Appendix 4

Fuller details of the analyses relating lung cancer risk to fruit and vegetable consumption

APPENDIX 4

Fruit/Vegetable/Tea consumption and lung cancer - Meta-Analysis of Dose Response Exposure, 22-AUG-06

Scored by Standard Deviations

BASIC DATA USED IN META-ANALYSES - VEGETABLES

Study title	RR	RRL	RRU	CA1	CA0	CO1	CO0	REL SD
Agudo	0.6200	0.3000	1.2700	18.3600	28.6100	44.1700	42.7000	1.0908
Agudo	0.7700	0.3800	1.5600	21.2400	28.6100	41.1300	42.7000	2.1816
Alavanja	0.8300	0.5800	1.1800	77.7900	98.2700	199.4400	209.1000	0.8675
Alavanja	0.8600	0.6000	1.2200	78.8100	98.2700	195.0100	209.1000	1.3996
Alavanja	0.7700	0.5400	1.1100	72.3300	98.2700	199.8900	209.1000	1.9317
Alavanja	0.9900	0.7100	1.3800	106.3000	98.2700	228.5000	209.1000	2.7992
Candelora	0.4000	0.2000	0.7000	20.1600	51.0600	60.3200	61.1000	0.9464
Candelora	0.6000	0.4000	1.2000	35.2400	51.0600	70.3100	61.1000	1.5958
Candelora	0.2000	0.1000	0.5000	8.8000	51.0600	52.6700	61.1000	2.5422
Feskanich	0.9400	0.4600	1.9100					2.1816
Hirayama	0.7600	0.5600	1.0400	138.5400	56.6300	68164.3800	21176.9000	1.7072
Hu J	1.3000	0.7000	2.4000	40.1994	19.5239	113.7905	71.8448	0.9929
Hu J	1.3000	0.6000	2.6000	18.0938	19.5239	51.2173	71.8448	1.6294
Hu J	1.4000	0.7000	3.0000	18.9906	19.5239	49.9162	71.8448	2.5206
Kalandidi	0.7700	0.3700	1.6000	22.0000	27.0000	36.0000	34.0000	0.9464
Kalandidi	0.7800	0.3600	1.7000	18.0000	27.0000	29.0000	34.0000	1.5958
Kalandidi	1.4400	0.6600	3.1200	24.0000	27.0000	21.0000	34.0000	2.5422
Ko	0.4000	0.2000	0.8000	60.5700	31.3300	76.1000	15.7000	1.7909
Koo	0.4900	0.2000	1.1800	21.7400	16.4300	37.7100	14.0000	1.0727
Koo	0.4900	0.2200	1.1000	43.7100	16.4300	75.8300	14.0000	2.4024
Kreuzer	0.5700	0.3300	0.9900	110.1768	26.8645	254.1306	35.3200	1.5330
Kreuzer	0.4500	0.2500	0.8200	51.0583	26.8645	149.1747	35.3200	2.9955
Mayne	1.0000	0.5900	1.7000	60.7700	60.7500	50.0500	50.0000	0.9464
Mayne	0.8000	0.4700	1.3800	50.4800	60.7500	51.9700	50.0000	1.5958
Mayne	0.4800	0.2600	0.8600	27.9200	60.7500	47.9200	50.0000	2.5422
Ozasa	1.1900	0.6800	2.0900	25.1943	23.5993	109951.8109	122559.3174	1.0772
Ozasa	1.3500	0.7900	2.3000	31.2877	23.5993	120361.1961	122559.3174	2.1478
Rachtan	0.1000	0.0100	0.7500					1.6647
Seow	0.9300	0.6200	1.4000	60.8029	58.2345	222.1150	197.8410	1.1010
Seow	0.7800	0.5100	1.2000	48.3665	58.2345	210.6622	197.8410	2.2152
Shimizu	0.8900	0.4300	1.8300	76.0000	14.0000	140.0000	23.0000	1.8483
Steinmetz	0.5400	0.1300	2.3200	3.1800	4.5200	503.4700	387.1000	0.9464
Steinmetz	1.1500	0.3200	4.1300	5.0200	4.5200	373.2700	387.1000	1.5958
Steinmetz	1.0800	0.2700	4.3900	3.5900	4.5200	284.1400	387.1000	2.5422

NOTES: RR,RL,RU RELATIVE RISKS AND LOWER AND UPPER CONFIDENCE INTERVALS
CA1,CA0 NUMBERS (OR PSEUDO-NUMBERS) OF MORE EXPOSED AND LEAST EXPOSED CASES
CO1,CO0 NUMBERS (OR PSEUDO-NUMBERS) OF MORE EXPOSED AND LEAST EXPOSED CONTROLS
CA1,CA0,CO1,CO0 NOT SHOWN IF ORIGINAL RR PER STANDARD DEVIATION
REL SD NUMBER OF STANDARD DEVIATIONS FROM LEAST EXPOSED LEVEL

FEMALES
NEVER SMOKERS OR NEVER AND LONG TERM EX SMOKERS
NYBERG1998 REPLACED BY BRENNAN2000, GOODMAN1992 EXCLUDED

APPENDIX 4

Fruit/Vegetable/Tea consumption and lung cancer - Meta-Analysis of Dose Response Exposure, 22-AUG-06

Scored by Standard Deviations

BASIC DATA USED IN META-ANALYSES - FRUIT

Study title	RR	RRL	RRU	CA1	CA0	CO1	CO0	REL SD
Alavanja	1.0900	0.7700	1.5500	94.6900	84.7700	213.2100	208.1000	0.8675
Alavanja	1.0900	0.7700	1.5400	98.4800	84.7700	221.7400	208.1000	1.3996
Alavanja	0.8400	0.5800	1.2100	72.2100	84.7700	210.9900	208.1000	1.9317
Alavanja	1.1400	0.8000	1.6300	89.5000	84.7700	192.6900	208.1000	2.7992
Candelora	0.9000	0.5000	1.7000	31.6600	34.6000	54.5400	53.6000	0.9464
Candelora	0.4000	0.2000	0.9000	12.6200	34.6000	48.9100	53.6000	1.5958
Candelora	0.6000	0.3000	1.1000	22.2600	34.6000	57.5100	53.6000	2.5422
Feskanich	0.3400	0.1600	0.7200					2.1816
Hu J	0.8000	0.4000	1.5000	19.1851	28.4994	69.5307	82.6300	0.9521
Hu J	0.9000	0.5000	1.6000	32.0733	28.4994	103.3246	82.6300	1.6087
Hu J	1.1000	0.6000	2.0000	29.2583	28.4994	77.1184	82.6300	2.5547
Kalandidi	0.2700	0.1300	0.5800	19.0000	35.0000	44.0000	22.0000	0.9464
Kalandidi	0.3900	0.1700	0.9100	15.0000	35.0000	24.0000	22.0000	1.5958
Kalandidi	0.4600	0.2100	0.9900	22.0000	35.0000	30.0000	22.0000	2.5422
Ko	1.0000	0.5000	1.7000	76.9300	27.9800	76.9300	28.0000	1.6803
Koo	0.8100	0.3500	1.8600	20.3000	23.9500	22.6000	21.6000	0.8183
Koo	0.4200	0.2100	0.8300	42.0800	23.9500	90.3000	21.6000	2.0569
Kreuzer	0.5500	0.2800	1.0900	33.6807	20.6553	94.1401	31.7533	0.9180
Kreuzer	0.6600	0.3700	1.1900	160.4563	20.6553	373.7396	31.7533	2.3794
Mayne	0.6300	0.3700	1.0700	48.4200	75.1200	51.3200	50.2000	0.9464
Mayne	0.4500	0.2600	0.8000	34.1900	75.1200	50.7300	50.2000	1.5958
Mayne	0.5900	0.3400	1.0100	42.9100	75.1200	48.5700	50.2000	2.5422
Ozasa	0.9500	0.3800	2.3400	12.5414	7.3891	75198.3836	42089.9946	0.8833
Ozasa	1.1800	0.5400	2.5700	43.3078	7.3891	209059.9472	42089.9946	2.1838
Rachtan	0.3800	0.1500	0.9800					1.6647
Seow	0.6300	0.4100	0.9700	46.2995	62.8034	202.0805	172.6919	1.0992
Seow	0.6000	0.3900	0.9300	44.4010	62.8034	203.4837	172.6919	2.2261
Shimizu	1.1800	0.5500	2.5500	79.0000	11.0000	140.0000	23.0000	1.8483
Steinmetz	2.0100	0.5100	7.9400	6.1100	3.1100	370.2600	379.2000	0.9464
Steinmetz	0.7500	0.1400	3.8800	2.5500	3.1100	414.7600	379.2000	1.5958
Steinmetz	1.4500	0.3300	6.3000	4.1800	3.1100	351.3700	379.2000	2.5422

NOTES: RR,RL,RU RELATIVE RISKS AND LOWER AND UPPER CONFIDENCE INTERVALS
CA1,CA0 NUMBERS (OR PSEUDO-NUMBERS) OF EXPOSED AND UNEXPOSED CASES
CO1,CO0 NUMBERS (OR PSEUDO-NUMBERS) OF EXPOSED AND UNEXPOSED CONTROLS
CA1,CA0,CO1,CO0 NOT SHOWN IF ORIGINAL RR PER STANDARD DEVIATION
REL SD NUMBER OF STANDARD DEVIATIONS FROM LEAST EXPOSED LEVEL

FEMALES
NEVER SMOKERS OR NEVER AND LONG TERM EX SMOKERS
NYBERG1998 REPLACED BY BRENNAN2000, GOODMAN1992 EXCLUDED

APPENDIX 4

Fruit/Vegetable/Tea consumption and lung cancer - Meta-Analysis of Dose Response Exposure, 22-AUG-06

Scored by Standard Deviations

BASIC DATA USED IN META-ANALYSES - TEA

Study title	RR	RRL	RRU	CA1	CA0	CO1	CO0	REL SD
Hu J	0.6000	0.3000	0.9000	58.0761	27.8756	175.6951	50.5984	1.1994
Hu J	0.4000	0.2000	0.7000	26.2447	27.8756	119.0953	50.5984	2.5040
Zhong	0.8000	0.4500	1.4200	21.4046	356.8556	29.5149	393.6551	1.3364
Zhong	0.6200	0.3600	1.0800	21.3379	356.8556	37.9649	393.6551	1.7007
Zhong	0.4600	0.2200	0.9600	10.4252	356.8556	25.0005	393.6551	2.4080

NOTES: RR,RL,RU RELATIVE RISKS AND LOWER AND UPPER CONFIDENCE INTERVALS
CA1,CA0 NUMBERS (OR PSEUDO-NUMBERS) OF EXPOSED AND UNEXPOSED CASES
CO1,CO0 NUMBERS (OR PSEUDO-NUMBERS) OF EXPOSED AND UNEXPOSED CONTROLS
CA1,CA0,CO1,CO0 NOT SHOWN IF ORIGINAL RR PER STANDARD DEVIATION
REL SD NUMBER OF STANDARD DEVIATIONS FROM LEAST EXPOSED LEVEL

FEMALES
NEVER SMOKERS OR NEVER AND LONG TERM EX SMOKERS
NYBERG1998 REPLACED BY BRENNAN2000, GOODMAN1992 EXCLUDED

APPENDIX 4

Fruit/Vegetable/Tea consumption and lung cancer - Meta-Analysis of Dose Response Exposure, 22-AUG-06

Scored by Standard Deviations

REGRESSION ESTIMATES, WEIGHTS AND OTHER RELEVANT DETAILS

Study title	Country	Beta	St.Err. Beta	Z	Weight	Expos	RSEX	SMOKE
Agudo	Spain	-0.1293	0.1649	-0.7839	36.7763	veg	f	1
Alavanja	US	-0.0071	0.0574	-0.1232	303.8068	veg	f	2
Candelora	US	-0.4937	0.1361	-3.6284	54.0033	veg	f	1
Feskanich	US	-0.0284	0.1665	-0.1704	36.0850	veg	f	1
Hirayama	Japan	-0.1608	0.0925	-1.7378	116.8704	veg	f	1
Hu J	Canada	0.1235	0.1417	0.8715	49.8318	veg	f	1
Kalandidi	Greece	0.1166	0.1507	0.7738	44.0362	veg	f	1
Ko	Taiwan	-0.5116	0.1975	-2.5910	25.6451	veg	f	1
Koo	China	-0.2189	0.1565	-1.3982	40.8138	veg	f	1
Kreuzer	Germany	-0.2398	0.0957	-2.5065	109.2344	veg	f	1
Mayne	US	-0.2712	0.1142	-2.3748	76.6903	veg	f	2
Ozasa	Japan	0.1388	0.1265	1.0966	62.4446	veg	f	1
Rachtan	Poland	-1.3832	0.6616	-2.0906	2.2845	veg	f	1
Seow	Singapore	-0.1111	0.0985	-1.1287	103.1244	veg	f	1
Shimizu	Japan	-0.0630	0.1999	-0.3154	25.0270	veg	f	1
Steinmetz	US	0.0848	0.2694	0.3146	13.7756	veg	f	1
Alavanja	US	0.0124	0.0607	0.2049	271.4113	fruit	f	2
Candelora	US	-0.2512	0.1273	-1.9734	61.7102	fruit	f	1
Feskanich	US	-0.4945	0.1759	-2.8116	32.3282	fruit	f	1
Hu J	Canada	0.0406	0.1168	0.3473	73.3328	fruit	f	1
Kalandidi	Greece	-0.2598	0.1516	-1.7132	43.4873	fruit	f	1
Ko	Taiwan	0.0000	0.1858	0.0000	28.9696	fruit	f	1
Koo	China	-0.4413	0.1621	-2.7219	38.0450	fruit	f	1
Kreuzer	Germany	-0.0577	0.1028	-0.5616	94.6831	fruit	f	1
Mayne	US	-0.2381	0.1060	-2.2463	89.0097	fruit	f	2
Ozasa	Japan	0.1051	0.1585	0.6633	39.8093	fruit	f	1
Rachtan	Poland	-0.5812	0.2876	-2.0208	12.0880	fruit	f	1
Seow	Singapore	-0.2357	0.0994	-2.3706	101.1714	fruit	f	1
Shimizu	Japan	0.0895	0.2117	0.4230	22.3103	fruit	f	1
Steinmetz	US	0.0229	0.2821	0.0811	12.5621	fruit	f	1
Hu J	Canada	-0.3620	0.1271	-2.8490	61.9501	tea	f	1
Zhong	China	-0.2759	0.1058	-2.6079	89.3271	tea	f	1

NOTES: BETA SLOPE OF LOG RR ON SD OF VARIABLE
SE BETA STANDARD ERROR OF BETA
Z RATIO OF BETA TO ITS STANDARD ERROR (APPROXIMATE NORMAL STATISTIC)
WEIGHT INVERSE OF THE VARIANCE OF BETA
SMOKE 1 = NEVER SMOKERS, 2 = NEVER OR LONG-TERM EX-SMOKERS
RSEX SEX FOR RR

FEMALES
NEVER SMOKERS OR NEVER AND LONG TERM EX SMOKERS
NYBERG1998 REPLACED BY BRENNAN2000, GOODMAN1992 EXCLUDED

APPENDIX 4

Fruit/Vegetable/Tea consumption and lung cancer - Meta-Analysis of Dose Response Exposure, 22-AUG-06

Scored by Standard Deviations

FIXED- AND RANDOM-EFFECTS META-ANALYSES OF DATA FOR VEGETABLES

ALL STUDIES
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	33.2913	(15)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1068	0.0301	0.0030	0.8987	0.8472	0.9534

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	17.3951	(15)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1264	0.0499	0.0230	0.8812	0.7991	0.9719

NORTH AMERICA AND EUROPE
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	24.3813	(9)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.0995	0.0371	0.0251	0.9053	0.8418	0.9736

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	10.7784	(9)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1241	0.0714	0.1164	0.8833	0.7679	1.0160

ASIA
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	8.7968	(5)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1209	0.0517	0.0665	0.8861	0.8007	0.9806

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	5.6360	(5)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1289	0.0727	0.1365	0.8791	0.7624	1.0137

NEVER SMOKERS ONLY
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	27.7640	(13)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1313	0.0373	0.0037	0.8769	0.8151	0.9434

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	14.9956	(13)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1294	0.0583	0.0448	0.8786	0.7838	0.9849

FEMALES
NEVER SMOKERS OR NEVER AND LONG TERM EX SMOKERS
NYBERG1998 REPLACED BY BRENNAN2000, GOODMAN1992 EXCLUDED

APPENDIX 4

Fruit/Vegetable/Tea consumption and lung cancer - Meta-Analysis of Dose Response Exposure, 22-AUG-06

Scored by Standard Deviations

FIXED- AND RANDOM-EFFECTS META-ANALYSES OF DATA FOR FRUIT

ALL STUDIES
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	26.1872	(13)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1132	0.0330	0.0044	0.8929	0.8371	0.9525

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	13.5639	(13)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1452	0.0518	0.0149	0.8649	0.7814	0.9573

NORTH AMERICA AND EUROPE
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	17.2874	(8)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1011	0.0381	0.0289	0.9038	0.8389	0.9738

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	8.2665	(8)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1551	0.0635	0.0405	0.8564	0.7561	0.9699

ASIA
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	8.4941	(4)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1496	0.0659	0.0857	0.8611	0.7567	0.9798

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	4.1235	(4)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1198	0.1024	0.3069	0.8871	0.7258	1.0842

NEVER SMOKERS ONLY
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	19.5696	(11)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1543	0.0422	0.0038	0.8570	0.7890	0.9310

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	11.7977	(11)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.1607	0.0595	0.0206	0.8516	0.7579	0.9568

FEMALES
NEVER SMOKERS OR NEVER AND LONG TERM EX SMOKERS
NYBERG1998 REPLACED BY BRENNAN2000, GOODMAN1992 EXCLUDED

APPENDIX 4

Fruit/Vegetable/Tea consumption and lung cancer - Meta-Analysis of Dose Response Exposure, 22-AUG-06

Scored by Standard Deviations

FIXED- AND RANDOM-EFFECTS META-ANALYSES OF DATA FOR TEA

ALL STUDIES
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	0.2708	(1)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.3112	0.0813	0.1627	0.7326	0.6247	0.8592

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	0.2708	(1)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.3112	0.0813	0.1627	0.7326	0.6247	0.8592

NORTH AMERICA AND EUROPE
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	0.0000	(0)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.3620	0.1271		0.6963	0.5428	0.8932

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	0.0000	(0)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.3620	0.1271		0.6963	0.5428	0.8932

ASIA
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	0.0000	(0)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.2759	0.1058		0.7589	0.6167	0.9337

RANDOM EFFECTS MODEL
Dose Response (Beta)
WEIGHTED on Beta Weights

	Deviance	(DF)				
Model 1	0.0000	(0)				
	Estimate	S.E.	P	RR	95%CIl	95%CIu
Constant	-0.2759	0.1058		0.7589	0.6167	0.9337

FEMALES
NEVER SMOKERS OR NEVER AND LONG TERM EX SMOKERS
NYBERG1998 REPLACED BY BRENNAN2000, GOODMAN1992 EXCLUDED