

Table S1. Mapping of reported causes of stillbirth into categories.

Category	Sub-category 1	Sub-category 2	Causes reported
1. Congenital anomalies	1.1 Central Nervous System		Congenital malformations of the nervous system
			Congenital malformations of the brain
			Congenital malformation of the spinal cord, unspecified
			Anencephaly and similar malformations
			Atresia of foramina of Magendie and Luschka
			Hydrocephaly
			Congenital hydrocephalus*
			Hydrocephalus with meningocele
			Hydrocephalus and spina bifida*
			Thoracic spina bifida without hydrocephalus
			Spina bifida*
			Occipital encephalocele
			Encephalocele non specified
			Microcefalia
			Hydromyelia
			Congenital malformations of the corpus callosum
			Congenital brain cysts
		Arnold-Chiari syndrome	
		Other hypoplastic brain abnormalities	
		Holoprosencephalia	
		Intracranial non-traumatic haemorrhage of the fetus	
		Chromosomal	
		Chromosomal disorders	
	Downs syndrome and other chromosomal abnormalities		
	Downs syndrome		
	1.2 Genetic abnormalities	1.2.1 Chromosomal	Trisomy 21, mosaicism (mitotic nondisjunction)
			Trisomy 18, due to lack of meiotic disjunction
			Trisomy 18 (isolated or with other anomalies)
			Trisomy 21 (isolated or with other anomalies)
			Edwards syndrome
			Edward's syndrome and Patau's syndrome
			Patau syndrome, unspecified

1.2.2 Unspecified

Turner syndrome
Trisomies
Aneuploidy
Chromosomal abnormality, unspecified
Chromosomal abnormalities, not elsewhere classified
Other trisomies and partial trisomies of the autosomes, not elsewhere classified
Congenital malformations of the circulatory system
Cardiovascular system
Cardiovascular disorders originating in the perinatal period
Congenital malformations of the heart
Congenital malformation of cardiac chambers and connections
Tetralogy of Fallot
Ebstein Anomaly
Complex congenital heart disease
Pulmonary vascular anomalies
Congenital malformations of cardiac septa
Congenital malformations of aortic and mitral valves
Defect of the atrial septum
Coarctation of the aorta
Atrioventricular septal defect
Congenital malformations of the tricuspid valve
Congenital malformations of pulmonary and tricuspid valves
Congenital aortic valve insufficiency
Left heart hypoplasia syndrome
Triauricular heart
Congenital heart block
Discordance of ventriculoarterial connection
Ventricle with double inlet
Atrioventricular discordance connection
Other congenital malformations of the pulmonary artery
Congenital malformations of great arteries
Congenital malformations of peripheral vascular system
Arteriovenous malformation of cerebral vessels
Heart disorder

1.3 Cardiovascular system

1.4 Musculoskeletal

Neonatal cardiac dysrhythmia
Musculoskeletal system
Congenital malformations of the musculoskeletal system
Congenital malformations of spine and bony thorax
Other congenital malformations of the osteomuscular system
Craniosynostosis
Thanatophore dwarfism
Skeletal
Thanatophoric dysplasia
Achondroplasia*
Osteochondrodysplasia with defects of growth of long bones and spine
Other osteochondrodysplasias
Dolichocephaly
Osteogenesis imperfecta
Respiratory system
Diseases of the respiratory system
Congenital malformation of respiratory system, unspecified

1.5 Thoracic

Diaphragmatic hernia
Respiratory and diaphragm
Congenital diaphragmatic hernia
Congenital malformations of the lung*
Other congenital malformations of the larynx
Congenital pulmonary cyst
Other congenital malformations of trachea
Congenital hypoplasia and dysplasia of lung
Congenital malformation of the upper gastrointestinal tract, unspecified
Other specific perinatal digestive system disorders
Other congenital malformations of digestive system

1.6 Abdominal/Gastrointestinal

Gastro-intestinal system
Congenital malformation of the stomach, unspecified
Gastroschisis*
Exomphalos
Omphalocele and imperforated anus
Congenital absence, atresia and stenosis of small intestine
Esophageal atresia without mention of fistula

1.7 Metabolic

Congenital malformation of intestine
Congenital malformations of gallbladder, bile ducts and liver
Congenital malformations of esophagus
Absence, atresia and congenital stenosis of the small intestine, unspecified part
Absence, atresia and congenital stenosis of other parts of the large intestine
Congenital malformations of bowel fixation
Cystic disease of the liver
Other congenital malformations of liver
Transitory disorders of carbohydrate metabolism specific to fetus and newborn
Specific transient endocrine and metabolic disorders of the fetus and newborn
Metabolic disorders
Congenital malformations of genito-urinary system*
Urinary system*
Other congenital malformations of bladder and urethra
Hypospadias
Renal agenesis
Renal agenesis and other reduction defects of kidney
Other atresia and stenosis of urethra and bladder neck
Congenital hydronephrosis

1.8 Urogenital

Polycystic kidney, autosomal recessive
Polycystic kidney, unspecified type
Cystic kidney disease
Congenital solitary renal cyst*
Congenital malformations of the kidney
Renal dysplasia
Cystic renal dysplasia
Renal and urinary tract diseases
Renal hypoplasia, unspecified
Renal, unilateral hypoplasia
Potter Syndrome

1.9 Other congenital anomalies

Other conditions of integument specific to newborn
Multiple congenital malformation
Multiple/non-chromosomal syndromes

Other specified congenital malformation syndromes affecting multiple systems
Other specified congenital malformation syndromes, not elsewhere classified
Other congenital malformation syndromes due to known exogenous causes
Cleft palate with unilateral cleft lip, unspecified*
Cleft palate, unspecified*
Cleft lip, unilateral*
Congenital malformation syndromes predominantly affecting facial appearance*
Other congenital malformations of skull and face bones
Other congenital malformations of skull and face
Congenital malformations of face and neck
Other congenital deformities of the skull, face and jaw
Other congenital malformations of tongue, mouth and pharynx
Other branchial cleft malformations
Nager syndrome
Other congenital malformations of ear
Syndactyly
Macrocephalia
Congenital malformations of the spleen
Congenital malformation syndromes predominantly involving limbs
Congenital malformation of bony thorax, unspecified
Hemangioma and lymphangioma, any site
Dysmorphic syndrome
Haematological
Tumours
Haemorrhagic and haematological disorders of the fetus
Congenital ichthyosis
Neoplasm of uncertain behavior of other and unspecified site
Neoplasms
Other congenital malformations not elsewhere classified
Other specified congenital abnormality
Other congenital malformations
Other congenital anomalies
Congenital anomalies

1.10 Unspecified

2. Specific fetal/pregnancy pathology

2.1 Complications of multiple pregnancy

2.2 Hydrops

2.3 Iso-immunization

2.1.1 Twin twin transfusion

2.1.2 Other complications

Congenital deformities

Defect

Malformations of the fetus

Congenital malformations, deformations and chromosomal abnormalities

Congenital malformations, deformations and chromosomal abnormalities

Malformation and/or chromosomal abnormalities

Unspecified congenital abnormality

Structural abnormalities

Congenital defect/malformation

Birth defect

Lethal congenital anomaly

Malformation incompatible with vitality (intern hydrocephalia, the transposition of main vessels, gastroshisis etc)

Fetal anomalies

Fatal congenital malformations

Amniotic band

Developmental defects

Abnormality (including termination for fetal abnormality)

Fetus -twin-twin transfusion

Fetus and newborn affected by placental transfusion syndromes

Acardiac fetus

Twin 1 dies in uterus

Monoamniotic twin

Twins

Multiple birth related

Retained second twin

Fetus and newborn affected by multiple pregnancy

Fetal hemorrhage into the other twin

Siamese Twins

Fetal hydrops

Non-immune hydrops

Non-immune hydrops with imperforate anus

Idiopathic hydrops

Hydrops fetalis not due to haemolytic disease

Hemolytic disease of newborn

2.4 Amniotic fluid abnormalities

Hydrops fetalis due to haemolytic disease
Other hemolytic disease of the fetus and newborn
Fetal hydrops due to incompatibility
Rh Incompatibility fetus and newborn
Alloimmune disease: Unspecified
Alloimmune disease: Rhesus
Alloimmune disease: Alloimmune thrombocytopenia
Alloimmune disease: Other
Iso-immunization
Immunization
Oligohydramnios*
Polyhydramnios*
Amniotic fluid -other
Uterine anomalies*

2.5 Uterine

Ruptured uterus
Uterine rupture before labour
Uterus-obstructed
Uterus bicornis
Another duplication of the uterus
Uterine complication
Fetal coagulopathy
Special causes (blood group incompatibilities, hydrops fetalis, congenital metabolic disease, twin-to twin transfusion, tumor etc.).
Disseminated intravascular coagulation in the fetus and newborn
Other perinatal hematological disorders
Other specified fetal and neonatal haemorrhages

2.6 Other

Intracranial non-traumatic hemorrhage of fetus and newborn
Intraventricular hemorrhage (nontraumatic) of the fetus and newborn, unspecified
Intracerebral hemorrhage (nontraumatic) of the fetus and newborn
Subarachnoid hemorrhage (nontraumatic) of the fetus and newborn
Intracranial non-traumatic haemorrhage of fetus and newborn
Other (nontraumatic) intracranial hemorrhage of fetus and newborn
Cutaneous neonatal hemorrhage
Fetal subdural haemorrhage

Fetal blood loss
Fetus and newborn affected by ectopic pregnancy
Fetal shock
Conditions associated with tegumentary regulation and temperature of the fetus and newborn
Fetus affected by condition related to the current pregnancy
Other respiratory affections of the newborn
Other respiratory conditions originating in the perinatal period
Neonatal aspiration syndromes
Primary atelectasis of newborn
Respiratory distress of newborn
Other chronic respiratory diseases originating in the perinatal period
Meconium aspiration
Fetus affected by condition related to the current pregnancy
Meconium plug syndrome
Rupture of membranes after amniocentesis
Intestinal obstruction of newborn, unspecified
Neonatal aspiration of amniotic fluid and mucus
Other specific perinatal conditions, unspecified
Other disorders originating in the perinatal period
Other specific perinatal conditions (includes iatrogenic conditions such as rupture of membranes after amniocentesis, termination of pregnancy for suspected but unconfirmed congenital abnormality)
Other specific fetal problem
Other fetal pathologies
Other fetal condition
Neonatal
Fetal
Intrauterine growth restriction
IUGR-suspected antenatally
IUGR-observed at delivery
Intrauterine growth retardation
Fetal growth restriction/IUGR
Fetal growth restriction
FGR-no placental pathology

3. Intrauterine growth restriction/Small for gestational age

		FGR-no examination of placenta
		FGR-unspecified or not known whether placental examined
		Foetal restricted growth
		Fetal growth retardation, unspecified
		Slow fetal growth
		Disorders related to duration of pregnancy and fetal growth
		Disorders related to fetal growth
		Fetal growth retardation, fetal malnutrition, short gestation and low birth weight
		Disorders of newborn related to slow fetal growth and fetal malnutrition
		Low weight for gestational age
		Small for gestational age
		Unexplained small size for gestational age
		Poor fetal growth, short gestation
		Placental insufficiency
		FGR with evidence of reduced vascular perfusion
		FGR -other specified placental pathology
		Unexplained antepartum death -with evidence of reduced vascular perfusion
		IUGR/placental insufficiency
	4.1 Placental insufficiency	Placental insufficiency/infarction
		FGR -other specified placental pathology
		Birth asphyxia/placental insufficiency
		FGR with chronic villitis
		Maternal vascular malperfusion
		Placental infarction
	4.2 Fetomaternal haemorrhage	Feto-maternal haemorrhage
		Placenta
		Placental conditions
		Acute placental pathology
		Placental disease
	4.3 Other	Fetus and newborn affected by other morphological and functional abnormalities of the placenta and unspecified
		Delayed placental villus maturation
		Fetus affected by complications of placenta, umbilical cord and membranes
		Disorder of the placenta, amniotic sac, cord, cervix
4. Placental conditions		

		Placenta/ cord/ membrane
		Acute placental pathology
		Placental disorders
		Villitis
		Unexplained antepartum death with chronic villitis
		Fetal vascular malperfusion
		Choriocarcinoma
		Congenital absence and hypoplasia of umbilical artery
		Complications of placenta: abruptio placenta and placenta praevia or other anomalies of placenta or fetal membranes
		Membrane disorders
		Fetus and newborn affected by other abnormalities of membranes
		Fetus and newborn affected by other and unspecified morphological and functional abnormalities of placenta (dysfunction, infarction, insufficiency)
		Vasculopathy
		Decreased uteroplacental blood flow
		Placental abruption
		Placental abruption with laboratory evidence of thrombophilia
		Decolman placenta
		Placenta previa
		Praevia with APH
		Antepartum hemorrhage of unknown origin
		Antepartum haemorrhage
		Accidental hemorrhage with hypertension
		Accidental hemorrhage without hypertension
		Fetus affected by other placental separation/hemorrhage
		Maternal hemorrhage
		Other antepartum haemorrhage
		Antenatal bleeding
		Vasa praevia
		APH of undetermined origin
		Prepartum hemorrhage
		Uncertain haemorrhage
		APH/anaemia
		Ante/intrapartum haemorrhage
5. Antepartum haemorrhage	5.1. Abruption	
	5.2. Placental praevia	
	5.3. Other antepartum haemorrhage	
	5.4. Unspecified	

		Prolapsed cord Cord prolapse/complication Intrapartum complication - cord prolapse Cord compromise/prolapse Fetus affected by other compression of umbilical cord Cord around neck* Tight nuchal cord*
	6.1 Cord prolapse	
		Nuchal cord* Umbilical cord -tight Abnormal umbilical cord twisted around neck or corps or other anomaly of the cord Umbilical cord-true knot* True knot with evidence of occlusion Umbilical cord -constricting loop or knot Other cord entanglement or knot Umbilical cord complications Fetus and newborn affected by other complications of umbilical cord and unspecified Umbilical cord diseases Antepartum cord complications Irregularity of umbilical cord Velamentous insertion Velamentous cord Cord haemorrhage Umbilical cord conflict Cord accident Umbilical cord - other Bleeding from the umbilicus Cord pathology Cord Umbilical cord abnormalities Cord thrombosis Umbilical cord origin Gestational diabetes Diabetes mellitus
	6.2 Cord entrapment	
	6.3 Knots, Torsion, Strictures	
6. Umbilical cord		
	6.4 Other cord complications	
7. Maternal conditions	7.1 Diabetes/gestational diabetes	

7.2 Lupus or antiphospholipid syndrome

Pregnancy-induced diabetes
Diabetes/hypertension
Syndrome of the newborn of diabetic mother
Lupus or antiphospholipid syndrome or thrombophilia
Thrombophilias*
Antiphospholipid antibody syndrome

7.3 Cholestasis

Cholestasis
Intrahepatic cholestasis of pregnancy
Obstetric cholestasis
Maternal accident

7.4 Maternal trauma

Fetus and newborn affected by maternal trauma
Non-accidental
Accidental
Trauma
Trauma-external
Accident or external condition

7.5 Other specified conditions

Anemia in pregnancy*
Other specified maternal conditions
Sickle cell anemia
Mother-heart disease
Thyroid disease
Mother-jaundice
Coagulation disorders
Drug misuse
Maternal pyrexia
Fetus and newborn affected by maternal drug addiction
Fetus and newborn affected by maternal smoking
Fetus and newborn affected by maternal alcoholism
Underlying maternal illness (including chronic hypertension, epilepsy, renal disease, liver disease and DM)
Fetus and newborn affected by other harmful influences of the mother
Newborn (suspected to be) affected by noxious substances transmitted via placenta
Fetus and newborn affected by maternal nutritional disorders

8. Hypertension

7.6 Other unspecified conditions

8.1 Chronic

8.2 Gestational hypertension/preeclampsia/eclampsia

Newborn (suspected to be) affected by noxious substances transmitted via placenta or breast milk

Fetus and newborn affected by other maternal conditions

Fetus and newborn affected by noxious influences of mother, unspecified

Maternal-other endocrine conditions

Fetus and newborn affected by other medical procedures on mother, not elsewhere classified

Fetus and newborn affected by maternal death

Fetus and newborn affected by other circulatory and respiratory diseases (mother)

Newborn (suspected to be) affected by maternal conditions that may be unrelated to present pregnancy

Newborn (suspected to be) affected by maternal complications of pregnancy

Maternal conditions*

Maternal disorders*

Mother- other

Maternal medical conditions

Maternal complication

Other maternal diseases of pregnancy

Other maternal pathologies

Pre-existing hypertensive disease

Hypertension -Chronic hypertension: essential

Hypertension -Chronic hypertension: secondary eg renal disease

Hypertension -Chronic hypertension: unspecified

Pregnancy-induced hypertension

Hypertensive disorders of pregnancy

Gestational hypertension

Pre-eclampsia

Pre-eclampsia toxaemia

Maternal-severe preeclampsia and eclampsia

Pre-eclampsia with laboratory evidence of thrombophilia

Pre-eclampsia/eclampsia

EPH-gestosis

Pre-eclampsia superimposed on chronic hypertension

		Pre-eclampsia superimposed on chronic hypertension: With laboratory evidence of thrombophilia
		Severe pre-eclampsia/eclampsia
		HELLP Syndrome
		Hypertension
	8.3 Unspecified hypertension	Mother-hypertensive disorder (GHTN+APE+ preeclampsia)
		Unspecified hypertension
	9.1 Syphilis	Congenital syphilis
		Perinatal infection –Bacterial- Spirochaetal e.g. syphilis
		Maternal sepsis
	9.2 Sepsis	Maternal infection/sepsis
		Sepsis of newborn due to anaerobes
		Bacterial sepsis of newborn
		Ascending infection-chorioamnionitis
		Chorioamnionitis
		Other ascending infection
		Intra-amniotic infection of fetus, not elsewhere classified
		Spontaneous pre-term (membranes intact or rupture <24 hours before delivery) with chorioamnionitis on placental histopathology
		Spontaneous pre-term with membrane rupture >24 hours before delivery - With chorioamnionitis on placental histopathology
9. Infection	9.3.1 Chorioamnionitis	Spontaneous pre-term with membrane rupture of unknown duration before delivery -With chorioamnionitis on placental histopathology
	9.3 Other specified	Spontaneous pre-term with membrane rupture >24 hours before delivery - with clinical evidence of chorioamnionitis, no examination of placenta
		Spontaneous pre-term (membranes intact or rupture <24 hours before delivery) -With clinical evidence of chorioamnionitis, no examination of placenta
		Spontaneous pre-term with membrane rupture of unknown duration before delivery -With clinical evidence of chorioamnionitis, no examination of placenta
		Congenital rubella syndrome
	9.3.2 Other	Group b streptococcus
		E Coli
		Listeria monocytogenes

9.4 Unspecified

Bacterial

Viral

Maternal infection – viral

Maternal infection – bacterial

Maternal malaria

Malaria

Protozoa, e.g. toxoplasma

All infections of term newborns, specific infections of the preterm (GBS, TORCH etc.).

Fungal

HIV

Congenital CMV infection

Cytomegalovirus

Congenital viral disease, not otherwise specified

Parvovirus

Herpes simplex virus

Unspecified viral

Other specified organism

Unknown infection

Infection

Infection (Fetal infection involving vital organs; Fetal membranes and placental inflammatory disorders; Fetal infection causing congenital anomaly or other fetal condition; Placental infection likely leading to decreased placental function; Severe maternal infection; Infection-related fetal death by other or unknown mechanisms)

Congenital viral diseases

Specified infections originating in the perinatal period

Congenital pneumonia

Syphilis and other venereal diseases

Intrauterine infection

Maternal infection

Other unspecified organism

Congenital syphilis; congenital pneumonia; intra-amniotic infection of fetus not elsewhere classified; other specified infections specific to the perinatal period; infection specific to the perinatal period, unspecified; congenital viral

10. Hypoxic peripartum death

10.1 Intrapartum complications

diseases; bacterial sepsis of newborn; other congenital infectious and parasitic diseases
Fetal infection
Perinatal infection
Other certain infectious and parasitic diseases
Difficult labour
Obstructed labour
Prolonged labour
Transverse lie
Breech with stuck head
Breech accidents
Breech
Fetus and newborn affected by breech delivery and extraction
Face presentation
Malpresentation
Fetus and newborn affected by abnormal presentation before labour
Abnormal presentation
Cephalopelvic disproportion
Birth trauma
Associated obstetric factors-intracranial haemorrhage
Associated obstetric factors-birth injury to scalp
Associated obstetric factors-fracture
Injury occurred during birth
Traumatic delivery
Mismanaged labour
Acute intrapartum event
Intrapartum -prolonged/obstructed or incomplete labour
Fetus and newborn affected by abnormal uterine contractions
Fetus and newborn affected by caesarean delivery
Fetus and newborn affected by other specified complications of labor and delivery
Shoulder dystocia
Fetus and newborn affected by obstetric complications and birth trauma
Fetus and newborn affected by precipitate delivery
Intrapartum complications

10.2 Unspecified

Uterine rupture during labour
Birth asphyxia
Intrapartum-Fetal asphyxia
Birth asphyxia with breech presentation
Birth hypoxia
Intrapartum asphyxia
Fetal distress
Intrapartum
Acute intrapartum event
Unexplained intrapartum fetal death
Intrauterine hypoxia and birth asphyxia
Hypoxic peripartum death
Mild and moderate birth asphyxia
Intrauterine hypoxia first noticed during labor and delivery
'Remaining causes': Maternal care related to the fetus and amniotic cavity and possible delivery problems; complications of labor and delivery; encounter for delivery; complications predominantly related to the puerperium
All deaths related with asphyxia developing during labour and delivery.
Labour and delivery complicated by stress /distress
Hypoxic peripartum death; no intrapartum complications and no evidence of non-reassuring fetal status
Hypoxic peripartum death; evidence of non-reassuring fetal status in a normally grown infant
Newborn (suspected to be) affected by other complications of labor and delivery
Fetus and newborn affected by other abnormal presentation, malposition and disproportion during labor
Intrapartum death
Other specified intrapartum disorder
Labour and delivery complicated by umbilical cord complications
Fetus and newborn affected by complications of labor and delivery
Intrauterine hypoxia first noted during labour and delivery; intrauterine hypoxia, unspecified; Birth asphyxia
Fetus and newborn affected by premature rupture of membranes
Spontaneous pre-term with membrane rupture >24 hours before delivery

11. Spontaneous preterm

11.1 Preterm rupture of membranes

11.2 Other preterm (includes timing of rupture unknown)

Spontaneous pre-term with membrane rupture >24 hours before delivery - Without chorioamnionitis on placental histopathology
Spontaneous pre-term with membrane rupture >24 hours before delivery -no clinical chorioamnionitis or examination of placenta
Spontaneous pre-term with membrane rupture >24 hours before delivery - Unspecified or not known whether placenta examined
Premature rupture of membranes
Prematurity
Spontaneous preterm
Spontaneous preterm labour
Spontaneous premature labour
Severe prematurity
Extreme immaturity of newborn
Prematurity (22–24 weeks)
Spontaneous pre-term (membranes intact or rupture <24 hours before delivery)
Spontaneous pre-term (membranes intact or rupture <24 hours before delivery) -Without chorioamnionitis on placental histopathology
Spontaneous pre-term (membranes intact or rupture <24 hours before delivery) -No clinical signs of chorioamnionitis, no examination of placenta
Spontaneous pre-term (membranes intact or rupture <24 hours before delivery) -Unspecified or not known whether placenta examined
Spontaneous pre-term with membrane rupture of unknown duration before delivery -Without chorioamnionitis on placental histopathology
Spontaneous pre-term with membrane rupture of unknown duration before delivery -No clinical signs of chorioamnionitis, no examination of placenta
Spontaneous pre-term with membrane rupture of unknown duration before delivery -Unspecified or not known whether placenta examined
Fetus and newborn affected by incompetent cervix
Disorder related to short duration gestation and low birth weight
Conditions related with premature birth: Hyaline membrane disease, intraventricular haemorrhage, non-specific infections of the preterm, deaths occurring four hours after premature delivery below and above 1000 g.
Immaturity
Prolonged rupture of membranes

12. Termination unspecified

12.1 Termination of pregnancy for maternal psychosocial indications

Termination of pregnancy for maternal psychosocial indications
Termination of pregnancy for suspected but unconfirmed congenital abnormality.
Termination for maternal condition
Family planning induction
Induced abortion
Medical abortion
Termination of pregnancy, fetus and newborn
Other (including multiple delivery, hypertension/eclampsia and post-term delivery)
Miscellaneous (including maternal, placental, umbilical cord and intrapartum related conditions)
Miscellaneous
Post-maturity
Post-dated
Newborn post-term non-overweight for gestational age
Obstetric complication
O80 Fetus and newborn affected by obstetric complications and birth trauma
Respiratory abnormalities
Maternal care for other known or suspected fetal problems
No obstetric antecedent-unknown/undetermined
Other
Other specific causes
Other perinatal causes
Other diseases
Other sub-groups of causes
Double etiologies
Triple etiologies
Remaining causes
Other causes related to stillbirth
Special reasons
Remnants of malignant tumours
Tumors: in situ, benign and of uncertain or unknown behavior and unspecified
Fetus and newborn affected by maternal factors and by complications of pregnancy, labor and childbirth

13. Other unspecified condition

13.1 Unspecified

14. Unexplained

14.1 Unexplained

Fetal malnutrition without mention low weight or small for gestational age
Complications of intrauterine procedures, not elsewhere classified
Maternal or fetal hematologic conditions
Macerated or nonmacerated stillbirths occurring before the onset of labour.
Disorders related to prolonged pregnancy and overweight at birth
Reduction defects of unspecified limb
Other accident, poisoning or violence (postnatal)
No obstetric antecedent -other specified
Unspecified cause
Intrapartum death of unspecified cause
Other specified antepartum disorder
Other or unspecified cause
Use of herbs
Associated obstetric factors-other obstetric factors
Other conditions originating in the perinatal period
Other overweight newborns for gestational age
Unclassified-no relevant condition identified
Unclassified -unidentified
Unidentified causes
Unexplained antepartum death-no placental pathology
Unexplained antepartum death-no examination of placenta
Unexplained antepartum death -other specified placental pathology
Unexplained antepartum death -unspecified or not known whether placenta examined
Cases with unexplained cause of mortality and other cases
Unexplainable
Unexplained
Unexplained intrauterine death
No obstetric cause/not applicable
Unknown
Unknown/no cause
Unexplained antepartum
No condition identified
Unascertained cause of stillbirth
Inconclusive

Cause not identified
 Unexplained preterm (<37 weeks)
 Unknown/undetermined
 No antecedent or associated obstetric factors
 Unexplained-Macerated fetus
 Unexplained-Fresh
 Undetermined etiology
 Unclassified - Causes not found or proven
 Intrauterine hypoxia
 Intrauterine hypoxia first noted before onset of labor
 Intrauterine hypoxia, unspecified
 Intrauterine hypoxia/asphyxia
 Intrauterine hypoxia and birth asphyxia
 Antepartum hypoxia
 Intrauterine asphyxia
 Asphyxia not explained by any maternal condition
 Perinatal asphyxia
 Asphyxia/Hypoxia
 Normal fetus and placenta
 Hypoxia
 Associated with obstetric complication
 Antecedents or associated factors present
 Missing (data)
 No data
 Either autopsy or histological examination of the placenta not performed
 Missing cause of death classification
 Unexplained-pending post mortem or other investigation
 Unclassifiable
 Incomplete pathology examination or autopsy refusal
 Unclassified –no information available

14.2 With associated risk factor/condition

15. Unable to classify

*Non-lethal conditions

Key: IUGR = intrauterine growth restriction; FGR = fetal growth restriction; APH = antepartum haemorrhage; DM = diabetes mellitus;

EPH = oedema/proteinuria/hypertension; HELLP = haemolysis, elevated liver enzymes and low platelet count; GHTN = gestational hypertension; APE = acute

pulmonary oedema; GBS = group B streptococcus; TORCH = toxoplasmosis, other (congenital syphilis and viruses), rubella, cytomegalovirus and herpes simplex virus; CMV = congenital cytomegalovirus

Table S2. Characteristics of included reports detailed (by country income-setting [$n = 85$])

Country	Report	Data collected	Setting	Inclusion			SB rate per 1000	Cases occurring during report period			Data source	Examination rate (%)	
				Definition	TOP	Multiples		Total births	Total stillbirths	Stillbirths classified		Autopsy	Placental pathology
High-income countries													
Australia	Monk (2016) ^{1,±}	2011-12	Population /national	≥20 weeks or ≥400 g	yes	yes	7.3	614139	4485	3258	Systematic hospital audit; comprehensive investigation protocol	42.3	NS
Australia	Headley (2009) ²	2005-08	Hospital /single centre	≥20 weeks or ≥400 g	yes	yes	7.2	11922	86	86	Systematic hospital audit; comprehensive investigation protocol	55.1*	92.1*
Canada	Public Health Agency of Canada (2013) ^{3,±}	2010	Population /national	≥500 g	yes	yes	5.1	238473	1220	1220	Vital statistics	NS	NS
Canada	Auger (2013) ⁴	1981-2009	Population /regional	≥24 weeks	no	no	4.2	2407954	9983	7339	Birth registration	70.9	NS
Canada	Auger (2016) ⁵	1981-2010	Population /regional	≥500 g	no	no	4.2	2424923	10172	9657	Birth registration	68.23	NS
Canada	Theriault (2016) ⁶	2003-2012	Hospital /single centre	NS	NS	no	NS	NS	179	179	Systematic hospital audit; investigation protocol unclear	NS	100
Canada	Wou (2014) ⁷	1989-2009	Hospital /single centre	≥500 g	no	yes	4.2	79410	332	289	Systematic hospital audit; investigation protocol unclear	76.0	100
Chile	National Committee on Vital Statistics (2015) ^{8,±}	2014	Population /national	≥22 weeks	NS	yes	8.5	253151	2154	2153	Birth registration	NS	NS
Croatia	Rodin (2014) ^{9,±}	2013	Population /national	≥22 weeks	yes	yes	3.9	40310	156	156	Vital statistics	NS	NS
Estonia	Health Statistics and Health Research Database (2016) ¹⁰	2015	Population /NS	≥500 g or >22 weeks	NS	NS	3.8	14027	54	54	Death certificate	98.15	NS

France	Ego (2013) ^{11,±}	2000-10	Population /regional	≥22 weeks or ≥500 g	no	yes	3.8	186594	1030	1030	Retrospective regional study of routine birth data; unknown investigations	77.4 [^]	77.4 [^]
Hungary	Pasztor (2014) ¹²	1996-2010	Hospital /single centre	≥24 weeks or ≥500 g	NS	yes	4.7	29897	140	140	Retrospective study using routinely collected hospital birth data	97.9	97.9
Ireland	Corcoran (2016) ^{13,±}	2014	Population /national	≥24 weeks or ≥500 g	yes	yes	4.2	67610	330	327	Systematic national audit; investigation protocol unclear	52	94.8
Ireland	Corcoran (2014) ¹⁴	2011	Hospital /multi centre	NS	NS	NS	4.3	73953	318	236	Systematic national audit; investigation protocol unclear	NS	NS
Ireland	Doyle (2012) ¹⁵	1999-2009	Population /regional	NS	NS	NS	3.9 [§]	29487	115	101	Retrospective hospital audit using autopsy reports only	100	NS
Italy	Serena (2013) ¹⁶	2006-11	Hospital /single centre	≥22 weeks or >500 g	NS	no	6.0 [§]	31500	189	189	Systematic hospital audit; comprehensive investigation protocol	NS	NS
Italy	Nappi (2016) ¹⁷	2010-13	Hospital /single centre	>22 weeks	no	yes	NS	NS	50	50	Systematic hospital audit; investigation protocol unclear	100	100
Japan	Koshida (2015) ¹⁸	2007- 11	Population /regional	>22 weeks	NS	yes	3.8	66682	252	252	Retrospective clinical audit; investigation protocol unclear	2.7	NS
Japan	Statistics Bureau Japan (2016) ^{19,±}	2015	Population /national	>22 weeks	yes	yes	3.0	1008740	3063	3063	Vital statistics	NS	NS
Kuwait	Central Statistical Bureau (year unknown) ^{20,±}	2014	Population /national	≥28 weeks	NS	NS	7.1	61313	433	436	Vital statistics	NS	NS
Lithuania	Basys (year unknown) ^{21,±}	2015	Population /national	≥22 weeks	NS	yes	4.2	29019	123	123	Birth registration	NS	NS
New Zealand	PMMRC (2014) ^{22,±}	2012	Population /national	≥20 weeks or ≥400 g	yes	yes	7.9	62425	491	491	Systematic national audit; comprehensive investigation protocol	34.9	NS
New Zealand	Lu (2009) ²³	2004-07	Hospital /single centre	≥20 weeks or ≥400 g	yes	yes	10.3	29591	306	306	Systematic hospital audit; investigation protocol unclear	60.8	NS
Oman	Santosh (2013) ²⁴	2003-09	Hospital /single centre	>24 weeks	NS	yes	15.2	27668	244	244	Retrospective hospital audit; investigation protocol unclear	0	NS
Poland	Troszyński (2011) ^{25,±}	2007-09	Population /regional	≥500 g	NS	NS	4.0	614816	2225	2225	NS	NS	NS

Poland	Maciejewski (2014) ²⁶	2012	Hospital /multi centre	NS	NS	NS	3.9	157908	621	621	Retrospective hospital audit; investigation protocol unclear	NS	NS
Poland	Rzepakowska-Misiak (2012) ²⁷	2004-10	Hospital /single centre	≥22 weeks	NS	yes	7.3	11294	83	83	Retrospective hospital medical record audit; investigation protocol unclear	NS	NS
Portugal	Instituto Nacional de Estatica (2014) ^{28,±}	2012	Population /national	≥22 weeks	NS	NS	3.6	90168	327	327	Unknown ^{oo}	NS	NS
Portugal	Trocado (2015) ²⁹	2011-14	Hospital /single centre	≥24 weeks	NS	yes	3.2	6223	20	22	NS	NS	NS
Qatar	Qatar Statistics Authority (2010) ^{30,±}	2009	Population /national	≥28 weeks	NS	NS	6.7	18351	123	123	Death registry	NS	NS
Sweden	Stormdal Bring (2014) ^{31,±}	1998-2009	Population /regional	≥22 weeks	NS	no	4.1 [§]	285238	1198	1089	Systematic regional audit; comprehensive investigation protocol	71.4	95.1
UK	Manktelow (2016) ^{32,±}	2014	Population /national	≥24 weeks	no	yes	4.2	782311	3252	3218	Systematic national audit; investigation protocol unclear	43.5	88.4
UK	Cockerill (2012) ³³	2009	Hospital /multi centre	NS	no	yes	5.2 [§]	40962	229	213	Retrospective study using routinely collected national birth data; death certificates as the single source of information	29.6	76.1
UK	Heazell (2009) ³⁴	2006-07	Hospital /single centre	NS	no	yes	5.2 [§]	13654	71	71	Retrospective hospital medical record audit; investigation protocol unclear	NS	54.0
UK	Gardosi (2010) ³⁵	2006-07	Hospital /multi centre	≥24 weeks	NS	NS	6.8	48357	328	328	Systematic regional audit; investigation protocol unclear	NS	NS
UK	Allanson (2016) ³⁶	1997-2010	Population /NS	≥24 weeks	NS	NS	4.2 [§]	NS	4834	4834	Systematic regional audit; investigation protocol unclear	NS	NS
USA	Miller (2016) ³⁷	2009-13	Hospital /single centre	≥23 weeks	no	NS	NS	12000	144	144	Systematic hospital audit; comprehensive investigation protocol	72.0	100.0

Middle-income countries

Argentina	Ministerio de Salud de la Nacion (2016) ^{38,±}	2015	Population /national	≥22 weeks	NS	NS	6.6	776204	5120	5120	Vital statistics	NS	NS
Brazil	Chiavegatto (2012) ^{39,±}	2000-09	Population /national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	NS	11.7	30134197	352992	334882	Death certificate	NS	NS
Bosnia Hercegovina	Fatusic (2013) ⁴⁰	NS	Hospital /single centre	NS	NS	NS	7.1	13960	99	99	Retrospective hospital audit; investigation protocol unclear	NS	NS
China	Zhu (2009) ^{41,±}	2005-08	population	>28 weeks or >1000 g	yes	NS	8.3 [§]	159277	1357	1322	Unknown ^{oo}	Unknown ^o	Unknown ^{oo}
China	Wan (2010) ⁴²	NS	hospital	>28 weeks or ≥1000 g	NS	NS	8.3 [§]	12168	101	101	Unknown ^{oo}	Unknown ^o	Unknown ^{oo}
China	Song (2012) ⁴³	2001-10	Hospital /single centre	>28 weeks or ≥500 g	NS	yes	8.3 [§]	14819	123	110	Unknown ^{oo}	Unknown ^o	Unknown ^{oo}
Colombia	Molina-Giraldo (2014) ⁴⁴	2010-13	Hospital /single centre	≥20 weeks or ≥500 g	no	yes	7.3	15408	112	51	Retrospective hospital audit; unknown investigations, 50% autopsy	45.5	NS
Colombia	DANE informacion Estadistica (2017) ^{45,±}	2016	Population /national	NS	NS	NS	8.1 [§]	753086 [§]	47442	47442	Birth and death registry	NS	NS
Costa Rica	The National Institute of Statistics (year unknown) ^{46,±}	2015	Population /national	NS	Unknow ⁿ ^{oo}	NS	6.5	71819	466	466	Unknown ^{oo}	NS	NS
Ecuador	The National Institute of Statistics (2016) ^{47,±}	2015	Population /national	NS	yes	yes	6.6	275109	1829	1825	Vital statistics	NS	NS
Iran	Hadavi (2011) ⁴⁸	2006-07	Hospital /multi centre	>20 weeks	NS	NS	12.7	9969	127	61	Prospective hospital study; investigations unclear	NS	NS
Mexico	Instituto nacional de estadistica y geografia (2016) ^{49,±}	2015	Population /national	≥20 weeks	yes	yes	6.9	2353596	16117	16115	Civil registry	NS	NS

Panama	National Institute of Statistics and Census (2014) ^{50,±}	2013	Population /national	≥5 months	NS	NS	9.8 [§]	70714	693	694	Vital statistics	NS	NS
South Africa	Pattinson (2014) ^{51,±}	2012-13	Population /regional	≥500g	NS	NS	23.1	706177	21628	21630	Systematic regional audit; investigation protocol unclear	NS	NS
South Africa	Talip (2010) ⁵²	2006-07	/multi centre	>499 g	no	no	11.8	10369	123	123	Systematic hospital audit; investigation protocol unclear	NS	22.3 [°]
South Africa	Allanson (2015) ⁵³	2013-14	Population /regional	≥1000 g or ≥28 weeks	NS	NS	17.7	23503	416	416	Systematic regional audit; investigation protocol unclear	0	0
Suriname	Bureau voor de statistikent (year unknown) ^{54,±}	2011	Population /national	≥28 weeks	NS	NS	14.3 [§]	10209	146	146	NS	NS	NS
Thailand	Mo-suwan (2009) ^{55,±}	2000-02	Population /regional	≥28 weeks	NS	yes	6.8	3522	24	24	Prospective regional study medical records plus interviews; VA for deaths	N/A	N/A
Turkey	Duran (2016) ⁵⁶	2007	Hospital /single centre	>500 g and >22 weeks	NS	yes	22.0	16216	357	357	Prospective hospital study; investigations unclear	NS	NS
Turkey	Korkmaz (2010) ⁵⁷	2001-06	Hospital Single centre	≥22 weeks or ≥500 g	yes	yes	21.9	9990	219	219	Systematic hospital audit; investigation protocol unclear	61.2 [°]	67.8 [°]
Low-income countries													
Cameroon	Nkwabong (2012) ⁵⁸	2009-10	Hospital /single centre	≥28 weeks	NS	no	34.0	3998	136	136	Retrospective hospital audit; investigation protocol unclear. Little autopsy and placenta exam.	0	0
Ghana	Der (2016) ⁵⁹	2009-13	Hospital /single centre	≥1000g and ≥28 weeks or ≥35 cm	NS	yes	33.2	3641	121	121	Retrospective hospital audit; investigation protocol unclear	NS	NS
Ghana	Alhassan (2016) ^{60,±}	2010-12	Hospital /multi centre	≥1000g and >28 weeks	NS	no	22.2	3656	141	141	Retrospective regional study using routinely collected maternity data; investigation protocol unclear	0	NS
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ^{61,±}	2015	Population /national	NS	NS	NS	8.0	391425	3121	3121	Birth registry	NS	NS

India	Bhattacharyya (2012) ⁶²	1999-2008	Hospital /single centre	≥28 weeks and >1000 g	NS	yes	33.7	156101	5257	4322	Retrospective hospital audit; investigation protocol unclear	NS	NS
India	Ujwala (2012) ^{63,±}	2005-07	Population /regional	NS	NS	yes	13.9	13467	159	105	Prospective cohort; VA	N/A	N/A
India	Angolkar (2012) ⁶⁴	2008-09	Population /regional	≥28 weeks	NS	NS	21.3 [§]	657	14	14	Prospective cohort; VA	N/A	N/A
India	Abha (2011) ⁶⁵	2008	Hospital /single centre	>28 weeks and ≥1000g	NS	yes	21.3 [§]	16338	348	348	Systematic hospital audit; comprehensive investigation protocol	NS	NS
India	Aggarwal (2011) ⁶⁶	2006-08	Hospital /single centre	≥24 weeks	NS	yes	21.3 [§]	16573	353	225	Retrospective hospital audit; investigation protocol unclear	NS	NS
India	Kokila (2013) ⁶⁷	2008-10	Hospital /single centre	>28 weeks	NS	yes	98.2	2393	235	235	Retrospective hospital audit; investigation protocol unclear	NS	NS
Nigeria	Awoleke (2016) ⁶⁸	2012-14	Hospital /single centre	≥1000 g or ≥28 weeks or ≥35 cm	NS	NS	33.0	5408	178	178	Retrospective hospital audit; investigation protocol unclear	NS	NS
Nigeria	Ugwa (2014) ⁶⁹	2008-12	Hospital /single centre	≥28 weeks	NS	yes	169.9	4479	761	705	Retrospective hospital audit; investigation protocol unclear	NS	NS
Nigeria	Mutihir (2011) ⁷⁰	2006-07	Hospital Single centre	≥28 weeks	NS	NS	40.5	3904	158	133	Prospective hospital audit; investigation protocol unclear	NS	NS
Pakistan	Nausheen (2013) ⁷¹	2006-08	Hospital /multi centre	>28 weeks	NS	yes	45.9	6848	315	204	Prospective regional audit (a non routine audit -with consent)- investigation not mentioned	NS	NS
Pakistan	Ashraf (2016) ⁷²	2013	Hospital /single centre	>28 weeks	NS	yes	28.4	440	125	125	Prospective hospital audit; investigation protocol unclear	NS	NS
Timor-Leste	Wilkins (2015) ⁷³	2010	Hospital /single centre	≥500 g or ≥22 weeks	yes	yes	29.0	5304	153	57	Birth registry	0	NS
Vietnam	Hirst (2012) ⁷⁴	2008-09	Hospital /single centre	>22 weeks or >500 g	yes	yes	26.0	4711	122	107	Prospective hospital audit; investigation protocol - baby and placental macroscopic exam.	0	0

Zambia	Turnbull (2011) ^{75,±}	2008-09	Population /regional	≥28 weeks	NS	yes	27.0	1852	50	50	Prospective cohort study; VA	N/A	N/A
Bangladesh	Baqui (2011) ^{76,±}	2003-05	Population /regional	≥7 months	NS	yes	36.6	48192	1748	1554	Prospective cohort study; VA	N/A	N/A
Ethiopia	Demise (2015) ⁷⁷	2012	Hospital /single centre	≥28 weeks and ≥1000 g	NS	NS	24.5	1225	30	33	Systematic hospital audit; with VA	NS	NS
Ethiopia	Yirgu (2016) ^{78,±}	2011	Population /regional	≥28 weeks	yes	yes	14.1	4097	57	57	Prospective cohort study; VA	N/A	N/A
Madagascar	Andriamandimbison (2013) ⁷⁹	2011	Hospital /single centre	>22 weeks or ≥500 g	NS	yes	52.2	4308	225	224	Prospective hospital audit; investigation protocol unclear	NS	NS
Moldova	Uliana (2013) ⁸⁰	2005-11	Hospital /NS	NS	NS	NS	12.1 [§]	11736	146	142	Retrospective hospital audit; investigation protocol unclear	NS	NS
Nepal	Pradhan (2010) ⁸¹	1998-2007	Hospital /single centre	≥28 weeks	NS	no	16.0	5475	89	89	Retrospective hospital audit; investigation protocol unclear	0	NS
Nepal	Manandhar (2015) ⁸²	2012-13	Hospital /multi centre	≥22 weeks or ≥500 g	NS	NS	22.7	1147	26	25	Prospective cohort study; VA	N/A	N/A
Nepal	Manandhar (2010) ^{83,±}	2006-08	Population /regional	>28 weeks or >1000 g	NS	yes	31.3	25982	813	601	Prospective cohort study; VA	N/A	N/A
Nepal	Shrestha (2010) ⁸⁴	2007-08	Hospital /single centre	≥28 weeks and ≥1000g	NS	NS	13.5	816	11	11	Retrospective hospital audit; investigation protocol unclear	NS	NS
Guatemala, Pakistan, Zambia, DRC	Engmann (2011) ⁸⁵	2007-08	Population /regional	NS	NS	yes	30.0	9461	289	134	Prospective cohort study; VA	N/A	N/A

*Rates reported separately for different cause of death; average rates presented

^Rate reported as Autopsy and/or placental investigations

°Rate reported for total perinatal death

§Stillbirth rate adapted from best available source; 1) report from comparable setting, 2) provided by author, 3) rate reported in Lawn et al ⁸⁶. Total births calculated from rate.

°°Unable to translate

± Country representative report

Key: TOP = termination of pregnancy; SB = stillbirth; NS = not stated; N/A = not applicable; VA = verbal autopsy; DRC = Democratic Republic of Congo

Table S3. Classification systems for causes of stillbirth: alignment with the ICD-PM.

System name (or lead author if no name)	Countries in which used (<u>country of origin</u>)	ICD-PM alignment		
		Requires distinguishing between AP and IP?	Allows fetal and maternal conditions?	Uses ICD codes?
PSANZ-PDC ⁸⁷	<u>Australia</u> , ^{1,2} <u>New Zealand</u> , ^{22,23} <u>Vietnam</u> , ⁷⁴ <u>Madagascar</u> ⁷⁹	Partial	Yes	No
Codac ⁸⁸	<u>UK</u> , ^{32,g} <u>Timor-Leste</u> , ^{73,h} <u>Canada</u> , ⁶ (<u>Norway</u>)	Yes	Yes ⁱ	Yes
Manandhar ⁸³	<u>Nepal</u> ⁸³	Yes	No	No
PPIP ⁸⁹	<u>South Africa</u> ^{36,51,j}	Partial	No	Unclear ^k
Irish NPEC ⁹⁰	<u>Ireland</u> ^{13,14,l}	Yes	Yes	No
Wigglesworth ⁹¹	<u>Turkey</u> , ⁹² <u>Nepal</u> , ⁸² (<u>UK</u>)	Partial	No	No
Santosh ^{24,f}	<u>Oman</u> ²⁴	No	No	No
Duran ^{56,93,d}	<u>Turkey</u> ⁵⁶	Partial	No	No
INCODE ⁹⁴	<u>USA</u> ^{37,m}	Partial	Yes	No
ReCoDe ⁹⁵	<u>France</u> , ¹¹ <u>Cameroon</u> , ^{58,n} <u>Italy</u> , ¹⁷ <u>Portugal</u> , ²⁹ <u>Nepal</u> , ⁸¹ <u>India</u> , ⁹⁶ <u>UK</u> ³³⁻³⁵	Partial	Yes	No
Stockholm ⁹⁷	<u>Sweden</u> ³¹	No	Yes	No
Serena (Aberdeen modification) ^{16o}	<u>Italy</u> ¹⁶	Partial	No	No
Mo-Suwan ⁵⁵	<u>Thailand</u> ⁵⁵	Partial	No	No
Nausheen ⁷¹	<u>Pakistan</u> ⁷¹	Yes	No	Yes
Baqi ^{76,98,e}	<u>Bangladesh</u> ⁷⁶	Yes	Yes ^c	No
Pattinson 1989 ⁹⁹	<u>Nigeria</u> , ^{68,70} <u>South Africa</u> ⁵²	Partial	No	No
Wou ⁷	<u>Canada</u> ⁷	Partial	No	No
Tulip ¹⁰⁰	<u>Ireland</u> , ¹⁵ (<u>Netherlands</u>)	No	No	No
Ujwala ⁶³	<u>India</u> ⁶³	Yes	No	No
Abha ⁶⁵	<u>India</u> ⁶⁵	Partial	No	No
Aggarwal ⁶⁶	<u>India</u> ⁶⁶	No	Yes	Yes

N.B. See¹⁰¹ for details of alignment with characteristics for an effective global system. System characteristics adapted from^{101,102}

^aDefined as country of first affiliation of first author of first reference paper listed in source column

^cIf multiple cause/non-hierarchical approach is used; see Table S4

^dDuran is likely a use of a Keeling modification of Wigglesworth that may have been first presented in Erdem

^eBaqui is a major modification of Lawn 2009 Consistent Classification of Stillbirths

^fSantosh states they use Wigglesworth but instead present a very substantial modification, most akin to, but still quite different from, Perveen¹⁰³ and Khanum¹⁰⁴.

^gThe use of Codac in this paper differs somewhat from how Codac is defined: for instance, in Table 13, the third level of ‘congenital anomalies’ is slightly different from that in the Codac source document

^hThe use of Codac in this paper differs somewhat from how Codac is defined. One of the main causes they report is ‘maternal infection’; in Codac, ‘maternal’ is a level 1 cause but ‘infection’ is not a level 2 option under ‘maternal’ (nor a level 3 option under “maternal other”); they also report a second main cause of ‘intrapartum fetal asphyxia’ which is listed as ‘intrapartum unknown’ in Codac

ⁱBut Manktelow 2016 does not seem to use the associated maternal conditions options provided by Codac, although it is referred to in annex A2.2.

^jThe PPIP system has evolved since the 2002 source document from which this table’s data was extracted. Importantly, the current South Africa reference document adds a 12th category: ‘No obstetric cause / Not applicable’

^kAlthough the 2002 PPIP document stated that PPIP categories are ‘based on ICD codes’, the current South Africa reference document does not mention ICD

^lThere are a few differences between the Irish NPEC source document from which this table’s data was extracted, and the current Ireland reference document; for instance, some different sub-categories under ‘congenital’; the latter document includes ‘unexplained’ as a level 1 category while the former includes ‘no antecedent or associated obstetric factors’ and ‘unclassified’. Table 3.3 in the latter document lists level 2 causes which differ somewhat from those in the former; it seems this is a slight modification of the original source document

^mThis document includes a new category, ‘unknown’

ⁿThis document has some differences with Recode in some of the Level 2 categories such as ‘maternal’ and ‘umbilical’

^oA Recode modification is also presented but was not the source of data used in this paper

Key: PSANZ-PDC = Perinatal Society of Australia and New Zealand Perinatal Death Classification; PPIP = Perinatal Problem Identification Programme; ReCoDe = relevant condition at death; INCODE = initial causes of fetal death; NPEC = National Perinatal Epidemiology Centre; Codac = causes of death and associated conditions; ICD-PM = International Classification of Diseases for Perinatal Mortality

Table S4. Classification systems for causes of stillbirth: selected characteristics.

System name	Hierarchical?	SB vs NND categories?	Single cause?	# causes	# levels	Associated factors?	Associated factors vs causes?	Definitions?	Rules?	Alignment score with characteristics of an effective global system ¹⁰¹
PSANZ-PDC ⁸⁷	Partly	No	Yes	7	4	Yes	Yes	Some	Yes	6/17
Codac ⁸⁸	Partly	Some	Yes	10	3	Yes	Yes	Some	Yes	9/17
Manandhar ⁸³	Unclear	Yes, all	Yes	10	1	No	n/a	Yes	No	3/17
PPIP ⁸⁹	No	Some	Yes ^a	12 ^a	1	Yes	Yes	Some	No	4/17
Irish NPEC ⁹⁰	No	Some	Yes	12	3	Yes	No	Some	Yes	5/17
Wigglesworth ⁹¹	No	Some	Yes	5	1	No	n/a	Some	Yes	5/17
Santosh ²⁴	No	Some	Yes	9	1	No	n/a	No	No	n/a ^g
Duran ⁵⁶	No	Some	Yes	7	1	No	n/a	No	No	n/a ^g
INCODE ⁹⁴	No	n/a ^b	No	7	4	No	n/a	Some	Yes	2/17
ReCoDe ⁹⁵	Yes	n/a ^b	No	9	2	Yes	No	Some	Yes	3/17
Stockholm ⁹⁷	No	n/a ^b	Yes	17	2	Yes	No	Yes	Yes	5/17
Serena ¹⁶	No	n/a ^b	Yes	11	1	No	n/a	No	No	2/17
Mo-Suwan ⁵⁵	No	Yes	Yes	7	2	Yes	No	No	Yes	4/17
Nausheen ⁷¹	Yes	n/a ^b	Yes	7	1	Yes	Unclear	Yes	Yes	3/17
Baqui ⁷⁶	Partly ^d	n/a ^b	Unclear ^e	2	2	Unclear ^f	No	Yes	Yes	n/a ^g
Pattinson 1989 ⁹⁹	No	Some	No ^c	12	2	Yes	Yes	Yes	Yes	5/17
Wou ⁷	Partly	n/a ^b	Yes	11	2	No	n/a	Some	No	0/17
Tulip ¹⁰⁰	No	No	Yes	6	3	Yes	Yes	Some	Yes	7/17
Ujwala ⁶³	No	Yes	Yes	2	2	No	n/a	No	No	6/17
Abha ⁶⁵	No	n/a ^b	Yes	9	2	No	n/a	No	No	2/17
Aggarwal ⁶⁶	Yes	n/a ^b	No	5, 11 ^g	1	No	n/a	No	Yes	2/17

N.B. System characteristics adapted from^{101,102}. SB vs NND categories: includes separate categories for stillbirths and neonatal deaths; Single cause: requires single cause to be identified; # causes: number of causes at top level; Associated factors: allows associated factors to be recorded; Associated factors vs causes: requires associated factors and causes to be distinguished from one another; Definitions: includes definitions for all causes; Rules: includes guidelines for assigning cause of death

^aWhen the system is used for stillbirths

^bn/a: stillbirth-only system.

^cIn the case of multiple birth fetal death

^dBoth hierarchical & non-hierarchical approaches allowed

^eBoth single & multiple cause approaches allowed

^fOnly if multiple cause approach is used

^gTwo formats are presented, one with 5 and one with 11 causes

^hThis system was not included in the assessment of alignment with characteristics for an effective global system, so no score is available.

Key: PSANZ-PDC = Perinatal Society of Australia and New Zealand Perinatal Death Classification; Codac = causes of death and associated conditions; PPIP = Perinatal Problem Identification Programme; NPEC = National Perinatal Epidemiology Centre; INCODE = initial causes of fetal death; ReCoDe = relevant condition at death; SB = stillbirth; NND = neonatal death

Table S5. Major categories of causes of stillbirth (by income-setting [n=85])

Report	Causes of Stillbirth														
	CA %	SFP %	FGR %	Plac %	APH %	Umb %	Mat %	Hyp %	Inf %	Hyp %	SP %	Other %	TOP %	Unex %	UnC %
High-income countries															
Monk (2016) ¹	26.27	4.79	1.81	9.67	5.43	2.46	2.46	3.04	8.01	0.98	6.14	0.55	9.85	16.27	2.27
Headley (2009) ²	30.23	8.14	9.30		6.98		2.33	3.49	6.98		19.77			12.79	
Public Health Agency of Canada (2013) ³	8.44			22.87			4.75					35.08	26.23	2.62	
Auger (2013) ⁴	11.34		6.32				1.46	3.19				51.85		25.85	
Auger (2016) ⁵	13.58				13.86	10.78						38.26		23.53	
Theriault (2016) ⁶	27.93	3.35		22.35		15.08	8.38		14.53					8.38	
Wou (2014) ⁷	6.23	6.57	2.08	11.76	9.69	6.57	1.38	2.42	7.27	1.04				20.07	24.91
National Committee on Vital Statistics (2015) ⁸	17.23	0.19	2.60	21.64			20.62		0.14	0.28				37.30	
Rodin (2014) ⁹	10.90	8.97	1.92	20.51	12.82	7.05	4.49	5.13	14.10	0.64	5.13			8.33	
Health Statistics and Health Research Database (2016) ¹⁰		1.85								96.30		1.85			
Ego (2013) ¹¹	13.79	3.01	35.92	5.53	7.09	6.31	1.46		6.70	1.17				9.90	9.13
Pasztor (2014) ¹²	3.57	2.86		27.14	3.57	15.00			5.71					42.14	
Corcoran (2016) ¹³	25.38	4.89	2.14	21.41	9.79	13.46	0.61	0.61	6.42	0.00	0.31			14.07	0.92
Corcoran (2014) ¹⁴	35.17			22.88	14.83									27.12	
Doyle (2012) ¹⁵	16.83			50.50										32.67	
Serena (2013) ¹⁶	1.59				2.12		36.51	4.23	2.12	2.12		1.59		49.74	
Nappi (2016) ¹⁷			6.00	42.00	10.00	4.00			22.00	2.00				14.00	
Koshida (2015) ¹⁸	5.56	9.13	0.40		7.94	23.81			0.79		4.76			22.22	25.40
Japan National Report (2016) ¹⁹	11.82	2.42	1.73						0.88	0.03	0.65	0.52		81.95	
State of Kuwait Central Statistical Bureau (NS) ²⁰	7.80	0.23		9.40			6.19				0.23			76.15	
Basys (NS) ²¹	6.50			1.63						31.71		1.63		58.54	
PMMRC (2014) ²²	33.27	7.76	0.82	13.67	7.76	1.63	4.90	2.65	7.55	1.63	3.88		0.82	13.67	
Lu (2009) ²³	35.62	7.52	8.17		5.23		7.52	3.27	7.19	1.31	10.13			14.05	
Santosh (2013) ²⁴	18.85	6.97	11.07		13.11	11.89	6.97					9.02		22.13	
Troszyński (2011) ²⁵	25.71			17.08		7.55	5.03	2.29			3.73	13.71		24.90	
Maciejewski (2014) ²⁶	9.98			12.08		9.98						30.27		37.68	
Rzepakowska-Misiak (2012) ²⁷	15.66			53.01	12.05	4.82			14.46						

Instituto Nacional de Estatica (2014) ²⁸	7.95	0.31	1.22							29.05		61.47		
Trocado (2015) ²⁹	9.09	18.18	9.09	9.09	18.18			9.09	9.09					18.18
Qatar Statistics Authority (2010) ³⁰	11.38	0.81		6.50			2.44			1.63		0.81	0.81	75.61
Stormdal Bring (2014) ³¹	10.28	0.46		24.98	10.47	7.81	2.39	5.23	21.95	1.01		3.12		12.30
Manktelow (2016) ³²	5.25	6.09		22.13		4.01	3.54			3.11	5.87			46.58
Cockerill (2012) ³³	9.39	8.45	44.13	2.82	8.45	0.94	4.23	0.47	1.41	1.41				17.84
Heazell (2009) ³⁴	12.68	2.82	40.85	5.63	2.82	5.63	2.82	2.82	2.82	1.41				19.72
Gardosi (2010) ³⁵	17.99		42.99										39.02	
Allanson (2016) ³⁶	20.56		13.84						0.04	8.67			56.89	
Miller (2016) ³⁷	10.42			2.78			11.11		0.69				20.14	54.86
Middle-income countries														
Ministerio de Salud de la Nacion (2016) ³⁸	6.95	17.87	1.93	20.92			4.18		0.02	24.92	0.37	22.83		
Chiavegatto (2012) ³⁹	4.49	0.22	0.49	20.54			13.79		0.56	1.27	0.52	3.27		54.84
Fatusic (2013) ⁴⁰	10.10			17.17		13.13		17.17	5.05					37.37
Zhu (2009) ⁴¹	11.35				14.07	15.81				5.07			17.85	35.85
Wan (2010) ⁴²	64.36					10.89	2.97	1.98	0.00	0.00	2.97			16.83
Song (2012) ⁴³	21.95	9.76		0.81	11.38	8.13	13.01	26.83						8.13
Molina-Giraldo (2014) ⁴⁴	19.61	7.84		19.61	3.92	5.88				21.57				15.69
DANE Informacion Estadistica (2017) ⁴⁵	3.17	10.97	0.80				2.50		0.16		0.00			
The National Institute of Statistics (year unknown) ⁴⁶	8.58	86.48	4.51									0.43		
The National Institute of Statistics (2016) ⁴⁷	4.60	3.84	0.27	2.52	5.15	2.47	1.32	2.03	1.53	2.14	4.55	0.55	0.11	68.93
Hadavi (2011) ⁴⁸	11.48				13.11			18.03			57.38			
Instituto Nacional de Estadística y Geografía (2016) ⁴⁹	8.71	4.84	5.48	9.59	3.89	7.95	4.54	3.54	1.31	1.80	6.16	35.77		6.42
National Institute of Statistics and Census (2014) ⁵⁰	6.34	0.14	0.43	21.04			3.31			2.88	4.47			61.38
Pattinson (2014) ⁵¹	3.15		2.33		14.78		2.79	18.26	3.13	9.65	9.84	1.23		34.84
Talip (2010) ⁵²	10.57		21.95		20.33		4.07	3.25	17.89	8.13	1.63	0.81		11.38
Allanson (2015) ⁵³	2.88		0.96		16.35		2.16	23.56	1.68	15.87	1.20	0.72		34.62
Bureau voor de Statistiken (year unknown) ⁵⁴	4.11		10.27				27.40					58.22		
Mo-suwan (2009) ⁵⁵	12.50	4.17			12.50	4.17	4.17		4.17	4.17				54.17
Duran (2016) ⁵⁶	20.17	3.92							0.28	1.12	1.68	72.55		0.28
Korkmaz (2010) ⁵⁷	5.02									25.11		10.05	42.47	17.35

Ministerio de Salud de la Nacion (2016) ³⁸	6.95	17.87	1.93	20.92				4.18	0.02	24.92	0.37	22.83	
Chiavegatto (2012) ³⁹	4.49	0.22	0.49	20.54			13.79		0.56	1.27	0.52	3.27	54.84
Low-income countries													
Nkwabong (2012) ⁵⁸	2.94	3.68			13.97	8.09	2.21	7.35	15.44	24.26			22.06
Der (2016) ⁵⁹	3.31				16.53	4.13		1.65		18.18	8.26		47.93
Alhassan (2016) ⁶⁰			4.26		9.93	12.77	6.38	6.38	9.93	16.31	3.55	5.67	24.82
Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	6.38			4.61			4.20			1.06	2.21	0.96	80.58
Bhattacharyya (2012) ⁶²	1.97				8.35	0.90	8.01		7.22	28.44	27.58	7.01	10.53
Ujwala (2012) ⁶³	2.86	8.57					2.86				3.81	3.81	47.62
Angolkar (2012) ⁶⁴		7.14		57.14						14.29	14.29		7.14
Abha (2012) ⁶⁵	4.31	22.41	11.49		12.64	4.02	12.07	20.69	2.01	0.57			9.77
Aggarwal (2011) ⁶⁶	12.00	6.22			15.56		12.89	30.67		1.78	2.22	8.44	10.22
Kokila (2013) ⁶⁷	4.26	6.81	4.68		25.53	5.11	1.70	27.66		19.57			4.68
Awoleke (2016) ⁶⁸	6.74		0.56		11.24		3.37	17.42	2.81	41.57	2.81		13.48
Ugwa (2014) ⁶⁹	1.42	14.33			17.73	6.24	11.21	13.33	8.94	23.55			3.26
Mutihir (2011) ⁷⁰					21.05	8.27	8.27	15.04	12.78				34.59
Nausheen (2013) ⁷¹	9.31				24.02		3.43	12.75		34.31		16.18	
Ashraf (2016) ⁷²	4.80	8.00			16.80		3.20	15.20		22.40			29.60
Wilkins (2015) ⁷³	14.04				12.28	5.26		21.05	15.79	29.82			1.75
Hirst (2012) ⁷⁴	34.58	8.41	8.41		3.74		5.61	8.41			6.54		24.30
Turnbull (2011) ⁷⁵	2.00			18.00		12.00		2.00	34.00			2.00	30.00
Baqui (2011) ⁷⁶	1.93				6.44		1.03	7.01	13.58	20.53	2.77		46.72
Demise (2015) ⁷⁷	33.33	6.06							6.06	39.39			15.15
Yirgu (2016) ⁷⁸	5.26				15.79	1.75	3.51	15.79	14.04	15.79	12.28		15.79
Andriamandimbinson (2013) ⁷⁹	1.79	0.89	8.04		9.82		1.79	11.16	6.25	6.70	7.59	27.68	18.30
Uliana (2013) ⁸⁰	14.08								23.24				62.68
Pradhan (2010) ⁸¹	5.62		11.24		5.62	5.62		17.98	6.74	12.36			34.83
Manandhar (2015) ⁸²	8.00	4.00									28.00	48.00	12.00
Manandhar (2010) ⁸³	2.66	1.66					6.82				10.48	68.55	9.82
Shrestha (2010) ⁸⁴	9.09	9.09			9.09	9.09			27.27	36.36			
Engmann (2011) ⁸⁵					9.70	5.97	5.22		37.31	14.18	6.72	8.96	11.94

Key: PMMRC = Perinatal and Maternal Mortality Review Committee; DANE = Departamento Administrativo Nacional de Estadística [Colombian National Administrative Department of Statistics]; CA = congenital anomalies; SFP = specific fetal/pregnancy pathology; FGR = fetal growth restriction; Plac = placental

condition; APH = antepartum haemorrhage; Umb = umbilical cord condition; Mat = maternal conditions, Inf = infection; Hyp = hypoxic peripartum death; SP = spontaneous preterm; Other = other unspecified condition; TOP = termination of pregnancy; Unex = unexplained; UnC = unable to classify

Table S6. Detailed quality assessment detailed. Country-representative reports included in pooled estimates of global causes of stillbirth (n=33).

Report	Quality rating	1. Sample representative of the target population?	2. Data analysis conducted with sufficient coverage of the identified sample?	3. Study subjects and setting described in detail?	4. Objective, standard criteria used for the measurement of the condition?	5. Was the condition measured reliably?			Overall
						5a. Adequate investigation of stillbirth?	5b. Adequate data source?	5c. Valid assignment?	
Monk (2016) ¹	Medium	Unclear	Yes	Yes	Yes	No	Yes	Yes	No
Public Health Agency of Canada (2013) ³	Low	Unclear	Yes	Yes	Yes	Unclear	No	No	No
National Institute of Statistics of Chile (2015) ⁸	Medium	Unclear	Unclear	Yes	Yes	Unclear	No	Yes	Unclear
Rodin (2014) ⁹	Medium	Unclear	Unclear	Yes	Yes	Unclear	Unclear	Yes	Unclear
Ego (2013) ¹¹	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Corcoran (2016) ¹³	Medium	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Statistics Bureau Japan (2016) ¹⁹	Low	Yes	Yes	Yes	Yes	Unclear	No	No	No
Kuwait National Report (year unknown) ²⁰	Low	Unclear	Unclear	Yes	Yes	Unclear	No	No	No
Basys (year unknown) ²¹	Low	Unclear	Unclear	Yes	Yes	Unclear	Unclear	No	Unclear
PMMRC (2014) ²²	Medium	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Troszyński (2011) ²⁵	Low	Unclear	No	Yes	Yes	Unclear	Unclear	Yes	Unclear
Instituto Nacional de Estática (2014) ²⁸	Low	Unclear	Unclear	Yes	Yes	Unclear	Unclear	No	Unclear
State of Qatar Statistics Authority (2010) ³⁰	Low	Unclear	Yes	Yes	Yes	Unclear	No	No	No
Stormdal Bring (2014) ³¹	Medium	Unclear	Yes	Yes	Yes	No	Yes	Yes	No
Manktelow (2016) ³²	Low	Yes	No	Yes	Yes	No	Yes	No	No

Directorate of Health Statistics and Information (2016) ³⁸	Low	Unclear	Unclear	Yes	Yes	Unclear	Unclear	No	Unclear
Chiavegatto (2012) ³⁹	Low	No	Unclear	Yes	Yes	Unclear	No	No	No
Zhu (2009) ⁴¹	Medium	Yes	Yes	Yes	Unclear	Unclear	No	Yes	Unclear
National Administrative Department of Statistics (2017) ⁴⁵	Medium	Unclear	Unclear	Unclear	Yes	Unclear	No	Yes	Unclear
National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Medium	Unclear	Unclear	Unclear	Yes	Unclear	Unclear	Yes	Unclear
The National Institute of Statistics (2016) ⁴⁷	Low	Yes	Unclear	Unclear	Yes	Unclear	No	No	No
Instituto Nacional de Estadística y Geografía (2016) ⁴⁹	Low	Yes	Unclear	Yes	Yes	Unclear	Unclear	No	Unclear
Panama National Report (2014) ⁵⁰	Low	Unclear	Unclear	Yes	Yes	Unclear	Unclear	No	Unclear
Pattinson (2014) ⁵¹	Medium	Unclear	Unclear	Yes	Yes	Unclear	No	Yes	Unclear
Bureau voor de statistiek (year unknown) ⁵⁴	Low	Unclear	Unclear	Yes	Unclear	Unclear	Unclear	No	Unclear
Mo-suwan (2009) ⁵⁵	Low	No	No	Yes	Yes	Yes	Yes	No	Yes
Alhassan (2016) ⁶⁰	Medium	Unclear	Yes	Yes	Unclear	No	Unclear	Yes	Unclear
Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Low	Unclear	Unclear	Unclear	Unclear	Unclear	No	No	No
Ujwala (2012) ⁶³	Low	No	No	Unclear	Yes	Yes	Yes	Yes	Yes
Turnbull (2011) ⁷⁵	Low	No	Yes	Yes	Unclear	Yes	Yes	Yes	Yes
Baqui(2011) ⁷⁶	Medium	Unclear	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yirgu (2016) ⁷⁸	Low	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manandhar (2010) ⁸³	Low	Unclear	No	Yes	Yes	Yes	Yes	No	Yes

Key: PMMRC = Perinatal and Maternal Mortality Review Committee

Table S7. Pooled estimates of global causes of stillbirth (by country income setting [n=33]).

Causes of stillbirth	High-income countries (15 reports)			Middle-income countries (11 reports)			Low-income countries (7 reports)		
	# reports	Pooled estimate (95% CI)	95% PI	# reports	Pooled estimate (95% CI)	95% PI	# reports	Pooled estimate (95% CI)	95% PI
Congenital anomalies	15	14.0% (9.9%, 18.7%)	1.1%, 37.6%	11	5.8% (4.7%, 7.1%)	2.2%, 10.9%	6	3.3% (1.3%, 5.9%)	0.1%, 14.6%
Specific fetal/pregnancy pathology	12	2.5% (1.2%, 4.3%)	0.1%, 12.0%	8	11.0% (3.7%, 21.4%)	0.1%, 57.8%	2	4.2% (0.1%, 13.6%)	-
Fetal growth restriction	8	3.8% (0.6%, 9.6%)	0.1%, 35.3%	9	2.0% (1.0%, 3.3%)	0.1%, 8.4%	-	-	-
Placental condition	13	14.4% (10.8%, 18.5%)	2.7%, 33.2%	5	13.7% (7.8%, 21.0%)	0.1%, 47.5%	2	9.6% (0.5%, 26.6%)	-
Antepartum haemorrhage	6	8.4% (6.2%, 10.8%)	2.3%, 17.8%	5	9.1% (3.4%, 17.03%)	0.1%, 47.4%	3	9.3% (4.9%, 14.8%)	0.1%, 92.1%
Umbilical cord condition	8	5.7% (3.7%, 8.0%)	0.5%, 15.7%	4	7.1% (2.7%, 13.2%)	0.1%, 45.1%	3	8.2% (2.3%, 17.1%)	0.1%, 99.9%
Maternal conditions	12	4.2% (2.0%, 7.2%)	0.1%, 20.4%	9	5.6% (2.0%, 10.9%)	0.1%, 31.7%	6	3.8% (1.7%, 6.5%)	0.1%, 15.7%
Hypertension	6	2.9% (1.9%, 4.1%)	0.3%, 7.6%	3	6.5% (0.4%, 19.5%)	0.1%, 99.9%	4	7.0% (0.4%, 10.6%)	0.1%, 24.6%
Infection	9	6.1% (2.6%, 11.0%)	0.1%, 30.4%	7	0.6% (0.1%, 1.5%)	0.1%, 4.6%	4	15.8% (9.7%, 23.0%)	0.1%, 51.9%
Hypoxic peripartum death	11	3.6% (1.3%, 6.8%)	0.1%, 21.2%	8	5.2% (1.6%, 10.5%)	0.1%, 31.4%	4	11.6% (0.8%, 31.5%)	0.1%, 99.9%
Spontaneous preterm	7	2.3% (0.7%, 5.7%)	0.1%, 14.6%	6	3.5% (0.5%, 8.9%)	0.1%, 33.5%	6	4.8% (2.4%, 8.1%)	0.1%, 18.7%
Other unspecified condition	8	9.3% (1.8%, 21.6%)	0.1%, 66.8%	8	18.7% (0.9%, 51.5%)	0.1%, 99.9%	4	13.8% (0.1%, 61.0%)	0.1%, 99.9%
Terminations (unspecified)	4	6.9% (0.7%, 18.45)	0.1%, 81.5%	2	5.5% (0.1%, 34.5%)	-	-	-	-
Unexplained	14	31.2% (17.5%, 47.6%)	0.1%, 93.0%	7	43.7% (24.1%, 64.2%)	0.1%, 99.5%	6	41.0% (20.6%, 63.3%)	0.1%, 99.9%

Key: CI = confidence interval; PI = prediction interval

Table S8. Unexplained stillbirth, detailed pooled estimates (country-representative studies [n=33]).

Country	Study	Setting	Inclusion		SB rate	SBs classified	Systems		Study Quality	Point Estimate	95% CI	95% PI
			Definition	TOP			System used	Hierarchical				
High income countries												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	16.3%	15.0%, 17.6%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	2.6%	1.8%, 3.7%	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	37.3%	35.3%, 39.4%	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	8.3%	4.5%, 13.8%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	9.9%	8.2%, 11.9%	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	14.1%	10.5%, 18.3%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3.0	3063	ICD	N/A	Low	82.0%	80.5%, 83.3%	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	76.2%	71.9%, 80.1%	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	58.5%	49.3%, 67.4%	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	13.7%	10.8%, 17.0%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4.0	2225	ICD	N/A	Low	24.9%	23.1%, 26.8%	
Portugal	Instituto Nacional de Estatística (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	-	-	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	75.6%	67.1%, 82.9%	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	12.3%	10.4%, 14.4%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	46.6%	44.9%, 48.3%	
Summary						19,261				31.6%	17.5%, 47.6%	0.1%, 93.0%
Good Quality Only (n=7)						8504				15.4%	8.5%, 23.8%	0.1%, 50.8%
ICD (n=8)										43.4%	19.0%, 69.6%	0.1%, 99.9%
Clinical (n=6)										17.7%	7.1%, 31.9%	0.1%, 75.3%

Middle-income countries												
Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	-	-	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	54.8%	54.7%, 55.0%	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	35.9%	33.3%, 38.5%	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	-	-	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown ^{oo}	6.5	466	ICD	N/A	Medium	-	-	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	68.9%	66.7%, 71.1%	
Mexico	Instituto nacional de estadística y geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	6.4%	6.1%, 6.8%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	61.4%	57.6%, 65.0%	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	34.8%	34.2%, 35.5%	
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	-	-	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	54.2%	32.8%, 74.5%	
Summary						431,203				43.7%	24.1%, 64.2%	0.1%, 99.5%
Good Quality Only										-	-	-
ICD (n=4)										45.7%	12.9%, 80.8%	0.1%, 99.9%
Clinical (n=2)										41.5%	24.1%, 60.1%	Insufficient data

Low-income countries												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	24.8%	17.9%, 32.8%	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/ national	NS	NS	8.0	3121	NS	no	Low	80.6%	79.2%, 82.0%	
India	Ujwala (2012) ⁶³	Population/ regional	NS	NS	13.9	105	Ujwala	no	Low	47.6%	37.8%, 57.6%	
Zambia	Turnbull (2011) ⁷⁵	Population/ regional	≥28 weeks	NS	27	50	NS	No	Low	30.0%	17.9%, 44.6%	
Bangladesh	Baqui(2011) ⁷⁶	Population/ regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	46.7%	44.2%, 49.2%	
Ethiopia	Yirgu (2016) ⁷⁸	Population/ regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	15.8%	7.5%, 27.9%	
Nepal	Manandhar (2010) ⁸³	Population/ regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	-	-	
Summary						13,197				41.0%	20.6%, 63.3%	0.1%, 99.9%
Good Quality Only										-	-	-
ICD										Insufficient data	Insufficient data	Insufficient data
Clinical (n=2)										46.8%	44.4%, 49.5%	Insufficient data

Key: TOP = termination of pregnancy; SB = still birth; CI = confidence interval; PI = prediction interval; PSANZ-PDC = Perinatal Society of Australia and New Zealand Perinatal Death Classification; ICD = International Classification of Diseases; N/A = not applicable; PMMRC = Perinatal and Maternal Mortality Review Committee; ReCoDe = relevant condition at death; NPEC = National Perinatal Epidemiology Centre; Codac = causes of death and associated conditions; PPIP = Perinatal Problem Identification Programme; NS = not stated

Table S9. Other unspecified condition, detailed pooled estimates (country-representative studies [n=33]).

Country	Study	Setting	Inclusion			SBs classified	Systems		Study Quality	Point Estimate	95% CI	95% PI
			Definition	TOP	SB rate		System used	Hierarchical				
High income countries												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	0.6%	0.3%, 0.9%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	35.1%	32.4%, 37.8%	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	-	-	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	-	-	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	-	-	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	-	-	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	0.5%	0.3% 0.9%	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	-	-	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	1.6%	0.2%, 5.8%	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	-	-	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	13.7%	12.3%, 15.2%	
Portugal	Instituto Nacional de Estatica (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	61.5%	56.0%, 66.8%	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	0.8%	0.1%, 4.5%	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	3.1%	2.2%, 4.3%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	-	-	
Summary										9.3%	1.8%, 21.6%	0.0%, 66.8%
Good Quality Only (n=2)						4347				1.6%	0.1%, 5.1%	Insufficient data
ICD (n=6)										13.2%	1.6%, 33.2%	0.1%, 91.4%
Clinical (n=2)										1.6%	0.1%, 5.1%	Insufficient data

Middle-income countries												
Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	22.8%	21.7%, 24.0%	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	3.3%	3.2%, 3.3%,	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	-	-	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	82.4%	82.0%, 82.7%	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown ^{oo}	6.5	466	ICD	N/A	Medium	0.4%	0.1%, 1.5%	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	0.6%	0.3%, 1.0%	
Mexico	Instituto Nacional de Estadística y Geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	35.8%	35.0%, 36.5%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	-	-	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	1.2%	1.1%, 1.4%	
Suriname	Bureau voor de statistiekent (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	58.2%	49.8%, 66.3%	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	-	-	
Summary										18.7%	0.9%, 51.5%	0.1%, 99.9%
Good Quality Only										-	-	-
ICD (n=6)										17.7%	0.1%, 60.5%	0.1%, 99.9%
Clinical										-	-	-

Low-income countries												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	5.7%	2.5%, 10.9%	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	1.0%	0.7%, 1.4%	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	3.8%	1.1%, 9.5%	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	-	-	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	-	-	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	-	-	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	68.6%	64.7%, 72.3%	
Summary										13.8%	0.1%, 61.0%	0.1%, 99.9%
Good Quality Only										-	-	-
ICD										-	-	-
Clinical (n=2)										31.1%	0.1%, 95.2%	Insufficient data

Key: TOP = termination of pregnancy; SB = still birth; CI = confidence interval; PI = prediction interval; PSANZ-PDC = Perinatal Society of Australia and New Zealand Perinatal Death Classification; ICD = International Classification of Diseases; N/A = not applicable; ReCoDe = relevant condition at death; NPEC = National Perinatal Epidemiology Centre; Codac = causes of death and associated conditions; PPIP = Perinatal Problem Identification Programme; NS = not stated

Table S10. Antepartum haemorrhage, detailed pooled estimates (country-representative studies [n=33]).

Country	Study	Setting	Inclusion			SBs classified	Systems		Study Quality	Point Estimate	95% CI	95% PI
			Definition	TOP	SB rate		System used	Hierarchical				
High income countries												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	5.4%	4.7%, 6.3%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	-	-	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	-	-	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	12.8%	8.0%, 19.1%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	7.1%	5.6%, 8.8%	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	9.8%	6.8%, 13.5%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	-	-	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	-	-	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	-	-	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	7.8%	5.6%, 10.5%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	-	-	
Portugal	Instituto Nacional de Estatística (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	-	-	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	-	-	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	10.5%	8.7%, 12.4%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	-	-	
Summary										8.4%	6.3%, 10.8%	2.3%, 17.8%
Good Quality Only (n=6)						6351				8.4%	6.3%, 10.8%	2.3%, 17.8%
ICD										Insufficient data	Insufficient data	Insufficient data
Clinical (n=5)										7.9%	5.8%, 10.3%	1.7%, 18.0%

Middle-income countries												
Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	-	-	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	-	-	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	14.1	12.2%, 16.1%	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	-	-	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown ^{oo}	6.5	466	ICD	N/A	Medium	-	-	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	5.2%	4.2%, 6.3%	
Mexico	Instituto Nacional de Estadística y Geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	3.9%	3.6%, 4.2%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	-	-	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	14.8%	14.3%, 15.3%	
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	-	-	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	12.5%	2.7%, 32.4%	
Summary										9.1%	3.4%, 17.0%	0.1%, 47.4%
Good Quality Only										-	-	-
ICD (n=2)										4.4%	3.3%, 5.7%	Insufficient data
Clinical (n=2)										14.1%	13.6%, 14.5%	Insufficient data

Low-income countries												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	9.9%	5.5%, 16.1%	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	-	-	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	-	-	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	-	-	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	6.4%	5.3%, 7.8%	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	15.8%	7.5%, 27.9%	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	-	-	
Summary										9.3%	4.9%, 14.8%	0.1%, 92.1%
Good Quality Only										-	-	-
ICD										Insufficient data	Insufficient data	Insufficient data
Clinical										Insufficient data	Insufficient data	Insufficient data

Key: TOP = termination of pregnancy; SB = still birth; CI = confidence interval; PI = prediction interval; PSANZ-PDC = Perinatal Society of Australia and New Zealand Perinatal Death Classification; ICD = International Classification of Diseases; N/A = not applicable; PMMRC = Perinatal and Maternal Mortality Review Committee; ReCoDe = relevant condition at death; NPEC = National Perinatal Epidemiology Centre; Codac = causes of death and associated conditions; PPIP = Perinatal Problem Identification Programme; NS = not stated

Table S11. Infection, detailed pooled estimates (country-representative studies [n=33]).

Country	Study	Setting	Inclusion			SBs classified	Systems		Study Quality	Point Estimate	95% CI	95% PI
			Definition	TOP	SB rate		System used	Hierarchical				
<i>High income countries</i>												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	8.0%	7.1%, 9.0%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	-	-	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	0.1%	0.1%, 0.4%	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	14.1%	9.1%, 20.6%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	6.7%	5.3%, 8.4%	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	6.4%	4.0%, 9.7%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	0.9%	0.6%, 1.3%	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	-	-	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	-	-	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	7.6%	5.4%, 10.3%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	-	-	
Portugal	Instituto Nacional de Estatística (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	-	-	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	-	-	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	22.0%	19.5%, 24.5%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	3.1%	2.5%, 3.8%	
Summary									6.1%	2.6%, 11.0%	0.1%, 30.4%	
Good Quality Only (n=7)						8504			7.90%	2.7%, 15.5%	0.1%, 43.9%	
ICD (n=3)									2.5%,	0.3%, 6.4%	0.1%, 96.2%	
Clinical (n=6)									8.3%,	4.1%, 13.7%	0.1%, 33.2%	

Middle-income countries												
Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	0.02%	0.1%, 0.11%	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	0.6%	0.5%, 0.6%	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	-	-	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	0.2%	0.1%, 0.2%	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown ^{oo}	6.5	466	ICD	N/A	Medium	-	-	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	1.5%	1.0%, 2.2%	
Mexico	Instituto Nacional de Estadística y Geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	1.3%	1.1%, 1.5%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	-	-	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	3.1%	2.9%, 3.4%	
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	-	-	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	4.2%	0.1%, 21.1%	
Summary										0.6%	0.1%, 1.5%	0.1%, 4.6%
Good Quality Only										-	-	-
ICD (n=5)										0.5%	0.2%, 1.0%	0.1%, 3.0%
Clinical (n=2)										2.2%	2.0%, 2.5%	Insufficient data

Low-income countries												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	9.9%	5.5%, 16.1%	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	-	-	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	-	-	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	34.0%	21.2%, 48.8%	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	13.6%	11.9%, 15.4%	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	14.0%	6.3%, 25.8%	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	-	-	
Summary										15.8%	9.7%, 23.0%	0.1%, 51.9%
Good Quality Only										-	-	-
ICD										Insufficient data	Insufficient data	Insufficient data
Clinical										Insufficient data	Insufficient data	Insufficient data

Key: TOP = termination of pregnancy; SB = still birth; CI = confidence interval; PI = prediction interval; PSANZ-PDC = Perinatal Society of Australia and New Zealand Perinatal Death Classification; ICD = International Classification of Diseases; N/A = not applicable; PMMRC = Perinatal and Maternal Mortality Review Committee; ReCoDe = relevant condition at death; NPEC = National Perinatal Epidemiology Centre; Codac = causes of death and associated conditions; PPIP = Perinatal Problem Identification Programme; NS = not stated

Table S12. Hypoxic peripartum death, detailed pooled estimates (country-representative studies [n=33]).

Country	Study	Setting	Inclusion		SB rate	SBs classified	Systems		Study Quality	Point Estimate	95% CI	95% PI
			Definition	TOP			System used	Hierarchical				
High income countries												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	1.0%	0.7%, 1.4%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	-	-	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	0.3%	0.1%, 0.6%	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	0.6%	0.1%, 3.5%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	1.2%	0.6%, 2.0%	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	-	-	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	0.3%	0.1%, 0.2%	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	-	-	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	31.7%	23.6%, 40.7%	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	1.6%	0.7%, 3.2%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	-	-	
Portugal	Instituto Nacional de Estatística (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	29.1%	24.2%, 34.3%	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	1.6%	0.2%, 5.8%	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	1.0%	0.5%, 1.8%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	5.9%	5.1%, 6.7%	
Summary										3.6%	1.3%, 6.8%	0.1%, 21.2%
Good Quality Only (n=6)						8177				0.8%	0.5%, 1.3%	0.1%, 2.7%
ICD (n=6)										5.7%	0.7%, 14.7%	0.1%, 51.8%
Clinical (n=5)										1.9%	0.4%, 4.3%	0.1%, 16.1%

Middle-income countries												
Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	24.9%	23.7%, 26.1%	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	1.3%	1.2%, 1.3%	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	5.1%	4.0%, 6.4%	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	-	-	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown ^{oo}	6.5	466	ICD	N/A	Medium	-	-	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	2.1%	1.5%, 2.9%	
Mexico	Instituto Nacional de Estadística y Geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	1.8%	1.6%, 2.0%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	2.9%	1.8%, 4.4%	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	9.7%	9.3%, 10.1%	
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	-	-	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	4.2%	0.1%, 21.1%	
Summary										5.2%	1.6%, 10.5%	0.1%, 31.4%
Good Quality Only										-	-	-
ICD (n=5)										4.7%,	0.9%, 11.1%	0.1%, 41.3%
Clinical (n=2)										8.8%	8.4%, 9.2%	Insufficient data

Low-income countries												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	16.3%	10.6%, 23.5%	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	1.1%	0.7%, 1.5%	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	-	-	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	-	-	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	20.5%	18.5%, 22.6%	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	15.8%	7.5%, 27.9%	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	-	-	
Summary										11.6%	0.8%, 31.5%	0.1%, 99.9%
Good Quality Only										-	-	-
ICD										-	-	-
Clinical										Insufficient data	Insufficient data	Insufficient data

Key: TOP = termination of pregnancy; SB = still birth; CI = confidence interval; PI = prediction interval; PSANZ-PDC = Perinatal Society of Australia and New Zealand Perinatal Death Classification; ICD = International Classification of Diseases; N/A = not applicable; PMMRC = Perinatal and Maternal Mortality Review Committee; ReCoDe = relevant condition at death; NPEC = National Perinatal Epidemiology Centre; Codac = causes of death and associated conditions; PPIP = Perinatal Problem Identification Programme; NS = not stated

Table S13. Placental conditions, detailed pooled estimates (country-representative studies [n=33]).

Country	Study	Setting	Inclusion			SBs classified	Systems		Study Quality	Point Estimate	95% CI	95% PI
			Definition	TOP	SB rate		System used	Hierarchical				
High income countries												
Australia	Monk (2016) ¹	Population/ national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	9.7%	8.7%, 10.7%	
Canada	Public Health Agency of Canada (2013) ³	Population/ national	≥500 g	yes	5.1	1220	ICD	N/A	Low	22.9%	20.5%, 25.3%	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/ national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	21.6%	19.9%, 23.4%	
Croatia	Rodin (2014) ⁹	Population/ national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	20.5%	14.5%, 27.7%	
France	Ego (2013) ¹¹	Population/ regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	5.5%	4.2%, 7.1%	
Ireland	Corcoran (2016) ¹³	Population/ national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	21.4%	17.1%, 26.3%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/ national	>22 weeks	yes	3	3063	ICD	N/A	Low	-	-	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/ national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	9.4%	6.8%, 12.5%	
Lithuania	Basys (year unknown) ²¹	Population/ national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	1.6%	0.2%, 5.8%	
New Zealand	PMMRC (2014) ²²	Population/ national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	13.7%	10.76%, 17.0%	
Poland	Troszyński (2011) ²⁵	Population/ regional	≥500 g	NS	4	2225	ICD	N/A	Low	17.1%	15.5%, 18.7%	
Portugal	Instituto Nacional de Estatística (2014) ²⁸	Population/ national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	-	-	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/ national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	6.5%	2.9%, 12.4%	
Sweden	Stormdal Bring (2014) ³¹	Population/ regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	25.0%	22.4%, 27.7%	
UK	Manktelow (2016) ³²	Population/ national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	22.1%	20.7%, 23.6%	
Summary									14.4%	10.8%, 18.5	2.7%, 33.2%	
Good Quality Only (n=7)						8504			16.0%	10.3%, 22.8%	0.9%, 43.9%	
ICD (n=7)									13.7%	9.7%, 18.3%	2.4%, 31.8%	
Clinical									15.5%,	9.3%, 22.9%	0.3%, 46.9%	

Middle-income countries												
Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	20.9%	19.8%, 22.1%	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	20.5%	20.4%, 20.7%,	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	-	-	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	-	-	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown ^{oo}	6.5	466	ICD	N/A	Medium	-	-	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	2.5%	1.9%, 3.4%	
Mexico	Instituto Nacional de Estadística y Geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	9.6%	9.1%, 10.1%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	21.0%	18.1%, 24.3%	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	-	-	
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	-	-	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	-	-	
Summary										13.7%	7.8%, 21.0%	0.1%, 47.5%
Good Quality Only										-	-	-
ICD (n=5)										13.7%	7.8%, 20.1%	0.1%, 47.5%
Clinical										-	-	-
Low-income countries												
Ghana	Alhassan (2016) ⁶⁰	Hospital/multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	-	-	

Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	4.6%	3.9%, 5.4%	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	-	-	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	18.0%	8.6%, 31.4%	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	-	-	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	-	-	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	-	-	
Summary										9.6%	0.5%, 26.6%	insufficient data
Good Quality only										-	-	-
ICD										-	-	-
Clinical										-	-	-

Key: TOP = termination of pregnancy; SB = still birth; CI = confidence interval; PI = prediction interval; PSANZ-PDC = Perinatal Society of Australia and New Zealand Perinatal Death Classification; ICD = International Classification of Diseases; N/A = not applicable; PMMRC = Perinatal and Maternal Mortality Review Committee; ReCoDe = relevant condition at death; NPEC = National Perinatal Epidemiology Centre; Codac = causes of death and associated conditions; PPIP = Perinatal Problem Identification Programme; NS = not stated

Table S14. Congenital anomalies, detailed pooled estimates (country-representative studies [n=33]).

Country	Study	Setting	Inclusion			SBs classified	Systems		Study Quality	Point Estimate	95% CI	95% PI
			Definition	TOP	SB rate		System used	Hierarchical				
High income countries												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	26.3%	24.8%, 27.8%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	8.4%	6.9%, 10.2%	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	17.2%	15.7%, 18.9%	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	10.9%	6.5%, 16.9%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	13.8%	11.7%, 16.0%	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	25.4%	20.8%,30.5%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	11.8%	10.7%, 13.01%	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	7.8%	5.5%, 10.7%	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	6.5%	2.9%, 12.4%	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	33.3%	29.1%, 37.6%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	25.7%	23.9%, 27.6%	
Portugal	Instituto Nacional de Estatística (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	8.0%	5.3%, 11.4%	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	11.4%	6.4%,18.4%	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 ⁵	1089	Stockholm	no	Medium	10.3%	8.5%, 12.2%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	5.3%	4.5%, 6.1%	
Summary										14.0%	9.9%, 18.7%	1.1%, 37.6%
Good Quality Only (n=7)						8504				19.00%	13.5%, 25.2%	3.2%, 43.7%
ICD (n=9)										11.7%	7.8%, 16.3%	1.0%, 31.1%
Clinical (n=6)										17.85,	8.9%, 29.0%	0.1%, 64.2%

Middle-income countries												
Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	7.0%	6.3%, 7.7%	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	4.5%	4.4%, 4.6%	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	11.4%	9.7%, 13.18%	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	3.2%	3.0%, 3.3%	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown	6.5	466	ICD	N/A	Medium	8.6%	6.2%, 11.5%	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	4.6%	3.7%, 5.7%	
Mexico	Instituto Nacional de Estadística y Geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	8.7%	8.3%, 9.2%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	6.3%	4.6%, 8.4%	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	3.2%	2.9%, 3.4%	
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	4.1%	1.5%, 8.7%	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	12.5%	2.7%, 32.4%	
Summary										5.8%	4.7%, 7.1%	2.2%, 10.9%
Good Quality Only										-	-	-
ICD (n=7)										5.9%	4.5%, 7.4%	1.8%, 12.0%
Clinical										5.5%	0.1%, 18.3%	Insufficient data

Low-income countries												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	-	-	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	6.4%	5.5%, 7.3%	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	2.9%	0.6%, 8.1%	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	2.0%	0.1%, 10.7%	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	1.9%	1.3%, 2.7%	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	5.3%	1.1%, 14.6%	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	2.7%	1.2%, 4.3%	
Summary										3.3%	1.3%, 5.9%	0.0%, 14.6%
Good Quality Only										-	-	-
ICD										Insufficient data	Insufficient data	Insufficient data
Clinical (n=3)										2.0%	1.5%, 2.7%	0.1%, 7.6%

Key: TOP = termination of pregnancy; SB = still birth; CI = confidence interval; PI = prediction interval; PSANZ-PDC = Perinatal Society of Australia and New Zealand Perinatal Death Classification; ICD = International Classification of Diseases; N/A = not applicable; PMMRC = Perinatal and Maternal Mortality Review Committee; ReCoDe = relevant condition at death; NPEC = National Perinatal Epidemiology Centre; Codac = causes of death and associated conditions; PPIP = Perinatal Problem Identification Programme; NS = not stated

Table S15. Specific fetal/ pregnancy pathology, detailed pooled estimates.

Country-representative studies (n=33)

Country	Study	Setting	Inclusion			Stillbirths classified	Systems		Study Quality	Point Estimate	95% C.I	95% P.I
			Definition	TOP	SB rate		System used	Hierarchical				
<i>High income countries</i>												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	4.8%	4.1%, 5.6%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	-	-	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	0.2%	0.1%, 0.5%	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	9.0%	5.0%, 14.6%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	3.0%	2.1%, 4.2%	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	4.9%	2.8%, 7.8%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	2.4%	1.9%, 3.0%	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	0.2%	0.1%, 1.3%	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	-	-	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	7.8%	5.6%, 10.5%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	-	-	
Portugal	Instituto Nacional de Estatística (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	0.3%	0.1%, 1.7%	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	0.8%	0.1%, 4.5%	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	0.5%	0.2%, 1.1%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	6.1%	5.3%, 7.0%	

ICD (n=7)										11.9%	4.1%, 23.1%	0.1%, 61.8%
Clinical										Insufficient data	Insufficient data	Insufficient data
<i>Low-income countries</i>												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	-	-	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	-	-	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	8.6%	4.0%, 15.7%	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	-	-	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	-	-	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	-	-	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	1.7%	0.8%, 3.0%	
Summary										4.2%	0.1%, 13.6%	Insufficient data
Good Quality Only										-	-	-
ICD										-	-	-
Clinical (n=2)										4.2%	0.1%, 13.6%	Insufficient data

Table S16. Hypertension, detailed pooled estimates

Country-representative studies (n=33)

Country	Study	Setting	Inclusion			Stillbirths classified	Systems		Study Quality	Point Estimate	95% C.I	95% P.I
			Definition	TOP	SB rate		System used	Hierarchical				
<i>High income countries</i>												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	3.0%	2.5%, 3.7%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	-	-	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	-	-	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	5.1%	2.2%, 9.9%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	-	-	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	0.6%	0.1%, 2.2%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	-	-	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	-	-	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	-	-	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	2.7%	1.4%, 4.5%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	2.3%	1.7%, 3.0%	
Portugal	Instituto Nacional de Estatica (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	-	-	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	-	-	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	5.2%	4.0%, 6.7%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	-	-	
Summary										2.9%	1.9%, 4.1%	0.3%, 7.6%

Good Quality Only (n=5)						5321				3.0%	1.7%, 4.7%	0.1%, 10.3%
ICD (n=2)										3.2%	1.0%, 6.6%	Insufficient data
Clinical (n=4)										2.8%	1.5%, 4.5%	0.1%, 13.7%

Middle-income countries

Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	-	-	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	-	-	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	-	-	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	-	-	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown	6.5	466	ICD	N/A	Medium	-	-	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	2.0%	1.4%, 2.8%	
Mexico	Instituto nacional de estadística y geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	3.5%	3.3%, 3.8%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	-	-	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	18.3%	17.7%, 18.8%	
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	-	-	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	-	-	
Summary										6.5%	0.4%, 19.5%	0.1%, 99.9%
Good Quality Only										-	-	-
ICD (n=6)										2.8%	1.5%, 4.4%	Insufficient data

Clinical										Insufficient data	Insufficient data	Insufficient data
<i>Low-income countries</i>												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	6.4%	3.0%, 11.8%	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	-	-	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	-	-	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	2.0%	0.1%, 10.7%	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	7.0%	5.8%, 8.4%	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	15.8%	7.5%, 27.9%	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	-	-	
Summary										7.0%	4.0%, 10.6%	0.1%, 24.6%
Good Quality Only										-	-	-
ICD										Insufficient data	Insufficient data	Insufficient data
Clinical										Insufficient data	Insufficient data	Insufficient data

Table S17. Fetal growth restriction, detailed pooled estimates

Country-representative studies (n=33)

Country	Study	Setting	Inclusion			Stillbirths classified	Systems		Study Quality	Point Estimate	95% C.I	95% P.I
			Definition	TOP	SB rate		System used	Hierarchical				
<i>High income countries</i>												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	1.8%	1.4%, 2.3%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	-	-	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	2.6%	2.0%, 3.4%	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	1.9%	0.4%, 5.5%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	35.9%	33.0%, 38.9%	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	2.1%	0.9%, 4.4%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	1.7%	1.3%2.3%	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	-	-	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	-	-	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	0.8%	0.2%, 2.1%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	-	-	
Portugal	Instituto Nacional de Estatica (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	1.2%	0.3%, 3.1%	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	-	-	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	-	-	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	-	-	
Summary										3.8%	0.6%, 9.6%	0.1%, 35.3%

Good Quality Only (n=6)		7415							4.80%	0.2%, 14.4%	0.1%, 56.1%
ICD (n=4)									1.9%	1.4%, 2.6%	0.3%, 4.7%
Clinical (n=4)									6.4%	0.1%, 25.6%	0.1%, 99.9%
<i>Middle-income countries</i>											
Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	1.9%	1.6%, 2.4%
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	0.5%	0.5%, 0.5%
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	-	-
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	0.8%	0.7%, 0.9%
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown ^{oo}	6.5	466	ICD	N/A	Medium	4.5%	2.8%, 6.8%
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	0.3%	0.1%, 0.6%
Mexico	Instituto nacional de estadística y geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	5.5%	5.1%, 5.8%
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	0.4%	0.1%, 1.3%
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	2.3%	2.1%, 2.5%
Suriname	Bureau voor de statistiekent (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	10.3%	5.9%, 16.4%
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low		-
Summary									2.0%	1.0%, 33.4%	0.1%, 8.4%
Good Quality Only									-	-	-

ICD (n=7)										1.5%	0.6%, 2.9%	0.1%, 8.2%
Clinical										Insufficient data	Insufficient data	Insufficient data
<i>Low-income countries^b</i>												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	-	-	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	-	-	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	-	-	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	-	-	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	-	-	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	-	-	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	-	-	
Summary										-	-	-
Good Quality Only										-	-	-
ICD										-	-	-
Clinical										-	-	-

Table S18. Umbilical cord conditions, detailed pooled estimates

Country-representative studies (n=33)

Country	Study	Setting	Inclusion			Stillbirths classified	Systems		Study Quality	Point Estimate	95% C.I	95% P.I
			Definition	TOP	SB rate		System used	Hierarchical				
<i>High income countries</i>												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	2.5%	2.0%, 3.1%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	-	-	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	-	-	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	7.1%	3.6%, 12.3%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	6.3%	4.9%, 8.0%	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	13.5%	10.0%, 17.6%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	-	-	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	-	-	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	-	-	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	1.6%	0.7%, 3.2%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	7.6%	6.5%, 8.7%	
Portugal	Instituto Nacional de Estatica (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	-	-	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	-	-	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	7.8%	6.3%, 9.6%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	4.0%	3.4%, 4.8%	
Summary										5.7%	3.7%, 8.0%	0.5%, 15.7%

Good Quality Only (n=6)						6351				5.8%	3.0%, 9.4%	0.1%, 22.1%
ICD (n=2)										7.4%	6.4%, 8.5%	Insufficient data
Clinical (n=6)										5.2%	3.1%, 7.8%	0.1%, 16.8%

Middle-income countries

Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	-	-	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	-	-	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	15.8%	13.9%, 17.9%	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	-	-	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown ^{oo}	6.5	466	ICD	N/A	Medium	-	-	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	2.5%	1.8%, 3.3%	
Mexico	Instituto nacional de estadística y geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	8.0%	7.5%, 8.4%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	-	-	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	-	-	
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	-	-	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	4.2%	0.1%, 21.1%	
Summary										7.1%	2.7%, 13.2%	0.1%, 45.1%
Good Quality Only										-	-	-
ICD (n=2)										4.9%	0.9%, 11.6%	Insufficient data

Clinical											-	-	-
<i>Low-income countries</i>													
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	12.8%	7.7%, 19.4%		
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	-	-		
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	-	-		
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	12.0%	4.5%, 24.3%		
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	-	-		
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	1.8%	0.1%, 9.4%		
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	-	-		
Summary										8.2%	2.3%, 17.1%	0.1, 99.9%	
Good Quality Only										-	-	-	
ICD										Insufficient data	Insufficient data	Insufficient data	
Clinical										-	-	-	

Table S19. Maternal conditions, detailed pooled estimates

Country-representative studies (n=33)

Country	Study	Setting	Inclusion		SB rate	Stillbirths classified	Systems		Study Quality	Point Estimate	95% C.I	95% P.I
			Definition	TOP			System used	Hierarchical				
<i>High income countries</i>												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	2.5%	2.0%, 3.1%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	4.8%	3.6%, 6.1%	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	20.6%	18.9%, 22.4%	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	4.5%	1.8%, 9.0%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	1.5%	0.8%, 2.4%	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	0.6%	0.1%, 2.2%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	-	-	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	6.2%	4.1%, 8.9%	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	-	-	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	4.9%	3.2%, 7.2%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	5.0%	4.2%, 6.0%	
Portugal	Instituto Nacional de Estatica (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	-	-	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	2.4%	0.5%, 7.0%	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	2.4%	1.6%, 3.5%	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	3.5%	2.9%, 4.2%	
Summary										4.2%	2.0%, 7.2%	0.1%, 20.4%

Good Quality Only (n=7)						8504				4.1%	0.6%, 10.2%	0.1%, 36.4%
ICD (n=6)										6.6%	2.1%, 13.3%	0.1%, 39.0%
Clinical (n=6)										2.5%	1.6%, 3.4%	0.4, 6.2%

Middle-income countries

Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	4.2%	3.7%, 4.8%,	
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	13.8%	13.7%, 13.9%	
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	-	-	
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	2.5%	2.4%, 2.7%	
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown ^{oo}	6.5	466	ICD	N/A	Medium	-	-	
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	1.3%	0.8%, 2.0%	
Mexico	Instituto nacional de estadística y geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	4.5%	4.2%, 4.9%	
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	3.3%	2.1%, 4.9%	
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	2.8%	2.6%, 3.0%	
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	27.4%	20.4%, 35.4%	
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	4.2%	0.1%, 21.1%	
Summary										5.6%	2.0%, 10.9%	0.1%, 31.7%
Good Quality Only										-	-	-
ICD (n=6)										4.3%	0.9%, 10.2%	0.1%, 35.8%

Clinical (n=2)										1.9%	1.7%, 2.1%	Insufficient data
<i>Low-income countries</i>												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	6.4%	3.0%, 11.8%	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	4.2%	3.5%, 5.0%	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	2.9%	0.6%, 8.1%	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	-	-	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	1.0%	0.6%, 1.7%	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	3.5%	0.4%, 12.1%	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	6.8%	4.9%, 9.1%	
Summary										3.8%	1.7%, 6.5%	0.1%, 15.7%
Good Quality Only										-	-	-
ICD										Insufficient data	Insufficient data	Insufficient data
Clinical (n=3)										3.1%	0.2%, 8.9%	0.1%, 99.9%

Table S20. Spontaneous preterm, detailed pooled estimates

Country-representative studies (n=33)

Country	Study	Setting	Inclusion		SB rate	Stillbirths classified	Systems		Study Quality	Point Estimate	95% C.I	95% P.I
			Definition	TOP			System used	Hierarchical				
<i>High income countries</i>												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	6.1%	5.3%, 7.0%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	-	-	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	-	-	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	5.1%	2.2%, 9.9%	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	-	-	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	0.3%	0.1%, 1.7%	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	0.7%	0.4%, 1.0%	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	0.2%	0.1%, 1.3%	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	-	-	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	3.9%	2.4%, 6.0%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	3.7%	3.0%, 4.6%	
Portugal	Instituto Nacional de Estatística (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	-	-	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	-	-	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 ⁵	1089	Stockholm	no	Medium	-	-	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	-	-	
Summary										2.3%	0.7%, 4.7%	0.1%, 14.6%
Good Quality Only (n=4)						4232				3.4%	1.0%, 6.9%	0.1%, 28.6%

ICD (n=4)											1.8%	0.3%, 4.5%	0.1%, 23.6%
Clinical (n=3)											3.0%	0.5%, 7.3%	0.1%, 98.2%
<i>Middle-income countries</i>													
Argentina	Directorate of Health Statistics and Information (2016) ³⁸	Population/national	≥22 weeks	NS	6.6	5120	ICD	N/A	Low	0.4%	0.2%, 0.6%		
Brazil	Chiavegatto (2012) ³⁹	Population/national	≥20 weeks or ≥500 g and/or ≥25 cm	NS	11.7	334882	ICD	N/A	Low	0.5%	0.5%, 0.5%		
China	Zhu (2009) ⁴¹	Population	>28 weeks or >1000 g	yes	8.3 [§]	1322	NS	no	Medium	-	-		
Colombia	National Administrative Department of Statistics (2017) ⁴⁵	Population/national	NS	NS	8.1 [§]	47442	ICD	N/A	Medium	-	-		
Costa Rica	National Institute of Statistics and Censuses Costa Rica (year unknown) ⁴⁶	Population/national	NS	Unknown [∞]	6.5	466	ICD	N/A	Medium	-	-		
Ecuador	The National Institute of Statistics (2016) ⁴⁷	Population/national	NS	yes	6.6	1825	ICD	N/A	Low	4.6%	3.6%, 5.6%		
Mexico	Instituto nacional de estadística y geografía (2016) ⁴⁹	Population/national	≥20 weeks	yes	6.9	16115	ICD	N/A	Low	6.2%	5.8%, 6.5%		
Panama	Panama National Report (2014) ⁵⁰	Population/national	≥5 months	NS	9.8 [§]	694	ICD	N/A	Low	4.5%	3.1%, 6.3%		
South Africa	Pattinson (2014) ⁵¹	Population/regional	≥500g	NS	23.1	21630	PPIP	no	Medium	9.8%	9.4%, 10.2%		
Suriname	Bureau voor de statistiek (year unknown) ⁵⁴	Population/national	≥28 weeks	NS	14.3 [§]	146	NS	no	Low	-	-		
Thailand	Mo-suwan (2009) ⁵⁵	Population/regional	≥28 weeks	NS	6.8	24	Mo-Suwan	no	Low	-	-		
Summary											3.5%	0.5%, 8.9%	0.1%, 33.5%
Good Quality Only											-	-	-
ICD (n=5)											2.6%	0.4%, 6.5%	0.1%, 26.8%
Clinical											Insufficient data	Insufficient data	Insufficient data

<i>Low-income countries</i>												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	3.6%	1.2%, 8.1%	
Guatemala	Instituto Nacional de Estadística Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	2.2%	1.7%, 2.8%	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	3.8%	1.1%, 9.5%	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	-	-	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	2.8%	2.0%, 3.7%	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	12.3%	5.1%, 23.7%	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	10.5%	8.2%, 13.2%	
Summary										4.8	2.4, 8.1	0.0, 18.7
Good Quality Only										-	-	-
ICD										Insufficient data	Insufficient data	Insufficient data
Clinical (n=3)										5.3%	1.1%, 12.1%	0.1%, 99.9%

Table S21. Terminations (unspecified), detailed pooled estimates

Country-representative studies (n=33)

Country	Study	Setting	Inclusion			Stillbirths classified	Systems		Study Quality	Point Estimate	95% C.I	95% P.I
			Definition	TOP	SB rate		System used	Hierarchical				
<i>High income countries</i>												
Australia	Monk (2016) ¹	Population/national	≥20 weeks or ≥400 g	yes	7.3	3258	PSANZ-PDC	Partly	Medium	9.9%	8.9%, 10.9%	
Canada	Public Health Agency of Canada (2013) ³	Population/national	≥500 g	yes	5.1	1220	ICD	N/A	Low	26.2%	23.8%, 28.8%	
Chile	National Institute of Statistics of Chile (2015) ⁸	Population/national	≥22 weeks	NS	8.5	2153	ICD	N/A	Medium	-	-	
Croatia	Rodin (2014) ⁹	Population/national	≥22 weeks	yes	3.9	156	ICD	N/A	Medium	-	-	
France	Ego (2013) ¹¹	Population/regional	≥22 weeks or ≥500 g	no	3.8	1030	ReCoDe	yes	High	-	-	
Ireland	Corcoran (2016) ¹³	Population/national	≥24 weeks or ≥500 g	yes	4.2	327	Irish NPEC 2011	no	Medium	-	-	
Japan	Statistics Bureau Japan (2016) ¹⁹	Population/national	>22 weeks	yes	3	3063	ICD	N/A	Low	-	-	
Kuwait	Kuwait National Report (year unknown) ²⁰	Population/national	≥28 weeks	NS	7.1	436	ICD	N/A	Low	-	-	
Lithuania	Basys (year unknown) ²¹	Population/national	≥22 weeks	NS	4.2	123	ICD	N/A	Low	-	-	
New Zealand	PMMRC (2014) ²²	Population/national	≥20 weeks or ≥400 g	yes	7.9	491	PSANZ-PDC	Partly	Medium	0.8%	0.2%, 2.1%	
Poland	Troszyński (2011) ²⁵	Population/regional	≥500 g	NS	4	2225	ICD	N/A	Low	-	-	
Portugal	Instituto Nacional de Estatica (2014) ²⁸	Population/national	≥22 weeks	NS	3.6	327	ICD	N/A	Low	-	-	
Qatar	State of Qatar Statistics Authority (2010) ³⁰	Population/national	≥28 weeks	NS	6.7	123	ICD	N/A	Low	0.8%	0.1%, 4.5%	
Sweden	Stormdal Bring (2014) ³¹	Population/regional	≥22 weeks	NS	4.1 [§]	1089	Stockholm	no	Medium	-	-	
UK	Manktelow (2016) ³²	Population/national	≥24 weeks	no	4.2	3218	Codac	Partly	Low	-	-	
Summary										6.9%	0.7%, 18.4%	0.1%, 81.5%

Clinical										-	-	-
<i>Low-income countries</i>												
Ghana	Alhassan (2016) ⁶⁰	Hospital /multi centre	≥1000g and >28 weeks	NS	22.2	141	NS	no	Medium	-	-	
Guatemala	Instituto Nacional de Estadistica Guatemala (year unknown) ⁶¹	Population/national	NS	NS	8	3121	NS	no	Low	-	-	
India	Ujwala (2012) ⁶³	Population/regional	NS	NS	13.9	105	Ujwala	no	Low	-	-	
Zambia	Turnbull (2011) ⁷⁵	Population/regional	≥28 weeks	NS	27	50	NS	No	Low	-	-	
Bangladesh	Baqui(2011) ⁷⁶	Population/regional	≥7 months	NS	36.6	1554	Baqui	Partly	Medium	-	-	
Ethiopia	Yirgu (2016) ⁷⁸	Population/regional	≥28 weeks	yes	14.1	57	ICD	N/A	Low	-	-	
Nepal	Manandhar (2010) ⁸³	Population/regional	>28 weeks or >1000 g	NS	31.3	601	Manandhar	Unclear	Low	-	-	
Summary										-	-	-
Good Quality Only										-	-	-
ICD										-	-	-
Clinical										-	-	-

Table S22. Mapping of stillbirth causes to the ICD-PM

33 reports; 454,533 stillbirths

Category	Fetal																			Maternal					Total				
	Antepartum						Intrapartum						Unknown timing							No fetal cause	Total	M1	M2	M3		M4	M5		
	A1	A2	A3	A4	A5	A6	A7	I1	I2	I3	I4	I5	I6	I7	I8	U1	U2	U3	U4	U5	U6								
CA	0	0	0	0	0	0	0	0	0	0	0	3085	0	0	1	19238	0	104	0	0	53	118	22599	0	0	0	2045	20554	22599
SPF	0	0	0	0	0	0	0	0	0	0	0	779	0	0	23	4	0	5823	0	7	745	1282	8663	173	1070	9	37	7374	8663
FGR	0	0	0	0	0	0	0	0	0	0	0	0	1867	0	0	0	0	0	2263	0	0	0	4130	0	0	0	0	4130	4130
Plac	0	0	0	0	0	21	0	0	0	0	0	0	0	0	9	2	0	83	452	0	0	73884	74451	74432	0	0	17	2	74451
APH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4683	4683	4683	0	0	0	0	4683
Umb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2149	2151	2149	0	0	0	2	2151
Mat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	439	0	0	0	49691	50130	0	12584	0	37546	0	50130
HT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4915	4915	0	12	0	4903	0	4915
Inf	0	0	0	0	0	0	0	0	0	0	418	0	0	0	7	0	3182	0	0	0	2	291	3900	454	0	0	2061	1385	3900
Hyp	0	0	0	0	0	0	0	0	4	7075	0	0	0	1517	0	0	0	0	0	0	0	208	8804	0	13	4592	0	4199	8804
SP	0	0	0	0	0	0	0	0	0	0	0	0	2455	0	0	0	0	0	0	0	0	3047	5502	0	1071	2171	0	2260	5502
Other	0	0	0	0	0	8	0	0	39084	0	0	0	17	0	0	5	0	16861	187	2640	0	1	58803	0	140	39829	12	18822	58803
ToP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	885	0	0	0	0	885	0	0	0	0	885	885
Unex	0	0	90335	0	0	602	0	0	0	0	0	0	0	0	0	0	0	0	0	113558	0	50	204545	0	0	50	0	204495	204545
UnC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	372	0	372	0	0	0	0	372	372
Total	0	0	90335	0	0	631	0	0	39088	7075	418	3864	4339	1517	40	19249	3182	24197	2902	116577	800	140319	454533	81891	14890	46651	46621	264480	454533

APH: antepartum haemorrhage; CA: congenital anomalies; Fetal growth: disorders related to fetal growth; HT: hypertension; Hyp: hypoxic peripartum death; Inf: infection; FGR: fetal growth restriction; Mat: maternal condition; Other: other unspecified condition; Plac: placental conditions; SP: spontaneous preterm; SPF: specific fetal/placental condition; ToP: termination of pregnancy, unspecified; Umb: umbilical cord; UnC: unable to classify; Unex: unexplained

A1-6, I1-7, M1-5 as per ICD-PM¹⁰⁵; A7 & I8: Other (ICD code not included in ICD-PM); U1: Unknown-congenital; U2: Unknown-infection; U3: Unknown-other specified disorder; U4: Unknown-disorders related to fetal growth; U5: Unknown-death of unspecified cause; U6: Unknown-Other (ICD code not included in ICD-PM)

Table S23. Stillbirth causes mapped to the ICD-PM matrix

33 reports; 454,533 stillbirth

Maternal condition	M1: Complications of placenta, cord and membranes	2: Maternal complications of pregnancy	M3: Other complications of labour and delivery	M4: Maternal medical and surgical conditions	M5: No maternal condition identified	Total
Antepartum						
A1: Congenital malformations, deformations and chromosomal abnormalities	0	0	0	0	0	0
A2: Infection	0	0	0	0	0	0
A3: Antepartum hypoxia	0	0	0	0	90335	90335
A4: Other specified antepartum disorder	0	0	0	0	0	0
A5: Disorders related to fetal growth	0	0	0	0	0	0
A6: Antepartum death of unspecified cause	21	0	0	8	602	631
A7: Other	0	0	0	0	0	0
Total	21	0	0	8	90937	90966
Intrapartum						
I1: Congenital malformations, deformations and chromosomal abnormalities	0	0	0	0	0	0
I2: Birth trauma	0	0	39084	0	4	39088
I3: Acute intrapartum event	0	13	4384	0	2678	7075
I4: Infection	418	0	0	0	0	418
I5: Other specified intrapartum	0	0	0	1919	1945	3864
I6: Disorders related to fetal growth	0	195	0	0	4144	4339
I7: Intrapartum death of unspecified cause	0	0	0	0	1517	1517
I8: Other	9	0	0	0	31	40
Total	427	208	43468	1919	10319	56341
Unknown timing						
U1: Congenital malformations, deformations and chromosomal abnormalities	0	0	0	0	19249	19249
U2: Infection	0	0	0	1806	1376	3182
U3: Other specified disorder	90	0	305	450	23352	24197
U4: Disorders related to fetal growth	435	0	0	17	2450	2902
U5: Death of unspecified cause	0	140	440	0	115997	116577
U6: Other	0	0	0	0	800	800
Total	525	140	745	2273	163224	166907
No fetal cause	80918	14542	2438	42421	0	140319
Total	81819	14890	46651	46621	264480	454533

References

1. Monk A, Harris K, Donnelly N, Hilder L, Humphrey M, Gordon A, et al. *Perinatal deaths in Australia 1993–2012*. Canberra: Australian Institute of Health and Welfare; 2016.
2. Headley E, Gordon A, Jeffery H. Reclassification of unexplained stillbirths using clinical practice guidelines. *Aust N Z J Obstet Gynaecol* 2009;**49**:285–9.
3. Public Health Agency of Canada. *Perinatal Health Indicators for Canada 2013: A Report of the Canadian Perinatal Surveillance System*. Ottawa: Public Health Agency of Canada; 2013.
4. Auger N, Park AL, Zoungrana H, McHugh NGL, Luo ZC. Rates of stillbirth by gestational age and cause in Inuit and First Nations populations in Quebec. *CMAJ* 2013;**185**:E256–62.
5. Auger N, Costopoulos A, Naimi AI, Bellingeri F, Vecchiato L, Fraser WD. Comparison of stillbirth rates by cause among Haitians and non-Haitians in Canada. *Int J Gynaecol Obstet* 2016;**134**:315–9.
6. Theriault K, Boucoiran I, Jarcevic R, Dal Soglio D, Wavrant S. Added value of placental examination in the investigation of stillbirth. *Am J Obstet Gynecol* 2016;**214**:S318–19.
7. Wou K, Ouellet MP, Chen MF, Brown RN. Comparison of the aetiology of stillbirth over five decades in a single centre: a retrospective study. *BMJ Open* 2014;**4**:e004635.
8. National Institute of Statistics of Chile. *Vital statistics yearbook 2014*. Commune of Santiago, Chile: National Committee on Vital Statistics; 2014.
9. Rodin U, Filipovic-Grcic B, Coric R, Juras J. Perinatal death's causes in Croatia in the year 2013. *Gynaecol Perinatol* 2014;**23**:19–24.
10. National Institute for Health Development. Estonian Causes of Death Registry: Table SD53 - Causes of death of stillbirths 2016 [http://pxweb.tai.ee/PXWeb2015/pxweb/en/01Rahvastik/01Rahvastik_04Surmad/SD53.px/?rxid=45219a02-c16b-4544-b9f2-b901da7da3a8].
11. Ego A, Zeitlin J, Batailler P, Cornec S, Fondeur A, Baran-Marszak M, et al. Stillbirth classification in population-based data and role of fetal growth restriction: the example of RECODE. *BMC Pregnancy Childbirth* 2013;**13**:182.
12. Pasztor N, Kereszturi A, Kozinszky Z, Pal A. Identification of causes of stillbirth through autopsy and placental examination reports. *Fetal Pediatr Pathol* 2014;**33**:49–54.
13. Corcoran P, Manning E, O'Farrell I, McKernan J, Meaney S, Drummond L, et al. *Perinatal Mortality in Ireland Annual Report 2014*. Cork: National Perinatal Epidemiology Centre; 2016.
14. Corcoran P, Manning E, Meaney S, Greene R. Perinatal mortality in Ireland: A national clinical audit. *Arch Dis Child Fetal Neonatal Ed* 2014;**99**:A153.
15. Doyle EM, Wishart V, Hennell C, Thornton CM. Stillbirth: Surely not 70% unexplained? *Pediatr Dev Pathol* 2012;**15**:417–26.
16. Serena C, Marchetti G, Rambaldi MP, Ottanelli S, Di Tommaso M, Avagliano L, et al. Stillbirth and fetal growth restriction. *J Matern Fetal Neonatal Med* 2013;**26**:16–20.
17. Nappi L, Trezza F, Bufo P, Riezzi I, Turillazzi E, Borghi C, et al. Classification of stillbirths is an ongoing dilemma. *J Perinat Med* 2016;**44**:837–43.
18. Koshida S, Ono T, Tsuji S, Murakami T, Takahashi K. Recommendations for preventing stillbirth: a regional population-based study in Japan during 2007–2011. *Tohoku J Exp Med* 2015;**235**:145–9.
19. Statistics Bureau Japan. Population and Households [<http://www.stat.go.jp/english/data/>].
20. State of Kuwait Central Statistical Bureau. Annual bulletin for vital statistics births and deaths 2014 [https://www.csb.gov.kw/Socan_Statistic_EN.aspx?ID=10].
21. Basys V, Drazdienė N, Vezbergienė N, Isakova J. Medical Data of Births, 2015. Vilnius: Institute of Hygiene Health Information Centre; 2015 [http://sic.hi.lt/data/I15_gim.pdf].
22. Perinatal and Maternal Mortality Review Committee. Eighth Annual Report of the Perinatal and Maternal Mortality Review Committee: Reporting Mortality 2012. Wellington, New Zealand: Health Quality & Safety Commission; 2014.
23. Lu JR, McCowan L. A comparison of the Perinatal Society of Australia and New Zealand-Perinatal Death Classification system and relevant condition at death stillbirth classification systems. *Aust N Z J Obstet Gynaecol* 2009;**49**:467–71.
24. Santosh A, Zunjarwad G, Hamdi I, Al-Nabhani JA, Sherkawy BE, Al-Busaidi IH. Perinatal mortality rate as a quality indicator of healthcare in Al-dakhiliyah region, Oman. *Sultan Qaboos Univ Med J* 2013;**13**:545–50.
25. Troczynski M, Maciejewski T, Wilczynska A, Banach B. Causes of stillbirths and perinatal death in Poland between 2007–2009. *Ginekol Pol* 2011;**82**:598–601.
26. Maciejewski T, Troczynski M. Causes of stillbirths and early neonatal deaths – 2012 in 8 voivodships in Poland. *J Matern Fetal Neonatal Med* 2014:101.
27. Rzepkowska-Misiak B, Krekora M, Wiczorek A, Krasomski G, Pietrzak Z. Analysis of the causes of intrauterine fetal death in own material. *GinPolMedProject* 2012;**1**:43–9.

28. Instituto Nacional de Estatística. *Estatísticas da Saúde 2014*. Lisboa, Portugal: Instituto Nacional de Estatística: 2014.
29. Trocadero V, Coutada R, Gonçalves E, Ribeiro D, Gama A, Marinho Santos J, et al. Stillbirth: A 4 year retrospective study. *J Perinat Med* 2015;43.
30. State of Qatar Statistics Authority. Vital Statistics Annual Bulletin (Births & Deaths) (2009) [http://www.mdps.gov.qa/en/statistics/Statistical%20Releases/Population/BirthsDeaths/2009/Births_Deaths_Foetal_Deaths_QSA_AnBu_AE_2009.pdf].
31. Stormdal Bring H, Hulthen varli IA, Kublickas M, Papadogiannakis N, Pettersson K. Causes of stillbirth at different gestational ages in singleton pregnancies. *Acta Obstet Gynecol Scand* 2014;93:86–92.
32. Manktelow BN, Smith LK, Seaton SE, Hyman-Taylor P, Kurinczuk JJ, Field DJ, et al. MBRRACE-UK Perinatal Mortality Surveillance Report UK. Perinatal Deaths for Births from January to December 2014. Leicester: MBRRACE-UK; 2016 [<https://www.npeu.ox.ac.uk/downloads/files/mbrpace-uk/reports/MBRRACE-UK-PMS-Report-2014.pdf>]
33. Cockerill R, Whitworth MK, Heazell AEP. Do medical certificates of stillbirth provide accurate and useful information regarding the cause of death? *Paediatr Perinat Epidemiol* 2012;26:117–23.
34. Heazell AE, Martindale EA. Can post-mortem examination of the placenta help determine the cause of stillbirth? *J Obstet Gynaecol* 2009;29:225–8.
35. Gardosi J, Francis A. Investigation of the clinical causes of stillbirth associated with maternal obesity. *Arch Dis Child Fetal Neonatal Ed* 2010;95:97.
36. Allanson ER, Tunçalp Ö, Gardosi J, Pattinson RC, Francis A, Vogel JP, et al. The WHO application of ICD-10 to deaths during the perinatal period (ICD-PM): results from pilot database testing in South Africa and United Kingdom. *BJOG* 2016;123:2019–28.
37. Miller ES, Minturn L, Linn R, Weese-Mayer DE, Ernst LM. Stillbirth evaluation: a stepwise assessment of placental pathology and autopsy. *Am J Obstet Gynecol* 2016;214:115.
38. Directorate of Health Statistics and Information. Vital statistics. Basic information Argentina - Year 2015 [<http://www.deis.msal.gov.ar/index.php/estadisticasvital>].
39. Chiavegatto Filho ADP, Laurenti R. The vulnerable male, or the sex ratio among fetal deaths in Brazil. *Cad Saúde Pública* 2012;28:720–8.
40. Fatusic Z, Fatusic J, Kapidzic M, Music A, Jasarevic E, Latifagic A, et al. Pregnancy complicated with late fetal death - analysis of causes. *J Perinat Med* 2013;41:797.
41. Zhu L, Xu H, Qin M. Analysis on perinatal deaths in Shanghai from 2005-2008. The First Maternity and Infant Health Institute Affiliated to Tongji University; 2009.
42. Wan H, Li S, Sun L. Clinical analysis of 121 cases of perinatal death. *Modern Preventive Medicine* 2010;37.
43. Song Y, Yang J, Fu C. Analysis on 182 perinatal death. *Maternal and Child Health Care of China* 2010.
44. Molina-Giraldo S, Solano-Montero AF, Gomez-Parra SR, Rojas-Arias JL, Acuna-Osorio E. Characterization of deaths fetal and associated factors in a Latin American institution of IV level of care. *Ginecol Obstet Mex* 2014;82:595–603.
45. National Administrative Department of Statistics. *Preliminary Fetal Deaths 2016*. Colombia: National Administrative Department of Statistics; 2017.
46. National Institute of Statistics and Censuses Costa Rica. Fetal deaths by province of residence, according to death cause subgroups, 2015 [http://www.inec.go.cr/genero?keys=fallecimientos&shs_term_node_tid_depth=All&field_periodo_tid=All&field_anio_documento_value%5Bvalue%5D%5Bdate%5D=2015].
47. Institute of National Statistics and Censuses. Yearbook births and deaths, 2016.
48. Hadavi M, Alidalaki S, Abedinnejad M, Akhavan S. Etiologies and contributing factors of perinatal mortality: a report from southeast of Iran. *Taiwan J Obstet Gynecol* 2011;50:145–8.
49. Instituto Nacional de Estadística y Geografía (Mexico). Estadística de defunciones fetales: Síntesis metodológica Aguasalientes, Mexico: Instituto Nacional de Estadística y Geografía; 2016 [http://internet.contenidos.inegi.org.mx/contenidos/Productos/prod_serv/contenidos/espanol/bvinegi/productos/nueva_estruc/702825070854.pdf].
50. Statistics and Census Bureau of Panamá. Estadística Panameña, Situación demográfica, Estadísticas Vitales Año 2014. Volumen II nacimientos vivos y defunciones fetales [Statistics Panamá, Demographic Situation, Vital Statistics. Vol.II Live Births and Fetal Deaths 2014] [http://www.contraloria.gob.pa/INEC/Publicaciones/Publicaciones.aspx?ID_SUBCATEGORIA=6&ID_PUBLICACION=710&ID_IDIOMA=1&ID_CATEGORIA=3]
51. Pattinson RC, Rhoda N. Saving Babies 2012–2013: Ninth report on perinatal care in South Africa. Pretoria, South Africa: MRC Unit for Maternal and Infant Health Care Strategies; 2014 [<https://www.ppip.co.za/wp-content/uploads/Saving-Babies-2012-2013.pdf>].
52. Talip Q, Theron G, Steyn W, Hall D. Total perinatally related losses at Tygerberg Hospital: A comparison between 1986, 1993 and 2006. *S Afr Med J* 2010;100:250–3.

53. Allanson ER, Muller M, Pattinson RC. Causes of perinatal mortality and associated maternal complications in a South African province: Challenges in predicting poor outcomes. *BMC Pregnancy Childbirth* 2015;**15**.
54. Suriname Stichting Algemeen Bureau Voor De Statistien. Suriname National Report: Mortality 0-4JR - Early neonatal, late neonatal, infants and child mortality 2010–2011.
55. Mo-Suwan L, Isaranurug S, Chanvitan P, Techasena W, Sutra S, Supakunpinyo C, et al. Perinatal death pattern in the four districts of Thailand: Findings from the prospective cohort study of Thai children (PCTC). *J Med Assoc Thai* 2009;**92**:660–6.
56. Duran SS, Kavuncuoğlu S, Sarı F, Aldemir EY, Kavçık N, Demir F. Assessment of perinatal mortality in two different periods: results of a single center. *Türk Pediatri Arsivi* 2016;**51**:128–34.
57. Korkmaz A, Akçören Z, Alanay Y, Özyüncü Ö, Yiğit S, Deren Ö, et al. Hacettepe Üniversitesi Hastanesi 2001-2006 dönemi perinatal mortalite analizi. *Çocuk Sağlığı ve Hastalıkları Dergisi* 2010;**53**:175–88.
58. Nkwabong E, Fomulu JN, Ambassa JL. Stillbirths at University Teaching Hospital, Yaounde, Cameroon. *Int J Gynaecol Obstet* 2012;**119**:87–8.
59. Der EM, Suta F, Azongo TB, Kubio C. Stillbirths at the West Gonja hospital in northern Ghana. *Journal of Medical and Biomedical Sciences*. 2016;**5**:1–7.
60. Alhassan A, Ayikai LA, Alidu H, Yakong VN. Stillbirths and associated factors in a peri-urban District in Ghana. *Journal of Medical and Biomedical Sciences* 2016;**5**:23–31.
61. Instituto Nacional de Estadística Guatemala. Defunciones fetales por sexo, según departamento de residencia de la madre y causas de la defunción, año 2015. Instituto Nacional de Estadística Guatemala,.
62. Bhattacharyya R, Pal A. Stillbirths in a referral medical college hospital, West Bengal, India: A ten-year review. *J Obstet Gynaecol Res* 2012;**38**:266–71.
63. Ujwala B, Alcock G, More NS, Sushmita D, Wasundhara J, Osrin D. Stillbirths and newborn deaths in slum settlements in Mumbai, India: a prospective verbal autopsy study. *BMC Pregnancy Childbirth* 2012;**12**.
64. Angolkar M, Kodkany BS. Validation of verbal Autopsy in perinatal deaths – A prospective study in Belgaum District, Karnataka, India. *International Journal of Medicine and Public Health* 2012;**2**:44–9.
65. Abha S, Alpna T. Re. Co. De.: A better classification for determination of stillbirths. *J Obstet Gynaecol India* 2011;**61**:656–8.
66. Aggarwal AK, Jain V, Kumar R. Validity of verbal autopsy for ascertaining the causes of stillbirth. *Bull World Health Org* 2011;**89**:31–40.
67. Kokila MS, Dwivedi AD. Audit of perinatal mortality at SSMCHRC-(Rural teaching hospital) a retrospective study. *Al Ameen J Med Sci* 2013;**6**:128–33.
68. Awoleke JO, Adanikin AI. Baird-Pattinson Aetiological Classification and Phases of Delay Contributing to Stillbirths in a Nigerian Tertiary Hospital. *J Pregnancy*. 2016:1–5.
69. Ugwa EA, Ashimi A. An assessment of stillbirths in a tertiary hospital in northern Nigeria. *J Matern Fetal Neonatal Med* 2015;**28**:1585–8.
70. Mutahir JT, Eka PO. Stillbirths at the Jos University Teaching Hospital: incidence, risk, and etiological factors. *Niger J Clin Pract* 2011;**14**:14–8.
71. Nausheen S, Soofi SB, Sadiq K, Habib A, Turab A, Memon Z, et al. Validation of verbal autopsy tool for ascertaining the causes of stillbirth. *PLoS One* 2013;**8**:1–10.
72. Ashraf R, Noor R, Zia A, Zeb S. To determine the outcome of stillbirth and risk factors of stillbirth babies. *Pak J Med Health Sci* 2016;**10**:594–6.
73. Wilkins A, Earnest J, McCarthy EA, Shub A. A retrospective review of stillbirths at the national hospital in Timor-Leste. *Aust N Z J Obstet Gynaecol* 2015;**55**:331–6.
74. Hirst JE, Ha LT, Jeffery HE. Reducing the proportion of stillborn babies classified as unexplained in Vietnam by application of the PSANZ clinical practice guideline. *Aust N Z J Obstet Gynaecol* 2012;**52**:62–6.
75. Turnbull E, Lembalemba MK, Guffey MB, Bolton-Moore C, Mubiana-Mbewe M, Chintu N, et al. Causes of stillbirth, neonatal death and early childhood death in rural Zambia by verbal autopsy assessments. *Trop Med Int Health* 2011;**16**:894–901.
76. Baqui AH, Choi Y, Williams EK, Arifeen SE, Mannan I, Darmstadt GL, et al. Levels, timing, and etiology of stillbirths in Sylhet district of Bangladesh. *BMC Pregnancy Childbirth* 2011;**11**:25.
77. Demise A, Gebrehiwot Y, Worku B, Spector JM. Prospective audit of avoidable factors in institutional stillbirths and early neonatal deaths at Tikur Anbessa hospital in Addis Ababa, Ethiopia. *Afr J Reprod Health* 2015;**19**:78–86.
78. Yirgu R, Molla M, Sibley L, Gebremariam A. Perinatal mortality magnitude, determinants and causes in West Gojam: Population-based nested case-control study. *PLoS One* 2016;**11**:e0159390
79. Andriamandimbison Z, Randriambololona DMA, Rasoanandrianina BS, Hery RA. Causes of intrauterine fetal deaths: 225 cases at Befelatanana Hospital, Madagascar. *Medecine et Sante Tropicales* 2013;**23**:78–82.
80. Uliana T, Liudmila S. The elucidation of antenatal foetal death causes in Republic of Moldova. *J Perinat Med* 2013;**41**:775.
81. Pradhan P, Poudel S, Maharjan A. Stillbirth - a tragic journey: A critical analysis. *Nepal Med Coll J* 2010;**12**:239–43.

82. Manandhar SR, Manandhar DS, Adhikari D, Shrestha J, Rai C, Rana H, et al. Analysis of health facility based perinatal verbal autopsy of electoral constituency 2 of Arghakhanchi District, Nepal. *J Nepal Health Res Counc* 2015;**13**:73–7.
83. Manandhar SR, Ojha A, Manandhar DS, Shrestha B, Shrestha D, Saville N, et al. Causes of stillbirths and neonatal deaths in Dhanusha district, Nepal: A verbal autopsy study. *Kathmandu Univ Med J* 2010;**8**:62–72.
84. Shrestha S, Sharma A, Upadhyay S, Rijal P. Perinatal mortality audit. *Nepal Med Coll J* 2010;**12**:257–9.
85. Engmann C, Ditekemena J, Jehan I, Garces A, Phiri M, Thorsten V, et al. Classifying perinatal mortality using verbal autopsy: is there a role for nonphysicians? *Popul Health Metr* 2011;**9**.
86. Lawn JE, Blencowe H, Oza S, You D, Lee ACC, Waiswa P, et al. Every newborn: Progress, priorities, and potential beyond survival. *Lancet* 2014;**384**:189–205.
87. Flenady V, King J, Charles A, Gardener G, Ellwood D, Day K, et al. PSANZ Clinical Practice Guideline for Perinatal Mortality. Woolloongabba, New Zealand: Perinatal Society of Australia and New Zealand Perinatal Mortality Group; 2009
[\[http://www.stillbirthalliance.org.au/doc/Section_1_Version_2.2_April_2009.pdf\]](http://www.stillbirthalliance.org.au/doc/Section_1_Version_2.2_April_2009.pdf).
88. Frøen JF, Pinar H, Flenady V, Bahrin S, Charles A, Chauke L, et al. Causes of death and associated conditions (Codac): A utilitarian approach to the classification of perinatal deaths. *BMC Pregnancy Childbirth* 2009;**9**:22.
89. MRC Unit for Maternal and Infant Health Care Strategies PU, National Department of Health. *Saving Babies 2002: Third Perinatal Care Survey of South Africa*. Pretoria, South Africa: MRC Unit for Maternal and Infant Health Care Strategies; 2002
90. Manning E, Corcoran P, Meaney S, Greene RA, Group obotPM. *Perinatal Mortality in Ireland Annual Report 2011*. Cork: National Perinatal Epidemiology Centre; 2013.
91. Wigglesworth JS. Monitoring perinatal mortality. A pathophysiological approach. *Lancet* 1980;**2**:684–6.
92. Korkmaz A, Akcoren Z, Alanay Y, Ozyuncu O, Yigit S, Deren O, et al. Perinatal mortality analysis from 2001-2006 at Hacettepe University Hospital. [Turkish]. *Cocuk Saglig ve Hastaliklar Dergisi* 2010;**53**:175–88.
93. Erdem G. Perinatal mortality in Turkey. *Paediatr Perinat Epidemiol* 2003;**17**:17–21.
94. Dudley DJ, Goldenberg R, Conway D, Silver RM, Saade GR, Varner MW, et al. A new system for determining the causes of stillbirth. *Obstet Gynecol* 2010;**116**:254–60.
95. Gardosi J, Kady SM, McGeown P, Francis A, Tonks A. Classification of stillbirth by relevant condition at death (ReCoDe): Population based cohort study. *BMJ* 2005;**331**:1113–7.
96. Kumbhare SA, Maitra NK. Aetiological Classification of Stillbirths: A Case Control Study. *J Obstet Gynaecol India* 2016;**66**:420–5.
97. Varli IH, Petersson K, Bottinga R, Bremme K, Hofsjo A, Holm M, et al. The Stockholm classification of stillbirth. *Acta Obstet Gynecol Scand* 2008;**87**:1202–12.
98. Lawn JE, Yakoob M, Haws RA, Soomro T, Darmstadt GL, Bhutta ZA. 3.2 million stillbirths: epidemiology and overview of the evidence review. *BMC Pregnancy Childbirth* 2009;**9**:S2.
99. Pattinson RC, De Jong G, Theron GB. Primary causes of total perinatally related wastage at Tygerberg Hospital. *S Afr Med J* 1989;**75**:50–3.
100. Korteweg FJ, Gordijn SJ, Timmer A, Erwich JJ, Bergman KA, Bouman K, et al. The Tulip classification of perinatal mortality: introduction and multidisciplinary inter-rater agreement. *BJOG* 2006;**113**:393–401.
101. Leisher SH, Teoh Z, Reinebrant H, Allanson E, Blencowe H, Erwich JJ, et al. Classification systems for causes of stillbirth and neonatal death, 2009–2014: An assessment of alignment with characteristics for an effective global system. *BMC Pregnancy Childbirth* 2016;**16**:269.
102. Leisher SH, Teoh Z, Reinebrant H, Allanson E, Blencowe H, Erwich JJ, et al. Seeking order amidst chaos: A systematic review of classification systems for causes of stillbirth and neonatal death, 2009–2014. *BMC Pregnancy Childbirth* 2016;**16**:295.
103. Perveen F, Tayyab S, Zuberi BF. Risk factors for perinatal deaths in Pakistan. *J Obstet Gynaecol Res* 2011;**37**:1359–64.
104. Khanum F. Perinatal mortality-one year analysis at tertiary care hospital of Peshawar. *Journal of Postgraduate Medical Institute* 2009;**23**:267–71.
105. World Health Organisation. *The WHO application of ICD-10 to deaths during the perinatal period: ICD-PM*. Geneva, Switzerland: WHO, 2016.