# Supplementary Material

## APPENDIX 1 - SEARCH STRATEGIES

**EMBASE**

|  |  |
| --- | --- |
| 1 | (exp spontaneous abortion/ and exp induced abortion) or (induced abortion and spontaneous abortion) |
| 2 | (exp Induced Abortion/ or (Pregnan$ adj3 Terminat$) or feticide or suction curettage.mp. or post-abortion.mp. or obstetrical extraction.mp. or (aborti$ NOT abortive)) NOT (exp spontaneous abortion/ or (spontaneous adj2 abortion$) or miscarriage$) |
| 3 | 1 or 2 |
| 4 | exp Intensive Care/ or exp Maternal Morbidity/ or exp hospitalization/ or exp Postoperative Complication/ or exp Coma/ or Sequele.mp. or sequelae.mp. or near miss.mp. or near-miss.mp or intensive care.mp. or (maternal adj2 morbidity.mp.) or samm.mp. or hospitalization$ or hospitalisation$ or complication$ or post-operative complications.mp. or adverse effect$ or adverse outcome$ or coma.mp. |
| 5 | exp Endotoxemia/ or exp Toxemia/ or exp Ovary Inflammation/ or exp Pelvic Inflammatory Disease/ or exp Sepsis/ or exp intrauterine infection/ or exp intrauterine infection/ or exp puerperal disorder/ or exp Systemic Inflammatory Response Syndrome/ or exp Septic Shock/ or exp Septicemia/ or exp Adnexitis/ or exp Peritonitis/ or exp Bacteremia/ or toxaemia.mp. or toxemia.mp. or Endotoxemia.mp. or Endotoxaemia.mp. or Oophoritis.mp. or pelvic infections.mp or sepsis.mp. or Endometritis/ or sepsis.mp. or septic.mp. or systemic inflammatory response syndrome.mp. or septic shock.mp. or septicaemia.mp. or septicemia.mp. or blood poisoning.mp. or endometritis.mp. or parametritis.mp. or Adnexitis.mp. or peritonitis.mp. or pelvic inflammatory disease.mp. or bacteraemia.mp. or bacteremia.mp. or salpingitis.mp. or salpingo-oophoritis.mp. or salpingo oophoritis.mp. or reproductive tract infections.mp. |
| 6 | exp Uterus Bleeding/ or exp bleeding/ or exp obstetric hemorrhage/ or exp Hemorrhagic Shock/ or exp Anemia/ or uterine bleeding.mp. or hemorrhag$.mp. or haemorrhag$.mp. or Shock, Hemorrhagic.mp. or hemorrhagic shock.mp. or afibrinogenaemia.mp. or defibrination syndrome.mp. or intravascular coagulation.mp. or retained product.mp. or retained placenta.mp. or blood tranfusion.mp. or hypovolemi$.mp. or hypovolaemi$.mp. or anemia.mp. |
| 7 | exp Amnion Fluid Embolism/ or exp Embolism/ or exp Lung Embolism/ or Amnion Fluid Embolism.mp. or embolism.mp. or (pulmonary and infarction$) or thromboembolism$.mp. |
| 8 | exp Shock/ or exp Multiple Organ Failure/ or Shock.mp. or Multi-organ failure.mp. or Multi organ failure.mp. or circulatory collapse.mp. or multiple organ dysfunction syndrome.mp. or mods.mp. |
| 9 | exp Kidney Failure/ or exp Oliguria/ or Kidney failure$.mp. or renal failure$.mp. or renal insufficienc$.mp. or kidney tubular necrosis.mp. or renal tubular necrosis.mp. or oliguria.mp. |
| 10 | exp Uterus Perforation/ or ((Uterine or pelvi$ or cervical or cervix or uterus or genital$) and (perforation$ or laceration$ or tear$ or damage$ or trauma or injur$)) or fistula$.mp. |
| 11 | exp Suicide/ or exp Depression/ or exp Neurosis/ or exp Psychosis/ or suicide.mp. or Depression.mp. or poison$.mp or depressive.mp. or suicid$.mp. or depressive disorder.mp. or neurosis.mp. or neuroses.mp. or neurotic.mp. or melancholi$.mp or psychot$.mp. or psychos$.mp. or pyschiatri$.mp. |
| 12 | exp Female Infertility/ or sterile.mp. or sterility.mp. or infertile$.mp. or barren.mp. |
| 13 | exp Maternal Mortality/ or maternal mortality.mp. or ((pregnan$ or parturition.mp. or exp Pregnancy Complication/ or maternal.mp. or pregnancy.mp. or Pregnancy/ or Pregnancy Disorder/ or exp Expectant Mother/ or exp Mother/ or mother$.mp. or Parturition.mp. or childbirth.mp. or exp Childbirth/) and (exp Death/ or "Cause of Death"/ or death.mp. or exp Mortality/ or mortali$.mp. or fatalit$.mp.)) |
| 14 | 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 |
| 15 | 3 AND 13 |

**Medline (OVID)**

|  |  |
| --- | --- |
| 1 | (exp Spontaneous Abortion/OR spontaneous abortio\*.mp) AND (exp induced abortion/OR induced abortio\*.mp.) |
| 2 | (exp Induced Abortion/ OR (Pregnan\* adj3 Terminat\*).mp. OR f?eticid\*.mp. OR exp Curettage/OR suction curettage .mp. OR post?abortion.mp. OR obstetrical extraction.mp. OR (aborti\* NOT abortive).mp OR (dilatation adj2 (extract\* OR curettage)).mp.) |
| 3 | (exp spontaneous abortion/ OR (spontan\* adj2 abortio\*) OR miscarriage\*) NOT 1 |
| 4 | 2 NOT 3 |
| 5 | exp morbidity/OR exp Intensive Care/ OR exp hospitalization/ OR exp Postoperative Complications/ OR exp Coma/ OR sequel?e.mp. OR near-miss.mp. OR intensive care.mp. OR (maternal adj2 morbidit\*.mp.) OR samm.mp. OR hospitali#atio\*.mp. Or complication\*.mp. OR post?operative complication\*.mp. OR adverse effect\*.mp. Or adverse outcome\*.mp. OR coma.mp. |
| 6 | exp Endotoxemia/ OR exp Toxemia/ OR exp Pelvic Inflammatory Disease/OR exp Sepsis/ OR exp puerperal disorder/ OR exp Systemic Inflammatory Response Syndrome/ OR exp Septic Shock/ Or exp Septicaemia/ OR exp Adnexitis/ OR exp Peritonitis/ OR exp Bacteremia/ OR exp Reproductive Tract infections/ OR tox?emia.mp. OR Endotox?emia.mp. OR Oopohoritis.mp. OR (pelvi\* ADJ2 (infection\* OR inflammat\*)).mp. OR sepsis.mp. OR septic\*.mp. OR septic shock.mp. OR septic?emia.mp. OR systematic inflammatory response syndrome .mp. OR blood poisoning.mp. Or endometritis.mp. OR parametritis.mp. OR adnexitis.mp. OR peritonitis.mp. OR pelvic inflammatory disease.mp. OR bacter?emi\*.mp. OR salpingitis.mp. OR salpingo-oophoritis.mp. OR reproductive tract infection\*.mp. |
| 7 | exp Uterine Hemorrhage/OR exp Hemorrhage/OR exp Postoperative haemorrhage/OR exp Afibrinogenemia OR exp Hemorrhagic shock/OR exp Anemia/OR (uter\* ADJ (bleeding OR h?emorrhage)).mp. OR h?emorrhag\*.mp. OR h?emorrhag\* shock.mp. OR afibrinogen?emia.mp. OR defibrination syndrome.mp. OR intravascular coagulation.mp. OR (retained ADJ (product\* OR placenta)).mp. OR blood tranfusion.mp. OR hypovol?emi\*.mp. OR an?emia.mp. |
| 8 | exp Embolism OR exp Thromboembolism/OR amniotic fluid embol\*.mp. OR emboli\*.mp. OR embolus.mp. OR pulmonary embol\*.mp. OR thromboembol\*.mp. |
| 9 | exp Shock/OR exp Multiple Organ Failure/OR Shock.mp. OR Multi-organ failure.mp. OR circulat\* collapse.mp. OR multiple organ dysfunction syndrome.mp. OR mods.mp. |
| 10 | Exp Renal Insufficiency/OR exp Oliguria/OR ((Kidney OR renal)ADJ (fail\* OR insufficienc\* OR tubular necrosis)).mp. OR oliguria.mp. |
| 11 | Exp Uterine Rupture/OR ((Uter\* OR pelvi\* OR cervi\* OR genital\*)AND (perforat\* OR lacerat\* OR tear\* OR damage\* OR trauma OR injur\* OR rupture\*)).mp. OR fistula\*.mp. |
| 12 | Exp Maternal Mortality/OR maternal mortality.mp. OR ((exp Pregnancy Complications/ OR exp Pregnancy/OR exp Mothers/OR (pregnan\* OR parturition OR maternal OR mother\* OR childbirth).mp.) AND (exp Death/OR exp Mortality/OR death.mp. OR mortalit\*.mp. OR fatalit\*.mp.)) |
| 13(‘all  morbidity’) | 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 |
| 14 final search | 4 AND 13 |

**POPLINE**

Keyword search: Abortion AND morbidit\* OR hemorrhage OR sepsis OR perforat\*

**LILACS**

abortion AND (sequelae or maternal morbidity or sepsis or septicemia or haemorrhage or hemorrhage or shock or embolism or emboli or Oliguria or kidney failure or fistula or perforation or laceration or maternal mortality or maternal death or coma or intensive care)

**AIM IMEMR**

Keyword search: “abortion”

## 

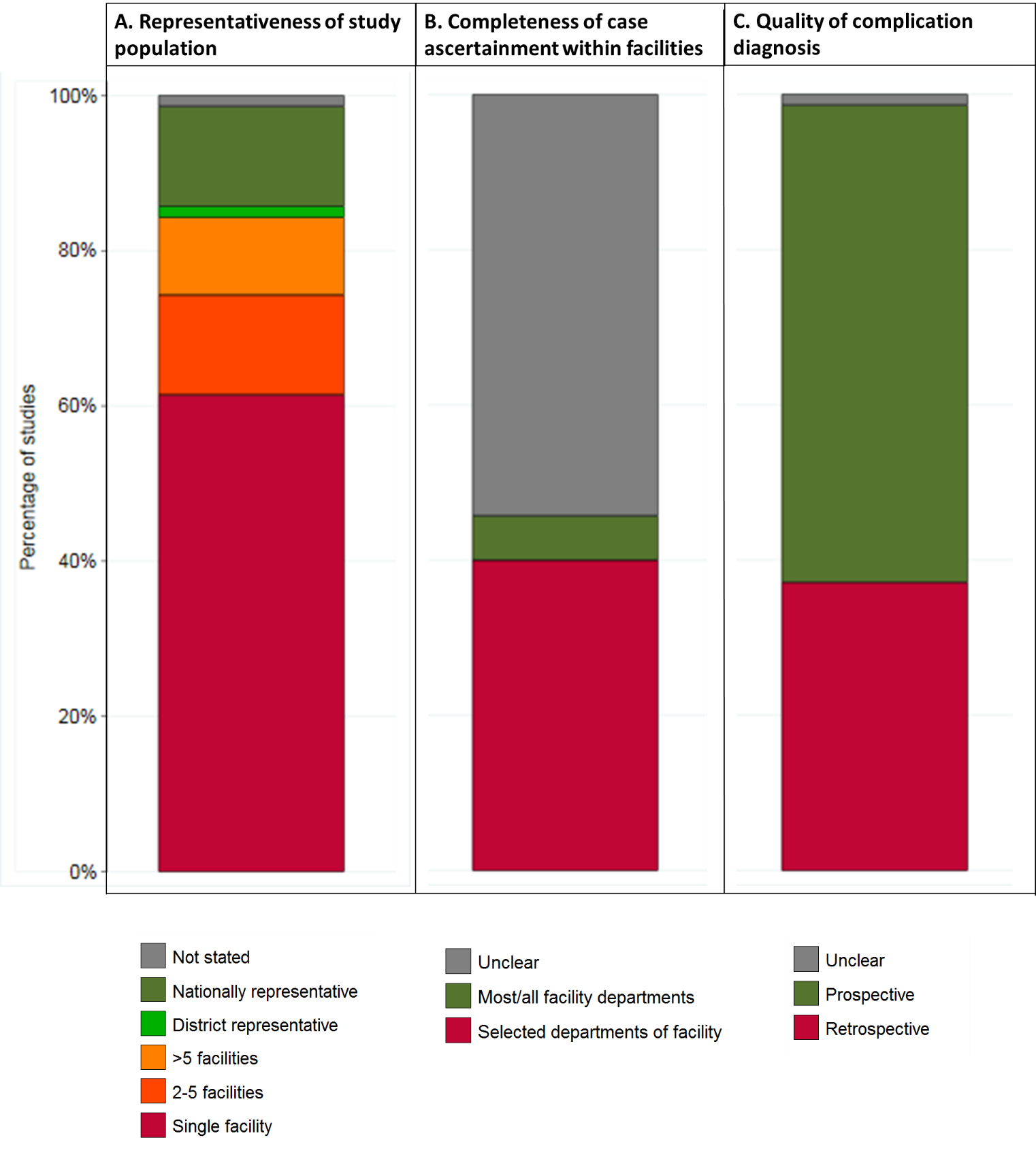
## APPENDIX 2 – SUPPLEMENTARY TABLES

Supplementary Table 1: Classification of reported morbidities as near miss, severe or not severe/unspecified

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Haemorrhage** | **Sepsis** | **Injury** | **Anaemia** |
| **Near miss** | Haemorrhagic shock  Blood transfusion [include only if >=5 units of blood] | Septic shock  Generalised peritonitis  Gangrenous uterus | Bowel perforation  Intestinal perforation  Intestine injury  Gut perforation  Gut injury  Visceral perforation  Bowel injury | Anaemia with cardiac failure |
| **Severe** | Massive vaginal bleeding  Excessive blood loss  “Haemorrhage as a potential life threatening complication”  Heavy bleeding  Blood transfusion [include only if >=2 units of blood] | Sepsis  Septicaemia  Tubovarian abscess  Tetanus  “Infection as a potential life-threatening complication”  Bacteria Endocarditis  Acute abdomen |  | Anaemia HB< 6 g/l  Anaemia with blood transfusion |
| **Not severe/ unspecified** | Bleeding per vaginum  Genital haemorrhage  Mild to moderate bleeding  Cervical bleeding  Vaginal bleeding  Bleeding uterus  Haemorrhage leading to anaemia  Abnormal uterine bleeding  Haemorrhage and incomplete abortion | Pelvic inflammatory disease  Infection  Septic abortion  Pelvic abscess  Endometritis  Pelvic peritonitis  Pelvic infection  Salpingitis  Offensive discharge  Abnormal vaginal discharge  Vaginal discharge  Tender uterus  Purulent discharge  Abdomino-pelvic abscess  Genital sepsis | Uterine perforation  Vaginal injury  Bladder injury  Genital trauma  Mechanical injury  Soft tissue injury  Cervical laceration  Vaginal laceration  “Mechanical injury to, or foreign body in, the vagina, cervix, uterus, intra-abdominal area”  Foreign body  Injury  Chemical vaginitis  Cervical tear  Vaginal tear  Mechanical lesions  Rectal fistula  Vesico vaginal fistula  Bowel fistulae  Faecal fistula | Anaemia |

Supplementary Table 2: Key characteristics of studies included in the review

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Author, year** | **Region, country** | **Study design, study dates** | **Sampling framework** | **Sample population** |
| **Africa** | | | | |
| Ouattara et al, 2015([1](#_ENREF_1)) | Ouagadougou, Burkina Faso | Prospective record review, 1 year, 2012-2013 | Single University hospital centre | 111 women diagnosed with complications of unsafe abortion (abortions up to 16 weeks of pregnancy identified) |
| Rossier et al, 2006([2](#_ENREF_2)) | Ouagadougou, Burkina Faso | Prospective record review, 4 months, 2001 | Five health centres (sampling framework unknown, but selected as all equipped to treat severe abortion complications) | 464 women admitted for post abortion care (less than 28 weeks of pregnancy) |
| Nkwabong et al, 2014([3](#_ENREF_3)) | Yaounde, Cameroon | Retrospective record review, 6 months, 2012 | One teaching hospital and one tertiary hospital | 94 women with clandestine abortions presenting at the hospital (1st and 2nd trimester) |
| Goyaux et al, 1999([4](#_ENREF_4)) | Abidjan, Cote D'Ivoire | Retrospective record review, 3 years, 1993-95 | Single University hospital | 472 women admitted with complications due to abortion (gestational age for inclusion unclear) |
| Huntington et al, 1998([5](#_ENREF_5)) | National, Egypt | Prospective records, 30 days, 1996 | 86 facilities (15% random sample of public hospitals, sampled proportional to size) | 4153 women with complications due to induced or spontaneous abortion (gestational age for inclusion unclear) |
| Gessessew, 2010([6](#_ENREF_6)) | Tigray, Ethiopia | Structured questionnaire and record review, 2 years, 2002-04 | Single tertiary hospital | 367 gynaecological admissions with abortion diagnosis who reported unwanted pregnancy (1st and 2nd trimester) |
| Gerdts et al, 2012([7](#_ENREF_7)) | Tigray, Ethiopia | Prospective record review and patient exit interview, 1 year, 2009-10 | 30 health facilities (all hospitals (n=4), health centres with highest volume of referrals to hospital (n=12), health posts which referred to selected health centres (n=14)) | 215 women who sought services for treatment of incomplete abortion (gestational age for inclusion unclear) |
| Yusuf and Zein, 2001([8](#_ENREF_8)) | Gondar, Ethiopia | Retrospective record review, 5 years, 1988-1993 | Single University hospital | 276 women with incomplete induced or spontaneous abortion (1st and 2nd trimester) |
| Mekbib et al, 2007([9](#_ENREF_9)) | 9 regions, Ethiopia | Prospective questionnaires, 6 months, 2000 | 15 hospitals (sampling framework unknown) | 1075 women with complications due to induced or spontaneous abortion (gestational age for inclusion unclear) |
| Gebrehiwot and Liabsuetrakul, 2009([10](#_ENREF_10)) | Addis Ababa, Ethiopia | Retrospective record review, 5 years, 2003-07 | Single University hospital | 773 women with abortion complications (gestational age for inclusion unclear) |
| Gebreselassie et al, 2010([11](#_ENREF_11)) | National, Ethiopia | Prospective record, 5 months, 2007-08 | All public (n=90), private/NGO hospitals (n=39), and NGO reproductive health clinics (n=24); stratified random sample of public health centres (n=158) and high level private clinics (n=33) | 1932 women presenting with complications from incomplete, missed, inevitable, complete or septic abortion (less than 28 weeks of pregnancy) |
| Damalie et al, 2014([12](#_ENREF_12)) | Kumasi, Ghana | Prospective records, 4 months, 2010 | Single tertiary hospital | 252 women who were admitted to the gynaecological ward with a history or evidence of induced abortion (gestational age for inclusion unclear) |
| Lassey, 1995([13](#_ENREF_13)) | Accra, Ghana | Retrospective record review, 1 year, 1993-94 | Single tertiary hospital | 200 women with complications due to induced abortion (gestational age for inclusion unclear) |
| Srofenyoh and Lassey, 2003([14](#_ENREF_14)) | Accra, Ghana | Retrospective record review, 1 year, 2000 | Single teaching hospital | 202 women with complications due to induced, spontaneous or missed abortion (gestational age for inclusion unclear) |
| Ziraba et al, 2015([15](#_ENREF_15)) | National, Kenya | Prospective survey, 30 days, 2012 | Overall 326 facilities participated, including all level regional and national level referral facilities were included, and a random sample of lower level facilities. | 2620 women seeking post abortion care for complications of either a spontaneous miscarriage or unsafe termination of pregnancy (less than 24 weeks of pregnancy) |
| Gebreselassie et al, 2005([16](#_ENREF_16)) | National, Kenya | Retrospective record review, 5 months, 2002 | All public referral (n=2) and provincial hospitals (n=7) and a random sample of one district hospital per district (n=51) | 809 women with diagnosis of incomplete induced or spontaneous abortion (less than 22 weeks of pregnancy) |
| Kalilani-Phiri et al, 2015([17](#_ENREF_17)) | National, Malawi | Prospective records, 2 months, 2009 | All public, NGO and private hospitals and health centres, and one third of private clinics that provide post abortion care, giving a final sample of 91 government facilities, 62 NGO facilities, and eight private facilities. | 2067 woman presenting with a diagnosis of incomplete, inevitable, missed or complete abortion (gestational age for inclusion unclear) |
| Laghzaoui, 2016([18](#_ENREF_18)) | Meknes, Morocco | Retrospective study, 6 years, 2009-14 | Single military hospital | 451 women admitted with unsafe abortion (gestational age for inclusion unclear) |
| Machungo et al, 1997([19](#_ENREF_19)) | Maputo, Mozambique | Prospective records/interviews, study dates unknown | Single central hospital | 103 women admitting to having had an illegal abortion (gestational age for inclusion unclear) |
| Adeniji et al, 2013([20](#_ENREF_20)) | Osogbo, Nigeria | Retrospective record review, 5 years, 2005-09 | Single teaching hospital | 225 cases of abortions with complications (less than 26 weeks of pregnancy) |
| Abiodun et al, 2013([21](#_ENREF_21)) | Ekiti state, Nigeria | Retrospective record review, 5 years, 2005-09 | Single Federal medical centre | 96 women admitted with complications of unsafe abortion (1st and 2nd trimester) |
| Ibrahim and Onwudiegwu, 2012([22](#_ENREF_22)) | Okolobiri, Bayelsa state, Nigeria | Retrospective record review, 4 years, 2007-10 | Single teaching hospital | 63 cases of unsafe abortions (gestational age for inclusion unclear) |
| Kalu et al, 2012([23](#_ENREF_23)) | Ebonyi, Nigeria | Retrospective record review, 5 years, 2004-09 | Single teaching hospital | 522 women with post abortion complications (less than 28 weeks of pregnancy) |
| Awusi and Okelele, 2010([24](#_ENREF_24)) | Oleh, Delta State, Nigeria | Retrospective record review, 5 years, 2004-08 | Single district referral hospital | 87 women admitted and treated for complications of induced abortion (1st and 2nd trimester) |
| Ikeanyi and Okonkwo, 2014([25](#_ENREF_25)) | Benin City, Nigeria | Retrospective record review, 5 years, 2009-13 | Single teaching hospital | 111 women managed for induced abortion complications (1st and 2nd trimester) |
| Anate et al, 1995([26](#_ENREF_26)) | Illorin, Nigeria | Prospective interviews and record review, 2 years, 1992-94 | Single University hospital | 144 women with complications due to induced abortion (gestational age for inclusion unclear) |
| Sule-Odu, 2002([27](#_ENREF_27)) | Sagamu, Nigeria | Retrospective record review, 10 years, 1988-1997 | Single University hospital | 102 women with complications due to induced abortion (less than 28 weeks of pregnancy) |
| Ikechebelu and Okoli, 2003([28](#_ENREF_28)) | Nnewi, Nigeria | Retrospective record review, 5 years, 1996-2000 | Single University hospital | 76 women with complications of illegally induced abortion (1st and 2nd trimester) |
| Igberase and Ebeigbe, 2008([29](#_ENREF_29)) | Edu, Niger Delta, Nigeria | Retrospective record review, 10 years, 1994-2003 | Single tertiary missionary hospital | 118 women with complications due to induced abortion (less than 28 weeks of pregnancy) |
| Henshaw et al, 2008([30](#_ENREF_30)) | Eight States, Nigeria | Prospective records/interviews, 11 months, 2002-03 | 33 purposively selected hospitals (seven tertiary, 10 public secondary, 14 private and two mission hospitals) | 2093 women treated at hospital with induced or spontaneous abortion (gestational age for inclusion unclear) |
| Goyaux et al, 2001([31](#_ENREF_31)) | Dakar in Senegal; Akonolinga, Mbalmayo, Obala and Niete in Cameroon; and Cotonou in Benin | Prospective records/ interviews, 26 months, 1993-95 | Four maternity units in Senegal, four district hospitals in Cameroon, and three maternity units in Benin | 969 women with complications due to induced abortion (gestational age for inclusion unclear) |
| Basu and Basu, 2013([32](#_ENREF_32)) | Johannesburg, South Africa | Retrospective record review, 1 year, 2008-2009 | Single tertiary hospital | 85 women presenting with complications arising from termination of pregnancy (less than 34 weeks of pregnancy) |
| Rees et al, 1997([33](#_ENREF_33)) | National, South Africa | Prospective record review, 6 weeks, 1994 | Overall 56 facilities were sampled, including all public hospitals with >800 beds, and a random sample of smaller hospitals | 803 women with incomplete induced or spontaneous abortion (less than 22 weeks of pregnancy) |
| Jewkes et al, 2005([34](#_ENREF_34)) | National, South Africa | Prospective record review, 21 days, 2000 | Random sample of public hospitals, stratified by province and hospital category (n=47) | 760 women with incomplete induced or spontaneous abortion, excluding women with threatened abortions or who reported legal abortion (less than 22 weeks of pregnancy) |
| Rasch et al, 2000([35](#_ENREF_35)) | Dar es Salaam, Tanzania | Prospective interviews and record review, 104 days, 1997 | Single district hospital and single medical centre | 823 women with diagnosis of incomplete abortion from induced or spontaneous abortion (medical centre n=220, district hospital n=603) (gestational age for inclusion unclear) |
| Rasch and Kipingili, 2009([36](#_ENREF_36)) | Kagera & Dar es Salaam, Tanzania | Prospective interviews and record review, 7 months in 2003 & 8 months in 2006 | Single regional and single municipal hospital | 452 women with complications from alleged miscarriages later identified as having an induced abortion (regional hospital n=173, municipal hospital n=279) (gestational age for inclusion unclear) |
| Nakimuli et al, 2016([37](#_ENREF_37)) | Mulago and Jinja, Uganda | Prospective records, 1 year, 2013-14 | Single national referral hospital and single regional referral hospital | 69 women with abortion-related complications (gestational age for inclusion unclear) |
| Mellerup et al, 2015([38](#_ENREF_38)) | South-West, Uganda | Retrospective record review, 64 months, 2007-12 | Single rural hospital | 238 women admitted with incomplete, threatened, inevitable, missed and septic abortion (1st and 2nd trimester) |
| Rutgers, 2001([39](#_ENREF_39)) | 6 districts in Metebeleland North Province, Zimbabwe | Prospective record review, 6 months, 2000 | Four government and two mission hospitals (one from each district, sampling strategy unclear) | 355 women admitted with complications of abortion (1st and 2nd trimester) |
| **Asia** | | | | |
| Fetters et al, 2008([40](#_ENREF_40)) | National, Cambodia | Prospective record review, 21 days, 2005 | All public hospitals (N=71) and nationally representative sample of health centres (N=115) | 629 women presenting with complications from miscarriages and terminations (less than 22 weeks of pregnancy) |
| Singh et al, 2012([41](#_ENREF_41)) | Rural Orissa, India | Retrospective record review, 1 year, 2010 | Single maternity hospital | 60 women admitted with history of unsafe abortion (1st, 2nd and 3rd trimester) |
| Fallahian and Mohammad-Zadeh, 2005([42](#_ENREF_42)) | Tehran, Iran | Prospective interviews, study duration unknown, 2002 | Single tertiary hospital | 75 women who attempted to induce abortion and were admitted to hospital (gestational age for inclusion unclear) |
| Majilessi et al, 2008([43](#_ENREF_43)) | Isfahan, Iran | Prospective interviews and record review, 8 months, 2003 | Nearly all hospitals with > 5 deliveries per week (n=8) | 417 women with complications due to induced and spontaneous abortion (less than 20 weeks of pregnancy) |
| Henderson et al, 2013([44](#_ENREF_44)) | Kathmandu & Terai region, Nepal | Retrospective record review, 10 years, 2001-10 | Four purposively selected large public referral hospitals serving predominantly poor women | 23493 cases of abortion complications (less than 29 weeks of pregnancy) |
| Regmi et al, 2010([45](#_ENREF_45)) | Dharan, Nepal | Retrospective record review, 3.5 years, 2005-08 | Single university hospital | 70 abortion-related admissions (gestational age for inclusion unclear) |
| Faruqi et al, 2011([46](#_ENREF_46)) | Lahore, Pakistan | Prospective interviews and record review, 1 year, 2009-10 | Single hospital | 41 women admitted as emergency cases with history of unsafe abortion (gestational age for inclusion unclear) |
| Majeed et al, 2011([47](#_ENREF_47)) | Lahore, Pakistan | Prospective interviews and record review, 6 months, 2010-2011 | Single hospital | 60 women admitted as emergency cases with history of unsafe abortion (less than 25 weeks of pregnancy) |
| Naghma e., 2011([48](#_ENREF_48)) | Lahore, Pakistan | Prospective interviews, 6 months, 2008 | Four tertiary care hospitals, selected through random sampling of all tertiary hospitals in Lahore | 100 women admitted with complications of unsafe abortions (gestational age for inclusion unclear) |
| Sadaf et al, 2013([49](#_ENREF_49)) | Peshawar, Pakistan | Prospective observation, 2 years, 2008-10 | Single hospital | 40 women with illegal induced abortion (gestational age for inclusion unclear) |
| Shaikh et al, 2010([50](#_ENREF_50)) | Hyderabad, Pakistan | Prospective record review, 1 year, 2008-09 | Single teaching hospital | 50 cases with history of termination by skilled or unskilled personnel, at a location outside the study facility (less than 23 weeks of pregnancy) |
| Rashid and Tariq, 2010([51](#_ENREF_51)) | Lahore, Pakistan | Prospective interviews and record review, 1 year, 2009-10 | Single teaching hospital | 87 women with records of unsafe abortion (gestational age for inclusion unclear) |
| Zia, 2012([52](#_ENREF_52)) | Lahore, Pakistan | Prospective interviews and record review, 1.5 years, 2009-10 | Single tertiary hospital | 105 women with abortions induced illegally outside of the hospital (1st and 2nd trimester) |
| Shaikh et al, 2014([53](#_ENREF_53)) | Larkana, Pakistan | Prospective record review, 2 years, 2010-11 | Single tertiary hospital | 60 women who had an abortion induced outside the facility, and presented with a complication (less than 23 weeks of pregnancy) |
| Tayyba and E-Raana, 2015([54](#_ENREF_54)) | Lahore, Pakistan | Prospective observation, 3 years, 2008-11 | Single hospital | 59 women admitted with complicated unsafe abortion (gestational age for inclusion unclear) |
| Najmi, 1998([55](#_ENREF_55)) | Lahore, Pakistan | Prospective interviews and record review, 4 years, 1992-96 | Single tertiary hospital | 72 women with complications from self-reported illegally induced abortions (gestational age for inclusion unclear) |
| Saeed, 2002([56](#_ENREF_56)) | Islamabad, Pakistan | Prospective interviews, 1 year, 1999-2000 | Single tertiary hospital | 52 women with complications of induced abortion (less than 21 weeks of pregnancy) |
| Korejo et al, 2003([57](#_ENREF_57)) | Karachi, Pakistan | Prospective interviews and record review, 2.5 years, 1999-2001 | Single tertiary hospital | 57 women with complications of and giving history of induced abortion (gestational age for inclusion unclear) |
| Kitulwatte and Edirisinge, 2015([58](#_ENREF_58)) | Region not stated, Sri Lanka | Retrospective record review, 5 years, study dates unknown | Unknown | 51 women who had been referred for medicolegal examination and had reported induced abortion (gestational age for inclusion unclear) |
| Srinil, 2011([59](#_ENREF_59)) | Khon Kaen, Thailand | Retrospective record review, 1 year, 2008 | Single hospital | 170 women admitted with complications from unsafe abortion (less than 29 weeks of pregnancy) |
| Warakamin et al, 2004([60](#_ENREF_60)) | National, Thailand | Prospective record review, 1 year, 1999 | All regional (n=25) and provincial hospitals (n=67); nearly all district (n=674) and other (n=21) hospitals | 46028 women with complications due to induced or spontaneous abortion (less than 28 weeks of pregnancy) |
| Phaumvichit and Chaneying, 2012([61](#_ENREF_61)) | Songkla, Thailand | Retrospective record review, 22 months, 2009-10 | Single tertiary hospital | 92 women admitted with an illegal induced abortion (less than 28 weeks of pregnancy) |
| **Latin America** | | | | |
| Santana et al, 2012([62](#_ENREF_62)) | National, Brazil | Prospective record review, 1 year, 2009-10 | 27 referral obstetric units (sampling strategy unknown) | 237 women admitted with severe maternal morbidity due to abortion (less than 22 weeks of pregnancy) |
| Adesse et al, 2015([63](#_ENREF_63)) | Rio De Janeiro, Brazil | Record review, 4 months, 2012 | Single maternity hospital | 117 women diagnosed with abortion on admission (less than 22 weeks of pregnancy) |
| Domingos et al, 2011([64](#_ENREF_64)) | Caratinga, Brazil | Prospective interviews and record review, 4 months, 2008 | Single charity hospital | 44 women with a diagnosis of abortion (gestational age for inclusion unclear) |
| Costa and Vessey, 1993([65](#_ENREF_65)) | Rio De Janeiro, Brazil | Prospective record review, 8 months, 1991 | 7 public hospitals (sampling strategy unknown) | 803 women with abortion-related complications from induced abortion (less than 28 weeks of pregnancy) |
| Coelho et al, 1993([66](#_ENREF_66)) | Fortaleza, Brazil | Retrospective record review, 1 year, 1991 | Single obstetric hospital | 593 women admitted for uterine evacuation related to an induced abortion (gestational age for inclusion unclear) |
| Misago et al, 1998([67](#_ENREF_67)) | Fortaleza, Brazil | Prospective records and interviews, 1 year, 1992-93 | Two largest public maternity hospitals that mainly serve the poor | 4359 women admitted with the diagnosis of induced or spontaneous abortion (gestational age for inclusion unclear) |
| Souza et al, 1995([68](#_ENREF_68)) | Recife, Brazil | Prospective interview, 1 year, 1994-95 | Single tertiary hospital | 230 women hospitalised for treatment of complications of abortion (gestational age for inclusion unclear) |
| Kestler et al, 2006([69](#_ENREF_69)) | National, Guatemala | Prospective record review, 18 months, 2003-04 | 22 of 33 public sector district hospitals | 13928 women with incomplete abortion (gestational age for inclusion unclear) |
| Rojas et al, 1992([70](#_ENREF_70)) | Mexico City, Mexico | Prospective record review, 1 year, study dates unknown | Single tertiary hospital | 316 women with diagnosis of abortion (<21 weeks of pregnancy) |



Supplementary Figure 1: Risk of bias assessment of studies

Supplementary Table 3: Number of abortion cases with complications, and number and percentage of these abortion cases classified as severe, near miss or death

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Abortion admissions** | | **Abortion cases with complications breakdown** | | **Severe complications** | | **Near miss complications** | | **Death** |
| Definition | N | Definition | N | Definition | N (%) | Definition | N (%) | N (%) |
| **Africa** | | | | | | | | | |
| Ouattara et al, 2015, Burkina Faso ([1](#_ENREF_1)) | Total number of abortions | 461 | Women with complications due to unsafe abortion | 111 | - | - | - | - | 6 (5.4%) |
| Rossier et al, 2006, Burkina Faso ([2](#_ENREF_2)) | - | - | Women with complications due to induced abortion | 464 | - | - | Hypovolemic shock | 9 (2.0%) | - |
| Nkwabong et al, 2014, Cameroon ([3](#_ENREF_3)) | - | - | Women with clandestine abortions presenting at the hospital | 94 | - | - | Hypovolemic shock OR generalised peritonitis OR septic shock | 20 (21.3%) | 2 (2.1%) |
|  |  | Women with clandestine abortions presenting at the hospital – first trimester | 74 | - | - | 15 (20.3%) | 1 (1.4%) |
|  |  | Women with clandestine abortions presenting at the hospital – second trimester | 20 | - | - | 5 (25.0%) | 1 (5.0%) |
| Goyaux et al, 1999, Cote D'Ivoire ([4](#_ENREF_4)) |  |  | Women with complications due to induced abortion | 472 | - | - | - | - | 17 (3.6%) |
| Huntington et al, 1998, Egypt ([5](#_ENREF_5)) | - | - | Women with complications due to induced or spontaneous abortion | 4153 | - | - | Signs of shock | 216 (5.2%) | 18 (0.4%) |
| Gessessew, 2010, Ethiopia ([6](#_ENREF_6)) | Women with unwanted pregnancies admitted as abortion cases | 630 | Women with complications of abortion from an unwanted pregnancy | 367 | - | - | Hypovolemic shock OR generalised peritonitis OR septic shock OR renal failure | 169 (46.0%) | 3 (0.8%) |
| Gerdts et al, 2012, Ethiopia ([7](#_ENREF_7)) | All women who sought treatment of incomplete abortion | 266 | Women with severe complications (defined as any of the following: temperature>37.9oC, pulse>120 beats per minute, evidence of shock sepsis, uterine perforation, or intrauterine fetal death ) | 215 | - | - | Evidence of shock | 14 (6.5%) | - |
| Yusuf and Zein, 2001, Ethiopia ([8](#_ENREF_8)) | Number of women with abortion | 1191 | Women with complications due to induced or spontaneous abortion | 276 | - | - | Shock OR renal failure OR heart failure | 47 (17.0%) | 4 (1.4%) |
| Mekbib et al, 2007, Ethiopia ([9](#_ENREF_9)) | - | - | Women with complications due to induced or spontaneous abortion | 1075 | - | - | Shock + septic shock | 36 (3.3%) | 13 (1.2%) |
| Gebrehiwot and Liabsuetrakul, 2009, Ethiopia ([10](#_ENREF_10)) | - | - | Women with abortion complications (all) | 773 | Any of the following: temperature≥38oC, organ failure, generalized peritonitis, pulse≥120, shock, death, foreign body or mechanical injury on evacuation | 168 (21.7%) | Septic shock **+** haemorrhagic shock | 87 (11.3%) | 18 (2.3%) |
| - | - | Women with abortion complications (pre legalisation) | 598 | 130 (21.7%) | 68 (11.4%) | 10 (1.7%) |
|  |  | Women with abortion complications (≤12 weeks gestation) | 361 |  |  |  |  | 4 (1.1%) |
|  |  | Women with abortion complications (>12 weeks gestation) | 315 |  |  |  |  | 9 (2.9%) |
|  |  | Women with abortion complications (unknown gestation) | 97 |  |  |  |  | 5 (5.2%) |
| Gebreselassie et al, 2010, Ethiopia([11](#_ENREF_11)) | - | - | Women presenting with complications from incomplete, missed, inevitable, complete or septic abortion | 1932 | Any of the following:  signs of infection, evidence of shock, mechanical or foreign body injury, elevated pulse, organ failure or generalised peritonitis | 522\* (27.0%) | One of more signs of organ failure: DIC, coma, respiratory distress or other signs | 39\* (2.0%) | 4\* (0.2%) |
| Damalie et al, 2014, Ghana ([12](#_ENREF_12)) | - | - | Women admitted to the gynaecological ward with a history or evidence of induced abortion (all) | 252 | Any of the following: length of hospital stay >24 hours, need for blood transfusion, parenteral antibiotics, laparotomy, temperature≥38oC, peritonitis, shock and deranged renal or liver function tests | 182 (72.2%) | - | - | - |
| - | - | Women admitted to the gynaecological ward with a history or evidence of induced abortion (misoprostol) | 126 | 100 (79.4%) | - | - | - |
|  |  | Women admitted to the gynaecological ward with a history or evidence of induced abortion (<9 weeks gestation) | 171 | 123 (71.9%) | - | - | - |
|  |  | Women admitted to the gynaecological ward with a history or evidence of induced abortion (9-12 weeks gestation) | 49 | 31 (63.3%) | - | - | - |
|  |  | Women admitted to the gynaecological ward with a history or evidence of induced abortion (>12 weeks gestation) | 29 | 27 (93.1%) | - | - | - |
| Lassey, 1995, Ghana ([13](#_ENREF_13)) | - | - | Women with complications due to induced abortion | 200 | - | - | - | - | 5 (2.5%) |
| Srofenyoh and Lassey, 2003, Ghana ([14](#_ENREF_14)) | Admissions due to complications of abortion | 1504 | Women with complications due to induced, spontaneous or missed abortion | 202 | - | - | - | - | 15 (7.4%) |
| Ziraba et al, 2015, Kenya ([15](#_ENREF_15)) | - | - | Women seeking care for complications of spontaneous miscarriage or unsafe termination of pregnancy (all) | 2625 | Any of the following: death, sepsis, temperature≥38oC, evidence of mechanical injury/foreign body, shock, pulse>119 beats per minute, organ or system failure, tetanus | 974\* (37.1%) | - | - | 5\* (0.2%) |
|  |  | Women seeking care for complications of spontaneous miscarriage or unsafe termination of pregnancy (≤12 weeks gestation) | 1652 | 542\* (32.8%) |  |  |  |
|  |  | Women seeking care for complications of spontaneous miscarriage or unsafe termination of pregnancy (>12 weeks gestation) | 973 | 421\* (43.3%) |  |  |  |
| Gebreselassie et al, 2005, Kenya ([16](#_ENREF_16)) | - | - | Women with complications due to induced or spontaneous abortion (all) | 809 | Any of the following: temperature≥38oC, organ or system failure, generalized peritonitis, pulse≥120, shock, death, foreign body or mechanical injury on evacuation | 224 (27.7%) | Septic shock + hypovolemic shock | 51 (6.3%) | 7 (0.9%) |
|  |  | Women with complications due to induced or spontaneous abortion (first trimester) | 534 |  |  |  |  | 1 (0.2%) |
|  |  | Women with complications due to induced or spontaneous abortion (second trimester) | 275 |  |  |  |  | 6 (2.2%) |
| Kalilani-Phiri et al, 2015, Malawi ([17](#_ENREF_17)) | - | - | Women presenting with a diagnosis of incomplete, inevitable, missed or complete abortion | 2067 | Any of the following: temperature≥38oC, organ or system failure, generalized peritonitis, pulse>119 beats/minute, evidence of foreign body or mechanical injury, sepsis, shock, tetanus or death | 426 (20.7%) | Shock | 38 (1.8%) | 8 (0.4%) |
| Laghzaoui, 2016, Morocco ([18](#_ENREF_18)) | - | - | Women admitted with unsafe abortion | 451 | - | - | - | - | 1 (0.2%) |
| Machungo et al, 1997, Mozambique ([19](#_ENREF_19)) | - | - | Women admitting to having an illegal abortion | 103 | - | - | - | - | 3 (2.9%) |
| Adeniji et al, 2013, Nigeria ([20](#_ENREF_20)) | - | - | Women with abortion complications | 225 | - | - | Bowel injury | 20 (8.8%) | - |
| Abiodun et al, 2013, Nigeria ([21](#_ENREF_21)) | - | - | Women admitted with unsafe abortion complications | 96 | - | - | Shock | 13 (13.5%) | 16 (16.7%) |
| Ibrahim and Onwudiegwu, 2012, Nigeria ([22](#_ENREF_22)) | - | - | Women admitted for unsafe abortion | 63 | - | - | Haemorrhagic shock | 4 (6.3%) | 3 (4.8%) |
| Kalu et al, 2012, Nigeria ([23](#_ENREF_23)) | - | - | Women who received post abortion care | 522 | - | - | Gut perforation | 8 (1.5%) | 10 (1.9%) |
| Awusi and Okelele, 2010, Nigeria ([24](#_ENREF_24)) | All cases of abortion | 573 | Women treated for complications of unsafe abortion | 87 | - | - | Intestinal perforation | 2 (2.3%) | 8 (9.2%) |
| Ikeanyi and Okonkwo, 2014, Nigeria ([25](#_ENREF_25)) | - | - | Women managed for induced abortion complications | 111 | - | - | Acute renal failure | 14 (12.6%) | 20 (18.0%) |
| Anate et al, 1995, Nigeria ([26](#_ENREF_26)) | All cases of abortion treated in centre | 1878 | Women with complications due to induced abortion (all) | 144 | - | - | Injury to gut OR uterine perforation with peritonitis | 9 (6.3%) | 13 (9.0%) |
|  |  | Women with complications due to induced abortion (≤12 weeks gestation) | 90 |  |  | 3 (3.3%) | 5 (5.6%) |
|  |  | Women with complications due to induced abortion (>12 weeks gestation) | 54 |  |  | 6 (11.1%) | 8 (14.8%) |
| Sule-Odu, 2002, Nigeria ([27](#_ENREF_27)) | - | - | Women with complications due to induced abortion | 102 | - | - | - | - | 19 (18.6%) |
| Ikechebelu and Okoli, 2003, Nigeria ([28](#_ENREF_28)) | - | - | Women with complications of illegally induced abortion | 76 | - | - | Bowel injury | 2 (2.6%) | 4 (5.3%) |
| Igberase and Ebeigbe, 2008, Nigeria ([29](#_ENREF_29)) | - | - | Women with complications due to induced abortion | 118 | - | - | Bowel injury | 11 (9.3%) | 26 (22.0%) |
| Henshaw et al, 2008, Nigeria ([30](#_ENREF_30)) | - | - | Women treated at hospital with induced or spontaneous abortion | 2093 | - | - | Shock | 29 (1.4%) | 14 (0.7%) |
| Goyaux et al, 2001, Senegal, Cameroon and Benin([31](#_ENREF_31)) | Total number of induced and spontaneous abortions | 1957 | Women with complications due to induced abortion (all) | 969 | - | - | - | - | 22 (2.3%) |
|  |  | Women with complications due to induced abortion (≤15 weeks gestation) | 215 | - | - | - | - | 3 (1.4%) |
|  |  | Women with complications due to induced abortion (>15 weeks gestation) | 714 | - | - | - | - | 15 (2.1%) |
| Basu and Basu, 2013, South Africa([32](#_ENREF_32)) | Total number of spontaneous incomplete miscarriages and induced abortions | 876 | Women presenting with complications arising from termination of pregnancy | 85 | - | - | Admitted to ICU | 7 (8.2%) | 0 (0%) |
| Rees et al, 1997, South Africa([33](#_ENREF_33)) | - | - | Women with incomplete induced abortion | 803 | Any of the following: temperature≥38oC, organ failure, peritonitis, pulse≥120 beats/minute, death, foreign body, or mechanical injury on evacuation | 121 (15.1%) | Signs of organ failure | 26 (3.2%) | 3 (0.4%) |
| Jewkes et al, 2005, South Africa ([34](#_ENREF_34)) | - | - | Women with incomplete induced or spontaneous abortion | 760 | Any of the following: temperature≥38oC, organ failure, peritonitis, pulse≥120 beats/minute, death, foreign body, mechanical injury on evacuation | 74 (9.7%) | Signs of organ failure | 22 (2.9%) | 0 (0%) |
| Rasch et al, 2000, Tanzania ([35](#_ENREF_35)) | - | - | Women with diagnosis of incomplete abortion from induced or spontaneous abortion | 823 | - | - | - | - | - |
| Rasch and Kipingili, 2009, Tanzania ([36](#_ENREF_36)) | - | - | Women with complications from alleged miscarriages later identified as having an induced abortion | 452 | - | - | - | - | - |
| Nakimuli et al, 2016, Uganda ([37](#_ENREF_37)) | - | - | Women with abortion-related complications | 69 | - | - | WHO near miss criteria | 39 (56.5%) | 5 (7.2%) |
| Mellerup et al, 2015, Uganda ([38](#_ENREF_38)) | - | - | Women registered as admitted with incomplete, threatened, inevitable, missed and septic abortion | 238 | - | - | - | - | 2 (0.8%) |
| Rutgers, 2001, Zimbabwe ([39](#_ENREF_39)) | - | - | Women with complications from abortion | 355 | - | - | - | - | - |
| **Asia** | | | | | | | | | |
| Fetters et al, 2008, Cambodia([40](#_ENREF_40)) | - | - | All women presenting with complications from miscarriages and terminations | 629 | Any of the following: temperature≥38oC, organ or system failure, generalized peritonitis, pulse≥120 beats/minutes, shock, death, foreign body or mechanical injury on evacuation | 264\* (42.0%) | Signs of organ failure | 25\* (4.0%) | 1 (0.2%) |
| Singh et al, 2012, India([41](#_ENREF_41)) |  |  | Women admitted with a history of unsafe abortion | 60 | - | - | Generalised peritonitis | 30 (50.0%) | 6 (10.0%) |
| Fallahian and Mohammad-Zadeh, 2005, Iran([42](#_ENREF_42)) | - | - | Women admitted after attempting to induce abortion | 75 | - | - | Renal failure (reported as only serious complication) | 1 (1.3%) | 0 (0%) |
| Majilessi et al, 2008, Iran([43](#_ENREF_43)) | - | - | Women with complications due to induced and spontaneous abortion | 417 | - | - | Septic shock | 5 (1.2%) | - |
| Henderson et al, 2013, Nepal([44](#_ENREF_44)) | - | - | Total cases of abortion complications presenting to hospital (all 2001-10) | 23493 | Higher severity cases of infection, injury, or systemic complications have temperature ≥38oC, a pulse ≥120 beats/, septic shock or septicaemia, hypovolemic shock, generalised and local peritonitis, endometritis, pelvic or genital tract infection, a retained foreign body or injury from abortion, organ failure, loss of consciousness or death | 1598 (6.8%) | Shock (excluding septic shock) | 106 (0.5%) | 12 (0.05%) |
| - | - | Total cases of abortion complications presenting to hospital (pre abortion legalisation 2001-03) | 6486 | 476 (7.3%) | Shock (excluding septic shock) | 28 (0.4%) | 4 (0.06%) |
| Regmi et al, 2010, Nepal([45](#_ENREF_45)) | Total abortion related admissions | 1071 | Women with admission related to unsafe abortion | 70 | Any of the following: temperature>38oC, organ failure, peritonitis, pulse>120 beats/minute, death, or foreign body/mechanical injury | 37 (52.9%) | Shock | 6 (8.6%) | 8 (11.4%) |
| Faruqi et al,. 2011, Pakistan([46](#_ENREF_46)) | - | - | Women admitted as emergency cases with history of unsafe abortion | 41 | - | - | Renal failure OR DIC OR gut perforation | 14 (34.1%) | 4 (9.8%) |
| Majeed et al, 2011, Pakistan([47](#_ENREF_47)) | - | - | Women admitted as emergency cases with history of unsafe abortion (all) | 60 | - | - | - | - | 10 (16.7%) |
|  |  | Women admitted as emergency cases with history of unsafe abortion (≤12 weeks) | 30 |  |  |  |  | 4 (13.3%) |
|  |  | Women admitted as emergency cases with history of unsafe abortion (>12 weeks) | 30 |  |  |  |  | 6 (20.0%) |
| Naghma e., 2011, Pakistan([48](#_ENREF_48)) | - | - | Women with complications of unsafe abortion | 100 | - | - | Acute renal failure OR bowel perforation | 9 (9.0%) | - |
| Sadaf et al, 2013, Pakistan([49](#_ENREF_49)) | Total number of abortion cases | 1818 | Women will illegal, induced abortion | 40 | - | - | Haemorrhage with shock OR septicaemic shock OR gut perforation | 11 (27.5%) | 4 (10.0%) |
| Shaikh et al, 2010, Pakistan([50](#_ENREF_50)) | Total number of abortion cases | 230 | Women with complications of unsafe abortion | 50 | - | - | Acute renal failure | 12 (24.0%) | 6 (12.0%) |
| Rashid and Tariq, 2010, Pakistan([51](#_ENREF_51)) | Total abortion admissions | 596 | Women with complications of unsafe abortion | 87 | - | - | Haemorrhagic shock | 31 (35.6%) | 14 (16.1%) |
| Zia, 2012, Pakistan([52](#_ENREF_52)) | - | - | Women with illegally induced unsafe abortion | 105 | - | - | Admission to intensive care unit | 21 (20.0%) | 10 (9.5%) |
| Shaikh et al, 2014, Pakistan([53](#_ENREF_53)) | Total abortion admissions | 452 | Women with complications of abortion induced outside the facility | 60 | - | - | DIC | 1 (1.7%) | - |
| Tayyba and E-Raana, 2015, Pakistan([54](#_ENREF_54)) | Women admitted with abortion related complaints | 468 | Women admitted with complicated unsafe abortion | 59 | - | - | Anaemia and cardiac failure OR uterine perforation with bowel trauma | 9 (15.3%) | 3 (5.1%) |
| Najmi, 1998, Pakistan([55](#_ENREF_55)) | Total abortion admissions | 1993 | Women with complications of self-reported illegally induced abortion | 72 | - | - | Renal OR cardiac failure OR uterine and gut injuries | 10 (13.9%) | 4 (5.6%) |
| Saeed, 2002, Pakistan([56](#_ENREF_56)) | Total abortion admissions | 1700 | Women with complications of induced abortion | 52 | - | - | Renal failure OR uterine and gut injuries | 7 (13.5%) | 6 (11.5%) |
| Korejo et al, 2003, Pakistan([57](#_ENREF_57)) | Number of women admitted due to abortion | 2420 | Women with complications of and giving history of induced abortion | 57 | - | - | Septicaemic shock OR renal failure OR gangrene of the uterus OR perforation of the gut and uterus | 12 (21.1%) | 6 (10.5%) |
| Kitulwatte and Edirisinge, 2015, Sri Lanka([58](#_ENREF_58)) | - | - | Women who had been referred for medicolegal examination and had confessed to have undergone induced abortion | 51 | - | - | - | - | - |
| Srinil, 2011, Thailand([59](#_ENREF_59)) | Women admitted with complications from unsafe, therapeutic and spontaneous abortions (all) | 462 | Women admitted with complications from unsafe abortion (all) | 170 | - | - | Any of the following: acute renal failure, severe haemorrhage requiring blood transfusion, hypovolemic shock, sepsis with or without shock, DIC | 25 (14.7%) | 2 (1.2%) |
| - | - | Women admitted with complications from unsafe abortion (misoprostol) | 109 | - | - | 6 (5.5%) | 0 (0%) |
|  |  |  | Women admitted with complications from unsafe abortion (4-14 weeks gestation) | 92 |  |  | Any of the following: acute renal failure, severe haemorrhage requiring blood transfusion, hypovolemic shock, sepsis with or without shock, DIC, death | 11\*\* (12.0%) |  |
|  |  |  | Women admitted with complications from unsafe abortion (15-28 weeks gestation) | 78 |  |  | 16\*\* (20.5%) |  |
| Warakamin et al, 2004, Thailand([60](#_ENREF_60)) | - | - | Women with complications due to induced or spontaneous abortion | 46028 | Septicaemia, uterine perforation or death | 5633 (12.2%) | - | - | 17 (0.04%) |
| Phaumvichit and Chaneying, 2012, Thailand([61](#_ENREF_61)) | - | - | Women admitted with an illegal induced abortion | 92 | - | - | Septic shock | 2 (2.2%) | 0 (0%) |
| **Latin America** | | | | | | | | | |
| Santana et al, 2012, Brazil([62](#_ENREF_62)) | Women admitted with severe maternal morbidity who had undergone termination of pregnancy | 549 | Women admitted with severe maternal morbidity due to abortion | 237 | Women with potential life threatening conditions | 194 (82%) | Maternal near miss defined from a set of clinical, laboratory or management criteria recommend by WHO | 36 (15.2%) | 7 (3.0%) |
|  |  | Women admitted with severe maternal morbidity due to abortion (≤13 weeks gestation) | 91 |  |  | Maternal near miss defined from a set of clinical, laboratory or management criteria recommend by WHO and maternal death | 20 (22.0%) |  |
|  |  | Women admitted with severe maternal morbidity due to abortion (14-21 weeks gestation) | 81 |  |  | Maternal near miss defined from a set of clinical, laboratory or management criteria recommend by WHO and maternal death | 12 (14.8%) |  |
| Adesse et al, 2015, Brazil([63](#_ENREF_63)) | - | - | Women with a diagnosis of abortion | 117 | - | - | - | - | - |
| Domingos et al, 2011, Brazil([64](#_ENREF_64)) | - | - | Women with a diagnosis of abortion | 44 | - | - | - | - | - |
| Costa and Vessey, 1993, Brazil([65](#_ENREF_65)) | - | - | Women with abortion related complications from induced abortion (all) | 803 | - | - | “Systemic collapse” | 19 (2.4%) | At least 3 deaths |
| - | - | Women with abortion related complications from induced abortion (misoprostol) | 458 | - | - | “Systemic collapse” | 6 (1.3%) | 3 (0.7%) |
| Coelho et al, 1993, Brazil([66](#_ENREF_66)) | - | - | Women admitted for uterine evacuation related to an induced abortion (all) | 593 | - | - | Septic shock + hypovolemic shock | 5 (0.8%) | 0 (0%) |
|  |  | Women admitted for uterine evacuation related to an induced abortion (misoprostol only) | 444 | - | - | Septic shock + hypovolemic shock | 4 (0.9%) | 0 (0%) |
| Misago et al, 1998, Brazil([67](#_ENREF_67)) | - | - | Women admitted with the diagnosis of induced or spontaneous abortion | 4359 | - | - | - | - | At least 3 deaths |
| Souza et al, 1995, Brazil([68](#_ENREF_68)) | - | - | Women hospitalised for treatment of complications of abortion | 230 | - | - | - | - | - |
| Kestler et al, 2006, Guatemala([69](#_ENREF_69)) | - | - | Women with incomplete abortions | 13928 | “Severe complications" (undefined) | 768 (5.5%) | - | - | 9 (0.1%) |
| Rojas et al, 1992, Mexico([70](#_ENREF_70)) | - | - | Women with diagnosis of abortion | 316 | - | - | Septic shock | 2 (0.6%) | 0 (0%) |

\*Calculated from weighted percentage

\*\*Numbers calculated from percentages presented table. These are likely to an estimate as the text implies there is missing data for gestational age but don’t provide how many are missing data.

Supplementary Table 4: Pooled prevalence of case-fatality amongst abortion-related hospital admissions by time period, excluding studies which cover very long time periods (>5 years) compared to the “current analysis” where all studies are included regardless of duration

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **All studies** | | | **Sensitivity analysis excluding studies not reporting mortality** | | | **Sensitivity Analysis excluding studies>5 years** | | |
| **Time period** | **No. of studies** | **Case-fatality (95% CI)** | **Heterogeneity**  **I2 (p-value)** | **No. of studies** | **Case-fatality (95% CI)** | **Heterogeneity**  **I2 (p-value)** | **No. of studies** | **Case-fatality (95% CI)** | **Heterogeneity I2 (p-value)** |
| 1990-1995 | 10 | 2.6 (0.9-5.1) | 92.8% (0.009) | 9 | 3.1 (1.2-5.9) | 93.2% (0.009) | 9 | 1.7 (0.5-3.5) | 90.2% (0.006) |
| 1996-2008 | 33 | 0.9 (0.6-1.4) | 94.4% (0.002) | 26 | 1.5 (0.9-2.1) | 95.6% (0.002) | 32 | 0.8 (0.4-1.2) | 93.3% (0.002) |
| 2009-2013 | 21 | 3.0 (1.5-5.1) | 92.0% (0.01) | 17 | 4.6 (2.4-7.3) | 93.4% (0.01) | 21 | 3.0 (1.5-5.1) | 92.0% (0.01) |



Supplementary Figure 2: Case-fatality of abortion-related hospital admissions, including and excluding studies not reporting any deaths

Supplementary Table 5: Pooled prevalence of the near miss complications amongst abortion-related hospital admissions by time period, excluding studies which cover very long time periods (>5 years) compared to the “current analysis” where all studies are included regardless of duration

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Sensitivity Analysis excluding studies>5 years** | | | **All studies** | | |
| **Time period** | **No. of studies** | **Near miss (95% CI)** | **Heterogeneity**  **I2 (p-value)** | **No. of studies** | **Near miss (95% CI)** | **Heterogeneity I2 (p-value)** |
| 1990-1995 | 6 | 5.7 (2.2-10.7) | 95.0% (0.01) | 6 | 5.7 (2.2-10.7) | 95.0% (0.01) |
| 1996-2008 | 26 | 6.5 (4.2-9.2) | 97.8% (0.02) | 27 | 6.6 (4.3-9.4) | 98.3% (0.02) |
| 2009-2013 | 14 | 18.3 (9.6-29.1) | 97.1% (0.05) | 14 | 18.3 (9.6-29.1) | 97.1% (0.05) |

Supplementary Table 6: Definition, number and percentage of abortion-related hospital admissions with haemorrhage (stratified by severity of haemorrhage)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Author, year, country** | **Near miss haemorrhage** | | **Severe haemorrhage** | | **Not severe or unspecified haemorrhage** | |
|  | **Definition** | **Definition** | **Definition** | **Number (%)** | **Definition** | **Number (%)** |
| **Africa** | | | | | | |
| Rossier et al, 2006, Burkina Faso ([2](#_ENREF_2)) | Hypovolemic shock | 9  (2.0%) | - | - | Genital haemorrhage | 413 (89.0%) |
| Nkwabong et al, 2014, Cameroon ([3](#_ENREF_3)) | Hypovolemic shock | 16 (17.0%) | - | - | - | - |
| Hypovolemic shock (first trimester) | 11 (14.9%) | - | - | - | - |
| Hypovolemic shock (second trimester) | 5 (25.0%) | - | - | - | - |
| Huntington et al, 1998, Egypt ([5](#_ENREF_5)) | - | - | Excessive blood loss | 581 (14.0%) | Mild to moderate bleeding | 3563 (86.0%) |
| Gessessew, 2010, Ethiopia ([6](#_ENREF_6)) | Hypovolemic shock | 155 (42.2%) | - | - | - | - |
| Gerdts et al, 2012, Ethiopia ([7](#_ENREF_7)) | - | - | - | - | Cervical bleeding | 201 (93.5%) |
| Yusuf and Zein, 2001, Ethiopia ([8](#_ENREF_8)) | Shock (not septic) | 28 (10.1%) | - | - | - | - |
| Mekbib et al, 2007, Ethiopia ([9](#_ENREF_9)) | - | - | - | - | Vaginal bleeding | 960 (89.3%) |
| Gebrehiwot and Liabsuetrakul, 2009, Ethiopia ([10](#_ENREF_10)) | Haemorrhagic shock (all) | 65 (8.4%) | - | - | - | - |
| Haemorrhagic shock (pre legalisation) | 55 (9.2%) | - | - | - | - |
| Damalie et al, 2014, Ghana ([12](#_ENREF_12)) | - | - | Severe haemorrhage (all) | 80 (31.7%) | - | - |
| - | - | Severe haemorrhage (misoprostol) | 46 (36.5%) | - | - |
| Lassey, 1995, Ghana ([13](#_ENREF_13)) | - | - | - | - | Bleeding uterus (necrotic uterus and perforation) | 6 (3.0%) |
| Gebreselassie et al, 2005, Kenya ([16](#_ENREF_16)) | Hypovolemic shock | 47 (5.8%) | - | - | - | - |
| Laghzaoui, 2016, Morocco ([18](#_ENREF_18)) | - | - | - | - | Haemorrhage | 252 (55.9%) |
| Adeniji et al, 2013, Nigeria ([20](#_ENREF_20)) | - | - | - | - | Haemorrhage leading to anaemia | 15 (6.7%) |
| Abiodun et al, 2013, Nigeria ([21](#_ENREF_21)) | - | - | Severe haemorrhage | 11 (11.5%) | - | - |
| Ibrahim and Onwudiegwu, 2012, Nigeria ([22](#_ENREF_22)) | Haemorrhagic shock | 4 (6.3%) | - | - | - | - |
| Kalu et al, 2012, Nigeria ([23](#_ENREF_23)) | - | - | - | - | Haemorrhage | 200 (38.3%) |
| Anate et al, 1995, Nigeria ([26](#_ENREF_26)) | - | - | - | - | Anaemia (haemorrhagic) | 18 (12.5%) |
| - | - | - | - | Anaemia (haemorrhagic)  (≤12 weeks gestation) | 7 (7.8%) |
| - | - | - | - | Anaemia (haemorrhagic)  (>12 weeks gestation) | 11 (20.4%) |
| Sule-Odu, 2002, Nigeria ([27](#_ENREF_27)) | - | - | - | - | Haemorrhage | 47 (46.1%) |
| Henshaw et al, 2008, Nigeria ([30](#_ENREF_30)) | - | - | - | - | Haemorrhage | 330 (15.8%) |
| Rees et al, 1997, South Africa([33](#_ENREF_33)) | Hypovolemic shock | 15 (1.9%) | - | - | - | - |
| Jewkes et al, 2005, South Africa ([34](#_ENREF_34)) | Hypovolemic shock | 19 (2.5%) | - | - | - | - |
| Rasch and Kipingili, 2009, Tanzania ([36](#_ENREF_36)) | - | - | - | - | Bleeding | 436 (96.5%) |
| Nakimuli et al, 2016, Uganda ([37](#_ENREF_37)) | Near miss (WHO criteria) due to haemorrhage | 23 (33.3%) | - | - | Haemorrhage in women with non -life threatening obstetric complications | 13 (18.8%) |
| Rutgers, 2001, Zimbabwe ([39](#_ENREF_39)) | - | - | - | - | Bleeding | 355 (100%) |
| **Asia** | | | | | | |
| Fetters et al, 2008, Cambodia([40](#_ENREF_40)) | Hypovolemic shock | 6\* (1.0%) | - | - | - | - |
| Fallahian and Mohammad-Zadeh, 2005, Iran([42](#_ENREF_42)) | - | - | Massive vaginal bleeding | 33 (44.0%) | - | - |
| Henderson et al, 2013, Nepal([44](#_ENREF_44)) | Shock (excluding septic shock) (all) | 106 (0.5%) | - | - | *-* | *-* |
| Shock (excluding septic shock) (pre legalisation 2001-03) | 28 (0.4%) |  |  |  |  |
| Faruqi et al, 2011, Pakistan([46](#_ENREF_46)) | - | - | - | - | Haemorrhage and incomplete abortion | 8 (19.5%) |
| Majeed et al, 2011, Pakistan([47](#_ENREF_47)) | - | - | - | - | Haemorrhage | 16 (26.0%) |
| Naghma e, 2011, Pakistan([48](#_ENREF_48)) | - | - | - | - | Vaginal bleeding | 72 (72.0%) |
| Sadaf et al, 2013, Pakistan([49](#_ENREF_49)) | Haemorrhage with shock | 9 (22.5%) | - | - | Haemorrhage without shock | 9 (22.5%) |
| Rashid and Tariq, 2010, Pakistan([51](#_ENREF_51)) | Haemorrhagic shock | 31 (35.6%) | - | - | - | - |
| Zia, 2012, Pakistan([52](#_ENREF_52)) | - | - | - | - | Vaginal bleeding | 68 (64.8%) |
| Shaikh et al, 2014, Pakistan([53](#_ENREF_53)) | - | - | Bled heavily and required blood transfusion | 5 (8.3%) | Bleeding per vagina | 35 (58.3%) |
| Najmi, 1998, Pakistan([55](#_ENREF_55)) | - | - | Severe bleeding requiring resuscitative measures and urgent blood transfusion | 9 (12.5%) | Haemorrhage | 31 (43.1%) |
| Saeed, 2002, Pakistan([56](#_ENREF_56)) | - | - | - | - | Haemorrhage | 23 (44.2%) |
| Kitulwatte and Edirisinge, 2015, Sri Lanka([58](#_ENREF_58)) | - | - | Heavy bleeding | 35 (68.6%) | - | - |
| Srinil, 2011, Thailand([59](#_ENREF_59)) | Hypovolemic shock (all) | 10 (5.9%) | - | - | - | - |
| Hypovolemic shock (misoprostol) | 2 (1.9%) |  |  |  |  |
| Phaumvichit and Chaneying, 2012, Thailand([61](#_ENREF_61)) | - | - | - | - | Vaginal bleeding | 92 (100%) |
| **Latin America** | | | | | | |
| Santana et al, 2012, Brazil([62](#_ENREF_62)) | - | - | Haemorrhage as a potential life-threatening complication | 88 (37.1%) | - | - |
| Adesse et al, 2015, Brazil([63](#_ENREF_63)) | - | - | - | - | Haemorrhage | 72 (61.5%) |
| Domingos et al, 2011, Brazil([64](#_ENREF_64)) | - | - | - | - | Uterine bleeding | 21 (47.7%) |
| Costa and Vessey, 1993, Brazil([65](#_ENREF_65)) | - | - | Heavy bleeding (all) | 147 (18.3%) | - | - |
|  |  | Heavy bleeding (misoprostol) | 80 (17.5%) |  |  |
| Coelho et al, 1993, Brazil([66](#_ENREF_66)) | Hypovolemic shock (all) | 3 (0.5%) | - | - | - | - |
| Hypovolemic shock (misoprostol) | 3 (0.7%) | - | - | - | - |
| Misago et al, 1998, Brazil([67](#_ENREF_67)) | - | - | Heavy bleeding (“vaginal bleeding at admission superior to menstrual blood flow”) | 437 (10.0%) | - | - |
| Souza et al, 1995, Brazil([68](#_ENREF_68)) | - | - | - | - | Haemorrhage | 216 (93.9%) |

\*Calculated from weighted percentage

Supplementary Table 7: Definition, number and percentage abortion-related hospital admissions with infection (stratified by severity of infection)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Author, year, country** | **Near miss infection** | | **Severe infection** | | **Not severe or unspecified infection** | |
| **Definition** | **Number (%)** | **Definition** | **Number (%)** | **Definition** | **Number (%)** |
| **Africa** | | | | | | |
| Nkwabong et al, 2014, Cameroon ([3](#_ENREF_3)) | Septic shock (defined as blood pressure fluctuating with SBP<80 mmHg associated with heart rate≥110/minute and hyperthermia- or hypothermia) OR generalised peritonitis (defined as fever and generalized abdominal tenderness) | 4 (4.3%) | - | - | Pelvic infection (defined as uterine or pelvic tenderness with offensive vaginal discharge) OR septic incomplete abortion | 18 (19.1%) |
| Septic shock (defined as blood pressure fluctuating with SBP<80 mmHg associated with heart rate≥110/minute and hyperthermia- or hypothermia) OR generalised peritonitis (defined as fever and generalized abdominal tenderness) (first trimester) | 4 (5.4%) |  |  | Pelvic infection (defined as uterine or pelvic tenderness with offensive vaginal discharge) OR septic incomplete abortion (first trimester) | 17 (23.0%) |
| Septic shock (defined as blood pressure fluctuating with SBP<80 mmHg associated with heart rate≥110/minute and hyperthermia- or hypothermia) OR generalised peritonitis (defined as fever and generalized abdominal tenderness) (second trimester) | 0 (0%) |  |  | Pelvic infection (defined as uterine or pelvic tenderness with offensive vaginal discharge) OR septic incomplete abortion (second trimester) | 1 (5.0%) |
| Goyaux et al, 1999, Cote D'Ivoire ([4](#_ENREF_4)) | - | - | - | - | Peritonitis | 40 (8.5%) |
| Huntington et al, 1998, Egypt ([5](#_ENREF_5)) | - | - | - | - | Peritonitis, salpingitis, fever or foul discharge | 208 (5.0%) |
| Gessessew, 2010, Ethiopia ([6](#_ENREF_6)) | Generalised peritonitis OR Septic shock | 12 (3.3%) | Sepsis OR tubovarian abscess | 179 (48.8%) | Pelvic inflammatory disease | 3 (0.8%) |
| Gerdts et al, 2012, Ethiopia ([7](#_ENREF_7)) | - | - | Evidence of sepsis | 15 (7.0%) | Cervical infection | 12 (5.6%) |
| Yusuf and Zein, 2001, Ethiopia ([8](#_ENREF_8)) | - | - | Sepsis defined as one or more of the following symptom and sign complexes: temperature>38.9oC and chills, tachycardia, tachypnoea, restlessness, apprehension and apathy; adynamic ileus, jaundice, hepatosplenomegaly, renal failure, and bleeding disorders; leukocytosis with a shift to the left and; positive microbiological yields from blood and wound specimen | 127 (46.0%) | Genital tract infection | 17 (6.2%) |
| Mekbib et al, 2007, Ethiopia ([9](#_ENREF_9)) | Septic shock OR generalised peritonitis | 36 (3.3%) | Sepsis OR tetanus | 73 (6.8%) | Salpingitis OR pelvic abscess OR endometritis OR pelvic peritonitis OR “other infection” | 197 (18.3%) |
| Gebrehiwot and Liabsuetrakul, 2009, Ethiopia ([10](#_ENREF_10)) | Septic shock (all) | 22 (2.8%) | Sepsis (all) | 174 (22.5%) | - | - |
| Septic shock (pre legalisation) | 13 (2.2%) | Sepsis (pre legalisation) | 141 (23.6%) | - | - |
| Gebreselassie et al, 2010, Ethiopia([11](#_ENREF_11)) | - | - | - | - | One or more signs of infection: sepsis, shock, peritonitis, tetanus or offensive products of conception | 464\* (24.0%) |
| Damalie et al, 2014, Ghana ([12](#_ENREF_12)) | - | - | Septicaemia (all) | 93 (36.9%) | - | - |
| - | - | Septicaemia (misoprostol) | 53 (42.1%) | - | - |
| Lassey, 1995, Ghana ([13](#_ENREF_13)) | - | - | Septic abortion | 39 (19.5%) | - | - |
| Srofenyoh and Lassey, 2003, Ghana ([14](#_ENREF_14)) | - | - | Septic abortion OR tetanus | 85 (42.1%) | Pelvic peritonitis OR pelvic abscess | 15 (7.4%) |
| Gebreselassie et al, 2005, Kenya ([16](#_ENREF_16)) | Septicaemic shock | 4 (0.5%) | Sepsis/septicaemia | 16 (2.0%) | Localised peritonitis | 6 (0.7%) |
| Kalilani-Phiri et al, 2015, Malawi ([17](#_ENREF_17)) | - | - | Sepsis | 280 (13.5%) | Localised peritonitis or tender uterus | 82 (4.0%) |
| Laghzaoui, 2016, Morocco ([18](#_ENREF_18)) | - | - | Septicaemia | 4 (0.9%) | Peritonitis | 45 (10.0%) |
| Machungo et al, 1997, Mozambique ([19](#_ENREF_19)) | - | - | Septicaemia | 8 (7.8%) | Endometritis-myometritis | 12 (11.7%) |
| Adeniji et al, 2013, Nigeria ([20](#_ENREF_20)) | - | - | Sepsis | 160 (71.1%) | - | - |
| Abiodun et al, 2013, Nigeria ([21](#_ENREF_21)) | - | - | Septicaemia | 5 (5.2%) | Genital sepsis | 76 (79.2%) |
| Ibrahim and Onwudiegwu, 2012, Nigeria ([22](#_ENREF_22)) | Gangrenous uterus | 3 (4.8%) | Septicaemia | 12 (19.0%) | Genital sepsis | 59 (93.7%) |
| Kalu et al, 2012, Nigeria ([23](#_ENREF_23)) | - | - | - | - | Infection | 145 (27.8%) |
| Awusi and Okelele, 2010, Nigeria ([24](#_ENREF_24)) | - | - | Septicaemia | 10 (11.5%) | Genital sepsis | 82 (94.3%) |
| Ikeanyi and Okonkwo, 2014, Nigeria ([25](#_ENREF_25)) | - | - | Postabortal sepsis | 79 (71.2%) | Abdomino pelvic abscess | 12 (10.8%) |
| Anate et al, 1995, Nigeria ([26](#_ENREF_26)) | - | - | Sepsis OR Sepsis with anaemia OR pelvic abscess | 48 (33.3%) | - | - |
| - | - | Sepsis OR Sepsis with anaemia OR pelvic abscess (≤12 weeks gestation) | 34 (37.8%) | - | - |
| - | - | Sepsis OR Sepsis with anaemia OR pelvic abscess (>12 weeks gestation) | 14 (25.9%) | - | - |
| Sule-Odu, 2002, Nigeria ([27](#_ENREF_27)) | - | - | Sepsis | 34 (33.3%) | - | - |
| Ikechebelu and Okoli, 2003, Nigeria ([28](#_ENREF_28)) | - | - | Pelvic abscess | 16 (21.0%) | Genital sepsis | 73 (96.1%) |
| Igberase and Ebeigbe, 2008, Nigeria ([29](#_ENREF_29)) | - | - | Sepsis | 72 (61.0%) | - | - |
| Henshaw et al, 2008, Nigeria ([30](#_ENREF_30)) | - | - | Sepsis | 134 (6.4%) | Pelvic infection | 122 (5.8%) |
| Goyaux et al, 2001, Senegal, Cameroon and Benin([31](#_ENREF_31)) | - | - | Sepsis | 137 (14.1%) | - | - |
| Basu and Basu, 2013, South Africa([32](#_ENREF_32)) | - | - | Septic retain products of conception OR post-abortal sepsis | 20 (23.5%) | Pelvic sepsis | 2 (2.4%) |
| Rees et al, 1997, South Africa([33](#_ENREF_33)) | Septicaemic shock | 4 (0.5%) | Tetanus | 0 (0%) | Localised peritonitis | 17 (2.1%) |
| Jewkes et al, 2005, South Africa ([34](#_ENREF_34)) | Septicaemic shock | 2 (0.3%) | Tetanus | 0 (0%) | Localised peritonitis | 5 (0.7%) |
| Rasch et al, 2000, Tanzania ([35](#_ENREF_35)) | - | - | Sepsis | 78 (9.5%) | - | - |
| Rasch and Kipingili, 2009, Tanzania ([36](#_ENREF_36)) | - | - | Sepsis | 107 (23.7%) | - | - |
| Nakimuli et al, 2016, Uganda ([37](#_ENREF_37)) | Near miss criteria (WHO) for post abortion sepsis and septic abortion | 16 (23.2%) | - | - | Postabortal sepsis OR Septic abortion in women with non -life threatening obstetric complications | 12 (17.4%) |
| Mellerup et al, 2015, Uganda ([38](#_ENREF_38)) | - | - | Septic abortion | 8 (3.4%) | - | - |
| Rutgers, 2001, Zimbabwe ([39](#_ENREF_39)) | - | - | Septic abortion | 34 (9.6%) | - | - |
| **Asia** | | | | | | |
| Fetters et al, 2008, Cambodia([40](#_ENREF_40)) | Generalised peritonitis | 0 (0%) | Septicemic shock/sepsis | 6\* (1.0%) | Localised peritonitis | <1% |
| Singh et al, 2012, India([41](#_ENREF_41)) | Generalised peritonitis | 30 (50.0%) | Septicaemia | 5 (8.3%) |  |  |
| Majilessi et al, 2008, Iran([43](#_ENREF_43)) | Septic shock | 5 (1.2%) | Septic abortion | 133 (31.9%) | Abnormal vaginal discharge | 57 (13.7%) |
| Henderson et al, 2013, Nepal([44](#_ENREF_44)) | - | - | Sepsis (all) | 642 (2.7%) | Infection (all) | 1046 (4.5%) |
| - | - | Sepsis (pre legalisation 2001-03) | 257 (4.0%) | Infection (pre legalisation 2001-03) | 328 (5.1%) |
| Regmi et al, 2010, Nepal([45](#_ENREF_45)) | - | - | Sepsis (temperature>38oC and heart rate>120 beats per minute) | 32 (45.7%) | Peritonitis/ileus | 37 (52.9%) |
| Faruqi et al, 2011, Pakistan([46](#_ENREF_46)) | - | - | Sepsis | 15 (36.6%) | - | - |
| Majeed et al, 2011, Pakistan([47](#_ENREF_47)) | - | - | Post abortion sepsis | 18 (30.0%) | - | - |
| Naghma e, 2011, Pakistan([48](#_ENREF_48)) | - | - | Sepsis | 2 (2.0%) | - | - |
| Sadaf et al, 2013, Pakistan([49](#_ENREF_49)) | Septicaemic shock | 1 (2.5%) | Septicaemia | 3 (7.5%) | Uterine infection OR peritonitis | 10 (25.0%) |
| Shaikh et al, 2010, Pakistan([50](#_ENREF_50)) | - | - | Septicaemia | 8 (16.0%) | - | - |
| Rashid and Tariq, 2010, Pakistan([51](#_ENREF_51)) | - | - | Septicaemia | 40 (46.0%) | Wound infection | 15 (17.2%) |
| Zia, 2012, Pakistan([52](#_ENREF_52)) | - | - | Septicaemia | 18 (17.1%) | Vaginal discharge | 17 (16.2%) |
| Shaikh et al, 2014, Pakistan([53](#_ENREF_53)) | - | - | Septicaemia | 9 (15.0%) | - | - |
| Tayyba and E-Raana, 2015, Pakistan([54](#_ENREF_54)) | - | - | Septicaemia | 9 (15.3%) | Pelvic inflammatory disease | 6 (10.2%) |
| Najmi, 1998, Pakistan([55](#_ENREF_55)) | - | - | Septicaemia | 6 (8.3%) | Peritonitis OR uterine infection | 18 (25.0%) |
| Saeed, 2002, Pakistan([56](#_ENREF_56)) | - | - | Septicaemia | 4 (7.7%) | Peritonitis OR uterine infection | 13 (25.0%) |
| Korejo et al, 2003, Pakistan([57](#_ENREF_57)) | Septicaemic shock OR gangrenous uterus | 3 (5.3%) | - | - | Peritonitis OR pelvic abscess | 8 (14.0%) |
| Srinil, 2011, Thailand([59](#_ENREF_59)) | Septic shock (all) | 7 (4.1%) | - | - | Pelvic infection (all) | 68 (40.0%) |
| Septic shock (misoprostol) | 0 (0%) | - | - | Pelvic infection (misoprostol) | 24 (22.0%) |
| Warakamin et al, 2004, Thailand([60](#_ENREF_60)) | - | - | Septicaemia | 3189 (6.9%) | - | - |
| Phaumvichit and Chaneying, 2012, Thailand([61](#_ENREF_61)) | Septic shock | 2 (2.2%) | Septic abortion | 27 (29.3%) | - | - |
| **Latin America** | | | | | | |
| Santana et al, 2012, Brazil([62](#_ENREF_62)) | - | - | Infection as a potential life-threatening complication | 22 (9.3%) | - | - |
| Adesse et al, 2015, Brazil([63](#_ENREF_63)) | Septic shock | 0 (0%) | - | - | Infection | 5 (4.3%) |
| Domingos et al, 2011, Brazil([64](#_ENREF_64)) | - | - | - | - | Infection | 1 (2.3%) |
| Costa and Vessey, 1993, Brazil([65](#_ENREF_65)) | - | - | - | - | Infection (all) | 156 (19.4%) |
| - | - | - | - | Infection (misoprostol) | 79 (17.2%) |
| Coelho et al, 1993, Brazil([66](#_ENREF_66)) | Septic shock (all) | 2 (0.3%) | - | - | Infection (all) | 172 (29.0%) |
| Septic shock (misoprostol only) | 1 (0.2%) | - | - | Infection (misoprostol) | 144 (32.4%) |
| Misago et al, 1998, Brazil([67](#_ENREF_67)) | - | - | - | - | Infection | 323 (7.4%) |
| Souza et al, 1995, Brazil([68](#_ENREF_68)) | - | - | - | - | Infection | 16 (7.0%) |
| Kestler et al, 2006, Guatemala([69](#_ENREF_69)) | - | - | - | - | Abortion related to infection | 9889 (71.0%) |
| Rojas et al, 1992, Mexico([70](#_ENREF_70)) | Septic shock | 2 (0.63%) | Septic abortion (defined as temperature over 38 on two or more occasions at least 4 hours apart with history of pelvic infection during uterine evacuation or in the 24 hours after procedure OR fever without an apparent cause after ruling out urinary infection) | 38 (12.0%) | Endometritis or pelvic cellulitis | 6 (1.9%) |

\*Calculated from weighted percentage

Supplementary Table 8: Definition, number and percentage of abortion-related hospital admissions with injury (stratified by severity of injury)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Author, year, country** | **Near miss injury** | | **Not severe or unspecified injury** | |
| **Definition** | **Number (%)** | **Definition** | **Number (%)** |
| **Africa** | | | | |
| Rossier et al, 2006, Burkina Faso ([2](#_ENREF_2)) | - | - | Signs of lesions to the genital tract | 14 (3.0%) |
| Nkwabong et al, 2014, Cameroon ([3](#_ENREF_3)) | - | - | Uterine perforation (suspected if pelvic tenderness with or without fever) | 6 (6.4%) |
|  |  | Uterine perforation (suspected if pelvic tenderness with or without fever) (first trimester) | 4 (5.4%) |
|  |  | Uterine perforation (suspected if pelvic tenderness with or without fever) (second trimester) | 2 (10.0%) |
| Huntington et al, 1998, Egypt ([5](#_ENREF_5)) | - | - | Uterine perforation, cervical or vaginal tears | 42 (~1.0%) |
| Gessessew, 2010, Ethiopia ([6](#_ENREF_6)) | - | - | Uterine perforation OR cervical laceration OR vaginal laceration | 14 (3.8%) |
| Yusuf and Zein, 2001, Ethiopia ([8](#_ENREF_8)) | - | - | Soft tissue injury | 24 (8.7%) |
| Mekbib et al, 2007, Ethiopia ([9](#_ENREF_9)) | - | - | Cervical tear OR vaginal laceration OR uterine perforation OR other genital tract injury | 129 (12.0%) |
| Gebrehiwot and Liabsuetrakul, 2009, Ethiopia ([10](#_ENREF_10)) | Bowel injury (all) | 6 (0.8%) | Genital trauma (all) | 22 (2.8%) |
| Bowel injury (pre legalisation) | 5 (0.8%) | Genital trauma (pre legalisation) | 15 (2.5%) |
| Gebreselassie et al, 2010, Ethiopia ([11](#_ENREF_11)) | - | - | Mechanical injury to, or foreign body in, the vagina, cervix, uterus, intra-abdominal area | 135\* (7.0%) |
| Srofenyoh and Lassey, 2003, Ghana ([14](#_ENREF_14)) | - | - | Uterine perforation | 7 (3.5%) |
| Gebreselassie et al, 2005, Kenya ([16](#_ENREF_16)) | Gut injury | 1 (0.1%) | Uterine perforation | 8 (1.0%) |
| Kalilani-Phiri et al, 2015, Malawi ([17](#_ENREF_17)) | - | - | Foreign body or injury | 111 (5.4%) |
| Laghzaoui, 2016, Morocco ([18](#_ENREF_18)) | Intestinal wound | 1 (0.2%) | Uterine perforation | 11 (2.4%) |
| Machungo et al, 1997, Mozambique ([19](#_ENREF_19)) | - | - | Uterine wall perforation | 4 (3.9%) |
| Adeniji et al, 2013, Nigeria ([20](#_ENREF_20)) | Bowel injury | 20 (8.9%) | Uterine perforation | 30 (13.3%) |
| Abiodun et al, 2013, Nigeria ([21](#_ENREF_21)) | Intestine injury | 9 (9.4%) | Uterine perforation | 12 (12.5%) |
| Ibrahim and Onwudiegwu, 2012, Nigeria ([22](#_ENREF_22)) | Perforated intestine | 2 (3.2%) | Perforated uterus | 4 (6.3%) |
| Kalu et al, 2012, Nigeria ([23](#_ENREF_23)) | Gut perforation | 8 (1.5%) | Uterine perforation | 15 (2.9%) |
| Awusi and Okelele, 2010, Nigeria ([24](#_ENREF_24)) | Intestinal perforation | 2 (2.3%) | Uterine perforation | 3 (3.4%) |
| Ikeanyi and Okonkwo, 2014, Nigeria ([25](#_ENREF_25)) | Visceral perforation | 11 (9.9%) | Lower genital laceration | 3 (2.7%) |
| Anate et al, 1995, Nigeria ([26](#_ENREF_26)) | Injury to gut (all) | 4 (2.8%) | Uterine perforation with peritonitis OR cervical tear OR laceration of vaginal wall OR chemical vaginitis OR vesico vaginal fistula (all) | 25 (17.4%) |
| Injury to gut (≤12 weeks gestation) | 1 (1.1%) | Uterine perforation with peritonitis OR cervical tear OR laceration of vaginal wall OR chemical vaginitis OR vesico vaginal fistula (≤12 weeks gestation) | 13 (14.4%) |
| Injury to gut (>12 weeks gestation) | 3 (5.6%) | Uterine perforation with peritonitis OR cervical tear OR laceration of vaginal wall OR chemical vaginitis OR vesico vaginal fistula (>12 weeks gestation) | 12 (22.2%) |
| Sule-Odu, 2002, Nigeria ([27](#_ENREF_27)) | - | - | Uterine perforation | 4 (3.9%) |
| Ikechebelu and Okoli, 2003, Nigeria ([28](#_ENREF_28)) | Bowel injury | 2 (2.6%) | Uterine perforation | 3 (3.9%) |
| Igberase and Ebeigbe, 2008, Nigeria ([29](#_ENREF_29)) | Bowel injury | 11 (9.3%) | Uterine perforation | 14 (11.9%) |
| Henshaw et al, 2008, Nigeria ([30](#_ENREF_30)) | - | - | Instrumental injury | 60 (2.9%) |
| Goyaux et al, 2001, Senegal, Cameroon and Benin([31](#_ENREF_31)) | - | - | Injury | 126 (13.0%) |
| Basu and Basu, 2013, South Africa([32](#_ENREF_32)) | Minor uterine perforation combine with extensive bowel injuries | 2 (2.4%) | Extensive rupture of uterus | 2 (2.4%) |
| Rees et al, 1997, South Africa([33](#_ENREF_33)) | - | - | Mechanical injury | 29 (3.9%)\*\* |
| Jewkes et al, 2005, South Africa ([34](#_ENREF_34)) | - | - | Mechanical or chemical injury | 5 (0.6%) |
| Rasch et al, 2000, Tanzania ([35](#_ENREF_35)) | - | - | Genital trauma | 57 (6.9%) |
| Rasch and Kipingili, 2009, Tanzania ([36](#_ENREF_36)) | - | - | Trauma | 76 (16.8%) |
| **Asia** | | | | |
| Fetters et al, 2008, Cambodia([40](#_ENREF_40)) | - | - | Mechanical injury to vagina, cervix, uterus or intra-abdominal | 19\* (3.0%) |
| Singh et al, 2012, India([41](#_ENREF_41)) | - | - | Faecal fistula | 3 (5.0%) |
| Henderson et al, 2013, Nepal([44](#_ENREF_44)) | Intestinal injury (all) | 13 (0.06%) | Injury (including uterine injury, vaginal/perineal injury, intestinal injury, cervical injury and foreign body) (all) | 100 (0.4%) |
| Intestinal injury (pre legalisation 2001-03) | 1 (0.02%) | Injury (including uterine injury, vaginal/perineal injury, intestinal injury, cervical injury and foreign body) (pre legalisation 2001-03) | 14 (0.2%) |
| Regmi et al, 2010, Nepal([45](#_ENREF_45)) | Intestinal injury repair | 5 (7.1%) | Uterine perforation | 5 (7.1%) |
| Faruqi et al, 2011, Pakistan([46](#_ENREF_46)) | Gut perforation | 11 (26.8%) | Uterine perforation | 4 (9.8%) |
| Majeed et al, 2011, Pakistan([47](#_ENREF_47)) | - | - | Uterine perforation | 14 (23.0%) |
| Naghma e, 2011, Pakistan([48](#_ENREF_48)) | Bowel perforation | 8 (8.0%) | Uterine perforation OR Bowel fistulae OR Bladder injury | 17 (17.0%) |
| Sadaf et al, 2013, Pakistan([49](#_ENREF_49)) | Uterine perforation and gut perforation | 1 (2.5%) | Uterine perforation | 3 (7.5%) |
| Shaikh et al, 2010, Pakistan([50](#_ENREF_50)) | - | - | Uterine perforation | 15 (30.0%) |
| Shaikh et al, 2014, Pakistan([53](#_ENREF_53)) | Visceral injuries | 1 (1.7%) | Perforation of the uterus | 9 (15.0%) |
| Tayyba and E-Raana, 2015, Pakistan([54](#_ENREF_54)) | Uterine perforation with bowel trauma | 8 (13.6%) | Uterine perforation without bowel trauma OR vaginal tear OR cervical tear OR vesicovaginal fistula | 11 (18.6%) |
| Najmi, 1998, Pakistan([55](#_ENREF_55)) | - | - | Uterine perforation OR uterine and gut injuries | 13 (18.1%) |
| Saeed, 2002, Pakistan([56](#_ENREF_56)) | - | - | Uterine perforation OR uterine and gut injuries | 10 (19.2%) |
| Korejo et al, 2003, Pakistan([57](#_ENREF_57)) | Perforation of the gut and uterus | 7 (12.3%) | Uterine only OR rectum perforation OR cervical tear | 18 (31.6%) |
| Warakamin et al, 2004, Thailand([60](#_ENREF_60)) | - | - | Uterine perforation | 55 (0.1%) |
| Phaumvichit and Chaneying, 2012, Thailand([61](#_ENREF_61)) | - | - | Cervical tear | 1 (1.1%) |
| **Latin America** | | | | |
| Adesse et al, 2015, Brazil([63](#_ENREF_63)) | - | - | Uterine perforation | 0 (0%) |
| Costa and Vessey, 1993, Brazil([65](#_ENREF_65)) | - | - | Mechanical lesions (all) | 13 (1.6%) |
| - | - | Mechanical lesions (misoprostol) | 6 (1.3%) |
| Coelho et al, 1993, Brazil([66](#_ENREF_66)) | - | - | Uterine perforation (all) | 2 (0.3%) |
| - | - | Uterine perforation (misoprostol) | 1 (0.2%) |
| Souza et al, 1995, Brazil([68](#_ENREF_68)) | - | - | Perforation | 2 (0.9%) |
| Rojas et al, 1992, Mexico([70](#_ENREF_70)) | - | - | Uterine perforation | 1 (0.3%) |

\*Calculated from weighted percentage

\*\*Denominator for this complication 753, rather than 803 as used for other complications from this paper.

Supplementary Table 9: Definition, number and percentage of abortion-related hospital admissions with anaemia (stratified by severity of anaemia)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Author, year, country** | **Severe Anaemia** | | **Not severe or unspecified anaemia** | |
| **Definition** | **Number (%)** | **Definition** | **Number (%)** |
| **Africa** |  |  |  |  |
| Rossier et al, 2006, Burkina Faso ([2](#_ENREF_2)) | - | - | Anaemia (undefined) | 37 (8.0%) |
| Nkwabong et al, 2014, Cameroon ([3](#_ENREF_3)) | Severe anaemia (HB<7 g/dl) | 28 (29.8%) | Mild anaemia (HB: 9 to <11 g/dl) | 4 (4.3%) |
| Severe anaemia (HB<7 g/dl) (first trimester) | 19 (25.7%) | Mild anaemia (HB: 9 to <11 g/dl) (first trimester) | 3 (4.0%) |
| Severe anaemia (HB<7 g/dl) (second trimester) | 9 (45.0%) | Mild anaemia (HB: 9 to <11 g/dl) (second trimester) | 1 (5.0%) |
| Yusuf and Zein, 2001, Ethiopia ([8](#_ENREF_8)) | - | - | Anaemia | 123 (44.6%) |
| Srofenyoh and Lassey, 2003, Ghana ([14](#_ENREF_14)) | - | - | Anaemia | 95 (47.0%) |
| Laghzaoui, 2016, Morocco ([18](#_ENREF_18)) | - | - | Acute anaemia | 338 (74.9%) |
| Machungo et al, 1997, Mozambique ([19](#_ENREF_19)) | Severe anaemia (HB<6g/dL) | 17 (16.5%) | - | - |
| Awusi and Okelele, 2010, Nigeria ([24](#_ENREF_24)) | - | - | Anaemia | 15 (17.2%) |
| Ikeanyi and Okonkwo, 2014, Nigeria ([25](#_ENREF_25)) | - | - | Anaemia | 73 (65.8%) |
| Sule-Odu, 2002, Nigeria ([27](#_ENREF_27)) | - | - | Anaemia | 58 (56.9%) |
| Igberase and Ebeigbe, 2008, Nigeria ([29](#_ENREF_29)) | - | - | Anaemia | 45 (38.1%) |
| Basu and Basu, 2013, South Africa([32](#_ENREF_32)) | Severe anaemia (HB<7g/dL) | 17 (20.0%) | Moderate anaemia (HB 7-9g/dL) | 11 (12.9%) |
| **Asia** | | | | |
| Rashid and Tariq, 2010, Pakistan([51](#_ENREF_51)) | - | - | Anaemia (undefined) | 67 (77.0%) |
| Tayyba and E-Raana, 2015, Pakistan([54](#_ENREF_54)) | Anaemia and cardiac failure | 1 (1.7%) | - | - |
| Phaumvichit and Chaneying, 2012, Thailand([61](#_ENREF_61)) | Anaemia with blood transfusion | 3 (3.3%) | - | - |

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