

Methamphetamine

Selected References:

- ACOG Committee on Health Care for Underserved Women. 2011 (reaffirmed 2021). Committee Opinion No. 479: Methamphetamine abuse in women of reproductive age. *Obstet Gynecol*; 117:751-5.
- Ajayi AF et al. 2020. The physiology of male reproduction: Impact of drugs and their abuse on male fertility. *Andrologia*, **52**(9): e13672.
- Brecht ML, Herbeck DM. 2014. Pregnancy and fetal loss reported by methamphetamine-using women. *Subst Abuse*; 8:25-33.
- Chang L, et al. 2004. Smaller subcortical volumes and cognitive deficits in children with prenatal methamphetamine exposure. *Psych Res:Neuroimaging* 132:95-106.
- Chomchai C, et al. 2016. Transfer of methamphetamine (MA) into breast milk and urine of postpartum women who smoked MA tablets during pregnancy: Implications for initiation of breastfeeding. *J Hum Lact*; 32:333-9.
- Chu EK, et al. 2020. Behavior Problems During Early Childhood in Children With Prenatal Methamphetamine Exposure. *Pediatrics*.146(6):e20190270.
- Cohen JM, et al. 2017. Placental complications associated with psychostimulant use in pregnancy. *Obstet Gynecol*; 130(6):1192-201.
- Courtney KE, Ray LA. 2014. Methamphetamine: an update on epidemiology, pharmacology, clinical phenomenology, and treatment literature. *Drug Alcohol Depend*. 1;143:11-21.
- Derauf C, et al. 2012. Prenatal methamphetamine exposure and inhibitory control among young school-age children. *J Pediatr*; 161(3):452-9.
- Dinger J, et al. 2017. Methamphetamine consumption during pregnancy – effects on child health. *Pharmacopsychiatry*; 50(3):107-113.
- Dyk JV, et al. 2014. Maternal methamphetamine use in pregnancy and long-term neurodevelopmental and behavioral deficits in children. *J Popul Ther Clin Pharmacol*; 21(2):e185-96.
- Eriksson M, et al. 1981. Amphetamine addiction and pregnancy II. Pregnancy, delivery and the neonatal period. Socio-medical aspects. *Acta Obstet Gynecol Scand* 60:253-259, 1981.
- Garey JD, et al. 2020 Teratogen update: Amphetamines. *Birth Defects Res*.112(15):1171-1182. doi: 10.1002/bdr2.1774. Epub 2020 Aug 4. PMID: 32755038.
- Golub M, et al. 2005. NTP CERHR Expert Panel Report on the reproductive and developmental toxicity of amphetamine and methamphetamine. *Birth Defects Res B Dev Reprod Toxicol* 74(6):471-584.
- Good MM, et al. 2010. Methamphetamine use during pregnancy: maternal and neonatal implications. *Obstet Gynecol*; 116(2 Pt 1):330-4.
- Gorman MC, et al. 2014. Outcomes in pregnancies complicated by methamphetamine use. *Am J Obstet Gynecol*; 211(4):429.e1-7.
- Harst L, et al. 2021. Prenatal Methamphetamine Exposure: Effects on Child Development–A Systematic Review. *Dtsch Arztebl Int*. 7;118(18):313-319
- Heinonen OP, et al. 1977. *Birth Defects and Drugs in Pregnancy*. Littleton, MA: John Wright-PSG, pp 346-347, 439.
- LaGasse LL, et al. 2011. Prenatal methamphetamine exposure and neonatal neurobehavioral outcome in the USA and New Zealand. *Neurotoxicol Teratol*; 33(1):166-75.
- LaGasse LL, et al. 2012. Prenatal methamphetamine exposure and childhood behavior at 3 and 5 years of age. *Pediatrics*; 129(4):681-688.
- Little BB, et al. 1988. Methamphetamine abuse during pregnancy: outcome and fetal effects. *Obstet Gynecol*; 72:541-4.
- Kalaitzopoulos DR, et al. 2018. Effect of methamphetamine hydrochloride on pregnancy outcome: A systematic

review and meta-analysis. *J Addict Med*; 12(3):220-226.

- Kittirattanapaiboon P, et al. 2017. Methamphetamine use and dependence in vulnerable female populations. *Curr Opin Psychiatry*; 30(4):247-252.
- Kwiatkowski MA, et al. 2018. Cognitive outcomes in prenatal methamphetamine exposed children aged six to seven years. *Compr Psychiatry*; 80:24-33.
- Newport DJ, et al. 2016. Prenatal psychostimulant and antidepressant exposure and risk of hypertensive disorders of pregnancy. *J Clin Psychiatry*; 77(11):1538-45.
- Nguyen D, et al. 2010. Intrauterine growth of infants exposed to prenatal methamphetamine: results from the infant development, environment, and lifestyle study. *J Pediatr*; 157(2):337-9.
- Ornoy A. 2018. Pharmacological treatment of attention deficit hyperactivity disorder during pregnancy and lactation. *Pharm Res*; 35:46.
- Pentecost R, et al. 2021. Scoping Review of the Associations Between Perinatal Substance Use and Perinatal Depression and Anxiety. *J Obstet Gynecol Neonatal Nurs*. 50(4):382-391
- Pflügner A, et al. 2018. [Methamphetamine consumption during pregnancy and its effects on neonates]. *Klin Padiatr*; 230(1):31-38.
- Pierce SL, et al. 2019. Methamphetamine-associated cardiomyopathy in pregnancy. *Mayo Clinic Proc* 94(3):551-554.
- Roussotte FF, et al. 2012. Frontostriatal connectivity in children during working memory and the effects of prenatal methamphetamine, alcohol, and polydrug exposure. *Dev Neurosci*; 34(1):43-57.
- Sanjari Moghaddam H, et al. 2021. Effects of Prenatal Methamphetamine Exposure on the Developing Human Brain: A Systematic Review of Neuroimaging Studies. *ACS Chem Neurosci*. 4;12(15):2729-2748.
- Sankaran, D, et al. 2021. Methamphetamine: burden, mechanism and impact on pregnancy, the fetus, and newborn. *J Perinatol*.
- Shah R, et al. 2012. Prenatal methamphetamine exposure and short-term maternal and infant medical outcomes. *Am J Perinatol*; 29(5):391-400.
- Smid MC, et al. 2019. Stimulant use in pregnancy: An under-recognized epidemic among pregnant women. *Clin Obstet Gynecol*; 62(1):168-184.
- Smith LM, et al. 2003. Effects of prenatal methamphetamine exposure on fetal growth and drug withdrawal symptoms in infants born at term. *J Dev Behav Pediatr* 24(1):17-23.
- Smith LM, et al. 2006. The infant development, environment, and lifestyle study: effects of prenatal methamphetamine exposure, polydrug exposure, and poverty on intrauterine growth. *Pediatrics*; 118(3):1149-56.
- Smith LM, et al. 2008. Prenatal methamphetamine use and neonatal neurobehavioral outcome. *Neurotoxicol Teratol*. 30(1):20-28.
- Smith LM, et al. 2011. Motor and cognitive outcomes through three years of age in children exposed to prenatal methamphetamine. *Neurotoxicol Teratol*; 33(1):176-84.
- Stewart JL, Meeker JE. 1997. Fetal and infant deaths associated with maternal methamphetamine abuse. *J Anal Toxicol*; 21(6):515-7.
- Twomey J, et al. 2013. Prenatal methamphetamine exposure, home environment, and primary caregiver risk factors predict child behavioral problems at 5 years. *The American journal of orthopsychiatry*; 83(1):64-72.
- Woudes TA, et al. 2014. Prenatal methamphetamine exposure and neurodevelopmental outcomes in children from 1 to 3 years. *Neurotoxicol Teratol*; 42:77-84.
- Woudes TA, Lester BM. 2023. Opioid, methamphetamine, and polysubstance use: perinatal outcomes for the mother and infant. *Front Pediatr*. 1:1305508. doi: 10.3389/fped.2023.1305508. PMID: 38250592; PMCID: PMC10798256.
- Wright TE, et al. 2015. Methamphetamines and pregnancy outcomes. *J Addict Med*; 9(2):111-7.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at [MotherToBaby.org](https://www.MotherToBaby.org).

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, January 1, 2024.

Methamphetamine

Selected References:

- Abolhassani N. 2023. Major malformations risk following early pregnancy exposure to metformin: a systematic review and meta-analysis. *BMJ Open Diab Res Care*: 11(1).
- Brand KM. 2022. Metformin in pregnancy and risk of adverse long-term outcomes: a register-based cohort study. *BMJ Open Diab Res Care* 10(1): e002363.
- Brand KM. 2022. Metformin in pregnancy and risk of abnormal growth outcomes at birth: a register-based cohort study. *BMJ Open Diab Res Care*: 10(6), e003056.
- Briggs GG, et al. 2005. Excretion of metformin into breast milk and the effect on nursing infants. *Obstet Gynecol* 105(6):1437-41.
- Cassina M, et al. 2014. First-trimester exposure to metformin and risk of birth defects: a systematic review and meta-analysis. *Hum Reprod Update*. 20(5):656-69.
- Coetzee EJ, et al. 1980. Pregnancy in established non- insulin-dependent diabetics: A five-and-a-half year study at Groote Schuur Hospital. *S Afr Med J* 58:795-802.
- Coetzee EJ, et al. 1984. Oral hypoglycaemics in the first trimester and fetal outcome. *S Afr Med J*. 65:635-7.
- Dhulkotia JS, et al. 2010. Oral hypoglycemic agents vs insulin in management of gestational diabetes: a systematic review and metaanalysis. *Am J Obstet Gynecol*. 203(5):457.e1-9.
- Diav-Citrin O, et al. 2018. In-utero exposure to metformin for type 2 diabetes or polycystic ovary syndrome: A prospective comparative observational study. *Reprod Toxicol*. 80:85-91.
- Feig DS, et al. 2007. Oral antidiabetic agents in pregnancy & lactation: a paradigm shift? *Ann Pharmacother* 41:1174-80.
- Feig DS et al. 2023. Outcomes in children of women with type 2 diabetes exposed to metformin versus placebo during pregnancy (MiTy Kids): a 24-month follow-up of the MiTy randomised controlled trial. *Lancet Diabetes Endocrinol* 11(3):191-202.
- Fornes R, et al. 2022. Pregnancy, perinatal and childhood outcomes in women with and without polycystic ovary syndrome and metformin during pregnancy: a nationwide population-based study. *Reproductive Biology and Endocrinology*, 20(1): 1-12.
- Gardiner SJ, et al. 2003. Transfer of metformin into human milk. *Clin Pharmacol Ther* 73:71-7.
- Ghazeeri G, et al. 2012. Pregnancy outcomes and effect of metformin treatment in women with polycystic ovary

syndrome: an overview. *Acta Obstetricia et Gynecologica Scandinavica*. 91:658-678.

- Gilbert C, et al. 2006. Pregnancy outcome after first-trimester exposure of metformin: a meta-analysis. *Fertil Steril* 86:658-63.
- Glueck CJ, et al. 2001. Continuing metformin throughout pregnancy in women with polycystic ovary syndrome appears to safely reduce first-trimester spontaneous abortion: a pilot study. *Fertil Steril* 75:46-52.
- Glueck CJ, et al. 2002. Pregnancy outcomes among women with polycystic ovary syndrome treated with metformin. *Hum Reprod* 17:2858-64.
- Glueck CJ et al. 2004. Height, weight, and motor-social development during the first 18 months of life in 126 infants born to 109 mothers with polycystic ovary syndrome who conceived on and continued metformin through pregnancy. *Hum Reprod* 19:1323-30.
- Glueck CJ et al. 2006. Growth, motor, and social development in breast- and formula-fed infants of metformin-treated women with polycystic ovary syndrome. *J Pediatr* 148:628-32.
- Glueck CJ et al. 2008. Prevention of gestational diabetes by metformin plus diet in patients with polycystic ovary syndrome. *Fertil Steril* 89:625-634.
- Glueck CJ et al. 2013. Effects of metformin-diet intervention before and throughout pregnancy on obstetric and neonatal outcomes in patients with polycystic ovary syndrome. *Current Med Res and Op*. 29(1): 55-62.
- Greger HK et al. 2020. Cognitive function in metformin exposed children, born to mothers with PCOS-follow-up of an RCT. *BMC Pediatrics* 20:60.
- Ismail B, et al. 2019. Assessment of the fetal myocardial performance index in well-controlled gestational diabetics & to determine whether it is predictive of adverse perinatal outcome. *Pediatric Cardiology*. 40:1460-1467.
- Jakubowicz D. 2002. Effects of Metformin on Early Pregnancy Loss in the Polycystic Ovary Syndrome, *J of Clinical Endocrinology & Metabolism* 87(2): 524-529.
- Meek CL. 2023. An unwelcome inheritance: childhood obesity after diabetes in pregnancy. *Diabetologia*, 66(11), 1961-1970.
- Newman C. 2022. Metformin for pregnancy and beyond: the pros and cons. *Diabetic Medicine* 39(3): e14700.
- Panchaud A, et al. 2018. Pregnancy outcomes in women on metformin for diabetes or other indications among those seeking teratology information services. *Br J Clin Pharmacol* 84(3): 568-578.
- Picon-Cesar MJ, et al 2021. Metformin for gestational diabetes study: metformin vs insulin in gestational diabetes: glycemic control and obstetrical and perinatal outcomes: randomized prospective trial. *Am J Obstet Gynecol* 225"517.e1-17.
- Rotem RS, et al. 2024. Paternal Use of Metformin During the Sperm Development Period Preceding Conception and Risk for Major Congenital Malformations in Newborns. *Ann Intern Med*. doi: 10.7326/M23-1405.
- Tarry-Adkins J, et al. 2019. Neonatal, infant, and childhood growth following metformin versus insulin treatment for gestational diabetes: A systemic review and meta-analysis. *PLOS Medicine* 16(8): e1002848.
- Tavlo M, et al. 2022. Hypothesis: Metformin is a potential reproductive toxicant. *Frontiers in Endocrinology*, 13: 2660.
- Tosti G, et al. 2023. Lights and shadows on the use of metformin in pregnancy: from the preconception phase to breastfeeding and beyond. *Frontiers in Endocrinology* 14: 1176623.
- Tseng CH. 2022. The effect of metformin on male reproductive function and prostate: An updated review. *The World Journal of Men's Health* 40(1): 11.
- Wensink MJ, Lu Y, Tian L, et al. Preconception Antidiabetic Drugs in Men and Birth Defects in Offspring : A Nationwide Cohort Study. *Ann Intern Med*. 2022;175(5):665-673.
- Woudes TA, et al. 2016 Neurodevelopmental outcome at 2 years in offspring of women randomised to metformin or insulin treatment for gestational diabetes. *Arch Dis Child Fetal Neonatal Ed* 101(6):F488-F493.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at [MotherToBaby.org](https://www.MotherToBaby.org).

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, January 1, 2024.

Methamphetamine

Selected References:

- ACOG Committee Opinion No. 718: Update on immunization and pregnancy: tetanus, diphtheria, and pertussis vaccination. 2017. *Obstet Gynecol*, 130(3):668-669.
- American Academy of Pediatrics. Committee on Infectious Diseases. "Red Book": Report on the Committee on Infectious Diseases." Elk Grove Village, IL: American Academy of Pediatrics 2021.
- Arora M, et al. 2021. Vaccines – safety in pregnancy. *Best Pract Res Clin Obstet Gynaecol*. 76:23-40.
- Baxter R, et al. 2017. Effectiveness of vaccination during pregnancy to prevent infant pertussis. *Pediatrics*, 139(5):e2016409.1.
- Bernstein HH, et al. 2022. Factors Influencing Maternal Antepartum Tdap Vaccination. *Matern Child Health J*. 2022; 26(12): 2385-2395.
- 2013. Updated recommendations for use of tetanus toxoid, reduced diphtheria, and acellular pertussis vaccine (Tdap) in pregnant women – Advisory Committee on Immunization Practices (ACIP), 2012. *MMWR*, 62(07):131-5.
- Campbell H, et al. 2018. Review of vaccination in pregnancy to prevent pertussis in early infancy. *J Med Microbiol*, 67(10):1426-1456.
- DeSilva M, et al. 2016. Tdap vaccination during pregnancy and microcephaly and other structural birth defects in offspring. *JAMA*, 316(17):1823-1825.
- DiTosto JD, et al. 2021. Association of Tdap vaccine guidelines with vaccine uptake during pregnancy. 16(7):e0254863.
- Ezeanolue E, et al. 2020. Best practices guidance of the Advisory Committee on Immunization Practices (ACIP). <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html>. Accessed December 15, 2021.
- Greenberg V. et al. 2023. Tdap vaccination during pregnancy and risk of chorioamnionitis and related infant outcomes. *Vaccine*. 41(22):3429-3435.
- Hassen M, et al. Safety of maternal pertussis vaccination on pregnancy and birth outcomes: A prospective cohort study. *Vaccine*, 39(2):324-331.
- Havers FP, et al. 2020. Use of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccines: Updated recommendations of the Advisory Committee on Immunization Practices – United States, 2019. *MMWR Morb Mortal Wkly Rep*, 69(3):77-83.
- Kerr SM, et al. 2020. Tetanus, diphtheria, and pertussis vaccine (Tdap) in pregnancy and risk of major birth

defects in the offspring. *Birth Defects Res*, 112(5):393-403.

- Kharbanda EO, et al. 2014. Evaluation of the association of maternal pertussis vaccination with obstetric events and birth outcomes. *JAMA*, 312(18):1897-1904.
- Khromava A, et al. 2008. Immunization of pregnant women with tetanus-diphtheria-acellular pertussis (Tdap) vaccine: 29 months of data from the ADACEL vaccine pregnancy registry. *Pharmacoepidemiol Drug Saf*, 17(1): S194-S195.
- Layton JB, et al. 2017. Prenatal Tdap immunization and risk of maternal and newborn adverse events. *Vaccine*, pii: S0264-410X(17)30868-X.
- McMillan M, et al. 2017. Safety of tetanus diphtheria, and pertussis vaccination during pregnancy: a systematic review. *Obstet Gynecol*, 129(3):560-573.
- Mooi FR and de Greeff SC. 2007. The case for maternal vaccination against pertussis. *Lancet Infect Dis*, 7(9):614-624.
- Morgan JL, et al. 2015. Pregnancy outcomes after antepartum tetanus, diphtheria, and acellular pertussis vaccination. *Obstet Gynecol*, 125: 1433-1438.
- Munoz FM, et al. 2014. Safety and immunogenicity of tetanus diphtheria and acellular pertussis (Tdap) immunization during pregnancy in mothers and infants: a randomized clinical trial. *JAMA*, 311(17):1760-1769.
- Nascimento RMD, et al. 2021. Protective effect of exclusive breastfeeding and effectiveness of maternal vaccination in reducing pertussis-like illness. *J Pediatr*, (Rio J)97:500-507.
- Nasser R, et al. 2019. Are all vaccines safe for the pregnant traveler? A systematic review and meta- analysis. *J Travel Med*, doi:10.1093/jtm/taz074.
- National Center for Immunization and Respiratory Diseases. 2011. General recommendations on immunization — recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep*, 60 (RR02):1-60.
- Orije MRP, et al. Breast milk antibody levels in Tdap vaccinated women after preterm delivery. *Clin Infect Dis*, 73:e1305-e1313.
- Panagiotakopoulos L, et al. 2020. Evaluating the association of stillbirths after maternal vaccination in the Vaccine Safety Datalink. *Obstet Gynecol*, 136(6):1086-1094.
- Shakib JH, et al. 2013. Tetanus, Diphtheria, Acellular Pertussis Vaccine during Pregnancy: Pregnancy and Infant Health Outcomes. *J Pediatr*. 163(5):1422-6.e1-4.
- Sukumaran L, et al. 2015. Association of Tdap vaccination with acute events and adverse birth outcomes among pregnant women with prior tetanus-containing immunizations. *JAMA*, 314(15):1581-1587.
- Sukumaran L, et al. 2015. Safety of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis and influenza vaccinations in pregnancy. *Obstet Gynecol*, 126(5):1069-1074.
- Walls T, et al. 2016. Infant outcomes after exposure to Tdap vaccine in pregnancy: an observational study. *BMJ Open*, (1):e009536.
- Winter K, et al. 2012. California pertussis epidemic, 2010. *The Journal of Pediatrics*, 161(6):1091-1096.
- Zheteyeva YA, et al. 2012. Adverse event reports after tetanus toxoid reduced diphtheria toxoid and acellular pertussis vaccines in pregnant women. *Am J Obstet Gynecol*, 207(1):59.e1-59.e7.
- Zimmermann P, et al. 2019. The effect of maternal immunization during pregnancy on infant vaccine responses. *EClinicalMedicine*, 13:21-30.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at [MotherToBaby.org](https://www.MotherToBaby.org).

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, January 1, 2024.

Methamphetamine

Selected References:

- Brent B, Wisner K. 1998. Fluoxetine and carbamazepine concentrations in a nursing mother/infant pair. Clin Pediatr; 37:41-4.
- Burdine J, Luedtke S. 2021. Serotonin Toxicity Versus Withdrawal: Clonidine One Size Fits All? The journal of pediatric pharmacology and therapeutics: JPPT: the official journal of PPAG ;26(5):502-17.
- Freeman MP, et al. 2022. Pregnancy outcomes after first-trimester exposure to buspirone: prospective longitudinal outcomes from the MGH National Pregnancy Registry for Psychiatric Medications. Arch Women's Mental Health ;25(5):923-928.
- Meltzer HY et al. 1983. The effect of buspirone on prolactin and growth hormone secretion in man. Arch Gen Psychiatry 40:1099-102.
- Newport D, Ritchie J, Knight B, et al. 2009. Venlafaxine in human breast milk and nursing infant plasma: Determination of exposure. J Clin Psychiatry ;70:1304-10.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at [MotherToBaby.org](https://www.MotherToBaby.org).

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, January 1, 2024.

Methamphetamine

Referencias Seleccionadas:

- Bokun V, et al. 2019. Respiratory Syncytial Virus Exhibits Differential Tropism for Distinct Human Placental Cell Types with Hofbauer Cells Acting as a Permissive Reservoir for Infection. *PLoS One*; 14(12):e0225767.
- Centers for Disease Control and Prevention (CDC). 08/2023. Respiratory Syncytial Virus Infection (RSV) web page: <https://www.cdc.gov/rsv/index.html> [Accessed 8/2023].
- Chu HY, et al. 2016. Clinical Presentation and Birth Outcomes Associated with Respiratory Syncytial Virus Infection in Pregnancy. *PLoS One*. 2016 Mar 31;11(3):e0152015.
- Chiba Y, et al. 1987. Effect of breast feeding on responses of systemic interferon and virus-specific lymphocyte transformation in infants with respiratory syncytial virus infection. *J Med Virol*; 21(1):7-14.
- Downham MA, et al. 1976. Breast-feeding protects against respiratory syncytial virus infections. *Br Med J*; 2:274-6.
- Ferolla FM, et al. 2013. Macronutrients during pregnancy and life-threatening respiratory syncytial virus infections in children. *Am J Respir Crit Care Med*; 187(9):983-90.
- Fonseca AM, et al. 2017. Infective Respiratory Syncytial Virus is Present in Human Cord Blood Samples and Most Prevalent During Winter Months. *PLoS One*; 12(4):e0173738.
- Galanti M, et al. 2019. Rates of asymptomatic respiratory virus infection across age groups. *Epidemiol Infect*; 147:e176.
- Hause A, et al. 2021. Adverse Outcomes in Pregnant Women Hospitalized with Respiratory Syncytial Virus Infection: A Case Series, *Clinical Infectious Diseases*: 72(1):138-140.
- Irvine LM, et al. 1990. Elevated viral antibody titres in spontaneous abortion. *FEMS Microbiol Immunol*; 2(1):23-7.
- Manti S, et al. 2017. Detection of Respiratory Syncytial Virus (RSV) at Birth in a Newborn with Respiratory Distress. *Pediatr Pulmonol*; 52(10):e81-4.
- Manti S, et al. 2020. Respiratory syncytial virus seropositivity at birth is associated with adverse neonatal respiratory outcomes. *Pediatr Pulmonol*; 55(11):3074-3079.
- Mineva G & Philip R. 2022. Impact of Breastfeeding on the Incidence and Severity of RSV Bronchiolitis in Infants: Systematic Review. *Pediatrics*; 149 (1 Meeting Abstracts): 280.
- Nandapalan N, et al. 1987. Mammary immunity of mothers of infants with respiratory syncytial virus infection. *J Med Virol*; 22:277-87.
- Okamoto Y, et al. 1989. Effect of breast feeding on the development of anti-idiotypic antibody response to F glycoprotein of respiratory syncytial virus in infant mice after post-partum maternal immunization. *J Immunol*; 142:2507-12.
- Piedimonte G, et al. 2013. Vertical transmission of respiratory syncytial virus modulates pre- and postnatal innervation and reactivity of rat airways. *PLoS One*; 8(4):e61309.
- Regan AK, et al. 2018. Respiratory Syncytial Virus Hospitalization During Pregnancy in 4 High-Income Countries, 2010-2016. *Clin Infect Dis*. 67(12):1915-8.
- Riccò M, et al. 2022. Respiratory Syncytial Virus in Pregnant Women: Systematic Review and Meta-Analysis. *Women*; 2(2):147-160.
- Scott R, et al. 1985. Cellular reactivity to respiratory syncytial virus in human colostrum and breast milk. *J Med*

Viol; 17(1):83-93.

- Wheeler SM, et al. 2015. Maternal Effects of Respiratory Syncytial Virus Infection during Pregnancy. Emerg Infect Dis; 21(11):1951-1955.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at [MotherToBaby.org](https://www.MotherToBaby.org).

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, January 1, 2024.