

## Supplementary Online Content

Gellert C, Schöttker B, Brenner H. Smoking and all-cause mortality in older people: systematic review and meta-analysis. *Arch Intern Med*. doi:10.1001/archinternmed.2012.1397

**eTable 1.** Factors adjusted for in the 17 included studies

**eTable 2.** Studies reporting associations of amount of smoking with all-cause mortality

**eTable 3.** Former smokers stratified by length of time since smoking cessation

**eTable 4.** Absolute mortality rates per 100,000 person-years

**eFigure 1.** Forest plot of meta-analyses for current smokers compared to never smokers

**eFigure 2.** Forest plot of meta-analyses for male and female current smokers compared to never smokers

**eFigure 3.** Forest plot of meta-analyses for current smokers in age groups 60-69 years, 70-79 years and  $\geq 80$  years compared to never smokers

**eFigure 4.** Forest plot of meta-analyses for former smokers compared to never smokers

**eFigure 5.** Forest plot of meta-analyses for male and female former smokers compared to never smokers

**eFigure 6.** Forest plot of meta-analyses for former smokers in age groups 60-69 years, 70-79 years and  $\geq 80$  years compared to never smokers

This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1 – Factors adjusted for in the 17 included studies**

First Author; Year (Reference)	Age <sup>1</sup>	Sex <sup>1</sup>	BMI	Blood pressure/ Hypertension	Blood lipids	Weight	Fasting glucose/ Diabetes	Alcohol consumption	Marital status	Edu- cation	Occu- pation	Physical activity	Others
Doll; 2004 (21)	x	x											Study year
Enstrom; 1999 (22)	x	x											-
Newman; 2009 (23)	x	x		x		x						x	2
Fujisawa; 2008 (24)	x	x	x	x	x		x						ADL
Ho; 1999 (25)	x	x	x	x				x	x	x	x		-
Jamrozik; 2011 (19)	x	x							x	x			3
Kaplan; 1987 (26)	x	x				x		x				x	4
LaCroix; 1991 (27)	x	x		x			x	x					5
Lam; 2002 (20)	x	x	x	x	x		x	x				x	6
Lam; 2007 (28)	x	x	x	x	x		x	x		x		x	7
Murakami; 2011 (35)	x	x	x	x				x					Study cohort
Paganini-Hill; 1994 (29)	x	x											-
Ruigomez; 1995 (34)	x	x						x		x		x	8
Simons; 2005 (30)	x	x	x	x			x	x	x				9
Taylor; 2002 (31)	x	x						x	x	x			10
Tessier; 2000 (32)	x	x									x		Dyspnoea
Vogt; 1996 (33)	x	x	x	x			x			x		x	11

BMI, Body Mass Index; ADL, Activities of daily living

<sup>1</sup> adjusted for age/sex or restricted to specific age group/one sex only. <sup>2</sup> Income, self-rated health, congestive heart failure, coronary heart disease, forced vital capacity, electrocardiogram abnormality, carotid stenosis, ankle-arm index, using diuretics, fasting glucose, serum albumin, serum creatinine, C-reactive protein, interleukin-6, impairments in activities of daily living, Digit Symbol Substitution Test score. <sup>3</sup> Area of residence, country of birth <sup>4</sup> Co-morbidity, disability, hours sleep, eating breakfast, snacking. <sup>5</sup> Community, frequency of walking. <sup>6</sup> Coronary heart disease, stroke, chronic obstructive pulmonary disease, cancer. <sup>7</sup> Heart diseases, chronic obstructive pulmonary disease/asthma, cerebrovascular accident, regular medication, admission to hospital, monthly expenditure, regular contact with relatives, unintentional weight loss in the past 6 months, self-rated health, functional disability, depressive symptoms. <sup>8</sup> Perceived health status, daily hours of sleep. <sup>9</sup> Peak expiratory flow, disability, self-rated health, prior coronary heart disease. <sup>10</sup> Race, self-reported history of cancer. <sup>11</sup> Waist-hip ratio greater than 0.84, walking for exercise, history of stroke, arthritis, ever use of estrogen, use of thiazide diuretics, use of nonthiazide diuretics, poor to fair health.

**eTable 2 - Studies reporting associations of amount of smoking with all-cause mortality**

First Author; Year (Reference)	Cohort name	Age- range	Length of follow- up (years)	Relative mortality (95% CI) compared to never-smokers					
				Average number of cigarettes smoked per day	Male	Female	Pack- years of smo- king	Male	Female
					Both sexes			Both sexes	
<b>Current-smokers</b>									
Doll; 2004 (21)	BDS	≥60	50	1-14 15-24 >25	1.79 2.17 2.61	-	-	-	-
Newman; 2009 (23)	CHS	≥65	16			-	1-26 27-50 >50	1.16 (1.06;1.27) 1.26 (1.14;1.40) 1.67 (1.50;1.86)	
Fujisawa; 2008 (24)	8020 DBS	80	4	≤20 >20	2.2 (0.9;5.3) 4.1 (1.4;12.4)	-		-	-
Ho; 1999 (25)	OAAS	≥70	3	1-10 >10	1.4 (1.0;2.1) 1.1 (0.6;2.0)	1.5 (0.8;2.6) 2.7 (1.2;5.8)		-	-
Jamrozik; 2011 (19)	ALSWH, HIMS	≥70	10	1-14 15-24 ≥25	2.09 (1.83;2.39) 2.38 (1.96;2.90) 2.86 (2.29;3.57)	1.98 (1.65;2.39) 2.26 (1.82;2.80) 2.71 (2.11;3.47)			
LaCroix; 1991 (27)		≥65	5	1-19 20-39 ≥40	1.4 (1.0;2.1) 1.9 (1.3;2.8) 2.2 (1.1;4.3)	1.3 (1.1;1.6) 1.4 (1.1;1.8) 1.1 (0.6;1.7)	1-19 20-39 ≥40	1.2 (0.9;1.5) 1.2 (0.9;1.6) 1.6 (1.3;1.9)	1.1 (0.8;1.4) 1.3 (1.0;1.8) 1.4 (1.1;1.9)
Lam; 2007 (28)		≥65	4	1-9 10-20 >20	1.75 (1.47;2.07) 1.78 (1.50;2.12) 1.87 (1.44;2.45)	1.31 (1.04;1.67) 1.37 (0.91;2.05) 1.59 (0.66;3.85)		-	-
Vogt; 1996 (33)	SOF	≥65	6	1-10 11-20 >20	- - -	2.25 (1.59;3.17) 2.31 (1.53;3.50) 2.35 (1.46;3.78)	<25 ≥25	-	1.26 (0.99;1.62) 1.99 (1.49;2.65)
<b>Ever-smokers (current- &amp; former-smokers)</b>									
Lam; 2002 (20)		≥60	12	≤14 15-24 ≥25	- - -	0.97 (0.67;1.42) 1.38 (1.01;1.89) 2.00 (1.41;2.83)		-	-
Paganini-Hill; 1994 (29)		≥60	5	5-10 ≥20	- -	1.17 (1.04;1.31) 1.58 (1.40;1.78)		-	-

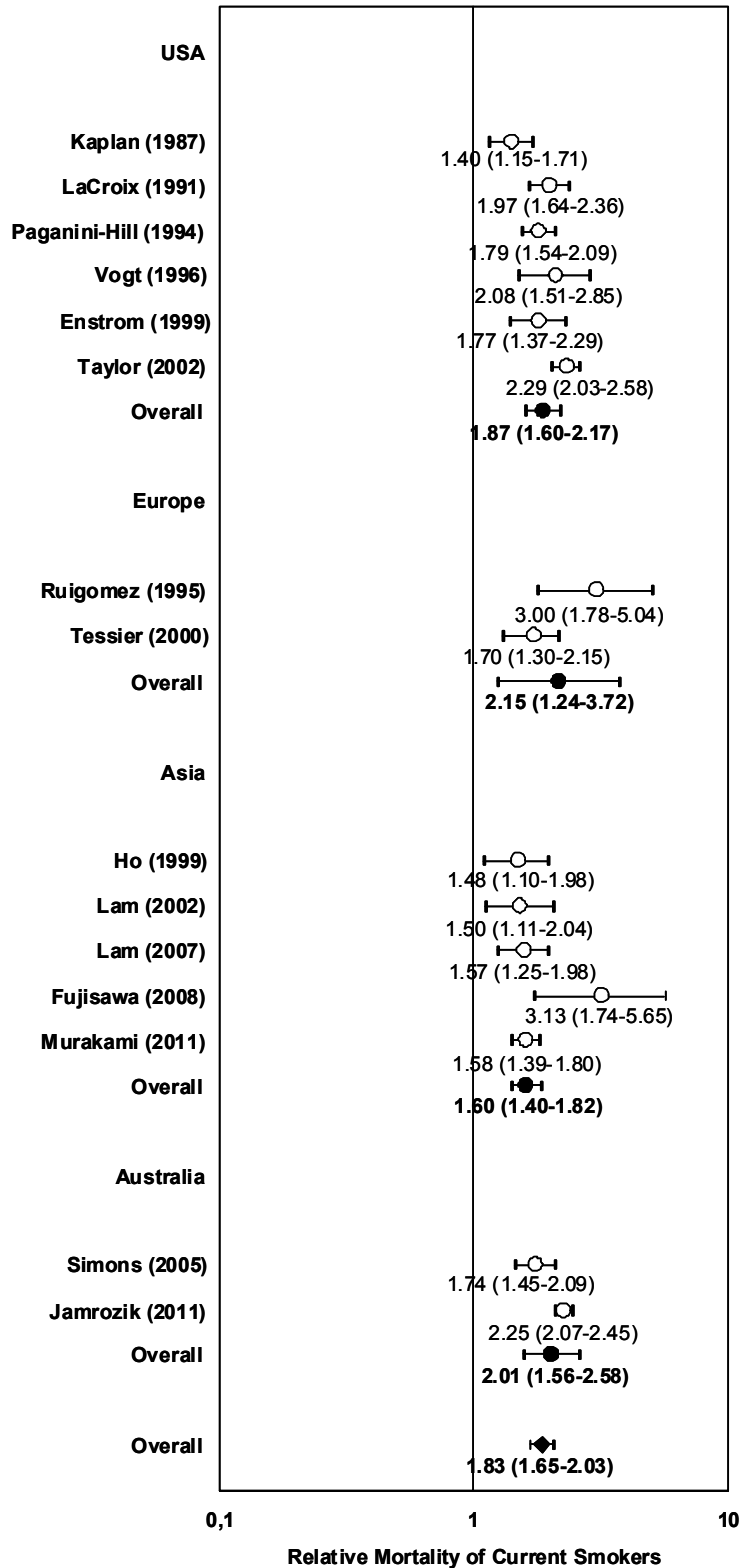
**eTable 3 – Former smokers stratified by length of time since smoking cessation**

First Author; Year (Reference)	Cohort name	Length of follow-up (years)	Age when quit	Relative mortality (95%CI) compared to never-smokers					
				Male	Female	Age- range	Years since last smoked	Male	Female
Fujisawa; 2008 (24)	8020 DBS	4	≥65	1.5 (0.6;3.7)	-			-	-
Jamrozik; 2011 (19)	ALSWH, HIMS	10				≥70	0-5	1.96 (1.69;2.28)	1.74 (1.46;2.07)
							6-10	1.86 (1.61;2.14)	1.63 (1.37;1.95)
							11-20	1.54 (1.34;1.77)	1.35 (1.18;1.55)
							>20	1.26 (1.16;1.38)	1.13 (0.99;1.29)
LaCroix; 1991 (27)		5	≥65	1.4 (1.1;1.7)	1.1 (0.8;1.6)	≥65	≤5	1.5 (1.1;2.1)	1.3 (0.8;2.1)
							6-10	1.2 (0.9;1.7)	1.0 (0.6;1.6)
							11-20	1.4 (1.1;1.8)	0.8 (0.5;1.3)
							>20	1.0 (0.8;1.3)	0.9 (0.6;1.4)
Paganini-Hill; 1994 (29)		5	≥65	1.74 (1.52;1.98)	1.45 (1.25;1.69)	≥60	≤5	2.00 (1.64;2.45)	1.52 (1.22;1.88)
							6-10	1.48 (1.22;1.80)	1.32 (1.05;1.65)
							11-20	1.36 (1.19;1.55)	1.32 (1.13;1.55)
							>20	1.09 (0.98;1.22)	0.99 (0.85;1.15)
Taylor; 2002 (31)	CPS II	14				60-69	3-5	2.13 (2.02;2.25)	2.06 (1.89;2.23)
							6-10	2.17 (2.10;2.24)	1.89 (1.79;1.99)
							11-15	1.75 (1.68;1.81)	1.59 (1.50;1.67)
							≥16	1.23 (1.19;1.27)	1.11 (1.06;1.16)
						70-79	3-5	1.98 (1.85;2.11)	1.55 (1.33;1.76)
							6-10	2.08 (2.01;2.14)	1.80 (1.70;1.90)
							11-15	1.92 (1.87;1.98)	1.70 (1.62;1.77)
							≥16	1.32 (1.29;1.35)	1.20 (1.16;1.24)
						≥80	3-5	1.12 (0.77;1.46)	1.64 (1.21;2.08)
							6-10	1.56 (1.43;1.69)	1.53 (1.35;1.71)
							11-15	1.60 (1.51;1.68)	1.47 (1.37;1.58)
							≥16	1.19 (1.15;1.23)	1.21 (1.17;1.25)
Vogt; 1996 (33)	SOF	6				≥65	<10	-	1.88 (1.30;2.71)
							11-23	-	1.05 (0.83;1.34)
							>23	-	1.04 (0.77;1.40)

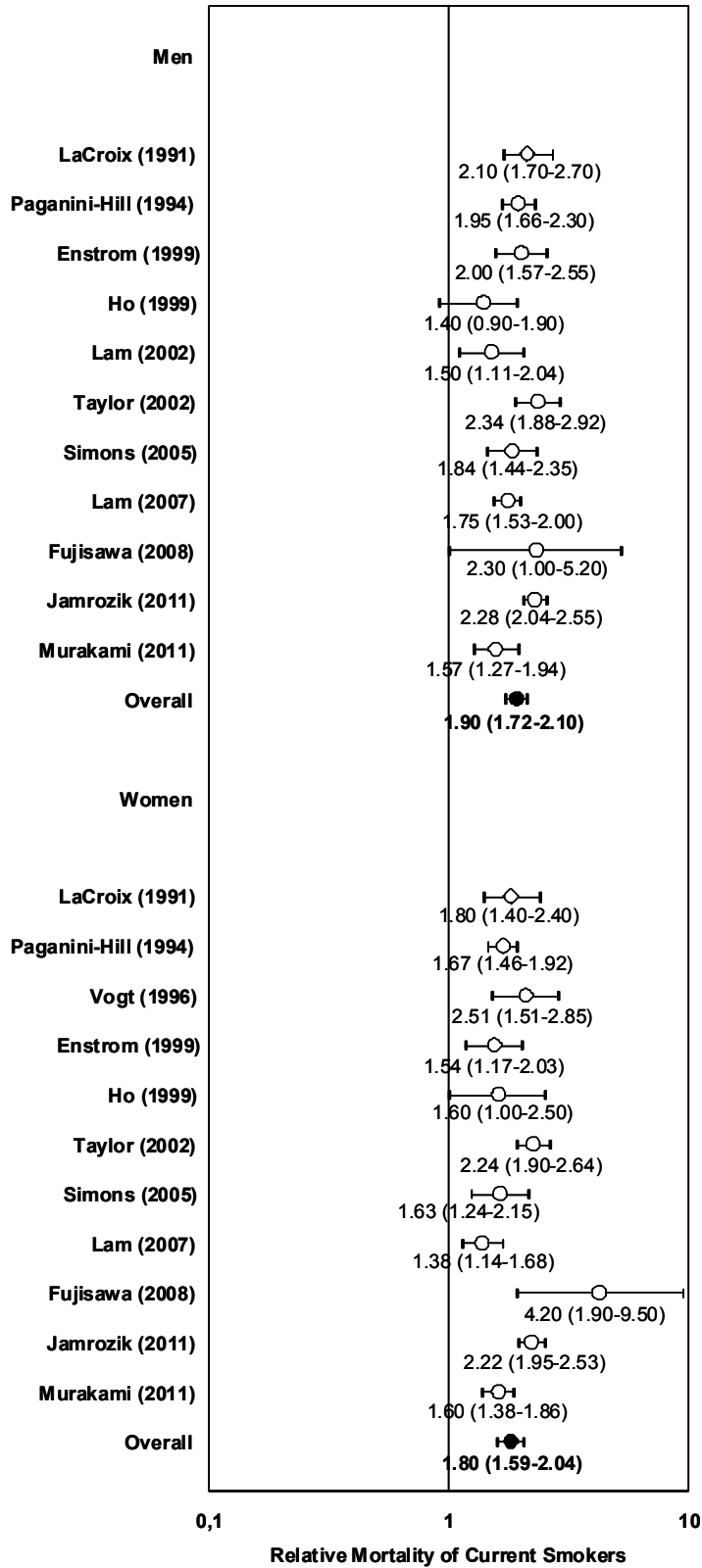
**eTable 4 – Absolute mortality rates per 100,000 person-years**

First Author; Year (Reference)	Age- range	Absolute mortality rates per 100,000 person-years					
		Never smokers		Former smokers		Current smokers	
		Male	Female	Male	Female	Male	Female
Jamrozik; 2011 (19)	≥70	-	-	-	-	-	-
Murakami; 2011 (35)	60-69	553	381	895	653	1,143	643
	70-79	1,879	1,094	2,208	1,968	2,983	2,023
	80-89	5,899	4,074	6,120	5,384	7,967	6,079
Newman; 2009 (23)	≥65	-	-	-	-	-	-
Fujisawa; 2008 (24)	80	4,900	2,650	4,500	5,800	10,520	9,580
Lam; 2007 (28)	≥65	1,744	1,217	2,911	2,533	3,294	1,929
Simons; 2005 (30)	≥60	-	-	-	-	-	-
Doll; 2004 (21)	≥60	1,938	-	2,415	-	3,540	-
Lam; 2002 (20)	>60	1,933	-	2,581	-	2,506	-
Taylor; 2002 (31)	60-69	-	-	-	-	-	-
	70-79	-	-	-	-	-	-
	≥80	-	-	-	-	-	-
Tessier; 2000 (32)	>65	-	-	-	-	-	-
Enstrom; 1999 (22)	65-74	-	-	-	-	-	-
Ho; 1999 (25)	>70	9,400	7,400	11,800	22,600	13,300	16,900
Vogt; 1996 (33)	65-69	-	670	-	1,050	-	1,700
	70-74	-	1,130	-	1,160	-	2,920
	≥75	-	2,760	-	2,840	-	3,800
Ruigomez; 1995 (34)	65-97	-	-	-	-	-	-
Paganini-Hill; 1994 (29)	>60	-	-	-	-	-	-
LaCroix; 1991 (27)	65-69	1,850	1,170	2,820	960	4,350	2,780
	70-74	2,220	2,040	4,790	3,160	7,600	3,650
	≥75	9,010	6,240	9,980	5,630	11,610	7,490
Kaplan; 1987 (26)	60-94	-	-	-	-	-	-

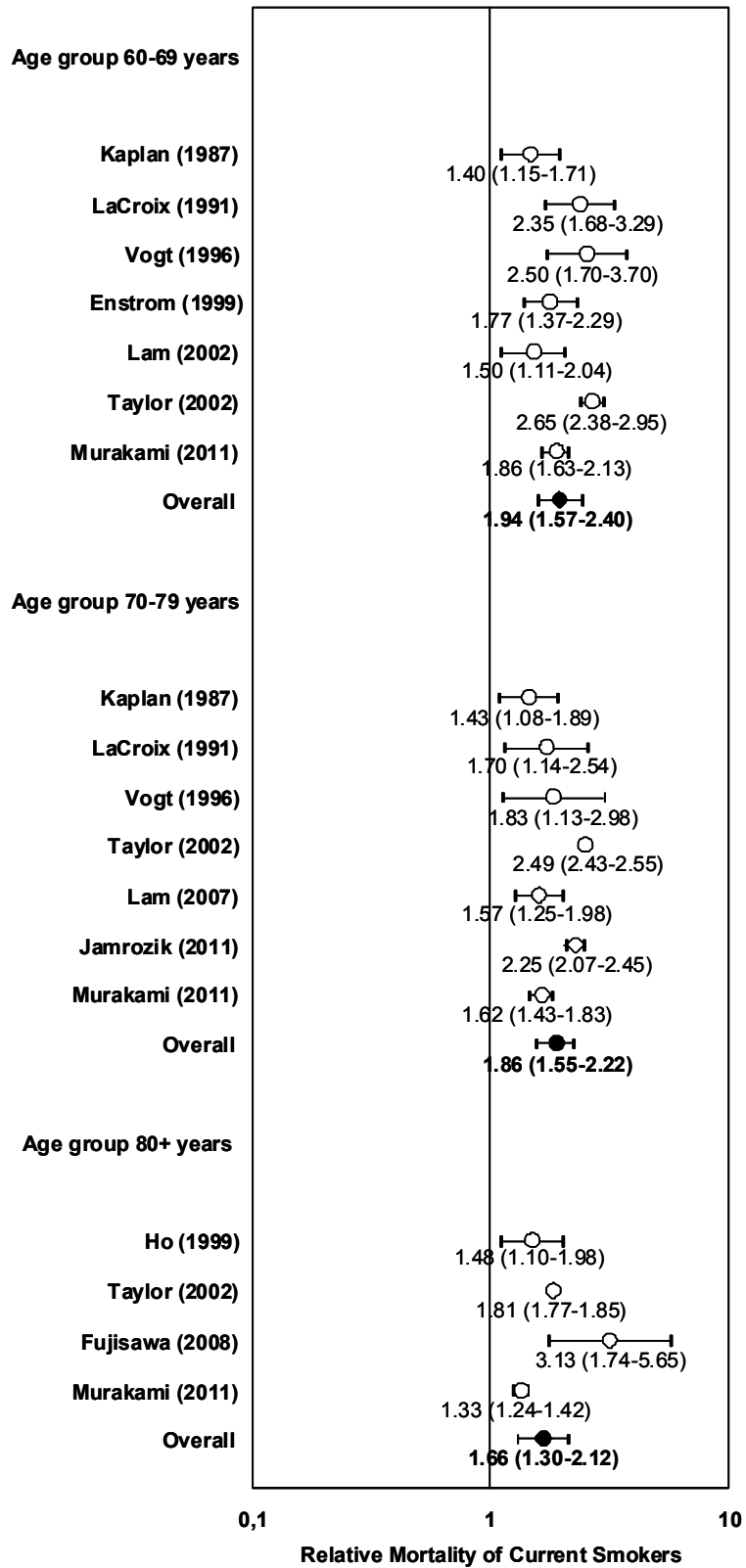
**eFigure 1 – Forest plot of meta-analyses for current smokers compared to never smokers**



**eFigure 2 – Forest plot of meta-analyses for male and female current smokers compared to never smokers**

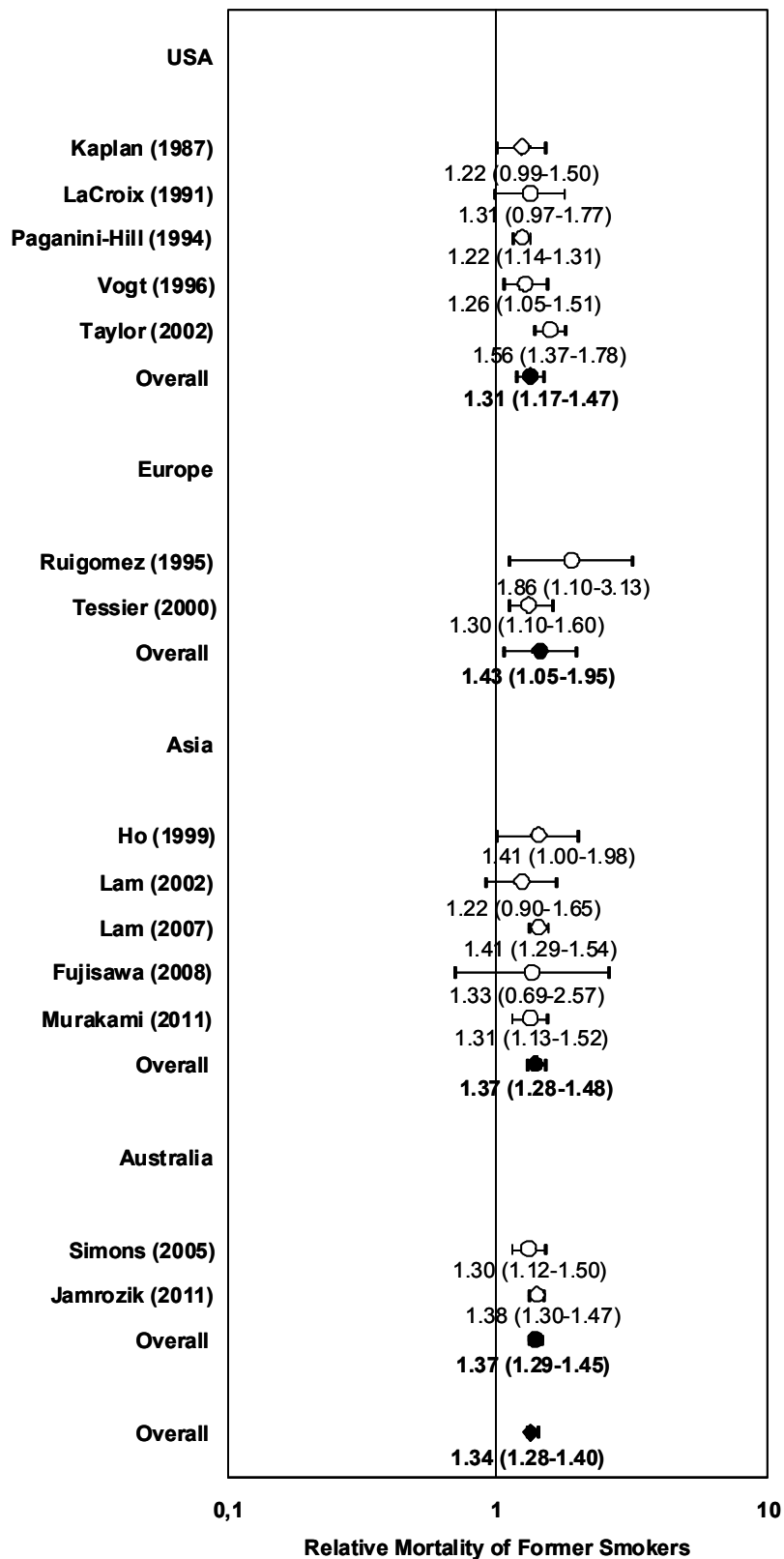


**eFigure 3 – Forest plot of meta-analyses for current smokers in age groups 60-69 years, 70-79 years and ≥80 years compared to never smokers**

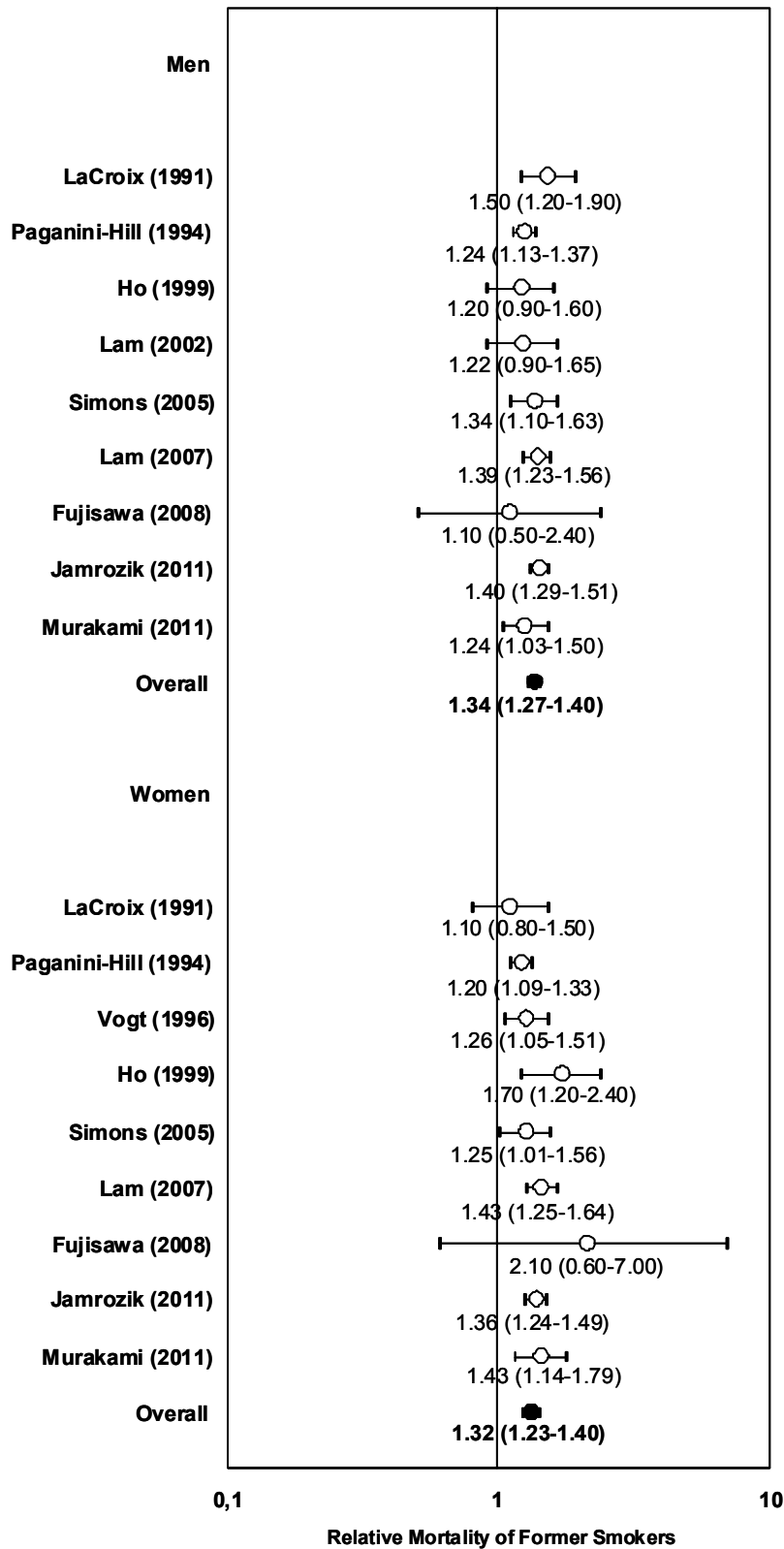




eFigure 4 – Forest plot of meta-analyses for former smokers compared to never smokers



eFigure 5 – Forest plot of meta-analyses for male and female former smokers compared to never smokers



**eFigure 6 – Forest plot of meta-analyses for former smokers in age groups 60-69 years, 70-79 years and ≥80 years compared to never smokers**

