

**Table 2.9. Case-control studies of HPV and vulvar cancer**

Reference, study location	Sites included	No. of cases	No. of controls	Method <sup>a</sup> of detection	HPV prevalence (%)		Odds ratio (95% CI)	Comments		
					Cases	Controls				
Hørding <i>et al.</i> (1993), Denmark	Normal vulvar tissue used as controls	62	101	E6/E7 primers (6, 11, 16, 18, 33)	N=19 (30.6%)	N=0 (0%)	–	Formalin-fixed paraffin-embedded tissue samples.		
Sagerman <i>et al.</i> (1996), USA.	Normal vulvar tissue used as controls	19	10	ISH for 6/11/16/18/33 and MY09/11 for HPV 31, 35, 39, 40, 42, 45, 51, 52, 53, 54, 55, 57, 59	N=3 (15.8%)	N=0 (0%)	–	Formalin-fixed paraffin-embedded tissue samples.		
Sun <i>et al.</i> (1996), USA	Sera	18 Keratinizing SCC	44	HPV16 L1/L2 VLP ELISA & HPV16 E6 and E7 RIPA.	N=4 (22.2%) HPV16 VLP cut off point 0.24	N=8 (18.2%) HPV16 VLP cut off point 0.24	1.3 (0.32–4.9)			
		N=1 (5.6%) HPV16 E6 cut off point 5484			N=2 (4.6%) HPV16 E6 cut off point 5484	1.1 (0.09–13)				
		N=0 (0%) HPV16 E7 cut off point 4010			N=0 (0%) HPV16 E7 cut off point 4010	–				
		N=1 (5.6%) HPV16 E6 or E7			N=2 (4.6%) HPV16 E6 or E7	1.1 (0.09–13)				
		N=0 (0%) HPV16 E6 and E7			N=0 (0%) HPV16 E6 and E7	–				
		14 Basaloid SCC			N=7 (50%) HPV16 VLP cut off point 0.24	N=8 (18.2%) HPV16 VLP cut off point 0.24	4.5 (1.2–16)			
		N=2 (14.3%) HPV16 E6 cut off point 5484			N=2 (4.6%) HPV16 E6 cut off point 5484	3.9 (0.47–32)				
		N=4 (28.6%) HPV16 E7 cut off point 4010			N=0 (0%) HPV16 E7 cut off point 4010	–				
		N=5 (35.7%) HPV16 E6 or E7			N=2 (4.6%) HPV16 E6 or E7	13.8 (2.1–89)				
		N=1 (7.1%) HPV16 E6 and E7			N=0 (0%) HPV16 E6 and E7	–				
Kagie <i>et al.</i> (1997), The Netherlands	Normal vulvar tissue used as controls	66	55	CPI and CPIIG and sequencing	N=13 (19.7%)	N=2 (3.6%)	–	Formalin-fixed paraffin-embedded tissue samples. HPV16 12/66; HPV45 1/66 and		

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								HPV 33 1/66
Bjørge <i>et al.</i> (1997), Norway and Finland	8 vulvar and vagina cancer sera of patients from Finland, 17 vulvar and vagina cancer sera of patients from Norway, 73 sera controls.	25	73	Seropositivity to HPV by ELISA (Baculovirus expressed capsids comprising both L1 and L2 proteins)	N=6 (24%) HPV16 cut off point 0.239	N=4 (5%) HPV16 cut off point 0.239	4.5 (1.1–22)	
					N=9 (36%) HPV16 cut off point 0.100	N=7 (10%) HPV16 cut off point 0.100	5.5 (1.5–25)	
					N=5 (20%) HPV18	N=11 (15%) HPV18	1.5 (0.3–7.5)	
					N=4 (16%) HPV33	N=4 (5%) HPV33	3.3 (0.5–23)	
					N=9 (36%) HPV16 or 18 or 33	N=14 (19%) HPV16 or 18 or 33	2.5 (0.2–2.3)	
Hildesheim <i>et al.</i> (1997), USA	Sera	10 Warty/Basaloid	63	Seropositivity to HPV16 capsid proteins by ELISA (L1 and L2)	N=3 (30%)	N=7 (11.1%)	3.8 (0.76–18.9)	Sera
		19 Keratinizing			N=3 (15.8%)		1.6 (0.35–7.4)	
					N=24 (31.2%)		2.9 (0.94–8.7)	
Madeleine <i>et al.</i> (1997) USA	Sera	110	1403	Seropositivity to HPV6, HPV16 and HPV18 capsid proteins by ELISA (L1)	N=32/73 (43.8%) HPV16 L1 Ab	N=229/1031 (22.2%) HPV16 L1 Ab	2.8 (1.7–4.7)	Sera
					N=77/128 (60.2%) HPV6 L1 Ab + HPV16 DNA + (SCC and ISSCC)	N=229/1031 (22.2%) HPV6 L1 Ab + HPV16 DNA +	4.5 (3.0–6.8)	
					N=28/61 (45.9%) HPV6 L1 Ab + HPV16 DNA – (SCC and ISSCC)	N=229/1031 (22.2%) HPV6 L1 Ab + HPV16 DNA -	2.9 (1.6–5.0)	
					N=27/56 (48.2%) HPV6 L1 Ab	N=215/604 (35.6%) HPV6 L1 Ab	1.2 (0.7–2.3)	
					N=8/74 (10.8%) HPV18 L1 Ab	N=108/1088 (9.9%) HPV18 L1 Ab	1.2 (0.5–2.7)	
Carter <i>et al.</i> (2001), USA	Sera	99	1539	Seropositivity to HPV16 and HPV18 capsid proteins by ELISA (L1)	N=33/99 (33.3%) HPV16 L1 Ab	N=225/1539 (14.6%) HPV16 L1 Ab	3.1 (2.0–4.9)	Sera
					N=8/21 (38.1%) HPV16 L1 Ab + HPV16 DNA +	N=225/1539 (14.6%) HPV16 L1 Ab + HPV16 DNA +	3.7 (1.5–9.1)	

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Carter <i>et al.</i> (2001), USA	Sera	99	1539	Seropositivity to HPV16 and HPV18 capsid proteins by ELISA (L1)	N=21/99 (21.2%) HPV18 L1 Ab  N=1/1 (100%) HPV18 L1 Ab + HPV18 DNA +	N=216/1532(14.1%) HPV18 L1 Ab  N=216/1532(14.1%) HPV18 L1 Ab + HPV18 DNA +	1.7 (1.0–2.8)  –	Sera
Madsen <i>et al.</i> (2008), Denmark	Controls were Corpus Uterine Cancer samples	60	17	GP5+/6+ PCR-EIA assay and type-specific for HPV16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 & 68 and other 23 low risk HPV.	N=31 (31.7%)	N=0 (0%)	–	Formalin-fixed paraffin-embedded tissue samples. No population controls were used for HPV detection. HPV16 (n=22), HPV33 (n=7), HPV 51 (n=1), HPV 73 (n=2), HPV16/51/73 (n=1), HPV 6 (n=1)