Table

Supplementary Table 1a – Characteristics of the 48 studies included in the meta-analysis

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
1	Hammond, 1958 [38]	American Cancer Society cohort; USA, 1952	Cohort, mortality	1955 (NR)	187783/ 185	Never-smoker Ever	60 77	Referent 1.57 (1.39-2.17)	Age
2	Hammond, 1966 [39]	Cancer Prevention Study I; USA, 1959-1960	Cohort, mortality	1963 (NR)	440558/ 343	Never-smoker Ever	152 191	Referent 1.13 (0.74-1.52)	Age; Adjusted RRs but no 95% CIs (we calculated 95% CIs)
3	Severson, 1989 [42]	Men of Japanese ancestry in Hawaii; USA, 1965-1968	Cohort, incidence	1986 (NR)	8006/ 174	Never-smoker Ever Current	63 111 65	Referent 0.88 (0.65-1.11) 0.87 (0.61-1.23)	Age
4	Thompson, 1989 [44]	Rancho Bernardo, California; USA, 1972-1974	Cohort, incidence	1987 (NR)	1776/ 54	Not-smoker Smoker	43 11	Referent 1.3 (0.70-2.5)	Age, whole milk and egg intake, BMI, diabetes, heart disease, cholesterol; Prevalent cases were also reported. Only incident cases were considered for this analysis. 90% CIs were reported for the associations; we converted them to 95% CIs
5	Mills, 1989, 1992 [43,106]	Adventist Health Study; USA, 1976	Cohort, incidence	1982 (NR)	35000/ 172	Never-smoker Ever Current	90 82 3	Referent 1.07 (0.74-1.41) 0.49 (0.16-1.57)	Age
6	Akiba, 1990 [45]	Six-Prefecture Cohort Study; Japan, 1965	Cohort, mortality	1981 (16)	122261/ 147	Never-smoker Current 1-4 Cig/day 5-14 15-24 25-34 35+	39 108 8 50 42 3 5	Referent 1.1 (0.7-1.5) 3.1 (1.4-6.4) 1.0 (0.7-1.6) 0.9 (0.6-1.4) 0.8 (0.2-2.1) 3.0 (1.0-7.1)	Age, observation period, prefecture of residence, occupation
7	Hsing, 1990 [46]	Lutheran Brotherhood Cohort; USA, 1966	Cohort, mortality	1986 (20)	17633/ 137	Never-smoker Ever Current 1-19 Cig/day 20-29 30+	52 91 26 12 11 3	Referent 1.8 (1.1-2.9) 1.6 (1.0-2.6) 1.6 (0.8-3.3) 1.7 (0.8-3.5) 1.4 (0.4-4.4)	Age
8	Hsing, 1991 [47]	US veterans; USA, 1954-1957	Cohort, mortality	1980 (NR)	248046/ 4607	Never-smoker Ever Current 1-9 Cig/day	1075 1864 1047 260	Referent 1.16 (1.10-1.22) 1.18 (1.09-1.28) 1.11 (0.97-1.28)	Age

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
						10-20	695	1.15 (1.05-1.27)	
						21-39	374	1.23 (1.09-1.38)	
						40+	78	1.51 (1.20-1.90)	
9	Tverdal, 1993 [48]	Norway, five areas; Norway, 1972-1978	Cohort, mortality	1988 (13.3)	44290/ 32	Never-smoker	4	Referent	Age
						Ever	23	1.85 (0.71-7.78)	
						Current	15	1.92 (0.61-7.96)	
						1-9 Cig/day	7	3.95 (1.01-18.42)	
						10-19	5	1.18 (0.25-5.93)	
						20+	3	1.69 (0.25-10.00)	
10	Hiatt, 1994 [49]	Kaiser Permanente Medical Care Program; USA, 1978-1985	Cohort, incidence	1985 (NR)	43432/ 238	Never-smoker	79	Referent	Age, race, education, alcohol intake; Retrospective cohort using insurance records
						Ever	143	1.1 (0.9-1.4)	
						Current	49	1.2 (0.8-1.6)	
						1-19 Cig/day	24	1.0 (0.6-1.6)	
						20+	25	1.9 (1.2-3.1)	
11	Le Marchand, 1994 [50]	Hawaii State Department of Health cohort; USA, 1975-1980	Cohort, incidence	1989 (NR)	20316/ 198	Non-smoker	NR	Referent	Age, ethnicity, income; Results were reported by quartiles. The interquartile range for cigarettes/day and pack-yrs. were reported as 0-20 and 0-44, respectively. We considered following categories: 0, 1-10, 11-20, and ≥20 cigarettes/day and 0, 1-22, 23-44, and ≥45 pack-yrs.
						Ever	NR	1.0 (0.7-1.2)	
						1-10 Cig/day	NR	0.9 (0.6-1.4)	
						11-20	NR	1.0 (0.7-1.6)	
						21+	NR	1.0 (0.6-1.6)	
						Cumulative use			
						1-22 pk-yr	NR	0.9 (0.5-1.5)	
						23-44	NR	0.7 (0.4-1.2)	
						45+	NR	1.2 (0.8-1.8)	
12	Adami, 1996 [53]	Swedish Construction workers; Sweden, 1971-1975	Cohort, incidence	1991 (18)	135006/ 2368	Never-smoker	682	Referent	Age;
						Ever	1686	1.10 (1.02-1.18)	
						Duration			
						1-10 years	19	0.58 (0.43-1.07)	
						11-20	92	1.27 (1.02-1.58)	
						21-30	255	1.09 (0.94-1.26)	
						31-40	454	1.13 (1.01-1.28)	
						41+	228	1.07 (0.92-1.25)	
						Current	1069	1.11 (1.01-1.23)	
						Non-smoker	1348	Referent	
						1-4 Cig/day	282	1.06 (0.93-1.20)	
						5-14	459	1.10 (0.99-1.22)	
						15-24	239	1.14 (0.99-1.31)	
						25+	38	1.00 (0.72-1.38)	

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
			Cohort, mortality	1991 (18)	135006/ 709	Never-smoker Ever Current 1-4 Cig/day 5-14 15+ Duration 1-20 years 21-30 31-40 41+	198 511 343 80 141 76 42 75 134 85	Referent 1.16 (0.99-1.32) 1.26 (1.06-1.50) 0.99 (0.78-1.26) 1.13 (0.93-1.37) 1.05 (0.82-1.35) 1.41 (0.99-1.99) 1.28 (0.98-1.67) 1.19 (0.96-1.48) 1.28 (0.99-1.65)	Same as above
13	Coughlin, 1996 [54]	Multiple Risk Factor Intervention Trial; USA, 1973-1975	Cohort, mortality	1990 (16)	348874/ 826	Non-smoker Current 1-15 Cig/day 16-25 26-35 36-45 46+	514 312 79 102 58 57 16	Referent 1.31 (1.13-1.52) 1.54 (1.08-2.20) 1.27 (0.92-1.75) 1.23 (0.89-1.69) 1.50 (0.99-2.26) 1.22 (0.58-2.58)	Age; Adjusted RRs but no 95% CIs (we calculated 95% CIs)
14	Engeland, 1996 [55]	Migrant Study, Norway; Norway, 1964-1965	Cohort, incidence	1993 (NR)	11863/ 707	Never-smoker Ever Current	139 568 451	Referent 1.0 (0.9-1.3) 1.1 (0.9-1.3)	Age
15	Cerhan, 1997 [56]	Iowa 65+ Rural Health Study; USA, 1981-1982	Cohort, incidence	1993 (NR)	1050/ 71	Never-smoker Ever Current 1-19 Cig/day 20+ Cumulative use 1-30 pk-yr 31-55 56+	26 45 15 6 9 14 12 16	Referent 1.4 (0.7-2.0) 2.2 (1.1-4.4) 1.8 (0.7-4.4) 2.7 (1.2-6.0) 1.3 (0.7-2.5) 1.3 (0.7-2.7) 2.0 (1.1-3.8)	Age
16	Rodriguez, 1997 [57]	Cancer Prevention Study II; USA, 1982	Cohort, mortality	1991 (9)	450279/ 1748	Never-smoker Ever Current 1-9 Cig/day 10-19 20-20 21+	485 897 339 42 74 108 107	Referent 1.09 (0.98-1.19) 1.34 (1.16-1.56) 1.33 (0.96-1.83) 1.58 (1.23-2.03) 1.38 (1.10-1.71) 1.25 (1.00-1.57)	Age, race, education, alcohol intake, vegetable and fat meat intakes, family history of prostate cancer, vasectomy, exercise, BMI

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
						Duration			
						1-25 years	13	1.36 (0.77-2.38)	
						26-35	43	1.65 (1.17-2.34)	
						36-45	118	1.39 (1.11-1.75)	
						46+	155	1.26 (1.04-1.53)	
17	Veierod, 1997 [59]	Norwegian health screening; Norway, 1977-1983	Cohort, incidence	1992 (12.4)	24051/ 72	Never-smoker	24	Referent	Age
						Ever	45	0.6 (0.3-0.8)	
						Current	25	0.5 (0.2-0.8)	
						1-10 Cig/day	11	0.5 (0.3-1.1)	
						11+	14	0.6 (0.3-1.2)	
18	Giovannucci, 1999 [60]	Health Professionals Follow-up Study; USA, 1986	Cohort, mortality	1994 (NR)	47781/ 103	Never-smoker	38	Referent	Age, quintiles of intakes of calcium, total fat, vitamin E and lycopene, BMI at age 21
						Ever	65	1.18 (0.76-1.57)	
						Current	26	1.58 (0.81-3.10)	
						Cumulative use [c]			
						1-9 pk-yr	5	1.25 (0.50-3.10)	
						10-14	10	1.76 (0.91-3.42)	
						15+	11	2.06 (1.08-3.90)	
19	Heikkila, 1999 [61]	Mobile Clinic Health Examination Survey; Finland, 1966-1972	Nested CCS, incidence	1991 (NR)	16481/ 166 (300)	Non-smoker	114	Referent	None
						Current	52	1.31 (0.87-1.95)[d]	
20	Parker, 1999 [62]	Iowa farming; USA, 1986-1989	Cohort, incidence	1995 (NR)	1177/ 81	Never-smoker	23	Referent	Age; Retrospective cohort
						Ever	55	1.4 (0.8-2.0)	
						Current	41	1.8 (0.6-2.9)	
						1-19 Cig/day	25	1.7 (0.8-3.8)	
						20+	16	1.9 (0.8-4.5)	
21	Will, 1999 [63]	Cancer Prevention Study I; USA, 1959-1960	Cohort, incidence	1972 (NR)	305065/ 2523	Non-smoker	1267	Referent	Age
						Current	1256	1.00 (0.92-1.08)	
22	Lotufo, 2000 [64]	Physicians' Health Study; USA, 1982	Cohort, incidence	NR (12.5)	21985/ 996	Never-smoker	443	Referent	Age, alcohol intake, aspirin assignment, beta-carotene assignment, physical activity, height, BMI
						Ever	553	1.10 (0.97-1.28)	
						Current	96	1.06 (0.83-1.29)	
						1-19 Cig/day	35	1.04 (0.73-1.48)	
						20+	61	1.07 (0.82-1.41)	
						Cumulative use			
						<20 pk-yr	236	1.22 (1.04-1.43)	
						20-39	129	0.98 (0.81-1.19)	
						40+	126	1.14 (0.93-1.40)	

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
			Cohort, mortality	NR (12.5)	20375/ 113	Never-smoker Ever Current 1-19 Cig/day 20+ Cumulative use 0.25-19 pk-yr 20-39 40+	45 68 11 4 7 25 16 12	Referent 1.28 (0.82-1.74) 1.23 (0.63-2.41) 1.25 (0.45-3.49) 1.22 (0.54-2.74) 1.35 (0.82-2.23) 1.14 (0.64-2.05) 0.91 (0.47-1.75)	Same as above
23	Lund-Nilsen, 2000 [65]	Nord-Trøndelag; Norway, 1984-1986	Cohort, incidence	1996 (9.3)	22895/ 644	Never-smoker Ever Current 1-8 Cig/day 9-10 11-15 16+ Cumulative use 1-10 pk-yr 11-17 18-25 26+	222 336 153 73 67 51 45 50 34 58 73	Referent 0.97 (0.83-1.12) 0.96 (0.78-1.19) 0.84 (0.64-1.10) 1.05 (0.79-1.39) 1.37 (1.00-1.88) 1.27 (0.91-1.76) 0.95 (0.70-1.30) 0.84 (0.58-1.21) 1.24 (0.92-1.67) 1.22 (0.93-1.60)	Age
24	Nomura, 2000 [66]	Honolulu Heart Program; USA, 1971-1977	Nested CCS, incidence	1995 (NR)	9413/ 249 (249)	Never-smoker Ever Current (cumulative use) 1-30 pk-yr 31+	87 238 76 20 56	Referent 1.2 (0.9-1.6) 1.3 (0.8-2.0) 1.4 (0.7-2.9) 1.2 (0.8-2.0)	Age
25	Visvanathan, 2004 [67]	Campaign against Cancer and Stroke (CLUE II); USA, 1989	Nested CCS, incidence	1996 (NR)	10178/ 164 (324)	Never-smoker Ever Current	63 101 14	Referent 0.99 (0.63-1.36) 0.82 (0.39-1.71)	Age; Of 10457 men included in the study, 279 men with cancer (other than non-melanoma skin cancer) at baseline were excluded
26	Eichholzer, 2005 [68]	Basel cohort study; Switzerland, 1971-1973	Cohort, mortality	1990 (NR)	2974/ 30	Non-smoker Current	16 14	Referent 1.16 (0.56-2.38)[d]	None
27	Hultdin, 2005 [69]	Northern Sweden Health and Disease Cohort; Sweden,	Nested CCS, incidence	NR (4.9)	37776/ 254 (514)	Never-smoker Ever Current	115 124 45	Referent 1.08 (0.79-1.48)[d] 0.93 (0.61-1.41)[d]	None

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
		1985-1999							
28	Baglietto, 2006 [70]	Melbourne Collaborative Cohort Study; Australia, 1990-1994	Cohort, incidence	2003 (10.3)	16872/ 732	Never-smoker Ever Current	291 430 76	Referent 0.94 (0.81-1.07)[d] 0.73 (0.56-0.94)[d]	None
29	Giovannucci, 2007 [71]	Health Professionals Follow-up Study; USA, 1986	Cohort, incidence	2002 (NR)	47750/ 3544	Never Current/former (quit ≤10yr)	NR NR	Referent 0.98 (0.89-1.07)	Age, time period, race, family history of prostate cancer, diabetes, intakes of total calories, processed meat, fish, α-linolenic acid, tomato sauce and vitamin E supplements, physical activity, height, BMI at age 21
			Cohort, mortality	2002 (NR)	47750/ 312	Never-smoker Current/former (quit ≤10yr)	NR NR	Referent 1.41 (1.04-1.91)	Same as above
30	Gonzalez, 2007 [11]	Vitamins and Lifestyle (VITAL); USA, 2000-2002	Cohort, incidence	2004 (3.3)	35244/ 832	Never-smoker Ever Current	303 516 62	Referent 0.92 (0.70-1.20) 0.94 (0.82-1.05)	Age
31	Huxley, 2007 [12]	Asia Pacific Cohort Studies Collaboration; Australia, New Zealand, 1966-1999	Cohort, mortality	NR (6.8)	54353/ 265	Never-smoker Current Increment of 5 Cig/day	NR 53 265	Referent 1.67 (1.12-2.45) 1.12 (1.03-1.22)	Age, diabetes, BMI; The median FU was the median of FU for individual studies, which varied from 2.5 to 24.7 years.
		Asia, 1961-1998	Cohort, mortality	NR (6.8)	266499/ 43	Never-smoker Current Increment of 5 Cig/day	NR 26 43	Referent 0.57 (0.24-1.32) 0.77 (0.56-1.05)	Same as above The Asian territories included China, Hong Kong, Japan, Singapore, South Korea, Taiwan
32	Ozasa, 2007 [13]	Japan Collaborative Cohort Study (JACC), 1988-1990	Cohort, mortality	2003 (12.5)	46178/ 150	Never-smoker Ever Current <15 Cig/day 15-24 25+ Duration <25 years 25-39 40+ Cumulative use	26 124 76 17 47 12 1 12 58	Referent 1.18 (0.79-1.57) 1.35 (0.88-2.09) 1.06 (0.58-1.94) 1.59 (0.99-2.55) 1.56 (0.78-3.13) 0.83 (0.10-6.42) 1.10 (0.52-2.30) 1.45 (0.92-2.27)	Age, area of study

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
						<20 pk-yr	4	0.71 (0.25-2.04)	
						20-39	33	1.58 (0.95-2.62)	
						40-59	27	1.41 (0.83-2.40)	
						60+	7	1.32 (0.57-3.05)	
33	Park, 2007 [14]	Multiethnic Cohort Study; USA, 1993-1996	Cohort, incidence	2002 (8)	82483/ 4404	Never-smoker	1326	Referent	None
						Ever	3073	0.99 (0.93-1.06)[d]	
						Current	673	0.84 (0.76-0.92)[d]	
						1-9 Cig/day	264	1.07 (0.93-1.23)[d]	
						10-19	277	0.89 (0.78-1.02)[d]	
						20+	132	0.54 (0.45-0.65)[d]	
34	Rohrmann, 2007 [72]	Private census Washington County, Maryland; USA, 1963	Cohort, incidence	1978 (NR)	26810/ 147	Never-smoker	34	Referent	Age
						Ever	88	1.16 (0.84-1.60)	
						Current	45	1.00 (0.63-1.59)	
						1-9 Cig/day	5	0.52 (0.20-1.33)	
						10-19	23	1.03 (0.60-1.79)	
						20+	17	1.38 (0.75-2.54)	
			Cohort, mortality	2000 (NR)	226810/ 240	Never-smoker	56	Referent	Same as above
						Ever	161	0.97 (0.76-1.23)	
						Current	104	0.93 (0.67-1.29)	
						1-9 Cig/day	21	1.11 (0.67-1.84)	
						10-19	49	0.85 (0.57-1.25)	
						20+	34	0.95 (0.62-1.47)	
		USA, 1975	Cohort, incidence	1994 (NR)	28292/ 351	Never-smoker	94	Referent	Same as above
						Ever	213	1.01 (0.83-1.24)	
						Current	85	0.98 (0.73-1.33)	
						1-9 Cig/day	10	1.12 (0.58-2.15)	
						10-19	49	0.95 (0.67-1.35)	
						20+	26	1.01 (0.65-1.57)	
			Cohort, mortality	2000 (NR)	28292/ 184	Never-smoker	44	Referent	Same as above
						Ever	120	1.13 (0.85-1.49)	
						Current	59	1.25 (0.84-1.87)	
						1-9 Cig/day	5	1.12 (0.44-2.82)	
						10-19	31	1.11 (0.70-1.77)	
						20+	23	1.58 (0.94-2.64)	
35	Smit, 2007 [15]	Puerto Rico Heart Health Program, Puerto Rico, 1965-	Cohort, mortality	2005 (NR)	9777/167	Never-smoker	51	Referent	None
						Ever	116	1.16 (0.82-1.65)[d]	
						Current	43	1.26 (0.82-1.94)[d]	

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
		1968							
36	Butler, 2009 [17]	Singapore Chinese Health Study; Singapore, 1993-1998	Cohort, incidence	2006 (10.4)	27293/ 250	Never-smoker Ever 1-12 Cig/day 13-22 23+ Duration 1-19 years 20-39 40+ Current	108 142 59 57 26 23 52 67 73	Referent 0.95 (0.74-1.16) 1.08 (0.79-1.49) 0.99 (0.71-1.37) 0.71 (0.46-1.10) 1.19 (0.76-1.87) 0.83 (0.59-1.15) 1.02 (0.74-1.41) 0.88 (0.65-1.19)	Age, interview year, dialect group, education, intake of vitamin D and black tea; Because of adjustment for dialect group, this article was considered as adjusted for race/ethnicity
37	Watters, 2009 [18]	NIH-AARP; USA, 1995-1996	Cohort, incidence	2003 (NR)	283312/ 16640	Never-smoker Ever Current <21 Cig/day 21+	5512 11128 1446 931 515	Referent 0.89 (0.86-0.91) 0.85 (0.80-0.90) 0.91 (0.84-0.97) 0.75 (0.69-0.83)	Age, race, education, marital status, vigorous physical activity, family history of prostate cancer, diabetes, health disease, total energy, quintiles of intake of α-tocopherol, calcium, red meat, fish, tomato, α-linolenic acid, and selenium, height, BMI, digital rectal examination, PSA
			Cohort, mortality	2005 (NR)	283312/ 394	Never-smoker Ever Current 1-20 Cig/day 21+	105 289 64 39 25	Referent 1.13 (0.93-1.34) 1.69 (1.25-2.27) 1.79 (1.27-2.52) 1.54 (1.01-2.34)	Same as above
38	Batty, 2011 [19]	Whitehall I study; UK, 1967-1970	Cohort, mortality	2007 (NR)	17934/ 551	Never-smoker Ever Current	123 428 203	Referent 1.03 (0.88-1.21) 1.14 (0.91-1.44)	Age, marital status, SES, physical activity, height, BMI, BP, FEV1, cholesterol, diabetes/ blood glucose
39	Grundmark, 2011 [20]	Uppsala Longitudinal Study of Adult Men (ULSAM); Sweden, 1970-1974	Cohort, incidence	2003 (26.5)	2045/ 208	Never-smoker Ever Current	69 139 86	Referent 0.67 (0.50-0.83) 0.60 (0.44-0.83)	None
40	Geybels, 2012 [21]	Netherlands Cohort Study; Netherlands, 1986	Cohort, incidence	2003 (17.3)	58279/ 3451	Never Ever Current	492 2957 1084	Referent 1.01 (0.88-1.13) 0.98 (0.82-1.18)	Age, duration of smoking (smoking years), frequency of smoking (Cig/day)
41	Karlsen,	Danish Diet, Cancer	Cohort,	2000-	20914/	Non-smoker	81	Referent	None;

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
	2012 [22]	and Health Study; Denmark, 1993-1997	incidence	2002 (NR)	129	Current 1-10 gr/day 11-20 21+	48 13 22 13	1.00 (0.70-1.43)[d] 1.28 (0.71-2.30)[d] 1.06 (0.66-1.69)[d] 0.81 (0.45-1.45)[d]	Repeated data on tobacco use were also collected in follow-ups. Here only data collected in the baseline are considered
42	Karppi, 2012 [23]	Kuopio Ischaemic Heart Disease Risk Factor; Finland, 1984-1989	Cohort, incidence	2008 (15)	997/ 68	Non-smoker Smoker	57 11	Referent 0.85 (0.76-0.95)[d]	None; Smoking defined as smoking within last 30 days; Another article from the this study reported RR (95% CI) of 0.94 (0.82-1.09) per 10 pack-years, adjusted for age, BMI, physical fitness, and intake of alcohol, fat, fiber, and energy [107]
43	Shafique, 2012 [24]	Collaborative study; Scotland, 1970-1972	Cohort, incidence	2007 (28)	6017/ 318	Never Ever Current	68 250 136	Referent 1.08 (0.84-1.32) 0.93 (0.69-1.26)	Age, social class, alcohol intake, tea intake, BP, BMI, cholesterol
44	Tseng, 2012 [25]	Taiwan Insurance; Taiwan, 1995-1998	Cohort, mortality	2006 (NR)	39135/ 105	Non-smoker Smoker	41 64	Referent 1.09 (0.82-1.46)	Age, area of residence, BMI, diabetes type, diabetes duration, insulin use; Retrospective cohort using a national insurance program's records
45	Bae, 2013 [26]	Seoul Male Cancer Cohort Study; South Korea, 1991-1992	Cohort, incidence	2008 (NR)	14450/87	Never-smoker Ever 1-10 Cig/day 11-20 21-30 31+ Duration 1-10 years 11-20 21-30 31+ Cumulative use 1-10 pk-yr 11-15 16-20 21-34 35+ Current	29 57 1 10 20 22 6 16 30 5 8 4 12 21 8 38	Referent 0.65 (0.40-0.90) 1.16 (0.02-1.20) 0.82 (0.40-1.66) 0.56 (0.32-0.99) 0.63 (0.36-1.08) 0.65 (0.27-1.57) 0.55 (0.30-1.01) 0.89 (0.54-1.48) 0.53 (0.21-1.37) 0.53 (0.24-1.14) 0.41 (0.14-1.14) 1.08 (0.56-2.09) 0.75 (0.43-1.29) 0.55 (0.25-1.19) 0.70 (0.43-1.13)	Age
46	Heikkila,	IPD-Work Consortium; Europe,	Cohort, incidence	2008 (12)	116056/ 865	Non-Smoker Current	706 159	Referent 0.70 (0.59-0.84)[d]	None; A pooled analysis of 12 independent studies in

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
	2013 [27]	1985-2002							Finland, France, the Netherlands, Sweden, Denmark, UK. Partial overlap with Lemonge et al 2013 (GAZEL study), from which 252 prostate cancer cases were included in this pooled analysis. Last follow-ups in participating studies were generally after 1995
47	Koutros, 2013 [28]	Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial (PLCO); USA, 1993-2001	Nested CCS, incidence	2009 (3.4)	28243/ 680 (824)	Never-smoker Ever Current	247 46 381	Referent 0.70 (0.58-0.84)[d] 0.50 (0.36-0.69)[d]	None
48	Lemogne, 2013 [29]	GAZEL study; France, 1989	Cohort, incidence	2009 (15.2)	8877/ 412	Never-smoker Ever Current 1-19 pk-yr 20+	NR NR NR NR NR	Referent 0.86 (0.73-1.00) 0.70 (0.52-0.88) 0.76 (0.55-1.05) 0.64 (0.44-0.95)	Age, occupation, alcohol intake, fruit and vegetable intake, BMI; Partial overlap with Heikkila et al 2013 (IPD-Work Consortium)
49	Onitilo, 2013 [30]	Marshfield Clinic; USA, 1995-2009	Cohort, incidence	2011 (NR)	33832/ 3432	*Before DM onset* Never-smoker Ever *After DM onset* Never-smoker Ever	 NR NR NR NR	 Referent 0.92 (0.85-1.18) Referent 0.83 (0.74-0.94)	Date of birth, study time period, residence in the study area, insurance status, BMI, and comorbidities. We considered the results as adjusted for age as they were adjusted for both data of birth and study time period; Retrospective cohort using medical records. In the article, ever-use was the reference group. In order to make these results consistent with results of other studies, we changed the reference category
50	Rohrmann, 2013 [31]	European Prospective Investigation into Cancer and Nutrition (EPIC); Europe, 1992-2000	Cohort, incidence	2009 (11.9)	145112/ 4623	Never-smoker Ever Current 1-14 Cig/day 15-24 25+ Duration <10 years 10-19 20-29 30-39	1547 3076 1080 420 365 131 10 24 94 401	Referent 0.93 (0.89-0.98) 0.90 (0.83-0.97) 0.97 (0.87-1.08) 0.90 (0.80-1.01) 0.87 (0.73-1.05) 0.78 (0.42-1.46) 0.91 (0.60-1.37) 0.87 (0.70-1.09) 0.90 (0.80-1.01)	Age, study center, education, marital status, height, weight, vigorous physical activity; Conducted in Denmark, France, Germany, UK, Greece, Italy, Spain, Norway, The Netherlands, Sweden

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
						40+	526	0.92 (0.82-1.02)	
			Cohort, mortality	2009 (11.9)	145112/ 432	Never-smoker	128	Referent	Same as above
						Ever	304	1.06 (0.87-1.24)	
						Current	121	1.27 (0.98-1.65)	
						1-14 Cig/day	40	1.19 (0.82-1.73)	
						15-24	40	1.31 (0.90-1.91)	
						25+	21	1.81 (1.11-2.93)	
						Duration			
						<10 years	0	–	
						10-19	1	–	
						20-29	7	1.26 (0.55-2.87)	
						30-39	33	1.28 (0.83-1.96)	
						40+	80	1.38 (1.01-1.87)	
51	Sawada, 2013 [32]	Japan Public Health Center-based Prospective Study (JPHC); Japan, 1990-NR	Cohort, incidence	2010 (16)	482018/ 913	Never-smoker	257	Referent	Age, public health center area, marital status, diabetes, intake of alcohol, miso soup and Japanese tea, BMI
						Ever	647	0.80 (0.72-0.89)	
						Current (cumulative use)	380	0.79 (0.68-0.89)	
						1-19 pk-yr	53	0.67 (0.49-0.91)	
						20-39	194	0.84 (0.70-1.02)	
						40+	133	0.80 (0.65-1.00)	

Supplementary Table 1b – Characteristics of the six studies included in the systematic review but not in the meta-analysis due to lack of information

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
1	Weir, 1970 [40]	Labor union members, California; USA, 1954-1957	Cohort, mortality	1962 (7)	68153/ 37	Never-smoker Ever ≤0.5 pk-yr ~ 1 1.5+	NR NR NR NR NR	Referent 0.78 (NR, NS) 0.58 (NR, NS) 0.98 (NR, NS) 0.78 (NR, NS)	Age, duration of smoking
2	Whittemore, 1984 [41]	Former College Men and Women; USA, 1962-1966	Cohort, incidence	1978 (NR)	33915/ 16	NR	16	NR (NR, NS)	NR
			Cohort, mortality	1978 (NR)	33915/ 12	NR	NR	NR (NR, NS)	Same as above
3	Thune, 1994 [51]	Norway, three counties; Norway, 1972-1978	Cohort, incidence	1991 (NR)	42067/ 211	Increment of 10 Cig/day	211	1.08 (0.90-1.30)	Age
4	Gann, 1995 [52]	Chicago Heart Association cohort; USA, 1967-1973	Cohort, mortality	1979 (19.2)	22367/ 73	Increments of 5 Cig/day	73	1.02 (0.93-1.12)	Age, education, BMI, heart rate, BP, cholesterol, postload plasma glucose
5	Tulinius, 1997 [58]	Icelandic Cardiovascular Risk Factor Study; Iceland, 1967-1991	Cohort, incidence	1995 (NR)	11366/ 524	NR	524	NR (NR, NS)	NR
6	Doll, 2005 [73]	British Doctors cohort; UK, 1951	Cohort, mortality	2001	34439 /878	Never-smoker Current 1-14 Cig/day 15-24 25+	NR NR NR NR NR	Referent 1.01 (NR) 0.75 (NR) 1.11 (NR) 1.27 (NR)	Age; Mortality rates per 100,000 were 89.4 in never-smokers, 66.7 in 1-14 Cig/day, 99.6 in 15-24 Cig/day, and 113.3 among ≥25 Cig/ day current smokers
7	Chamie, 2008 [16]	Northern California Veteran Affairs; USA, 1962-1971	Cohort, incidence	2006 (NR)	13144/ 363	Specific categories (see comments)	NR	0.78 (0.72-0.85)	Age, race, agent Orange exposure, BMI, finasteride use, preoperative PSA level; Smoking history was considered as a continuous variable as follows: 0, lifetime nonsmoker; 1, quit >14 years ago; 2, quit >7 years ago; 3, quit >4 years ago; 4, quit in the last year; and 5, current smoker
8	Li, 2011 [74]	Ohsaki Cohort Study; Miyagi	Cohort, incidence	2003	22458/ 230	Never or former smoker	127	Referent	None; As the reference group included former smokers,

No.	First author, publication year	Study name (or description); country, recruitment period	Study design, outcome	Last FU (FU [a], yrs.)	Total no. men/ cases [b]	Smoking category*	No. cases*	RR (95% CI)*	Variables the results were adjusted for; Other comments
		Prefecture, Japan, 1995				Current	94	0.59 (0.45-0.77)[d]	this study was not included in our meta-analysis

Adj., adjusted; BMI, body mass index; BP, blood pressure; CCS, case-control study; DM, diabetes mellitus; FEV1, forced expiratory volume in one second; FU, follow-up; NR, not reported; NS, non-significant (95% CIs or p-values were not reported, but the authors reported that were no significant association); pk-yr, pack-year; PSA, prostate-specific antigen; SES, socioeconomic status; yr, year

* Data on cigarette smoking. For qualitative measures of use, data on current cigarette smoking (at baseline) are shown in this table. When these data were not available, quantitative data on ever smoking (if available) are presented. Quantitative measures of former smoking are not shown.

[a] The mean or median of follow-up in years.

[b] The numbers in parentheses are the number of controls in nested case-control studies.

[c] Cumulative use during previous decade

[d] We calculated the risk estimates using frequency distributions only, comparing cases of prostate cancer (incident or death) with other participants. Evidently, time at risk was not considered in these calculations.

Supplementary Table 2 – Association between cigarette smoking (current smokers at baseline) and prostate cancer incidence and mortality after various adjustments for potential confounding factors

Variables the results were adjusted for	No. of articles	RR (95% CI)	I^2 statistics	*P* for heterogeneity
Mortality				
Overall				
All articles	19	1.24 (1.18-1.31)	1	0.45
Age	16	1.26 (1.18-1.34)	14	0.29
Age, race/ethnicity	2	1.45 (1.17-1.80)	46	0.17
Age, SES	7	1.29 (1.18-1.40)	8	0.36
Age, BMI	8	1.32 (1.16-1.50)	31	0.17
Age, diabetes	6	1.30 (1.12-1.51)	46	0.09
Age, family history [a]	3	1.40 (1.24-1.59)	0	0.39
Age, SES, BMI [b]	4	1.29 (1.10-1.52)	49	0.12
1995 or earlier *				
All articles	10	1.24 (1.17-1.31)	0	0.79
Age	8	1.24 (1.17-1.31)	0	0.65
Age, SES	3	1.31 (1.18-1.45)	0	0.64
Age, BMI	3	1.35 (1.17-1.55)	0	0.86
After 1995 *				
All articles	8	1.24 (1.11-1.39)	14	0.32
Age	7	1.24 (1.10-1.41)	24	0.24
Age, SES	4	1.27 (1.06-1.51)	45	0.14
Age, BMI	4	1.30 (1.07-1.58)	49	0.12
Incidence				
Overall				
All articles	33	0.90 (0.85-0.96)	68	<0.001
Age	25	0.95 (0.89-1.01)	59	<0.001
Age, race/ethnicity	3	0.89 (0.77-1.04)	32	0.23
Age, SES	6	0.87 (0.82-0.93)	26	0.24
Age, BMI	7	0.89 (0.81-0.98)	63	0.01
Age, diabetes	5	0.89 (0.80-0.98)	62	0.03
Age, family history [a]	2	0.91 (0.79-1.04)	85	0.01
Age, SES, BMI [b]	3	0.84 (0.76-0.92)	17	0.30
1995 or earlier*				
All articles	15	1.06 (0.98-1.15)	25	0.18
Age	13	1.06 (0.97-1.15)	29	0.14
Age, SES	1	1.20 (0.81-1.77)	–	–
Age, BMI	2	1.08 (0.88-1.33)	0	0.55
After 1995 *				
All articles	18	0.84 (0.79-0.89)	58	0.001
Age	12	0.89 (0.84-0.93)	28	0.17
Age, SES	5	0.86 (0.83-0.91)	1	0.40
Age, BMI	5	0.86 (0.78-0.95)	66	0.02

BMI, body mass index; CI, confidence interval; SES, socioeconomic status; RR, relative risk
[a] Family history of prostate cancer.
[b] These factors were selected because of relatively higher number of articles with results adjusted for them.
* Last follow-up in 1995 or earlier versus after 1995. In the results for prostate cancer mortality, the last follow-up could not be abstracted from one of the articles,[12] in which the results were adjusted for age, diabetes, BMI, so the numbers of articles in the two time periods may not add up to the total number of articles. Only selected factors are shown, because the analysis stratified for other factors (race/ethnicity, diabetes, family history of prostate cancer, and combination of age, BMI, and SES) yielded only one or no articles for both mortality and incidence of prostate cancer.

Supplementary Table 3 – Association between cigarette smoking (current smokers) at baseline and prostate cancer incidence and mortality by geographic area

Variables the results adjusted for	No. of studies	RR (95% CI)	I^2 statistics	*P* for heterogeneity
Mortality				
Overall				
United States	9	1.28 (1.18-1.40)	27	0.19
Europe	6	1.23 (1.10-1.38)	0	0.96
Australia, New Zealand [a]	1	1.67 (1.12-2.45)	–	–
Asia [a]	4	1.10 (0.90-1.35)	5	0.37
1995 or earlier *				
United States	6	1.24 (1.16-1.32)	0	0.46
Europe	3	1.26 (1.07-1.49)	0	0.79
Australia, New Zealand	0	–	–	–
Asia	1	1.10 (0.70-1.50)	–	–
After 1995 *				
United States	3	1.30 (1.01-1.68)	59	0.06
Europe	3	1.20 (1.03-1.41)	0	0.81
Australia, New Zealand	0	–	–	–
Asia	2	1.16 (0.92-1.48)	0	0.42
Incidence				
Overall				
United States	16	0.94 (0.86-1.03)	66	<0.001
Europe	13	0.89 (0.81-0.99)	74	<0.001
Australia, New Zealand	1	0.73 (0.56-0.95)	–	–
Asia	3	0.80 (0.71-0.90)	0	0.70
1995 or earlier *				
United States	10	1.05 (0.95-1.16)	15	0.30
Europe	5	1.07 (0.92-1.23)	40	0.16
Australia, New Zealand	0	–	–	–
Asia	0	–	–	–
After 1995 *				
United States	6	0.85 (0.76-0.95)	74	0.002
Europe	8	0.84 (0.76-0.92)	59	0.02
Australia, New Zealand	1	0.73 (0.56-0.94)	–	–
Asia	3	0.80 (0.71-0.90)	0	0.70

[a] One of the studies [12] reported the results on smoking and prostate cancer mortality in both Australia/New Zealand and Asian regions. For this reason, this study has been counted twice here.

* Last follow-up in 1995 or earlier versus after 1995. In the results for prostate cancer mortality, the last follow-up could not be abstracted from the above article, which reported on both Australia/New Zealand and Asian regions.[12]

Supplementary Table 4 – Studies with indication of data collection on prostate cancer screening

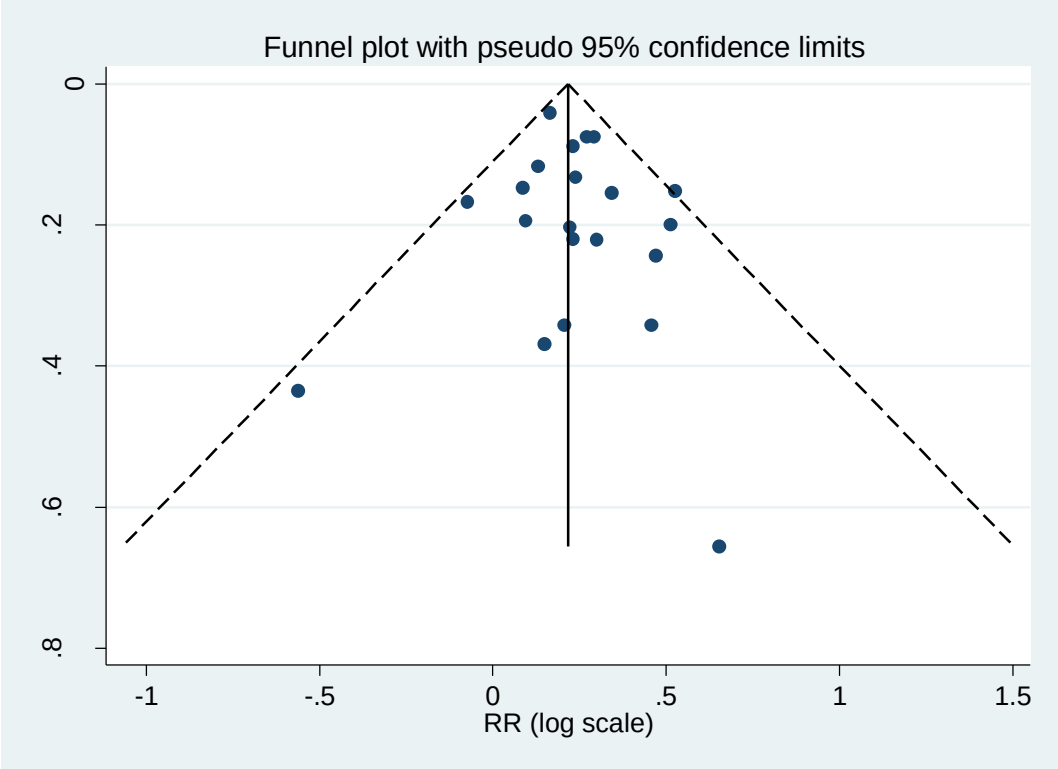
First author, publication year	Outcome	Categories	No. cases*	RR (95% CI)*	Comment
Giovannucci, 1999 [60]	Mortality	1986-1994 (total)		Increment of 15 pack-years of cigarettes smoked in the prior decade	The method of diagnosis of cancer was not reported in this study, but the association between smoking and prostate cancer mortality was slightly stronger in those who had a normal DRE early in the study, suggesting that prostate cancer might progress more rapidly in smokers.
		Metastatic	152	1.55 (1.04-2.33)	
		Fatal	103	1.77 (1.11-4.07)	
		1988-1994 (negative DRE in 1988)			
		Metastatic	57	2.05 (1.12-3.75)	
		Fatal	37	2.40 (1.17-4.91)	
Hultdin, 2005 [69]	Incidence	–	–	–	PSA was done, but results were not reported by smoking status. Cause of workup leading to prostate cancer diagnosis was routine health checkup (12%), local symptoms (55%), other causes (13%), or not registered/missing (20%).
Giovannucci, 2007 [71]	Incidence, mortality	–	–	–	PSA testing in the prior 2 years was asked biennially from 1994 to 2000. PSA screening intensity was very high in the study population and relatively equal across categories of smoking: 75% for never smokers and 70% for current smokers.
Gonzalez, 2007 [11]	Incidence	–	–	–	PSA was done, but results were not reported by smoking status. In 83% prostate cancer cases and 72% non-cases PSA test had been done within the two years prior to baseline.
Watters, 2009 [18]	Incidence	PSA screened			Current smokers were less likely to have been screened with PSA (57%) and/or DRE (72%) during the past 3 years than former and never smokers (PSA 73% and DRE 85% in both).
		Never	2684	Referent	
		Current	554	0.95 (0.86-1.04)	
		No PSA test			
		Never	492	Referent	
		Current	213	0.92 (0.86-1.04)	
		Missing PSA test information			
		Never	2336	Referent	
		Current	697	0.76 (0.70-0.83)	
	Mortality	PSA screened			
		Never	36	Referent	
		Current	15	1.64 (0.95-2.83)	
		No PSA test			

First author, publication year	Outcome	Categories	No. cases*	RR (95% CI)*	Comment
		Never Current Missing PSA test information Never Current	15 18 54 31	Referent 2.30 (1.18-4.48) Referent 1.49 (0.97-2.30)	
Grundmark, 2011 [20]	Incidence	–	–	–	Very few prostate cancer cases (<2%) were diagnosed using PSA screening.
Koutros, 2013 [28]	Incidence	–	–	–	Men were randomized to either the control or screening arm of the trial. To the screening arm, a PSA test and digital rectal exam at baseline and annually thereafter for 3 years, followed by 2 years of screening with PSA alone was offered. However, PSA results were not reported by smoking status.
Sawada, 2013 [32]	Incidence	All cases Never smokers 0-20 pack-years 20-40 pack-years ≥40 pack-years Cases detected by subjective symptoms (not screening) Never smokers 0-20 pack-years 20-40 pack-years ≥40 pack-years	 257 53 194 133 59 13 46 43	 Referent 0.67 (0.49-0.91) 0.84 (0.70-1.02) 0.80 (0.65-1.00) Referent 0.82 (0.44-1.54) 0.95 (0.64-1.43) 1.12 (0.74-1.69)	Smoking had a significant inverse association with prostate cancer incidence in those who were diagnosed with prostate cancer using screening, but not in those who were diagnosed by subjective symptoms. 39% of prostate cancers detected by PSA screening and 45% of cancers detected by subjective symptoms were current smokers.

DRE, digital rectal examination; PSA, prostate-specific antigen

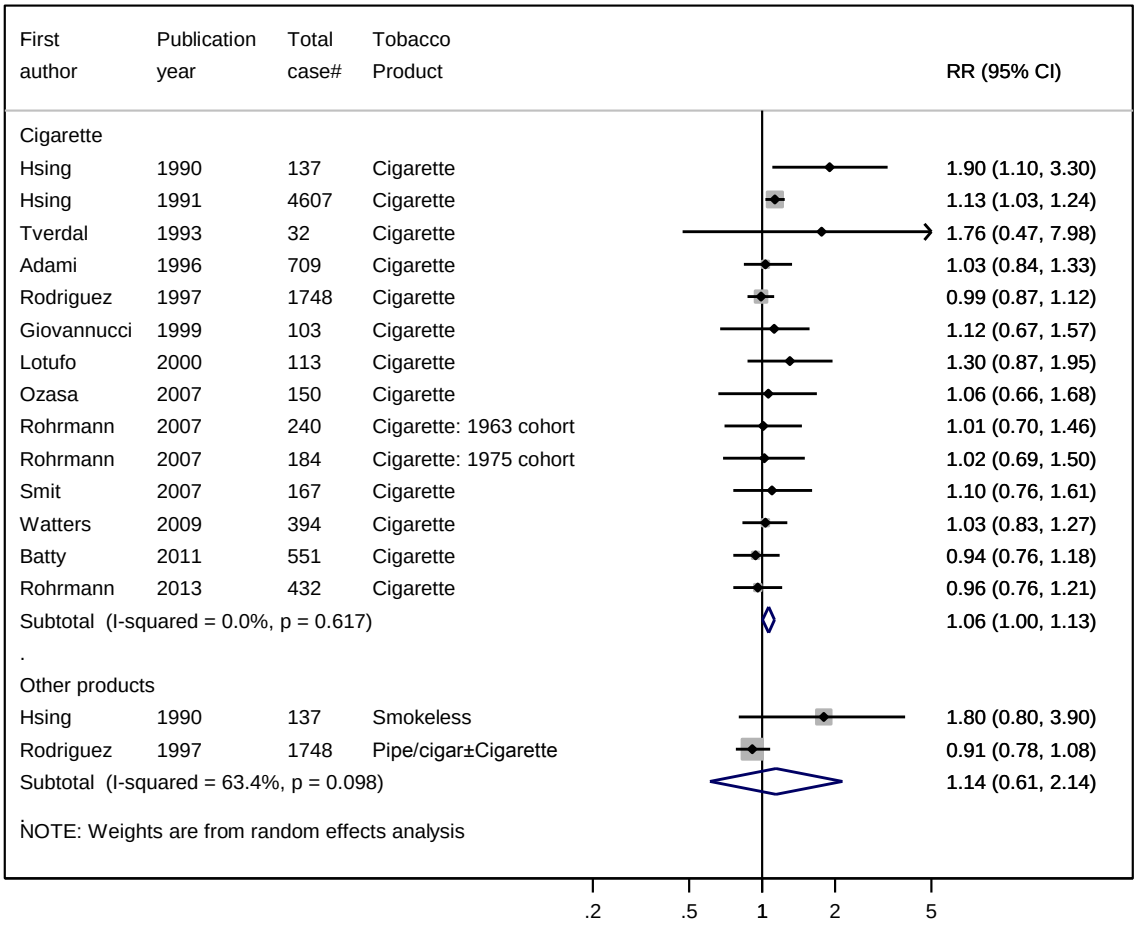
Note: Here, only studies with any indication of collection of data on prostate cancer screening are presented. Some studies provided prevalence of screening in the countries where the studies were conducted or used a cutoff year as a surrogate for screening status. These studies were not included here as they did not provide information about actual screening prevalence in the study population (either population or opportunistic screening).

Supplementary Fig. 1 – Funnel plot for publication bias for the studies reporting on current smoking at baseline and mortality from prostate cancer

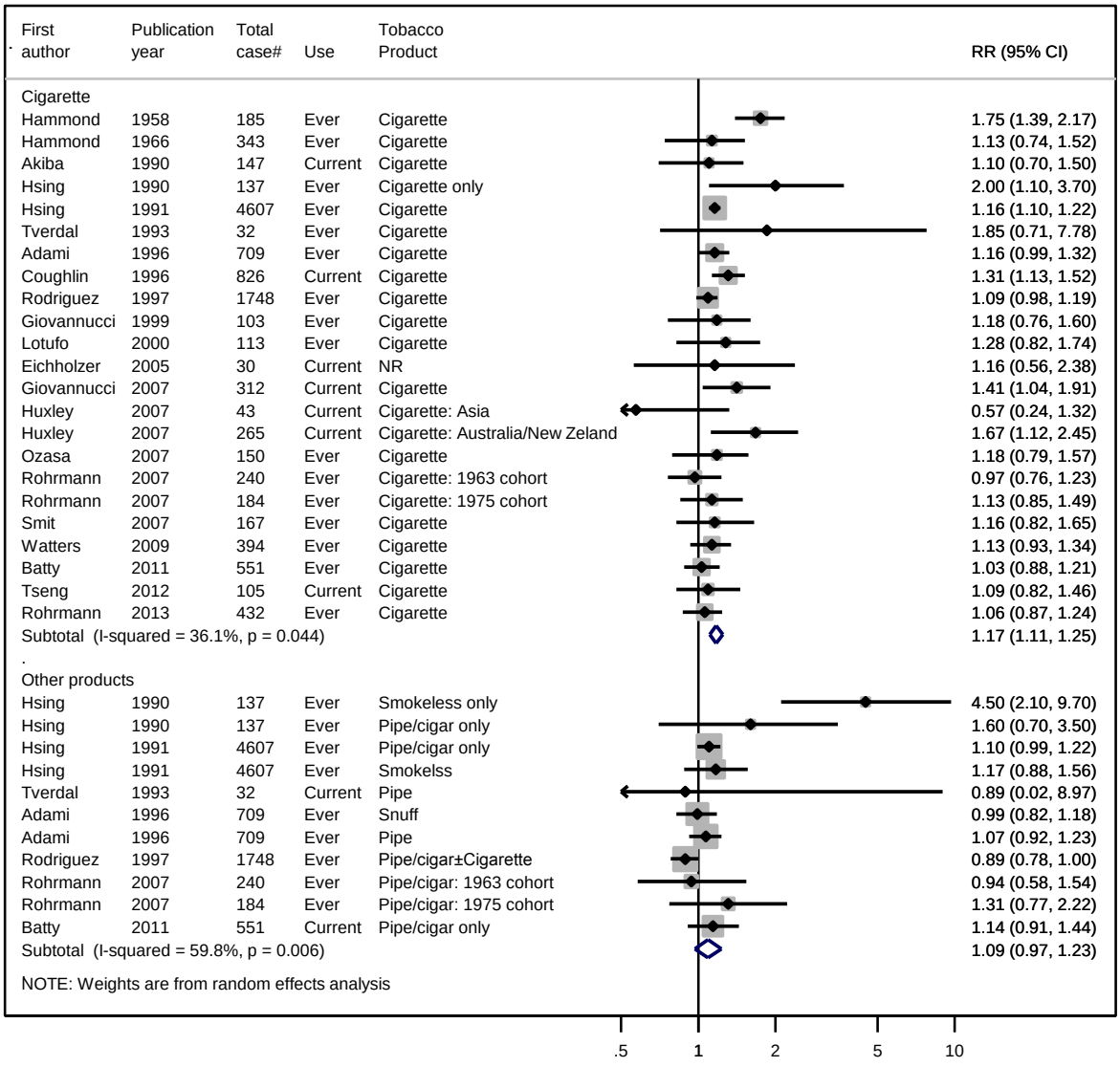


RR, relative risk.
Twenty one dots from 19 studies (two studies had two subgroups each).
The p-value for publication bias was 0.83 and 0.48 using the Begg and Mazumdar and the Egger's methods, respectively.

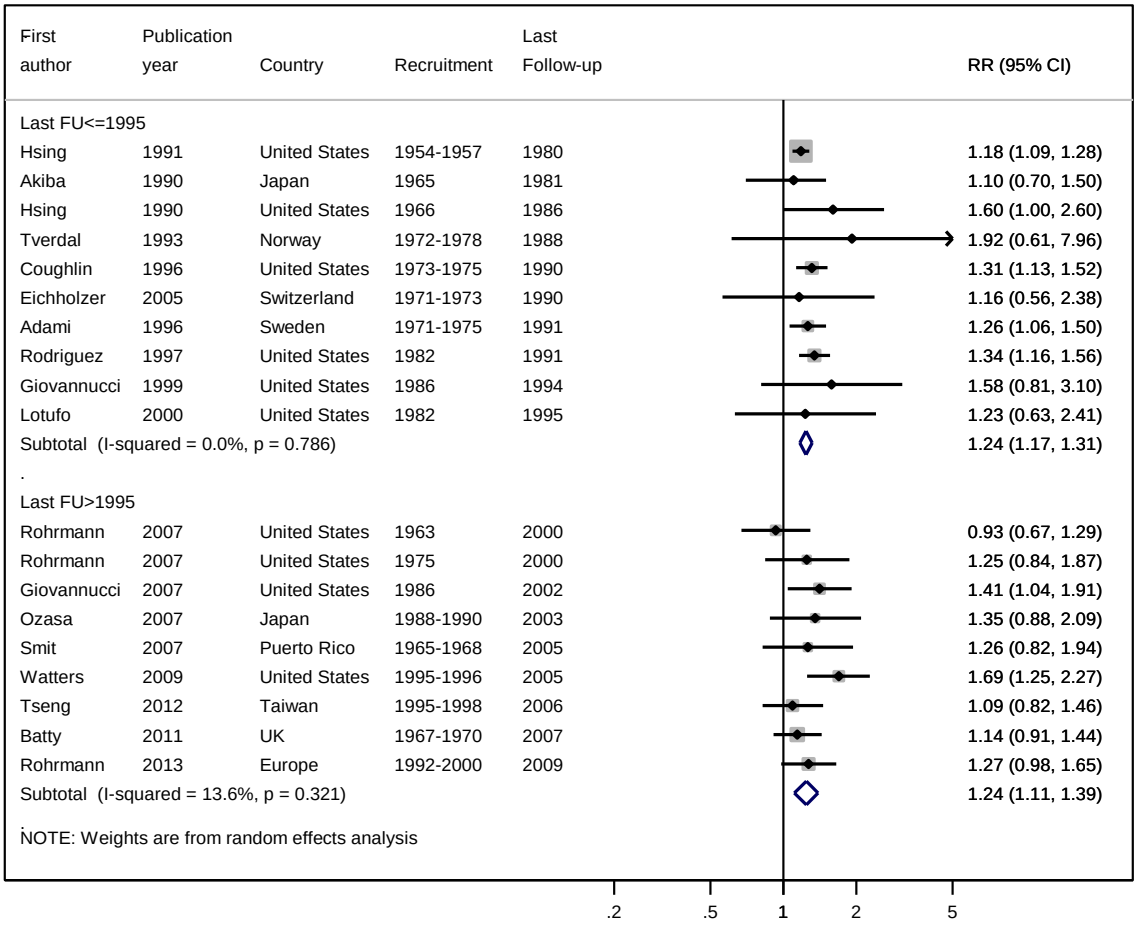
Supplementary Fig. 2 – Association between previous tobacco smoking (former smokers) and prostate cancer mortality



Supplementary Fig. 3 – Association between ever tobacco smoking and prostate cancer mortality

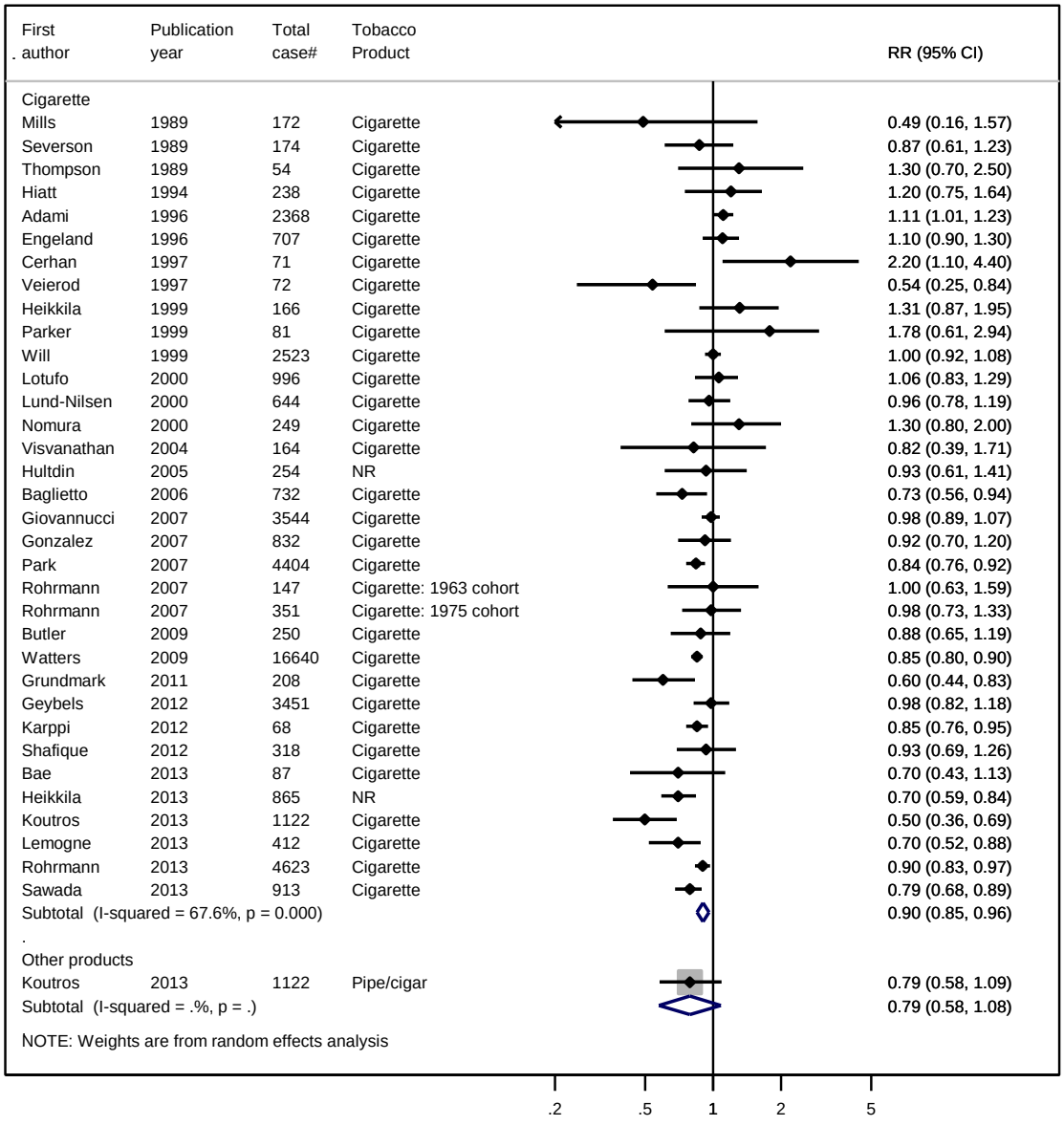


Supplementary Fig. 4 – Association between current cigarette smoking at baseline and risk of prostate cancer death by the year of last follow-up (1995 or earlier and after 1995)

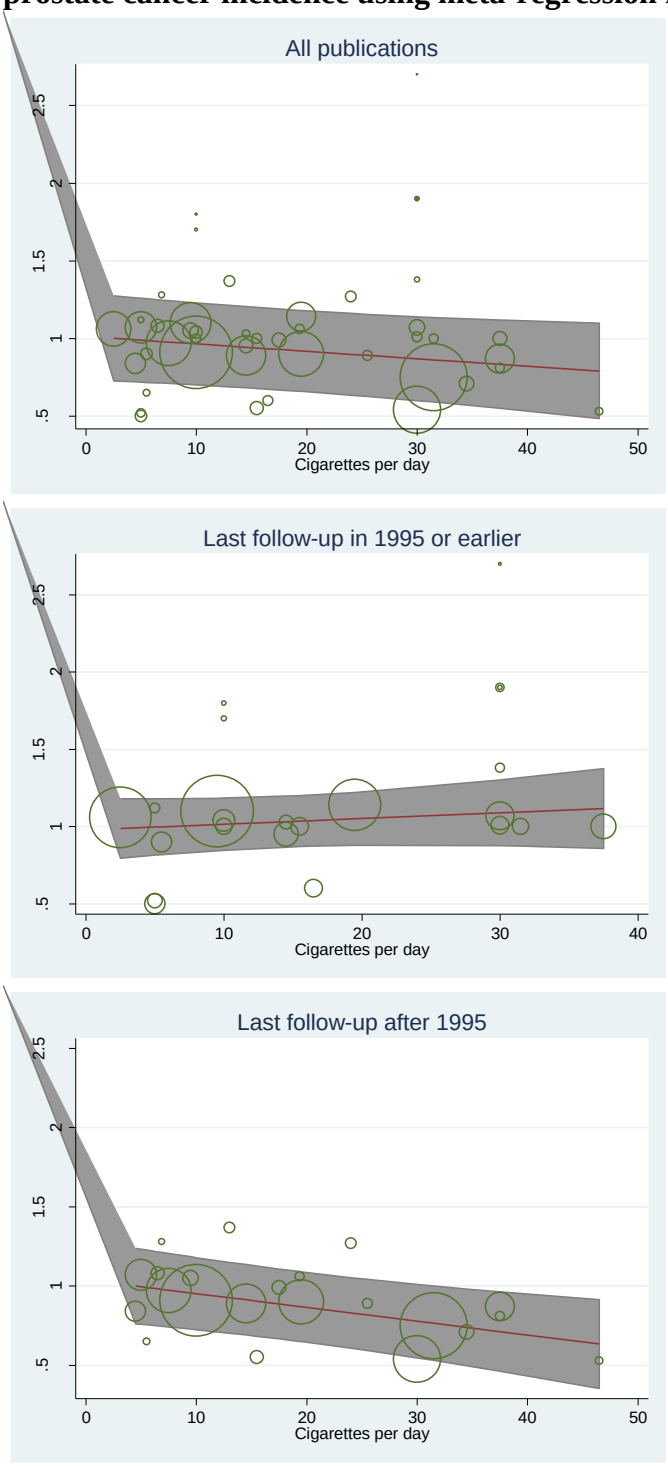


Rohrmann et al (2007) [72] had two sub-populations.

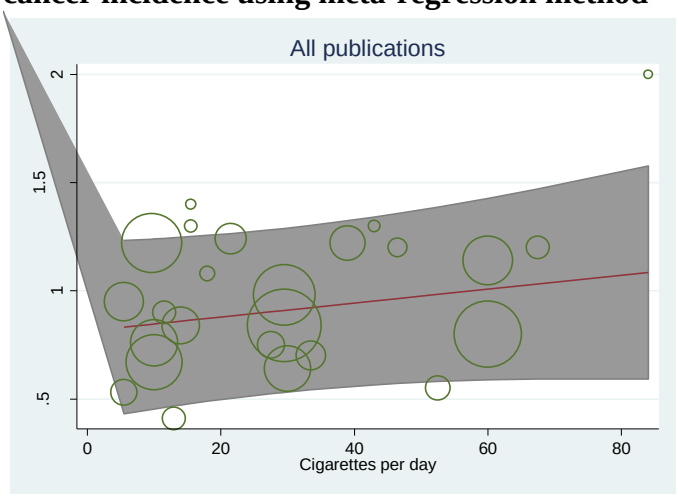
Supplementary Fig. 5 – Association between current tobacco smoking and risk of incident prostate cancer

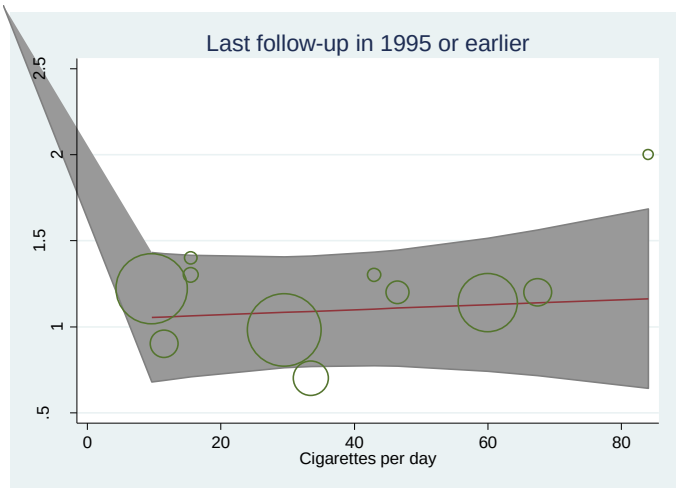


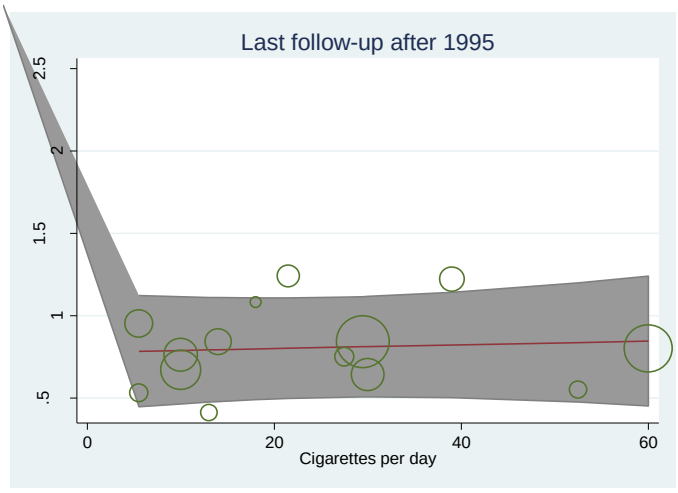
Supplementary Fig. 6 – Association between amount of cigarette smoking at baseline and prostate cancer incidence using meta-regression method



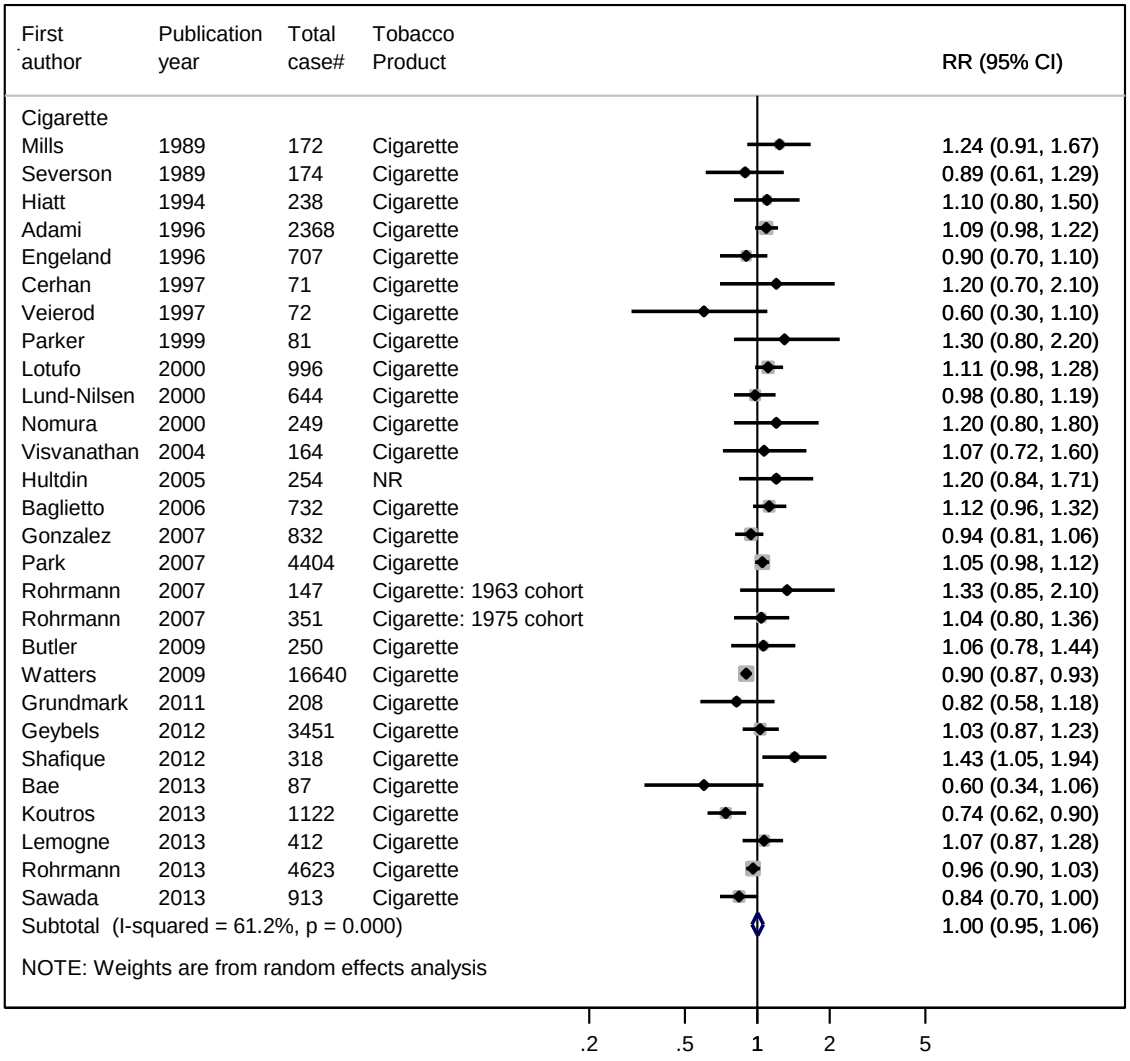
Supplementary Fig. 7 – Association between cumulative cigarette smoking and prostate cancer incidence using meta-regression method



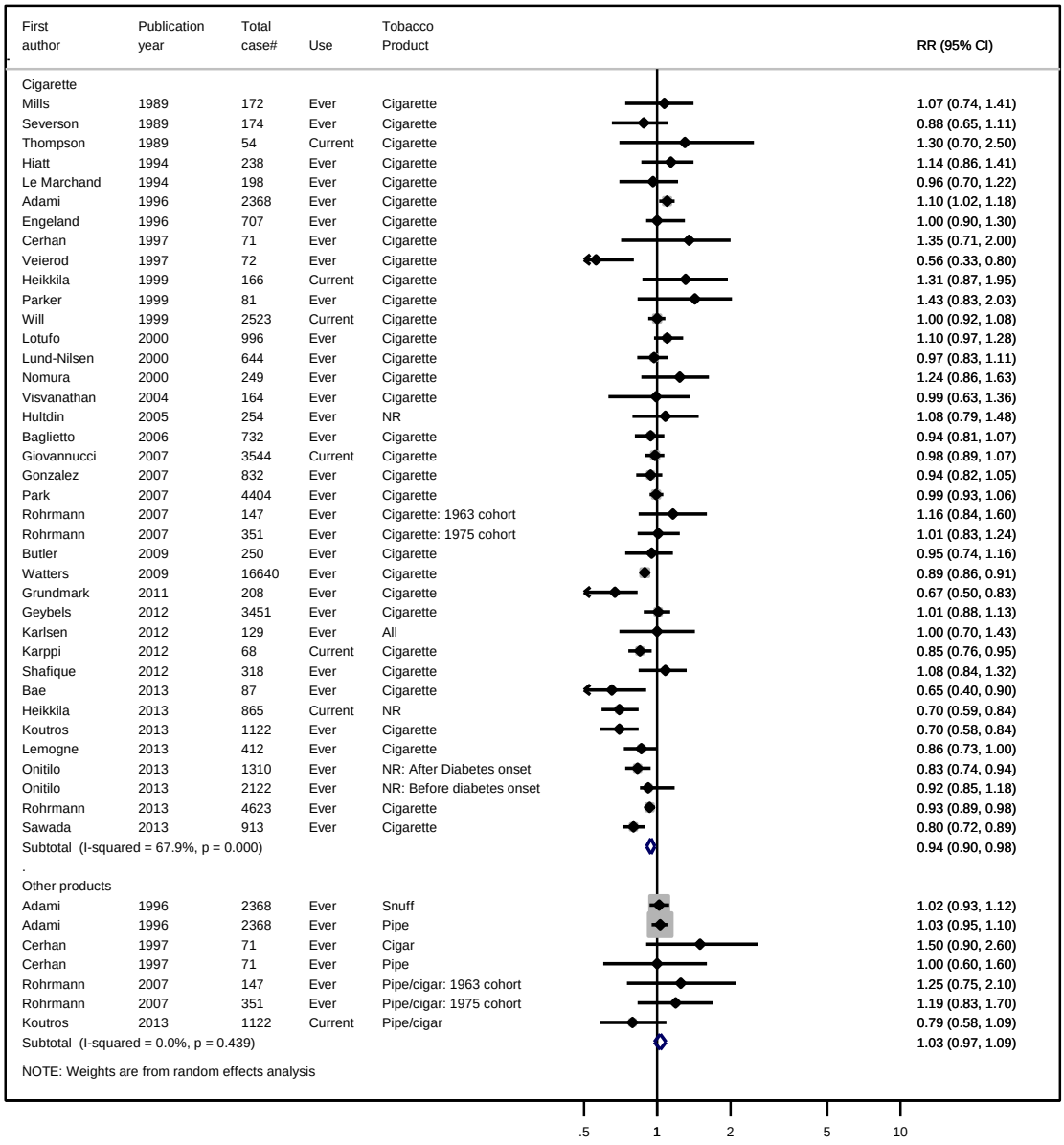




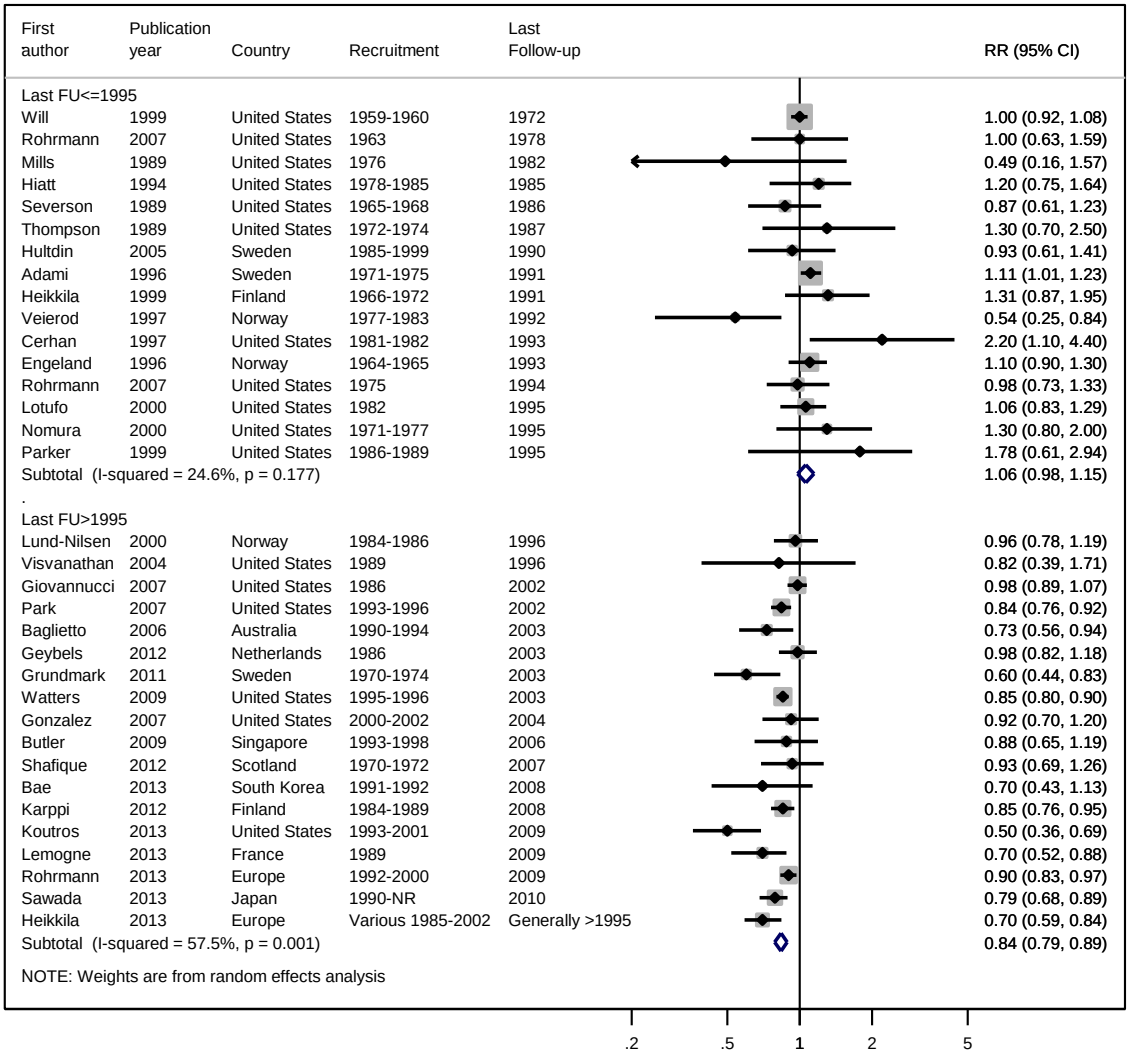
Supplementary Fig. 8 – Association between previous tobacco smoking (former smokers) and risk of incident prostate cancer



Supplementary Fig. 9 – Association between ever tobacco use and risk of incident prostate cancer



Supplementary Fig. 10 – Association between current cigarette smoking at baseline and risk of incident prostate cancer by the year of last follow-up (1995 or earlier and after 1995)



Rohrmann et al (2007) [72] had two sub-populations.