Defining definitions: a Delphi study to develop a core outcome set for conditions of severe maternal morbidity

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Abstract

Objective

Develop a core outcome set of international consensus definitions for severe maternal morbidities.

Design

Electronic Delphi study.

Setting

International.

Population

Eight expert panels.

Methods

All 13 high-income countries represented in the International Network of Obstetric Surveillance Systems (INOSS) nominated five experts per condition of morbidity, who submitted possible definitions. From these suggestions, a steering committee distilled critical components (eclampsia:23, amniotic fluid embolism:15, pregnancy-related hysterectomy:11, severe primary postpartum haemorrhage:19, uterine rupture:20, abnormally invasive placentation:12, spontaneous haemoperitoneum in pregnancy:16, and cardiac arrest in pregnancy:10). These components were assessed by the expert panel using a five-point Likert scale, following which a framework for an encompassing definition was constructed. Possible definitions were evaluated in rounds until a rate of agreement of more than 70% was reached. Expert commentaries were used in each round to improve definitions.

Main outcome measures

Definitions with a rate of agreement of more than 70%.

Results

The invitation to participate in one or more of eight Delphi's was accepted by 103 experts from 13 high-income countries. Consensus definitions were developed for all of the conditions.

Conclusion

Consensus definitions for eight morbidity conditions were successfully developed using the Delphi process. These should be used in national registrations and international studies, and should be taken up by the Core Outcomes in Women's and Newborn health initiative.

Keywords: Delphi; severe acute maternal morbidity; eclampsia; amniotic fluid embolism; pregnancy-related hysterectomy; severe primary postpartum haemorrhage; uterine rupture; abnormally invasive placentation; spontaneous hemoperitoneum in pregnancy; cardiac arrest in pregnancy

Tweetable abstract: Consensus definitions for eight morbidity conditions were successfully developed using the Delphi process.

Introduction

Identifying universal definitions for specific severe maternal morbidities is now increasingly relevant in light of the emphasis on monitoring such morbidities as an additional marker of quality of obstetric care.[1;2] Definitions of severe maternal morbidities available in the literature have been contested.

There is an absence of uniform definitions that are both specific enough to enable international comparisons and broad enough to enable a sufficient number of inclusions.

The incidence of severe maternal morbidity between settings has shown variations, not only due to differences in population characteristics and quality of obstetric care, but also in applied case definitions, ascertainment and registration methods.[3] Such methodological differences hamper comparison studies that could bring evidence to guide clinical decision making.

Since many routine data systems do not capture severe maternal morbidity, several countries initiated separate nationwide, prospective morbidity registrations. [4;5] The International Network of Obstetric Survey Systems (INOSS) is a multi-country collaboration of institutions in mainly high-income countries, which was started to streamline these national initiatives, and facilitate international pooled studies of rare conditions as well as international comparisons of more common conditions. [3;6] To enable such comparisons we carried out a Delphi process in order to arrive at consensus definitions for conditions of severe maternal morbidity.

Methods

Delphi technique

We conducted a study applying the Delphi method to arrive at unified definitions of eight conditions of maternal morbidity. These eight conditions were prioritized because INOSS members, who are responsible for population-based studies of severe maternal morbidity in their respective countries, were planning international collaborative studies into these conditions. The Delphi technique is an iterative process that aims for expert consensus, while minimizing confounding factors. This procedure has become a well-established instrument to reach consensus from a panel of experts, for research questions that cannot be answered with empirical evidence. [7]

Aims

The electronic Delphi technique was chosen to allow participation of specialists from multiple countries, promoting broad applicability and adoption. Intended characteristics of a definition were:

(1) easy application in daily clinical practise and research; (2) subject to few exclusion criteria; (3) not in disagreement with existing definitions; (4) sufficiently broad, in order to enable analysis of subgroups.

Since severe maternal morbidity is an important outcome measure of obstetric healthcare, this study was registered at the Core Outcomes in Women's and Newborn health initiative, an international consortium striving to harmonise outcome reporting. [8] This study was included in the Core Outcome Measures in Effectiveness Trials (COMET) database under registration number 835 and is retrievable on the COMET-website. [9] We have followed as much as possible the Core Outcomes Set-Standards for Reporting. [10]

Expert panel

All 13 member countries of INOSS (Australia; Belgium; Denmark; Finland; France; Germany; Italy; Japan; Netherlands; Norway; Slovakia; United Kingdom; United States) were asked to recommend a maximum of five experts per condition, preferably with varying areas of expertise. Experts could be included in multiple panels for different conditions. Experts were not invited for subsequent Delphi rounds if they had failed to participate in previous rounds, and were encouraged to provide comments and suggestions at any stage in order to create substantiated adaptations. At study onset, experts were contacted to confirm participation.

Delphi steering committee

A Delphi steering committee was established to oversee the process. The committee consisted of six members with expertise in obstetrics (KB, JL-R, TS) and perinatal epidemiology (MK, ES, CD-T).

Delphi methodology

Delphi processes were undertaken for all eight conditions using an online survey tool. Responses were filed at the experts' discretion until a given deadline. A total of three reminders were sent to non-responders during each round.

In the first round, experts were invited to supply definitions for each condition. Supplied definitions were used by the steering committee to distil critical components for a consensus definition.

In the second round, experts were asked to award such components a 5-point Likert scale, from -2 (strongly disagree) to +2 (strongly agree). Results were reviewed at an international conference, in which remaining controversies were identified. These questions were then submitted to expert panels for assessment using the same Likert scales.

The steering committee then constructed definitions for all eight conditions of morbidity. Consecutive consensus rounds took place and definitions were adapted based on additional comments and suggestions. Results from previous rounds and aggregated comments were fed back to experts prior to each round, to guarantee an iterative process.

Data analysis

Answers were collected and analysed using Microsoft Excel. Likert scales were used to calculate a Rate of Agreement (RoA) for each proposed definition in consensus rounds. [Figure 1] A RoA of more than 70% suggested consensus, in line with other medical Delphi studies. [Figure S1] [11;12]

Results

The invitation to participate in one or more of eight Delphi was accepted by 103 experts from 13 countries. The distribution of specialities within the eight expert panels is described in Table 1. The weighted influence of expert's country of origin on accepted definitions, calculated by the sum of all responses per country per condition divided by total responses, is shown in figure S2.

A total of 31 (30%) experts were recommended to take part and participated in the Delphi process for all morbidity conditions. The distribution of experts participating in one or more Delphi's is shown in figure S3.

Experts submitted 1529 responses during all Delphi sessions. The results of all Delphi sessions are depicted in table 2, the accepted definitions and the number of Delphi rounds needed to arrive at the necessary RoA are shown in table 3. The summarised unique definitions, including the distilled critical components and developed questions are listed in supplementary Appendix S1.

Discussion

Main findings

The Delphi process resulted in unified definitions for eight conditions of maternal morbidity. These definitions will promote uniformity in research, and enable intercountry comparisons as well as pooled analyses of rare conditions. Ascertaining appropriate definitions for rare items of maternal morbidity is not attainable by means of conventional, discriminative modelling. [13]

Strengths and limitations

Our study has several strengths. Foremost, an international and diverse expert panel ensured both a sensible construct as well as clinical applicability, increasing possibilities of international adoption and acceptability. Further systematic feedback of results and commentaries from previous rounds guaranteed substantiated adaptations in constructed definitions.

Patients were not included in expert panels, since the aim of the project was to define patient groups rather than to discern relevant outcomes for each condition. Due to the limited number of experts per condition, we did not stratify feedback per specialty. We recognize that the inclusion of a larger number of midwives in expert panels could have been of additional benefit. Since the INOSS-network and the experts in the Delphi are primarily based in high-income countries, we recognize that the definitions apply primarily in such settings, although some may also be useful in middle- or even low-income settings and enable broader comparisons.

Interpretation

The expert panel agreed to a definition of eclampsia that specified exclusion of other causes for seizures, in addition to having at least one symptom matching hypertensive disease of pregnancy. Cut off values were selected in agreement with the preeclampsia definition by the International Society for the Study of Hypertension in Pregnancy. [14] A maximum interval of 10 days postpartum was decided based on the evidence of several larger cohort studies on eclampsia. [15;16]

The expert panel decided that the hallmark of AFE is cardio-respiratory collapse, followed by disseminated intravascular coagulation in a woman who survived the initial event. Asymptomatic pulmonary debris of presumed fetal origin at autopsy was not included into the definition. [17-20] A comparable definition for AFE with a scoring system for the coagulation disorder and a maximum interval to delivery of 30 minutes was recently suggested by others. Although this scoring system results in a quantifiable measure for DIC, the cut off values have not been verified in pregnancy and if untested could lead to falsely in- or excluding cases of AFE. [18-20] A case by cases analysis differentiating between these two definitions could be subject of future research. [21-26]

(Emergency) Peripartum hysterectomy was changed by the expert panel to Pregnancy-Related Hysterectomy (PRH), primarily to include women with a hysterectomy following complicated procedures for termination of pregnancy or removal of products of conception after miscarriage. The post-delivery interval of 42 days was chosen in order to include cases of secondary (or delayed) hysterectomies such as failure of conservative management in women with Abnormally Invasive Placentation (AIP). [27]

The expert panel concluded that a definition of severe postpartum haemorrhage should include criteria for either an amount of blood loss or an amount of blood transfusion, or a combination. Bearing in mind clinical aspects such as initial haemoglobin level, individual differences in circulating blood volume and imperfections in measuring blood loss, the experts concluded that the chosen cut offs would yield a population indicative of truly severe postpartum haemorrhage. To distinguish severe postpartum haemorrhage from prolonged blood loss or women receiving blood transfusion in

a non-acute phase, a time limit of 24 hours was added and the condition name was changed to include 'primary'. [28-30]

There was some controversy concerning the use of a clinical or anatomical definition for uterine rupture. The widely accepted difference between a dehiscence, identified coincidentally during caesarean section, and an incomplete uterine rupture lies in the presence of clinical symptoms. The expert panel concluded that determining thresholds for clinical symptoms would yield an impractical definition. Therefore, only cases of complete rupture were included regardless of symptoms.

Increasing caesarean section rates and related AIP affirm the need for an international definition for AIP case ascertainment. The expert panel concluded that the definition includes all degrees of invasive growth of the placenta. Since this histopathological definition would limit cases to women post-hysterectomy or partial myometrial resection, women managed conservatively (e.g. leaving the placenta in situ without an attempt at removal) are included. [31-33] Blood loss was not part of the definition to enable ascertainment of cases treated successfully. Radiological investigations were deemed to be insufficiently able to detect AIP and were not included in the definition. [34]

The expert panel concluded that visual confirmation of intra-abdominal blood is necessary for the diagnosis of Spontaneous Haemoperitoneum in Pregnancy (SHiP), and that intra-abdominal fluid only suspected on radiological investigations is insufficient to come to the diagnosis. Arterial embolization without visual confirmation to avoid surgery was included.

Cardiac arrest in Pregnancy is a rare and clinically complex entity with widely differing incidences from 1/12,500 in the United States (US) to 1/30,000 in the Netherlands. [35;36] The panel defined cardiac arrest as the need for Cardio-Pulmonary Resuscitation (CPR), avoiding the need to define cut off values for vital parameters.

Many studies based on routine data apply ICD-10 codes for case ascertainment, resulting in large cohort studies without adequately defined study populations, creating both false-positives and false-negatives. Problems for international comparisons based on routine data systems have been described for cohorts in the UK, Scandinavia, France, the Netherlands, United States and Australia.

[5;37-39]. Several initiatives are underway to create standard sets of outcomes measures, in particular those supported by the Core Outcomes in Women's and Newborn health initiative.[8] Standardized measures of patient-reported outcomes are also being developed, as has been done by the International Consortium for Health Outcome Measurement.[40;41] The World Health Organization has developed a maternal near miss approach based on the identification of organ failure to identify women who nearly died from pregnancy complications. [42;43] However, this focus on organ failure has been criticised and the importance of continuing disease-based studies emphasized. [42;43] Moreover, this maternal near miss approach still relies on international consensus for many of the conditions in our study.

Bridging the divide between studies reporting exclusively clinical data or patient reported outcomes surely must be a focus for the future. INOSS has therefore recently constructed an INOSS Core Dataset (ICoD) that will be used by all INOSS countries to facilitate uniform stratification of data and comparison of nationwide registrations. Closer affiliation with other organisations such as the World Health Organisation will be sought to enhance international adoption of the definitions.

Conclusion

We successfully used the Delphi process to define eight conditions of severe maternal morbidity. These standard definitions can be adopted for use in national registers and international comparisons and should be adopted by the Core Outcomes in Women's and Newborn health initiative. Further advances in uniformity of obstetric research of severe maternal morbidity may be pursued by using a specific standardised minimum data- and outcome sets, such as the INOSS Minimum Dataset.

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Disclosure of interests

The authors have no potential conflicts of interest to disclose.

Contribution to authorship

TS, KB, MK and TA conceived the study. TS designed and coordinated the study. The steering committee (TS, KB, CD, JLR, MK, ES) was responsible for analysing the results from Delphi rounds and adapting the definitions according to experts' comments. TS and TA drafted the manuscript and all authors corrected and gave final approval.

Details of ethical approval

Because of the nature of this methodological study, we did not apply for ethical approval.

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Supporting information

Appendix S1: Unique definitions and critical components

Figure S1: Rate of Agreement (RoA) formula

Figure S2: Weighted distribution of expert input per country

Figure S3: Distribution of experts in multiple Delphi's

Item of morbidity	Obstetrics & Gynaecology	Anesthesiologist	Epidemiologist	Cardiologist	Midwifery Science	Intensive care medicine	Obstetric medicine
Eclampsia	42/59 (71,2%)	6/59 (10,2%)	7/59 (11,9%)	-	2/59 (3,4%)	-	2/59 (3,4%)
Amniotic fluid embolism	38/55 (69,1%)	7/55 (12,7%)	5/55 (9,1%)	-	2/55 (3,6%)	1/55 (1,8%)	2/55 (3,6%)
Peripartum Hysterectomy	45/59 (76,3%)	5/59 (8,5%)	5/59 (8,5%)	-	2/59 (3,4%)	-	2/59 (3,4%)
Severe primary postpartum haemorrhage	36/52 (69,2%)	6/52 (11,5%)	6/52 (11,5%)	-	2/52 (3,9%)	-	2/52 (3,9%)
Uterine rupture	37/53 (69,8%)	5/53 (9,4%)	7/53 (13,2%)	-	2/53 (3,8%)	-	2/53 (3,8%)
Abnormally Invasive Placentation (AIP)	38/49 (77,6%)	5/49 (10,2%)	4/49 (8,2%)	-	1/49 (2,0%)	-	1/49 (2,0%)
Spontaneous Hemoperitoneum in Pregnancy	36/47 (76,6%)	5/47 (10,6%)	3/47 (6,4%)	-	2/47 (4,3%)	-	1/47 (2,1%)
Cardiac Arrest in Pregnancy	28/44 (63,6%)	5/44 (11,4%)	4/44 (9,1%)	2/44 (4,6%)	2/44 (4,6%)	1/44 (2,3%)	2/44 (4,6%)

Table 1: Distribution of specialties within the expert panels

Condition of morbidity		Eclampsia	Amniotic fluid embolism	pregnancy-related hysterectomy	Severe primary postpartum haemorrhage	Utrine rupture	Abnormally Invasive Placentation	Spontaneous hemoperitoneum in pregnancy	Cardiac arrest in pregnancy
Round 1	Expert panel (accepted invitation)	59	55	59	52	53	49	47	44
	Experts responded (% of invited)	53 (90%)	50 (91)%	52 (88%)	47 (90%)	47 (89%)	43 (88%)	39 (83%)	41 (93%)
	Number of unique definitions	40	33	38	34	23	33	33	32
	Critical components distracted for round 2	23	15	11	19	20	12	16	10
Round 2	Experts responded (% of invited)	47 (89%)	44 (88%)	44 (85%)	43 (91%)	41 (87%)	37 (86%)	34 (87%)	36 (88%)
	Number of critical components agreed upon (% of total)	12 (52%)	6 (40%)	6 (55%)	10 (53%)	14 (70%)	4 (33%)	4 (25%)	6 (60%)
	Remaining question distracted for round 3	2	2	2	9	3	2	1	2
Round 3	Experts responded (% of invited)	47 (100%)	38 (86%)	40 (91%)	43 (100%)	41 (100%)	37 (100%)	34 (100%)	36 (100%)
	Number of critical components agreed upon (% of total)	2 (100%)	0 (0%)	1 (50%)	2 (22%)	2 (67%)	1 (50%)	0 (0%)	0 (0%)
Round 4	Experts responded (% of invited)	41 (87%)	35 (92%)	36 (90%)	41 (95%)	37 (90%)	35 (95%)	33 (97%)	34 (94%)
	Rate of Agreement	63%	77%	78%	58%	35%	94%	84%	83%
Round 5	Experts responded (% of invited)	39 (95%)			39 (95%)	35 (95%)			
	Rate of Agreement	62%			45%	94%			
Round 6	Experts responded (% of invited)	37 (95%)			37 (95%)				
	Rate of Agreement	74%			49%				
Round 7	Experts responded (% of invited)				36 (97%)				
	Rate of Agreement				75%				
Totals	Total responses	264	167	172	286	201	152	140	147
	Final response rate opposed to originally invited experts	63%	64%	61%	69%	66%	71%	70%	77%

Table 2: Results from Delphi rounds for eight conditions of morbidity

Condition	Rate of Agreement (round accepted)	Accepted definition
Eclampsia	74% (6)	<p><i>Seizures in a woman during pregnancy or up to 14 days postpartum, without any other attributable cause, with at least one of the following signs:</i></p> <ul style="list-style-type: none"> - Hypertension (≥ 140 mmHg systolic and/or ≥ 90 mmHg diastolic) - Proteinuria (spot urine protein/creatinine > 30 mg/mmol [0.3 mg/mg] OR > 300 mg/day OR at least 1 g/L ['2 +'] on dipstick testing) - Thrombocytopenia (platelet count of less than $100 \times 10^9/L$) - Raised plasma ALT or AST (twofold the upper limit of normal)
Amniotic Fluid Embolism	77% (4)	<i>'Acute cardio-respiratory collapse within 6 hours after labour, delivery or ruptured membranes, with no other identifiable cause, followed by acute coagulopathy in those women who survive the initial event.'</i>
Pregnancy-related hysterectomy	78% (4)	<i>'Surgical removal of the uterus during pregnancy or up to 42 days postpartum.'</i>
Severe primary postpartum haemorrhage	75% (7)	<i>'Postpartum blood loss exceeding 2000cc AND/OR the need of transfusion of at least 4 units of red blood cells, within 24 hours after end of pregnancy, in a pregnancy of at least 20 weeks gestational age.'</i>
Uterine rupture	94% (5)	<i>'A visually confirmed, complete rupture of the myometrium and serosa.'</i>
Abnormally invasive placentation	94% (4)	<i>'Various degrees of invasive growth of the placenta in the uterine wall, with an abnormally difficult or incomplete removal (including leaving the placenta in situ).'</i>
Spontaneous Hemoperitoneum in Pregnancy	84% (4)	<i>'Spontaneous (nontraumatic) intraperitoneal haemorrhage during pregnancy and up to 42 days postpartum, requiring surgical intervention or embolization. Excluding ectopic pregnancy, uterine rupture and caesarean section associated bleeding.'</i>
Cardiac arrest in pregnancy	83% (4)	<i>'Any woman receiving at least Cardio-Pulmonary Resuscitation (CPR) during pregnancy, in labour or within 42 days postpartum.'</i>

Table 3: Accepted definitions for conditions of maternal morbidity

INOSS Delphi Steering Committee selected conditions for uniform definitions*

Expert panel selection

INOSS countries select five experts per condition of maternal morbidity

Delphi round 1

Experts supply definition

Analysis round 1

Delphi Steering Committee breaks down definition into critical components

Delphi round 2

Experts award a 5-point Likert Scale to critical components

Analysis round 2

International INOSS Delphi meeting
- critical requirements of definition established
- remaining questions ascertained

Delphi round 3

Experts answer remaining questions

Analysis round 3

Delphi Steering Committee constructs proposed definitions for condition

Delphi Definition voting round

Voting on proposed definition

RoA >70%

**Definition
agreed upon**

RoA ≤70%

**Definition
NOT agreed
upon**

Adaptations
based on
expert
comments

Supplementary appendix

This supplementary contains both the unique definitions for all eight items of morbidity that were supplied by the experts during the first Delphi round and the subsequently developed questions concerning the critical elements.

Eclampsia

Unique definitions from round 1

Specialty	My definition of eclampsia is:	Free commentaries to definition of eclampsia:
Obstetrics & Gynaecology	Eclampsia is defined as the occurrence of convulsions (tonic-clonic) during pregnancy or puerperium together with one of other features : hypertension, proteinuria, elevation of hepatal enzymes or thrombocytopenia	Hypertension more than 140/90
Anaesthesiology	Occurrence, in a patient with pre-eclampsia, of seizures or consciousness disorders which cannot be connected with a pre-existing neurological disease	
Anaesthesiology	Seizures in the context of preeclampsia, with preeclampsia defined as maternal high blood pressure (SBP $\geq$ 140mmHg and or DBP $\geq$ 90mmHg) and proteinuria (>0.3g/24H) after 20 weeks of gestation	
Obstetrics & Gynaecology	Universal convulsions in a woman with pre-eclampsia with onset before, during or after delivery.	
Obstetrics & Gynaecology	Maternal seizure in pregnancy or up to 10 days postnatal associated with hypertension and or proteinuria having excluded intracranial events either clinically or radiologically	
Obstetrics & Gynaecology	The onset of unexplained generalized tonic-clonic seizures in a woman with preeclampsia.	
Epidemiology	Eclampsia is the new onset of grand mal seizure in women with pre-eclampsia.	It can take place before, during and after delivery.
Obstetrics & Gynaecology	convulsions with HTA and or proteinuria	sometimes, there are no suggesting signs of HTA or Proteinuria. Eclampsia should be considered if 1 there is no known epilepsy or other neurological causes 2 woman is nulliparous
Obstetrics & Gynaecology	generalized seizures occurring in a pregnant woman most often in the context of pregnancy induced hypertension	
Obstetrics & Gynaecology	Preeclampsia complicated by generalized tonic-clonic convulsions	
Obstetrics & Gynaecology	Generalized seizures not due to epilepsy or other focal causes in pregnancy and up 42 days post-partum in women with preeclampsia, gestational hypertension or HELLP-syndrome.	"Pregnancy" should include the entire gestation, and in order to be coherent with definitions of maternal death, the 42 days post-partum. To facilitate routine surveillance the following ICD-10 code is suggested: O15

Anaesthesiology	the presentation of seizures in women with preeclampsia but without pre-existing forms of epilepsy	
Obstetrics & Gynaecology	any woman with convulsion(s) during pregnancy or within the first 10 days after delivery, in combination with at least 2 of the following features within 24 hours of the convulsion(s) : • Hypertension • Proteinuria • Thrombocytopenia • Raised transaminase levels • Intrauterine growth restriction	Comment: Eclampsia can't be diagnosed up to 42 days postpartum,; it's up to 10 days , otherwise it will be other reasons for convulsion here. To facilitate routine surveillance the following ICD-10 codes are suggested: O15
Obstetrics & Gynaecology	Any women with convulsion(s) during pregnancy or the first 10 days postpartum, in the absence of any other cause	
Obstetrics & Gynaecology	convulsions in a woman with pre-eclampsia (high blood pressure and proteinuria or HELLP)	
Epidemiology	The occurrence of convulsions during pregnancy or in the first ten days postpartum, together with at least two of the following features within 24 hours after the convulsions: hypertension (a booking diastolic pressure of <90 mmHg, a maximum diastolic of >=90 mmHg, and a diastolic increment of >=25mmHg), proteinuria (at least + protein in a random urine sample or >=0.3g in a 24hr collection) thrombocytopenia (platelet count of less than 100x109/l), an increased plasma alanine aminotransferase (ALT) concentration (>=42 iu/l) or an increased plasma aspartate transaminase (AST) concentration (>=42 iu/l).	
Obstetrics & Gynaecology	Seizures or coma in pregnancy (week 20 - 4 weeks postpartum) that is not explained by other cerebral conditions	In general, we will probably have to discuss if we will start with Conditions or Symptoms - and then stratify from one or the other. We could do both? If I have to choose I would vote for starting with symptoms. That is in some way "a new and more educational approach" - I think.
Obstetrics & Gynaecology	Generalized seizures not due to epilepsy or other neurological causes in pregnancy and up to 42 days post-partum in women with preeclampsia, gestational hypertension or HELLP syndrome.	"Pregnancy" should include the entire gestation, but in practice will be limited to cases after 20-22 weeks. In order to be coherent with definitions of maternal death, we have also here suggested 42 days postpartum. To facilitate routine surveillance, the following ICD-10 codes are suggested: O15.0-9
Obstetrics & Gynaecology	convulsions associated with pre-eclampsia.	
Obstetrics & Gynaecology	New-onset tonic-clonic seizures in a pregnant women	
Obstetric Medicine	the occurrence of convulsions in pregnancy after 16 weeks gestation or up to 2 weeks postpartum together with 2 of the following: evidence of hypertension or significant proteinuria, deranged liver function tests or low platelets or haemolysis or PRES on MRI head	PRES= posterior reversible encephalopathy syndrome

Epidemiology	The occurrence of convulsions during pregnancy or in the first ten days postpartum, together with at least two of the following features within 24 hours after the convulsions: hypertension (a booking diastolic pressure of <90 mmHg, a maximum diastolic of >=90 mmHg, and a diastolic increment of >=25mmHg), proteinuria (at least + protein in a random urine sample or >=0.3g in a 24hr collection) thrombocytopenia (platelet count of less than 100x10 ⁹ /l), an increased plasma alanine aminotransferase (ALT) concentration (>=42 iu/l) or an increased plasma aspartate transaminase aminotransferase (AST) concentration (>=42 iu/l).	This is the definition that was used - but I question whether it should be one additional feature alongside convulsions.
Epidemiology	ICD-10: O15	A potentially life-threatening disorder in pregnant or puerperal women manifested by convulsions in association with hypertension, oedema, and/or proteinuria. Convulsions and coma occurring in pregnant or puerperal women, associated with hypertension, oedema, and proteinuria. Onset of hyperreflexia; seizures; or coma in a previously diagnosed pre-eclamptic patient (pre-eclampsia).
Midwifery	Convulsion in a patient with preeclampsia	Usually patient has protein in the urine, high blood pressure and vivid reflexes preceding the seizure. Gestational age more than 20 weeks.
Obstetrics & Gynaecology	The occurrence of convulsions (tonic-clonic) during pregnancy, labour or in puerperium, with one or more other signs: hypertension, proteinuria, elevation of hepatal enzymes or thrombocytopenia	
Obstetrics & Gynaecology	Eclampsia is the apparition of one or more convulsions superimposed on preeclampsia.	clinically, convulsions during pregnancy should always be considered eclampsia until another cause can be proven
Obstetrics & Gynaecology	Eclampsia is a seizure in women with severe preeclampsia.	The seizure manifests itself with tonic - clonic convulsions before and after delivery.
Epidemiology	Woman with generalized tonic-clonic convulsion(s) occurring at or after 20 weeks of gestation until the end of puerperium (4 weeks postpartum) which is not attributable to other causes (e.g. epilepsy)	Information regarding pre-eclampsia should be collected, but the diagnosis of pre-eclampsia is not required to be reported.
Obstetrics & Gynaecology	convulsions in association with preeclampsia	
Obstetrics & Gynaecology	convulsions in a pregnant woman > 20 weeks of gestation and hypertension >= 140/90 and proteinuria >=0.3 g/24h	
Obstetrics & Gynaecology	seizure due to pregnancy-induced-hypertension	
Epidemiology	Patient with tonic/clonic seizures occurring >20 weeks gestation and <2 weeks postpartum excluding those due to other causes confirmed by EEG or cranial NMR	
Obstetrics & Gynaecology	appearance of seizures in a context of preeclampsia	Often preeclampsia develops after seizures or never appears, but this condition is the basis of eclampsia

Obstetrics & Gynaecology	Generalised seizures during pregnancy or postpartum not due to epilepsy or other focal causes in women with a diagnose of preeclampsia/HELLP. To facilitate routine surveillance the following ICD-10 codes are suggested: O15	
Obstetrics & Gynaecology	Seizures in a preeclamptic patient during pregnancy, delivery, post- partum or puerperium. Seizures may appear before the onset of hypertension	
Epidemiology	New onset of seizures in pregnancy that cannot be attributable to other causes in a woman with preeclampsia	
Midwifery	Convulsions in relation to hypertensive disease of pregnancy	
Obstetrics & Gynaecology	eclampsia (convulsions) in the absence of epilepsy or organic aetiology, in pregnancy	
Obstetrics & Gynaecology	New onset hypertension during pregnancy after 20 weeks with accompanied by seizures.	The American College of Obstetricians and Gynaecologists has issued a report on hypertension in pregnancy where eclampsia as defined here is one of several severe features. Perhaps it would be better to focus on preeclampsia with severe features so as to include other severe systemic disease beyond CNS manifestations.
Obstetrics & Gynaecology	Presence of seizures or coma in a patient with pregnancy-induced hypertension.	

Eclampsia - Distilled questions concerning critical components

Question no.	Question	(Strongly) agree	Undecided	(Strongly) disagree
Chapter 1	Domain of the definition eclampsia			
1	There should be a lower limit to gestational age at which the first seizure/convulsion could be called eclampsia	63%	10%	27%
2	There should be a maximum in postpartum days at which a seizure/convulsion could be called eclampsia	86%	2%	12%
3	My preference is to call it: convulsion - seizures	37%	42%	21%
4	My preference is that the definition states seizures/convulsions instead of one of the two	50%	15%	35%
Chapter 2	Symptoms of a definition of eclampsia			
5	Having a seizure/convulsion is an essential part of the definition eclampsia	94%	0%	6%
6	Being in coma (without ever having been seen with a seizure/convulsion) is comparable to having a seizure/convulsion, and should be included in the definition	56%	15%	29%
7	Having excluded other causes of the seizure/convulsion should be a part of the definition	79%	11%	10%
8	<i>There should be a maximum interval listed in the definition between the seizure/convulsion and the other features</i>	29%	33%	38%
9	<i>One could not have eclampsia without having a diagnosis of pre-eclampsia (hypertension AND proteinuria).</i>	19%	10%	71%
10	<i>One could not have eclampsia without having proteinuria</i>	67%	4%	29%
11	<i>One could have eclampsia with only having hypertension (and without having proteinuria).</i>	29%	10%	61%
Chapter 3	Construct of a definition of eclampsia			
12	<p><i>The definition should be constructed as follows:</i></p> <p><i>Type A = a definition stating the appearance of seizure/convulsion with features that should always be present (e.g. convulsions/seizures with the diagnoses pre-eclampsia)</i></p> <p><i>Type B = a definition stating the appearance of a seizure/convulsion with at least x of the following features:;.....;....</i></p>	<p>A</p> <p>67%</p>	2%	<p>B</p> <p>31%</p>
Chapter 4	Items in 2 types of construct for a definition of eclampsia			
Chapter 4.1	<i>Definition Type A: a definition with features that should always be met, should state:</i>			
13	<i>that hypertension is present (disregarding whether proteinuria is present)</i>	46%	13%	41%
14	<i>that pre-eclampsia is present</i>	35%	17%	48%
15	<i>that hypertension is diagnosed by exceeding either systolic and/or diastolic cut of values</i>	66%	4%	30%
16	<i>that hypertension is diagnosed when exceeding both systolic and diastolic cut off values</i>	13%	13%	74%
17	<i>that hypertension is diagnosed by either systolic/diastolic cut offs AND/OR an increment from booking blood pressure (either diastolic or systolic)</i>	43%	15%	42%

Chapter 4.2	Definition type B: a definition in which a patient should have at least a minimum number of features on a list, should include:			
18	Having hypertension diagnosed by exceeding <u>either</u> systolic <u>and/or</u> diastolic cut off values	73%	9%	18%
19	Having hypertension diagnosed by exceeding <u>both</u> systolic <u>and</u> diastolic cut off values	16%	15%	69%
20	Having hypertension diagnosed by either systolic/diastolic cut offs AND/OR an increment from booking blood pressure (either diastolic or systolic)	51%	13%	36%
21	Having proteinuria should be one of the features in the list	62%	11%	27%
22	Having thrombocytopenia should be one of the features in the list	47%	13%	40%
23	Having raised transamin acid levels should be one of the features in the list	47%	13%	40%

Comments collected during Delphi round 2

During round two of the Delphi process the following comments were collected in the individual chapters.

Chapter 1: Domain of the definition eclampsia

Any definition change associated with gestational onset for eclampsia will also have to be considered for the definition of preeclampsia
--

Chapter 2: Symptoms of a definition of eclampsia

not having proteinuria at the moment of the diagnosis is possible, but confirming proteinuria at some point is mandatory
--

The last three questions are rather confusing. The questions should be:

Could one have eclampsia without developing hypertension?

Could one have eclampsia without developing proteinuria?
--

Could one have eclampsia without developing hypertension and proteinuria (PE)?
--

proteinuria might not be established, and may certainly be lower than 300mg/24hrs upon lab assessment

Comment to Fifth statement: Eclampsia should be confined to women With pre-eclampsia, but in everyday life it may happen that pre-eclampsia has not yet been diagnosed before the eclamptic seizure occurs.

The diagnosis of preeclampsia does not always precede the eclamptic seizure, but may be identified afterwards.
--

At time of convulsions patient could have been diagnosed with just hypertension (proteinuria not yet detected)
--

Eclampsia may be first presenting symptom therefore can occur before the diagnosis of preeclampsia. Features of preeclampsia and a diagnosis of preeclampsia will follow in this situation. There is vast variation in how preeclampsia presents.

Chapter 3: construct of a definition of eclampsia

Two of the following features:

hypertension, proteinuria, trombocytopenia, raised transaminase levels, intaruterine growth restriction

Comments as for the previous

As commented previously the seizures may occur in women and precede the preeclampsia diagnosis. Type B would allow for the proteinuria and hypertension to be identified at any time prior to or after the seizure occurs.
--

seizure/convulsion in a women without any other explanation

Chapter 4 Items in 2 types of construct for a definition of eclampsia

Chapter 4.1 Definition Type A: a definition with features that should always be met, should state:

leave the definition of preeclampsia out of this definition!!

an increment is a generic definition that could be interpreted differently by clinicians
--

The last criteria (increment from booking blood pressure) was part of the deifinition for pre-eclampsia in previous Norwegian guidelines, but has been taken out in present guidelines.

The criterion for preeclampsia concerning increment in blood pressure from booking has been taken out of our national definition of preeclampsia.

Stratification by the above criteria (please see the conceptual discussion in a separate mail)
--

New onset hypertension and seizures ought to be eclampsia. Preeclampsia should not necessarily have to have proteinuria.
--

Chapter 4.2 Definition type B: a definition in which a patient should have at least a minimum number of features on a list, should include:

Comment as for the previous statements
HELLP syndrome should be registered as a separate entity.
These individual components of 'preeclampsia' may or may not be present - even if they are there in 'most cases of eclampsia' - they are not there in all of the them. We need to careful not to be too prescriptive about a condition that we actually don't fully understand.

Amniotic Fluid Embolism

Unique definitions from round 1

Specialty	My definition of Amniotic Fluid Embolism is:	Free commentaries to definition of Amniotic Fluid Embolism:
Obstetrics & Gynaecology	Fatal amniotic fluid embolism is confirmed by autopsy. Nonfatal amniotic fluid is the clinical diagnosis per exclusionem.	Clinical diagnosis - sudden hypotension, tachycardia or sudden cardiac arrest, dyspnoe, sudden unconsciousness or seizures and/or coagulopathy without any etiology, after excluding of all possible causes.
Anaesthesiology	All maternal and / or fetal symptoms related to the passage in the maternal circulation of amniotic fluid and / or fetal-placental elements.	Diagnosis mainly evoked during labor and immediate postpartum in case of sudden failure with clinical signs, more or less associated, as hemodynamic instability, convulsions, respiratory signs, collapse, deep and early coagulation disorders (severe disseminated intravascular coagulation). It is often a diagnosis of exclusion because of the difficulty in obtaining a definitive diagnosis by biology or pathology.
Obstetrics & Gynaecology	A syndrom of cardiovascular collapse followed by disseminated intravascular coagulation properly caused by amnion fluid leaking into the maternal circulationn	
Intensivist	a catastrophic complication of pregnancy caused by maternal exposure to fetal antibodies, leading to an extreme anafylactoid reaction. The signs and symptoms are: pulmonary hypertension, acute rightsided heartfailure followed by systemic hypotension, hypoxemia and diffuse intravasculair coagulation.	
Obstetrics & Gynaecology	clinical and biological association without other known cause : 1) acute dyspnea and or hypotension and or loss of consciousness and or cardiac arrest AND 2) coagulopathy	I am not convinced with histological definition (fetal squames in maternal bood or lungs)
Obstetrics & Gynaecology	AFE is characterized by acute and rapid collapse of mother and/or baby as a result of an allergic-like reaction to amniotic fluid entering the maternal circulatory system. It is most generally defined as a two-phase response: The first phase is characterized by rapid respiratory failure and cardiac arrest. The second phase is known as the hemorrhagic phase. The mother begins to bleed profusely at the wound site; typically at the site of placental attachment or cesarean incision. Disseminated intravascular coagulopathy (DIC) or consumptive coagulopathy develops.	
Obstetrics & Gynaecology	1. Clinical diagnosis: Abrupt onset respiratory failure, cardiovascular failure and disseminated intravascular coagulation during labour or immediately postpartum after excluding other causes. OR 2. Autopsy diagnosis: presence of fetal squamous cells or hair in the maternal lungs.	This group should include amniotic fluid embolism diagnosed prior to, during or immediately after delivery. To facilitate routine surveillance the following ICD-10 code is suggested: O88.1
Obstetrics & Gynaecology	Any pregnant woman with EITHER a clinical diagnosis (acute hypotension or cardiac arrest, acute hypoxia or coagulopathy in the absence of any other potential explanation for the symptoms and signs observed) OR a pathological diagnosis (presence of fetal squames or hair in the lungs). It can be diagnosed during vaginal delivery, CS or within 30 min postpartum.	ICD-10 codes are suggested: O88.1

Obstetrics & Gynaecology	collaps or shock with dyspnoea and clotting disorder	collaps+shock+dyspnoea+clotting disorder in pregnancy not due to pulmonary embolism, dissecting aortic aneurysm, myocardial infarction; it is thus a diagnosis per exclusionem. It is also in two phases, because women may die immediately when collapsed or in shock and there is no time for clotting disorder to be observed; gnerally clotting disorder only occurs after some time elapsed since event; it is a clinical diagnosis and pathology findings "suggestive" of afe without clinical signs of afe have no meaning
Obstetrics & Gynaecology	circulatory collapse caused by amniotic fluid or fetal cells entering the mother's blood stream	
Epidemiology	EITHER a clinical diagnosis of AFE (acute hypotension or cardiac arrest, acute hypoxia or coagulopathy in the absence of any other potential explanation for the symptoms and signs observed) OR a pathological diagnosis (presence of fetal squames or hair in the lungs).	
Obstetrics & Gynaecology	Acute maternal collapse without apparent initial cause (bleeding or drug-anaphylaxis)	Could be merged with Cardiac arrest and Anaphylaxis
Obstetrics & Gynaecology	1) Clinical diagnosis: Abrupt onset respiratory failure, cardiovascular failure and DIC during labour or immediately postpartum after excluding other causes. OR: 2) Autopsy diagnosis: Presence of fetal squamous cells or hair in the maternal lungs	Amniotic fluid embolism diagnosed prior to, during or immediately after delivery. To facilitate routine surveillance, the following ICD-10 code is suggested: O88.1
Obstetrics & Gynaecology	A sudden cardiovascular and respiratory collapse, together with coagulopathy during labour, cesarean section, evacuation of the uterus, or in the immediate postpartum	after exclusion of other conditions with similar signs and symptoms is often a postmortem diagnosis
Obstetrics & Gynaecology	Abrupt and fulminant onset of shock, hypoxemia, respiratory failure, and disseminated intravascular coagulation in a pregnant women	Diagnosis of exclusion
Obstetric Medicine	clinical diagnosis of AFE in the absence of any other potential explanation or pathological diagnosis (presence of fetal squames or hair in the lungs)	clincial diagnosis - acute collapse/cardiac arrest/acute hypoxia or hypotension, prominent early coagulopathy
Epidemiology	EITHER a clinical diagnosis of AFE (acute hypotension or cardiac arrest, acute hypoxia or coagulopathy in the absence of any other potential explanation for the symptoms and signs observed) OR a pathological diagnosis (presence of fetal squames or hair in the lungs) with a clinical picture consistent with AFE	Pathological diagnosis only relevant if the clinical picture is that of AFE - i.e. other causes for haemorrhage have been excluded
Epidemiology	ICD-10 O88.1	
Midwifery	Amniotic fluid enters maternal blood stream activating the clotting system.	Patient has sudden shortness of breat, cardiovascular collapse and seizure. Fetal distress is seen.
Obstetrics & Gynaecology	Fatal amniotic fluid is confirmed by autopsy. Nonfatal amniotic fluid is clinical diagnosis per exclusionem	clinical diagnosis – sudden hypotension, tachycardia or sudden cardia arrest, dyspnoe, sudden unconsciousness or seizures and/or coagulopathy without any known etiology and all other possible causes have been excluded
Obstetrics & Gynaecology	AFE is the result of an allergic-like reaction to amniotic fluid entering the maternal circulatory system, clinically characterized by an acute and rapid collapse of mother and/or baby.	It is most generally defined as a two-phase response: The first phase is characterized by rapid respiratory failure and cardiac arrest. The second phase is known as the hemorrhagic phase. The

		mother begins to bleed profusely at the wound site; typically at the site of placental attachment or cesarean incision followed by the development of disseminated intravascular coagulopathy (DIC) or consumptive coagulopathy.
Epidemiology	1. Clinical diagnosis: woman with typical symptoms of AFE occurring during pregnancy or soon after delivery without other plausible causes. Typical manifestations of AFE include sudden cardiac arrest, hypotension, hypoxia, coagulopathy, disseminated intravascular coagulation, and massive postpartum hemorrhage. 2. Pathological diagnosis: presence of fetal squames/debris in the pulmonary circulation of the mother All women with clinical diagnosis should be reported regardless of pathological diagnosis, however, note should be made regarding pathological diagnosis.	
Obstetrics & Gynaecology	Acute maternal collapse + Disseminated intravascular coagulation + Loss of consciousness and/or seizure	
Epidemiology	amniotic fluid and fetal debris entering the systemic maternal circulation during labor and/or delivery or during post-partum period with an anaphylactic reaction causing sudden cardiovascular collapse, altered mental status, and DIC	some prefer the definition of amniotic fluid embolism as 'anaphylactoid syndrome of pregnancy', but I not
Obstetrics & Gynaecology	During labor or within 30 minutes of delivery of the placenta, sudden onset of cardiorespiratory arrest, or both hypotension and respiratory compromise (dyspnea, cyanosis or desaturation) with overt disseminated intravascular coagulation (DIC) following the appearance of these initial signs or symptoms, and no apparent fever.	
Anaesthesiology	Inappropriate and immediate maternal systemic inflammatory response to unidentified entrance of fetal antigens into the maternal circulation. resulting in severe cardiorespiratory compromise/collaps, often with accompanying coagulopathies and DIC.	No other obstetric, infectious, thrombotic, allergic, cardiac nor anesthetic explanation for acute maternal deterioration can be found, which is often related to (partial) disruption of the fetal maternal barrier occurring around termination of pregnancy, physiological timed, accidental or intentional.
Obstetrics & Gynaecology	Amniotic fluid embolism is diagnosed when a woman presented with typical clinical symptoms accompanied by abnormal laboratory tests, including abnormal coagula-fibrinolytic system, complement activation and activation of kinin system, or at autopsy when fetal debris is found in maternal pulmonary arteries with anaphylactoid reaction.	In Japan, we discuss the possibility of new clinical entity, which relates to the 'influx of the amniotic fluid into maternal blood' and exhibits the same pathophysiology of coagulopathy and anaphylactoid symptoms. Although the discussion has not fully completed yet, I would like to comment the classical definition and new definition of amniotic fluid embolism.
Obstetrics & Gynaecology	IN THE ABSENCE OF ANY OTHER CLEAR CAUSE Either: Acute maternal collapse with one or more of the following features: · Acute fetal compromise · Cardiac arrest · Cardiac rhythm problems · Coagulopathy · Hypotension · Maternal hemorrhage* · Premonitory symptoms (restlessness, numbness, agitation, tingling) · Seizure · Shortness of breath * Excluding women with maternal haemorrhage as the first presenting feature in whom there was no evidence of early coagulopathy or cardio-respiratory compromise Or Women in whom the diagnosis was made at post-mortem examination with the finding of fetal squames or hair in the lungs	Most difficult disease in the world

Anaesthesiology	maternal systemic reaction to the presence of foetal cells in the circulation	like an allergic reaction
Obstetrics & Gynaecology	When amniotic fluid, fetal cells, hair, or other debris enters the mother's blood stream via the placental bed of the uterus and triggers an anaphylactic-like reaction followed by cardiorespiratory collapse and massive hemorrhage.	
Anaesthesiology	All maternal and / or fetal symptoms related to the passage in the maternal circulation of amniotic fluid and / or fetal-placental elements.	Diagnosis mainly evoked during labor and immediate postpartum in case of sudden failure with clinical signs, more or less associated, as hemodynamic instability, convulsions, respiratory signs, collapse, deep and early coagulation disorders (severe disseminated intravascular coagulation). It is often a diagnosis of exclusion because of the difficulty in obtaining a definitive diagnosis by biology or pathology.
Anaesthesiology	AFE is defined by the entry of amniotic fluid into the maternal circulation and is characterized by acute cardiovascular collapse, associated with respiratory compromise and/or altered mental status and/or coagulopathy, commonly preceded by premonitory symptoms.	AFE likely involves a spectrum of severity from a subclinical process to a catastrophic event. It still remains a diagnosis of exclusion.
Obstetrics & Gynaecology	A syndrome of cardiovascular collapse followed by disseminated intravascular coagulation properly caused by amnion fluid leaking into the maternal circulation	

Amniotic Fluid Embolism - Distilled questions concerning critical components

Question no.	Question	(Strongly) agree	Undecided	(Strongly) agree
Chapter 1	Domain of the definition AFE			
1	The diagnosis of AFE consists of a clinical diagnosis, EITHER with or without a histopathological diagnosis	92%	0%	8%
2	The diagnosis of AFE consists of a pathological diagnosis, EITHER with or without a clinical diagnosis	21%	3%	76%
3	The diagnosis of AFE can be made only based on clinical parameters	52%	11%	37%
4	The diagnosis of AFE cannot be made only on a histopathological basis	68%	8%	24%
5	The diagnosis of AFE is only applicable in pregnant woman (as opposed to include women postpartum)	18%	11%	71%
6	The diagnosis of AFE is only applicable in pregnant woman AND up to immediate postpartum	92%	3%	5%
Chapter 2	construct of a clinical definition of AFE			
	<p>There are many symptoms attributed to the diagnosis of AFE. The most frequent symptoms can be divided into 3 main categories:</p> <p>1: acute circulatory compromise: hypotension or cardiac arrest (without other clear aetiology)</p> <p>2: acute hypoxemia (without other clear aetiology)</p> <p>3: coagulopathy (without other clear aetiology)</p>			
7	The criteria for the clinical definition are met if 1 of the 3 categories is present	19%	19%	62%
8	The criteria for the clinical definition are met if at least 2 of the 3 categories are present	49%	22%	29%
9	<i>The criteria for the clinical definition are met only if all 3 categories are present</i>	30%	16%	54%
10	<i>In case of AFE there are multiple possible symptoms, but to meet the definition it should at least always include: acute circulatory compromise (without other clear aetiology)</i>	67%	8%	25%
11	<i>In case of AFE there are multiple possible symptoms, but to meet the definition it should at least always include: acute hypoxemia (without other clear aetiology)</i>	38%	19%	43%
12	<i>In case of AFE there are multiple possible symptoms, but to meet the definition it should at least always include: coagulopathy (without other clear aetiology)</i>	38%	13%	49%
13	Having excluded other causes of the symptoms should be part of the definition	92%	0%	8%
Chapter 3	construct of a histopathological diagnosis of AFE			
14	<i>The histopathological diagnosis is made by the presence of BOTH fetal squamous cells AND fetal hair in the maternal lungs</i>	5%	27%	68%
15	The histopathological diagnosis is made by the presence of EITHER fetal squamous cells AND/OR fetal hair in the maternal lungs	71%	13%	16%

Comments collected during Delphi round 2

During round two of the Delphi process the following comments were collected in the individual chapters.

Chapter 1: Domain of the definition AFE

Within 30 minutes postpartum
Definition based only on histopathology would exclude women who do not die, such a definition would be more suitable for classification of causes of maternal deaths.
If the diagnosis is based on pathological diagnosis, we will miss those cases that are not fatal
A U.S. consortium including representatives from the SMFM, CDC and NIH has a manuscript that will be published in the Am J Obstet Gynecol setting forth highly specific mandatory diagnostic criteria for AFE research reports. I am the lead author. You may wish to reconcile your efforts with this report. Of note, histologic criteria play no role in the diagnosis.

Chapter 2: Symptoms of a definition of AFE

"We don't actually know if some women experience an AFE but don't have any clinical response. What we are trying to define is AFE that results in a clinical response. Sometimes women die before coagulopathy develops."
Coagulopathy may not be apparent if woman dies quickly but in survivors and those who get passed the initial event there should be a coagulopathy
Clinical definition at the time of the symptoms, to be considered a working diagnosis; since all symptoms do not appear at the same time

Chapter 3: construct of a histopathological diagnosis of AFE

but these findings as only findings do not prove AFE
However, the presence of fetal squames and/or fetal hair does not equate with the clinical response to AFE.
"In the two above questions ""is made"" should be ""is confirmed"". AFE should be part of ""cardiac arrest"""

Pregnancy Related Hysterectomy

Unique definitions from round 1

Specialty	My definition of Pregnancy Related Hysterectomy is:	Free commentaries to definition of Pregnancy Related Hysterectomy:
Anaesthesiology	Life-saving removal of the uterus, performed in the peri partum period, for uncontrollable hemorrhage that failed to respond to conservative measures and treatments.	
Anaesthesiology	a hysterectomy performed at delivery or within 24 hrs thereafter	
Anaesthesiology	Peripartum hysterectomy is defined as emergent or planned hysterectomy performed at the time or within 24 hours of delivery.	
Obstetrics & Gynaecology	emergency hysterectomy within one week postpartum. Excluding: planned hysterectomy, maternal request or hysterectomy due to malignancy	
Obstetrics & Gynaecology	Performance of hysterectomy during labour or within 48 hours after labour	
Obstetrics & Gynaecology	Peripartum hysterectomy: any woman giving birth to an infant and having a hysterectomy during the same clinical episode or up to 6 weeks postnatally	
Epidemiology	is surgery to remove the uterus during peripartum period.	Precise definition of peripartum period (days, hours, etc.) is difficult to find.
Obstetrics & Gynaecology	Hysterectomy (total and sub-total) during pregnancy or within 6 weeks postpartum.	
Obstetrics & Gynaecology	Peripartum hysterectomy can be defined as a hysterectomy performed at the time, or within 24 hours, of delivery.	
Obstetrics & Gynaecology	any form of hysterectomy due to unreconstructable uterine trauma and /or uncontrollable bleeding after delivery	
Obstetrics & Gynaecology	Surgical removal of the uterus at the time of delivery or up to 42 days post partum.	"Pregnancy" should include the entire gestation, and in order to be coherent with definitions of maternal death, the 42 days post partum. Hysterectomy due to cancer should be excluded. To facilitate routine surveillance the following ICD-10 codes are suggested: LCD00, LCC10, MCA30, MCA33.
Obstetrics & Gynaecology	Surgical removal of the uterus performed at the time of delivery , or up to 42 days postpartum, excluding hysterctomy done due to cancer.	To facilitate routine surveillance the following ICD-10 codes are suggested: LCD00, LCC10, MCA30, MCA33.
Obstetrics & Gynaecology	hysterectomy after childbirth or during caesarean section for reason of bleeding or sepsis	can be total or subtotal
Obstetrics & Gynaecology	hysterectomy in connection to delivery	Emergency procedure because of uncontrollable post partum haemorrhage
Epidemiology	Any woman delivering a fetus or infant and undergoing a hysterectomy in the same clinical episode.	
Obstetrics & Gynaecology	Hysterectomy within 7 days of delivery	Stratified into planned before delivery, accepted before delivery and not wanted. Described by causes and suboptimal care/potentially avoidable
Obstetrics & Gynaecology	hysterectomy performed any time from delivery to discharge from the same hospitalization	
Obstetrics & Gynaecology	Hysterectomy performed at the time or within 7 days of delivery	
Obstetric Medicine	a hysterectomy being performed at the time of delivery of an infant	

Epidemiology	any woman giving birth to an infant and having a hysterectomy during the same clinical episode.	
Obstetrics & Gynaecology	<p>Hysterectomy performed within 24 hours after abdominal or vaginal delivery, i.e., during early postpartum period. It is divided to two categories according to the following factors. I) According to whether (re)opening the abdomen is required or not; i) Cesarean hysterectomy: hysterectomy is performed immediately after cesarean section. Hysterectomy is performed without (before) closing the abdomen. Hysterectomy and cesarean are performed at one time on one abdomen opening. ii) Hysterectomy requiring (re) laparotomy: Irrespective of whether the delivery was abdominal or vaginal, hysterectomy requires reopening of the abdomen (in case of cesarean delivery) or newly opening the abdomen after vaginal delivery. II) Whether planned or unplanned; i) Elective cesarean hysterectomy ii) Non-elective peripartum hysterectomy III) Whether total or subtotal; i) Peripartum total hysterectomy ii) Peripartum subtotal (supracervical) hysterectomy IV) Specific situation i) Elective cesarean hysterectomy, which is performed to treat coexisting condition (cervical cancer, ovarian malignancy, etc). ii) others</p>	<p>Peripartum hysterectomy exists in a spectrum. The typical one is “elective cesarean hysterectomy for AIP”. The most important condition that should be focused in future is “cesarean hysterectomy for AIP”, and, thus, this condition should be clearly indicated in a definition. So, “cesarean hysterectomy for AIP” may be added in a special category as follows. Peripartum hysterectomy for AIP 1) Elective cesarean hysterectomy for AIP: hysterectomy is decided either preoperatively or during surgery WITHOUT attempted placental separation. 2) Required cesarean hysterectomy for AIP: a surgeon did not decide preoperatively whether hysterectomy should be performed or not, but, due to placental separation or other reasons, surgeons are obliged to perform hysterectomy during cesarean section. 3) Intentional secondary hysterectomy after cesarean section at AIP. In this case, hysterectomy can be performed after 24 hours of delivery (not confined to hysterectomy after 24 hours postpartum). This expresses the situation in which “two step method” = “conserving strategy with the placenta in situ and then (with lag time) intentionally performing hysterectomy” has been employed, and hysterectomy was performed intentionally or destined. 4) Hysterectomy after failure of conserving strategy for AIP. Hysterectomy was not intended/predestined and “placenta in situ” strategy was initially taken. But, conditions (bleeding, infection, etc) oblige surgeons to perform hysterectomy. This can be performed after 24 hours of delivery (not confined to hysterectomy after 24 hours postpartum).</p>
Midwifery	Peripartum hysterectomy: any woman giving birth to an infant and having a hysterectomy during the same clinical episode	
Epidemiology	MCA30 Peripartum hysterectomy modo Porro post sectionem MCA33 Peripartum hysterectomy, total, post sectionem MCW00 Peripartum hysterectomy after vaginal delivery	These are codes according to NCSP NOMESCO Classification for Surgical Procedures. Also ICD-10 O82.2, but less used.
Obstetrics & Gynaecology	Hysterectomy performed during delivery or within 24 hours of delivery.	Can be emergent or planned. Can be either total (cx removed) or modo Porro (cx left).
Obstetrics & Gynaecology	Performance of hysterectomy during labour or within 48 hours after labour	
Obstetrics & Gynaecology	Peripartum hysterectomy is a hysterectomy performed at the time, or within 24 hours, of delivery.	i would rather not use "hysterectomy performed any time from delivery to discharge from the same hospitalization" since hospital stay varies widely even in European countries. PP Hysterectomy can be planned or realized in emergency.
Obstetrics & Gynaecology	hysterectomy performed at the time, or within 24 hours, of delivery	

Obstetrics & Gynaecology	hysterectomy indicated by otherwise uncontrollable intrapartum or postpartum hemorrhage	
Obstetrics & Gynaecology	hysterectomy performed after the delivery of the baby and until 42 days after the delivery	
Epidemiology	patient who underwent hysterectomy within 14 days from delivery	
Obstetrics & Gynaecology	removal of the uterus intra or postpartum	
Obstetrics & Gynaecology	Surgical removal of the uterus performed at the time of delivery , or up to 42 days postpartum?, excluding hysterectomy done due to cancer. To facilitate routine surveillance the following ICD-10 codes are suggested: LCD00, LCC10, MCA30, MCA33.	
Obstetrics & Gynaecology	Any planned or unplanned removal of the uterus following delivery due to severe conditions.	
Obstetrics & Gynaecology	the hysterectomy associated with delivery, usually due to control maternal bleeding	
Obstetrics & Gynaecology	hysterectomy because of obstetric reasons (including hemorrhage, invasive placenta, infection, uterine rupture, ...) within 6 weeks postpartum	
Obstetrics & Gynaecology	Hysterectomy performed at the time of delivery or in the immediate postpartum period.	
Obstetrics & Gynaecology	Performance of hysterectomy during labour or within 36 hours after labour without reasons due to cancer.	
Obstetrics & Gynaecology	A lifesaving removal of the uterus	

Pregnancy Related Hysterectomy- Distilled questions concerning critical components

Question no.	Question	(Strongly) agree		Undecided		(Strongly) agree		
Chapter 1	Domain of the definition Pregnancy Related Hysterectomy							
1	The definition should include a minimum gestational age at which it is called a peripartum hysterectomy	58%		5%		37%		
2	The definition should include a maximum interval between delivery and hysterectomy	90%		5%		5%		
3	If the definition would state a maximum interval between delivery and hysterectomy, it would be:	24 hours	48 hours	7 d	42 d	hospitalization	Clinical episode	
		7%	16%	14%	52%	2%	9%	
Chapter 2	Construct of a definition of Pregnancy Related Hysterectomy							
4	The possible indications for a hysterectomy should be incorporated in the definition	37%		5%		58%		
Chapter 3	Indications in a definition of Pregnancy Related Hysterectomy							
5	The mode of delivery (either following vaginal or caesarean) should not be incorporated in the definition of peripartum hysterectomy	81%		5%		14%		
6	The indication to perform a hysterectomy can be either specified in the definition (e.g. performed because of uncontrollable haemorrhage) OR the indication can be termed 'an emergency as defined by the operator'. What type of definition would you prefer?	42%		16%		42%		
	<i>The definition of peripartum hysterectomy could include possible indications for which it is performed. Do you agree that the following indications are included in the definition?</i>							
7	That there is uncontrollable intrapartum or postpartum haemorrhage	77%		7%		16%		
8	That there is a sepsis, leading to the need for hysterectomy.	68%		2%		30%		
Chapter 4	Possible exclusion criteria in a definition of peripartum hysterectomy							
9	The definition should exclude cases in which there was a planned caesarean hysterectomy	42%		5%		53%		
10	The indication cancer should be added as an exclusion criterion for the definition	67%		0%		33%		
11	The indication maternal request should be added as an exclusion criterion for the definition	68%		2%		30%		

Comments collected during Delphi round 2

During round two of the Delphi process the following comments were collected in the individual chapters.

Chapter 1: Domain of the definition Pregnancy Related Hysterectomy

"exclude < 14 week anyway; include > 22 weeks , all ways of delivery"
question 1: for the same reasons reported in the PPH form
42 days post partum in order to be coherent With definitions of maternal mortality
Partum= delivery, not abortion.
The key is the relationship between the pregnancy and reason for peripartum hysterectomy. Thus - septic abortion; secondary PPH - may both result in peripartum hysterectomy.
The following two should be different categories: cesarean hysterectomy (abdomen not closed) vs. hysterectomy after abdominal closure or that performed with the abdomen newly opened.
This would account for cases of delayed sub-involution.

Chapter 2: Construct of a definition of Pregnancy Related Hysterectomy

For my opinion the definition should allow a comparison between the rates of different settings/countries and therefore all hysterectomies should be identified independently from indications. We cannot pretend to obtain specific information (es. indication, mode of hysterectomy) through the definition. I think we need specific studies to compute the proportion of hysterectomies performed for indications other than PPH (eg sepsis)
Related to pregnancy and delivery and not to cancer
Hysterectomy due to cancer should be excluded.
Stratification - not incorporated in the definition
Hysterectomy due to placenta accreta should be (at least) independent. If not, "the most severe one" may be embedded (hidden) in/behind the term of peripartum hysterectomy.
But it should be possible to distinguish between hysterectomies for obstetric complications and other (cancer)

Chapter 3: Indications in a definition of Pregnancy Related Hysterectomy

The definition should be simple, unambiguous and univocally interpretable. What about other possible indications (eg uterine fibroids)?
i dont think the definition should be in the definition
comments to the definition should include potential indications, but the definition itself should only include the planned or emergency surgery. Hysterectomy with abnormally invasive placenta and planned caesarean delivery followed by delivery can be an example of a relevant elective case.
We think that all peripartum hysterectomias except those due to cancer should be included, thus indications would lead to a difficult definition
See previous comment
Need to include capacity for 'planned' peripartum hysterectomy because of known placenta accreta - done to prevent 'uncontrollable intrapartum or postpartum haemorrhage'.
Once again, the important one is "hysterectomy due to accreta": I recommend the term that illustrates this condition with ease even for less experienced residents.
I think all causes should be included as permpartum is a 'timing' definition. Also a planned hysterectomy for AIP may not meet the diagnosis of haemorrhage but is clearly peripartum.
I do not feel the indication should be included in the definition under any circumstances

Chapter 4: Possible exclusion criteria in a definition of peripartum hysterectomy

peripartum hysterectomy definition = the removal of the uterus after labour and delivery. The indication is a different issue. A subsequent definition of emergency hysterectomy or planned is fine.
the proposed exclusions are right but I don't think we can define so many aspects in a definition. I believe we need a common definition to be adopted from the highest possible number of clinicians and therefore it should be simple and clear
"We need a conceptual discussion on the structure.
I think that: Definitions should be followed by the ways to stratify and the obligatory variables that should be reported in these cases (CROWN).
Though question 1 and 3 depends if the hysterectomy e.g. was planned due to excessive placenta percreta. These should by my opinion be included.
A woman can die due to hysterectomy due to accreta even it was performed electively. Hysterectomy due to accreta should be expressed clearly.
Why would you do it for maternal request at CS???
The indication can be collected as part of secondary data, but should not be included in the definition, for simplicity purposes.

Severe Primary Postpartum Haemorrhage

Unique definitions from round 1

Specialty	My definition of Severe Primary Postpartum Haemorrhage is:	Free commentaries to definition of Severe Primary Postpartum Haemorrhage:
Obstetrics & Gynaecology	The use of 4 and more units of red blood cells during labour or first 48 hours after labour	1 unit of red blood cells if about 250 ml
Anaesthesiology	Blood loss superior to 1000 ml regardless delivery mode.	Given the frequent and important clinical underestimation of blood loss, any amount threatening hemodynamic stability or inquiring red blood cell transfusion or associated with early coagulopathy could be added to the definition.
Anaesthesiology	Hemorrhage requiring transfusion	
Anaesthesiology	A severe postpartum hemorrhage is defined as a significant blood loss within 24h of delivery associated with a sustained maternal hemodynamic impact (low blood pressure).	For me, the definition of severe PPH should not include parts of management as it is highly variable according to clinicians involved, to the local organisation of care and to the country. Also, no distinction should be made according to the mode of delivery.
Obstetrics & Gynaecology	Blood loss exceeding 1000 ml	
Obstetrics & Gynaecology	Severe obstetric hemorrhage postpartum with the need of transfusion with more than 5 units of red blood cells within one week post partum.	
Obstetrics & Gynaecology	Postpartum haemorrhage refractory to first-line obstetric interventions to control bleeding, depending on the cause of bleeding (ref: Abdul-Kadir et al, Transfusion 2014); i.e. bleeding due to uterine atony that continues despite uterotonic therapy, or bleeding due to retained placenta that continues after manual removal of the placenta.	Above-mentioned definition of severe PPH provides us with a clearly identifiable turning-point in treatment that will allow timely recognition of the high risk of severe maternal morbidity, and thus prompt mobilisation of available resources to prevent (further) escalation of the bleeding.
Obstetrics & Gynaecology	4 units of red blood cells have been given to the patient	1 unit of red blood cells is app. 250 ml
Obstetrics & Gynaecology	Estimated blood loss exceeding 1500ml post delivery	Could consider need for transfusion more than 4 units blood or need for additional measures such as Brace suture, balloon or other surgical intervention
Obstetrics & Gynaecology	Blood loss of 1000 mL or more from the genital tract within 24 hours of delivery.	
Epidemiology	Blood loss: 2000-3000 mL (35-50%)	Additional criteria : Marked fall in blood pressure (50-70 mm Hg), collapse, air hunger, anuria; Severe shock
Obstetrics & Gynaecology	Peripartum embolisation of the uterine artery or peripartum hysterectomy	These endpoints are unequivocally and relatively independent of a country's human development index ranking (assuming embolisation for high income countries and hysterectomy for low income countries reflect equal severity).
Obstetrics & Gynaecology	blood loss more than 1000 ml which needs to be therapied by transfusions	
Obstetrics & Gynaecology	Severe haemorrhage after delivery and up to 42 days post partum.	In postpartum haemorrhage it is important to identify the most immediate and severe cases and that the haemorrhage volume can be measured. It may be relevant to

		register both haemorrhage within 24 hours as well as 42 days postpartum. The cut-off for the NOSS study was blood transfusion with 6 or more units of packed red cells. Inclusion of severe haemorrhage before and during labour should be discussed. To facilitate routine surveillance the following ICD-10 codes are suggested: O723, (O 670, O460, O450)
Obstetrics & Gynaecology	Postpartum Blood loss of ≥ 1500 ml within 24 hours of delivery or need for blood transfusion within 24 hours postpartum regardless of the amount of blood loss.	Comment: Blood transfusion added as an option due to the underestimation of postpartum blood loss. To facilitate routine surveillance the following ICD-10 codes are suggested: O723, (O 670, O460)
Epidemiology	Any pregnant woman at ≥ 20 weeks of gestation receiving ≥ 8 units of red blood cells within 24 hours of giving birth	
Obstetrics & Gynaecology	Severe haemorrhage after delivery and up to 42 days post partum. Criteria for severe haemorrhage: volume estimated at ≥ 1.5 liters, coagulation disorder or transfusion of > 5 units packed red cells	In post partum haemorrhage it is important to identify the most immediate and severe cases and that the haemorrhage volume can be measured. It may therefore be relevant to register both haemorrhage within 24 hours as well as within 42 days postpartum. The cut of for the number of units transfusion suggested is in accordance with the definition used in the NOSS study. Inclusion of haemorrhage during (and before) delivery should be discussed. To facilitate routine surveillance, the following ICD-10 codes are suggested: O723; (O670?; O460?; O450?)
Obstetrics & Gynaecology	blood loss of 1000 ml or more from the genital tract within 24 hours of the birth of the baby	
Obstetrics & Gynaecology	Bloodloss of 1000 ml or more within 24 hours after birth	
Epidemiology	All pregnant women of 20 weeks gestation or more identified as having ≥ 8 units of RBC transfusion within a 24 hour period. Please include all women who have received both RBC transfusion and cell salvage, as long as the RBC transfusion is ≥ 8 units.	
Midwifery	All pregnant women of 20 weeks gestation or more identified as having ≥ 8 units of RBC transfusion within a 24 hour period	
Epidemiology	Transfusion with 6 or more units	Also ICD O720-21 Peri-postpartum hemorrhage O722 Postpartum hemorrhage, delayed O723 Postpartum hemorrhage, coagulation deficiency O751 Massive maternal bleeding But here the nr of units are not available.
Obstetrics & Gynaecology	Excess of bleeding more than 1500ml after delivery.	Bleeding can be divided either primary (within 24 hours after delivery) or secondary (more than 24 hours but within eight weeks after delivery).
Obstetrics & Gynaecology	The loss of a large amount of blood (> 1000 ml) after the second stage of labour or the apparition of clinical signs of maternal shock in the absence of visible blood loss after the second stage of labour .	signs of shock : tachycardia, hypotension, poor peripheral perfusion, confusion...
Obstetrics & Gynaecology	Active bleeding > 1000 mL within the 24 hours following birth that continues despite the use of initial measures.	The other definition is active postpartum bleeding showing shock vital against therapy.

Obstetrics & Gynaecology	haemorrhage occurring within the 24 hours following the delivery and necessitating a treatment by intrauterine balloon tamponade and/or a surgical procedure or an arterial embolization	
Epidemiology	patient with hemorrhage onset within 7 days from the date of delivery which were administered 4 or more units of whole blood or packed red blood cells.	
Obstetrics & Gynaecology	Blood loss higher than 1500 ml	Generally there is no important effect on the woman with lower loss in absence of severe previous anemia.
Obstetrics & Gynaecology	Postpartum Blood loss of ≥ 1500 ml or need for > 2 blood transfusion units regardless of the amount of blood loss. To facilitate routine surveillance the following ICD-10 codes are suggested: O723, (O 670, O460, O450?)	
Epidemiology	blood loss of 1000 mL or more within 24 hours after vaginal or caesarean delivery	then, in my opinion, 1000 mL regardless of route of delivery
Obstetrics & Gynaecology	Blood loss during or after the third stage of labor of at least 1000 cc and accompanied by signs/symptoms of hypovolemia such as tachycardia, hypotension, tachypnea, oliguria, pallor, dizziness, or altered mental status.	
Obstetrics & Gynaecology	ongoing vaginal bloodloss more than 2 liters in the first 24 hours after childbirth	The problem with all existing definitions is that the "ongoing" component is missing, the amount of bloodloss is often underestimated and not always visible. When using number of PCs or FFP it depends if they are available and depend on transfusion protocols
Anaesthesiology	blood loss more than 750 ml for a normal partus	traditionally more than 500 ml, but in practice 750 ml
Obstetrics & Gynaecology	an estimated postpartum blood loss of at least 2000ml or a postpartum blood loss leading to a postnatal Hb fall of $> 3\text{g/dl}$ in women who have not been transfused, or a postpartum blood loss requiring a blood transfusion, or a postpartum blood loss leading to circulatory collapse	difficult to define

Severe Primary Postpartum Haemorrhage - Distilled questions concerning critical components

Question no.	Question	(Strongly) agree	Undecided	(Strongly) disagree
Chapter 1	Domain of the definition domain of a definition for severe PPH			
1	The definition sever PPH should include a minimum gestational age after which it can occur	66%	4%	30%
2	The definition of severe PPH should include a maximum interval after delivery after which it can occur	87%	9%	4%
3	The definition of severe PPH should exclude haemorrhage during pregnancy (in contrast to peripartum and postpartum)	78%	4%	18%
Chapter 2	Construct of a definition of severe PPH			
4	The definition of severe PPH should differentiate between vaginal and caesarean delivery	14%	16%	70%
	<p><i>The definition of severe PPH can be constructed in two ways:</i></p> <p><i>Type A: using obligatory features that should always be present (e.g. a specified amount of blood loss)</i></p> <p><i>Type B: using a list of possible features (e.g. one of the following should be present: amount of blood loss; coagulopathy; failure of first line therapy; etc.....)</i></p>			
5	For the definition of PPH I prefer a construct of:	Obligatory features 43%	11%	Possible features 46%
Chapter 3	Symptoms & therapy in a definition of severe PPH			
	<p><i>The following questions concern a definition of severe PPH in which there is 1 obligatory criteria that has to be present.</i></p> <p><i>This premise states that other features can be present, but are not necessary for meeting the criteria for sever PPH.</i></p> <p><i>The definition criteria are met in case there is:</i></p>			
6	an amount of blood loss exceeding a cut off value	80%	0%	20%
7	an amount of blood transfusion exceeding a cut off value	61%	2%	37%
8	haemorrhage accompanied by signs/symptoms of hypovolaemia	52%	21%	27%
9	haemorrhage accompanied by coagulation disorders	37%	11%	52%
Chapter 4	Questions per type of definitions construct			
	<p><i>The following questions concern a definition of severe PPH in which there is a list of possible features.</i></p> <p><i>The definition criteria are met only in case:</i></p>			
10	there is a combination of an amount of blood loss AND amount of blood transfusion**	23%	12%	65%
11	there is a combination of an amount of blood loss AND a necessity for other than first-line treatment* **	32%	11%	57%
12	there is a combination of 2 or more of the following: 1. blood loss exceeding a cut off value			

	2. blood transfusion exceeding a cut off value 3. haemorrhage necessitating other than first line treatment* 4. haemorrhage accompanied by signs/symptoms of hypovolaemia 5. haemorrhage accompanied by coagulation disorders	62%	14%	24%				
Chapter 5	Definitions including an amount of blood loss							
13	The threshold for severe PPH on amount of blood loss is (in cc):	500cc	1000cc	1500cc	2000cc	2500cc		
		2%	49%	32%	12%	5%		
14	The definition should state that the amount of blood loss from the question above should have been within 24 hr	76%		12%	12%			
15	Stating that the amount of blood loss must have been measured (as opposed to estimated) should be incorporated in the definition (measuring includes: graduated collector bag, weighing of swabs, etc...)	40%		21%	39%			
Chapter 6	Definitions including an amount of blood transfusion							
16	In case the criteria of severe PPH would incorporate an amount of blood transfusion (including cell salvaged transfusion by cellsaver), this amount would be (in packed cells):	?	1	2	4	5	6	8
		5%	15%	17%	42%	8%	8%	5%
17	The definition should state that the amount of blood transfusion from the question above should have been within 24 hr	65%		9%		26%		
Chapter 7	Definition criteria based on other therapies							
18	Bakri balloon placement should be seen as first line treatment	26%		9%		65%		
19	Manual removal of the placenta in case of retained placenta should be seen as first line therapy	62%		14%		24%		

Comments collected during Delphi round 2

During round two of the Delphi process the following comments were collected in the individual chapters.

Chapter 1: Domain of the definition severe postpartum haemorrhage

1: I agree on the opportunity to introduce a minimal gestational age because not all countries have a common definition of gestational age for spontaneous abortion and birth. Question 2: does the question refer only to primary PPH?
partum = delivery, not abortion
Keeping in mind that primary and secondary PPH can both result in 'severe PPH' - & some women may experience both associated with the index pregnancy

Chapter 2: Construct of a definition of severe PPH

Is searching for a single global definition you have to consider low income countries with suboptimal registration techniques.
difficulty is that the end result is amount of blood loss, condition of the patient and the therapy you have to initiate to stop the bleeding. i doubt . failure first line or coagulopathy have the risk of delay for diagnosis if there is only blood loss or do i understand your question wrong?
Since blood loss in PPH is always underestimated including blood loss as obligatory feature will lead to underestimation.

Chapter 3: Symptoms & therapy in a definition of severe PPH

an amount of blood loss exceeding a cut off value: may delay treatment (by 'waiting' to reach this amount before starting more aggressive therapy), and it is unknown at which amount of blood loss coagulopathy occurs. * blood transfusion: management based, large difference in practice between physicians/hospitals/countries * signs of hypovolaemia: may occur quite late during haemorrhage in relatively healthy and young women * coagulation disorders: we have no evidence based diagnostic tools to detect coagulation disorders early on in the process of haemorrhage, so it may cause delay in treatment
Question 3 and 4 do not describe the severity of the hypovolaemia signs/symptoms (clinical shock?) and of the coagulation disorders (DIC?), I am therefore undecided
Coagulation disorders should be included if present but not an obligatory finding.
coagulation disorders in themselves does not mean a severe PPH has occurred - it must be accompanied by loss of an amount of blood.
I am afraid I don't fully understand the question.
i think the speed of blood loss is also very important. slow blood loss can be compensated for much easier than blood loss of big amounts
blood transfusion is not the first line therapy and not readily available everywhere , this definition would exclude many cases 2. Including only blood loss associated with coagulation disorders might lead to underestimation of PPH

Chapter 4: Questions per type of definitions construct

Transfusion may be a good indication of volume of blood loss, but in some situations it will not be possible (e.g. for logistic/inventory management reasons) to provide as much blood for transfusion as may be clinically required.
Taking into account that our objective is to have a common definition, I think it should be unambiguous, univocally interpretable and short as possible. For my opinion the combination of the amount of blood loss and the amount of blood transfusion is the best solution because the other than first line intervention present huge variability among countries as well as among different settings in the same country. Again signs/symptoms of hypovolemia and coagulation disorders are too generic for a common definition. Probably clinical shock and DIC could be more appropriate and helpful.

Chapter 5: Definitions including an amount of blood loss

Ideally, the acuity of blood loss (e.g. within 4 hours or similar) could also be considered.
collector bags and different methods for estimating blood loss in case of PPH have very poor validation, I would therefore not incorporate these procedures in the definition.
The case finding need to be compatible with clinical practice and estimates may be the only available information. We should however emphasize the need for a daily practice where measurement is routinely performed and recorded.
Our data are from clinical everyday situations, where blood loss may be estimated
Primary PPH before 24 hours Secondary PPH after 24 hours
'amount of blood loss within 24 hours' (which may or may not be within 24 hours of the birth).
Taking into account the uncertainty of estimation of blood loss the members of the NOSS group agreed to define severe obstetric haemorrhage postpartum with the need of transfusion with more than 5 units of red blood cells within one week postpartum. This should be seen in the light that very few women suffer from anaemia in the Nordic countries.

Chapter 6: Definitions including an amount of blood transfusion

blood transfusion typically starts after a blood loss of 1500-2500 cc, and this is quite a considerable amount of blood loss
Within 72 hours post-partum
Severe PPH rarely occurs late in the post-partum period, still it is important to identify these cases too.
within 72 hours post-partum
within 48 h
start haemoglobin of patient before delivery may be of influence of blood transfusion indication

Chapter 7: Definition criteria based on other therapies

Manual removal of the placenta in case of retained placenta is not always advisable, we recommend the manual removal only in case the woman is severely and persistently bleeding.
The need for manual removal indicates need of an obstetric specialist and may help to identify potential delays in diagnosis and treatment.
first line therapeutic-uterotonics

Uterine rupture

Unique definitions from round 1

Specialty	My definition of Uterine rupture is:	Free commentaries to definition of Uterine rupture:
Obstetrics & Gynaecology	Breach of continuity of the muscular layer of the uterine wall	
Obstetrics & Gynaecology	Rupture of the uterus that was confirmed by the laparotomy and the hysterectomy or suture of the rupture/utrine wall was needed.	Also the rupture of the scar at the uterus (after caesarean section or other previous uterine surgery)
Obstetrics & Gynaecology	an opening between the uterine cavity and the abdomen (so no peritoneum and/or membranes anymore)	However, I feel that there is an continuum in the development of an uterine rupture. So, when you find a dehiscence during emergency CS performed because of pain/CTG abnormalities, it could be that it is an uterine rupture, which just not ruptured completely. But this remains a difficult diagnosis, because CTG abnormalities are also common in case where there is no rupture/dehiscence. Furthermore I still don't understand the pathophysiology of CTG abnormalities (except a bradycardia) preceding a rupture. Why exactly would you get variable decelerations?
Anaesthesiology	Disruption of all or part of the uterine wall : complete rupture involves the entire uterine wall and results in a direct connection between the peritoneal space and the uterine cavity, an incomplete rupture results in a persistent coverage by visceral peritoneum over the uterus.	
Obstetrics & Gynaecology	Rupture of the uterus that was confirmed by laparotomy and the hysterectomy or suture of the rupture/uterine wall was needed	also the ruptures after caesarean section or other uterine surgeries
Anaesthesiology	Uterine rupture is defined by the occurrence of a full-thickness disruption of any part of the uterine wall in pregnant women with or without prior cesarean section and resulting in the extrusion of at least a part of the foetus into the peritoneal cavity.	Uterine rupture should be clearly distinguished from uterine scar dehiscence.
Obstetrics & Gynaecology	Occurrence of clinical symptoms (abdominal pain, abnormal fetal heart rate pattern, acute loss of contractions, vaginal blood loss) leading to an emergency caesarean delivery, at which the presumed diagnosis of uterine rupture was confirmed; or peripartum hysterectomy or laparotomy for uterine rupture after vaginal birth.	When there are no clinical symptoms but a rupture is seen at caesarean section, this is called a "silent rupture".
Obstetrics & Gynaecology	Uterine rupture is tearing of the uterine wall during pregnancy or delivery. The rupture can be total og partiel (dehescence) where the peritoneum is intact.	
Obstetrics & Gynaecology	Dehiescence: thinning or tearing of the myometrium with intact peritoneum and fetal membranes without any symptoms. Partial uterine rupture: tearing of the myometrium with intact peritoneum and intact fetal membranes with symptoms. Complete uterine rupture: Total tearing of the myometrium and the peritoneal membrane, incl eventual fearing of the fetal membrane	We should recommend to destinguish between dehiescence, partial and complete uterine rupture.

Obstetrics & Gynaecology	A full thickness breach of the uterine muscle leading to maternal or fetal compromise	I would not include dehiscence of a scar with no concern about fetal wellbeing or found asymptomatic at Cs
Obstetrics & Gynaecology	1)clinical symptoms (abdominal pain, abnormal fetal heart rate pattern, acute loss of contractions, vaginal blood loss) leading to an emergency caesarean delivery, AND 2) complete separation of the wall of the pregnant uterus OR 3) peripartum hysterectomy or laparotomy for uterine rupture after vaginal birth.expulsion of the fetus	In my opinion, cases of scar dehiscence found during elective caesarean section without preceding clinical symptoms are not uterine rupture uterine but should be recorded as dehiscence.
Obstetrics & Gynaecology	Uterine rupture occurs when a full-thickness disruption of the uterine wall that also involves the overlying visceral peritoneum (uterine serosa) is present.	
Obstetrics & Gynaecology	complete UR: all layers of the uterine wall are separated	incomplete or silent UR: the visceral peritoneum is intact
Obstetrics & Gynaecology	A complete separation of the wall of the pregnant uterus, with or without expulsion of the fetus, involving tearing of the serosa and amniotic membranes.	"Pregnancy" should include the entire gestation and the first weeks post partum. We suggest total rupture to avoid misclassification of partial ruptures and confusion with ultrasound measurement of a thin uterine wall. Iatrogenic perforation should not be included. The group should include women with intact or scarred uterus, and rupture at any site of the uterine wall. To facilitate routine surveillance the following ICD-10 codes are suggested: O710 O711 (discussion), further, treatment procedure codes should be included: MCC00 (and unfortunately most frequently used, LCG10)
Obstetrics & Gynaecology	A complete separation of the wall of the pregnant uterus, with or without expulsion of the fetus, involving tearing of the serosa and amniotic membranes. It occurs in both intact or scarred uterus, and on any site of uterine wall. Iatrogenic perforation should not be included. It is diagnosed any time during pregnancy, intrapartum, and until 7 days postpartum.	Comment: The only cases I saw late in postpartum period among all case records from 1967-2008 were 2 (one detected at 2 days postpartum and other one at 5 days postpartum) Codes: O710, O711 (unfortunately they are not good enough as they don't differentiate between complete and partial rupture).
Obstetrics & Gynaecology	the occurrence of clinical symptoms (abdominal pain, abnormal fetal heart rate pattern, acute loss of contractions, vaginal blood loss) leading to an emergency caesarean delivery, at which the presumed diagnosis of uterine rupture was confirmed; or peripartum hysterectomy or laparotomy for uterine rupture after vaginal birth.	This definition excludes wound dehiscence coincidentally found at elective CS.
Obstetrics & Gynaecology	rupture of the uterine wall in relation to pregnancy	Both before and during labour
Epidemiology	A complete separation of the wall of the pregnant uterus, with or without expulsion of the fetus, involving rupture of membranes at the site of the uterine rupture or extension of the complete separation of the wall of the uterus into uterine muscle separate from any previous scar, and endangering the life of the mother or fetus.	Any asymptomatic palpable or visualised defect, noted incidentally at caesarean delivery, should NOT be included.
Obstetrics & Gynaecology	Complete uterine rupture (including myometrium, peritoneum and fetal membranes)	
Obstetrics & Gynaecology	A complete separation of the wall of the pregnant uterus, with or without expulsion of the fetus, involving tearing of the serosa and amniotic membranes.	"Pregnancy" should include the entire gestation and the first weeks post partum. It occurs in both intact or scarred uterus, and in any site of the uterine wall. We suggest total rupture to avoid

		<p>misclassification of partial ruptures with ultrasound measures of a thin uterine wall. Iatrogenic perforation should not be included. To facilitate routine surveillance, the following ICD-10 codes are suggested: O710; O711 (problem: these codes are not specific for total uterine rupture). For the Nordic countries, the following NCSP procedure codes should be included: MCC00 (suture of uterus after rupture) and LCG10 (suture of uterus) (is used also in connection with pregnancy, although this is not the intention)</p>
Obstetrics & Gynaecology	a complete interruption in the wall of the pregnant uterus, with or without expulsion of the fetus or rupture of membranes	
Obstetrics & Gynaecology	Complete uterine rupture imply a direct communication between the uterine cavity and the peritoneum	Incomplete rupture or dehiscence refers to a uterine scar separation where the serosa and/or fetal membranes remains intact
Epidemiology	Any woman in the UK identified as having a uterine rupture using the following definition: A complete separation of the wall of the pregnant uterus, with or without expulsion of the fetus, involving rupture of membranes at the site of the uterine rupture or extension into uterine muscle separate from any previous scar, and endangering the life of the mother or fetus. Excluded: any asymptomatic palpable or visualised defect (for example dehiscence) noted incidentally at caesarean delivery.	

Uterine rupture - Distilled questions concerning critical components

Question no.	Question	(Strongly) agree	Undecided	(Strongly) disagree
Chapter 1	Domain of the definition of uterine rupture			
1	The definition should be subdivided in different types of uterine ruptures (complete; incomplete)	74%	7%	19%
2	The criteria for the definitions of uterine rupture are only met when there is visual confirmation of a rupture (either during caesarean section or laparoscopy after delivery)	84%	7%	9%
3	In the definition of uterine rupture, the presence of EITHER maternal OR fetal compromise is obligatory	31%	2%	67%
4	In the definition of uterine rupture, the presence of BOTH maternal AND fetal compromise is obligatory	0%	2%	98%
5	In the definition of uterine rupture, ONLY maternal demise is obligatory (but fetal compromise could be present)	0%	9%	91%
6	In the definition of uterine rupture, ONLY fetal demise is obligatory (but fetal compromise could be present)	3%	7%	90%
Chapter 2	Symptoms of a definition of uterine rupture			
7	In the definition, maternal or fetal demise CAN be present but other confirmation is needed	88%	5%	7%
8	Mode of delivery is not part of the definition of uterine rupture	95%	0%	5%
9	<i>Whether or not the patient has had contractions is not part of the definition</i>	93%	0%	7%
10	Whether or not the uterine rupture was expected is not a part of the definition	96%	2%	2%
11	Whether or not the fetus is expelled is not a part of the definition	93%	2%	5%
12	The diagnosis of uterine rupture cannot be made based ONLY on ultrasound findings	78%	12%	10%
Chapter 3	Definition of uterine rupture without subdivision by type			
	<i>The following questions are related to a definition in which there is no division in either complete or incomplete rupture.</i>			
13	In case there is no rupture of the peritoneal membrane, there is no uterine rupture	40%	19%	41%
	<i>The criteria for uterine rupture are only met in case:</i>			
14	there is complete separation of myometrium AND peritoneal membrane AND fetal membranes	14%	14%	72%
15	there is complete separation of myometrium AND peritoneal membrane, with or without fetal membranes	65%	14%	21%
Chapter 4	Definition of uterine rupture with a subdivision			
	<i>The following questions are related to a definition in which there is a subdivision in either complete or partial/incomplete rupture.</i>			
16	A uterine rupture is partial/incomplete in case there is only tearing of the myometrium, while the peritoneum is still intact	88%	10%	2%
17	In case of partial/incomplete uterine rupture, the fetal membranes can be EITHER intact OR ruptured	74%	7%	19%
18	The term 'dehiscence' refers to a non-continuous layer of the myometrium	85%	10%	5%
19	A 'dehiscence' should refer to a coincidental finding during CS*	64%	14%	22%

20	A 'dehiscence' should be excluded from the definition of uterine rupture	68%	15%	17%
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Comments collected during Delphi round 2

During round two of the Delphi process the following comments were collected in the individual chapters.

Chapter 1: Domain of the definition of uterine rupture

i would limit the definition to acute catastrophic peripartum events , thus uterine dehiscence , thin OUS on ultrasound should not be registered
In case of silent rupture there can be neither maternal nor fetal compromise. But it can still be a rupture. However, i feel that ruptures with clinical presentation leading to caesarean/ postpartum laparotomy could be clinically more relevant. In the last question i think you kwam that there could be maternal demise.
both maternal and fetal demise can be signs of uterine rupture
"I think you need to specify if the Q2 onwards concern complete or incomplete uterine rupture.
laparoscopy? This could be laparotomy.
Confirmation of uterine rupture may be made at autopsy (not just by CS or laparoscopy)
think last one should be fetal compromise is obligatory but maternal compromise may be present - would agree with that

Chapter 2: Symptoms of a definition of uterine rupture

When ultrasound shows an intraabdominal fetus, you can make the diagnosis of uterine rupture, however you will always be able to confirm this during surgery. So for the definition I would leave this out.

Chapter 3: Definition of uterine rupture without subdivision by type

Applicable only for complete ruptures
We believe that we should register only Complete uterine ruptures
Again - you need to specify that it is complete uterine rupture that you have in mind.
I would call last one dehiscence not rupture

Chapter 4: Definition of uterine rupture with a subdivision by type

Dehiscence should be as a separate subdivision.
I am not sure if it is possible to distinguish dehiscence and incomplete...
Rupture and dehiscence are completely different entities.
Can't a dehiscence be the beginning of a rupture, where a complete rupture has been prevented by doing a CS because of other reasons. I would suggest to have three types: 1. dehiscne, no symptoms, 2.incomplete rupture (peritoneum intact with symptoms), 3. complete rupture with symptoms. symptoms either maternal or fetal. Although the division between dehiscnec and incomplet will be arbitrary. Are maternal abdominal pain or fetal herat rate decelerations true symptoms?

Abnormally Invasive Placentation (AIP)

Unique definitions from round 1

Specialty	My definition of Abnormally Invasive Placentation is:	Free commentaries to definition of Abnormally Invasive Placentation:
Obstetrics & Gynaecology	The diagnosis is confirmed by histological finding, or by the radiodiagnostic finding when placenta was leaved in situ.	Histological finding after hysterectomy or after curettage where the trofoblastic villi/structures were found in myometrium Radiodiagnostic methods - ultrasound or magnetic resonance
Anaesthesiology	Abnormal invasion at the implantation site of the placenta with invasion of uterine tissues by placental elements : placenta accreta is linked to abnormal invasion by impairment of the decidua, the term increta is used in case of myometrial invasion, whereas the term "percreta" refers to the achievement of the serosa or adjacent organs, the most frequent is the bladder.	The term "accreta" is frequently used to group these three definitions.
Obstetrics & Gynaecology	The diagnosis is confirmed by histological finding or by the radiodiagnostic method when placenta was leaved in situ	histological finding – after hysterectomy or after curettage (the presents of trofoblastic villi in myometrium), radiodiagnostic methods – ultrasound or magnetic resonance
Obstetrics & Gynaecology	Placenta previa, Placenta accreta, increta, percreta, intracervical placentation	
Anaesthesiology	Abnormally invasive placentation is defined by abnormal invasion of the placenta into the maternal uterus. It includes placenta accreta, defined by the adherence of the placenta to the surface of the myometrium without extension through the uterine muscle; placenta increta, defined by the invasion by the placenta of the myometrium; and placenta percreta, which penetrates through the myometrium to the uterine serosa and sometimes with invasion of adjacent pelvic structures, mostly the bladder.	
Obstetrics & Gynaecology	A conditions where the placenta is accreta, increta or percreta.	Placenta accreta: the placenta attaches too strongly to the muscular layer of the the myometrium, but does not invade it Placenta increta: the placenta invades into the myometrium Placenta percreta: the placenta invades through the full thickness of the uterine wall, and can attach to adjacent organs in the abdomen, usually the bladder
Obstetrics & Gynaecology	A placenta that invades the uterine muscle wall and fails to separtae spontaneously or separates with associated significant haemorrhage	May need to debate antenatal diagnosis with imaging or whether diagnosis is only at the time of birth
Epidemiology	placentation associated with vaginal bleeding in the second half of pregnancy	It includes placenta previa, placenta accreta, and vasa previa.
Obstetrics & Gynaecology	clinical and histologic criteria: 1) manual removal of the placenta partially or totally impossible and no cleavage plane between all or part of the placenta and uterus (we have to consider conservative approach), 2) histologic confirmation of accreta on a hysterectomy	we can maybe consider other situations where conservative approach has been decided: 1) prenatal diagnosis of placenta accreta, confirmed by the failure of gentle attempts to remove it during the third stage of labor, 2) evidence of gross placental invasion at the time of surgery,
Obstetrics & Gynaecology	Invasion of the placenta beyond the uterine lining	

Obstetrics & Gynaecology	Placenta with various degrees of invasive growth in the uterine wall	These cases can be identified by either imaging prior to delivery, or clinical findings after delivery (with abnormally adherent placenta requiring manual removal of placenta or conservative approaches where placenta is left in situ.) or histopathology findings. To facilitate routine surveillance the following ICD-10 codes are suggested: Cases identified by imaging in pregnancy should be defined by: O432 Cases identified during labour or post partum : O720, O730
Anaesthesiology	situation in which there is no decidua between the whole or a part of the placenta and the myometrium (accreta vera) or invasion into myometrium (increta) or invasion through the myometrium into the serosa or other organs (percreta), with or without previous caesarean section or other uterine surgery	I suppose this diagnosis can only be made afterwards and not be certain by ultrasound sonography prior to delivery
Obstetrics & Gynaecology	no spontaneous detachment after delivery of the fetus	
Obstetrics & Gynaecology	Placental tissue abnormally adherent to the uterus and placental tissue invading the myometrium and beyond	
Epidemiology	All pregnant women identified as having: EITHER Placenta accreta/increta/percreta diagnosed histologically following hysterectomy or postmortem OR An abnormally adherent placenta, requiring active management, including conservative approaches where the placenta is left in situ.	EXCLUDE women who have had a manual placental removal with minimal or moderate difficulty but required no additional active management.
Obstetrics & Gynaecology	Placenta does not separate spontaneously after delivery	
Obstetrics & Gynaecology	Placenta with various degrees of invasive growth in the uterine wall	These cases can be identified either by imaging prior to delivery, by clinical findings after delivery (with abnormally adherent placenta requiring manual removal of placenta or conservative approaches where placenta is left in situ), or by histopathological findings. To facilitate routine surveillance the following ICD-10 codes are suggested: Cases identified by imaging in pregnancy: O43.2 Cases identified during labour or post partum: O72.0; O73.0 Since these codes are not quite specific, some countries may have their "own codes": In the Medical Birth Registry of Norway, the following codes are used: O720A: Placenta accreta/increta with bleeding O720B: Placenta percreta with bleeding O730A:Placenta accreta/increta without bleeding O730B: Placenta percreta without bleeding O730C: Placenta percreta with no information about bleeding O730D: Placenta accreta/increta with no information about bleeding
Obstetrics & Gynaecology	1. Placenta accreta, increta or percreta diagnosed on pathological exam. 2. Clinical diagnosis of a placenta(part) that cannot be removed spontaneously or manually without causing a severe bleeding.	
Obstetrics & Gynaecology	Vaginal deliveries with difficult, incomplete manual removal of placenta and bloodtransfusion within 48 hours, or caesarean section with difficult removal of placenta assessed to be accrete or percrete	The definition we agreed on in the NOSS study

Epidemiology	All pregnant women identified as having: Either Placenta accreta/increta/percreta diagnosed histologically following hysterectomy or postmortem Or An abnormally adherent placenta, requiring active management, including conservative approaches where the placenta is left in situ. Excluded Women who have had a manual placental removal with minimal or moderate difficulty but required no additional active management.	
Obstetrics & Gynaecology	<p>My definition of AIP AIP is classified into three. I) "Histologically confirmed AIP": AIP diagnosed after hysterectomy, which is subdivided to three: accreta, increta, percreta. II) "Clinically evident AIP": AIP diagnosed during cesarean section, which is subdivided to two: accreta+ increta vs. percreta. III) "Clinical AIP after vaginal delivery": AIP diagnosed at vaginal delivery without or before hysterectomy. Explanation Confusion is caused by mixing of I), II), and III). Thus, three categories mentioned above should be definitely used according to the situation. I) Histological diagnosis can be made on the examination of the excised uterus and not on the placenta. The placenta 1) attaches to, 2) invades into, or 3) reaches over the myometrium, which accords accreta, increta, percreta, respectively. In 1) accreta, the presence of the histologically confirmed decidua does not exclude the diagnosis of AIP, meaning that decidua sometimes intervenes between the placenta and the myometrium, which does not exclude the diagnosis of accreta. II) The placenta cannot be removed manually during cesarean section. In this occasion (since histology is not applicable), two categories (not three) are available: accreta+increta vs. percreta. The latter (percreta) can be easily distinguishable from the former (accreta+increta). Distinction between accreta vs. increta is impossible, or at least difficult, and, thus, "clinically evident AIP" can be classified into two and not three. III) The situation is divided to two: 1) hysterectomy was eventually performed, or 2) never performed. In 1), final diagnosis accords to the criteria I), "histologically confirmed AIP". In 2), we must distinguish AIP from "only retained placenta= AIP (-)"; this is practically difficult. So, a new notion is introduced. It is "clinical AIP after vaginal delivery". This can be used for both periods (conditions) of a) and b): a) placenta remained in the uterus and finally hysterectomy was performed: this term can be used to the period between vaginal delivery and hysterectomy, b) hysterectomy was never performed. Thus, in a) case, the diagnosis of "clinical AIP after vaginal delivery" is a tentative diagnosis.</p>	<p>Free comments I almost wrote the things in "My Definition". The point of my definition is: 1) AIP should be divided into two "histologically confirmed AIP" and "clinically evident AIP". 2) The "retained placenta after delivery" should be distinguished from AIP. Thus, a new notion "clinical AIP after vaginal delivery" is introduced. Since this is the first round, I wrote the Definition in a little complicated way. If my definition gained in popularity, then, I will make it simpler. Abnormally invasive placenta (not placentation) may be better. "Placenta" can indicate "disease entity" and "placentation" indicates the pathological state. Let us assume to write a paper regarding AIP, then, abnormally invasive placenta is easier to use. Now, we use "placenta accreta" and not "accreta placentation".</p>
Obstetrics & Gynaecology	Placenta attaches or invades to the myometrial wall of the uterus.	AIP can be divided into 1) placenta accreta vera (attaches to the myometrial wall) 2) placenta increta (invades to the myometrial wall) 3) placenta percreta (invades through the myometrial wall)
Obstetrics & Gynaecology	The diagnosis is confirmed by histological finding or by the radiodiagnostic method when placenta was leaved in situ	histological finding – after hysterectomy or after curettage (the presents of trofoblastic villi in myometrium), radiodiagnostic methods – ultrasound or magnetic resonance

Obstetrics & Gynaecology	Abnormally invasive placenta defines abnormally invasive placental implantation, which are at high risk of inducing severe obstetrical complications, such as life-threatening hemorrhage during delivery.	might be added : " and renders normal placental delivery impossible"
Obstetrics & Gynaecology	Trophoblastic attachment to the myometrium without intervening decidua.	Antenatal diagnosis and management of abnormally invasive placentation are very difficult.
Obstetrics & Gynaecology	morbidity adherent placenta including placenta accreta, increta and percreta	
Epidemiology	see the free commentaries box	The definition (for vaginal birth and for CS) is too long for the devoted box, therefore you find it as follows: 1. patient that after vaginal delivery has undergone a manual removal of the difficult/incomplete placenta and has subjected to blood transfusion within 48 hours from birth. 2. patient who underwent cesarean section with difficult removal of the placenta assessed clinically as abnormally invasive placenta.
Obstetrics & Gynaecology	the presence of a focal or total excessive invasion of the placenta through the uterine wall that favours its fragmentation and/or excessive bleeding during spontaneous or manual removal	
Obstetrics & Gynaecology	imaging signs of abnormally invasive placentation into myometrium or beyond peritoneum into the bladder	
Obstetrics & Gynaecology	morbidity adherent placenta resulting in major complications such as severe maternal hemorrhage, need for blood transfusion, peripartum hysterectomy, damage to adjacent organs and postoperative complications.	- it is a clinical and pathological diagnosis - it is NOT an ultrasound diagnosis
Obstetrics & Gynaecology	Condition in which the placenta attaches too firmly or too deeply into the uterine wall.	
Obstetrics & Gynaecology	abnormal placental adherence (placenta accreta) and/or invasion of the myometrium (placenta increta).	placenta percreta means that at least the full thickness of myometrium is invaded. (there is debate whether or not invasion of the serosa is necessary for the definition of placenta percreta)
Obstetrics & Gynaecology	Abnormally invasive placental implantation, where placenta cannot be removed spontaneously or manually, without causing severe bleeding.	

Abnormally Invasive Placentation - Distilled questions concerning critical components

Question no.	Question	(Strongly) agree	Undecided	(Strongly) disagree
chapter 1	Domain of the definition of Abnormally Invasive Placentation			
1	the definition of AIP should be based on histological findings ONLY	8%	5%	87%
2	the definition of AIP should be based on radiological findings ONLY	0%	0%	100%
3	the definition of AIP should be based on clinical findings ONLY	5%	8%	87%
4	The definition is based on EITHER one of the following two findings: histology; clinical	53%	15%	32%
5	The definition is based on EITHER one of the following three findings: histology; radiology; clinical	50%	13%	37%
6	The definition can NOT be based on radiological finding ONLY	65%	8%	27%
7	AIP should only be used as a collective term to describe a group of patients having either: placenta accreta; placenta increta; placenta percreta.	98%	0%	2%
Chapter 2	Item of a clinical definition			
8	The criteria for a clinical definition are met in case there is severe bleeding after manual or surgical removal of (part of) the placenta	30%	8%	62%
9	The criteria for a clinical definition are met in case the placenta is left in situ following a suspicion of AIP (whether or not there is PPH or histological confirmation)	73%	10%	17%
10	Abnormal amount of blood loss is not obligatory for having AIP	88%	7%	5%
11	The criteria for the clinical definition are met in case manual removal of a placenta was difficult AND there was need for blood transfusion within 48 hours of delivery	31%	12%	57%
12	There is NO AIP in case there was difficulty removing the placenta (either manually or surgically) but there was no severe blood loss	30%	13%	57%

Comments collected during Delphi round 2

During round two of the Delphi process the following comments were collected in the individual chapters.

Chapter 1: Domain of the definition of abnormally invasive placentation (AIP)

Ultrasound diagnosis MUST be included
"I think the predictive value of radiology in detecting AIP is still too low to be used as the only criteria for the AIP diagnosis.
I believe that AIP should be used clinically as a collective term to describe a group of patients having either placenta accreta, increta, percreta. But histological findings should help in identifying and giving insight on the different degree of placental invasion."
Radiological diagnosis by MR would be sufficient for the diagnosis
can vs should: inconsistency in terminology that may confuse

Chapter 2: Item of a clinical definition

not all PPH's are caused by an invasive placenta, and in case of anticipated invasive placenta (with embolization eg) blood loss can be limited.
Reading all these questions, I think a clinical diagnosis should include 'an abnormally difficult or failure to remove the placenta (by an experienced obstetrician of course).'
point 11: several times it is said that manual removal was difficult, (but not due to AIP); this also depends on the level of trainee. Blood transfusion can be necessary for other reasons than AIP
It is not clear to me whether the third and the last question refer to criteria for a clinical definition of AIP or generically to AIP definition. I believe that blood loss is an important aspect of the clinical diagnosis in vaginal deliveries. Histological confirmation helps in detecting cases without bleeding that are clinically less relevant .
Abnormal placentation can be diagnosed by ultrasound and MRI during pregnancy and delivery planned accordingly to minimize the adverse outcome for the mother. It would not be correct to include only haemorrhage after placental removal as such haemorrhage also can be massive while the placenta is in situ. This definition should rely on all diagnostic modalities, radiology, clinical findings and pathology results.
Chapter 2, 1: This depends of the source of bleeding. Bleeding from e.g. lacerations should not be included. Only bleeding from placental rest

Spontaneous Hemoperitoneum in Pregnancy (SHiP)

Unique definitions from round 1

Specialty	My definition of Spontaneous Hemoperitoneum in Pregnancy is:	Free commentaries to definition of Spontaneous Hemoperitoneum in Pregnancy:
Obstetrics & Gynaecology	The occurrence of spontaneous haemoperitoneum in pregnancy unrelated to any trauma or uterine rupture.	
Anaesthesiology	Unprovoked peritoneal bleeding during the second half of pregnancy, or during labor or the early postpartum period.	
Obstetrics & Gynaecology	Hemorrhage intra peritoneum without external reasons	
Anaesthesiology	SHiP is defined by an unprovoked peritoneal bleeding during pregnancy, with acute or subacute abdominal pain and hypovolemic shock. SHiP is caused by the rupture of uterine vessels or of splenic artery and by bleeding of endometriosis implants.	
Obstetrics & Gynaecology	A condition in pregnancy or in labor with spontaneous hemoperitoneum often caused from rupture of uterine varicose veins or from endometriosis implants	
Obstetrics & Gynaecology	Sudden intraabdominal hemorrhage (Cesarian section, laparotomy, laparoscopy) - without preceding trauma in any pregnancy after 22 weeks Excluding: uterine rupture, trauma	
Obstetrics & Gynaecology	Spontaneous intraperitoneal bleeding leading to maternal or fetal compromise	Would exclude ectopic pregnancy or uterine rupture or other direct pregnancy related bleeding
Obstetrics & Gynaecology	During pregnancy and before onset of labour: Laparotomy for pain and or acute hypotension (with or without ultrasound diagnosis of suspected hemoperitoneum) : Diagnosis of hemoperitoneum without known cause (uterine rupture, abruptio placentae, acreta, ovarian cyst ...)	
Obstetrics & Gynaecology	Acute abdominal pain and hypovolemic shock in a pregnant woman	This definition of SHiP will include all ruptured ectopic pregnancies, which is also potentially life threatening. Definition of shock: a condition in which tissue perfusion is not capable of sustaining aerobic metabolism.
Obstetrics & Gynaecology	occurrence of a spontaneous hemoperitoneum in pregnancy (SHiP) during pregnancy	
Obstetrics & Gynaecology	Acute intraperitoneal hemorrhage during pregnancy, childbirth and 42 days post partum of any cause	Definitions of severe maternal morbidity should be consistent with definitions of maternal deaths and thus also include 42 days post partum. This condition should be identified by use of K66.1. Potential causes of such hemorrhage should also be listed by ICD 10 code, e.g aneurism haemorrhage, endometriosis, uterine rupture, placenta percreta with haemorrhage,
Obstetrics & Gynaecology	Any woman 20 weeks or more gestation with sudden intra-abdominal haemorrhage requiring surgery (CS, laparotomy, laparoscopy), without preceding trauma, diagnosed antepartum, intrapartum up to 42 days	

	postpartum. EXCLUDE: women with uterine rupture or trauma.	
Obstetrics & Gynaecology	Any woman in whom emergency laparotomy is performed for suspected massive intraabdominal bleeding during pregnancy or puerperium, not related to trauma or uterine rupture	
Obstetrics & Gynaecology	spontaneous hemoperitoneum in pregnancy	unrelated to trauma or rupture of the uterus
Epidemiology	Any woman 20 weeks or more gestation with sudden intra-abdominal haemorrhage requiring surgery (CS, laparotomy, laparoscopy), without preceding trauma	EXCLUDE: women with uterine rupture or trauma
Obstetrics & Gynaecology	Non-traumatic hemoperitoneum in pregnancy (diagnosis by ultrasound/radiology or laparotomy)	Exclude: hyperstimulation of ovaries or bleeding from luteal cysts etc. Exclusion of 1. trimester might be a reasonable solution :-) Stratification by cause: Endometriosis (history or finding), Rupture of vessel (specify), Other, Unknown
Obstetrics & Gynaecology	Acute intraperitoneal hemorrhage during pregnancy, childbirth and 42 days post partum due to any cause.	Definitions of severe maternal morbidity should be consistent with definitions of maternal Death and thus also include 42 days post partum. To facilitate routine surveillance the following ICD-10 code is suggested: K66.1 Potential causes of such hemorrhage should also be listed by ICD-10 codes; such as aneurisms, endometriosis, uterine rupture, placental percreta with hemorrhage and others
Obstetrics & Gynaecology	the occurrence of a sudden intraabdominal hemorrhage in a pregnant woman – unrelated to trauma or rupture of the uterus	
Obstetrics & Gynaecology	Any pregnancy after 22 weeks with sudden intraabdominal hemorrhage requiring surgery (Cesarian section, laparotomy, laparoscopy) - without preceding trauma	
Obstetric Medicine	any woman with sudden intra-abdominal haemorrhage, without trauma or uterine rupture, requiring surgery	
Obstetrics & Gynaecology	Blood within the peritoneal cavity during pregnancy without preceding trauma, necessitating a medical intervention, not being an extra-uterine pregnancy or uterine rupture.	
Epidemiology	Any woman 20 weeks or more gestation with sudden intra-abdominal haemorrhage requiring surgery (CS, laparotomy, laparoscopy), without preceding trauma	EXCLUDE: women with uterine rupture or trauma
Obstetrics & Gynaecology	spontaneous (venous) bleeding from the peritoneum during the pregnancy. Is usually due to endometriosis.	
Obstetrics & Gynaecology	Bleeding under the peritoneum due to spontaneous rupture of a vein or an artery either antenatally, during delivery or in puerperium.	Bleeding can appear due to rupture in a vein or an artery in various sites (uterine varicose vein, uterine vessels, ovarian vessels, endometriosis lesions, adhesions, vascular anomalies). Causes hypovolemia and acute abdominal pain.
Obstetrics & Gynaecology	SHiP is defined as an unprovoked intraperitoneal bleeding in a pregnant women.	The cause may be : idiopathic ; ruptured blood vessels, mainly veins; ruptured organs mainly spleen; ruptured ovarian follicle; endometriosis.

Epidemiology	Intraperitoneal bleeding during second half of pregnancy confirmed by laparotomy or other diagnostic modalities such as contrast-enhanced computed tomography	
Obstetrics & Gynaecology	Unprovoked peritoneal bleeding	
Obstetrics & Gynaecology	spontaneously hemoperitoneum in pregnancy is any spontaneously intraabdominal bleeding during pregnancy	
Obstetrics & Gynaecology	spontaneous massive intraperitoneal bleeding from uterine vessel	
Obstetrics & Gynaecology	pregnant patients with an acute abdomen and free fluid in the abdominal cavity	
Obstetrics & Gynaecology	Any pregnant woman with sudden intra-abdominal haemorrhage requiring surgery (CS, laparotomy, laparoscopy), without preceding trauma, diagnosed during pregnancy, intrapartum or up to 42 days postpartum. EXCLUDE: women with uterine rupture or trauma. ICD-Code K661	
Obstetrics & Gynaecology	sudden unexplained loss of intravascular blood into intraabdominal cavity or retro-or sub-peritoneal space	
Obstetrics & Gynaecology	spontaneous (not-traumatic) severe intra-abdominal hemorrhage	ita has to be agreed upon whether or nor spontaneous uterine rupture is to be included

Spontaneous Hemoperitoneum in Pregnancy - Distilled questions concerning critical components

Question no.	Question	(Strongly) agree	Undecided	(Strongly) disagree
chapter 1	Domain of the definition of Spontaneous Hemoperitoneum in Pregnancy			
1	There should be a lower limit in GA in the definition of SHiP	41%	12%	47%
2	SHiP should be limited to cases in which it is present before labour	32%	9%	59%
3	SHiP should exclude hemoperitoneum postpartum	44%	6%	50%
Chapter 2	Symptoms and signs in a definition of SHiP			
4	Concerning SHiP, it being non-traumatic is an integral part of the definition	91%	6%	3%
5	A diagnosis of SHiP can only be made by visual confirmation during surgery	50%	12%	38%
6	A diagnosis of SHiP can be made by the use of ONLY radiologic evidence of intra-abdominal fluids (and thus without surgical confirmation).	12%	9%	79%
7	A diagnosis of SHiP can be made a combination of radiologic signs of intra-abdominal fluid and 1 of the following: - clinical signs of acute abdomen - clinical signs of shock - laboratory signs of shock	56%	9%	35%
8	The need for surgery is an integral part of the definition of SHiP	47%	9%	44%
9	The presence of abdominal pain should always be present in the definition of SHiP	32%	6%	62%
10	The definition should state that SHiP is of an acute to subacute nature	76%	12%	12%
11	Hypovolemic shock should always be present in the definition of SHiP	20%	9%	71%
12	The origin of intra-abdominal blood should be part of the definition	23%	18%	59%
13	Endometriosis must be present to confirm the diagnosis of SHiP	0%	3%	97%
14	An ectopic pregnancy must be in the exclusion criteria for the definition	85%	9%	6%
15	A uterine rupture must be in the exclusion criteria for the definition	88%	3%	9%
16	The presence of maternal or fetal compromise should be part of the definition	15%	9%	76%

Comments collected during Delphi round 2

During round two of the Delphi process the following comments were collected in the individual chapters.

Chapter 1: Domain of the definition of Spontaneous Hemoperitoneum in Pregnancy

If the definition clearly excludes ectopic pregnancy and uterine rupture, "lower limit" and "before labour" do not have to be in the definition.
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Also in early gestation or postpartum it is important to be aware of this cause of bleeding.
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Chapter 2: Symptoms and signs in a definition of Spontaneous Hemoperitoneum in Pregnancy

A suspicion of SHIP can be made by using imaging in combination with Hb determination. The final diagnosis should be made through surgery.
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If the radiologic evidence is only about intra-abdominal fluids, then it is not enough to diagnose SHIP, so it should be accompanied with clinical manifestations, such as shock. But the radiologic evidence is something like extravasation of contrast medium, it is enough to diagnose SHIP.
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Cardiac Arrest in Pregnancy (CAP)

Unique definitions from round 1

Specialty	My definition of Cardiac Arrest in Pregnancy (CAP) is:	Free commentaries to definition of Cardiac Arrest in Pregnancy:
Obstetrics & Gynaecology	circulatory (and respiratory) arrest during pregnancy	"in pregnancy" may be from early in first trimester untill puerperium there are many different causes of circulatory arrest in MOET 4 H's 4 T's
Obstetrics & Gynaecology	Sudden cardiac arrest, that has required immediately basic life support and occurred anytime during pregnancy or during labour	Basic life support (chest compression, ventilation), resuscitation (electric shock)
Anaesthesiology	Cardio circulatory inefficiency occurring during pregnancy with unconsciousness, respiratory failure and absence of carotid or femoral pulse.	
Anaesthesiology	Loss of spontaneous circulation in a pregnant woman	
Obstetrics & Gynaecology	Absence of heartbeats	
Anaesthesiology	Sudden stop of cardiac mechanical activity with cessation of effective blood circulation in a pregnant woman. Cardiac arrest in pregnancy is a clinical entity with loss of detectable pulse, loss of spontaneous breathing and loss of consciousness in a pregnant woman.	
Obstetrics & Gynaecology	A condition where there is no blood circulation because of absent or very low ejection fraction.	
Obstetrics & Gynaecology	Cessation of CIRCULATORY ACTIVITY during pregnancy	AHA
Obstetrics & Gynaecology	when the heart totally fails to contract and circulation stops, within the entire period of pregnancy; GA 4 weeks and forwards.	
Obstetrics & Gynaecology	Cardiac arrest prior to the birth of the placenta	
Epidemiology	is the sudden, unexpected loss of heart function, breathing and consciousness.	if the heartbeat is not restored with an electrical shock or cardiopulmonary resuscitation immediately, death follows within minutes.
Obstetrics & Gynaecology	basic life support during pregnancy and before delivery with cardiopulmonary resuscitation	Anesthesiologists have to define "basic life support"....
Obstetrics & Gynaecology	a cardiac arrest	
Obstetrics & Gynaecology	Any pregnant woman receiving resuscitation (chest compressions, ventilation and/or cardiac defibrillation) during pregnancy, labour and within 7 days postpartum, including women who have undergone perimortem caesarean section.	
Anaesthesiology	situation in which there are no signs of life because of circulatory arrest due to rhythm disturbances like ventricular fibrillation/pulseless ventricular tachycardia/asystole/pulseless electrical activity	
Obstetrics & Gynaecology	Any pregnant woman receiving basic life support (chest compressions and, where possible, ventilation breaths), including women who have undergone PMCS (Postmortem CS). It can be diagnosed during pregnancy, labour and within 42 days postpartum.	ICD 10 codes: I 460, I461, I469. Possibly also O291, O742, O891.
Obstetrics & Gynaecology	complete cardiac arrest from beginning of pregnancy to shortly after delivery	

Epidemiology	Any woman who requires immediate basic life support (BLS) (i.e. chest compressions and usually, ventilation breaths) at any time in pregnancy, up to the point of delivery of the baby	EXCLUDE: women requiring ventilatory support ONLY
Obstetrics & Gynaecology	1) Resuscitation attempt (heart massage or DC, ventilation) or 2) unexplained maternal death.	Stratification of 1): Pregnancy continued or Cesarean section (including perimortem CS). Stratification of 2): death without significant findings (=probable cause of death) at autopsy, or death without autopsy. Cardiac arrest in pregnancy could be grouped with anaphylaxis and AFE (and even eclampsia :-)). I look forward to hear your considerations and discuss.
Obstetrics & Gynaecology	Any pregnant woman receiving resuscitation (chest compression, ventilation and/or cardiac defibrillation) during pregnancy, labour or within 42 days post partum, including women who have undergone perimortem caesarean section.	"Pregnancy" should include the entire gestation, and in order to be coherent with definitions of maternal Death, the 42 days post partum. To facilitate routine surveillance, the following ICD-10 codes are suggested: I460; I461; I469. Possibly also O291; O742; O891 and (for the Nordic countries) Nordic codes for procedures (NCSP): WDAB80 and ZXG05
Obstetrics & Gynaecology	Cardiac arrest (asystole) in a pregnant woman	I would include patients with a cardiac arrest in the period between conception and the birth of the placenta. If you would ask for maternal cardiac arrest I would include cases till 42 days postpartum.
Obstetrics & Gynaecology	Cardiac arrest at any stage in pregnancy and up to six weeks after delivery	
Obstetric Medicine	any woman who receives immediate basic life support (chest compressions and ventilation breaths) at any time on pregnancy up to the end of second stage	
Epidemiology	any woman who has received immediate basic life support (BLS) (i.e. chest compressions and usually, ventilation breaths) at any time in pregnancy, up to the point of delivery of the baby.	Note that women requiring ventilatory support only, are NOT included
Midwifery	Cardiopulmonary arrest in pregnancy due to pregnancy or nonpregnancy-related causes.	
Obstetrics & Gynaecology	Sudden cessation of maternal cardiac activity with hemodynamic collapse.	
Obstetrics & Gynaecology	Sudden cardiac arrest, that has required immediately basic life support and occurred anytime during pregnancy or during labour.	Basic life support (chest compression, ventilation), resuscitation (electric shock)
Obstetrics & Gynaecology	Cardiac arrest is the sudden, unexpected loss of heart function, breathing and consciousness in a pregnant woman.	
Epidemiology	Woman who has received basic life support (BLS) which includes chest compression initiated immediately after cardiac arrest at any time during pregnancy up to delivery	
Obstetrics & Gynaecology	Cardiac failure necessitating an immediate resuscitation during pregnancy	
Obstetrics & Gynaecology	Any pregnant women receiving basic life support (chest compressions and where possible, breath ventilation), including women who have undergone PMCS (Postmortem CS). ICD 10 codes: I 460, I461, I469. Possibly also O291, O742, O891.	It can be diagnosed during pregnancy, labour and within 42 days postpartum? The time aspect is relevant for most definitions included in this Delphi, should cases occurring in the postpartum period also be included (ref. maternal deaths definition).
Obstetrics & Gynaecology	the sudden (unexpected) loss of heart function, breathing and consciousness	maybe use cardiopulmonary arrest instead of cardiac arrest

Cardiac arrest in Pregnancy - Distilled questions concerning critical components

Question no.	Question	(Strongly) agree	Undecided	(Strongly) disagree
chapter 1	Domain of the definition of cardiac arrest in Pregnancy			
1	A definition of cardiac arrest in pregnancy is limited to pregnancy until delivery.	45%	5%	50%
2	A definition of cardiac arrest in pregnancy encloses both pregnant women AND women postpartum	59%	5%	36%
	<i>If the definition also includes woman postpartum, my maximum interval between cardiac arrest and delivery would be:</i>			
3	<div>1 hour</div> <div>24 hours</div> <div>48 hours</div> <div>7 days</div> <div>42 days</div> <div>Same hospitalisation</div> <div>Same clinical episode</div>		<div>8%</div> <div>17%</div> <div>8%</div> <div>11%</div> <div>47%</div> <div>3%</div> <div>6%</div>	
4	There should not be a lower limit at which to speak of cardiac arrest in pregnancy	70%	8%	22%
Chapter 2	Construct of a definition of cardiac arrest in pregnancy			
5	The criteria for cardiac arrest in pregnancy are met in case there is EITHER a cessation of circulatory activity AND/OR a woman receives Basic (or Advanced) Life Support	59%	6%	35%
6	The criteria for the definition of cardiac arrest are only met in case there is cessation of circulatory activity	41%	6%	53%
7	The criteria for the definition of cardiac arrest are met in case a woman receives basic (or advanced) life support; irrespective of confirmation of circulatory cessation	47%	18%	35%
Chapter 3	Signs & symptoms of a definition of cardiac arrest in pregnancy			
8	The need for ventilation breaths is not obligatory in the definition	61%	18%	21%
9	Whether or not a PMCS is performed is not a part of the definition	91%	0%	9%
10	If a PMCS is performed, this defines the occurrence of cardiac arrest (with or without confirmation of cessation of circulatory activity)	64%	15%	21%

Comments collected during Delphi round 2

During round two of the Delphi process the following comments were collected in the individual chapters.

Chapter 1: Domain of the definition of Cardiac Arrest in Pregnancy

We suggest 42 days postpartum due to the definition of maternal mortality includes this time period pp.
I think this depends on what research question we would like to answer. If the research question is mainly on PMCS, then the definition can be only during pregnancy up to delivery. But the research question is rather broad, then the definition should be somewhat identical to the definition of maternal death.
However - specific elements of the resuscitation processes apply only to women who arrest when they are pregnant. I would prefer if the timing of the arrest (pregnant or postpartum) was included in the reporting of any audit/registry/research.

Chapter 2: Construct of a definition of Cardiac Arrest in pregnancy

"BLS guideline: look listen feel 10 seconds; start BLS"
Since Our data are from everyday clinical practice, and since in the clinical situation Basic Life Support will be given when Cardiac arrest is suspected, we think that the provision of BLS should be included as an indicator for Cardiac arrest irrespective of confirmation of circ cessation
BLS could be initiated without confirmation of cessation of circulatory activity, so the confirmation of cessation of circulatory activity is not mandatory. However, the information regarding the confirmation of cessation of circulatory activity should be collected. Though receiving BLS is not equal to cardiac arrest, maybe women who could receive BLS is equal to the population of interest.
Cessation of circulatory activity occurs in every maternal death whether any effort to resuscitate (BLS and ALS) are done or not. By that definition, every maternal death would have had a 'cardiac arrest in pregnancy'. Whilst that is technically true - I think the purpose of this definition is to include those cases where an attempt to resuscitate was made. I would think that confirmation of circulatory cessation is part of the assessment prior to the onset of BLS - unless there is only a respiratory arrest and breathing support is required.
Basic life support should include both cardiac massage and ventilatory breaths.

Chapter 3: Signs & symptoms of a definition of Cardiac Arrest in Pregnancy

Third question: are there cases of PMCS without BLS or cessation of circulation?
Basic and advanced life support includes ventilation, this statement is thus hard to interpret.
Ventilation is part of BLS, so we think this statement (the first one above) is a bit strange...
What do you mean by "ventilation breaths"?
If PMCS is performed, data should be collected regarding this women though this does not necessarily mean she had cardiac arrest.
I think the intention is to define a case when resuscitation is required - BLS or ALS for cardiac and/or respiratory arrest. Without said BLS/ALS, the woman would die.

$$\text{Rate of Agreement} = \frac{(\text{strongly}) \text{ agree} - (\text{strongly}) \text{ disagree}}{(\text{strongly}) \text{ agree} + (\text{strongly}) \text{ disagree} + \text{undecided}} \times 100$$

Weighted distribution of expert input per country

Distribution of experts in multiple Delphi's