Consultant (résident senior, médecin cadre, staflid)

[ ]  Senior / Specialist (médecin non membre de l’équipe hospitalière)

If not a consultant, was the consultant present in the operating room at any time during the CS?

[ ]  Yes

 [ ]  No

[ ]  Not recorded

[ ]  Not applicable

* 1. What was the type of anaesthesia utilised?

[ ]  Regional

[ ]  General

[ ]  Not known

* 1. What type of uterine incision was used?

[ ]  Lower segment

[ ]  Classical

[ ]  Other

[ ]  Not known

* 1. Were there adhesions between the uterus and the abdominal wall noted?

[ ]  Yes

[ ]  No

[ ]  Not known

* 1. Were any of the following damaged during CS? (*tick all that apply)*

[ ]  Bladder

[ ]  Bowel

[ ]  Other, specify:

* 1. Was any of the following conditions diagnosed intra-operatively

(i.e. not suspected pre-surgery) (*tick all that apply)*

[ ]  Uterine atony

[ ]  Uterine dehiscence

[ ]  Uterine rupture

[ ]  Abruption

[ ]  Placenta praevia

[ ]  Placenta accreta

[ ]  Placenta increta

[ ]  Placenta percreta

* 1. Did the woman have a primary post-partum haemorrhage?

[ ]  Yes

[ ]  No

[ ]  Not known

If yes, what was the estimated blood loss?      ml

What was the underlying cause *(tick all that apply)*?

 [ ]  Uterine atony

 [ ]  Uterine trauma

 [ ]  Rupture

 [ ]  Uterine infection

 [ ]  Bleeding from uterine incision

 [ ]  Coagulopathy, if yes please specify

 [ ]  Other:

 [ ]  Not known

* 1. Did the woman decline blood products?

[ ]  Yes

[ ]  No

[ ]  Not known

If no, were blood products given? [ ] Yes [ ] No

If yes,

number of packed red blood cells (culots erythrocytaires):      , number of other blood products: please specify: ………….

* 1. Does a major obstetric haemorrhage structured pathway exist in your hospital?

[ ]  Yes

[ ]  No

If yes, was it activated in this case?

[ ]  Yes

[ ]  No

* 1. Were any of the following required during the CS? *(tick all that apply)*

[ ]  Intra-uterine balloon

[ ]  Uterine packing

[ ]  B-lynch or other brace suture

[ ]  Hysterectomy

[ ]  Drain insertion

[ ]  Pelvic artery ligation

[ ]  Uterine artery ligation

* 1. Was interventional radiology performed following CS? *(tick all that apply)*

[ ]  Yes

[ ]  No

If yes, please specify

Date and time dd/mm/yy hh:mm

Procedure

Procedure done by

[ ]  vascular surgeon

[ ]  interventional radiologist

[ ]  interventional radiologist in other hospital

* 1. What was the suture material used to close the rectus sheath? (aponévrose des grands droits, fascia)

[ ]  Vicryl (or similar absorbable)

[ ]  PDS (longterm absorbable)

[ ]  Nylon/prolene (non-absorbable)

[ ]  Not known

* 1. What was the estimated blood loss during CS?      ml
	2. What was the operating time of the CS?      min
1. **Re-exploration details**
	1. Was the woman transferred to another hospital before re-exploration?

[ ]  Yes (if yes, please provide details of transfer: data, department and hospital in section 9)

[ ]  No

* 1. Date and time of first re-exploration dd/mm/yy hh:mm
	2. What was the main clinical indication for the re-exploration?

[ ]  Suspected intra-abdominal bleeding or haematoma

[ ]  Suspected intra-abdominal sepsis or collection

[ ]  Suspected bowel damage

[ ]  Suspected bowel obstruction

[ ]  Suspected bladder damage

[ ]  Wound haematoma

[ ]  Wound sepsis or collection

[ ]  Other, specify:

* 1. What symptoms were reported by the woman before the re-exploration?

[ ]  None

[ ]  Abdominal pain

[ ]  Vaginal bleeding

[ ]  Fever

[ ]  Vomiting

[ ]  Signs of hypotension (e.g. dizziness)

[ ]  Signs of wound infection

[ ]  Other, specify:

[ ]  Not known

* 1. Was the woman started on antibiotics before the re-exploration?

[ ]  Yes

[ ]  No

[ ]  Not known

If yes, please specify the date the antibiotics commenced dd/mm/yy

If yes, please specify type of antibiotics

* 1. Was any radiological abdominopelvic imaging carried out before re-exploration?

[ ]  Yes

[ ]  No

[ ]  Not known

If yes, please specify [ ] CT scan [ ] US abdomen [ ] MRI [ ] IVU/IVP *(intravenous urogram/pyelogram)*

If yes, please describe findings

* 1. What anaesthesia was used for re-exploration? *(tick all that apply)*

[ ]  Local infiltration

[ ]  Regional

[ ]  General

* 1. Were any of the following problems reported during the anaesthetic? *(tick all that apply)*

[ ]  Hypotension (BP<90mmHg)

[ ]  Difficult intubation

[ ]  Failed intubation

[ ]  None

* 1. What was the grade of the most senior operation surgeon during the re-exploration?

[ ]  Registrar (year 1-3) (assistant en formation 1ère-3ème année, assistant in opleiding, ASO)

[ ]  Registrar (year 4-5) (assistant en formation 4-5ème année, assistant in opleiding, ASO)

[ ]  Junior resident/ fellow / junior consultant (1st-2nd year post-graduation)

[ ]  Consultant (résident senior, médecin cadre, staflid)

[ ]  Senior / Specialist (médecin non membre de l’équipe hospitalière)

* 1. Were any other specialties involved during re-exploration

[ ] Yes

[ ] No

If yes, please tick all that apply:

[ ] General surgery

[ ] Urology

[ ] Vascular surgery

[ ] Other, specify

* 1. Was the rectus sheath opened during the re-exploration?

[ ] Yes

[ ] No

* 1. Was the peritoneum opened during the re-exploration?

[ ] Yes

[ ] No

* 1. What were the findings of the re-exploration? *(tick all that apply)*

Haematoma/bleeding:

[ ]  Above rectus sheat

[ ]  Below rectus sheath

[ ]  Intra-abdominal

Focus of infection/abcess

[ ]  Above rectus sheat

[ ]  Below rectus sheath

[ ]  Intra-abdominal

Other

 [ ]  Generalised or pelvic peritonitis

 [ ]  Damage to bladder or bowel

 [ ]  Retained foreign object

 [ ]  Retained products of conception

 [ ]  Negative laparotomy (no abnormality detected)

[ ]  Other, specify

* 1. What procedures were carried out during the re-exploration?

[ ]  Drainage of haematoma above rectus sheath
[ ]  Drainage of haematoma below rectus sheath
[ ]  Drainage of haematoma in abdomen/pelvis (state site):
[ ]  Drainage of abscess/infected collection above rectus sheath
[ ]  Drainage of abscess/infected collection below rectus sheath
[ ]  Drainage of abscess/infected collection in abdomen/ pelvis (state site)
[ ]  Bleeding vessel identified & tied off/repaired (state site)
[ ]  Hysterectomy
[ ]  Repair of organ damage (state organ – e.g. small bowel, large bowel, bladder, ureter)

* 1. Did the woman decline blood products during re-exploration?

[ ]  Yes

[ ]  No

If no, were blood products given? [ ]  Yes [ ]  No

If yes,

number of PC (packed red blood cells (culots erythrocytaires):      ,

number of other blood products: please specify: …

* 1. Does a major obstetric haemorrhage structured pathway exist in your hospital?

[ ]  No

[ ]  Yes

If yes, was it activated in this case?

[ ]  Yes

[ ]  No

* 1. What was the estimated blood loss during the re-exploration?       ml
1. Woman’s outcome
	1. Was the woman transferred to another hospital following re-exploration?

[ ]  Yes (if yes, please provide details of transfer: data, department and hospital in section 9)

[ ]  No

* 1. Did the woman have any more subsequent re-explorations?

[ ]  Yes

[ ]  No

If yes, please specify the date(s) of further re-exploration and procedure performed (see question 6.13)

* 1. Was the woman admitted to an Intensive Care Unit?

[ ]  Yes

Type of ICU:

 [ ]  Postoperative recovery room/ PACU / …

[ ]  Intensive are Unit

Was this planned pre-operatively? [ ] Yes [ ] No

Specify date of admission:   /  /   (DD/MM/YYYY)

Duration of stay:       days

*tick if the woman is still in ICU:* [ ]

Reason for admission:

[ ]  No

[ ]  Not known

* 1. Did the woman require any vasopressor or ionotropic drug infusion?

[ ] Yes

[ ] No

[ ] Not known

* 1. Did any other major maternal morbidity occur?

[ ] Yes

[ ] Thrombotic event, specify

[ ] Disseminated intravascular coagulopathy

[ ] Renal failure, or other renal problem, specify

[ ] Required ventilation

[ ] Adult respiratory distress syndrome

[ ] Pulmonary oedema

[ ] Cardiac arrest

[ ] Cerebrovascular accident
[ ] HELLP
[ ] Secondary infection e.g.pneumonia
[ ] Septicaemia
[ ] Persistent vegetative state
[ ] Other? Please specify

[ ] No

[ ] Not known

* 1. Did the woman die?

[ ] Yes

[ ] No

If yes, please specify the date and time of death mm/dd/yy hh:mm

What was the primary cause of death as stated on the death certificate?

Findings of the autopsy if performed:

* 1. Has the woman been discharged from the hospital?

[ ] Yes

[ ] No

If yes, please specify the date of discharge

If no, please return back to this DCF once the woman is discharged.

* 1. Duration of stay in the hospital (counting the day of CS = day 1):       days
1. Infant outcome

**NB:** If more than one infant, for each additional infant, please photocopy the infant section of the form **(before filling it in)** and attach extra sheet(s) or download additional forms from the website

* 1. Date and time of delivery mm/dd/yy hh:mm
	2. Birthweight      g
	3. Was this infant stillborn?

[ ] Yes

* Date of diagnosis:   /  /   (DD/MM/YYYY)
* Primary cause of death as stated on the death certificate:
* Findings of the autopsy if performed:
* Move on to section 9

[ ] No

* 1. 5 min Apgar
	2. Complete the umbilical cord blood gas analysis if known:

|  |  |  |
| --- | --- | --- |
|  | **Umbilical Artery** | **Umbilical Vein** |
| *pH* |  |  |
| *Base deficit (mmol/L)* |  |  |

* 1. Was the infant admitted to a Neonatal intensive care unit?

[ ] Yes

* What was the main reason?
* Duration of stay:      days

[ ] No

[ ] Not known

* 1. Did any other major infant complications occur?

[ ] Yes

[ ] Respiratory distress syndrome
[ ] Intraventricular haemorrhage
[ ] Necrotising enterocolitis
[ ] Neonatal encephalopathy
[ ] Chronic lung disease
[ ] Severe jaundice requiring phototherapy
[ ] Major congenital anomaly
[ ] Severe infection e.g. septicaemia, meningitis
[ ] Exchange transfusion

[ ] Other?

[ ] No

[ ] Not known

* 1. Did the infant die?

[ ]  Yes

Please specify the date and time of death mm/dd/yy hh:mm

Primary cause of death as stated on the death certificate:

Findings of the autopsy if performed:

[ ]  No

[ ]  Not known

1. Additional information?

Today’s date:   /  /

### Please use this space to enter any other information you feel may be important:

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_