

## Literature Review Summary Table

Source	Sample/Study Description	Purpose	Results
<b>Pre-term</b>			
<p>Mathews TJ, MacDorman MF.                      Infant mortality statistics from the 2006 period linked birth/infant death data set. Natl Vital Stat Rep. 2010 Apr 30;58(17):1-31.</p>	<p>Descriptive tabulations of data are presented and interpreted.</p>	<p>This report presents 2006 period infant mortality statistics from the linked birth/infant death data set (linked file) by a variety of maternal and infant characteristics.</p>	<p>Infant mortality rates (IMR) are highest for very preterm (less than 32 weeks) infants, and the risk decreases sharply with increasing gestational age. In 2006, the IMR for very preterm infants (175.94) was 74 times the rate of 2.39 for term infants. The mortality rate for infants born at 32–33 weeks of gestation was 16.19, nearly seven times the rate for term infants. Although mortality falls with increasing gestational age, even infants born only a few weeks early have a substantially increased risk of death when compared with term infants. In 2006, the IMR for late preterm infants (34–36 weeks of gestation) was 7.08, 2.9 times the rate for term infants. Even within the term period, infants born at 37–39 weeks of gestation had mortality rates that were 28 percent higher than those for infants born at 40–41 weeks of gestation.</p>
<p>Khashu M, Narayanan M, Bhargava S, Osiovich H.                      Perinatal outcomes associated with preterm birth at 33 to 36 weeks' gestation: a population-based cohort study. Pediatrics. 2009 Jan;123(1):109-13.</p>	<p>Data from the British Columbia Perinatal Database Registry were analyzed including all singleton births between 33 and 40 weeks' gestation from April 1999 to March 2002 in the province of British Columbia, Canada. This birth cohort was divided into late preterm (33–36 weeks, n = 6,381) and term (37–40 weeks, n = 88,867) groups.</p>	<p>To compare the mortality and morbidity of late-preterm infants to those born at term.</p>	<p>Stillbirth rate and perinatal, neonatal, and infant mortality rates were significantly higher in the late-preterm group compared to the term group.</p>
<p>McIntire DD, Leveno KJ.                      Neonatal mortality and morbidity rates in late preterm births compared with births at term. Obstet Gynecol. 2008 Jan;111(1):35-41.</p>	<p>Researchers performed a retrospective cohort study of births at the University of Texas Southwestern Medical Center over the past 18 years. The study included all live born singleton infants between 34 and 40 weeks of gestation and without anomalies that were delivered to women who received prenatal care in the hospital system. Neonatal outcomes for late preterm births were compared with those for infants delivered at 39 weeks.</p>	<p>To analyze neonatal mortality and morbidity rates at 34, 35, and 36 weeks of gestation compared with births at term over the past 18 years and to estimate the magnitude of increased risk associated with late preterm births compared with births later in gestation.</p>	<p>Late preterm neonatal mortality rates per 1,000 live births were 1.1, 1.5, and 0.5 at 34, 35, and 36 weeks, respectively, compared with 0.2 at 39 weeks (<math>p &lt; .001</math>).</p>

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<p>Tomashek KM, Shapiro-Mendoza CK, Davidoff MJ, Petrini JR.</p> <p>Differences in mortality between late-preterm and term singleton infants in the United States, 1995-2002. J Pediatr. 2007 Nov;151(5):450-6, 456.e1. Epub 2007 Jul 24.</p>	<p>Researchers used US period-linked birth/infant death files for 1995 to 2002 to compare overall and cause-specific early-neonatal, late-neonatal, postneonatal, and infant mortality rates (IMRs) between singleton late-preterm infants and term infants.</p>	<p>To assess differences in mortality between late-preterm (34-36 weeks) and term (37-41 weeks) infants.</p>	<p>IMRs in 2002 were 3 times higher in late-preterm infants than term infants (7.9 versus 2.4 deaths per 1000 live births); early, late, and postneonatal rates were 6, 3, and 2 times higher, respectively.</p>
<p>Larroque B, Bréart G, Kaminski M, Dehan M, André M, Burguet A, Grandjean H, Ledésert B, Lévêque C, Maillard F, Matis J, Rozé JC, Truffert P; Epipage study group.</p> <p>Survival of very preterm infants: Epipage, a population based cohort study. Arch Dis Child Fetal Neonatal Ed. 2004 Mar;89(2):F139-44.</p>	<p>A prospective observational population based study including all births or late terminations of pregnancy for fetal or maternal reasons between 22 and 32 weeks gestation in nine regions of France in 1997.</p>	<p>To evaluate the outcome for all infants born before 33 weeks gestation until discharge from hospital.</p>	<p>Survival increased with gestational age: 31% of all infants born alive at 24 weeks survived to discharge, 78% at 28 weeks, and 97% at 32 weeks.</p>
<b>Low birth weight</b>			
<p>Zeitlin J, El Ayoubi M, Jarreau PH, Draper ES, Blondel B, Künzel W, Cuttini M, Kaminski M, Gortner L, Van Reempts P, Kollée L, Papiernik E; MOSAIC Research Group.</p> <p>Impact of fetal growth restriction on mortality and morbidity in a very preterm birth cohort. J Pediatr. 2010 Nov;157(5):733-9.e1. Epub 2010 Jun 17.</p>	<p>The study included singletons and twins alive at onset of labor between 24 and 31 weeks of gestation without congenital anomalies from the Models of Organizing Access to Intensive Care for very preterm births very preterm cohort in 10 European regions in 2003 (n = 4,525). Outcomes were mortality, intraventricular hemorrhage grade III and IV, cystic periventricular leukomalacia, and bronchopulmonary dysplasia. Birthweight percentiles in 6 classes were analyzed by pregnancy complication.</p>	<p>To assess the impact of being small for gestational age on very preterm mortality and morbidity rates by using different birth weight percentile thresholds and whether these effects differ by the cause of the preterm birth.</p>	<p>The mortality rate was significantly higher for infants with birth weights &lt;25th percentile when compared with the 50th to 74th percentile (adjusted odds ratio: 3.98; CI 2.79-5.67).</p>

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<p>Mathews TJ, MacDorman MF.            Infant mortality statistics from the 2006 period linked birth/infant death data set. Natl Vital Stat Rep. 2010 Apr 30;58(17):1-31.</p>	<p>Descriptive tabulations of data are presented and interpreted.</p>	<p>This report presents 2006 period infant mortality statistics from the linked birth/infant death data set (linked file) by a variety of maternal and infant characteristics.</p>	<p>In 2006, infant mortality rates (IMR) were much higher for low birth weight (less than 2,500 grams) infants (55.38 per 1,000) than for infants with birth weights of 2,500 grams or more (2.24). The IMR for very low birth weight (less than 1,500 grams) infants was 240.44, more than 100 times the rate for infants with birth weights of 2,500 grams or more.</p>
<p>Kaushik SL, Parmar VR, Grover N, Kaushik R.            Neonatal mortality rate: relationship to birth weight and gestational age. Indian J Pediatr. 1998 May-Jun;65(3):429-33.</p>	<p>The study was conducted in the department of pediatrics and its neonatology unit at Indira Gandhi Medical College, Shimla. All consecutive live born babies between July 1994 to June 1995 were included in the study.</p>	<p>To study the pattern of neonatal mortality in and suggest remedial measures thereafter.</p>	<p>Although low birth weight babies accounted for 27.8% of the live births, they accounted for 79.5% of neonatal deaths (p &lt;0.001).</p>
<p>Wilcox AJ, Skjaerven R.            Birth weight and perinatal mortality: the effect of gestational age. Am J Public Health. 1992 Mar;82(3):378-82.</p>	<p>Data are from 400,000 singleton births in the Norwegian Medical Birth Registry. The method of Wilcox and Russell is used to distinguish the contributions to perinatal mortality made by gestational age and by relative birth weight at each gestational age.</p>	<p>The purpose of this paper is to separate mortality as related to gestational age from mortality as related to relative birth weight within fixed gestational age.</p>	<p>Relative mortality rates across gestational age groups are highest at the lowest birth weights and fall rapidly as weights increase. Perinatal mortality ranged from 4.3/1,000 births at 40 weeks gestational age to 364.9/1,000 births at 28-31 weeks (RR=85 comparing 28-31 weeks to 40 weeks).</p>
<b>Obesity</b>			
<p>Mantakas A, Farrell T.            The influence of increasing BMI in nulliparous women on pregnancy outcome. Eur J Obstet Gynecol Reprod Biol. 2010 Nov;153(1):43-6. Epub 2010 Aug 21.</p>	<p>The study was a retrospective review of data from the local hospital database held at the Jessop Wing of the Royal Hallamshire Hospital in Sheffield. They reviewed all nulliparous women with recorded body mass index (BMI) at booking between January 2001 and November 2008 who delivered singleton babies. The women were stratified into five groups (underweight, normal, overweight, obese, and morbidly obese). The different BMI range groups were compared with the group of women with a normal BMI.</p>	<p>The aim of the study was to demonstrate the influence of BMI in pregnancy on rates of adverse pregnancy outcome in overweight nulliparous women.</p>	<p>The stillbirth rate was associated with increasing obesity with a relative risk 16.7 (CI 4.9–56) for the morbidly obese women compared to women with a normal BMI.</p>

Source	Sample/Study Description	Purpose	Results
<p>Owens LA, O'Sullivan EP, Kirwan B, Avalos G, Gaffney G, Dunne F; ATLANTIC DIP Collaborators. ATLANTIC DIP: the impact of obesity on pregnancy outcome in glucose-tolerant women. Diabetes Care. 2010 Mar;33(3):577-9. Epub 2010 Jan 12.</p>	<p>The Irish Atlantic Diabetes in Pregnancy network advocates universal screening for gestational diabetes. Women with normoglycemia and a recorded prepregnancy body mass index (BMI) were included. Maternal and infant outcomes correlated with booking BMI are reported. A total of 2,329 glucose-tolerant women were included.</p>	<p>To examine the impact of obesity on pregnancy outcome in glucose-tolerant women.</p>	<p>Reported miscarriages were significantly increased in obese women compared to women with normal BMI. Fourteen (0.6%) stillbirths and two (0.1%) neonatal deaths occurred; however, BMI was not a positive predictor for these outcomes.</p>
<p>Chen A, Feresu SA, Fernandez C, Rogan WJ. Maternal obesity and the risk of infant death in the United States. Epidemiology. 2009 Jan;20(1):74-81.</p>	<p>They studied the association between maternal obesity and the risk of infant death by using 1988 US National Maternal and Infant Health Survey data. A case-control analysis of 4,265 infant deaths and 7,293 controls was conducted. Self-reported prepregnancy body mass index (BMI) and weight gain were used in the primary analysis, whereas weight variables in medical records were used in a subset of 4,308 women.</p>	<p>To examine the effect of maternal obesity on neonatal and postneonatal death separately, and to examine causes of infant death associated with maternal obesity</p>	<p>Compared with normal weight women who gained 0.66 to 0.97 lb/wk during pregnancy, obese women had significantly increased risk of neonatal death and overall infant death.</p>
<p>Nohr EA, Vaeth M, Bech BH, Henriksen TB, Cnattingius S, Olsen J. Maternal obesity and neonatal mortality according to subtypes of preterm birth. Obstet Gynecol. 2007 Nov;110(5):1083-90.</p>	<p>The study population included 85,375 live born singletons of mothers in the Danish National Birth Cohort (1996–2002) who were interviewed during the second trimester. Information about pregnancy outcomes and neonatal deaths (n=230) was obtained from national registers.</p>	<p>To examine the association between prepregnancy body mass index and neonatal mortality while accounting for the timing of delivery and subtypes of preterm birth.</p>	<p>Compared with infants of mothers who were at a normal weight before pregnancy, neonatal mortality was increased in infants of mothers who were overweight or obese.</p>
<p>Salihu HM, Dunlop AL, Hedayatzadeh M, Alio AP, Kirby RS, Alexander GR. Extreme obesity and risk of stillbirth among black and white gravidas. Obstet Gynecol. 2007 Sep;110(3):552-7.</p>	<p>The Missouri maternally linked cohort data containing births from 1978 to 1997 was used to examine prepregnancy weight and height. Mothers were classified on the basis of calculated body mass index (BMI) above 30 into three subsets: class I (30–34.9), class II (35–39.9), and extreme obesity (greater than or equal to 40). Using normal-weight, white women (18.5–24.9) as a reference.</p>	<p>To estimate the risk for stillbirth among three generally accepted obesity subtypes based on severity.</p>	<p>Obese mothers were about 40% more likely to experience stillbirth compared with nonobese gravidas. The risk for stillbirth increased in a dose-dependent fashion with increase in BMI: class I (adjusted hazard ratio 1.3; CI 1.2–1.4); class II (adjusted hazard ratio 1.4; CI 1.3–1.6) and extreme obesity (adjusted hazard ratio 1.9; CI 1.6–2.1; trend p&lt;.01).</p>

Source	Sample/Study Description	Purpose	Results
<p>Nohr, EA; Bech, BH; Davies, MJ; Frydenberg, M; Henriksen, TB; Olsen, J. Prepregnancy Obesity and Fetal Death: A Study Within the Danish National Birth Cohort. <i>Obstetrical &amp; Gynecological Survey</i>: January 2006 - Volume 61 - Issue 1 - pp 7-8</p>	<p>Prepregnancy body mass index (BMI) and fetal death were examined in the Danish National Birth Cohort among 54,505 pregnant women who participated in a comprehensive interview during the second trimester. Pregnancy outcomes were obtained from registers and medical records. Cox regression analyses with delayed entry and time-dependent covariates were used to estimate the risk of fetal death.</p>	<p>To examine the association between high BMI and fetal death, allowing for the effects of gestational age, weight gain, and maternal diseases in pregnancy.</p>	<p>Prepregnancy obesity was associated with an increasing excess risk of fetal death with advancing gestation. Compared with normal-weight women (<math>18.5 \leq \text{BMI} &lt; 25</math>), the risks of fetal death among obese women (<math>\text{BMI} \geq 30</math>) were as follows: weeks 14–19: 1.6 (CI 1.0–2.5), weeks 20–27: 1.9 (CI 1.1–3.3), weeks 28–36: 2.1 (CI 1.0–4.4), weeks 37–39: 3.5 (CI 1.9–6.4), and weeks 40 : 4.6 (CI 1.6–13.4). Overweight women (<math>25 \leq \text{BMI} &lt; 30</math>) also experienced a higher risk after 28 weeks, and especially after 40 weeks of gestation (hazard ratio: 2.9; CI 1.1–7.7).</p>
<p>Kristensen J, Vestergaard M, Wisborg K, Kesmodel U, Secher NJ. Pre-pregnancy weight and the risk of stillbirth and neonatal death. <i>International Journal of Obstetrics and Gynaecology</i> April 2005, Vol. 112, pp. 403–408</p>	<p>All women who booked for delivery at the Department of Obstetrics and Gynaecology, Aarhus University Hospital, Denmark, from 1989 to 1996, were invited to participate. A total of 24,505 singleton pregnancies were included in the analyses. Pre-pregnancy body mass index (BMI) was used to classify the population as underweight, normal weight, overweight, and obese. The women received two questionnaires by mail, at approximately 12–16 weeks of gestation. The first questionnaire provided information on medical and obstetric history, pre-pregnancy weight and height, smoking habits and alcohol intake during pregnancy. The second, meant for research purposes only, provided information on cohabitation with partner, educational level, working status, caffeine intake during pregnancy and maternal chronic diseases.</p>	<p>This study evaluated the association between maternal prepregnancy weight and the risk of stillbirth and neonatal death in a large cohort study, taking into account a number of potential confounding factors.</p>	<p>Compared with women of normal weight, the relative risk of stillbirth (odds ratio = 2.8; CI 1.5-5.3) and neonatal death (odds ratio = 2.6; CI 1.2-5.8) in children of obese women more than doubled in the analyses.</p>
<p>Cedergren MI. Maternal morbid obesity and the risk of adverse pregnancy outcome. <i>Obstet Gynecol.</i> 2004 Feb;103(2):219-24.</p>	<p>In a prospective population-based cohort study, 3,480 women with morbid obesity, defined as a body mass index (BMI) more than 40, and 12,698 women with a BMI between 35.1 and 40 were compared with normal-weight women (BMI 19.8–26). The perinatal outcome of singletons born to women without insulin-dependent diabetes mellitus was evaluated after suitable adjustments.</p>	<p>To evaluate whether morbidly obese women have an increased risk of pregnancy complications and adverse perinatal outcomes.</p>	<p>Compared to normal weight mothers, morbidly obese mothers were associated with a significantly increased risk of antepartum stillbirth (2.79; CI 1.9-4.0) and early neonatal death (3.41; CI 2.1-5.6). The associations were similar for women with BMIs between 35.1 and 40 but to a lesser degree.</p>

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<p>Baeten JM, Bukusi EA, Lambe M. Pregnancy complications and outcomes among overweight and obese nulliparous women. <i>Am J Public Health</i> 2001; 91: 436-440.</p>	<p>96,801 singleton births to nulliparous women were examined from Washington State birth certificate data between 1992 and 1996. Women were categorized by prepregnancy body mass index (BMI).</p>	<p>Researchers conducted a population-based cohort study of the effect of maternal prepregnancy obesity or overweight on pregnancy complications and adverse pregnancy outcomes.</p>	<p>The risk of infant death within 1 year of birth was significantly higher for obese women (BMI <math>\geq</math> 30.0) than for lean women (BMI &lt; 20.0) (odds ratio: 2.0; CI 1.2-3.1).</p>
<p>Sebire NJ, Jolly M, Harris JP, Wadsworth J, Joffe M, Beard RW, Regan L, Robinson S. Maternal obesity and pregnancy outcome: a study of 287,213 pregnancies in London. <i>Int J Obes Relat Metab Disord.</i> 2001 Aug;25(8):1175-82.</p>	<p>Retrospective analysis of data from a validated maternity database system. A comparison of pregnancy outcomes was made on the basis of maternal body mass index (BMI) at booking. A total of 287,213 completed singleton pregnancies were studied including 176,923 (61.6%) normal weight (BMI 20 – 24.9), 79,014 (27.5%) moderately obese (BMI 25 – 29.9) and 31,276 (10.9%) very obese (BMI 30) women.</p>	<p>To examine the maternal and fetal risks of adverse pregnancy outcome in relation to maternal obesity in a large unselected geographical population.</p>	<p>Compared to women with normal BMI, intrauterine death was significantly more common in obese pregnant women (odds ratio: 1.40; CI 1.1-1.7).</p>
<p>Stephansson O, Dickman PW, Johansson A, Cnattingius S. Maternal weight, pregnancy weight gain, and the risk of antepartum stillbirth. <i>Am J Obstet Gynecol.</i> 2001 Feb;184(3):463-9.</p>	<p>This population-based case-control study included 649 women with antepartum stillbirths and 690 control subjects among Swedish nulliparous women.</p>	<p>To investigate whether the risk of antepartum stillbirth increases with body mass index (BMI) during early pregnancy and also investigated the association between weight gain during pregnancy and the risk of antepartum stillbirth.</p>	<p>Compared with infants of lean mothers (BMI <math>\leq</math> 19.9), infants born to overweight and obese mothers (BMI 25.0-29.9, <math>\geq</math>30.0) showed significantly higher risks of antepartum death (odds ratios: 1.9; (CI 1.2-2.9), 2.1; (CI 1.2-3.6).</p>
<p>Cnattingius S, Bergström R, Lipworth L, Kramer MS., Prepregnancy weight and the risk of adverse pregnancy outcomes. <i>N Engl J Med.</i> 1998 Jan 15;338(3):147-52.</p>	<p>A population based cohort of 167,750 women in Sweden in 1992 and 1993. The women were categorized as follows, according to body mass index (BMI): lean (&lt;20.0), normal (20.0-24.9), overweight (25.0-29.9), and obese (<math>\geq</math>30.0).</p>	<p>To examine the effect of the prepregnancy BMI on the risk of late fetal death, early neonatal death, preterm delivery, and delivery of an infant who was small for gestational age.</p>	<p>Among nulliparous women, the odds ratios for late fetal death were increased among women with higher BMIs as compared with lean women, as follows: normal women, 2.2 (CI 1.2-4.1); overweight women, 3.2 (CI 1.6-6.2); and obese women, 4.3 (CI 2.0-9.3). Among parous women, only obese women had a significant increase in the risk of late fetal death (odds ratio: 2.0; CI 1.2-3.3).</p>

Source	Sample/Study Description	Purpose	Results
<p>Naeye RL. Maternal body weight and pregnancy outcome. Am J Clin Nutr 1990;52:273-9.</p>	<p>Data for the analyses came from the Collaborative Perinatal Study (CPS) of the National Institute of Neurological and Communicative Disorders and Stroke. The CPS was set up to identify antepartum and subsequent events that affect children's morbidity, mortality, and development. CPS prospectively followed the course of 58,957 children from before birth to age 7 years in 12 medical school-affiliated hospitals in different regions of the United States between 1959 and 1966.</p>	<p>These analyses focus on the relationship of relative maternal pregravid body weight to pregnancy outcome including perinatal mortality and pre-term birth.</p>	<p>The study found a significant progressive increase in perinatal mortality rates with increasing maternal relative body weight. Pre-term birth was responsible for most of the increases in perinatal mortality.</p>
<p>Lucas A, Morley R, Cole TJ, Bamford MF, Boon A, Crowle P, Dossetor JF, Pearce R. Maternal fatness and viability of preterm infants. Br Med J (Clin Res Ed). 1988 May 28;296(6635):1495-7.</p>	<p>Complete data from one of the five centers participating in a study examining the effect of diet on early growth of low birth weight infants were examined. The study analyzed birth weight, gestation, mother's weight and height, and whether the infant died for all infants born in the centre. Information from 284 mother-infant pairs were analyzed for relationships between maternal obesity and neonatal death.</p>	<p>This study examined the effect of maternal obesity on mortality to 18 months of age (corrected for prematurity).</p>	<p>The relative risk of death by 18 months post-term was nearly four times greater in infants born to obese mothers than in those born to normal weight mothers.</p>
<p>Garbaciak JA Jr, Richter M, Miller S, Barton JJ. Maternal weight and pregnancy complications. Am J Obstet Gynecol. 1985 May 15;152(2):238-45.</p>	<p>Maternal and infant data were abstracted from deliveries occurring at 18 institutions within the University of Illinois perinatal network. 16,858 records of women who delivered in 1982 were included.</p>	<p>To determine the effect of obesity when no other antenatal complications are present, on perinatal mortality, infant size, and primary cesarean delivery rate.</p>	<p>Among 2,597 women with antenatal complications, there was a significant increase in perinatal mortality in the obese and morbidly obese women; however, there was no significant association between obesity and perinatal mortality in the absence of antenatal complications.</p>
<b>Diabetes</b>			
<p>Reddy UM, Laughon SK, Sun L, Troendle J, Willinger M, Zhang J. Prepregnancy risk factors for antepartum stillbirth in the United States. Obstet Gynecol. 2010 Nov;116(5):1119-26.</p>	<p>This retrospective cohort study of prepregnancy risk factors compared 712 singleton antepartum stillbirths with 174,097 singleton live births at or after 23 weeks of gestation. The risk of term antepartum stillbirth then was assessed in a subset of 155,629 singleton pregnancies.</p>	<p>To identify possible prepregnancy risk factors for antepartum stillbirth and to determine whether these factors identify women at higher risk for term stillbirth.</p>	<p>In adjusted multivariable analyses, pre-existing diabetes was independently associated with increased risk of stillbirth (2.7, CI 1.8-3.9).</p>

Source	Sample/Study Description	Purpose	Results
<p>Persson M, Norman M, Hanson U. Obstetric and perinatal outcomes in type 1 diabetic pregnancies: A large, population-based study. <i>Diabetes Care</i>. 2009 Nov;32(11):2005-9. Epub 2009 Aug 12.</p>	<p>This was a population-based study. Data were obtained from the Medical Birth Registry, covering 98% of all pregnancies in Sweden. A total of 5,089 type 1 diabetic pregnancies and 1,260,207 control pregnancies were included.</p>	<p>To perform comparative analyses of obstetric and perinatal outcomes between type 1 diabetic pregnancies and the general obstetric population in Sweden between 1991 and 2003.</p>	<p>Stillbirth (odds ratio: 3.3; CI 2.5–4.6), and perinatal mortality (odds ratio: 3.3; CI 2.5–4.3) were significantly more common in type 1 diabetics than in control pregnancies.</p>
<p>Dunne FP, Avalos G, Durkan M, Mitchell Y, Gallacher T, Keenan M, Hogan M, Carmody LA, Gaffney G; ATLANTIC DIP collaborators. ATLANTIC DIP: pregnancy outcome for women with pregestational diabetes along the Irish Atlantic seaboard. <i>Diabetes Care</i>. 2009 Jul;32(7):1205-6.</p>	<p>The Atlantic Diabetes in Pregnancy group, representing five antenatal centers in a wide geographical location in Ireland, was established in 2005. All women with diabetes for &gt;6 months before the index pregnancy were included. Pregnancy outcome was compared with background rates. Prospective information was obtained on 104 singleton pregnancies from 2006-2007 and compared to the background population.</p>	<p>This purpose of this study was to evaluate pregnancy outcomes in pregestational diabetes along the Atlantic seaboard from 2006–2007.</p>	<p>Significant associations were found with stillbirth, and perinatal mortality, where rates were 5.0 and 3.5 times that of the background population, respectively.</p>
<p>Macintosh MC, Fleming KM, Bailey JA, Doyle P, Modder J, Acolet D, Golightly S, Miller A. Perinatal mortality and congenital anomalies in babies of women with type 1 or type 2 diabetes in England, Wales, and Northern Ireland: population based study. <i>BMJ</i>. 2006 Jul 22;333(7560):177. Epub 2006 Jun 16.</p>	<p>National population based pregnancy cohort of 2,359 pregnancies to women with type 1 or type 2 diabetes who delivered between March 1, 2002 and February 28, 2003.</p>	<p>To provide perinatal mortality and congenital anomaly rates for babies born to women with type 1 or type 2 diabetes in England, Wales, and Northern Ireland.</p>	<p>Perinatal mortality was comparable in babies of women with type 1 (31.7/1,000 births) and type 2 diabetes (32.3/1,000) and was nearly four times higher than that in the general maternity population.</p>

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<p>Clausen TD, Mathiesen E, Ekbohm P, Hellmuth E, Mandrup-Poulsen T, Damm P. Poor pregnancy outcome in women with type 2 diabetes. <i>Diabetes Care</i>. 2005 Feb;28(2):323-8.</p>	<p>Investigators retrospectively studied all women with pregestational type 2 diabetes referred to the Department of Obstetrics, Copenhagen University Hospital, Rigshospitalet, Denmark, from 1996-2001 for antenatal care and delivery. A total of 80 singleton pregnancies in women with pregestational type 2 diabetes referred from either general practitioners (44%) or a hospital unit (56%) were registered.</p>	<p>The aims of this study were to evaluate the frequency of maternal complications and serious adverse fetal outcome in a group of women with type 2 diabetes who gave birth between 1996 and 2001 and to compare their outcomes to those of three other groups; women with type 1 diabetes who gave birth at the clinic in the same period, the background population in the same period, and women with type 2 diabetes who gave birth at the clinic during 1982–1990.</p>	<p>The perinatal mortality in pregnancies complicated by type 2 diabetes was four times that of pregnancies complicated by type I diabetes, and nine times that of the general population.</p>
<p>Jensen DM, Damm P, Moelsted-Pedersen L, Ovesen P, Westergaard JG, Moeller M, Beck-Nielsen H. Outcomes in type 1 diabetic pregnancies: a nationwide, population-based study. <i>Diabetes Care</i>. 2004 Dec;27(12):2819-23.</p>	<p>Nation wide population-based study. During 1993–1999, all pregnancies in women with pregestational type 1 diabetes were prospectively reported to a central registry in the Danish Diabetes Association. Information on maternal demography, diabetes status, and pregnancy outcome were collected after each delivery. Inclusion criteria were delivery after 24 completed weeks (n = 1,215) or termination before 24 weeks because of ultrasound-verified severe malformation (n = 3).</p>	<p>The objective was to compare pregnancy outcomes in type 1 diabetic pregnancies with the background population.</p>	<p>Results showed that type I diabetes was significantly associated with increased rates of perinatal mortality (relative risk: 4.1; CI 2.9–5.6), and stillbirth (relative risk: 4.7; CI 3.2–7.0).</p>
<p>Evers IM, de Valk HW, Visser GH. Risk of complications of pregnancy in women with type 1 diabetes: nationwide prospective study in the Netherlands. <i>BMJ</i>. 2004 Apr 17;328(7445):915. Epub 2004 Apr 5.</p>	<p>Nationwide prospective cohort study of 323 women with type 1 diabetes who became pregnant between April 1, 1999 and April 1, 2000.</p>	<p>To investigate maternal, perinatal, and neonatal outcomes of pregnancies in women with type 1 diabetes in the Netherlands.</p>	<p>The perinatal mortality rate among women with type I diabetes was 3.5 times higher than that of the general population.</p>

Source	Sample/Study Description	Purpose	Results
<p>Boulot P, Chabbert-Buffet N, d'Ercole C, Floriot M, Fontaine P, Fournier A, Gillet JY, Gin H, Grandperret-Vauthier S, Geudj AM, Guionnet B, Hauguel-de-Mouzon S, Hieronimus S, Hoffet M, Jullien D, Lamotte MF, Lejeune V, Lepercq J, Lorenzi F, Mares P, Miton A, Penfornis A, Pfister B, Renard E, Rodier M, Roth P, Sery GA, Timsit J, Valat AS, Vambergue A, Verier-Mine O; Diabetes and Pregnancy Group, France.</p> <p>French multicentric survey of outcome of pregnancy in women with pregestational diabetes. <i>Diabetes Care</i>. 2003 Nov;26(11):2990-3.</p>	<p>A cross-sectional study was conducted in 12 perinatal centers in France in 2000–2001. The main investigated outcomes were perinatal mortality, major congenital malformations, and preterm delivery.</p>	<p>To evaluate perinatal outcome in pregnancies in women with type 1 and type 2 diabetes and the influence of preconception care 10 years after the St. Vincent declaration, a goal set in 1989 by European countries meeting in St. Vincent, Italy. The goal stated that within 5 years "pregnancy outcome of diabetic women should approximate that of the nondiabetic women."</p>	<p>Women with increased blood glucose in the first trimester had higher rates of perinatal mortality (9.2 vs. 2.5; odds ratio 3.9; CI 1.5–9.7; <math>p &lt; 0.005</math>) than women with normal blood glucose in the first trimester.</p>
<p>Penney GC, Mair G, Pearson DW; Scottish Diabetes in Pregnancy Group.</p> <p>Outcomes of pregnancies in women with type 1 diabetes in Scotland: a national population-based study. <i>BJOG</i>. 2003 Mar;110(3):315-8.</p>	<p>Prospective, population-based cohort including all 273 women with type 1 diabetes with a pregnancy ending (in miscarriage, abortion or delivery) during the 12 months (from April 1, 1998 to March 31, 1999). Pregnancies identified prospectively by clinicians in each hospital; outcome data collected from case records and from Scottish national data sets.</p>	<p>To determine the outcomes of pregnancies in women with pre-existing, type 1 diabetes.</p>	<p>Compared to the Scottish birth rate in 1999, Scottish babies born to mothers with type 1 diabetes showed substantially higher rates of stillbirth (18.5 vs. 5.2 per 1,000 total births), perinatal death (27.8 vs. 7.6), and infant death (14.2 vs. 5).</p>

Source	Sample/Study Description	Purpose	Results
<p>Schmidt MI, Duncan BB, Reichelt AJ, Branchtein L, Matos MC, Costa e Forti A, Spichler ER, Pousada JM, Teixeira MM, Yamashita T; Brazilian Gestational Diabetes Study Group. Gestational Diabetes Mellitus Diagnosed With a 2-h 75-g Oral Glucose Tolerance Test and Adverse Pregnancy Outcomes. Diabetes Care July 2001 vol. 24 no. 7 1151-1155</p>	<p>The Brazilian Gestational Diabetes Study is a cohort study conducted in general prenatal care clinics of the National Health Service in six Brazilian state capitals 4,977 women were studied. All women responded to a structured questionnaire, underwent standardized anthropometric measurements, and were invited to do a 2 hour 75-g oral glucose tolerance test between their 24th and 28th gestational week. They were then followed through delivery and during the in-hospital postpartum period via chart review using a common structured protocol.</p>	<p>The objective of this study is to evaluate the new World Health Organization (WHO) and American Diabetes Association (ADA) criteria for gestational diabetes mellitus by characterizing their ability to predict which pregnancies will suffer macrocosmic birth, preeclampsia, and perinatal death.</p>	<p>There was a significant association between perinatal death and gestational diabetes mellitus using ADA criteria (relative risk: 3.1; CI 1.4–6.5). Though not statistically significant, using WHO criteria also showed an increased risk (relative risk: 1.6; CI 0.9–2.9).</p>
<p>Cundy T, Gamble G, Townend K, Henley PG, MacPherson P, Roberts AB. Perinatal mortality in Type 2 diabetes mellitus. Diabet Med. 2000 Jan;17(1):33-9.</p>	<p>Over a 12 year period 434 pregnancies in women with Type 2 diabetes mellitus (DM), 160 pregnancies in women with Type 1 DM and 932 in women with gestational diabetes mellitus (GDM) that visited the National Women's Hospital in Auckland, New Zealand were compared to 82,025 infants born to women without established diabetes or GDM.</p>	<p>To report observational data on perinatal mortality in Type 2 DM from a population with a high background rate of this disorder.</p>	<p>Late fetal death among women with Type 2 DM is significantly increased compared to women without established diabetes or GDM. Intermediate fetal death and early neonatal death were also increased but not significantly so.</p>
<p>Casson IF, Clarke CA, Howard CV, McKendrick O, Pennycook S, Pharoah PO, Platt MJ, Stanisstreet M, van Velszen D, Walkinshaw S. Outcomes of pregnancy in insulin dependent diabetic women: results of a five year population cohort study. BMJ. 1997 Aug 2;315(7103):275-8.</p>	<p>The study cohort was drawn from a geographically discrete area in the north west of England. Pregnancies in insulin dependent diabetic women were identified from several sources, including maternity booking clinics, gynaecology wards, operating room records, diabetic clinic records, and independent clinic data sources kept by individual units. Pregnancy outcome recording included termination for social and medical reasons, spontaneous abortions, stillbirths, and neonatal (0-28 days) and postneonatal (29 days to 1 year) deaths.</p>	<p>To monitor pregnancies in women with pre-existent insulin dependent diabetes for pregnancy loss, congenital malformations, and fetal growth in a geographically defined area of north west England.</p>	<p>The perinatal mortality rate was over four times and the stillbirth rate five times that in the general population of England and Wales and the population of Merseyside and Cheshire over the same period.</p>

Source	Sample/Study Description	Purpose	Results
<p>Hawthorne G, Robson S, Ryall EA, Sen D, Roberts SH, Ward Platt MP.</p> <p>Prospective population based survey of outcome of pregnancy in diabetic women: results of the Northern Diabetic Pregnancy Audit, 1994. <i>BMJ.</i> 1997 Aug 2;315(7103):279-81.</p>	<p>This prospective population-based study included insulin dependent and non-insulin dependent diabetes mellitus women booked at an antenatal clinic in 1994 in the Northern region. There were 113 booked pregnancies in 111 diabetic women. Rates were compared to the background population.</p>	<p>To determine whether the St Vincent declaration (1989) target of diabetic pregnancy outcome approximating non-diabetic pregnancy outcome is near to being achieved. (In 1989 the St Vincent declaration stated as a five year goal that the “outcome of diabetic pregnancy should approximate that of the non-diabetic pregnancy.”)</p>	<p>Significant associations were found between diabetic pregnancies and increased risks of perinatal mortality (odds ratio: 5.8; CI 2.3-12.7) and the neonatal mortality (odds ratio: 15.0; CI 6.8-33.1).</p>
<b>Hypertension</b>			
<p>Reddy UM, Laughon SK, Sun L, Troendle J, Willinger M, Zhang J.</p> <p>Prepregnancy risk factors for antepartum stillbirth in the United States. <i>Obstet Gynecol.</i> 2010 Nov;116(5):1119-26.</p>	<p>This retrospective cohort study of prepregnancy risk factors compared 712 singleton antepartum stillbirths with 174,097 singleton live births at or after 23 weeks of gestation. The risk of term antepartum stillbirth then was assessed in a subset of 155,629 singleton pregnancies.</p>	<p>To identify possible prepregnancy risk factors for antepartum stillbirth and to determine whether these factors identify women at higher risk for term stillbirth.</p>	<p>In adjusted multivariable analyses, chronic hypertension was independently associated with increased risk of stillbirth 2.0 (CI 1.5–2.8).</p>
<p>Ananth CV, Basso O.</p> <p>Impact of pregnancy-induced hypertension on stillbirth and neonatal mortality. <i>Epidemiology.</i> 2010 Jan;21(1):118-23.</p>	<p>Researchers carried out a population-based study of 57 million singleton live births and stillbirths (24-46 weeks gestation) in the United States between 1990 and 2004 and estimated rates and adjusted odds ratios of stillbirth and neonatal death in relation to pregnancy induced hypertension (PIH), comparing births in 1990-</p>	<p>To examine trends in stillbirth and neonatal mortality related to PIH, and to explore whether mortality varied by parity and maternal race.</p>	<p>For both time periods, risk of stillbirth (1.4; CI 1.2-1.5 for 1990-1991 and 1.5; CI 1.4-1.6 for 2003-2004) and neonatal death (1.3; CI 1.2-1.4 for 1990-1991 and 1.3; CI 1.2-1.4 for 2003-2004) were significantly higher for first births among women with PIH. Risks were even greater with second or higher births, showing a statistically significant linear trend with increasing order of birth.</p>
<p>Vanek M, Sheiner E, Levy A, Mazor M.</p> <p>Chronic hypertension and the risk for adverse pregnancy outcome after superimposed pre-eclampsia. <i>Int J Gynaecol Obstet.</i> 2004 Jul;86(1):7-11.</p>	<p>A retrospective comparison of all singleton, term (&gt;36 weeks) deliveries, between 1988 and 1999, complicated with chronic hypertension, with all singleton term deliveries without chronic hypertension was performed. There were approximately 115,000 deliveries in the Soroka University Medical Center.</p>	<p>To determine the risk factors and pregnancy outcome of patients with chronic hypertension during pregnancy after controlling for superimposed preeclampsia.</p>	<p>After adjustment for superimposed preeclampsia, pregnancies complicated with chronic hypertension had a significantly higher rate of perinatal mortality (odds ratio: 1.6; CI 1.0–2.6).</p>

Source	Sample/Study Description	Purpose	Results
<p>Ferrer RL, Sibai BM, Mulrow CD, ChiquetteE, Stevens KR, Cornell J. Management of mildchronic hypertension during pregnancy: a review.Obstet Gynecol 2000;96:849-60.</p>	<p>Reviewers screened 6,228 abstracts and found 215 articles that met multiple prespecified patient selection, study population, and design criteria.</p>	<p>To conduct a systematic review of evidence relating to management of mild chronic hypertension during pregnancy, including associated risks, benefits, and harms of treatment with antihypertensive agents, nonpharmacologic measures, and aspirin and benefits of various monitoring strategies.</p>	<p>Forty-six studies consistently showed that chronic hypertension triples the risk for perinatal mortality (odds ratio: 3.4; CI 3.0-3.7)</p>
<p>Ananth CV, Savitz DA, Bowes WA Jr. Hypertensive disorders of pregnancy and stillbirth in North Carolina, 1988 to 1991. Acta Obstet Gynecol Scand. 1995 Nov;74(10):788-93.</p>	<p>Retrospective cohort of approximately 400,000 pregnancies identified through the birth and fetal death certificates in North Carolina between 1988 and 1991.</p>	<p>To assess the effect of hypertensive disorders of pregnancy on the risk of stillbirth.</p>	<p>Pregnancies among chronic hypertensive patients were more than twice as likely to result in early stillbirth compared to pregnancies among non-hypertensive patients.</p>
<p>Walles B, Tydén T, Herbst A, Ljungblad U, Rydhstrøm H. Maternal health care program and markers for late fetal death. Acta Obstet Gynecol Scand. 1994 Nov;73(10):773-8.</p>	<p>Prospectively recorded data were obtained from maternal health care units belonging to five delivery units. In all, 233 consecutive cases of singleton pregnancy involving late fetal death were identified between 1983 and 1989. As a control for each case, the next consecutive mother giving birth to a live infant at the same delivery unit was selected.</p>	<p>To identify markers for late fetal death based on routinely obtained data from maternal health care units.</p>	<p>A significantly increased risk was seen in women with medical treatment for essential hypertension (<math>X^2</math>: 5.6, <math>p &lt; 0.05</math>).</p>
<p>Rey E, Couturier A. The prognosis of pregnancy in women with chronic hypertension. Am J Obstet Gynecol. 1994 Aug;171(2):410-6.</p>	<p>A longitudinal cohort study was performed between 1987 and 1991 in Montreal, Quebec, Canada including 337 pregnancies in 298 women with chronic hypertension.</p>	<p>To assess pregnancy outcomes in women with chronic hypertension from a population with a maternal mortality rate of 12 in 1,000 live births.</p>	<p>Perinatal mortality was significantly more frequent in chronic hypertensive women compared to the general population (45/1,000 vs. 12/1,000, <math>p &lt; 0.01</math>).</p>

Source	Sample/Study Description	Purpose	Results
<b>Alcohol</b>			
<p>Henriksen TB, Hjollund NH, Jensen TK, Bonde JP, Andersson AM, Kolstad H, Ernst E, Giwercman A, Skakkebaek NE, Olsen J. Alcohol consumption at the time of conception and spontaneous abortion. <i>Am J Epidemiol.</i> 2004 Oct 1;160(7):661-7.</p>	<p>430 couples between 20-35 years old and lived with a partner of the opposite sex were identified from a nationwide (Denmark) mailing to more than 50,000 members of four trade unions.</p> <p>Couples without any knowledge about their reproductive capacity, such as previous pregnancies or attempts to become pregnant, who planned to stop contraception to conceive, were invited to participate. They were enrolled when birth control was discontinued and followed until a clinically recognized pregnancy or for six menstrual cycles if no pregnancy occurred.</p>	<p>To study the association between female and male alcohol intakes and the risk of spontaneous abortion.</p>	<p>Female alcohol intake was associated with 2–3 times the adjusted risk of spontaneous abortion compared with no intake, and male alcohol intake was associated with 2–5 times the adjusted risk, although only the adjusted relative risks for 10 or more drinks/week compared with no intake were statistically significant.</p>
<p>Rasch V. Cigarette, alcohol, and caffeine consumption: risk factors for spontaneous abortion. <i>Acta Obstet Gynecol Scand.</i> 2003 Feb;82(2):182-8.</p>	<p>The study population consisted of 330 women with spontaneous abortion and 1,168 pregnant women receiving antenatal care. A case-control design was utilized; cases were defined as women with a spontaneous abortion in gestational week 6–16 and controls as women with a live fetus in gestational week 6–16. The variables studied include age, parity, occupational situation, cigarette, alcohol, and caffeine consumption.</p>	<p>To study the association between cigarette, alcohol, and caffeine consumption and the occurrence of spontaneous abortion.</p>	<p>There was a significant association between alcohol consumption (5 or more units of alcohol per week) during pregnancy and spontaneous abortion (odds ratio: 4.8; CI 2.9–8.2).</p>
<p>Kesmodel U, Wisborg K, Olsen SF, Henriksen TB, Secher NJ. Moderate alcohol intake in pregnancy and the risk of spontaneous abortion. <i>Alcohol.</i> 2002 Jan-Feb;37(1):87-92.</p>	<p>All Danish-speaking pregnant women attending routine antenatal care at the Department of Obstetrics and Gynaecology, Aarhus University Hospital, Denmark, from September 1989-August 1996 were invited to participate in the cohort study. The women were asked to fill in two self-administered questionnaires. 24,679 singleton pregnancies were represented.</p>	<p>This study examined the association between maternal alcohol consumption during pregnancy and the risk of spontaneous abortion in a Danish cohort of pregnant women.</p>	<p>There was a significant association between spontaneous abortion in the first trimester (7-11 completed weeks of gestation) for women consuming <math>\geq 5</math> drinks/week. There was not a significant association between spontaneous abortion and alcohol intake during the second trimester.</p>

Source	Sample/Study Description	Purpose	Results
<p>Alm B, Wennergren G, Norvenius G, Skjaerven R, Oyen N, Helweg-Larsen K, Lagercrantz H, Irgens LM. Caffeine and alcohol as risk factors for sudden infant death syndrome. Nordic Epidemiological SIDS Study. Arch Dis Child. 1999 Aug;81(2):107-11.</p>	<p>Analyses based on data from the Nordic epidemiological SIDS study, a case control study in which all parents of sudden infant death syndrome (SIDS) victims in the Nordic countries from September 1, 1992 to August 31, 1995 were invited to participate with parents of four controls, matched for sex and age at death.</p>	<p>This study examined the association between the effects of prenatal and postnatal intake of caffeine and alcohol on SIDS.</p>	<p>There was a significant association between heavy postnatal intake of alcohol and SIDS. There was not a significant association between prenatal intake of alcohol and SIDS after adjusting for social variables.</p>
<p>Windham GC, Von Behren J, Fenster L, Schaefer C, Swan SH. Moderate maternal alcohol consumption and risk of spontaneous abortion. Epidemiology. 1997 Sep;8(5):509-14.</p>	<p>A prospective cohort study of over 5,000 pregnant women. An interview in the first trimester asked about alcohol consumption during the week before interview ("during the first trimester") and before pregnancy.</p>	<p>To investigate the pattern and timing of alcohol consumption before and during pregnancy in relation to risk of spontaneous abortion.</p>	<p>There was an increased risk of spontaneous abortion in women who drank more than three drinks per week during the first trimester, with an adjusted odds ratio of 2.3 (CI 1.1-4.5). Consumption of alcohol before pregnancy was not strongly associated with spontaneous abortion.</p>
<p>Blair PS, Fleming PJ, Bensley D, Smith I, Bacon C, Taylor E, Berry J, Golding J, Tripp J. Smoking and the sudden infant death syndrome: results from 1993-5 case-control study for confidential inquiry into stillbirths and deaths in infancy. Confidential Enquiry into Stillbirths and Deaths Regional Coordinators and Researchers. BMJ. 1996 Jul 27;313(7051):195-8.</p>	<p>Two year population based case-control study in three regions in England. Parental interviews were conducted for each infant who died (195) and four controls (780) matched for age and date of interview.</p>	<p>To investigate the effects of exposure to tobacco smoke and of parental consumption of alcohol and illegal drugs as risk factors for sudden infant death syndrome after a national risk reduction campaign which included advice on prenatal and postnatal avoidance of tobacco smoke.</p>	<p>Alcohol use was higher among index than control mothers but was strongly correlated with smoking and on multivariate analysis was not found to have any additional independent effect.</p>

Source	Sample/Study Description	Purpose	Results
<p>Long MG, Waterson EJ, MacRae KD, Murray Lyon IM.</p> <p>Alcohol consumption and the risk of first trimester miscarriage. Journal of Obstetrics and Gynaecology. 1994; 14 (2): 69-70.</p>	<p>Pregnant women (n = 3,348) who booked consecutively with singleton pregnancies and who delivered a live child after 28 weeks of pregnancy were recruited for the control group. A concurrent, but separate sample, comprised 95 patients who presented consecutively with confirmed spontaneous first trimester miscarriage. These patients had not previously attended the antenatal booking clinic.</p>	<p>To describe drinking and smoking patterns in a sample of women who miscarried in the first trimester of pregnancy.</p>	<p>There was a significant association between drinking alcohol in the early stages of pregnancy and an increased relative risk of first trimester miscarriage. Compared to non-drinkers, the relative risks for light drinkers (1-10 units/week), moderate drinkers (11-14 units/week), and heavy drinkers (&gt;15 units/week) were 3.8 (CI 1.2-12.2), 8.4 (CI 2.5-27.7), and 5.1 (CI 1.2-21.8) respectively.</p>
<p>Scragg R, Mitchell EA, Taylor BJ, Stewart AW, Ford RP, Thompson JM, Allen EM, Becroft DM.</p> <p>Bed sharing, smoking, and alcohol in the sudden infant death syndrome. New Zealand Cot Death Study Group. BMJ. 1993 Nov 20;307(6915):1312-8.</p>	<p>New Zealand nation wide case-control study. Subjects-Home interviews were completed with parents of 393 (81.0% of total) infants who died from sudden infant death syndrome (SIDS) in the postneonatal age group, and 1,592 (88.4% of total) controls who were a representative sample of all hospital births in the study region.</p>	<p>To investigate why sharing the bed with an infant is not a consistent risk factor for SIDS in ethnic subgroups in New Zealand and to see if the risk of SIDS associated with this practice is related to other factors, particularly maternal smoking and alcohol consumption.</p>	<p>There was no association between alcohol consumption and SIDS. There was no interaction between alcohol consumption with bed sharing and SIDS.</p>
<p>Armstrong BG, McDonald AD, Sloan M.</p> <p>Cigarette, alcohol, and coffee consumption and spontaneous abortion. Am J Public Health. 1992 Jan;82(1):85-7.</p>	<p>56,000 women were interviewed for a survey of occupational factors and pregnancy outcomes, comprising all who had had a delivery or a spontaneous abortion in 11 Montreal hospitals in a 2-year period (1982-1984). Questions on occupational, personal, and social factors were asked for all recently completed (current) and all previous pregnancies.</p>	<p>This study examined the relationship of smoking, alcohol, and coffee on spontaneous abortion.</p>	<p>There was a significant association between alcohol consumption and spontaneous abortion with increasing odds with increasing drinking volume. Compared to non-drinkers, those who drank 1-2, 3-6, 7-20, and &gt;20 drinks/week had odds ratios of 1.11 (CI 1.05-1.18), 1.23 (CI 1.13-1.34), 1.47 (CI 1.31-1.65), and 1.82 (CI 1.21-2.34) respectively.</p>
<p>Southall DP, Alexander JR, Stebbens VA, Taylor VG, Janczynski RE.</p> <p>Cardiorespiratory patterns in siblings of babies with sudden infant death syndrome. Arch Dis Child. 1987 Jul;62(7):721-6.</p>	<p>Case-control study with siblings (301) of those who died of sudden infant death syndrome (SIDS) as cases and 197 full-term infants born at one of four hospitals as controls.</p>	<p>One objective of this study was to examine the relationship of maternal alcohol intake during pregnancy and the risk of SIDS</p>	<p>Comparisons showed that mothers of siblings consumed alcohol more often during pregnancy (p&lt; 0.05) than did mothers of controls.</p>

Source	Sample/Study Description	Purpose	Results
<b>Tobacco</b>			
Wikström AK, Cnattingius S, Stephansson O. Maternal use of Swedish snuff (snus) and risk of stillbirth. <i>Epidemiology</i> . 2010 Nov;21(6):772-8.	Researchers of this population-based cohort study estimated the risk of stillbirth in snuff users (n=7,629), light smokers (1-9 cigarettes/day; n=41,488), and heavy smokers (≥10 cigarettes/day; n=17,014), using non-tobacco users (n=504,531) as a reference.	To examine the effect of Swedish snuff on pregnancy complications.	Compared with non-tobacco users, snuff users had an increased risk of stillbirth (adjusted odds ratio: 1.6; CI 1.1-2.3) with higher odds associated with preterm birth (adjusted odds ratio: 2.1; CI 1.3-3.4).
Khoury JC, Miodovnik M, Buncher CR, Kalkwarf H, McElvy S, Khoury PR, Sibai B., Consequences of smoking and caffeine consumption during pregnancy in women with type 1 diabetes. <i>J Matern Fetal Neonatal Med</i> . 2004 Jan;15(1):44-50.	A secondary analysis of data on pregnant women with type 1 diabetes from an interdisciplinary program of Diabetes in Pregnancy. Women were interviewed monthly, by a trained non-medical member of the research team, using a standardized questionnaire, to ascertain daily smoking habits and caffeine consumption.	To test the hypothesis that, in women with type 1 diabetes, prenatal smoking and caffeine consumption during pregnancy are associated with an increased risk of adverse maternal and perinatal outcomes.	Early pregnancy smoking was associated with a significant increased risk of spontaneous abortion (odds ratio: 3.3; CI 1.2-8.7) when controlling for age, years since diagnosis of diabetes, previous spontaneous abortion, nephropathy and retinopathy.
Wisborg K, Kesmodel U, Henriksen TB, Olsen SF, Secher NJ. A prospective study of smoking during pregnancy and SIDS. <i>Arch Dis Child</i> . 2000 Sep;83(3):203-6.	A prospective follow-up study (n=24,986) of pregnant women booking for delivery at the Department of Obstetrics and Gynaecology, Aarhus University Hospital, from September 1989-August 1996. The women were asked to fill in three questionnaires: the first two before the routine antenatal visit at 16 weeks of gestation, and the third before the visit at 30 weeks of gestation.	To study the association between smoking during pregnancy and sudden infant death syndrome (SIDS) using prospectively collected data, making it possible to account for a number of potential confounders.	There was a significant association between maternal smoking and SIDS. Children of smokers had more than three times the risk of SIDS compared with children of non-smokers and the risk of SIDS increased with the number of cigarettes smoked per day.
Wisborg K, Kesmodel U, Henriksen TB, Olsen SF, Secher NJ. Exposure to tobacco smoke in utero and the risk of stillbirth and death in the first year of life. <i>Am J Epidemiol</i> . 2001 Aug 15;154(4):322-7.	A prospective follow-up study (n=24,986) of pregnant women booking for delivery at the Department of Obstetrics and Gynaecology, Aarhus University Hospital, from September 1989-August 1996. The women were asked to fill in three questionnaires: the first two before the routine antenatal visit at 16 weeks of gestation, and the third before the visit at 30 weeks of gestation.	To evaluate the association between exposure to tobacco smoke in utero and the risk of stillbirth and increased mortality in the first year of life while taking into account a number of potential confounders and effect modifiers.	There was a significant association between exposure to tobacco smoke in utero and both stillbirth (odds ratio: 2.0; CI 1.4-2.9) and infant mortality (odds ratio: 1.8; CI 1.3-2.6).

Source	Sample/Study Description	Purpose	Results
<p>Pollack H, Lantz PM, Frohna JG. Maternal smoking and adverse birth outcomes among singletons and twins. Am J Public Health. 2000 Mar;90(3):395-400.</p>	<p>An algorithm was developed to link twins with their siblings in the 1995 Perinatal Mortality Data Set. A random-effects logistic regression model was then used to estimate the association between maternal smoking and several adverse outcomes for a random sample of singletons and for all twins with available maternal smoking information.</p>	<p>This study assessed the effects of maternal smoking on birth outcomes among singletons and twins.</p>	<p>Among singleton births there was a significant association between maternal smoking and infant mortality in both the 1-10 cigarettes/day group (adjusted relative risk: 1.60; CI 1.38-1.85) and the &gt;10 cigarettes/day group (adjusted relative risk: 1.73; CI 1.45-2.01) when compared to non-smokers. No significant associations were observed when evaluating twins.</p>
<p>Cooke RW. Smoking, intra-uterine growth retardation and sudden infant death syndrome. Int J Epidemiol. 1998 Apr;27(2):238-41.</p>	<p>104 sudden infant death syndrome (SIDS) victims who died between 1987 and 1992 and who were brought to a single children's hospital, were compared to 206 controls, matched for place and date of birth. Birthweight, occipitofrontal head circumference, maternal age, smoking habit, and height and weight at booking were recorded.</p>	<p>To test the hypothesis that asymmetrical growth retardation could be identified at birth in later SIDS victims using routinely collected measurements, and that if present, it could largely be accounted for by maternal smoking habit.</p>	<p>Logistic regression analysis showed SIDS to be significantly related to maternal smoking (odds ratio: 4.8; CI 2.8-8.5).</p>
<p>Blair PS, Fleming PJ, Bensley D, Smith I, Bacon C, Taylor E, Berry J, Golding J, Tripp J. Smoking and the sudden infant death syndrome: results from 1993-1995 case-control study for confidential inquiry into stillbirths and deaths in infancy. Confidential Enquiry into Stillbirths and Deaths Regional Coordinators and Researchers. BMJ. 1996 Jul 27;313(7051):195-8.</p>	<p>Two year population based case-control study. Parental interviews were conducted for each infant who died and four controls matched for age and date of interview. Three regions in England with a total population of 17 million people 195 babies who died and 780 matched controls.</p>	<p>To investigate the effects of exposure to tobacco smoke and of parental consumption of alcohol and illegal drugs as risk factors for sudden infant death syndrome after a national risk reduction campaign which included advice on prenatal and postnatal avoidance of tobacco smoke.</p>	<p>More index than control mothers (62.6% v 25.1%) smoked during pregnancy (odds ratio: 2.10; CI 1.24-3.54). Paternal smoking had an additional independent effect when other factors were controlled for (odds ratio: 2.50; CI 1.48-4.22). The risk of death rose with increasing postnatal exposure to tobacco smoke, which had an additive effect among those also exposed to maternal smoking during pregnancy (odds ratio: 2.93; CI 1.56-5.48). The population attributable risk was over 61%, implying that the numbers of deaths from the syndrome could be reduced by almost two thirds if parents did not smoke.</p>

Source	Sample/Study Description	Purpose	Results
<p>Scragg R, Mitchell EA, Taylor BJ, Stewart AW, Ford RP, Thompson JM, Allen EM, Becroft DM. Bed sharing, smoking, and alcohol in the sudden infant death syndrome. New Zealand Cot Death Study Group. <i>BMJ</i>. 1993 Nov 20;307(6915):1312-8.</p>	<p>New Zealand nation wide case-control study. Subjects-Home interviews were completed with parents of 393 (81.0% of total) infants who died from sudden infant death syndrome (SIDS) in the postneonatal age group, and 1,592 (88.4% of total) controls who were a representative sample of all hospital births in the study region.</p>	<p>To investigate why sharing the bed with an infant is a not consistent risk factor for SIDS in ethnic subgroups in New Zealand and to see if the risk of SIDS associated with this practice is related to other factors, particularly maternal smoking and alcohol consumption.</p>	<p>Compared to infants not exposed to bed-sharing and smoking, those exposed to both had a significantly increased risk for SIDS (relative risk: 3.94; CI 2.47-6.27).</p>
<p>Wilcox AJ. Birth weight and perinatal mortality: the effect of maternal smoking. <i>Am J Epidemiol</i>. 1993 May 15;137(10):1098-104.</p>	<p>A Missouri vital statistics file from 1980-1984 linked birth, fetal death, and neonatal death records to provide rates of perinatal mortality. Singleton white births were selected for analysis, and smoking exposure was examined in two categories: mothers who had reported no smoking during pregnancy and those who reported at least one pack of cigarettes a day.</p>	<p>To test the hypothesis that the lower birth weight of infants born to smokers is unrelated to their higher perinatal mortality.</p>	<p>Perinatal mortality was 14.5/1,000 infants born to non-smokers, compared with 10.4 for unexposed infants. Infants exposed to maternal smoking have a higher risk of mortality across all relative birth weights.</p>
<p>Schoendorf KC, Kiely JL, Relationship of Sudden Infant Death Syndrome to Maternal Smoking During and After Pregnancy. <i>Pediatrics</i>. Vol. 90 No. 6 December 1992, pp. 905-908</p>	<p>This case-control analysis used data on normal birth weight (<math>\geq 2,500</math> g) infants included in the National Maternal and Infant Health Survey, a nationally representative sample of approximately 10,000 births and 6,000 infant deaths. Infants were assigned to one of three exposure groups: maternal smoking during both pregnancy and infancy (combined exposure), maternal smoking only during infancy (passive exposure), and no maternal smoking. Sudden infant death syndrome (SIDS) death was determined from death certificate coding.</p>	<p>To examine the relationships between prenatal and postnatal exposure to tobacco smoke and SIDS risk.</p>	<p>After adjustment for demographic risk factors, the odds ratio for SIDS among normal birth weight infants showed a significant increase at approximately 2 for passive exposure and 3 for combined exposure.</p>
<p>Haglund B, Cnattingius S., Cigarette smoking as a risk factor for sudden infant death syndrome: a population-based study. <i>Am J Public Health</i>. 1990 Jan;80(1):29-32.</p>	<p>All Swedish infants from 1983-1985 surviving the first week of life were included (279,938) in this prospective study. The study was restricted to births of mothers between 15 and 44 years of age.</p>	<p>This study investigated the influence of maternal smoking and other risk factors on sudden infant death syndrome (SIDS) in an unselected, homogeneous low-risk population.</p>	<p>Smoking doubled the risk for SIDS and a clear dose-response relation by amount smoked was observed. Maternal smoking also seemed to influence the time of death, as infants of smokers died at an earlier age.</p>

Source	Sample/Study Description	Purpose	Results
<b>HIV</b>			
<p>Venkatesh KK, de Bruyn G, Marinda E, Otworld K, van Niekerk R, Urban M, Triche EW, McGarvey ST, Lurie MN, Gray GE.</p> <p>Morbidity and Mortality among Infants Born to HIV-Infected Women in South Africa: Implications for Child Health in Resource-Limited Settings. <i>J Trop Pediatr.</i> 2010 Jul 3.</p>	<p>Researchers conducted a prospective cohort study of 848 mother-child dyads from three hospitals in South Africa.</p>	<p>Examine maternal and infant correlates of infant morbidity and mortality within the first 3 months of life in a cohort of HIV-exposed infants receiving ARV post-exposure prophylaxis in South Africa.</p>	<p>Mortality was significantly higher with infant HIV infection (hazard ratio: 4.10; CI 1.18-14.31).</p>
<p>Brocklehurst P, French R.</p> <p>The association between maternal HIV infection and perinatal outcome: a systematic review of the literature and meta-analysis. <i>Br J Obstet Gynaecol.</i> 1998 Aug;105(8):836-48.</p>	<p>Appropriate publications were identified using electronic and hand searching of relevant journals from 1983-1996. Studies were included in the review if they were prospective cohorts with pregnant women identified as being HIV-infected with a control group of pregnant women who were not infected with HIV. Methodological quality was assessed for each study. Data were extracted for pre-determined outcome measures. Sensitivity analyses explored the association between HIV infection and an adverse perinatal outcome for the following study characteristics: clinical setting (developed or developing countries), methodological quality (high or poor) and whether studies controlled for potential confounding. Thirty-one studies were eligible to be included in the review.</p>	<p>To investigate the association between maternal HIV infection and perinatal outcome by a systematic review of the literature and meta-analysis.</p>	<p>The summary odds ratios showed strong associations between HIV exposure and spontaneous abortion, stillbirth, and infant mortality. A significant association was also seen with perinatal mortality. Sensitivity analyses also showed that the association between infant mortality and maternal HIV infection was stronger in studies conducted in developing countries when compared with developed countries, and much stronger associations were seen with studies of higher methodological quality than those of poorer quality.</p>
<p>Bloland PB, Wirima JJ, Steketee RW, Chilima B, Hightower A, Breman JG.</p> <p>Maternal HIV infection and infant mortality in Malawi: evidence for increased mortality due to placental malaria infection. <i>AIDS.</i> 1995 Jul;9(7):721-6.</p>	<p>Retrospective analysis of data from a cohort of mothers and infants in rural Malawi conducted from 1987-1990.</p>	<p>To examine the relationship between maternal HIV infection, placental malaria infection, and infant mortality as a first step in investigating the possibility of increased vertical transmission to HIV due to placental malaria infection.</p>	<p>Infant mortality rates were significantly higher among children born to HIV-seropositive women compared to those born to HIV-seronegative women (<math>p &lt; 0.001</math>).</p>

Source	Sample/Study Description	Purpose	Results
<b>Rural</b>			
<p>Larson, E.; Hart, L.; and Rosenblatt, R. Is non-metropolitan residence a risk factor for poor birth outcome in the U.S.? <i>Social Science and Medicine</i> 45(2):171-188, 1997.</p>	<p>Compared overall and race-specific metropolitan and non-metropolitan rates of low birth weight outcome, neonatal mortality, post-neonatal mortality and inadequate prenatal care using individual births as the unit of analysis. The main data source was the National Linked Birth Death Data Set maintained by the National Center for Health Statistics.</p>	<p>To examine and compare non-metropolitan and metropolitan rates of poor birth outcome in the 50 states of the United States in order to assess the importance of non-metropolitan residence as a risk factor for poor birth outcome and inadequate prenatal care.</p>	<p>Results showed that non-metropolitan residence was associated with greater risk of post-neonatal mortality at the national level (relative risk: 1.11; <math>p &lt; 0.01</math>). In particular the south was shown to be considerably disadvantaged with respect to postneonatal mortality. No association was observed between non-metropolitan residence and increased risk of neonatal mortality.</p>
<p>Rock, S., and Straub, L. Birth outcomes to rural Illinois residents: Is there a crisis? <i>Journal of Rural Health</i> 10(2):122-130, 1994.</p>	<p>Birth certificate information from all births among Illinois residents were obtained for 1983 and 1988. Fetal, neonatal, and postneonatal deaths were obtained as well. For consistency in analysis and to ensure an adequate sample size, only white mothers were selected. Counties were classified as rural (nonmetropolitan) or urban (metropolitan) as determined by the Census Bureau.</p>	<p>To evaluate the access to prenatal care and birth outcomes among rural residents of Illinois compared to urban residents.</p>	<p>Using records from 1983, rural fetal and postneonatal death rates were higher (<math>R &lt; 0.05</math> and <math>p &lt; 0.01</math>, respectively) than for urban areas. Records from 1988 were also analyzed and although the fetal and postneonatal death rates were higher than urban areas the results were not statistically significant.</p>
<p>Larson, E.; Hart, L.; and Rosenblatt, R. Rural residence and poor birth outcome in Washington state. <i>Journal of Rural Health</i> 8(3):162-170, 1992.</p>	<p>Birth certificates of all infants born in Washington state to state residents in 1984-1988 (<math>n=343,576</math>) were used. Death certificates of infants who died within 12 months of birth were linked to birth certificates to identify death as an outcome in the larger birth file.</p>	<p>To examine rural and urban differences in rates of inadequate prenatal care, neonatal death, and low birth weight.</p>	<p>Although no significant differences were seen when comparing rural and urban residence neonatal death rates, the neonatal death rate for rural residents delivering at urban hospitals was significantly higher than that for urban residents delivering at urban centers and rural residents delivering at rural centers.</p>
<p>Clarke, L., and Coward, R. A multivariate assessment of the effects of residence on infant mortality. <i>Journal of Rural Health</i> 7(3):246-265, 1991.</p>	<p>Birth certificate records for each birth that occurred in Florida in 1987, (<math>n=176,635</math>) were obtained and matched to death records for a corresponding time period. County-level data including urbanicity (along a five category rural-urban continuum) were gathered to provide measures of the socioeconomic and medical care resources (i.e., structural context) of each birth in the sample.</p>	<p>To identify the effects of maternal residence on infant mortality.</p>	<p>Residence did not have an independent direct effect on infant mortality when the influence of the other risk factors was controlled.</p>

Source	Sample/Study Description	Purpose	Results
<p>Allen, D.I., and Kamradt, J.M. Relationship of infant mortality to the availability of obstetrical care in Indiana. <i>Journal of Family Practice</i> 33(6):609-613, 1991.</p>	<p>A state-wide physician profile maintained by the Indiana Academy of Family Physicians was cross-referenced with a telephone survey of all hospitals in the state to identify those physicians providing obstetrical services within each county. The number of physicians in each county was then compared with the number of births per year by mothers from that county to determine whether nonmetropolitan counties had sufficient physicians to provide obstetrical services. Finally, these findings were compared with the most recent infant mortality rate for each nonmetropolitan county.</p>	<p>To determine if there is a correlation between the availability of obstetrical services and the infant mortality rate in nonmetropolitan counties.</p>	<p>There was a significant negative correlation (-.38; p&gt;0.02) between physician availability and infant mortality in Indiana's nonmetropolitan counties. An R<sup>2</sup> of 14.44 was calculated, implying that 14.44% of Indiana's infant mortality in nonmetropolitan counties is explained by a lack of physician availability.</p>
<b>Race</b>			
<p>Wingate MS, Barfield WD. Racial and Ethnic Variations in Temporal Changes in Fetal Deaths and First Day Infant Deaths. <i>Matern Child Health J.</i> 2010 Aug 26. [Epub ahead of print]</p>	<p>Deliveries to U.S. white, black, and Hispanic mothers were selected from the National Center for Health Statistics linked live birth-infant death cohort and fetal deaths files (1990-1991 and 2001-2002).</p>	<p>To examine changes in overall and gestational age-specific proportions and rates of fetal death, first day death (&lt;24 h), and combined fetal-first day death from 1990-1991 to 2001-2002. Changes were considered by race/ethnicity.</p>	<p>While the fetal mortality rate among whites and Hispanics declined 4.32 and 12.82 percent, for blacks, the fetal mortality rate increased 4.06 percent between 1990–1991 and 2001–2002. Despite overall reductions in perinatal and 24 hour mortality, black rates in all outcomes maintained a twofold disparity.</p>
<p>Kitsantas P, Gaffney KF. Racial/ethnic disparities in infant mortality. <i>J Perinat Med.</i> 2010;38(1):87-94.</p>	<p>Linked birth/infant death records from North Carolina for the period 1999–2007 were used. Logistic regression models were constructed to estimate the effect of maternal and infant characteristics on neonatal (&lt;28 days) and postneonatal (28–364 days) mortality.</p>	<p>To examine predictors of neonatal and postneonatal mortality among infants born to black, white, and Hispanic women.</p>	<p>Analyses revealed an increased risk among black infants for postneonatal death compared to white infants (adjusted odds ratio: 1.26; CI 1.14-1.39). Results also showed that Hispanic infants have a decreased risk to postneonatal mortality compared to white infants (adjusted odds ratio: 0.67; CI 0.57-0.79).</p>
<p>Alexander GR, Wingate MS, Bader D, Kogan MD. The increasing racial disparity in infant mortality rates: composition and contributors to recent US trends. <i>Am J Obstet Gynecol.</i> 2008 Jan;198(1):51.e1-9. Epub 2007 Sep 17.</p>	<p>Live births to US-resident mothers with a maternal race of white or black were selected from the National Center for Health Statistics' linked live birth-infant death cohort files (1985-1988 and 1995-2000).</p>	<p>To examine trends in birth weight-gestational age distributions and related infant mortality for black and white women and calculate the estimated excess annual number of black infant deaths.</p>	<p>The racial disparity in infant mortality widened despite an increasing rate of white low-birth weight infants. It is estimated that 3,303 excess black infant deaths occurred annually during the 1995-2000 period. Slightly more than 20% of the excess deaths occurred to infants who were 2,500 grams or greater or at term or beyond.</p>

Source	Sample/Study Description	Purpose	Results
<p>Besculides M, Laraque F. Racial and ethnic disparities in perinatal mortality: applying the perinatal periods of risk model to identify areas for intervention. J Natl Med Assoc. 2005 Aug;97(8):1128-32.</p>	<p>The Perinatal Periods of Risk (PPOR) model examines fetal and infant deaths by age at death (fetal, neonatal, postneonatal) and birth weight (500-1,499, &gt;1,500 grams). It groups age at death and birth weight into four categories to identify problems hypothesized to lead to the death: factors related to maternal health and prematurity, maternal care, newborn care and infant health. The model was applied to fetal and infant deaths occurring in New York City using vital records data from 1996-2000.</p>	<p>To determine the fetto-infant mortality rate for New York City, assess racial/ethnic variations and identify areas for intervention using the PPOR approach.</p>	<p>The fetto-infant mortality rate for black non-Hispanics was higher than for other racial/ethnic groups. Observed rates among blacks were 8.2/1,000 live births compared to 10.0 among Hispanics, 7.3 among white non-Hispanics, and 7.2 among Asians/Pacific Islanders.</p>
<p>Hessol NA, Fuentes-Afflick E. Ethnic differences in neonatal and postneonatal mortality. Pediatrics. 2005 Jan;115(1):e44-51.</p>	<p>Secondary analysis was performed on 1,277,393 live born singleton infants to black, Hispanic, and white women from the California linked birth-infant death certificate from 1995-1997.</p>	<p>To identify ethnic differences in neonatal and postneonatal mortality as well as the causes and risk factors among infants born in California.</p>	<p>Black women (odds ratio: 1.25; CI 1.10-1.42) had higher odds of postneonatal mortality. Hispanic women (0.80; CI 0.71-0.89) had lower odds compared with white women after adjusting for maternal and infant factors.</p>
<p>Vintzileos AM, Ananth CV, Smulian JC, Scorza WE, Knuppel RA. Prenatal care and black-white fetal death disparity in the United States: heterogeneity by high-risk conditions. Obstet Gynecol. 2002 Mar;99(3):483-9.</p>	<p>A population-based, retrospective cohort study using the national perinatal mortality data for 1995–1997 assembled by the National Center for Health Statistics. Fetal death rate (per 1,000 births) and adjusted relative risks were derived from multivariable logistic regression models.</p>	<p>To determine the impact of prenatal care in the US on the fetal death rate in the presence and absence of obstetric and medical high-risk conditions, and to explore the role of these high risk conditions in contributing to the black–white disparity.</p>	<p>Fetal death rates were higher for blacks than whites in the presence (4.2 versus 2.4 per 1,000) and absence (17.2 versus 2.5 per 1,000) of prenatal care.</p>
<p>Demissie K, Rhoads GG, Ananth CV, Alexander GR, Kramer MS, Kogan MD, Joseph KS. Trends in preterm birth and neonatal mortality among blacks and whites in the United States from 1989 to 1997. Am J Epidemiol. 2001 Aug 15;154(4):307-15.</p>	<p>Researchers used the 1989–1997 US live birth, fetal death, and infant death databases. Only those births recorded as white or black race were included in the analysis. Preterm birth and neonatal and infant mortality were the principal outcomes evaluated.</p>	<p>To better understand the reasons for the black-white disparity in preterm birth trends, as well as their implications for neonatal and infant mortality.</p>	<p>Neonatal mortality among preterm whites dropped 34% during the 8 years of the study, while the decrease was only 24% among blacks.</p>

Source	Sample/Study Description	Purpose	Results
<p>Lane SD, Cibula DA, Milano LP, Shaw M, Bourgeois B, Schweitzer F, Steiner C, Dygert K, DeMott K, Wilson K, Gregg R, Webster N, Milton D, Aubry R, Novick LF.</p> <p>Racial and ethnic disparities in infant mortality: risk in social context. J Public Health Manag Pract. 2001 May;7(3):30-46.</p>	<p>Compared the age at death by race and gender in Onondaga County, New York using vital records data for three years (1994-1996), controlling for the difference in size between the two populations by examining the timing of death by age group.</p>	<p>To examine the racial disparities in mortality across the life-span in Onondaga County.</p>	<p>After controlling for the difference in size between the two populations by examining the timing of death by age group, investigators found a much larger proportion of black children dying in infancy than white residents. Death rates among black infant males were 3.6 and females 5.6 times the expected standardized mortality.</p>
<p>Zuvekas A, Wells BL, Lefkowitz B.</p> <p>Mexican American infant mortality rate: implications for public policy. J Health Care Poor Underserved. 2000 May;11(2):243-57.</p>	<p>This study examined infant mortality rates (IMRs) using linked 1983-1987 birth/infant death data sets from the National Center for Health Statistics, the most recent national linked data sets during the study period.</p>	<p>To examine whether Mexican Americans' low IMRs are real or the result of anomalous data.</p>	<p>This study found that the low Mexican American IMRs are real and not simply a data anomaly. Mexican American's low-birth-weight total was 5.7 percent, comparable to that of non-Hispanic white infants and significantly lower than that of non-Hispanic black infants (13.0 percent).</p>
<p>Alexander GR, Kogan MD, Himes JH, Mor JM, Goldenberg R.</p> <p>Racial differences in birthweight for gestational age and infant mortality in extremely-low-risk US populations. Paediatr Perinat Epidemiol. 1999 Apr;13(2):205-17.</p>	<p>Single live births, 34-42 weeks' gestation, to white (n=3,626,846) and black (n=4,360,829) US-resident mothers selected from the 1990-1991 US linked live birth-infant death file.</p>	<p>To determine to what extent differences in fetal growth and infant mortality persist between Extremely Low Risk (ELR) white and black women.</p>	<p>Compared with ELR white mothers, the risk of infant mortality was significantly greater for ELR black mothers (relative risk: 1.61; CI 1.27-2.04).</p>
<p>Alexander GR, Tompkins ME, Allen MC, Hulsey TC.</p> <p>Trends and racial differences in birth weight and related survival. Matern Child Health J. 1999 Jun;3(2):71-9.</p>	<p>The data were obtained from the 1975-1994 South Carolina public access linked live birth-infant death data files. White and black infant mortality rates (IMRs) were compared.</p>	<p>In order to document and more fully explore the mechanisms for both the trends and disparities in infant mortality rates, they examined temporal changes in birth weight distributions and birth weight specific neonatal mortality by racial groups.</p>	<p>Birth weight specific neonatal mortality decreased for both races, although greater reductions accrued to white low birth weight infants.</p>

Source	Sample/Study Description	Purpose	Results
Poma PA, Poma AE. Influence of maternal ethnicity on infant mortality in Chicago, 1989-1996. J Natl Med Assoc. 1999 Feb;91(2):87-90.	Infant mortality information about ethnic groups was compared using data from annual reports published by the Epidemiology Program, Department of Public Health, City of Chicago and vital statistics documents in Illinois.	This study compared IMRs among the largest ethnic groups in Chicago-blacks, Hispanics, and whites-from 1989-1996.	Of the 6 most common causes of infant mortality in this study, short gestational age-low birth weight, sudden infant death syndrome, congenital anomalies, respiratory distress syndrome, other respiratory conditions, and other perinatal conditions, Blacks suffered two to three times more infant deaths from each of these conditions than the other two groups (p<.0001), except in deaths from congenital anomalies.
Din-Dzietham R, Hertz-Picciotto I. Infant mortality differences between whites and African Americans: the effect of maternal education. Am J Public Health. 1998 Apr;88(4):651-6.	The North Carolina linked birth and infant death file, containing births in years 1988-1993 and all infant deaths from this cohort, was obtained.	To examine the joint effect of maternal race and education on infant mortality in North Carolina, adjusting for factors such as maternal age, smoking, parity, prenatal care, gestational age, and residence.	After adjusting for covariates, results showed that black infants had a significantly higher risk of infant death than their white counterparts at every level of maternal education. Data further showed that although education beyond high school resulted in reduced risk of infant mortality in whites, it had little effect among blacks.
Din-Dzietham R, Hertz-Picciotto I. Relationship of education to the racial gap in neonatal and postneonatal mortality. Arch Pediatr Adolesc Med. 1997 Aug;151(8):787-92.	Data were collected from North Carolina's linked birth and infant file for 1988 through 1993. The study population included 169,601 African American births and 400,359 European American births, with 2,606 and 3,060 deaths, respectively. Multiple logistic regression was used to assess the effects of race and education on neonatal and post-neonatal mortality, adjusting for sociodemographic, lifestyle, and medical risk factors.	To examine the impact of education on race differences in neonatal and post-neonatal mortality.	Significant associations were observed between increased neonatal and post-neonatal deaths among African Americans compared to European Americans. The odds ratios for neonatal deaths were as follows: 2.2 (CI 1.9-2.5), 2.3 (CI 2.1-2.6), and 2.8 (CI 2.5-3.2) for less than 12 years of education, 12 years of education, and more than 12 years of education. The odds ratios for post-neonatal deaths were: 1.3 (CI 1.1-1.6), 1.5 (CI 1.3-1.7), and 2.1 (CI 1.7-2.6), respectively.
Hsieh HL, Lee KS, Khoshnood B, Herschel M. Fetal death rate in the United States, 1979-1990: trend and racial disparity. Obstet Gynecol. 1997 Jan;89(1):33-9.	Data on live births and fetal deaths in the U.S. for the period 1979-1990 were examined by birth weight group and race using Kitagawa's method for analysis of the crude fetal death rate.	To examine the impact of changes in birth weight distribution in individual groups and in birth weight-specific fetal death rates on the decline in the crude fetal death rate in the US.	Although both black and white populations showed decreases in the crude death rate, the reduction was greater in whites and others (~22%) than in blacks (10%). The disparity can be explained almost entirely by differences in birth weight distribution.

Source	Sample/Study Description	Purpose	Results
Herschel M, Hsieh HL, Mittendorf R, Khoshnood B, Covert RF, Lee KS Fetal death in a population of black women. Am J Prev Med. 1995 May-Jun;11(3):185-9.	A record review of the primary causes of fetal deaths occurring over an 11-year period in a population of 26,852 black women who delivered at the Chicago Lying-in Hospital, University of Chicago Hospitals.	To discover the most likely clinical causes or medical pathology associated with fetal mortality in a black population.	The fetal death rate per 10,000 births attributed to hypertension was nine times greater in this population than in a historical comparison population of Canadian white women, although the prevalence of hypertension was only 1.2 times greater in the population of black women.
Laveist TA. Segregation, poverty, and empowerment: health consequences for African Americans. Milbank Q. 1993;71(1):41-64.	Cities were selected for the study that had a population in 1980 $\geq$ 50,000, at least 10 percent of which was black. These selection criteria resulted in a population of 176 cities representing 32 states and all regions of the US. Data for the analysis were derived from various published sources, including the National Center for Health Statistics, the U.S. Census Bureau, and the Joint Center for Political and Economic Studies. Five-year rates (1981-1985) were used in order to control for possible single-year variations in cities with few births or infant deaths.	To examine the relationship between racial segregation and infant mortality.	Black infant mortality is significantly higher in highly segregated cities (unadjusted correlation coefficient: 0.247, $P < 0.01$ ), whereas white rates were essentially unaffected by a city's level of segregation.
Druschel, C.M., and Hale, C.B. Postneonatal mortality among normal birth weight infants in Alabama, 1980 to 1983. Pediatrics 80(6):869-872, 1987.	Alabama's linked birth-death file was used to evaluate causes of postneonatal mortality for the 1980-1983 cohorts of normal birth weight infants. Causes were aggregated into six categories, and cause-specific rates were compared by race and by urban-rural residence.	To identify reasons for the racial differential in postneonatal deaths and possible intervention strategies.	The relative risk of sudden infant death syndrome comparing blacks to whites was 2.4 (CI 1.9-3.1).
<b>Psycho-social</b>			
Singh GK, Kogan MD. Persistent socioeconomic disparities in infant, neonatal, and postneonatal mortality rates in the United States, 1969-2001. Pediatrics. 2007 Apr;119(4):e928-39.	A deprivation index was linked to county vital records data to derive annual infant mortality rates by deprivation quintiles from 1969-2000. Rates by maternal education were computed for 1986, 1991, 1996, and 2001 using national linked birth/infant death files.	To examine the changing patterns of inequalities in US infant, neonatal, and postneonatal mortality rates between 1969 and 2001 by area deprivation and maternal education.	In 1985-1989, infants in the most deprived group had, respectively, 36% and 57% higher risks of neonatal and postneonatal mortality than infants in the least deprived group. The corresponding relative risks increased to 43% and 96% in 1995-2000.

Source	Sample/Study Description	Purpose	Results
<p>Luo ZC, Wilkins R, Kramer MS; Fetal and Infant Health Study Group of the Canadian Perinatal Surveillance System.</p> <p>Disparities in pregnancy outcomes according to marital and cohabitation status. <i>Obstet Gynecol.</i> 2004 Jun;103(6):1300-7.</p>	<p>Canadian researchers conducted a birth cohort-based study of all 720,586 births registered in Quebec for the years 1990-1997.</p>	<p>To assess the risks and trends of adverse pregnancy outcomes among mothers in common-law unions versus traditional marriage relationships.</p>	<p>The rate of post-neonatal mortality among infants born to common-law mothers was significantly higher than for infants born to married mothers (adjusted odds ratio: 1.23; CI 1.04-1.44).</p>
<p>Tan H, Wen SW, Walker M, Demissie K.</p> <p>Missing paternal demographics: A novel indicator for identifying high risk population of adverse pregnancy outcomes. <i>BMC Pregnancy &amp; Childbirth</i>, 2004, Vol. 4, p21-7, 7p, 3 Charts; DOI: 10.1186/1471-2393-4-21</p>	<p>A population-based retrospective cohort study based on the registry data in the US for the period of 1995–1997, which was a matched multiple birth file (only twins were included in the current analysis). The study subjects were divided into three groups according to the availability of partner information: available, partly missing, and totally missing.</p>	<p>To assess whether and to what extent outcomes in pregnant women who did not have partner information differ from those who had.</p>	<p>The rates of fetal mortality, neonatal mortality, and post-neonatal mortality were significantly increased in mothers whose partner's information was partly or totally missing compared to mothers whose partner's information was listed (relative risks: 1.87, 2.03, and 2.43, respectively).</p>
<p>Phipps MG, Sowers M, DeMonner SM.</p> <p>The risk for infant mortality among adolescent childbearing groups. <i>J Womens Health (Larchmt)</i>. 2002 Dec;11(10):889-97.</p>	<p>Researchers combined the 1995 and 1996 comprehensive US birth cohorts provided by the National Center for Health Statistics, and analysis included 777,762 singleton, first births to women aged 12–19 years linked to 4,631 infant deaths.</p>	<p>To evaluate risk disparities and risk factors for infant mortality among adolescent childbearing age groups.</p>	<p>Not reporting the father on the child's birth certificate was associated with a 24% increased risk for infant mortality among infants born to mothers less than or equal to 15 years old.</p>
<p>Stephansson O, Dickman PW, Johansson AL, Cnattingius S.</p> <p>The influence of socioeconomic status on stillbirth risk in Sweden. <i>Int J Epidemiol.</i> 2001 Dec;30(6):1296-301.</p>	<p>Population-based individually-matched case-control study including 702 cases of stillbirth and 702 controls among Swedish primiparous women giving birth 1987-1996. Odds ratios were adjusted for maternal age, height, body mass index, cigarette smoking, and country of birth.</p>	<p>To study the association between socio-economic status and risk of stillbirth, and to assess whether any differences in risk are mediated by other maternal socio-demographic or anthropometrical characteristics, differences in lifestyle, and attendance at antenatal care.</p>	<p>Compared with women who were high level white-collar workers, those who were unskilled-blue collar workers (adjusted relative risks: 2.2; CI 1.3-3.7), skilled blue-collar workers (adjusted relative risks: 2.4; CI 1.3-4.1), and low level white-collar workers (adjusted relative risks: 1.9; CI 1.2-3.2) all had significantly increased risk of stillbirth. Low social class was most associated with risks of term and antepartum and intrapartum stillbirths.</p>

Source	Sample/Study Description	Purpose	Results
<p>Scholer SJ, Hickson GB, Ray WA. Sociodemographic factors identify US infants at high risk of injury mortality. Pediatrics. 1999 Jun;103(6 Pt 1):1183-8.</p>	<p>Historical cohort study using the National Center for Health Statistics linked US infants (&lt;1 year) born from 1985-1991 with death certificates.</p>	<p>To identify sociodemographic predictors of infant injury mortality and to compare trends in injury mortality rates for high- and low risk US infants from 1985-1991.</p>	<p>Highest risk infants were born to mothers who were &lt;20 years compared with &gt;30 years, had less than a high school education compared with a college education, had more than 2 other children compared with no other children, were unmarried, or had birth weights &lt;1,500 grams compared with &gt;2,500 grams. Infants in the highest risk group (21.0% of the population) had a &gt;10-fold increased risk of injury mortality compared with the lowest risk group (18.1% of the population).</p>
<p>Gaudino JA Jr, Jenkins B, Rochat RW. No fathers' names: a risk factor for infant mortality in the State of Georgia, USA. Soc Sci Med. 1999 Jan;48(2):253-65.</p>	<p>Using the linked 1989-1990 birth and death certificates of singleton Georgia infants to calculate relative risks, infant mortality rates for 38,943 infants with no father's names listed were compared to rates for 178,100 with father's names listed.</p>	<p>To test whether the lack of father's names on birth certificates would be independently associated with infant survival.</p>	<p>Compared with the rate for married women listing names, the death rates were higher for unmarried mothers not listing fathers (relative risk: 2.5; CI 2.3-2.7), unmarried mothers listing fathers (relative risk: 1.4; CI 1.3-1.6), and married women not listing fathers (relative risk: 2.3; CI 1.6-3.1).</p>
<p>Kawachi I, Kennedy BP, Lochner K, Prothrow-Stith D. Social capital, income inequality, and mortality. Am J Public Health. 1997 Sep;87(9):1491-8.</p>	<p>In this cross-sectional ecologic study based on data from 39 states, social capital was measured by weighted responses to two items from the General Social Survey: per capita density of membership in voluntary groups in each state and the level of social trust, as gauged by the proportion of residents in each state who believed that people could be trusted.</p>	<p>The following three linked hypotheses were tested: (1) state variations in income inequality predict the extent of investment in social capital, (2) the degree of investment in social capital predicts state variations in total and cause-specific mortality, and (3) there is little residual direct association between state income inequality and mortality after investment in social capital has been controlled.</p>	<p>Income inequality was strongly correlated with both per capita group membership and lack of social trust. In turn, both social trust and group membership were significantly associated with infant mortality.</p>

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