



Supplement to mpox protocol section 3.7: Study flow: data sources and data collection

WHO has worked with various stakeholders to ascertain core data to be collected during pregnancy, labor and after birth of neonate at health facilities or obstetric and neonatal units, to standardize data collected which is needed to diagnose maternal and neonatal outcomes as per standard definitions ([table 1](#)). Definitions and other relevant aspects of data elements measured as the minimum core data set include are included. The WHO mMNHDS are also aligned with the global adverse event reporting system (GAIA) definitions for maternal and neonatal outcomes that include levels of diagnostic certainty and the required data elements that will inform these outcomes ([table 2](#)).

Table 1: Core Indicators of the WHO (MNHDS) Minimum maternal and neonatal health data set

Indicator name	Indicator definition	Numerator	Denominator	Indicator type	Domain	Continuum of care	Recommendation for use
Maternal mortality ratio	The number of female deaths from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy, delivery and childbirth and post-partum [along the continuum of care] or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, expressed per 100 000 live births, for a specified time period (often annually)	Number of maternal deaths related to pregnancy	Total number of live births (x100 000)	Outcomes	Mortality	All	Core
Maternal mortality rate - institutional	Number or proportion of women who die in the health facility while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. This can include women who gave birth outside a facility but who died in the health facility	Number of inpatient maternal deaths in health facilities (x100 if proportion)	Number of discharges (including deaths) among pregnant women or within 42 days of termination of pregnancy	Outcomes	Mortality	All	Core



Indicator name	Indicator definition	Numerator	Denominator	Indicator type	Domain	Continuum of care	Recommendation for use
Neonatal mortality rate	<p>Probability that a child born in a specific year or period will die in the first 28 days of life (0–27 days) if subject to age-specific mortality rates of that period, expressed per 1000 live births</p> <p>Neonatal death is defined as the death of a live born infant, regardless of gestational age at birth, within the first 28 completed days of life. Each neonatal death can be further clarified into viable and non-viable deaths depending on the gestational age at which they were born, and where they were born.</p>	The number of total children who died from 0-27 days after birth	Total number of live births (x1000)	Outcomes	Mortality	All	Core
Neonatal mortality rate - institutional	<p>Probability that a child born in a specific year or period will die in the first 28 days of life (0–27 days) if subject to age-specific mortality rates of that period, expressed per 1000 live births</p> <p>Neonatal death is defined as the death of a live born infant, regardless of gestational age at birth, within the first 28 completed days of life. Each neonatal death can be further clarified into viable and non-viable deaths depending on the gestational age at which they were born, and where they were born.</p>	<p>Number of inpatient deaths in the health facility among newborns (aged 0-27 days after birth) x100</p> <p><i>Note: this includes inborn and outborn babies.</i></p>	Number of discharges (including deaths) among newborns (aged 0-27 days after birth)	Outcomes	Mortality	All	Core
Stillbirth rate	A stillbirth or fetal death is defined as a baby born with no signs of life after birth with a given threshold of gestational age or birthweight; varies by ICD 10 / ICD 11	Number of fetuses born per year with no sign of life and born with birthweight of $\geq 1000\text{g}$, or ≥ 28 weeks of gestation, or $\geq 35\text{cm}$ body length	Total number of births (live births and stillbirths)	Outcomes	Pregnancy outcomes	Antepartum, Intrapartum	Core



Indicator name	Indicator definition	Numerator	Denominator	Indicator type	Domain	Continuum of care	Recommendation for use
Stillbirth rate - institutional	Number or proportion of babies born in a health facility with no signs of life (Baby delivered in a health facility with no signs of life and born after 28 weeks of gestation or weighing at least 1000 g)	Number of stillbirths in facilities	Total number of births in facility (live births and stillbirths)	Outcomes	Pregnancy outcomes	Antepartum, Intrapartum	Core
Stillbirth rate - antepartum	A stillbirth or fetal death is defined as a baby born with no signs of life after a given threshold; varies by ICD 10 / ICD 11 before the onset of labour	Number of fetuses born per year with no sign of life and born with birthweight of ≥ 1000 g, or ≥ 28 weeks of gestation, or ≥ 35 cm body length before onset of labour	Total number of births (live births and stillbirths)	Outcomes	Pregnancy outcomes	Antepartum	Core
Stillbirth rate - antepartum - institutional	Number or proportion of babies born in a health facility with no signs of life (Baby delivered in a health facility with no signs of life and born after 28 weeks of gestation or weighing at least 1000 g) before the onset of labour	Number of stillbirths in facilities before the onset of labour	Total number of births in facility (live births and stillbirths)	Outcomes	Pregnancy outcomes	Antepartum	Core
Stillbirth rate - intrapartum	A stillbirth or fetal death is defined as a baby born with no signs of life after a given threshold; varies by ICD 10 / ICD 11 after the onset of labour	Number of fetuses born per year with no sign of life and born with birthweight of ≥ 1000 g, or ≥ 28 weeks of gestation, or ≥ 35 cm body length after onset of labour	Total number of births (live births and stillbirths)	Outcomes	Pregnancy outcomes	Intrapartum	Core
Stillbirth rate – intrapartum – institutional	Number or proportion of babies born in a health facility with no signs of life (Baby delivered in a health facility with no signs of life and born after 28 weeks of gestation or weighing at least 1000 g) after the onset of labour	Number of stillbirths in facilities after the onset of labour	Total number of births in facility (live births and stillbirths)	Outcomes	Pregnancy outcomes	Intrapartum	Core



Indicator name	Indicator definition	Numerator	Denominator	Indicator type	Domain	Continuum of care	Recommendation for use
Low birth weight rate	Proportion of newborns with a birth weight of less than 2500 g (up to and including 2499 g)	Number of live births with a birth weight of less than 2500 g (up to and including 2499 g)	Total number of live births	Outcomes	Pregnancy outcomes	Intrapartum	Core
Low birth weight rate - institutional	Proportion of live births in facilities with birthweight less than 2500 g	Number of newborns born alive in a facility with weight <2500 g at birth	Number of live births in facility	Outcomes	Pregnancy outcomes	Intrapartum	Core
Preterm birth rate	Proportion of births that are preterm (less than 37 weeks completed gestation)	Number of newborns born less than 37 weeks completed gestation	Total number of live births	Outcomes	Pregnancy outcomes	Postnatal	Core
Preterm birth rate - institutional	Proportion of births in facilities that are preterm (less than 37 weeks completed gestation)	Number of newborns born less than 37 weeks completed gestation	Number of live births in facility	Outcomes	Pregnancy outcomes	Postnatal	Core
Rate of congenital anomalies and neonatal disorders	<p>Proportion of newborns with structural or functional anomalies that occur during intrauterine life (congenital anomalies) or neonatal disorders in post-partum care</p> <p>A major congenital anomaly is a structural or functional defect with the following three characteristics:</p> <ol style="list-style-type: none">1. Of prenatal origin2. Present at the time of live birth or fetal demise, or in utero3. Affecting (or has the propensity to affect) the health, survival, or physical or cognitive functioning of the individual <p>The majority of structural congenital anomalies are diagnosed before 2 years of age, usually within the first 6 months of life</p>	Number of births with one or more congenital anomalies and neonatal disorders [external structural defects, internal structural defects, functional defects]	Total number of births	Outcomes	Pregnancy outcomes	All	Core



Indicator name	Indicator definition	Numerator	Denominator	Indicator type	Domain	Continuum of care	Recommendation for use
External structural defects (e.g., cleft lip or gastroschisis)	<p>A major congenital anomaly is a structural or functional defect with the following three characteristics:</p> <ol style="list-style-type: none">1. Of prenatal origin2. Present at the time of live birth or fetal demise, or in utero3. Affecting (or has the propensity to affect) the health, survival, or physical or cognitive functioning of the individual <p>Proportion of newborns with alterations in external anatomy visible at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired or alterations in external anatomy visible in a stillbirth or in the products of conception of a spontaneous or therapeutic abortion</p>	Number of births presenting with external structural defects	Total number of births	Outcomes	Pregnancy outcomes	All	Core
*Internal structural defects (e.g., congenital cardiac defects or intestinal atresias)	<p>A major congenital anomaly is a structural or functional defect with the following three characteristics:</p> <ol style="list-style-type: none">1. Of prenatal origin2. Present at the time of live birth or fetal demise, or in utero3. Affecting (or has the propensity to affect) the health, survival, or physical or cognitive functioning of the individual	Number of births presenting with internal structural defects	Total number of births	Outcomes	Pregnancy outcomes	All	Core to further investigate feasibility



Indicator name	Indicator definition	Numerator	Denominator	Indicator type	Domain	Continuum of care	Recommendation for use
*Internal structural defects (e.g., congenital cardiac defects or intestinal atresias) (continued)	Proportion of newborns with alterations in internal anatomy present at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired or alterations in internal anatomy detected during autopsy for a stillbirth, spontaneous or therapeutic abortion confirmed by documentation by a pathologist or other relevant subspecialist						
*Functional defects (e.g., galactosemia or Gaucher's disease).	<p>A major congenital anomaly is a structural or functional defect with the following three characteristics:</p> <ol style="list-style-type: none">1. Of prenatal origin2. Present at the time of live birth or fetal demise, or in utero3. Affecting (or has the propensity to affect) the health, survival, or physical or cognitive functioning of the individual <p>For live births, alterations in functioning of one or more organs or body parts not due to a structural defect, present at the time of live birth (or propensity to develop alteration present at live birth), and persistent beyond the immediate peripartum period, unless treated through gene therapy or stem cell transplantation</p> <p>For stillbirths, spontaneous or therapeutic abortions, alterations in functioning of one or more organs or body parts, not due to a structural defect</p>	Number of births presenting with external structural defects	Total number of births (babies)	Outcomes	Pregnancy outcomes	All	Core to further investigate feasibility



Indicator name	Indicator definition	Numerator	Denominator	Indicator type	Domain	Continuum of care	Recommendation for use
Births attended by skilled health personnel	The percentage of women* (aged 15 to 49 years) with a live birth whose most recent live birth was attended by skilled health personnel.	Number of women* (aged 15 to 49 years) with a live birth most recent live birth was attended by skilled health personnel (SHP)	Total number of live births (babies)	Process	Health service coverage	Intrapartum	Core
Proportion of pregnant women* receiving at least 8 antenatal care contacts	Percentage of women* aged 15–49 years with a live birth who received antenatal care, eight times or more from any provider	Number of women* aged 15–49 years with a live birth who received antenatal care eight or more times from any provider	Number of women* aged 15-19 years with a live birth	Process	Health service coverage	Antenatal	Core
ANC contact(s) 8+ in a facility	Number or proportion of pregnant women with 8+ ANC contacts in a facility	Number or proportion of pregnant women with 8+ ANC contacts in a facility	Estimated number of pregnant women	Process	Health service coverage	Antenatal	Core
Proportion of pregnant women* with gestational age assessment in first trimester of pregnancy	Proportion of pregnant women* with gestational age in the first trimester of current pregnancy	Number of pregnant women* with gestational age determined in the first trimester	Total number of pregnant women* in ANC care	Process	Health service coverage	Antenatal	Core
*Antenatal client first contact in first trimester	Proportion of antenatal clients with first ANC contact in a facility in the first trimester (up to 12 weeks of gestation)	Number of antenatal clients first visit in the first trimester	Number of antenatal clients first visit	Process	Health service coverage	Antenatal	Catalogue
Proportion of pregnant women testing positive for HIV in ANC	Proportion of pregnant women* that tested positive for HIV in antenatal care	Number of pregnant women* that tested positive for HIV in antenatal care	Total number of pregnant women* in ANC	Process	Health service coverage	Antenatal	Core to include other tests and rephrase



Indicator name	Indicator definition	Numerator	Denominator	Indicator type	Domain	Continuum of care	Recommendation for use
Rate of diphtheria, pertussis and tetanus (DTap, Tdap, Td, DT; depending on the available vaccine in the setting) vaccination in pregnancy	Proportion of pregnant women* that received the full course of DPT vaccination, inclusive of DP and TT vaccination schedules, during pregnancy, as per national schedule. Of note: Teenagers can receive Tdap and Td	Number of women* that received tetanus containing vaccine (DTap, Tdap, Td, DT ; depending on the available vaccine in the setting) during their pregnancy	Number of pregnant women* in a given population	Process	Vaccinations	Antenatal	Core
*Proportion of pregnant women who received tetanus toxoid containing vaccine (TTCV) during ANC	Proportion of pregnant women who received tetanus toxoid containing vaccine (TTCV) during ANC	Number of TTCV doses administered during ANC	Estimated number of pregnant women	Exposure	Vaccinations	Antenatal	Core to merge with previous
*Rate of Hepatitis B vaccination among newborns	Proportion of newborns that received Hepatitis B vaccination	Number of newborns that received Hepatitis B vaccination	Number of live births	Exposure	Vaccinations	Postnatal	Core: put generic to include all newborn vaccines
ART coverage rate of pregnant women living with HIV	Proportion of women* using ARV during pregnancy	Number of women* living with HIV who received antiretroviral medicines in their current or previous pregnancies	Number of pregnant women* living with HIV in a given population	Exposure	Medicines	Antenatal	Core
*Antiretroviral therapy (ART) coverage in pregnant women	Proportion of HIV-positive pregnant women who received ART during pregnancy and/or at labour and delivery	Number of HIV-positive pregnant women who delivered during the reporting period and received ART during pregnancy and/or at labour and delivery	Facility-based denominator: Number of HIV-positive pregnant women who delivered during the reporting period and attended ANC or had a facility-based delivery	Exposure	Medicines	Antenatal	Catalogue: address



Indicator name	Indicator definition	Numerator	Denominator	Indicator type	Domain	Continuum of care	Recommendation for use
Maternal adverse events rate to drugs/ medications/ vaccines	Proportion of pregnant women [pre-pregnancy, antepartum, intrapartum, post-partum] that have experienced adverse event(s) such as but not limited to severe local reaction, abscess, seizures, encephalopathy, fever, toxic shock syndrome, thrombocytopenia and anaphylaxis in a population following vaccines/therapeutics	Number of pregnant women* that experienced adverse event(s) to drugs/ medications/ vaccines in a given population	Number of pregnant women* that experienced adverse event(s) to drugs/ medications/ vaccines in a given population	Exposure	Adverse events	All	Core to separate medicines and vaccines
*Newborn adverse events rate to drugs/ medications/ vaccines	Exposure	Number of newborns that experienced adverse event(s) to drugs/ medications/ vaccines in a given population	Number of newborns that received drugs/ medications/ vaccines in a given population	Exposure	Adverse events	Postnatal	Core to separate medicines and vaccines
*Caesarean section rate - institutional section	Proportion of deliveries in health facilities by caesarean section	Number of caesarean sections in a facility	Number of deliveries in facility	Process	Health service coverage	Antenatal/ Intrapartum	Catalogue: move to core

* Under review



Table 2: Global adverse event reporting system (GAIA) definitions for maternal and neonatal outcomes

Indicator	GAIA levels of diagnostic certainty			
	Level 1	Level 2	Level 3	Level 4
	Successful		Less Successful	Not Successful
Maternal mortality ratio	<p>Diagnosis of pregnancy from any the following documented criteria:</p> <p>Ultrasound examination</p> <p>Fetal heart tones</p> <p>Positive serum or urine human chorionic gonadotropin pregnancy test</p> <p>Delivery of a neonate or other products of conception (abortion, stillborn)</p> <p>AND</p> <p>Death of the mother while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy</p> <p>AND</p> <p>Documentation of Cause of death as:</p> <p>Direct: abortive outcome, hypertensive disorder, obstetric hemorrhage, pregnancy related infection, other obstetric complications, unanticipated complications</p> <p>Indirect: non obstetric complications</p> <p>Death during pregnancy, childbirth and the puerperium: other or coincidental</p>	<p>Diagnosis of pregnancy established by any of the following criteria in the absence of Level 1 criteria:</p> <p>LMP date</p> <p>Serial Symphysis</p> <p>Fundal Height examinations</p> <p>AND</p> <p>Death of the mother while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy</p> <p>AND</p> <p>Documentation of Cause of death as:</p> <p>Direct: abortive outcome, hypertensive disorder, obstetric hemorrhage, pregnancy related infection, other obstetric complications, unanticipated complications</p> <p>Indirect: non-obstetric complications</p> <p>Death during pregnancy, childbirth and the puerperium: other or coincidental</p> <p>Unspecified: unknown or undetermined</p>	<p>Absence of Level 1 or 2 criteria for establishing diagnosis of pregnancy and</p> <p>Unsure LMP</p> <p>No clinical examination documented</p> <p>AND</p> <p>Death of the mother temporal to pregnancy, childbirth or the postpartum period when exact timing of death is unknown</p> <p>AND</p> <p>Documentation of cause of death as:</p> <p>Direct: abortive outcome, hypertensive disorder, obstetric hemorrhage, pregnancy related infection, other obstetric complications, unanticipated complications</p> <p>Indirect: non obstetric complications</p> <p>Death during pregnancy, childbirth and the puerperium: other or coincidental</p> <p>Unspecified: unknown or undetermined.</p>	



Indicator	GAIA levels of diagnostic certainty			
	Level 1	Level 2	Level 3	Level 4
	Successful		Less Successful	Not Successful
Neonatal mortality rate	Live born infant AND Gestational age <22 weeks (Level of certainty = 1) OR Birth weight <500g AND Death of infant in first 28 days of life AND Medically-confirmed death	Live born infant AND Gestational age/size of newborn assessed as one or more of: Gestational age <22 weeks (Level of Certainty = 1 OR 2) Birth weight <500 g AND Death of infant in first 28 days of life AND Medically-confirmed death OR Non-medically-confirmed death	Live born infant AND Gestational age <5 months according to parent/family member/delivery attendant (Level of Certainty = 2 OR 3) AND Death of infant in first 28 days of life AND Medically-confirmed death OR Non-medically-confirmed death	
Neonatal mortality rate in an extremely preterm live birth	Live born infant AND Gestational age ≥22 and <28 weeks (Level of Certainty = 1) OR Birth weight ≥500 g but <1000 g AND Death of infant in first 28 days of life AND Medically-confirmed death	Live born infant AND Gestational age/size of newborn assessed as one or more of: Gestational age ≥22 and <28 weeks (Level of Certainty = 1 OR 2) Birth weight ≥500 g but <1000 g AND Death of infant in first 28 days of life AND Medically-confirmed death OR Non-medically-confirmed death	Live born infant AND Gestational age ≥5 months but <7 months according to neonate's parent (mother/father)/family member/delivery attendant (Level of Certainty = 2 OR 3) AND Death of infant in first 28 days of life AND Medically-confirmed death OR Non-medically-confirmed death	-



Indicator	GAIA levels of diagnostic certainty			
	Level 1	Level 2	Level 3	Level 4
	Successful		Less Successful	Not Successful
Neonatal mortality rate in a preterm live birth (<37 completed weeks)	<p>Live born infant</p> <p>AND</p> <p>Gestational age ≥ 28 and <37 weeks (Level of Certainty = 1)</p> <p>OR</p> <p>Birth weight ≥ 1000 g but <2500 g</p> <p>AND</p> <p>Death of infant in first 28 days of life</p> <p>AND</p> <p>Medically-confirmed death</p>	<p>Live born infant</p> <p>AND</p> <p>Gestational age/size of newborn assesses as one or more of:</p> <p>Gestational age ≥ 28 and <37 weeks (Level of Certainty = 1 or 2)</p> <p>Birth weight ≥ 1000 g but <2500 g</p> <p>AND</p> <p>Death of infant in first 28 days of life</p> <p>AND</p> <p>Medically-confirmed death</p> <p>OR</p> <p>Non-medically-confirmed death which is confirmed by examination by (by at least) non-medically-trained attendant (e.g. undertaker, community member)</p>	<p>Live born infant</p> <p>AND</p> <p>Gestational age ≥ 7 months but <9 months according to parent/family member/delivery attendant Level of Certainty = 2 OR 3)</p> <p>AND</p> <p>Death of infant in first 28 days of life</p> <p>AND</p> <p>Medically-confirmed death</p> <p>OR</p> <p>Non-medically-confirmed death</p>	
Neonatal mortality rate in a term live birth	<p>Live born infant</p> <p>AND</p> <p>Gestational age ≥ 37 weeks (GA Level of Certainty = 1)</p> <p>AND</p> <p>Birth weight > 2500 g</p> <p>OR</p> <p>Documented intra-uterine growth retardation if ≤ 2500 g</p> <p>AND</p> <p>Death of infant in first 28 days of life</p> <p>AND</p> <p>Medically-confirmed death</p>	<p>Live born infant</p> <p>AND</p> <p>Gestational age/size of newborn assesses as one or more of: Gestational age ≥ 37 weeks (GA Level of Certainty = 1</p> <p>Birth weight ≥ 2500 g</p> <p>AND</p> <p>Death of infant in first 28 days of life</p> <p>AND</p> <p>Medically-confirmed death</p> <p>OR</p> <p>Non-medically-confirmed death which is confirmed by examination by (by at least) non-medically-trained attendant (e.g. undertaker, community member)</p>	<p>Live born infant</p> <p>AND</p> <p>Gestational age ≥ 9 months according to parent/family member/delivery attendant (GA Level of Certainty = 2 OR 3)</p> <p>AND</p> <p>Death of infant in first 28 days of life</p> <p>AND</p> <p>Medically-confirmed death</p> <p>OR</p> <p>Non-medically-confirmed death</p>	-



Indicator	GAIA levels of diagnostic certainty			
	Level 1	Level 2	Level 3	Level 4
	Successful		Less Successful	Not Successful
Antenatal stillbirth rate	<p>Delivery of an infant with no of signs of life at birth, including: No spontaneous movements, no umbilical cord pulse, no heartbeat, no respirations, and Apgar score of 0 at 1 and 5 min. Determination of the absence of signs of life is made by physical examination after delivery, with or without electronic monitoring of heart rate, respiratory rate, and pulse oximetry.</p> <p>AND</p> <p>Evidence of live fetus prior to onset of labor (documentation of fetal movement and of fetal heart tones by ultrasound prior to onset of labor) (Note: in the absence of evidence of a live fetus prior to the onset of labor, the fetal death should be reported as a stillbirth or an antepartum stillbirth)</p> <p>AND</p> <p>Attended delivery followed by physical examination after birth consistent with intrapartum death by obstetrician, neonatologist, pediatrician, maternal-fetal medicine specialist, pathologist. In the setting where access to a specialist is not feasible, diagnosis by a health care provider trained or experienced to make the diagnosis is acceptable (e.g. general practice physician, mid-wife, or other qualified trained practitioner).</p> <p>AND</p> <p>Gestational age within pre-defined range for selected stillbirth definition as assessed by maternal and/or fetal-neonatal parameters (Level 1 in GA assessment algorithm)</p>	<p>Delivery of an infant with no of signs of life at birth, including: No spontaneous movements, no umbilical cord pulse, no heartbeat, no respirations, and Apgar score of 0 at 1 and 5 min. Determination of the absence of signs of life is made by physical examination after delivery, with or without electronic monitoring of heart rate, respiratory rate, and pulse oximetry</p> <p>OR</p> <p>Documentation of lack of response to resuscitation efforts</p> <p>AND</p> <p>Evidence of live fetus prior to onset of labor (maternal report of fetal movement prior to onset of labor and documentation of fetal heart tones by auscultation or hand held Doppler) (Note: in the absence of evidence of a live fetus prior to the onset of labor, the fetal death should be reported as a stillbirth or an antepartum stillbirth)</p> <p>AND</p> <p>Attended delivery followed by physical examination after birth consistent with intrapartum death by a health care professional appropriate to the level of standard of care in the health care setting</p> <p>AND</p> <p>Gestational age within pre-defined range for selected stillbirth definition as assessed by maternal and/or fetal parameters (Level 1–2 in GA assessment algorithm).</p>	<p>Level 3: Delivery of an infant reported to have no of signs of life at birth, including: No spontaneous movements, no umbilical cord pulse, no heartbeat, no cry, no spontaneous respirations or chest movement, and whole body cyanosis.</p> <p>AND</p> <p>Evidence of live fetus prior to onset of labor (maternal report of fetal movement prior to onset of labor OR auscultation of fetal heart tones) (Note: in the absence of evidence of a live fetus prior to the onset of labor, the fetal death should be reported as a stillbirth or an antepartum stillbirth)</p> <p>AND</p> <p>Non-attended delivery followed by physical examination of the fetus after birth consistent with intrapartum death by a health care professional appropriate to the level of standard of care in the health care setting</p> <p>OR</p> <p>Verbal history by a trained health care provider, non-medical witness or the mother of a fetus born with no signs of life or unresponsive to resuscitation efforts immediately after birth.</p> <p>AND</p> <p>Gestational age within pre-defined range for selected stillbirth definition as assessed by maternal and/or fetal parameters (Level 2–3 in GA assessment algorithm).</p>	<p>Report of stillbirth but fetus is not available for physical examination after birth (no objective assessment can be made).</p> <p>Maternal information insufficient to assess gestational age.</p>



Indicator	GAIA levels of diagnostic certainty			
	Level 1	Level 2	Level 3	Level 4
	Successful		Less Successful	Not Successful
Intrapartum still birth rate	<p>Delivery of an infant with no of signs of life at birth (No spontaneous movements, no umbilical cord pulse, no heartbeat, no respirations, Apgar score of 0 at 1 and 5 min) determined by physical examination after delivery (with or without electronic monitoring of heart rate, respiratory rate, and pulse oximetry)</p> <p>AND</p> <p>Prenatal ultrasound examination documenting lack of fetal cardiac activity or movement before the onset of labor</p> <p>OR</p> <p>Auscultation for fetal heart tones (using electronic devices or non-electronic devices) documenting lack of fetal heartbeat AND Maternal report of lack of fetal movement for 24 h or more</p> <p>OR</p> <p>Maternal physical examination confirming lack of fetal movement</p> <p>OR</p> <p>Radiology findings consistent with intrauterine fetal death</p> <p>AND</p> <p>Attended delivery followed by fetal physical examination after birth consistent with antepartum death, by obstetrician, neonatologist, pediatrician, maternal-fetal medicine specialist, or pathologist. In the setting where access to a specialist is not feasible, diagnosis by a health care provider trained or experienced to make</p>	<p>Delivery of an infant with no of signs of life at birth (No spontaneous movements, no umbilical cord pulse, no heartbeat, no respirations, Apgar score of 0 at 1 and 5 min) determined physical examination after delivery</p> <p>AND</p> <p>Maternal report of lack of fetal movement for 24 h or more</p> <p>OR</p> <p>Maternal physical examination confirming lack of fetal movement</p> <p>OR</p> <p>Auscultation for fetal heart tones (using electronic or non-electronic devices) documenting lack of fetal heartbeat</p> <p>AND</p> <p>Attended delivery followed by physical examination after birth consistent with antepartum death, by specialist or qualified trained practitioner appropriate to the health care setting</p> <p>OR</p> <p>Fetal/placental pathology report consistent with antepartum death</p> <p>AND</p> <p>Gestational age within pre-defined range for selected stillbirth definition as assessed by maternal and/or fetal parameters (Level 1–2 in GA assessment algorithm).</p>	<p>Delivery of an infant reported to have no of signs of life at birth (No spontaneous movements, no umbilical cord pulse, no heartbeat, no cry or spontaneous respirations, no chest movement, and whole body cyanosis)</p> <p>AND</p> <p>Maternal report of lack of fetal movement for 24 h or more prior to delivery. OR Report of auscultation for fetal heart tones (using electronic or non-electronic devices) documenting lack of fetal heartbeat.</p> <p>AND</p> <p>Non-attended delivery followed by physical examination of the fetus after birth consistent with antepartum death by a health care professional appropriate to the level of standard of care in the health care setting.</p> <p>OR</p> <p>Verbal history by a trained health care provider, non-medical witness or the mother of a fetus born with no signs of life or unresponsive to resuscitation efforts immediately after birth and with physical features consistent with antepartum death.</p> <p>AND</p> <p>Gestational age within pre-defined range for selected stillbirth definition as assessed by maternal and/or fetal parameters (Level 2–3 in GA assessment algorithm).</p>	<p>Report of stillbirth but fetus is not available for physical examination after birth (no objective assessment can be made).</p> <p>Maternal information insufficient to assess gestational age.</p>



Indicator	GAIA levels of diagnostic certainty				
	Level 1	Level 2	Level 3	Level 4	
	Successful		Less Successful	Not Successful	
Intrapartum still birth rate (continue)	<p>the diagnosis is acceptable (e.g. general practice physician, mid-wife, nurse practitioner, a physician's assistant or other qualified trained practitioner)</p> <p>OR</p> <p>Fetal/placental pathology report consistent with antepartum death.</p> <p>AND</p> <p>Gestational age within pre-defined range for selected stillbirth definition as assessed by maternal and/or fetal parameters (Level 1 or 2 in GA assessment algorithm)</p>				
Low birth weight rate	<p>A certain menstrual date or those who have undergone IUI</p> <p>OR</p> <p>Embryo Transfer (ET) with a confirmatory 1st trimester scan ($\leq 13\ 6/7$ weeks) OR</p> <p>1st trimester ultrasound established date ($\leq 13\ 6/7$ weeks)</p>	<p>A confirmatory 2nd trimester ultrasound established date (14 0/7 weeks to 27 6/7 weeks)</p> <p>OR</p> <p>1st trimester pelvic bimanual examination are considered the next most precise measurement methodologies with a certain menstrual date</p>	<p>The 2nd trimester ultrasound established date with no established menstrual date</p>	<p>A certain menstrual date with a 3rd trimester scan of 28 0/7 weeks+</p> <p>OR</p> <p>Confirmatory 2nd trimester fundal height or birth weight</p> <p>Where there is no menstrual date, a 1st trimester pelvic bimanual examination would meet the requirements</p>	<p>An uncertain or no menstrual date</p> <p>AND</p> <p>A fundal height or newborn physical assessment or birth weight</p>



Indicator	GAIA levels of diagnostic certainty			
	Level 1	Level 2	Level 3	Level 4
	Successful		Less Successful	Not Successful
Pre-term birth rate (<37 weeks)	<p>Certain LMP or intrauterine insemination (IUI) date or embryo transfer (ET) date with confirmatory 1st trimester scan ($\leq 13\ 6/7$ weeks)</p> <p>OR</p> <p>1st trimester scan ($\leq 13\ 6/7$ weeks)</p>	<p>Certain LMP with 2nd trimester scan (14 0/7 weeks to 27 6/7 weeks). If LMP and U/S do not correlate, default to U/S GA assessment</p> <p>OR</p> <p>Certain LMP with 1st trimester physical examination</p>	<p>Uncertain LMP with 2nd trimester scan (14 0/7 weeks to 27 6/7 weeks)</p> <p>Certain LMP with 3rd trimester scan – 28 0/7 weeks OR</p> <p>Certain LMP with confirmatory 2nd trimester FH OR</p> <p>Certain LMP with birth weight OR</p> <p>Uncertain LMP with 1st trimester physical examination</p>	<p>Uncertain LMP with F OR</p> <p>Uncertain LMP with newborn physical assessment OR</p> <p>Uncertain LMP with Birth weight</p>
External structural defects (e.g., cleft lip or gastroschisis)	<p>Alterations in external anatomy visible at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired</p> <p>OR</p> <p>Alterations in external anatomy visible in a stillbirth or in the products of conception of a spontaneous or therapeutic abortion</p> <p>AND</p> <p>Confirmed by documentation of a diagnosis made by a clinician experienced in diagnosing congenital anomalies and with the highest level of morphology training for the specific setting</p>	<p>Alterations in external anatomy visible at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired</p> <p>OR</p> <p>Alterations in external anatomy visible in a stillbirth or in the products of conception of a spontaneous or therapeutic abortion</p> <p>AND</p> <p>Confirmed by documentation of a diagnosis made by a clinician with some experience diagnosing congenital anomalies</p>	<p>Alterations in external anatomy visible at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired</p> <p>OR</p> <p>Alterations in external anatomy visible in a stillbirth or in the products of conception of a spontaneous or therapeutic abortion</p> <p>AND</p> <p>Confirmed by documentation of a diagnosis made by a trained maternal or child health care provider with at least minimal experience diagnosing congenital anomalies</p>	<p>Alterations in external anatomy visible at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired</p> <p>OR</p> <p>Alterations in external anatomy visible in a stillbirth or in the products of conception of a spontaneous or therapeutic abortion</p> <p>AND</p> <p>Confirmed by medical record review</p>



Indicator	GAIA levels of diagnostic certainty			
	Level 1	Level 2	Level 3	Level 4
	Successful		Less Successful	Not Successful
External structural defects (e.g., cleft lip or gastroschisis) (continue)			OR For live births, confirmed using individual (ICD-9/ICD-10) codes or as part of an ICD-9/ICD-10 code based algorithm, where the outcome (individual code or algorithm) has been validated	OR Confirmed in claims data (ICD-9/ICD-10 diagnoses)
Internal structural defects (e.g., congenital cardiac defects or intestinal atresias)	Alterations in internal anatomy present at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired AND Confirmed by definitive imaging study or intraoperative diagnosis OR Alterations in internal anatomy detected during autopsy for a stillbirth, spontaneous or therapeutic abortion confirmed by documentation by a pathologist or other relevant subspecialist	Alterations in internal anatomy present at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired AND Confirmed by documentation of a diagnosis made by a clinician experienced in diagnosing congenital anomalies and with the highest level of morphology training for the specific setting without definitive imaging or intraoperative evaluation OR For stillbirth, spontaneous or therapeutic abortion, internal structural defect is visible by ultrasound or other imaging modality prenatally	Alterations in internal anatomy present at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired AND Confirmed by documentation of a diagnosis made by a clinician with some experience diagnosing congenital anomalies OR Confirmed using individual (ICD-9/ICD-10) codes or as part of an ICD-9/ICD-10 code based algorithm, where the outcome (individual code or algorithm) has been validated	Alterations in internal anatomy present at the time of live birth and persistent beyond the immediate peripartum period unless surgically repaired OR Alterations in internal anatomy present at time of stillbirth, spontaneous abortion, or induced abortion AND Confirmed through medical record review, with the medical record demonstrating that the anomaly was present at the time of live birth or time of fetal demise, and that the anomaly was diagnosed by a trained maternal or child health care provider with minimal experience diagnosing congenital anomalies OR Confirmed by claims data (ICD-9/ICD-10 diagnoses)



Indicator	GAIA levels of diagnostic certainty			
	Level 1	Level 2	Level 3	Level 4
	Successful		Less Successful	Not Successful
Functional defects (e.g., galactosemia or Gaucher's disease)	<p>For live births, alterations in functioning of one or more organs or body parts not due to a structural defect, present at the time of birth (or propensity to develop alteration present at live birth), and persistent beyond the immediate peripartum period, unless treated through gene therapy or stem cell transplantation</p> <p>OR</p> <p>For stillbirths, spontaneous or therapeutic abortions, alterations in functioning of one or more organs or body parts, not due to a structural defect</p> <p>AND</p> <p>Confirmed by definitive diagnostic study</p>	<p>For live births, alterations in functioning of one or more organs or body parts not due to a structural defect, present at live birth (or propensity to develop alteration present at live birth), and persistent beyond the immediate peripartum period, unless treated through gene therapy or stem cell transplantation</p> <p>OR</p> <p>For stillbirths, spontaneous or therapeutic abortions, alterations in functioning of one or more organs or body parts, not due to a structural defect</p> <p>AND</p> <p>Confirmed by documentation of a diagnosis made by a clinician experienced in diagnosing congenital anomalies and with the highest level of training in the diagnosis of functional defects for the specific setting</p>	<p>For live births, alterations in functioning of one or more organs or body parts not due to a structural defect, present at live birth (or propensity to develop alteration present at live birth), and persistent beyond the immediate peripartum period, unless treated through gene therapy or stem cell transplantation</p> <p>OR</p> <p>For stillbirths, spontaneous or therapeutic abortions, alterations in functioning of one or more organs or body parts, not due to a structural defect</p> <p>AND</p> <p>Confirmed by documentation of a diagnosis made by a clinician with some experience diagnosing functional defects</p> <p>OR</p> <p>Confirmed using individual (ICD-9/ICD-10) codes or as part of an ICD-9/ICD-10 code based algorithm, where the outcome (individual code or algorithm) has been validated</p>	<p>For live births, alterations in functioning of one or more organs or body parts not due to a structural defect, present at the time of live birth (or propensity to develop alteration present at live birth), and persistent beyond the immediate peripartum period, unless treated through gene therapy or stem cell transplantation</p> <p>OR</p> <p>For stillbirths, spontaneous or therapeutic abortions, alterations in functioning of one or more organs or body parts, not due to a structural defect</p> <p>AND</p> <p>Confirmed through medical record review, with the medical record demonstrating that the anomaly was present at the time of live birth or time of fetal demise, and that the anomaly was diagnosed by a trained maternal or child health care provider who is not a qualified geneticist, neonatologist, pathologist, subspecialist, pediatrician, obstetrician, or family medicine practitioner</p> <p>OR</p> <p>Confirmed by claims data (ICD-9/ICD-10 diagnoses)</p>



Indicator	GAIA levels of diagnostic certainty					
	Level 1	Level 2		Level 3		Level 4
	Successful			Less Successful		Not Successful
Proportion of pregnant women* with gestational age assessment in first trimester of pregnancy	Certain LMP or IUI or embryo transfer date AND confirmatory ultrasound in first trimester OR First trimester ultrasound	Certain LMP with first or second trimester ultrasound OR Certain LMP with first trimester physical exam	Uncertain LMP with second trimester ultrasound	Certain LMP with third trimester ultrasound OR Certain LMP with confirmatory 2nd trimester fundal height OR Certain LMP with birthweight OR Uncertain LMP with first trimester physical exam	Uncertain LMP with fundal height OR Uncertain LMP with newborn physical assessment OR Uncertain LMP with birthweight	Baby with gestational age assessed only by infant examination, with no documentation of actual gestational age
Rate of diphtheria, pertussis and tetanus vaccination in pregnancy	Woman confirmed as pregnant by positive pregnancy test or ultrasound confirmation AND Date/time of immunization of pregnant woman recorded in medical records by health care worker who administered/ witnessed administration of vaccine AND Details of vaccine, including lot number, date of immunization	Woman confirmed as pregnant by cessation of menstrual period and gravid uterus AND Date (at least month and year) of immunization of pregnant woman recorded in medical records by health care worker who administered/witnessed administration of vaccine AND Details of disease against which vaccinated		Woman/medical attendant reports pregnancy AND Woman reports receipt of vaccination during pregnancy, but no formal recording of immunization available.		