

Table 2.12. Case-control studies of second-hand tobacco smoke and cancer of the uterine cervix

Reference, study location and period	Organ site (ICD code)	Characteristics of cases and controls	Exposure assessment	Exposure categories	(Case/ Control) Relative risk (95% CI)* * $P < 0.01$; ** $P = 0.02$	Adjustment for potential confounders	Comments
Hirose <i>et al.</i> (1996) Japan	Cervix SIL: High grade (HSIL) Low grade (LSIL)	556 (22–80+ years) 431 nonsmokers Pool of cases emerged from first-visit outpatients who originally replied to baseline survey on medical and lifestyle history at Aichi Cancer Center Hospital in 1988–1993 26 751 female first-visit outpatients 20+ years with no history of cancer attending the same centre	Results reported by smoking status and quantity smoked of partner. It is presumed these data were obtained at the baseline interview or at cancer identification	Non-smoker husband Smoker husband < 20 cigarettes per day ≥ 20 cigarettes per day	205/10873 1.0 210/10159 1.3 (1.07–1.59)* 67/3962 1.0 (0.76–1.33) 142/6103 1.55(1.24–1.94)*	Adjusted for age and year of first visit at cancer centre Adjusted for age, age at first intercourse, HR-HPV status and active cigarette smoking	

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Coker <i>et al.</i> (2002) South Carolina, USA		59 HSIL 313 LSIL From subset of cervical samples stored collected in women receiving family planning services by the South Carolina Health Department Clinics in 1995–98 427 women with normal cytology from subset of cervical samples stored	History of passive smoking by telephone interview: ever living with a smoker; ever exposed as child; years lived with a smoker	<i>Duration of second-hand tobacco smoke exposure</i>	African-Am 227 SIL 253 control	White 144 SIL 175 control	
				+10 years	1.5 (1.0–2.3)	1.1 (0.6–2.2)	
				1–9	1.8 (1.0–3.2)	1.5 (0.6–3.7)	
				Never exposed	1.0 (ref)	1.0 (ref)	
				HPV+ exposed second-hand tobacco smoke	LSIL 111/54 4.2 (2.6–7.0)	HSIL 31/54 17.4 (4.9–61)	
				HPV+ non- second-hand tobacco smoke exposed	29/25 2.4 (1.3–4.6)	7/25 9.1(2.2–38.2)	
				HPV- non- second-hand tobacco smoke exposed	46/99 1.0	3/993 1.0	

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Wu <i>et al.</i> (2003) Taiwan, China	Cervix (Cervical intraepithelial neoplasms)	100 cases; Oct 1999-Dec 2000; ≥ 19 yrs; Positive pap smear 197 controls; Negative pap smear; Matched on residency in same area and age as cases	Personal interview Questionnaire	Effect of exposure to second-hand tobacco smoke in women nonsmokers ($n = 264$) Childhood second-hand tobacco smoke exposure At home No (ref) Yes Adulthood second-hand tobacco smoke exposure At home No (ref) Yes In the workplace No (ref) Yes Lifetime Adulthood second-hand tobacco smoke exposure among women nonsmokers ($n = 264$) At home No (ref) 1–10 cigarettes per day > 10 cigarettes per day In the workplace No (ref) 1–10 cigarettes per day > 10 cigarettes per day Lifetime second-hand tobacco smoke exposure No (ref) 1–20 pack-years > 20 pack-years	(36/79) 1.00 (53/96) 0.99 (0.54–1.83) (13/68) 1.00 (76/107) 2.73 (1.31–5.67) (61/130) 1.00 (28/45) 1.56 (0.83–2.92) (13/68) 1.00 (37/66) 2.13 (0.96–4.73)* (39/41) 3.97 (1.65–9.55)* (61/130) 1.00 (12/25) 1.47 (0.64–3.37) (16/20) 1.65 (0.73–3.75) (7/33) 1.00 (40/95) 1.90 (0.72–5.03)** (42/47) 2.99 (1.10–8.09)**	Education, number of pregnancies, age (yr) at 1 st intercourse, and cooking in the kitchen during ages 20–40 yrs	2.73 fold increased risk of contracting cervical intraepithelial neoplasms (CINs)

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Tsai <i>et al.</i> (2007) Taiwan, China	Cervix	171 subjects with either their 1 st case of inflammation (benign epithelial lesion) or \geq CIN1 by biopsy confirmation; ≥ 20 yrs; 2003–2005; 513 control subjects with negative findings by Pap smears or biopsies; Area of residence; Agreed to interview	Questionnaire One spot urine specimen	<i>Second-hand tobacco smoke exposure & cervical intraepithelial neoplasms by HPV infection</i> Non-smoker/HPV (-) Non-smoker/HPV (+) Second-hand tobacco smoke /HPV (-) Second-hand tobacco smoke /HPV (+) Non-smoker/HPV (-) Non-smoker/HPV (+) Second-hand tobacco smoke /HPV (-) Second-hand tobacco smoke /HPV (+) Non-smoker/HPV (-) Non-smoker/HPV (+) Second-hand tobacco smoke /HPV (-) Second-hand tobacco smoke /HPV (+)	Overall (6/161) 1.00 (7/14) 12.7 (3.7–43.8) (11/294) 1.0 (0.3–2.6) (20/24) 18.6 (6.5–53.0) CIN1 (3/161) 1.00 (9/14) 34.3 (8.0–146.8) (12/294) 2.0 (0.5–7.4) (22/24) 44.7 (12.1–165.4) \geq CIN2 (1/161) 1.00 (9/14) 99.7 (11.5–862.5) (11/294) 5.5 (0.7–43.6) (24/24) 121.9 (15.4–959.5)	Age, education levels, times of prior pap smears, number of lifetime sexual partners, age of first intercourse, cooking oil fume exposure, and family history of cervical cancer	

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Tay and Tay (2004) Among women attending a colposcopy clinic, the risk of detection of HSIL increases with the spouse's cigarette smoking habit.							
Sobti <i>et al.</i> (2006) India	Cervix	103 cases histologically confirmed patients with cancer of the uterine cervix. Recruited from Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, and Mohan Dai Oswal Cancer Hospital, Ludhiana (Punjab). 103 controls who were free of any kind of malignancy	Interviewer-administered questionnaire Peripheral blood samples were obtained from both cases and controls	<i>Second-hand tobacco smoke</i>	<i>GSTM1</i> - (18/103) 7.0 (2.19-22.36)* <i>GSTT1</i> - (8/103) 10.2 (1.23-84.18) ** <i>GSTP1 (ile/val)</i> (26/103) 6.4 (2.25-18.38) *	Age, age at marriage and at birth of first child, age at menarche and menopause, smoking status, and genotypes for the <i>GSTM1</i> , <i>GSTT1</i> , and <i>GSTP1</i> genes.	Cervical cancer risk is increased in those exposed to second-hand tobacco smoke with <i>GSTM1</i> (null), <i>GSTT1</i> (null), and <i>GSTP1</i> (ile/val) genotypes.