

Tobacco in Australia

Facts & Issues

Relevant news and research

4.16 Secondhand smoke and pregnancy

Last updated September 2019

Research:

Mazloomi Mahmoodabad, SS, Karimiankakolaki, Z, Kazemi, A, & Fallahzadeh, H. (2019). Self-efficacy and perceived barriers of pregnant women regarding exposure to second-hand smoke at home. *J Educ Health Promot*, 8, 139. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31463324>

Argalasova, L, Zitnanova, I, Vondrova, D, Dvorakova, M, Laubertova, L, Jurkovicova, J et al. (2019). Self-Reported Exposure to ETS (Environmental Tobacco Smoke), Urinary Cotinine, and Oxidative Stress Parameters in Pregnant Women-The Pilot Study. *Int J Environ Res Public Health*, 16(9). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31086031>

Howe, CG, Zhou, M, Wang, X, Pittman, GS, Thompson, IJ, Campbell, MR et al. (2019). Associations between Maternal Tobacco Smoke Exposure and the Cord Blood [Formula: see text] DNA Methylome. *Environ Health Perspect*, 127(4), 47009. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31039056>

Suzuki, D, Wariki, WMV, Suto, M, Yamaji, N, Takemoto, Y, Rahman, MM, & Ota, E. Association of secondhand smoke and depressive symptoms in nonsmoking pregnant Women: A systematic review and meta-analysis. *Journal of Affective Disorders*, 2019. 245, 918-927. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30699877>

Moshammer, H, & Hutter, HP. Breast-Feeding Protects Children from Adverse Effects of Environmental Tobacco Smoke. *Int J Environ Res Public Health*, 2019. 16(3). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30678089>

Chelchowska, M, Ambroszkiewicz, J, Gajewska, J, Mazur, J, Lewandowski, L, Resko-Zachara, M, & Maciejewski, TM. Influence of Active Exposure to Tobacco Smoke on Nitric Oxide Status of Pregnant Women. *Int J Environ Res Public Health*, 2018. 15(12). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30513890>

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Do, EK, Green, TL, Prom-Wormley, EC, & Fuemmeler, BF. Social determinants of smoke exposure during pregnancy: Findings from waves 1 & 2 of the Population Assessment of Tobacco and Health (PATH) Study. *Prev Med Rep*, 2018. 12, 312-320. Available from:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6218644/pdf/main.pdf>

Tuenter, A, Bautista Nino, PK, Vitezova, A, Pantavos, A, Bramer, WM, Franco, OH, Felix, JF. Folate, vitamin B12, and homocysteine in smoking-exposed pregnant women: A systematic review. *Matern Child Nutr*. 2018 Sep 4:e12675. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30182513>

Reece, S, Morgan, C, Parascandola, M, Siddiqi, K. Secondhand smoke exposure during pregnancy: a cross-sectional analysis of data from Demographic and Health Survey from 30 low-income and middle-income countries. *Tob Control*, Jul 2018. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/30026189>

Xiao, X, Li, Y, Song, X, Xu, Q, Yang, S, Wu, J, Seto, E. Discrepancy between Self-Reported and Urine Cotinine-Verified Environmental Tobacco Smoke Exposure among Rural Pregnant Women in China. *Int J Environ Res Public Health*. 2018 Jul 16;15(7). Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/30012986>

Lok, KYW, Wang, MP, Chan, VHS, Tarrant, M. The Effect of Secondary Cigarette Smoke from Household Members on Breastfeeding Duration: A Prospective Cohort Study. *Breastfeed Med*, 2018. June 14, 2018. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29902073>

Hoyt, AT, Canfield, MA, Romitti, PA, Botto, LD, Anderka, MT, Krikov, SV, Feldkamp, ML. Does Maternal Exposure to Secondhand Tobacco Smoke During Pregnancy Increase the Risk for Preterm or Small-for-Gestational Age Birth? *Matern Child Health J*. 2018. Mar 24, 2018. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/29574536>

Nguyen-Hoang, P, Yeung, R. From mother to child: the effects of prenatal maternal passive smoking on academic outcomes in the United States. *J Public Health Policy*. 2018. Mar 12, 2018. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/29531305>

Zhu, Y, Li, Z, Pang, Y, Huo, W, Li, N, Li, Z, Zhang, J, Ye, R, Wang, B. Association Between Chronic Exposure to Tobacco Smoke and Accumulation of Toxic Metals in Hair Among Pregnant Women. *Biol Trace Elem Res*. 2018. Mar 1, 2018. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/29497997>

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Arbuckle, TE, Liang, CL, Fisher, M, Caron, NJ, Fraser, WD, Mirec Study Group. Exposure to tobacco smoke and validation of smoking status during pregnancy in the MIREC study. *J Expo Sci Environ Epidemiol*, 2018. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29296002>

Kalayasiri, R, Supcharoen, W, Ouiyanukoon, P. Association between secondhand smoke exposure and quality of life in pregnant women and postpartum women and the consequences on the newborns. *Qual Life Res*, 2018. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29327094>

Lin, Q, Hou, XY, Yin, XN, Wen, GM, Sun, D, Xian, DX, Fan, L, Jiang, H, Jing, J, Jin, Y, Wu, CA, Chen, WQ. Prenatal Exposure to Environmental Tobacco Smoke and Hyperactivity Behavior in Chinese Young Children. *Int J Environ Res Public Health*. 2017 Sep 27;14(10). Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28953223>

Risica, PM, McCausland, K. Infant feeding decisions and behaviours among low-income smoke-exposed women: timing and change during pregnancy. *Public Health Nutr*, 2017. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28768563>

Payne, P, Fiering, S, Leiter, JC, Zava, DT, Crane-Godreau, MA. Effectiveness of a Novel Qigong Meditative Movement Practice for Impaired Health in Flight Attendants Exposed to Second-Hand Cigarette Smoke. *Front Hum Neurosci*. 2017 Feb 21;11:67. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28270757>

Chi, YC, Sha, F, Yip, PS, Chen, JL, Chen, YY. Randomized comparison of group versus individual educational interventions for pregnant women to reduce their secondhand smoke exposure. *Medicine (Baltimore)*. 2016 Oct;95(40):e5072. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27749578>

Leng, J, Wang, P, Shao, P, Zhang, C, Li, W, Li, N, Wang, L, Nan, H, Yu, Z, Hu, G, Chan, JC, Yang, X. Passive smoking increased risk of gestational diabetes mellitus independently and synergistically with pre-pregnancy obesity in Tianjin, China. *Diabetes Metab Res Rev*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27667672>

Yang, HJ. Impact of perinatal environmental tobacco smoke on the development of childhood allergic diseases. *Korean J Pediatr*. 2016 Aug;59(8):319-27. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27610180>

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Weng, SC, Huang, JP, Huang, YL, Lee, TS, Chen, YH. Effects of tobacco exposure on perinatal suicidal ideation, depression, and anxiety. BMC Public Health. 2016 Jul 22;16:623. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27448804>

Xu, X, Rao, Y, Abdullah, AS, Sharma, M, Guo, JJ, Zhao, Y. Preventive behaviours in avoiding indoor secondhand smoke exposure among pregnant women in China. Tob Control, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27432912>

Zairina, E. Maternal passive smoking and the risk of developing wheeze in children: how should we deal with it? Eur Respir J. 2016 Jul;48(1):3-5. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27365501>

Cui, H et al. Associations between passive maternal smoking during pregnancy and preterm birth: evidence from a meta-analysis of observational studies. PLoS One, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26808045>

Waked, M, Salameh, P. Maternal waterpipe smoke exposure and the risk of asthma and allergic diseases in childhood: A post hoc analysis. International Journal of Occupational Medicine and Environmental Health, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26159955>

Khan, S et al. Prenatal exposure to secondhand smoke may increase the risk of postpartum depressive symptoms. Journal of Public Health, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26076701>

Sabbagh, HJ et al. Passive smoking in the etiology of non-syndromic orofacial clefts: a systematic review and meta-analysis. PLoS One, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25760440>

Zhang, L et al. Exposure to secondhand tobacco smoke and interventions among pregnant women in china: a systematic review. Preventing Chronic Disease, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25789496>

Zhang, B et al. Maternal passive smoking during pregnancy and age of menarche in daughters: A study of elementary and middle school students in Shanghai. Asia-Pacific Journal of Public Health, 2015. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25667229>

Tong VT, Morello P, Aleman A, Johnson C, Dietz PM, et al. Pregnant Women's Secondhand Smoke Exposure and Receipt of Screening and Brief Advice by Prenatal Care Providers in Argentina and

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Uruguay. *Matern Child Health J*, 2014. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/25427876>

Ghosh R. Indoor smoke and prenatal and childhood growth: The role of (gestational) age. *World J Clin Pediatr*, 2013; 2(4):31-5. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25254172>

4.16.1 Fertility

Ranganathan, P, Rao, KA, & Thalaivarasai Balasundaram, S. Deterioration of semen quality and sperm-DNA integrity as influenced by cigarette smoking in fertile and infertile human male smokers- A prospective study. *J Cell Biochem*, 2019. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/30779221>

Wong, JY, Chang, PY, Gold, EB, Johnson, WO, Lee, JS. Environmental tobacco smoke and risk of late-diagnosis incident fibroids in the Study of Women's Health across the Nation (SWAN). *Fertil Steril*. 2016 Jul 18. pii: S0015-0282(16)61380-8. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/27445196>

4.16.3 Low birthweight and preterm delivery

Soesanti, F, Uiterwaal, C, Grobbee, DE, Hendarto, A, Dalmeijer, GW, & Idris, NS. (2019). Antenatal exposure to second hand smoke of non-smoking mothers and growth rate of their infants. *PLoS One*, 14(6), e0218577. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31220162>

Kobayashi, S, Sata, F, Hanaoka, T, Braimoh, TS, Ito, K, Tamura, N et al. Association between maternal passive smoking and increased risk of delivering small-for-gestational-age infants at full-term using plasma cotinine levels from The Hokkaido Study: a prospective birth cohort. *BMJ Open*, 2019. 9(2), e023200. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30782875>

Mejia, C, Lewis, J, Jordan, C, Mejia, J, Ogden, C, Monson, T, Winden, D, Watson, M, Reynolds, PR, Arroyo, JA. Decreased activation of placental mTOR family members is associated with the induction of intrauterine growth restriction by secondhand smoke in the mouse. *Cell Tissue Res*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27613305>

Niu, Z, Xie, C, Wen, X, Tian, F, Yuan, S, Jia, D, Chen, WQ. Potential pathways by which maternal second-hand smoke exposure during pregnancy causes full-term low birth weight. *Sci Rep*. 2016 Apr 29;6:24987. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27126191>

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Ion, RC et al. Environmental tobacco smoke exposure in pregnancy is associated with earlier delivery and reduced birth weight. *Reprod Sci*, 2015. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/26507870>

Niu, Z et al. Placenta mediates the association between maternal second-hand smoke exposure during pregnancy and small for gestational age. *Placenta*, 2015. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/26051507>

Xie, C et al. Combinations of CYP2A6*4 and glutathione S-transferases gene polymorphisms modify the association between maternal secondhand smoke exposure during pregnancy and small-for-gestational-age. *Nicotine & Tobacco Research*, 2015. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/25847289>

4.16.4 Lung development in the unborn child

Wu, CC, Hsu, TY, Chang, JC, Ou, CY, Kuo, HC, Liu, CA et al. (2019). Paternal Tobacco Smoke Correlated to Offspring Asthma and Prenatal Epigenetic Programming. *Frontiers in Genetics*, 10, 471. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31214241>

4.16.5 Spontaneous abortion (miscarriage) and stillbirth

Yaya, S, & Bishwajit, G. (2019). Exposure to second-hand smoking as a predictor of fetal loss: Egypt Demographic and Health Survey 2014. *Int Health*. Available from:

<https://www.ncbi.nlm.nih.gov/pubmed/31184367>

4.16.6 Birth defects

Bui, AH, Ayub, A, Ahmed, MK, Taioli, E, & Taub, PJ. Maternal Tobacco Exposure and Development of Orofacial Clefts in the Child: A Case-Control Study Conducted in Pakistan. *Ann Plast Surg*, 2018.

Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30300227>

Zheng, Z, Xie, G, Yang, T, & Qin, J. Congenital malformations are associated with secondhand smoke among nonsmoking women: A meta-analysis. *Birth*, 2018. Available from:

<https://onlinelibrary.wiley.com/doi/abs/10.1111/birt.12401>

Rankin, J. Second-hand smoke exposure and orofacial clefts. *Paediatr Perinat Epidemiol*, Sept 2018.

Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30266045>

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Liu, X, Nie, Z, Chen, J, Guo, X, Ou, Y, Chen, G, Mai, J, Gong, W, Wu, Y, Gao, X, Qu, Y, Bell, EM, Lin, S, Zhuang, J. Does maternal environmental tobacco smoke interact with social-demographics and environmental factors on congenital heart defects? *Environ Pollut*. 2017 Nov 23;234:214-222. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29175685>

Hoyt, AT, Canfield, MA, Romitti, PA, Botto, LD, Anderka, MT, Krikov, SV, Tarpey, MK, Feldkamp, ML. Associations between maternal periconceptional exposure to secondhand tobacco smoke and major birth defects. *Am J Obstet Gynecol*. 2016 Jul 18. pii: S0002-9378(16)30456-2. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27443814>

Hoyt, AT, Canfield, MA, Romitti, PA, Botto, LD, Anderka, MT, Krikov, SV, Tarpey, MK, Feldkamp, ML. Associations between maternal periconceptional exposure to secondhand tobacco smoke and major birth defects. *Am J Obstet Gynecol*. 2016 Jul 18. pii: S0002-9378(16)30456-2. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27443814>

Kummet, CM, Moreno, LM, Wilcox, AJ, Romitti, PA, DeRoo, LA, Munger, RG, Lie, RT, Wehby, GL. Passive smoke exposure as a risk factor for oral clefts-a large International population-based study. *Am J Epidemiol*, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27045073>

4.16.8 Other effects

Suzuki, D, Wariki, WMV, Suto, M, Yamaji, N, Takemoto, Y, Rahman, M, & Ota, E. (2019). Secondhand Smoke Exposure During Pregnancy and Mothers' Subsequent Breastfeeding Outcomes: A Systematic Review and Meta-Analysis. *Sci Rep*, 9(1), 8535. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/31189894>

Lee, M, Ha, M, Hong, YC, Park, H, Kim, Y, Kim, EJ et al. (2019). Exposure to prenatal secondhand smoke and early neurodevelopment: Mothers and Children's Environmental Health (MOCEH) study. *Environ Health*, 18(1), 22. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30894196>

Wang, L, Zou, Y, Wu, P, Meng, J, & Zhang, R. Phthalate exposure in pregnant women and the influence of exposure to environmental tobacco smoke. *J Matern Fetal Neonatal Med*, 2019. 1-5. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30700187>

News reports:

No authors listed. Breastfeeding mothers stop nursing sooner when living with smokers. *Bright Surf*, 2018. July 2, 2018. Available from:

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<https://www.brightsurf.com/news/article/062718459908/breastfeeding-mothers-stop-nursing-sooner-when-living-with-smokers.html>

No authors listed. Nicotine exposure during pregnancy nearly twice as high as reported. Medical Xpress, 2016. July 7, 2016. Available from: <http://medicalxpress.com/news/2016-07-nicotine-exposure-pregnancy-high.html>

No authors listed. Pregnant women exposed to passive smoking deliver babies earlier – research. Guernsey Press, 2015. Nov 24, 2015. Available from: <http://guernseypress.com/news/uk-news/2015/11/24/pregnant-women-exposed-to-passive-smoking-deliver-babies-earlier-research/>

4.16.5 Spontaneous abortion (miscarriage) and stillbirth

Yang, S, Xu, L, He, Y, Jiang, C, Jin, Y et al. Childhood secondhand smoke exposure and pregnancy loss in never smokers: the Guangzhou Biobank Cohort Study. Tobacco Control, 2016. Dec 23, 2016. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28011924>