

Hydrocodone

Selected References:

- Anderson PO, et al. 2007. Hydrocodone excretion into breast milk: the first two reported cases. *Breastfeeding Medicine*, 2(1):10-14.
- Azuine RE, et al, 2019. Prenatal risk factors and perinatal and postnatal outcomes associated with maternal opioid exposure in an urban, low-income, multiethnic US population. *JAMA Network Open*, 2(6); e196405-196405.
- Broussard CS, et al, 2011. Maternal treatment with opioid analgesics and risk for birth defects. *Am J Obstet Gynecol*, 204(4):314.e1-11.
- Desai RJ, et al, 2015. Exposure to prescription opioid analgesics in utero and risk of neonatal abstinence syndrome: population based cohort study. *BMJ*, 350:h2012.
- Fishman B, et al. 2019. Pregnancy outcome following opioid exposure: A cohort study. *PloS One*, 14(7):e0219061.
- Flannagan KS, et al. 2020. Prescription opioid use among populations of reproductive age: effects on fertility, pregnancy loss, and pregnancy complications. *Epidemiol Rev*, 42(1):117-133.
- Fronczak CM, et al. 2012. The insults of illicit drug use on male fertility. *Journal of Andrology*, 33(4): 515-528.
- Heinonen OP, et al. 1977. *Birth Defects and Drugs in Pregnancy*. Littleton, MA: Publishing Sciences Group.
- Hsieh A. 2018. Management strategies in opioid abuse and sexual dysfunction: a review of opioid-induced androgen deficiency. *Sexual Medicine Reviews*, 6(4):618-623.
- Kellogg A, et al. 2011. Current trends in narcotic use in pregnancy and neonatal outcomes. *Am J Obstet Gynecol*, 204(3):259.e1-4.
- Lind JN, et al. 2017. Maternal use of opioids during pregnancy and congenital malformations: a systematic review. *Pediatrics*, 139(6):e20164131.
- Madadi P, et al. 2012. Pharmacogenetics of opioids for the treatment of acute maternal pain during pregnancy and lactation. *Curr Drug Metab*, 13(6):721-727.
- Patrick SW, et al. 2015. Prescription opioid epidemic and infant outcomes. *Pediatrics*, 135(5):842-850.
- Reece-Stremtan S, et al. 2017. ABM Clinical Protocol #15: Analgesia and Anesthesia for the Breastfeeding Mother, Revised 2017. *Breastfeeding Medicine*, 12(9):500-506.
- Rosa F, personal communication, FDA. 1993. Cited in: Briggs GG, et al. *Drugs in Pregnancy and Lactation Online*, Hudson, Ohio: Wolters Kluwer Clinical Drug Information, Inc. Nov 15, 2017.
- Ryan KS, et al. 2023. Opioid use in pregnancy: a review. *Obstet Gynecol Surv*, 78(1):35-49.
- Sauberan JB, et al. 2011. Breast milk hydrocodone and hydromorphone levels in mothers using hydrocodone for postpartum pain. *Obst Gynecol*, 117(3):611-617.
- Schick B, et al. 1996. Preliminary analysis of first trimester exposure to oxycodone and hydrocodone. *Reprod Toxicol*, 10:162.
- Semet M, et al. 2017. The impact of drugs on male fertility: a review. *Andrology*, 5(4):640-663.
- Shirel T, et al. 2016. Maternal opioid dose is associated with neonatal abstinence syndrome in children born to women with sickle cell disease. *Am J Hematology*, 91(4):416-419.
- Smith MV, et al. 2015. Clinical correlates of prescription opioid analgesic use in pregnancy. *Matern Child Health J*, 19(3):548-556.
- Sujan AC, et al. 2019. Maternal prescribed opioid analgesic use during pregnancy and associations with adverse birth outcomes: a population-based study. *PLoS Medicine*, 16(12):e1002980.

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Hydrocodone

Selected References:

- Ahmadi A, et al. 2022. Prevalence of *Listeria monocytogenes* infection in women with spontaneous abortion, normal delivery, fertile and infertile. BMC Pregnancy and Childbirth. 22(1):974.
- Ahmed S, et al. 2024. Listeriosis Infection in Pregnancy: A Case Series. Cureus; 16(11):e74135.
- Awofiasayo A, et al. 2015. Pregnancy-associated listeriosis in England and Wales. Epidemiol Infect. 143(2):249-256.
- Basri NI. 2024. Listeriosis in pregnancy: a challenge in diagnosis. BMJ Case Rep; 17(4):e259938.
- Bortolussi R, Mailman TL. Listeriosis. 2006. Remington JS, Klein JO, editors. Infectious diseases of the fetus and newborn infant. 6th ed. W.B. Saunders Company, p. 465-483.
- Castaño Frías L, et al. 2024. Case Series of *Listeria monocytogenes* in Pregnancy: Maternal-Foetal Complications and Clinical Management in Six Cases. Microorganisms; 12(11):2306.
- Charlier C, et al. MONALISA study group. 2017. Clinical features and prognostic factors of listeriosis: the MONALISA national prospective cohort study. Lancet Infect Dis. 17(5):510-519.
- Cito G, et al. 2005. Listeriosis in pregnancy: a case report. J Maternal Fetal Neonatal Med. 18(6):367-368.
- Craig, AM, et al. 2019. Listeriosis in pregnancy: a review. Obstet Gynecol Surv. 74(6):362-368.
- Craig A, et al. 2022. Maternal and obstetric outcomes of listeria pregnancy: insights from a national cohort. J Matern Fetal Neonatal Med; 35(25):10010-10016.
- Desai RW, et al. 2017. Pregnancy-related listeriosis. Birth Defects Res. 15;109(5):324-335.
- Fotopoulou ET, et al. 2024. *Listeria monocytogenes*: the silent assassin. J Med Microbiol. 73(3):001800.
- Hasbún J, et al. 2013. Chorioamnionitis caused by *Listeria monocytogenes*: a case report of ultrasound features of fetal infection. Fetal Diagn Ther. 33(4):268-271.
- LaTuga MS. 2025. Invasive Neonatal Listeriosis. Neoreviews; 26(9):e615-e620.
- Lorber B. *Listeria monocytogenes*. 2005. Mandell GL, Bennett JE, Dolin R, editors. Principles and practice of infectious diseases. 6th ed. Elsevier Churchill Livingstone; p. 2478-2484.
- Jackson KA, et al. 2010. Pregnancy-associated listeriosis. Epidemiol Infect. 138(10):1503-1509.
- Janakiraman V. 2008. Listeriosis in pregnancy: diagnosis, treatment, and prevention. Rev Obstet Gynecol. 1(4):179-185.

- Johnson LJ, et al. 2021. Humanplacentaltrophoblasts infected by *Listeria monocytogenes* undergo a pro-inflammatory switch associated with poor pregnancy outcomes. *Front Immunol.* 12:709466.
- Koopmans MM, et al. 2023. Human Listeriosis. *Clin Microbiol Rev*; 36(1):e0006019.
- Kraus V Jr, et al. 2024. *Listeria* in Pregnancy-The Forgotten Culprit. *Microorganisms*; 12(10):2102.
- Quinlivan JA, et al. 1988. Ultrasound features of congenital listeriosis- a case report. *Prenat Diagn.* 18(10):1075-1078.
- Sappenfield E, et al. 2013. Pregnancy and susceptibility to infectious diseases. *Infect Dis Obstet Gynecol.* 2013:752852.
- Simon K, et al. 2018. *Listeria*, then and now: a call to reevaluate patient teaching based on analysis of US federal databases, 1998-2016. *J Midwifery Womens Health.* 63(3):301-308.
- Sarr M, et al. 2021. A *Listeria monocytogenes* clone in human breast milk associated with severe acute malnutrition in West Africa: a multicentric case-controlled study. *PLoS Negl Trop Dis.* 15(6):e0009555.
- Silver, HM. 1998. Listeriosis during pregnancy. *Obstet Gynecol Surv.* 53(12):737-740.
- The American College of Obstetricians and Gynecologists. 2014, reaffirmed 2019. Committee Opinion No. 614: Management of pregnant women with presumptive exposure to *Listeria monocytogenes*. *Obstet Gynecol.* 124(6):1241-1244.
- The Centers for Disease Control and Prevention (CDC), 2024. About *Listeria* infection. <https://www.cdc.gov/listeria/about/index.html> [Accessed 2/2026].
- The Centers for Disease Control and Prevention (CDC). 2011 Outbreak of *Listeria* Infections Linked to Whole Cantaloupes: <https://www.cdc.gov/listeria/outbreaks/cantaloupes-jensen-farms/index.html>
- U.S. Department of Health and Human Services. 2024. *Listeria*, FoodSafety.Gov. available at: <https://www.foodsafety.gov/food-poisoning/bacteria-and-viruses#listeria>
- Vázquez-Boland JA, et al. 2017. *Listeria* placental infection. *Mbio.* 8(3):e00949-17.
- Vidal EN, et al. 2019. Listeriosis during pregnancy and in newborns: 18 Years of data from a large tertiary hospital in Singapore. *J Pediatric Infect Dis Soc.* 9(4):498-501.
- Wong JMH, et al. 2024. Listeriosis in pregnancy. *CMAJ.* 196(28):E978.
- Zhan Y, et al. 2023. Perinatal infection with *Listeria monocytogenes*: a 10-year hospital-based study in western China. *J Inflamm Res.* 16:1243-1254.

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Hydrocodone

Selected References:

- Akhavan A & Bershad S. 2003. Topical acne drugs: review of clinical properties, systemic exposure, and safety. *Am J Clin Dermatol* 4(7): 473-492. \
- American College of Obstetricians and Gynecologists (ACOG), Skin Conditions During Pregnancy, 2026, <https://www.acog.org/patient-resources/faqs/pregnancy/skin-conditions-during-pregnancy>
- Andersen FA. 1998. Final report on the safety assessment of glycolic acid, ammonium, calcium, potassium, and sodium glycolates, methyl, ethyl, propyl, and butyl glycolates, and lactic acid, ammonium, calcium, potassium, sodium, and TEA-lactates, methyl, ethyl, isopropyl, and butyl lactates, and lauryl, myristyl, and cetyl lactates. *Int J Toxicol*. 17(Suppl 1):1-241.
- Chien AL, et al. 2016. Treatment of Acne in Pregnancy. *JABFM* 29(2):254-262.
- Collier EK, et al. 2021. Pregnancy and breastfeeding in hidradenitis suppurativa: A review of medication safety. *Dermatologic Therapy*. 34(1):e14674.
- Fiume MZ. 1998. Final report on the safety assessment of glycolic acid, ammonium, calcium, potassium, and sodium glycolates, methyl, ethyl, propyl, and butyl glycolates, and lactic acid, ammonium, calcium, potassium, sodium, and tea-lactates, and lauryl, myristyl, and cetyl lactates. *Int J Toxicol* 17(Suppl):1-241. Graupe K. et al. 1996. Efficacy and safety of topical azelaic acid (20 percent cream): An overview of results from European clinical trials and experimental reports. *Cutis*. 57:20-35.
- Kong YL and Tey HL 2013. Treatment of Acne Vulgaris during pregnancy and lactation. *Drugs* 73(8):779-787.
- Ly S, et al. 2023. Treatment of acne vulgaris during pregnancy and lactation: a narrative review. *Dermatol Ther (Heidelb)*. Jan;13(1):115-130.
- Meredith FM and Ormerod AD. 2013. The management of acne vulgaris in pregnancy. *Am J Clin Dermatol*. 14(5):351-358.
- Murase JE, et al. 2014. Safety of dermatologic medications in pregnancy and lactation: Part I. Pregnancy. *J Am Acad Dermatol*. 70(3):401.e1-14.
- Nacht S, et al. 1981. Benzoyl peroxide percutaneous penetration and metabolic disposition. *J Am Acad Dermatol* 4:31-37.
- Panchaud A. et al. 2012. Pregnancy outcome following exposure to topical retinoids: A multicenter prospective study. *J Clin Pharmacol* 52(12):1844-1851
- Song S, et al. 2003. Combined repeated dose and reproductive/developmental toxicities of benzoyl peroxide. *J Toxicol Public Health* 19(2):123-131.
- Tyler KH, and Zirwas MJ. 2013. Pregnancy and dermatologic therapy. *JAAD* 68(4):663-671.
- U.S. Food & Drug Administration. 2023. CFR – Code of Federal Regulations Title 21. Available at: <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm>.
- Yeung D, et al. 1983. Benzoyl peroxide: percutaneous penetration and metabolic disposition. II. Effect of concentration. *J Am Acad Dermatol* 9(6):920-924.
- Williams AL, et al. 2020. Teratogen update: topical use and third-generation retinoids. *Birth Defects Research* 112(15):1105-1114.
- Wilmer E, et al. 2016. Drug Safety: Pregnancy rating classifications and controversies. *Clinics in Dermatology* 34(3):401-409.

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Hydrocodone

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.
- Becerra-Culqui TA, et al. 2020. The association of prenatal tetanus, diphtheria, and acellular pertussis (Tdap) vaccination with Attention-Deficit/Hyperactivity Disorder. *Am J Epidemiol*. 189(10):1163-1172.
- Bernstein HH, et al. 2022. Factors Influencing Maternal Antepartum Tdap Vaccination. *Matern Child Health J*. 2022; 26(12): 2385–2395.
- 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.
- Fakhraei R, et al. 2021. Obstetric and perinatal health outcomes after pertussis vaccination during pregnancy in Ontario, Canada: a retrospective cohort study. *CMAJ Open*. 9(2):E349.
- Fan R, et al. 2026. Risk signal assessment of Tdap vaccine use alone by pregnant women: An updated pharmacoepidemiological study. *Front Cell Infect Microbiol*. 15:1689560.
- Florea A, et al. 2023. Investigating tetanus, diphtheria, acellular pertussis vaccination during pregnancy and risk of congenital anomalies. *Infect Dis Ther*. 12(2):411-423.
- Greenberg V. et al. 2023. Tdap vaccination during pregnancy and risk of chorioamnionitis and related infant outcomes. *Vaccine*. 41(22):3429-3435.
- Haidara FC, et al. 2024. Safety and immunogenicity of a single dose of Tdap compared to Td in pregnant women in Mali and 3 its effect on infant immune responses: a single-centre, randomised, double-blind, active-

controlled phase 2 study. *EClinicalMedicine*. 71:102556.

- Hassen M, et al. 2021. 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.
- Macias Saint-Gerons D, et al. 2021. Adverse events associated with the use of recommended vaccines during pregnancy: An overview of systematic reviews. *Vaccine*. 2021;39 Suppl 2:B12-B26.
- 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. 2021. 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.
- The Centers for Disease Control and Prevention (CDC). 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.
- 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.

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Hydrocodone

Selected References:

- Bender EA, et al. 2021. Treatment methods for vulvovaginal candidiasis in pregnancy. J Mycol Med. 31(3):101138.
- Butler DC, et al. 2014. Safety of dermatologic medications in pregnancy and lactation: Part II. Lactation. J Am Acad Dermatol. 70(3):417 e1-10.
- Carter TC, et al. 2008. Antifungal drugs and the risk of selected birth defects. Am J Obstet Gynecol. 198:191-193.
- Czeizel AE, et al. 2004. Population-based case-control teratologic study of topical miconazole. Congenit Anom. 44(1):41-45.
- Daniel S, et al. 2018. Vaginal antimycotics and the risk for spontaneous abortions. Am J Obstet Gynecol. 218(6):601.e1-601.e7.
- Giavini E, et al. 2010. Are azole fungicides a teratogenic risk for human conceptus? Toxicol Lett. 198(2):106-111.
- Kazy Z, et al. 2005. The possible association between the combination of vaginal metronidazole and miconazole treatment and poly-syndactyly population-based case-control teratologic study. Reprod Toxicol. 20(1):89-94.
- Maftai NM, et al. 2023. Vulvovaginal Candidiasis in Pregnancy-Between Sensitivity and Resistance to Antimycotics. J Xenobiot. 13(3):312-322.
- Mendling W, et al. 2012. Guidelines vulvovaginal candidosis (2010) of the German Society for Gynecology and Obstetrics, the Working Group for Infections and Infectimmunology in Gynecology and Obstetrics, the German

Society of Dermatology, the Board of German Dermatologists and German speaking Mycological Society. Mycoses. Jul;(55) Suppl 3:1-13.

- Murase JE, et al. 2014. Safety of dermatologic medications in pregnancy and lactation: Part 1 Pregnancy. J Am Acad Dermatol. 70(3):401.e1-14.
- Patel VM, et al. 2017. Topical antiviral and antifungal medications in pregnancy: a review of safety profiles. J Eur Acad Dermatol Venereol. 31(9):1440-1446.
- Rotem R, et al. 2018. Risk of major congenital malformations following first-trimester exposure to vaginal azoles used for treating vulvovaginal candidiasis: a population-based retrospective cohort study. BJOG. 125(12):1550-1556.
- Stevens RE, et al. 2002. Bioavailability study of a 1200 mg miconazole nitrate vaginal ovule in healthy female adults. J Clin Pharmacol. 42(1):52-60.
- Tiboni GM, et al. 2008. Teratogenic effects in mouse fetuses subjected to the concurrent in utero exposure to miconazole and metronidazole. Reprod Toxicol. 26(3-4):254-261.

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