

A core outcome set for maternal and neonatal health research and surveillance of emerging and ongoing epidemic threats (MNH-EPI-COS): a modified Delphi-based international consensus

Supplementary materials

Supplementary File S1. Domains and subdomains used to classify outcomes.....	2
Supplementary File S2. Methods additional information.....	3
Supplementary File S3: Search strategies used in Pubmed to identify publications evaluating the feasibility of collecting and reporting each included outcome	5
Supplementary File S4. Delphi Surveys Participants	10
Supplementary File S5. Consensus meetings list of participants.....	13
Table S1. Additional outcomes suggested by participants	16
Table S2. Results from Round 1 and 2. Maternal outcomes.....	17
Table S3. Results from Round 1 and 2. Neonatal outcomes.....	21

Supplementary File S1. Domains and subdomains used to classify outcomes

This box represents the classification we used for domains and subdomains, separately for maternal and neonatal outcomes, using a simplified domain classification based on the last recommendation of COMET 2018.¹

Maternal and pregnancy-related outcomes:

a) Mortality / vital status,

b) Physiological/clinical:

Subdomains: maternal morbidity, maternal morbidity not related to pregnancy (by system), placenta-related outcomes, infection and infestation outcomes, labour and delivery characteristics, foetal outcomes

c) Functioning:

Subdomains: Social functioning, Emotional functioning/well-being, Cognitive functioning, and Delivery of care (Obstetric management, Preventive and Therapeutic intervention related to an outbreak, Clinical Management).

Neonatal outcomes

a) Mortality / vital status,

b) Physiological/clinical:

Subdomains: Physiological/clinical, Neonatal outcomes, Neonatal morbidity, and Infection and infestation outcomes

c) Functioning (delivery of care).

Supplementary File S2. Methods additional information

Civil society representatives' involvement

To ensure civil society representatives could fully engage during the online surveys, we provided information sheets written in plain language to minimize barriers to understanding.

Regarding the discussion and consensus on the definitions, organizers anticipated that civil society representatives would not actively engage in discussions about the technical definitions, although they played a significant role in the broader consensus process for the final COS. However, four of the six civil society representatives had a clinical or public health background and were able to participate in the discussion of definitions.

Methods for mapping definitions and measurement instruments, and summarizing data collection feasibility for included outcomes

The final expert consensus meeting included, in addition to the COS finalization, discussions on outcome definitions, measurement instruments for patient-reported outcomes, and the feasibility of data collection for each outcome. Experts received summary reports that included key definitions along with their sources and publication dates, details of measurement instruments with psychometric characteristics, and feasibility summaries on data collection. The reports specifically highlighted feasibility findings from studies conducted in low- and middle-income countries. The methodology used to review the literature is presented below.

1. Definitions mapping

We initially consulted our systematic review database to identify definitions used by researchers. This review revealed significant variability, with authors frequently referencing definitions from established sources (e.g., ICD-11, WHO, or professional associations) and occasionally adapting them to specific contexts. Consequently, we determined that the criteria for identifying definitions would require a more rigorous approach, and developed through a systematic expert consensus process.

We searched the grey literature, by consulting the following organizations websites: ICD-11, WHO, GAIA/Brighton collaboration, World Bank, UNICEF, FIGO, NIH, CDC, NICE, RCOG, ACOG, ICHI and Eurostat. When multiple definitions were found from the same organization, we prioritized the most recent. Additionally, we reviewed all COS publications that included maternal, pregnancy, and neonatal outcomes to identify any consensus-based definitions.

2. Measurement instruments for patient reported outcomes

To identify measurement instruments for the included outcomes that required patient-reported assessments, we consulted two established questionnaire databases: the Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) and Health and Psychosocial Instruments (HaPI) via EBSCO. From these sources, we extracted all relevant instruments along with their evaluations regarding psychometric properties, including reliability and validity.

3. Systematic literature search on feasibility of outcomes of data collection

A systematic literature search was conducted to identify studies reporting on the feasibility of data collection for each outcome included in the COS. An experienced librarian developed the search strategy (see Supplementary File S3). We searched PubMed, the Repository Maternal and Child Survival Program/USAID and studies using GAIA outcomes and case definitions. Publications were

screened, and data extracted by a single reviewer. Summaries of the evidence, with a particular focus on data collection feasibility in low- and middle-income countries, were prepared and included in reports reviewed by participants during the consensus meeting.

Supplementary File S3: Search strategies used in Pubmed to identify publications evaluating the feasibility of collecting and reporting each included outcome

Maternal outcomes

Live Birth

(Feasibility[tiab] OR Barrier*[tiab] OR Facilitat*[tiab]) AND (**Live Birth[Mesh] OR Live Birth*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Stillbirth

(Feasibility[tiab] OR Barrier*[tiab] OR Facilitat*[tiab]) AND (**Stillbirth[Mesh] OR Stillbirth[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Miscarriage

(Feasibility[tiab] OR Barrier*[tiab] OR Facilitat*[tiab]) AND (**Abortion, Spontaneous[Mesh] OR Miscarriage[tiab] OR Spontaneous Abort*[tiab] OR Pregnancy Loss[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Induced Abortion

(Feasibility[tiab] OR Barrier*[tiab] OR Facilitat*[tiab]) AND (**Abortion, Induced[Mesh] OR Induced Abort*[tiab] OR Legal Abort*[tiab] OR Request Abort*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Maternal Death

(Feasibility[tiab] OR Barrier*[tiab] OR Facilitat*[tiab]) AND (**Maternal Death[Mesh] OR Maternal Death*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Maternal Infection (symptomatic and confirmed) / Sepsis

(Feasibility[tiab] OR Barrier*[tiab] OR Facilitat*[tiab]) AND (**Puerperal Infection[Mesh] OR Maternal Infection*[tiab] OR Puerperal Infection*[tiab] OR Postpartum Sepsis[tiab] OR Postpartum Infection*[tiab] OR Puerperal Sepsis[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Severe/critical disease (related outbreak disease)

(Feasibility[tiab] OR Barrier*[tiab] OR Facilitat*[tiab]) AND (**Epidemics[Mesh] OR Epidemic*[tiab] OR Pandemi*[tiab] OR Outbreak*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (Pregnancy[Mesh] OR Pregnanc*[tiab] OR Maternal[tiab])

Preterm Birth

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Premature Birth[Mesh] OR Preterm Birth*[tiab] OR Premature Birth*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Maternal admission to intensive care unit

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Critical Care[Mesh] OR Critical Care*[tiab] OR Intensive Care*[tiab] OR Intensive Care Units[Mesh] OR ICU[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (Pregnancy[Mesh] OR Pregnan*[tiab] OR Maternal[tiab])

Maternal mechanical ventilation

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Respiration, Artificial[Mesh] OR Mechanical Ventilat*[tiab] OR Artificial Respirat*[tiab] OR Mechanical Respirat*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (Pregnancy[Mesh] OR Pregnan*[tiab] OR Maternal[tiab])

Antepartum haemorrhage

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Antepartum Haemorrhage[tiab] OR Antepartum Bleed*[tiab] OR Spotting*[tiab] OR "Pregnancy Haemorrhage"[tiab:~3]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (Pregnancy[Mesh] OR Pregnan*[tiab] OR Maternal[tiab])

Postpartum Hemorrhage

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Postpartum Hemorrhage[Mesh] OR Postpartum Hemorrhage*[tiab] OR PPH[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Hypertensive disorders of pregnancy

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Hypertension, Pregnancy-Induced[Mesh] OR Gestational Hypertens*[tiab] OR "Pregnancy Hypertension"[tiab:~3] OR Eclampsia[tiab] OR Pre-Eclampsia[tiab] OR Preeclampsia[tiab] OR Preeclampsia[tiab] OR Hypertensive Disorder*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Gestational age at delivery

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Gestational Age[Mesh] OR Gestational Age*[tiab] OR Fetal Age*[tiab] OR Fetal Maturity[tiab] OR Fetal Development[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Violence

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (Violence[Mesh:noexp] OR Domestic Violence[Mesh] OR **Domestic Violence[tiab] OR Spouse Abuse*[tiab] OR Gender-Based Violence[Mesh] OR Gender-Based Violence[tiab] OR Intimate Partner Violence[Mesh] OR Partner Violence[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (Pregnancy[Mesh] OR Pregnan*[tiab] OR Maternal[tiab])

Depression / Peripartum psychiatric disorders

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Depression, Postpartum[Mesh] OR Post-Partum Depression[tiab] OR Postpartum Depression[tiab] OR Postnatal Depression[tiab] OR Psychiatric*[tiab] OR Psychologic*[tiab] OR Mood Disorder*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (Pregnancy[Mesh] OR Pregnan*[tiab] OR Maternal[tiab])

Mode of delivery

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Delivery, Obstetric[Mesh] OR Parturition[Mesh] OR Natural Birth[tiab] OR Natural Childbirth[tiab] OR Vaginal Birth[tiab] OR Vaginal Delivery[tiab] OR Cesarean[tiab] OR C-Section*[tiab] Psychiatric*[tiab] OR Labor[tiab] OR Episiotom*[tiab] OR Labor, Obstetric[Mesh]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (Pregnancy[Mesh] OR Pregnan*[tiab] OR Maternal[tiab])

Neonatal outcomes

Neonatal death (Early/Late)

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Perinatal Death[Mesh] OR Perinatal Death*[tiab] OR Neonatal Death*[tiab] OR Newborn Death*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Neonatal infection (symptomatic/ confirmed)

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Epidemics[Mesh] OR Neonatal infection AND Epidemic*[tiab] OR Pandemi*[tiab] OR Outbreak*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (Infant, Newborn[Mesh] OR Newborn*[tiab] OR Neonate*[tiab])

Severe disease

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Epidemics[Mesh] OR Epidemic*[tiab] OR Pandemi*[tiab] OR Outbreak*[tiab]**) AND (**Data Collection[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (**Infant, Newborn[Mesh] OR Newborn*[tiab] OR Neonate*[tiab]**)

Vertical transmission

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Infectious Disease Transmission, Vertical[Mesh] OR "Mother Child"[tiab:~2] OR "Fetomaternal Transmission"[tiab:~3] OR Maternal-Fetal[tiab] OR Vertical Transmission[tiab]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Birth Asphyxia/ Need for neonatal resuscitation immediately after birth/Low Apgar score

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Asphyxia Neonatorum[Mesh] OR Birth Asphyxia[tiab] OR Neonate Asphyxia[tiab] OR Newborn Asphyxia[tiab] OR Resuscitation[Mesh] OR Resuscitation[tiab] OR Apgar Score[Mesh] OR Low Apgar[tiab]**) AND (**Population Surveillance[Mesh]**)

OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]) AND (Infant, Newborn[Mesh] OR Newborn*[tiab] OR Neonate*[tiab])

Neonatal sepsis

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Neonatal Sepsis[Mesh] OR “Neonatal Sepsis”[tiab:~3] OR “Neonate Sepsis”[tiab:~3] OR “Newborn Sepsis”[tiab:~3] OR Onset Sepsis[tiab]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (**Infant, Newborn[Mesh] OR Newborn*[tiab] OR Neonate*[tiab]**)

Respiratory distress (WHO)

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Respiratory Distress Syndrome, Newborn[Mesh] OR Respiratory Distress[tiab]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (**Infant, Newborn[Mesh] OR Newborn*[tiab] OR Neonate*[tiab]**)

Low birth weight

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Infant, Low Birth Weight[Mesh] OR Low-Birth-Weight[tiab] OR Low Birthweight[tiab] OR “Small Gestational Age”[tiab:~2] OR LBW[tiab] OR VLBW[tiab]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Prematurity

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Premature Birth[Mesh] OR Premature[tiab] OR Preterm[tiab] OR Infant, Premature[Mesh]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Neonatal admission to intensive care unit

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Intensive Care, Neonatal[Mesh] OR Intensive Care Units, Neonatal[Mesh] OR Neonatal ICU[tiab] OR Newborn ICU[tiab] OR Newborn Intensive-Care*[tiab] OR Neonate Intensive-Care*[tiab] OR NICU[tiab]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**)

Neonatal cardio-pulmonary resuscitation

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Resuscitation[Mesh] OR Resuscitation[tiab]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (**Infant, Newborn[Mesh] OR Newborn*[tiab] OR Neonate*[tiab]**)

Neonatal mechanical ventilation

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Respiration, Artificial[Mesh] OR Artificial Respiration[tiab] OR Mechanical Respiration[tiab] OR Artificial Ventilation[tiab] OR Mechanical Ventilation[tiab]**) AND (**Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]**) AND (**Infant, Newborn[Mesh] OR Newborn*[tiab] OR Neonate*[tiab]**)

Any congenital anomalies

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (**Congenital Abnormalities[Mesh] OR Congenital Abnormal*[tiab] OR Deformit*[tiab] OR Malformation*[tiab] OR Fetal Anomal*[tiab]**) AND

(Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab]) AND (Infant, Newborn[Mesh] OR Newborn*[tiab] OR Neonate*[tiab])

Gestational Age

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (Gestational Age[Mesh] OR Gestational Age*[tiab] OR Fetal Age*[tiab] OR Fetal Maturity[tiab] OR Fetal Development[tiab]) AND (Data Collection[Mesh]) AND (Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab])

Birth weight

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (Birth Weight[Mesh] OR Birth Weight[tiab] OR Birthweight[tiab] OR Gestational Age[tiab]) AND (Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab])

Skin-to-skin

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (Kangaroo-Mother Care Method[Mesh] OR Kangaroo Mother[tiab] OR Skin-to-Skin[tiab] OR KMC[tiab]) AND (Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab])

Breastfeeding

(Feasibility[tiab] OR Barrier*[tiab] OR Facilita*[tiab]) AND (Breast Feeding[Mesh] OR Breast Feed*[tiab] OR Breastfeed*[tiab] OR Breast Fed[tiab] OR Breastfed[tiab]) AND (Population Surveillance[Mesh] OR Surveillance[tiab] OR Information System*[tiab] OR Registry[tiab])

Supplementary File S4. Delphi Surveys Participants

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Zaleha Abdullah Mahdy

Supplementary File S5. Consensus meetings list of participants

DEPARTMENT OF SEXUAL AND REPRODUCTIVE HEALTH AND RESEARCH

**WHO CONSULTATION ON THE DEVELOPMENT OF A CORE OUTCOME SET (COS) FOR MATERNAL AND
PERINATAL HEALTH RESEARCH AND SURVEILLANCE**

IN THE CONTEXT OF EMERGING AND ONGOING EPIDEMIC THREATS

14-15 February 2024

List of Participants

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Table S1. Additional outcomes suggested by participants

Domain	Outcome
Functioning - Delivery of care	Maternal satisfaction (with care received)
	Rooming in
	Companionship during childbirth
Functioning - Delivery of care - Preventive and Therapeutic intervention related to outbreak	Prophylactic steroids during pregnancy
	Severe, life-threatening, disabling or death adverse event
	Severe, life-threatening, disabling or death medical error
	Gestational age at medication use end
	Maternal drug therapy
Functioning - Delivery of care - Obstetric management	Obstetrical anesthesia complications
Functioning - Delivery of care - Clinical Management	Patient readmission
Functioning - Emotional functioning/well- being	Sexual satisfaction
Physiological/clinical - Infection and infestation outcomes	Sexually transmitted infections during pregnancy
Physiological/clinical - Maternal Morbidity not related to pregnancy (by system)	Maternal Near Miss
Physiological/clinical - Other	Use of non-prescribed drugs to prevent infection
Mortality / vital status	Cause of death
	Histopathological studies performed (biopsy / autopsy)
Physiological/clinical - Neonatal morbidity	Neonatal near miss
	Neurodevelopment outcomes
	Recurrence of neonatal morbidity
Physiological/clinical-Infection and infestation outcomes	Neonatal vaccination
	Neonatal drug therapy

Table S2. Results from Round 1 and 2. Maternal outcomes

Outcome	Round 1				Status	Round 2				Status
	Maternal health	Neonatal health	Public health	Civil society		Maternal health	Neonatal health	Public health	Civil society	
	n=73	n=30	n=26	n=21		n=69	n=29	n=23	n=18	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)		
Maternal and perinatal mortality / vital status										
Live birth	66 (92)	26 (87)	24 (92)	17 (81)	Agree to include	NA	NA	NA	NA	NA
Maternal death	70 (97)	30 (100)	26 (100)	20 (95)	Agree to include	NA	NA	NA	NA	NA
Perinatal death	68 (96)	30 (100)	26 (100)	19 (90)	Agree to include	NA	NA	NA	NA	NA
Stillbirth	69 (96)	30 (100)	25 (96)	18 (86)	Agree to include	NA	NA	NA	NA	NA
Physiological/clinical - Maternal Morbidity										
Ectopic/molar pregnancy	27 (39)	8 (30)	8 (35)	7 (47)	Agree to exclude	NA	NA	NA	NA	NA
Hyperemesis gravidarum	11 (17)	4 (14)	2 (10)	3 (9)	Agree to exclude	NA	NA	NA	NA	NA
Insufficient cervix	17 (25)	8 (29)	4 (17)	7 (41)	Agree to exclude	NA	NA	NA	NA	NA
Intrahepatic cholestasis of pregnancy	15 (24)	9 (32)	4 (20)	3 (27)	Agree to exclude	NA	NA	NA	NA	NA
Oligohydramnios	24 (38)	14 (47)	7 (32)	5 (47)	Agree to exclude	NA	NA	NA	NA	NA
Polyhydramnios	19 (31)	14 (47)	5 (24)	4 (33)	Agree to exclude	NA	NA	NA	NA	NA
Diseases of the urinary system	16 (24)	6 (21)	4 (18)	6 (38)	Agree to exclude	NA	NA	NA	NA	NA
Disorders of the thyroid gland or thyroid hormones system	15 (22)	8 (29)	2 (10)	7 (41)	Agree to exclude	NA	NA	NA	NA	NA
Haematologic disorders	33 (50)	13 (45)	8 (38)	7 (44)	Agree to exclude	NA	NA	NA	NA	NA
Liver disorders	24 (36)	8 (29)	7 (35)	7 (44)	Agree to exclude	NA	NA	NA	NA	NA
Neurologic disorders	26 (38)	11 (41)	6 (30)	7 (44)	Agree to exclude	NA	NA	NA	NA	NA
Peritoneal effusion	11 (18)	8 (30)	6 (29)	4 (31)	Agree to exclude	NA	NA	NA	NA	NA
Postpartum haemorrhage	59 (87)	27 (90)	20 (84)	19 (95)	Agree to include	NA	NA	NA	NA	NA
Antenatal bleeding (unspecified etiology)	30 (43)	20 (67)	9 (38)	11 (19)	No agreement	37 (55)	18 (62)	6 (27)	11 (73)	No agreement

Chorioamnionitis	40 (61)	23 (77)	10 (45)	6 (50)	No agreement	51 (76)	21 (72)	13 (59)	10 (77)	No agreement
Gestational diabetes mellitus	40 (56)	22 (73)	10 (42)	8 (53)	No agreement	43 (63)	21 (72)	13 (57)	11 (69)	No agreement
Hypertensive disorders of pregnancy	55 (77)	27 (90)	16 (67)	13 (76)	No agreement	63 (93)	26 (90)	18 (78)	15 (94)	No agreement*
Morbidly adherent placenta	30 (48)	14 (48)	9 (40-91)	8 (57)	Agree to exclude	NA	NA	NA	NA	NA
Amniotic fluid embolism	37 (58)	13 (48)	12 (55)	9 (29)	Agree to exclude	NA	NA	NA	NA	NA
Placenta previa	33 (49)	17 (57)	11 (48)	11 (65)	Agree to exclude	NA	NA	NA	NA	NA
Placental abruption	43 (65)	23 (77)	14 (61)	11 (69)	No agreement	52 (80-00)	24 (83)	14 (64)	15 (94)	No agreement
Premature rupture of membranes	38 (56)	24 (80)	14 (56)	11 (61)	No agreement	43 (65)	23 (79)	10 (43)	11 (65)	No agreement
Preterm birth / delivery (unspecify aetiology)	61 (86)	31 (100)	21 (84)	15 (75)	No agreement	65 (96)	29 (100)	21 (91)	14 (88)	Agree to include
Preterm birth/ delivery spontaneous	61 (86)	31 (100)	19 (76)	16 (80)	No agreement	66 (97)	29 (100)	20 (87)	16 (100)	Agree to include
Preterm labour	52 (74)	25 (83)	16 (64)	12 (63)	No agreement	58 (88)	27 (93)	14 (61)	13 (76)	No agreement
Spontaneous abortion	47 (67)	22 (76)	17 (71)	12 (63)	No agreement	47 (71)	21 (75)	18 (78)	11 (65)	No agreement
Threatened abortion	28 (40)	16 (57)	9 (38)	10 (56)	Agree to exclude	NA	NA	NA	NA	NA
Uterine rupture	45 (66)	21 (72)	17 (74)	15 (79)	No agreement	50 (75)	17 (61)	18 (86)	15 (94)	No agreement
Acute renal injury	36 (53)	16 (57)	8 (36)	10 (63)	Agree to exclude	NA	NA	NA	NA	NA
Any respiratory disorders (other than pneumonia)	30 (44)	12 (41)	11 (55)	6 (38)	Agree to exclude	NA	NA	NA	NA	NA
Shock	53 (76)	23 (77)	18 (78)	12 (71)	No agreement	62 (94)	23 (79)	21 (95)	12 (80)	No agreement
Thrombo-embolic event	49 (71)	23 (77)	20 (87)	11 (67)	No agreement	57 (86)	19 (68)	19 (90)	11 (79)	No agreement*
Physiological/clinical - Maternal Morbidity not related to pregnancy										
Physiological/clinical - Placenta related outcomes										
Placental or umbilical cord conditions	25 (37)	17 (61)	7 (32)	8 (50)	Agree to exclude	NA	NA	NA	NA	NA
Villitis/intervillositis	19 (31)	13 (50)	5 (26)	0 (0)	Agree to exclude	NA	NA	NA	NA	NA
Physiological/clinical - Maternal infection and infestation outcomes										
Abnormal imaging findings	21 (32)	12 (43)	7 (32)	7 (44)	Agree to exclude	NA	NA	NA	NA	NA
Endometritis	34 (48)	13 (46)	8 (35)	4 (25-00)	Agree to exclude	NA	NA	NA	NA	NA

Vertical transmission	59 (84)	26 (90)	22 (88)	13 (93)	Agree to include	NA	NA	NA	NA	NA
Gestational age at infection	45 (65)	19 (66)	13 (52)	8 (47)	Agree to exclude	NA	NA	NA	NA	NA
Maternal asymptomatic infection (related outbreak disease)	42 (59)	18 (64)	15 (60)	9 (50)	Agree to exclude	NA	NA	NA	NA	NA
Maternal confirmed infection (related outbreak disease)	49 (69)	26 (90)	19 (76)	12 (67)	No agreement	59 (86-76)	28 (96-55)	22 (95-65)	14 (82-35)	Agree to include
Maternal symptomatic infection (related outbreak disease)	54 (75)	26 (90)	20 (80)	11 (61)	No agreement	63 (93)	26 (93)	21 (92)	13 (76)	No agreement*
Nosocomial infection	36 (51)	16 (57)	15 (60)	8 (50)	Agree to exclude	NA	NA	NA	NA	NA
Pneumonia	98 (69)	47 (81)	25 (51)	23 (66)	No agreement	48 (71)	24 (83)	11 (52)	12 (71)	No agreement
Progression to severe/critical disease (related outbreak disease)	64 (89)	27 (96)	20 (83)	13 (76)	No agreement	65 (96)	28 (100)	23 (100)	16 (94)	Agree to include
Protective antibodies	30 (43)	15 (54)	12 (48)	7 (47)	Agree to exclude	NA	NA	NA	NA	NA
Recovered	39 (56)	17 (63)	15 (63)	9 (60)	Agree to exclude	NA	NA	NA	NA	NA
Sepsis	64 (90)	25 (86)	23 (88)	13 (68)	No agreement	68 (100)	26 (90)	23 (100)	14 (88)	Agree to include
Seroconversion	41(61)	15 (54)	14 (58)	6 (46)	Agree to exclude	NA	NA	NA	NA	NA
Physiological/clinical - Labour and delivery characteristics										
Complications of labour or delivery	56 (81)	23 (82)	18 (72)	13 (72)	No agreement	51 (75)	20 (77)	17 (77)	14 (88)	No agreement
Complications of third stage of labour	51 (74)	21 (75)	13 (54)	14 (74)	No agreement	48 (71)	18 (64)	12 (60)	12 (60)	No agreement
Gestational age at delivery	60 (86)	27 (96)	17 (65)	13 (65)	No agreement	64 (94)	28 (97)	19 (83)	19 (83)	Agree to include
Labour onset	33 (47)	17 (61)	8 (32)	7 (41)	Agree to exclude	NA	NA	NA	NA	NA
Mode of delivery	47 (67)	20 (69)	12 (46)	12 (63)	No agreement	50 (74)	21 (72)	13 (57)	13 (76)	No agreement
Physiological/clinical - Fetal outcomes										
Decreased fetal movements	39 (55)	17 (57)	13 (54)	12 (71)	No agreement	39 (57)	19 (66)	9 (41)	12 (80)	No agreement
Foetal growth restriction	60 (85)	27 (90)	16 (67)	12 (67)	No agreement	63 (93)	28 (97)	15 (71)	12 (75)	No agreement*
Hydrops fetalis	36 (59)	24 (80)	11 (52)	4 (40)	No agreement	34 (58)	21 (72)	8 (44)	7 (70)	No agreement
Non-reassuring fetal status	35 (55)	23 (77)	15 (63)	9 (69)	No agreement	32 (50)	17 (63)	7 (37)	10 (83)	No agreement
Multiple gestation	39 (56)	19 (63)	24 (54)	10 (59)	Agree to exclude	NA	NA	NA	NA	NA
Maternal social functioning										

Mother-newborn isolation	36 (50)	19 (63)	9 (38)	13 (62)	Agree to exclude	NA	NA	NA	NA	NA
Social support	37 (51)	19 (63)	11 (42)	16 (76)	No agreement	33 (48)	17 (59)	10 (43)	14 (78)	No agreement
Violence	50 (69)	19 (63)	16 (66)	17 (81)	No agreement	48 (71)	20 (69)	16 (70)	15 (83)	No agreement
Worries	25 (35)	11 (37)	7 (28)	9 (45)	Agree to exclude	NA	NA	NA	NA	NA
Maternal emotional functioning/well-being										
Insomnia	25 (35)	11 (37)	4 (16)	8 (38)	Agree to exclude	NA	NA	NA	NA	NA
Panic	27 (38)	15 (50)	5 (21)	9 (43)	Agree to exclude	NA	NA	NA	NA	NA
Resilience	27 (39)	11 (39)	5 (21)	10 (50)	Agree to exclude	NA	NA	NA	NA	NA
Anxiety	39 (55)	16 (53)	9 (36)	11 (52)	Agree to exclude	NA	NA	NA	NA	NA
Depression	52 (73)	22 (73)	12 (48)	15 (71)	No agreement	45 (65)	14 (48)	9 (39)	12 (67)	No agreement
Peripartum psychiatric disorder (unspecified)	45 (65)	20 (67)	12 (50)	15 (75)	No agreement	41 (59)	15 (52)	10 (45)	11 (65)	No agreement
Psychological well-being	39 (55)	17 (57)	7 (29)	15 (71)	No agreement	34 (49)	16 (55)	6 (27)	10 (56)	No agreement
Stress	31 (44)	12 (41)	6 (25)	13 (62)	Agree to exclude	NA	NA	NA	NA	NA
Maternal functioning - Delivery of care										
Maternal admission to intensive care unit	65 (93)	25 (86)	24 (92)	16 (84)	Agree to include	NA	NA	NA	NA	NA
Blood transfusion	103 (74)	39 (66)	36 (69)	27 (71)	No agreement	48 (73)	20 (74)	17 (74)	11 (73)	No agreement
Maternal hospital admission/hospital stay	46 (66)	19 (66)	15 (58)	12 (67)	No agreement	45 (67)	19 (70)	14 (61)	10 (67)	No agreement
Maternal mechanical ventilation	60 (86)	25 (86)	24 (92)	15 (79)	No agreement	60 (90)	24 (83)	21 (91)	15 (94)	Agree to include
Maternal oxygen support	51 (73)	26 (90)	22 (85)	16 (85)	No agreement	54 (81)	23 (79)	21 (91)	14 (88)	No agreement
Augmentation of labour	26 (38)	8 (28)	9 (38)	6 (35)	Agree to exclude	NA	NA	NA	NA	NA
Episiotomy	22 (32)	2 (7)	5 (21)	4 (24)	Agree to exclude	NA	NA	NA	NA	NA
Hysterectomy	49 (71)	16 (55)	11 (46)	9 (56)	No agreement	42 (64)	8 (29)	5 (25)	9 (69)	No agreement
Induced abortion	43 (62)	16 (57)	16 (64)	10 (56)	Agree to exclude	NA	NA	NA	NA	NA
Preterm birth/delivery provider initiated (induced or iatrogenic)	58 (82)	22 (76)	18 (69)	8 (47)	No agreement	59 (86)	26 (90)	16 (70)	14 (88)	No agreement
Screening for detection of aneuploidies	19 (30)	11 (39)	6 (27)	3 (25)	Agree to exclude	NA	NA	NA	NA	NA
Maternal functioning - Cognitive functioning										

Self-efficacy	33 (49)	11 (38)	6 (25)	11 (52)	Agree to exclude	NA	NA	NA	NA	NA
Maternal Functioning - Preventive and therapeutic intervention related to outbreak										
Gestational age at vaccination	42 (61)	26 (87)	16 (62)	11 (58)	No agreement	46 (69)	25 (86)	17 (74)	13 (81)	No agreement
Maternal immunization	52 (73)	24 (80)	20 (77)	15 (79)	No agreement	58 (85)	26 (90)	18 (78)	15 (83)	No agreement
Women views on vaccine acceptability	38 (53-52)	18 (62-07)	11 (42-31)	11 (55-00)	Agree to exclude	NA	NA	NA	NA	NA

Note: With variations depending on the outcome, on average, 7-7% of the participants in Round 1 and 0-55% in Round 2 abstained from voting because they perceived themselves as unable to rate the outcome due to a lack of expertise.

* These outcomes were deemed borderline if, in the second survey, $\geq 90\%$ of participants in at least one stakeholder panel rated the outcome as critically important, did not have substantial overlap with included outcomes, were included within domains with substantial gaps, and were relevant to smaller panels.

Table S3· Results from Round 1 and 2· Neonatal outcomes

Outcome	Round 1				Status	Round 2				Status
	Maternal health	Neonatal health	Public health	Civil society		Maternal health	Neonatal health	Public health	Civil society	
	n=73	n=30	n=26	n=21		n=69	n=29	n=23	n=18	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)		
Neonatal Mortality										
Neonatal death	72 (100)	30 (100)	25 (96)	19 (95)	Agree to include	NA	NA	NA	NA	NA
Physiological/clinical - Neonatal outcomes										
Birth weight	61 (84)	28 (93)	19 (73)	14 (70)	No agreement	63 (91)	29 (100)	19 (83)	14 (82)	Agree to include
Breastfeeding at first hour	38 (54)	15 (50)	10 (38)	13 (65)	Agree to exclude	NA	NA	NA	NA	NA
Gestational age at birth	66 (90)	30 (100)	20 (77)	16 (80)	No agreement	66 (96)	29 (100)	19 (83)	16 (94)	Agree to include
Birth weight for gestational age	59 (81)	25 (83)	19 (73)	14 (70)	No agreement	62 (90)	27 (93)	15 (65)	15 (88)	No agreement
Type of feeding	41 (57)	18 (60)	7 (27)	9 (45)	Agree to exclude	NA	NA	NA	NA	NA

Physiological/clinical - Neonatal morbidity										
Any cardiovascular disorder(s)	46 (67)	22 (73)	12 (50)	10 (63)	No agreement	48 (71)	20 (71)	12 (57)	12 (80)	No agreement
Any congenital malformation(s) or birth defects (non specified)	52 (75)	26 (87)	14 (56)	12 (71)	No agreement	53 (78)	25 (86)	15 (68)	10 (71)	No agreement
Any Hematologic disorder(s)	38 (55)	23 (77)	11 (46)	10 (67)	No agreement	39 (57)	17 (59)	7 (35)	9 (75)	No agreement
Neurologic disorder(s)	44 (63)	22 (73)	13 (54)	10 (62)	No agreement	49 (71)	22 (76)	11 (52)	10 (71)	No agreement
Any respiratory disorder(s)	47 (68)	24 (80)	15 (63)	11 (69)	No agreement	55 (81)	27 (93)	15 (71)	12 (80)	No agreement*
APGAR score	52 (72)	21 (72)	16 (64)	13 (76)	No agreement	56 (81)	23 (82)	15 (652)	13 (87)	No agreement
Arterial pH < 7;0	39 (60)	22 (76)	12 (55)	11 (85)	No agreement	39 (62)	20 (71)	10 (48)	10 (91)	No agreement
Birth Asphixia	58 (82)	29 (97)	17 (71)	15 (83)	No agreement	65 (96)	28 (97)	18 (86)	14 (93)	Agree to include
Congenital malformations and deformations of the musculoskeletal system	32 (47)	25 (86)	11 (46)	9 (56)	No agreement	29 (43)	24 (83)	11 (52)	7 (50)	No agreement
Congenital malformations of eye; ear; face and neck	33 (49)	25 (86)	11 (46)	10 (59)	No agreement	27 (40)	24 (83)	10 (48)	6 (46)	No agreement
Congenital malformations of nervous system	38 (55)	27 (93)	14 (58)	10 (59)	No agreement	39 (57)	26 (90)	13 (62)	9 (64)	No agreement
Congenital malformations of the circulatory system	40 (57)	26 (90)	14 (58)	11 (65)	No agreement	37 (54)	25 (89)	15 (71)	9 (75)	No agreement
Congenital malformations of the genital organs and the urinary system	36 (51)	27 (93)	12 (50)	10 (59)	No agreement	27 (40)	26 (90)	11 (52)	8 (57)	No agreement
Low or abnormal APGAR score	47 (66)	24 (80)	12 (48)	13 (81)	No agreement	43 (63)	20 (69)	13 (59)	14 (93)	No agreement
Multiple malformations	42 (60)	27 (90)	13 (52)	11 (69)	No agreement	45 (67)	25 (86)	14 (64)	13 (81)	No agreement
Meconium aspiration	37 (53)	19 (63)	8 (33)	7 (50)	Agree to exclude	NA	NA	NA	NA	NA
Necrotizing enterocolitis	45 (65)	25 (83)	11 (48)	8 (62)	No agreement	46 (71)	20 (69)	10 (48)	10 (48)	No agreement
Neonatal encephalopathy	48 (68)	27 (90)	13 (54)	8 (57)	No agreement	56 (82)	26 (90)	14 (64)	8 (62)	No agreement
Neonatal hypoglycemia	42 (60)	24 (83)	11 (48)	10 (71)	No agreement	48 (72)	23 (82)	12 (57)	12 (80)	No agreement
Neonatal hypothermia	46 (65)	22 (73)	10 (43)	10 (71)	No agreement	46 (69)	23 (79)	12 (57)	13 (81)	No agreement
Neonatal intracranial hemorrhage	54 (77)	26 (87)	17 (68)	11 (79)	No agreement	63 (94)	25 (86)	17 (77)	10 (77)	No agreement
Neonatal jaundice	42 (59)	15 (50)	9 (38)	9 (56)	Agree to exclude	NA	NA	NA	NA	NA
Neonatal sepsis	62 (87)	26 (90)	18 (72)	13 (81)	No agreement	67 (99)	27 (93)	19 (86)	13 (87)	Agree to include
Pneumonia	98 (79)	47 (81)	25 (51)	23 (65)	No agreement	58 (85)	23 (79)	11 (50)	11 (79)	No agreement

Pulmonary hypertension	39 (56)	22 (76)	10 (43)	12 (80)	No agreement	38 (57)	21 (72)	8 (40)	11 (79)	No agreement
Respiratory distress syndrome	52 (75)	28 (93)	17 (67)	11 (73)	No agreement	61 (92)	26 (90)	18 (82)	12 (80)	Agree to include
Transient tachypnea	28 (44)	11 (37)	9 (41)	6 (50)	Agree to exclude	NA	NA	NA	NA	NA
Weight loss	28 (41)	14 (47)	11 (44)	7 (45)	Agree to exclude	NA	NA	NA	NA	NA
Physiological/clinical - Neonatal infection and infestation outcomes										
Neonatal asymptomatic infection (related outbreak disease)	43 (62)	20 (67)	15 (58)	10 (56)	No agreement	46 (69)	20 (69)	15 (68)	12 (80)	No agreement
Neonatal confirmed infection (related outbreak disease)	57 (83)	28 (93)	21 (81)	13 (72)	No agreement	64 (94)	29 (100)	22 (96)	15 (88)	Agree to include
Neonatal symptomatic infection (related outbreak disease)	58 (83)	29 (97)	22 (85)	13 (72)	No agreement	67 (99)	28 (97)	22 (96)	15 (88)	Agree to include
Severe disease (related outbreak disease)	63 (90)	30 (100)	22 (85)	17 (89)	Agree to include	NA	NA	NA	NA	Agree to include
Neonatal Functioning-Deliver of care										
Blood transfusion	103 (74)	39 (66)	36 (69)	27 (71)	No agreement	49 (73)	18 (62)	13 (59)	12 (80)	No agreement
Cardipulmonary resuscitation	62 (87)	26 (87)	19 (73)	14 (82)	No agreement	65 (96)	24 (83)	21 (91)	14 (93)	Agree to include
Length of stay	41 (58)	20 (67)	15 (58)	12 (67)	No agreement	41 (60)	17 (59)	13 (59)	10 (67)	No agreement
Neonatal admission to intensive care unit	64 (89)	30 (100)	23 (88)	17 (89)	Agree to include	NA	NA	NA	NA	NA
Neonatal mechanical ventilation (invasive and non invasive)	61 (85)	25 (83)	23 (88)	14 (82)	Agree to include	NA	NA	NA	NA	NA
Neonatal oxygen support	56 (78)	27 (90)	19 (73)	15 (83)	No agreement	64 (93)	25 (86)	18 (78)	14 (88)	No agreement
Phototherapy requirement	30 (43)	11 (37)	7 (29)	6 (25)	Agree to exclude	NA	NA	NA	NA	NA
Skin-to-skin	36 (51)	18 (60)	8 (35)	16 (84)	No agreement	32 (47)	17 (59)	5 (25)	14 (93)	No agreement*
Transfer to a higherlevel health facility	53 (76)	24 (80)	17 (65)	17 (89)	No agreement	59 (85)	23 (79)	19 (83)	14 (88)	No agreement

Note: With variations depending on the outcome, on average, 7-7% of the participants in Round 1 and 0-55% in Round 2 abstained from voting because they perceived themselves as unable to rate the outcome due to a lack of expertise.

* These outcomes were deemed borderline if, in the second survey, $\geq 90\%$ of participants in at least one stakeholder panel rated the outcome as critically important, did not have substantial overlap with included outcomes, were included within domains with substantial gaps, and were relevant to smaller panels.

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