

# Sulfasalazine (Azulfidine®)

---

## Selected References:

- Birnie GG, et al. 1981. Incidence of sulphasalazine-induced male infertility. *Gut* 22:452-455.
- Bokstrom H, et al. 2006. Fetal hemolytic anemia associated with maternal sulfasalazine therapy during pregnancy. *Acta Obstet Gynecol Scand* 85:118-121.
- Connell W, Miller A. 1999. Treating inflammatory bowel disease during pregnancy: Risks and safety of drug therapy. *Drug Saf* 21:311-323.
- Chatzionaiff M, et al. 1988. Sulfasalazine-induced abnormal sperm penetration assay reversed on changing to 5-aminosalicylic acid enemas. *Dig Dis Sci* 33:108-110.
- Hernandez-Diaz S, et al. 2000. Folic acid antagonists during pregnancy and the risk of birth defects. *N Engl J Med* 343:1608-1614.
- Hoo JJ, et al. 1988. Possible teratogenicity of sulfasalazine. *New Engl J Med* 318:112.
- Jarnerot G, et al. 1981. Albumin reserve for binding of bilirubin in maternal and cord serum under treatment with sulphasalazine. *Scand J Gastroenterol* 16:1049-1055.
- Klarsov P, et al. 2013. Short-acting sulfonamides near term and neonatal jaundice. *Obstet Gynecol* 122:105-110.
- Levi AJ, Fisher AM. 1979. Male infertility due to sulphasalazine. *Lancet* 2:276-278.
- Levi S, et al. 1988. Reversible congenital neutropenia associated with maternal sulphasalazine therapy (letter). *Euro J Pediatr* 48:174-175.
- Mogadam M, et al. 1981. Pregnancy in inflammatory bowel disease: effect of sulfasalazine and corticosteroids on fetal outcome. *Gastroenterology* 80:72-76.
- Moody GA, et al. 1997. The effects of chronic ill health and treatment with sulphasalazine on fertility amongst men and women with inflammatory bowel disease in Leicestershire. *Int J Colorectal Dis* 12:220-224
- Newman NM, Correy JF. 1983. Possible teratogenicity of sulphasalazine. *Med J Aust* 1:528-1529.
- Nielsen OH, et al. 1983. Pregnancy in ulcerative colitis. *Scand J Gastroenterol* 18(6):735-742.
- Norgard B, et al. 2001. Population-based case control study of the safety of sulfasalazine use during pregnancy. *Aliment Pharmacol Ther* 15:483-486.
- Norgard B, et al. 2003. Risk of congenital abnormalities in children born to women with ulcerative colitis: a population-based, case-control study. *Am J Gastroenterol* 98:2006-2010.
- Norgard B, et al. 2007. Therapeutic drug use in women with Crohns disease and birth outcomes: a Danish nationwide cohort study. *Am J Gastroenterol* 102(7):1406-1413.
- Toovey S, et al. 1981. Sulphasalazine and male infertility: Reversibility and possible mechanism. *Gut* 22:445-451.
- Toth A. 1979. Male infertility due to sulphasalazine. *Lancet* 2:904.
- Toth A. 1979. Reversible toxic effect of salicylazosulfapyridine on semen quality. *Fertil Steril* 1:538-540.
- Viktil KK, et al. 2012. Outcomes after anti-rheumatic drug use before and during pregnancy: a cohort study among 150,000 pregnant women and expectant fathers. *Scand J Rheumatol*. 41(3):196-201.

Des questions? Appelez le 866.626.6847 | Envoyez un SMS au 855.999.3525 | Envoyez un e-mail ou discutez sur [MotherToBaby.org](https://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, 1 septembre 2024.

---

## Sulfasalazine (Azulfidine®)

---

### Selected references.

- Deleuran M, et al. 2024. Systemic anti-inflammatory treatment of atopic dermatitis during conception, pregnancy and breastfeeding: Interdisciplinary expert consensus in Northern Europe. J Eur Acad Dermatol Venereol 38:31-41.
- Product Information. 2021. ADBRY(TM) subcutaneous injection, tralokinumab-ldrm subcutaneous injection. LEO Pharma Inc.
- Stratigakis A, et al. 2023. A regression approach for assessing large molecular drug concentration in breast milk. Reprod Breed;3:199-207.

Des questions? Appelez le 866.626.6847 | Envoyez un SMS au 855.999.3525 | Envoyez un e-mail ou discutez sur [MotherToBaby.org](https://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, 1 septembre 2024.

# Sulfasalazine (Azulfidine®)

---

## Selected References:

- Allan-Blitz L.T, Klausner J.D. 2023. Current Evidence Demonstrates That Monkeypox Is a Sexually Transmitted Infection. *Sex Transm Dis.* 1;50(2):63-65.
- Centers for Disease Control and Prevention. 2024. Preventing Mpox. Accessed September 2024 <https://www.cdc.gov/mpox/prevention/index.html>.
- Centers for Disease Control and Prevention. 2024. Safer Sex. Accessed September 2024 <https://www.cdc.gov/mpox/prevention/safer-sex-social-gatherings-and-mpox.html>.
- García-Hernández L, et al. 2024. Case report: clinical presentation of Mpox in pregnancy. *Rev Clin Esp (Barc).* (4):245-247.
- Jamieson DJ, et al. 2004. The role of the obstetrician-gynecologist in emerging infectious diseases: mpox and pregnancy. *Obstetrics & Gynecology* 103(4):754-756.
- Khalil A, et al. 2022. Mpox and pregnancy: what do obstetricians need to know? *Ultrasound Obstet Gynecol;* 60(1):22-27.
- Kisalu NK and Mokili JL. 2017. Toward understanding the outcomes of mpox infection in human pregnancy. *J Infectious Diseases* 216(7):795-797.
- Mbala PK, et al. 2017. Maternal and fetal outcomes among pregnant women with human mpox infection in the Democratic Republic of Congo. *J Infectious Diseases* 216(7):824-828.
- Nishiura H. 2009. Maternal outcomes in pregnancy with smallpox: epidemiologic investigations of case fatality, miscarriage and premature birth based on previous outbreaks. In: Canfield RN, ed. *Infectious Pregnancy Complications*. Nova Science Publishers, Inc.; 2009:407-420.
- Ogoina D, et al. 2020. Clinical course and outcome of human mpox in Nigeria. *Clin Infect Dis.* 71:e210-e214.
- Rao AK, et al. 2023. Interim Clinical Treatment Considerations for Severe Manifestations of Mpox — United States, February 2023. *MMWR Morb Mortal Wkly Rep* 72:232-243.
- Sampson MM, et al. 2023. Mpox (Mpox) Infection During Pregnancy. *Obstet Gynecol.* 1;141(5):1007-1010.
- Schwartz DA. 2024. High Rates of Miscarriage and Stillbirth among Pregnant Women with Clade I Mpox (Mpox) Are Confirmed during 2023-2024 DR Congo Outbreak in South Kivu Province. *Viruses.* 13;16(7):1123.
- World Health Organization. 2022. WHO recommends new name for Monkeypox disease. Accessed September 2024 <https://www.who.int/news/item/28-11-2022-who-recommends-new-name-for-monkeypox-disease>.

Des questions? Appelez le 866.626.6847 | Envoyez un SMS au 855.999.3525 | Envoyez un e-mail ou discutez sur [MotherToBaby.org](https://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, 1 septembre 2024.

## Sulfasalazine (Azulfidine®)

### Selected References:

- Allan KM, et al. 2015. Maternal vitamin D and E intakes during pregnancy are associated with asthma in children. *Eur Respir J*. 2015 Apr;45(4):1027-1036.
- Ashraf M, et al. 2020. Changes in vitamin E levels as a marker of female infertility. *J Pak Med Assoc* 70(10): 1762-1766.
- Beers MH, et al. 1999. *Merck Manual Diagnosis & Therapy*, 17th ed., 2833.
- Boskovic R, et al. 2005. Pregnancy outcome following high doses of vitamin E supplementation. *Reprod Toxicol* 20:85-88.
- Gilboa SM, et al. 2014. National Birth Defects Prevention Study. Maternal intake of vitamin E and birth defects, national birth defects prevention study, 1997 to 2005. *Birth Defects Res A Clin Mol Teratol*. 100(9):647-657.
- Gross SJ, Gabriel E. 1985. Vitamin E status in preterm infants fed human milk or infant formula. *J Pediatr* 106:635-639.
- Gyorgy P, et al. 1952. Availability of vitamin E in the newborn infant. *Proc Soc Exp Biol Med* 81:536-538.
- Hook EB, et al. 1974. Vitamin E, Teratogen or anti-teratogen? *Lancet* 1:809.
- Kanno C, et al. 1989. Transfer of orally administered alpha-tocopherol into human milk. *J Nutr Sci Vitaminol (Tokyo)* 35:649-653.
- Martinez Fe, et al. 1984. Evaluation of plasma tocopherols in relation to hematological indices of Brazilian infants on human milk and cow's milk regime from birth to 1 year of age. *Am J Clin Nutr* 39:969-974.
- Maslova E, et al. 2014. Maternal intake of vitamins A, E and K in pregnancy and child allergic disease: a longitudinal study from the Danish National Birth Cohort. *British J Nutr* 111: 1096-1108.
- Mino M, Nishino H. 1973. Fetal and maternal relationship in serum vitamin E level. *J Nutr Sci Vitaminol* 19:475-482.
- National Institutes of Health Office of Dietary Supplements. 2021. Vitamin E: Fact Sheet for Health Professionals. Available at: <https://ods.od.nih.gov/factsheets/VitaminE-HealthProfessional/>. Accessed 3 July 2024.
- Scholl TO, et al. 2006. Vitamin E: maternal concentrations are associated with fetal growth. *Am J Clin Nutr* 84(6):1442-1448.
- Smedts HP, et al. 2009. High maternal vitamin E intake by diet or supplements is associated with congenital heart defects in the offspring. *BJOG*. 116(3):416-423.
- Ruder EH, et al. 2014. Female dietary antioxidant intake and time to pregnancy among couples treated for unexplained infertility. *Fertil Steril* 101(3): 759-766.
- Wu H, et al. 2018. Does vitamin E prevent asthma or wheeze in children: A systematic review and meta-analysis. *Paediatr Respir Rev*. 27:60-68.
- XI Y, et al. 2022. Vitamin E concentration in breast milk in different periods of lactation: meta-analysis. *Front Nutr* 9: 1050011.

Des questions? Appelez le 866.626.6847 | Envoyez un SMS au 855.999.3525 | Envoyez un e-mail ou discutez sur [MotherToBaby.org](https://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, 1 septembre 2024.

## Sulfasalazine (Azulfidine®)

### Selected References

- Bruckmaier R, et al. 1991. Effects of alpha- and beta-adrenergic agonists in intramammary pressure and milk flow in dairy cows. *J Dairy Res.* 58:411-419.
- Cottle MKW, et al. 1982. Effects of phenylephrine and sodium salicylate on maternal and fetal cardiovascular indices and blood oxygenation in sheep. *Am J Obstet Gynecol.* 143:170-176.
- Gilbert-Barness E, Drut RM. 2000. Association of sympathomimetic drugs with malformations. *Vet Hum Toxicol.* 42:168-171.
- Heinonen OP, et al. 1977. *Birth Defects and Drugs in Pregnancy*, Littleton, Publishing Sciences Group, pp 345-356, 439, 476, 491.
- Mohta M, et al. 2022. Neonatal outcomes following phenylephrine or norepinephrine for treatment of spinal anesthesia-induced hypotension at emergency cesarean section in women with fetal compromise: a randomised controlled study. *Int J of Obstet Anesthesia* 49:103247.
- Rothman KJ, et al. 1979. Exogenous hormones and other drug exposures of children with congenital heart disease. *Am J Epidemiol.* 109:433-439.
- Schatz M, et al. 1997. Asthma and allergy in pregnancy. *Clin Perinatol.* 24(2):407-432.
- Ugen KE, Scott WJ Jr. 1987. Reduction of uterine blood flow by phenylephrine, an alpha-adrenergic agonist, in the day 11 pregnant rat: relationship to potentiation of acetazolamide teratogenesis. *Teratology.* 36(1):133-141.
- Yau W-P, et al. 2013. Use of decongestants during pregnancy and the risk of birth defects. *Am J Epidemiol.* 178(2):198-208.
- Werler MM, et al. 2003. Association of vasoconstrictive exposures with risks of gastroschisis and small intestinal atresia. *Epidemiology.* 14(3):349-354.
- Werler MM, et al. 2002. Maternal medication use and risks of gastroschisis and small intestinal atresia. *Am J Epidemiol.* 155(1):26-31.
- Werler MM, et al. 2004. Vasoactive exposures, vascular events, and hemifacial microsomia. *Birth Defects Res A Clin Mol Teratol* 70(6):389-395.
- Zierler S, Rothman KJ. 1985. Congenital heart disease in relation to maternal use of Bendectin and other drugs in early pregnancy. *N Engl J Med.* 313:347-352

**Des questions? Appelez le 866.626.6847 | Envoyez un SMS au 855.999.3525 | Envoyez un e-mail ou discutez sur [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, 1 septembre 2024.