

GENERAL ANAESTHESIA for CAESAREAN SECTION

IN BELGIUM

Data Collection Form

Hash code

# BACKGROUND

General anaesthesia is occasionally used for Caesarean section. It is associated with a higher risk for maternal complications, including serious anaesthesia-related complications, surgical site infection, and venous thromboembolic events. Moreover, it is associated with more postoperative pain and higher rates of postpartum depression requiring hospitalization. Additionally, it is associated with neonatal respiratory depression and lower Apgar scores.[[1]](#footnote-1)

The federal team Audit Hospitals reported the following results in their Audit Report Caesarean Section (fgov.be):

* In 2019 Belgium had 117.103 births
* 21% of deliveries were via Caesarean Section

According to the medical birth data (eBirth), analysed by the SPE and the CEpiP, 3.0 to 3.5% of Caesarean sections are performed under general anesthesia every year.

Based on these data we estimate 860 cases of general anaesthesia for CS in Belgium annually.

The current observational study aims to establish the incidence of the use of general anaesthesia, identify the main risk factors, and describe the outcomes and eventual complications associated with general anaesthesia for Caesarean section in Belgium. The present observational study will also evaluate airway management during general anaesthesia in Caesarean section.

CASE DEFINITION

Any woman of over 24 weeks of gestation given a general anaesthetic for a Caesarean section.

# DATA COLLECTION FORM – OBSTETRICAL PART

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

1.2.1. Current nationality

☐ Belgian with Belgian background

☐ Belgian with a foreign background

☐ Non Belgian, please specify:

☐ Not known

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

☐ Belgium

☐ Other: Please specify:

☐ Not known

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

[ ]  No formal schooling
[ ]  Secondary school
[ ]  Higher education (College / University)
[ ]  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)?

[ ]  Yes

[ ]  No

[ ]  Not known

* 1. Height at booking?      cm
	2. Weight at booking?      kg
	3. Weight at caesarean section?      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)

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

[ ]  Not applicable (no previous pregnancy)

[ ] Yes.

If yes please specify (gestational diabetes, hypertensive problems, premature birth, hemorrhage, placental problems, …):

[ ]  No

[ ]  Not known

1. **Previous medical history**
	1. Has the woman 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:

[ ]  Auto-immune diseases

Please specify:

[ ]  HIV

[ ]  Cancer

Please specify:

[ ]  Psychiatric disorder

Please specify:

[ ]  I.V. drug use

[ ]  Other

Please specify:

[ ]  No
[ ]  Not known

1. **This pregnancy**
	1. Was this pregnancy a multiple pregnancy?

[ ] Yes

[ ] No

If yes, specify number of foetuses

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

[ ]  Yes, please specify (gestational diabetes, hypertensive problems, premature birth, hemorrhage, placental problems, …):

[ ]  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:

[ ]  <12 hours

[ ]  12-24h hours

[ ]  24-48 hours

[ ]  2-7 days

[ ]  >7 days

Anti-platelet agent:

[ ]  <12 hours

[ ]  12-24h hours

[ ]  24-48 hours

[ ]  2-7 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

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

[ ]  Yes

[ ]  No

* 1. What was the indication for CS ?

[ ]  Repeat CS

[ ]  Breech or transverse position

[ ]  Twin

[ ]  Maternal reason, please specify:

[ ]  non progressive cervical dilatation

[ ]  non progressive descend

[ ]  foetal distress,

[ ]  Other, please specify:

* 1. What was the grade of urgency?

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

[ ]  Category IV



* 1. Was the obstetrical surgeon scrubbed up at the moment of intubation (ready to go for surgery)?

[ ]  Yes

[ ]  No

* 1. Timing of antibiotics:

[ ]  Prior to incision

[ ]  After delivery

[ ]  Not known

* 1. What was the estimated blood loss during CS?      ml
	2. Did the woman have a haemorrhage during Caesarean section?

[ ]  Yes

[ ]  No

[ ]  Not known

If yes,

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: please specify:

 [ ]  Not known

1. **Woman’s outcome**
	1. Did any major maternal morbidity occur?

[ ] Yes

[ ]  Post partum haemorrhage. Please specify the cause

[ ]  Thrombotic event, specify

[ ]  Pulmonary problems / complications. Please specify

[ ] Cardiac problems Please specify

[ ] Renal problems, specify

[ ] Infectious problems, Please specify
[ ] Other? Please specify

[ ] No

[ ] Not known

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

[ ]  Yes

Type of ICU:

 [ ]  Postoperative recovery room/ PACU / …

[ ]  Intensive Unit

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

Duration of stay:       days

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

Reason for admission:

[ ]  No

[ ]  Not known

* 1. Did the woman die?

[ ]  Yes

[ ]  No

If yes, what was the primary cause of death as stated on the death certificate?

Findings of the autopsy if performed:

* 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

Infant 1 outcomes

* 1. Birthweight      g
	2. Was the infant stillborn (>= 22 weeks)?

[ ] Yes

* Primary cause of death as stated on the death certificate:
* Findings of the autopsy if performed:

*Move on to section 8*

[ ] No, *Move on to 7.3*

* 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 there need for neonatal respiratory support at birth?

[ ] Yes, please specify

type:

reason:

[ ] No

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

[ ] Yes

* N\* or NICU: …….
* 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? Please specify :

[ ] No

[ ] Not known

* 1. Did the infant die?

[ ]  Yes

Primary cause of death as stated on the death certificate:

Findings of the autopsy if performed:

[ ]  No

[ ]  Not known

Infant 2 Outcomes

(copy previous questions)

1. **Additional information?**

Today’s date:   /  /

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

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

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# ADDENDUM – ANAESTHETIC PART

1. ASA class of the patient: (remember ASA 1 is not possible in pregnancy)

☐ 2

☐ 3

☐ 4

☐ 5

2. Was it an emergency/unplanned situation?

☐Yes

☐No

3. What was the indication for general anaesthesia? (more than one option possible)

☐ Contra-indications for regional anaesthesia. Please specify:

☐ Failed regional anaesthesia

☐ Patient preference

☐ Obstetrician request. Please specify the reason:

☐ Immediate delivery mandated

☐ Lumbar spinal pathology

☐ actual or potential haemodynamic disturbance/ cardiorespiratory support

☐ coagulopathy/bleeding risk

☐ sepsis

☐ other. Please specify:

4. Did the patient have a neuraxial analgesia in place (epidural in labour)

☐Yes

☐No

5. How many attempts at intubation were made?

6. Was the patient known to be difficult to intubate?

☐Yes

☐No

7. What was her Mallampati score ?

☐ I

☐ II

☐ III

☐ IV



8. Did she have any other signs of **difficult intubation criteria**?

☐Yes

☐No

If yes, which ones?

\*\*\*

9. What was the **Cormack-Lehane direct laryngoscopy grade** (Best view at the time intubation failure was declared)?

☐CK I

☐CK IIa

☐CK IIb

☐CK III

☐CK IV

 

10. If you used a **videolaryngoscope**, what did you see?

☐Full view of the glottis

☐Only the posterior third of the glottis and the posterior corner are visible

☐Glottis not visible, only the epiglottis is visualized

☐Glottis and epiglottis not visible

11. Please indicate which **members of anaesthesia team** was present at any point during the procedure (nurse anaesthetist, trainee junior, senior, licensed anaesthesiologist).

And state which of the following **items of airway equipment** were used at every attempt (direct laryngoscopy, videolaryngoscopy, Laryngeal mask airway, fibreoptic bronchoscope or any other device).

|  |  |  |
| --- | --- | --- |
|  | Members of anaesthesia team | Airway equipment |
| First attempt |  |  |
| Second attempt |  |  |
| Third attempt |  |  |
| Fourth attempt |  |  |
| Fifth attempt |  |  |

12. How did you manage the induction of anaesthesia?

12a. Which **hypnotic did you use**? (more answers possible)

☐Propofol

☐Thiopentone

☐Etomidate

☐Ketamine

☐Other, Please specify: …

12b. Which **muscle relaxant did you use**?

☐Succinylcholine

☐Rocuronium

☐Atracurium

☐Cisatracurium

☐Other, Please specify: …

☐None

12c. Which **opioid did you use**?

☐Fentanyl

☐Sufentanil

☐Remifentanil

☐Other Please specify: …

☐None

12d. Did You use other anaesthetic drugs

☐Yes, please specify:

☐No

12e. How did you **maintain your anaesthesia**?

☐ Total intravenous anaesthesia

☐ Inhaled anaesthesia

12f. Did you perform **cricoid pressure (Sellick manoeuvre)**?

☐Yes

☐No

If yes: Did you have to **stop it at any point during intubation attempts**?

☐Yes

☐No

12h. Did you perform **mask ventilation before intubatio**n?

☐ Yes

☐ No

If so, was it:

☐ planned ☐ with cricoid pressure

☐ unplanned ☐ without cricoid pressure

12i. Reason for **ventilation:** (more answers possible)

☐Per protocol

☐Desaturation occurred

☐Anticipated difficult intubation

☐Unexpected difficult intubation

12j. What was the **ease of the mask ventilation**:

☐Easy

☐difficult

☐ Impossible

Extra information:

13. Was the gynaecologist **ready to make an incision** when you performed the induction of general anaesthesia?

☐ Yes

☐ No

14. Time of induction:

15. Time of intubation:

16. Time of incision:

17. Did she have **any complications** (desaturation, vocal cord injury, tooth injury, aspiration, …)?

* Desaturation:

☐ Serious desaturation (<90)

☐ Mild desaturation (90-95)

☐ No (>95)

* Aspiration:

 ☐ No

 ☐ possible

 ☐ confirmed

* Vocal cord injury:

 ☐ Yes

 ☐ No

* Tooth injury:

 ☐ Yes

 ☐ No

* Other: please specify:

18. What was the **estimated blood loss**?

\*\*\*

19. Use this space to enter any other information you feel may be important:

1. Ring L, Landau R, Delgado C. The current role of general anesthesia for cesarean delivery*. Current Anesthesiology Reports* 2021; 11:18–27. <https://doi.org/10.1007/s40140-021-00437-6> [↑](#footnote-ref-1)