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Table 3.1. Mesothelioma incidence (population over 15 years of age) and past use of asbestos in some industrialized countries.

	Mesothelioma incidence		Use of asbestos			Reference
	Cases/year	Cases/million people/ year	Tons/year	kg/capita/year	Tons/mesothelioma	
France	750 (1996)	17	143 000 (1970)	2.6	190	INSERM 1996 (2)
Germany	540 (1991)	11	164 000 (1975)	2.7	300	Woitowitz et al. 1993 (3) Woitowitz 1991 (4)
Finland	54 (1992)	13	12 000 (1975)	2.4	220	Huuskonen et al. 1995 (5)
Norway	40 (1988)	12	8 000 (1970)	1.9	190	Mowe et al. 1991 (6)
Sweden	100 (1991)	14	20 000 (1970)	2.4	200	Englund 1995 (7)
Netherlands	280 (1988)	24	49 400 (1976)	3.4	180	Meijers et al. 1990 (8) Burdorf et al. 1991 (9)
Italy	1 000 (1995)	22	140 000 (1975)	2.6	140	Gaffuri & Maranelli 1991 (10)
United Kingdom	1 009 (1991)	24	175 000 (1975)	3.5	170	Peto et al. 1995 (11)
United States	3 000 (1990)	15	552 000 (1975)	2.3	180	Hines 1990 (12) Spirtas 1986 (13)
Australia	283 (1991)	25	67 000 (1968)	4.4	240	Australian Mesothelioma Register 1995 (14), Leigh 1994 (15)

Table 3.2. Asbestos fibres in the lung tissue samples from the general population or occupationally nonexposed persons.

Country or area	Population	Concentration million fibres/g dry tissue	Size μm	Reference
Finland Helsinki	Male office workers from autopsies (n=24)	0.4 (median) 1/24 over 1×10^6 f/g	>1 μm	Tuomi et al. 1989 (51), 1991 (26), Tuomi 1992 (52)
	Mesothelioma patients, unlikely exposed (n=11)	0.5 (median) 2/11 over 1×10^6 f/g	>1 μm	
Finland, Tampere	Lung cancer patients, unlikely exposed (n=8)	0.2 (median) 1/8 over 1×10^6 f/g	>1 μm	Vilkman et al. 1993 (53)
Finland, Helsinki	Lung cancer patients, unlikely exposed (n=44).	<0.3 (median) 3/44 over 1×10^6 f/g	>1 μm	Karjalainen et al. 1993 (54), 1994 (55)
	Male office workers from autopsies (n=17)	0.3 (median) 0/17 over 1×10^6 f/g		
Finland, Helsinki	Male autopsy population, unlikely exposed (n=80).	<0.3 (median) 1/80 over 1×10^6 f/g 16/80 over 0.3×10^6 f/g	>1 μm	Karjalainen et al. 1994 (56)
	Male office workers from autopsies (n=10)	0.10 (median) 5/10 over 0.1×10^6 f/g		
France, Nantes	Hospital controls (n=20)	4.0 (mean)	>0.5 μm	Gaudichet et al. 1988 (57)
Germany, Hamburg, München, Berlin, Heidelberg	Hospital controls (n=63) Chrysotile Amphiboles Chrysotile Amphiboles	0.04 (GM)	>5 μm	Woitowitz et al. 1993 (3) Rödelsperger & Woitowitz 1995 (49)
		0.04 (GM)	>5 μm	
		0.22 (GM)	>1 μm	
		0.15 (GM)	>1 μm	
Germany, Giessen	Nonexposed operated or autopsied cases (n=22) Chrysotile Amphiboles Asbestos Chrysotile Amphiboles Asbestos	0.01 (GM)	>5 μm	Rödelsperger et al. 1990 (58)
		0.18 (95% UCL)		
		0.03 (GM)	>5 μm	
		0.14 (95% UCL)		
		0.03 (GM)	>5 μm	
		0.24 (95% UCL)		
		0.30 (GM)	>1 μm	
0.20 (GM)	>1 μm			
0.60 (GM)	>1 μm			

Table 3.2. Cont.

Country or area	Population	Concentration million fibres/g dry tissue	Size µm	Reference
Germany	Nonexposed patients (n=41)	0.05 (GM) 0.30 (95% UCL)	>5 µm	Woitowitz et al. 1991 (59)
Germany Giessen	Nonexposed patients (n=13) Chrysotile Amphiboles Chrysotile Amphiboles	0.01 (mean) 0.04 (mean) 0.30 (mean) 0.50 (mean)	>5 µm >5 µm >1 µm >1 µm	Manke et al. 1987 (60)
Norway, Hordaland	Autopsy cases, unlikely exposure (n=7)	0.1 (median) 0/7 over 0.5×10^6 f/g	>1 µm	Mowe et al. 1985 (23)
United Kingdom	Nonexposed female autopsy controls (n=31) Chrysotile Amphiboles Nonexposed female meso- thelioma cases (n=14) Chrysotile Amphiboles	4.4 (GM) 0.04 (GM) 1.3 (GM) 3.9 (GM)	>0.2 µm >0.2 µm	Dawson et al. 1993 (61)
Canada, Montreal	Nonexposed controls (n=30) Chrysotile Amphiboles Asbestos	0.03 (GM) 0.03 (GM) 0.09 (GM) 14/30 over 0.1×10^6 f/g	>3 µm >3 µm >3 µm >3 µm	Takahashi et al. 1994 (62)
Canada, Quebec	Nonexposed autopsy cases (n=49) Born before 1940 (n=23) Born after 1940 (n=26)	0.20 (GM) 0.1-0.4 (range) 0.10 (GM) 0.1-0.2 (range)	>5 µm >5 µm	Dufresne et al. 1996 (63)
Canada	Male autopsy cases (n=65) aged Under 18 years (n=10) 19-40 years (n=26) 41-60 years (n=16) Over 61 years (n=13)	0.056 (mean) 0.048 (mean) 0.202 (mean) 0.086 (mean)	>5 µm	Case et al. 1988 (64)

Table 3.2. Cont.

Country or area	Population	Concentration million fibres/g dry tissue	Size µm	Reference
Canada, Quebec	Population referents (n=19)	0.26 (GM)	>5 µm	Case & Sebastien 1987 (65)
	Residents near an asbestos mine (n=22)	0.57 (GM)	>5 µm	
Canada, Vancouver	Nonexposed patients (n=20)	1.29 (mean)	>1 µm	Churg & Warnock 1980 (66)
Canada, Vancouver	Nonplaque controls (n=25) Chrysotile Amphiboles	0.68 (mean) 0.31 (mean)	>1 µm >1 µm	Churg 1982 (67)
Canada, Vancouver	Nonexposed autopsy cases (n=20) Chrysotile Tremolite	0.3 (mean) <0.1-1.3 (range) 0.4 (mean) <0.1-1.2 (range)	>1 µm	Churg & Wiggs 1986 (68)
United States, California	White collar workers (n=41) Chrysotile Amphiboles	0.74 (median) 0.20 (median)	>0.25 µm >0.25 µm	Warnock & Isenberg 1986 (69)
United States, California	Nonexposed autopsy cases (n=19) Chrysotile Amphibole	0.69 (median) 0.16 (median)	>0.25 µm >0.25 µm	Warnock 1989 (70)
Japan, Nagoya	Nonexposed autopsy cases (n=16) Chrysotile Amphiboles Asbestos	1.01 (GM) 0.77 (GM) 2.24 (GM)	>2 µm >2 µm	Sakai et al. 1994 (25)
Australia, Sydney	Male autopsy cases (n=103) Chrysotile Amphiboles	5/31 over 0.2×10^6 f/g 6/103 over 0.5×10^6 f/g 1/103 over 0.5×10^6 f/g 78/98 over 0.2×10^6 f/g 29/98 over 1.0×10^6 f/g	>2 µm >2 µm >5 µm >2 µm >2 µm	Rogers et-al. 1991 (50), 1994 (71)

Table 3.3. Asbestos bodies in the lung tissue samples from the general population or occupationally nonexposed persons

Country or area	Population	AB/g dry tissue	Reference
Belgium	White collar workers (n=33), unlikely exposed Blue collar workers (n=30), unlikely exposed	415 (GM) 7/33 over 1000 AB/g 642 11/33 over 1000 AB/g	De Vuyst et al. 1988 (74) Moulin et al. 1988 (75)
France, Paris	Unlikely or possibly exposed patients (n=11)	381 (median) 1028 (mean) 0-4200 (range) 4/11 over 1000 AB/g	Pairon et al. 1994 (24)
Germany, Hamburg, München, Heidelberg, Essen, Berlin	White collar workers (n=20) Blue collar workers (n=63)	220 (median)* 1/20 over 1000 AB/g 240 (median)* 3/63 over 1000 AB/g	Woitowitz et al. 1993 (3)
Germany, Giessen	Nonexposed population (n=41)	3/41 over 3 000 AB/g	Woitowitz et al. 1991 (59)
Germany, Giessen	Nonexposed patients (n=32) Nonexposed autopsy cases (n=12)	2700 (95% UCL) 4/32 over 1000 AB/g 380 (95% UCL) 0/12 over 1000 AB/g	Rödelsperger et al. 1990 (72)
Italy, Monfalcone	Mesotheliomas with domestic or environmental exposure (n=7)	4/7 over 1000 AB/g	Bianchi et al. 1993 (76)
France, Nantes	Hospital controls (n=20)	240 (median) 1/20 over 1000 AB/g	Gaudichet et al. 1988 (57)
Spain, Barcelona, Albacete	Urban population (n=18) Nonexposed urban population (n=8) Rural population (n=16)	52 (mean) 0/18 over 500 AB/g 21 (mean) 0/8 over 100 AB/g 5 (mean) 0/16 over 50 AB/g	Monso et al. 1995 (77)
Switzerland	Nonexposed patients (n=137)	70 (mean)* 4/137 over 500 AB/g	Wälchli et al. 1987 (78)

Table 3.3. Cont.

Country or area	Population	AB/g dry tissue	Reference
Canada, Vancouver	Nonexposed patients (n=20)	280 (mean)	Churg & Warnock 1980 (66)
Canada	Male autopsy cases (n=81) aged Under 18 years (n=15) 19-40 years (n=33) 41-60 years (n=19) Over 61 years (n=14)	129 (mean) 0/15 over 750 AB/g 270 (mean) 4/33 over 750 AB/g 350 (mean) 5/19 over 750 AB/g 530 (mean) 4/14 over 750 AB/g	Case et al. 1988 (64)
Canada, Quebec	Population referents (n=17) Residents near an asbestos mine (n=17)	379 (mean) 80 (median) 2/17 over 1000 AB/g 2946 (mean) 480 (median) 6/17 over 1000 AB/g	Case & Sebastien 1988 (79)
Canada, Quebec	Nonexposed autopsy cases (n=49) Born before 1940 (n=23) Born after 1940 (n=26)	192 (GM) 79-471 (range) 40 (GM) 24-67 (range)	Dufresne et al. 1996 (63)
United States, California	White collar workers (n=14)	150 (median)	Warnock & Isenberg 1986 (69)
United States, North Carolina	Nonexposed reference population (n=10)	0-200 (range)*	Roggli 1992 (80), 1995 (48)
Japan, Toyama	Hospital controls (n=235) Low exposure Moderate exposure High exposure	<80* 80-300* >300*	Murai & Kitagawa 1992 (81)
Japan, Tokyo	Hospital patients operated or autopsied (n=390) in: 1937-41 (n=40) 1947-51 (n=50) 1958-61 (n=100) 1970-73 (n=95) 1980-81 (n=105)	0/40 over 40 AB/g 0/50 over 40 AB/g 1/100 over 400 AB/g 2/95 over 400 AB/g 2/105 over 400 AB/g	Shishido et al. 1989 (82)

*estimated from wet weight

Table 3.4. Asbestos bodies in the bronchoalveolar lavage fluid of occupationally nonexposed persons.

Country or area	Population	AB/ml BAL	Reference
Belgium, Brussels	White collar workers, unlikely exposed (n=115) Blue collar workers, unlikely exposed (n=117)	<0.1 (median) 8/115 over 1 AB/ml 0.1 (median) 21/117 over 1 AB/ml	DeVuyt et al. 1987 (84)
Belgium, Brussels	White collar workers, unlikely exposed (n=33) Blue collar workers, unlikely exposed (n=30)	0.14 (GM) 4/33 over 1 AB/ml 0.26 (GM) 6/30 over 1 AB/ml	DeVuyt et al. 1988 (74)
Finland, Helsinki	Office workers (n=92)	<0.1 (median) <0.1-1.5 (range)	Karjalainen et al. 1994 (86), 1996 (87)
Finland, Tampere	Unlikely exposed (n=17)	0.2 (median) 0 - 3.6 (range)	Vilkman et al. 1993 (53)
France, Paris	Unlikely or possibly exposed (n=25)	0 (median) 0.7 (mean) 0-12 (range) 3/25 over 1 AB/ml	Pairon et al. 1994 (24)
France, Paris	Unlikely or possibly exposed men with pleural plaques (n=9)	0.05 (median) 0.5 (mean) 0-3 (range) 2/9 over 1 AB/ml	Orlowski et al. 1994 (88)
United States, Texas	Nonexposed controls (n=11)	0/11 over 1 AB/ml	Dodson et al. 1991 (89)
United States, North Carolina	Sarcoidosis and IPF patients (n=36)	0.03 (mean) 0/36 over 1 AB/ml	Roggli et al. 1986 (90)