

NATIONAL OCCUPATIONAL HEALTH AND SAFETY COMMISSION

**THE INCIDENCE OF
MESOTHELIOMA IN AUSTRALIA 1994 to 1996**

AUSTRALIAN MESOTHELIOMA REGISTER REPORT, 1999

Australian Mesothelioma Register

Location: National Occupational Health and Safety Commission
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INTRODUCTION

This document is the eleventh report of the Australian Mesothelioma Register, produced by the Research and Epidemiology Units of the National Occupational Health and Safety Commission NOHSC).

Malignant mesothelioma is a cancer of the outer covering of the lung (the pleura) or the abdominal cavity (the peritoneum). Formerly rare, it is increasing in incidence throughout the industrial world and is very frequently associated with past exposure to asbestos. It is usually fatal and has no direct relation to smoking. Australia has a very high and increasing incidence rate (Takahashi et al, 1999).

ASBESTOS PRODUCTION AND USE IN AUSTRALIA

In Australia, more chrysotile than amphibole asbestos was mined until 1939. With the commencement of mining at Wittenoom, Western Australia in 1937, crocidolite dominated production, until final closure in 1966. New South Wales, the first State to mine asbestos, also produced the largest tonnages of chrysotile (until 1983) as well as smaller quantities of amphibole (until 1949). With the closing of the crocidolite mine at Wittenoom, Australian asbestos production and exports declined. Imports of chrysotile also started to decline. The main sources of raw asbestos imports were Canada (chrysotile) and South Africa (crocidolite and amosite). Consumption peaked in about 1975 at 70,000 tonnes/year.

In addition to imports of asbestos fibre, Australia also imported many manufactured asbestos products, including asbestos cement articles, asbestos yarn, cord and fabric, asbestos joint and millboard, asbestos friction materials and gaskets. The main sources of supply were the United Kingdom, USA, Federal Republic of Germany and Japan. In Australia over 60% of all production and 90% of all consumption of asbestos fibre was used by the asbestos cement manufacturing industry. From about 1940 to the late 1960s all three types of asbestos were used in this industry. The use of crocidolite began being phased out from 1967. Amosite was used until the mid 1980s. Much of this industry output remains in service today in the form of "fibro" houses and water and sewerage piping. By 1954 Australia was number four in the Western world in gross consumption of asbestos cement products, after USA, UK and France, and clearly first on a per capita basis. After World War II to 1954, 70,000 asbestos cement houses were built in the State of New South Wales alone (52% of all houses built). In Australia as a whole, until the 1960s, 25% of all new housing was clad in asbestos cement.

Exposures in the past were very high in some industries and jobs - (eg, 25 million particles per cubic foot (150 fibres/ml) in asbestos pulverisers and disintegrators in the asbestos cement industry; up to 600 fibres/ml in baggers at Wittenoom). Australia still imports about 2,000 tonnes a year of chrysotile fibre and some asbestos products a year, mainly friction material and gaskets. Handling of asbestos in place and removal operations are subject to a National Code of Practice. A series of regulations adopted in the late 1970s and early 1980s by the various States now impose exposure limits of 0.1 fibre/ml for crocidolite, amosite and mixtures and 0.1-1.0 fibre/ml for chrysotile (TWA 8 hr membrane filter method light microscopy, WHO fibres). In October 1999 NOHSC agreed to support

the phase-out of chrysotile use, subject to an impact analysis, and the chrysotile exposure limit is now under review.

The first reported case of mesothelioma, from Wittenoom, was in 1962 (McNulty, 1962). Retrospective search identified 658 cases (535 male, 123 female) occurring in Australia from 1945-1979 (Musk et al, 1989).

THE AUSTRALIAN MESOTHELIOMA PROGRAM AND REGISTER

The Australian Mesothelioma Surveillance Program (Ferguson et al, 1987) began on 1 January 1980. Formal voluntary notification of cases was actively sought from a network of respiratory physicians, pathologists, general and thoracic surgeons, medical superintendents, medical records administrators, State and Territory departments of occupational health, cancer registries, compensation authorities or any other source. A full occupational and environmental history was obtained for each case, either from the patient or next-of-kin. The history taking was non directive but included specific questions on asbestos exposure at the end. Occupational and environmental exposure was based on the opinions of two experienced hygienists, who were not independent nor blinded as to disease status. The diagnosing pathologist was requested to provide slides and/or tissue specimens. These were circulated among a pathology expert panel for confirmation of diagnosis. Post-mortem examination was actively sought in every case in order to confirm diagnosis and to obtain lung tissue free of tumour for lung fibre content analysis.

From 1 January 1986, a less detailed notification system has operated, with a short questionnaire history, which is followed up by mail. In the case of all WA and most of the NSW notifications (comprising 60% of the total Australian notifications), detailed occupational and environmental exposure histories from interview are available from the WA Mesothelioma Register and the NSW Dust Diseases Board. Only histologically confirmed cases are accepted but there is no pathology panel diagnosis confirmation. This is now known as the Australian Mesothelioma Register but is a continuation of the Program. Cross checks with State cancer registries are regularly carried out. Annual incidence reports are published (NIOHS (AGPS) 1989-98). Recent reviews are available (Leigh, 1994, Leigh et al 1998, 1999).

This report includes data on cases notified to the register and diagnosed in 1994, 1995 and 1996. Full reconciliation with all State cancer registries has been carried out.

Full analysis of incidence in 1997, 1998, 1999 awaits reconciliation checks with State cancer registries. However, notifications for 1997, 1998, 1999 were 318, 405, 546 respectively (to 31 December 1999).

We are grateful to the continued cooperation of the notification network.

STATISTICS

Incidence in a calendar year is defined as the number of new cases of mesothelioma first occurring* in an Australian State or Territory in that year. Age specific incidence rates are computed from population tables published by the Australian Bureau of Statistics for the estimated resident mid year populations for 1994, 1995 and 1996 (estimates based on Census 30 June, 1996). Standardised incidence rates (SI) were calculated using the 'World Standard Population' 20 years of age or greater¹.

The cumulative incidence rate (CR) is obtained by summing the annual incidence rates (assumed constant in each 5 year group). It can be shown, for rare diseases like mesothelioma, that the cumulative incidence rate approximates the cumulative risk, or probability, of developing the disease in a lifetime². This can be expressed as a percentage. Thus the figure 0.48 in Table 3 for NSW (males) under CR indicates a 0.48% or 0.0048 lifetime (20-75) risk of developing mesothelioma. Therefore, the chance of developing mesothelioma between the ages 20-75 is approximately 1 in 209.

* "First occurrence" is the earliest known date of diagnosis (presumptive or confirmed). Cases where a presumptive diagnosis had been rejected before the date of this report (August 13, 1999) have been excluded.

1. Waterhouse, J., Muir, C., Shanmugaratnam, K., & Powell, J., eds, *Cancer Incidence in Five Continents Volume IV*, Lyon (IARC Scientific Publications No 42, 1982) pp 671- 674.
2. Breslow, N. & Day, N., *Statistical Methods in Cancer Research Volume I*, Lyon (IARC Scientific Publications No 32, 1980) pp 51-52.

Figure 1

Incident cases of malignant mesothelioma in Australia, 1945 - 1996

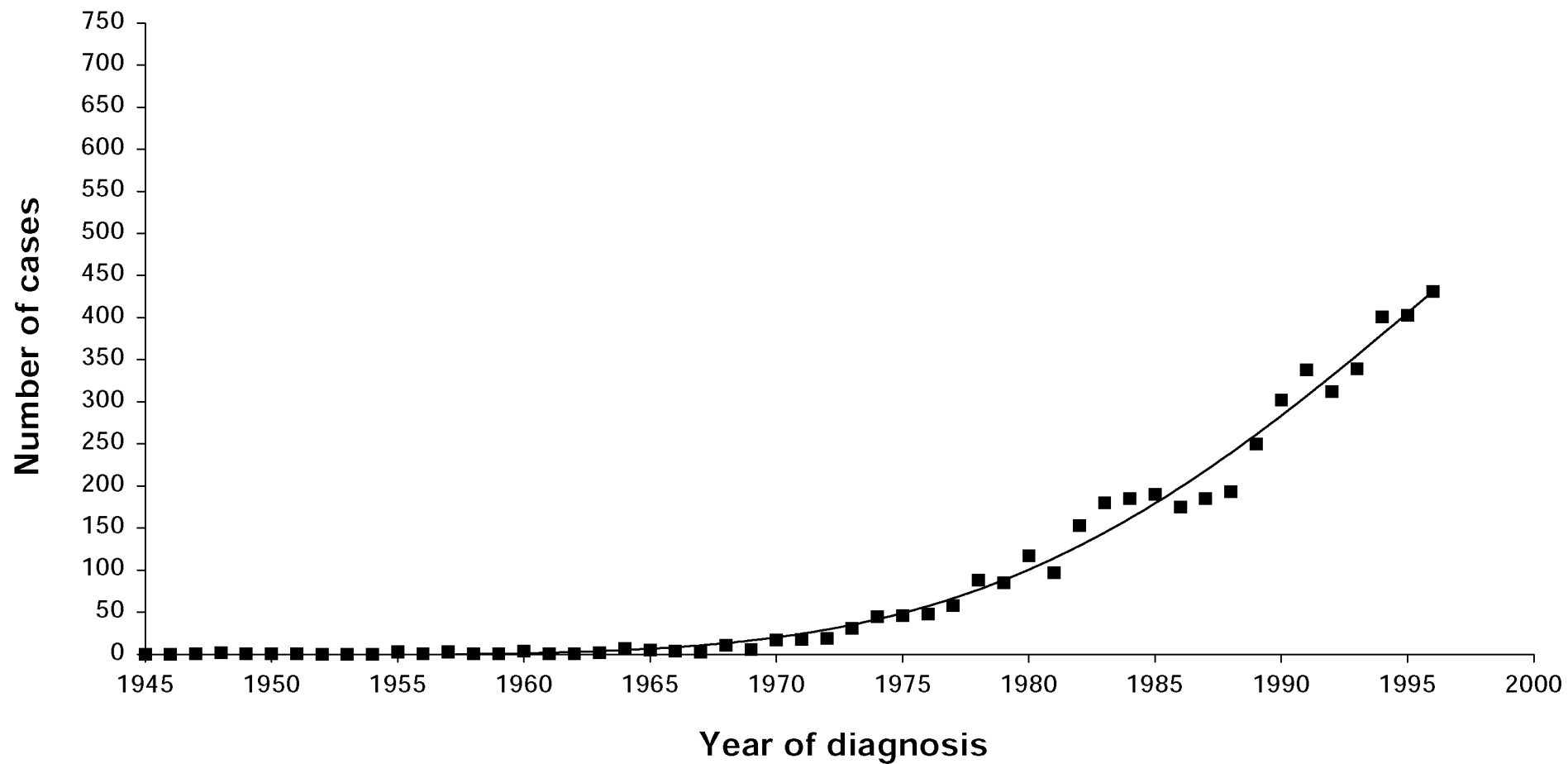


Figure 2

Age-specific incidence rates of malignant mesothelioma in
Australian men, 1986-1996

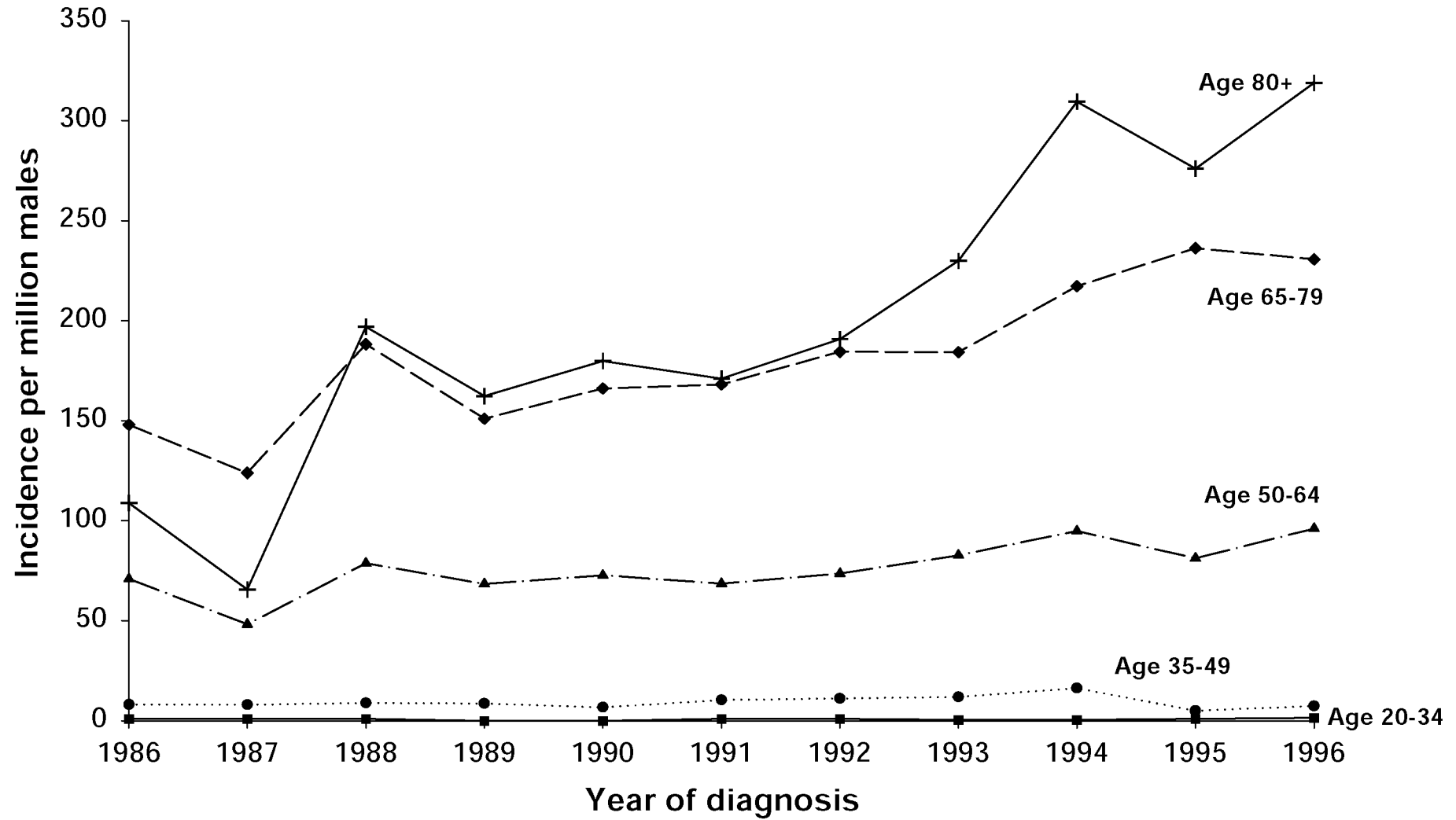


Figure 3

Age-specific incidence rates of malignant mesothelioma in
Australian women, 1986-1996

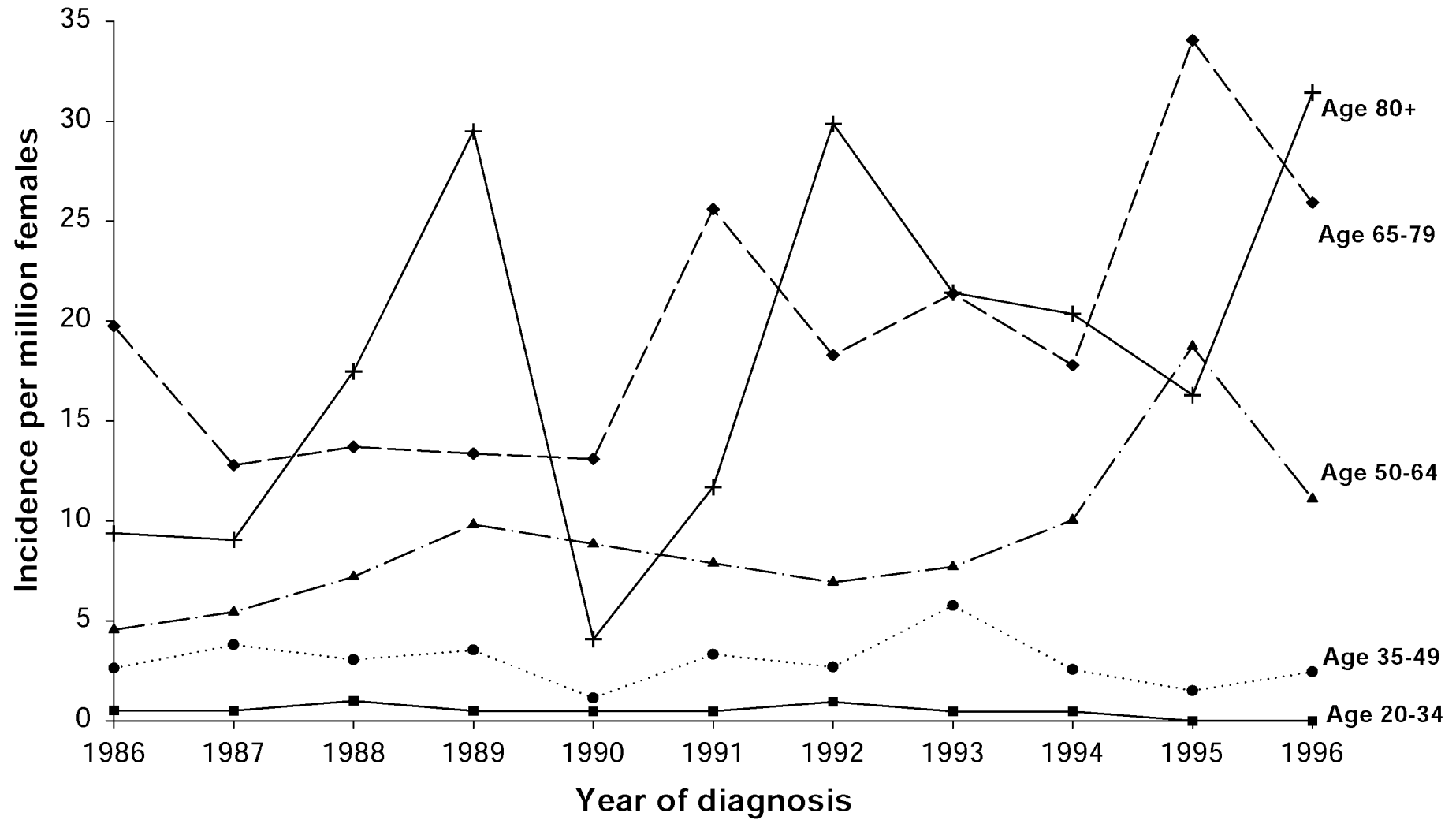


Table 1 TABULATION OF MALE CASES OF MESOTHELIOMA IN AUSTRALIA, 1994 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	1	0	0	0	0	0	0	0	1
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	1	0	1	0	0	0	2
40-44	2	2	6	0	2	0	0	0	12
45-49	5	2	4	3	3	0	0	1	18
50-54	8	5	6	1	4	0	0	0	24
55-59	18	6	9	2	9	1	0	1	46
60-64	14	7	10	4	8	2	0	1	46
65-69	36	8	10	7	6	1	0	0	68
70-74	30	9	4	5	5	1	0	0	54
75-79	19	5	5	5	7	2	0	0	43
80-84	19	2	3	3	4	0	0	0	31
85+	8	3	2	2	1	0	0	0	16
ALL AGES	160	49	60	32	50	7	0	3	361

Table 2 TABULATION OF FEMALE CASES OF MESOTHELIOMA IN AUSTRALIA, 1994 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	1	0	0	0	0	0	0	0	1
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	2	0	0	0	0	2
45-49	0	1	0	0	1	1	0	0	3
50-54	2	2	0	0	2	0	0	0	6
55-59	2	0	0	0	0	0	0	0	2
60-64	1	1	2	0	0	0	0	0	4
65-69	1	3	0	0	1	0	0	0	5
70-74	1	2	1	3	1	0	0	0	8
75-79	3	0	0	0	0	0	0	0	3
80-84	2	2	0	0	1	0	0	0	5
85+	1	0	0	0	0	0	0	0	1
ALL AGES	14	11	3	5	6	1	0	0	40

Table 3 TABULATION OF AGE SPECIFIC INCIDENCE RATES FOR MESOTHELIOMA PER MILLION MALES IN AUSTRALIA, 1994 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
25-29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-39	0.0	0.0	8.2	0.0	14.5	0.0	0.0	0.0	2.9
40-44	9.1	12.3	50.6	0.0	30.2	0.0	0.0	0.0	18.2
45-49	24.0	13.2	35.6	59.7	49.5	0.0	0.0	86.8	29.2
50-54	49.2	42.4	69.9	26.1	88.4	0.0	0.0	0.0	50.6
55-59	131.7	60.0	130.4	61.0	246.3	95.7	0.0	176.5	116.8
60-64	112.2	76.4	165.5	128.2	254.3	205.9	0.0	236.9	129.5
65-69	305.4	93.8	177.3	227.3	213.5	109.8	0.0	0.0	204.6
70-74	319.2	134.2	88.1	200.5	230.2	137.3	0.0	0.0	204.7
75-79	323.7	121.5	176.0	320.0	541.6	426.5	0.0	0.0	263.4
80-84	552.8	77.1	180.2	317.5	480.5	0.0	0.0	0.0	314.6
85+	449.5	211.2	214.5	401.9	202.4	0.0	0.0	0.0	300.3
ALL AGES	75.0	31.1	54.1	61.5	84.3	43.3	0.0	29.2	57.7
SI	63.9	28.8	53.0	50.1	83.2	37.3	0.0	36.2	52.4
CR	0.48	0.22	0.36	0.35	0.56	0.27	0.00	0.25	0.38
LIFETIME RISK. 1 in:	209	463	276	285	177	364	-	400	264

Table 4 TABULATION OF AGE SPECIFIC INCIDENCE RATES FOR MESOTHELIOMA PER MILLION FEMALES IN AUSTRALIA, 1994 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-34	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
35-39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-44	0.0	0.0	0.0	36.8	0.0	0.0	0.0	0.0	3.0
45-49	0.0	6.7	0.0	0.0	17.7	64.3	0.0	0.0	5.0
50-54	12.8	17.5	0.0	0.0	47.7	0.0	0.0	0.0	13.2
55-59	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
60-64	7.9	10.8	33.6	0.0	0.0	0.0	0.0	0.0	11.2
65-69	7.9	32.5	0.0	0.0	34.4	0.0	0.0	0.0	14.1
70-74	8.8	24.2	19.3	98.9	39.3	0.0	0.0	0.0	25.2
75-79	36.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2
80-84	33.5	45.4	0.0	0.0	72.2	0.0	0.0	0.0	29.9
85+	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8
ALL AGES	6.3	6.7	2.7	9.2	10.0	5.9	0.0	0.0	6.2
SI	4.7	5.6	2.9	7.0	9.4	6.4	0.0	0.0	5.2
CR	0.03	0.05	0.03	0.07	0.07	0.03	0.00	0.00	0.04
LIFETIME RISK. 1 in:	3554	2184	3777	1474	1437	-	-	-	2551

Figure 4

**Crude incidence of mesothelioma
per million persons, Australia 1994
by age and sex**

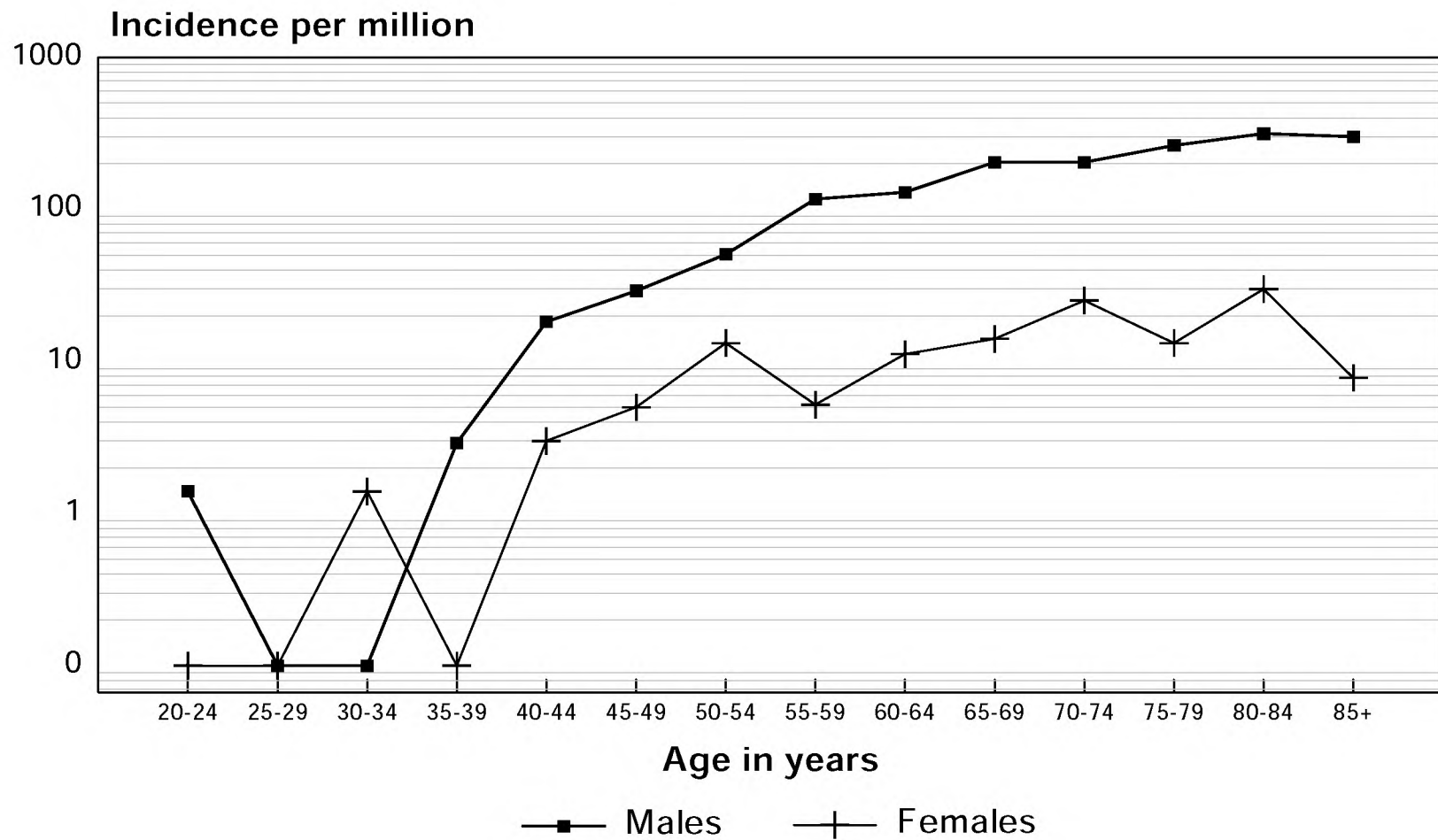


Table 5 TABULATION OF MALE CASES OF MESOTHELIOMA IN AUSTRALIA, 1995 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0	1	0	0	0	0	0	0	1
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	1	0	0	0	1
35-39	0	0	0	0	0	0	0	0	0
40-44	1	0	0	0	1	0	0	0	2
45-49	4	1	1	0	2	0	0	0	8
50-54	4	5	3	2	2	0	0	0	16
55-59	9	15	8	2	7	0	0	0	41
60-64	19	6	6	5	8	0	0	1	45
65-69	25	15	7	4	11	1	0	0	63
70-74	30	16	11	8	11	0	0	0	76
75-79	20	7	9	3	4	1	0	0	44
80-84	11	7	5	3	6	0	0	0	32
85+	6	3	1	0	2	0	0	0	12
ALL AGES	129	76	51	27	55	2	0	1	341

Table 6 TABULATION OF FEMALE CASES OF MESOTHELIOMA IN AUSTRALIA, 1995 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	1	0	0	2	0	0	0	0	3
50-54	2	1	1	0	1	0	0	0	5
55-59	1	1	2	1	2	1	0	0	8
60-64	4	4	1	1	0	0	0	0	10
65-69	3	3	0	0	1	0	0	0	7
70-74	6	1	2	0	0	1	0	0	10
75-79	6	6	1	0	0	1	0	0	14
80-84	0	2	1	0	1	1	0	0	5
85+	0	0	0	0	0	0	0	0	0
ALL AGES	23	18	8	4	5	4	0	0	62

Table 7 TABULATION OF AGE SPECIFIC INCIDENCE RATES FOR MESOTHELIOMA PER MILLION MALES IN AUSTRALIA, 1995 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	1.4
25-29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-34	0.0	0.0	0.0	0.0	14.0	0.0	0.0	0.0	1.4
35-39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-44	4.5	0.0	0.0	0.0	14.9	0.0	0.0	0.0	3.0
45-49	18.7	6.4	8.6	0.0	31.8	0.0	0.0	0.0	12.6
50-54	23.6	40.9	32.8	50.0	42.1	0.0	0.0	0.0	32.2
55-59	63.9	146.4	110.2	60.0	184.7	0.0	0.0	0.0	100.8
60-64	153.6	66.2	98.5	164.1	251.9	0.0	0.0	224.8	127.3
65-69	211.2	174.5	122.2	129.6	383.7	109.6	0.0	0.0	188.0
70-74	311.8	233.2	236.7	314.2	492.7	0.0	0.0	0.0	281.5
75-79	330.1	163.7	302.4	186.1	296.0	208.2	0.0	0.0	259.6
80-84	306.7	262.1	286.5	302.0	688.5	0.0	0.0	0.0	311.9
85+	315.1	197.8	100.1	0.0	384.0	0.0	0.0	0.0	211.4
ALL AGES	59.7	47.9	44.7	51.7	90.7	12.3	0.0	9.6	53.7
SI	50.4	42.0	39.8	41.7	88.2	9.0	0.0	15.0	47.2
CR	0.39	0.34	0.30	0.36	0.71	0.05	0.00	0.11	0.37
LIFETIME RISK. 1 in:	254	297	328	279	141	1824	-	890	267

Table 8 TABULATION OF AGE SPECIFIC INCIDENCE RATES FOR MESOTHELIOMA PER MILLION FEMALES IN AUSTRALIA, 1995 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45-49	4.8	0.0	0.0	39.0	0.0	0.0	0.0	0.0	4.9
50-54	12.3	8.4	11.6	0.0	22.7	0.0	0.0	0.0	10.5
55-59	7.3	9.9	29.2	29.6	55.4	93.1	0.0	0.0	20.2
60-64	31.8	43.2	16.6	31.9	0.0	0.0	0.0	0.0	28.0
65-69	23.7	32.6	0.0	0.0	33.8	0.0	0.0	0.0	19.8
70-74	51.7	11.9	37.6	0.0	0.0	111.6	0.0	0.0	31.0
75-79	71.2	100.2	25.7	0.0	0.0	148.9	0.0	0.0	60.0
80-84	0.0	44.1	35.7	0.0	69.6	204.8	0.0	0.0	29.0
85+	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALL AGES	10.3	10.8	6.9	7.3	8.2	23.4	0.0	0.0	9.4
SI	8.2	8.3	6.0	8.0	7.9	14.1	0.0	0.0	7.8
CR	0.07	0.05	0.05	0.05	0.06	0.10	0.00	0.00	0.06
LIFETIME RISK. 1 in:	1519	1889	2104	1990	1788	-	-	-	1749

Figure 5

Crude incidence of mesothelioma per million persons, Australia 1995 by age and sex

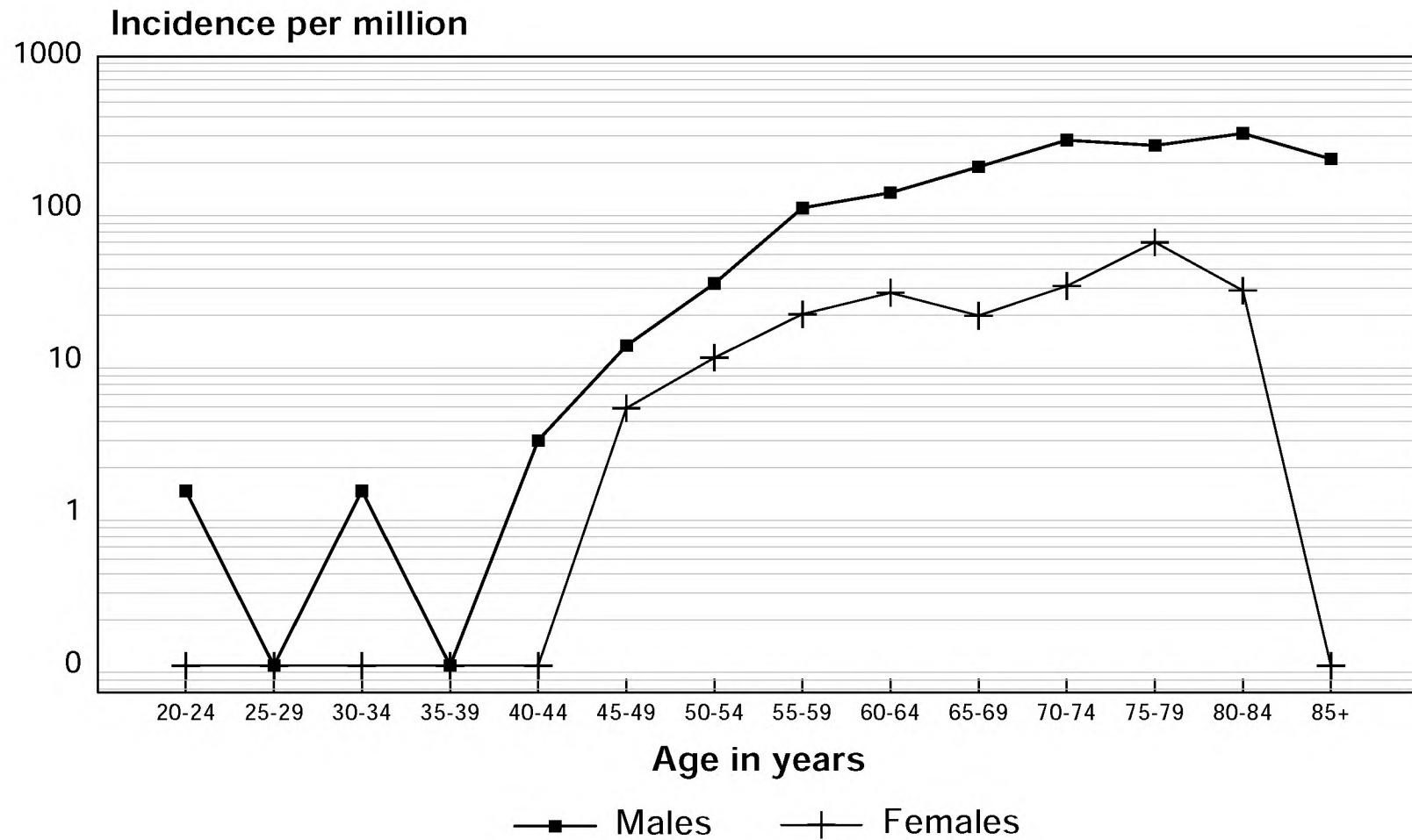


Table 9 TABULATION OF MALE CASES OF MESOTHELIOMA IN AUSTRALIA, 1996 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0	1	0	0	0	0	0	0	1
25-29	1	1	0	0	0	0	0	0	2
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	1	1
40-44	1	0	1	0	0	0	0	0	2
45-49	6	1	1	1	3	0	0	0	12
50-54	13	6	1	2	3	0	0	0	25
55-59	13	8	4	3	6	0	1	0	35
60-64	23	13	5	6	14	2	0	1	64
65-69	25	12	8	4	9	0	0	1	59
70-74	24	20	9	5	7	1	0	0	66
75-79	23	16	7	1	10	1	0	0	58
80-84	10	8	5	1	8	2	0	1	35
85+	4	6	3	1	3	1	0	0	18
ALL AGES	143	92	44	24	63	7	1	4	378

Table 10 TABULATION OF FEMALE CASES OF MESOTHELIOMA IN AUSTRALIA, 1996 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	1	0	0	0	0	0	0	1
40-44	0	0	0	0	1	0	0	0	1
45-49	0	2	0	0	1	0	0	0	3
50-54	1	0	0	0	2	0	0	0	3
55-59	1	1	2	0	0	0	0	0	4
60-64	4	1	1	0	1	0	0	0	7
65-69	0	1	1	0	0	0	0	0	2
70-74	7	1	1	1	0	1	0	0	11
75-79	4	3	3	0	1	0	0	0	11
80-84	3	3	0	0	1	0	0	0	7
85+	0	2	0	0	1	0	0	0	3
ALL AGES	20	15	8	1	8	1	0	0	53

Table 11 TABULATION OF AGE SPECIFIC INCIDENCE RATES FOR MESOTHELIOMA PER MILLION MALES IN AUSTRALIA, 1996 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	1.4
25-29	4.2	5.6	0.0	0.0	0.0	0.0	0.0	0.0	2.8
30-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.1	1.4
40-44	4.4	0.0	8.1	0.0	0.0	0.0	0.0	0.0	3.0
45-49	27.3	6.3	8.2	18.9	45.7	0.0	0.0	0.0	18.3
50-54	73.7	47.3	10.4	48.2	60.5	0.0	0.0	0.0	48.3
55-59	90.0	76.1	52.5	88.1	152.2	0.0	305.2	0.0	83.4
60-64	186.2	143.9	80.7	198.9	439.2	211.8	0.0	220.8	180.9
65-69	210.0	138.9	137.8	131.2	307.4	0.0	0.0	271.9	174.9
70-74	244.7	284.8	188.6	193.6	304.1	133.3	0.0	0.0	239.0
75-79	359.0	353.9	220.7	58.6	695.4	200.1	0.0	0.0	323.0
80-84	269.8	291.4	275.3	98.3	901.5	668.9	0.0	1096.5	330.7
85+	197.8	374.3	281.4	177.4	547.7	609.4	0.0	0.0	298.5
ALL AGES	65.2	57.3	37.6	45.7	101.6	43.0	15.9	37.9	58.6
SI	56.8	48.6	32.9	41.3	98.2	32.6	20.3	45.5	51.8
CR	0.42	0.35	0.24	0.34	0.65	0.17	0.15	0.29	0.38
LIFETIME RISK. 1 in:	238	282	411	295	153	579	-	349	265

Table 12 TABULATION OF AGE SPECIFIC INCIDENCE RATES FOR MESOTHELIOMA PER MILLION FEMALES IN AUSTRALIA, 1996 BY AGE AND STATE									
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
20-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-39	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	1.4
40-44	0.0	0.0	0.0	0.0	14.6	0.0	0.0	0.0	1.5
45-49	0.0	12.5	0.0	0.0	16.1	0.0	0.0	0.0	4.7
50-54	5.9	0.0	0.0	0.0	43.6	0.0	0.0	0.0	6.0
55-59	7.1	9.6	27.9	0.0	0.0	0.0	0.0	0.0	9.8
60-64	31.9	10.8	16.6	0.0	31.6	0.0	0.0	0.0	19.6
65-69	0.0	10.9	16.8	0.0	0.0	0.0	0.0	0.0	5.6
70-74	59.7	11.7	18.5	32.2	0.0	111.5	0.0	0.0	33.6
75-79	45.7	47.9	73.0	0.0	52.0	0.0	0.0	0.0	45.1
80-84	47.9	64.8	0.0	0.0	67.5	0.0	0.0	0.0	39.6
85+	0.0	52.6	0.0	0.0	82.9	0.0	0.0	0.0	21.2
ALL AGES	8.8	8.9	6.7	1.8	12.8	5.8	0.0	0.0	7.9
SI	6.2	5.9	5.6	1.1	10.9	3.7	0.0	0.0	5.9
CR	0.05	0.03	0.04	0.02	0.05	0.06	0.00	0.00	0.04
LIFETIME RISK. 1 in:	1912	3277	2506	6206	1889	-	-	-	2431

Figure 6

**Crude incidence of mesothelioma
per million persons, Australia 1996
by age and sex**

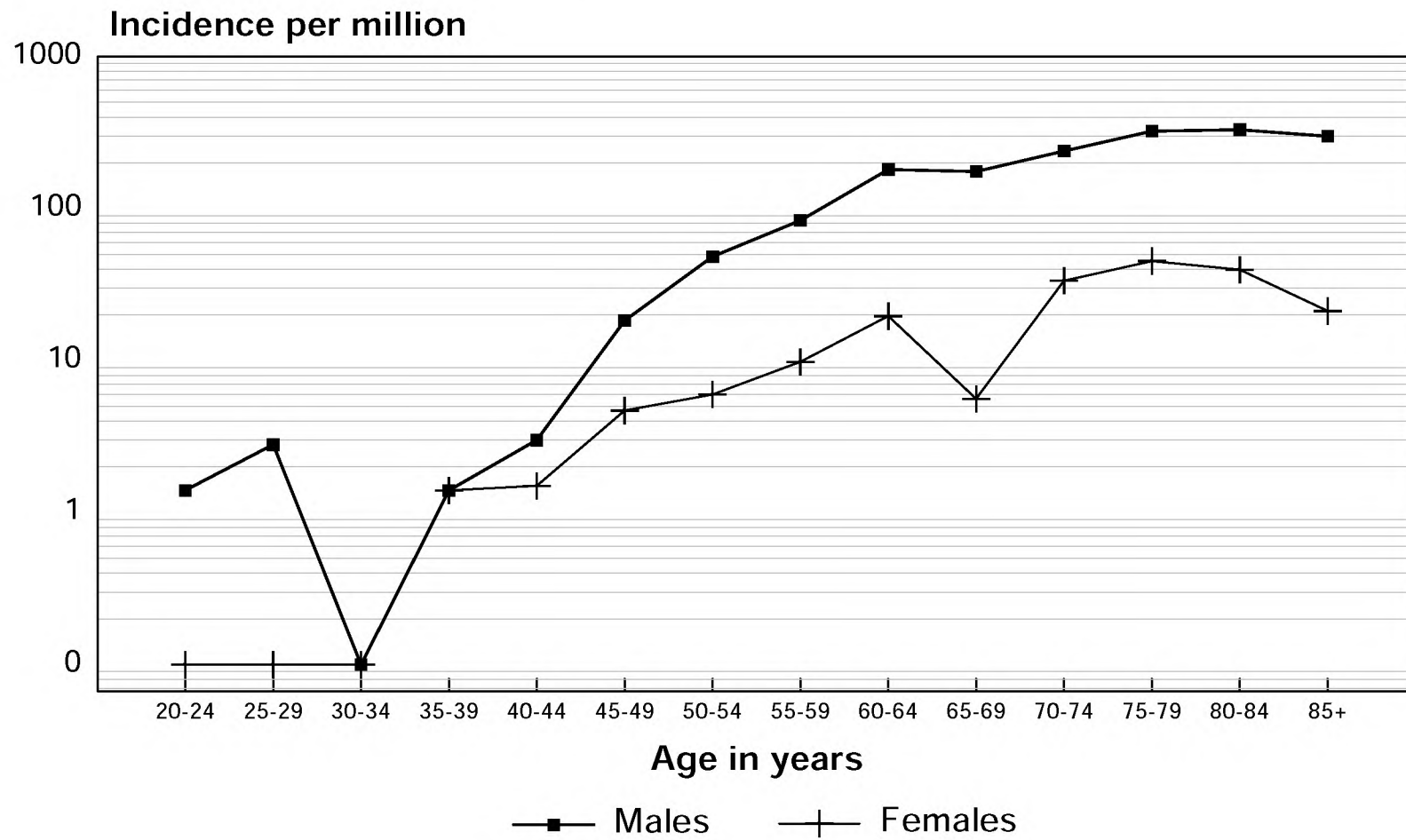


Figure 7

Cases of mesothelioma in Australia, 1994-96, by site of primary lesion

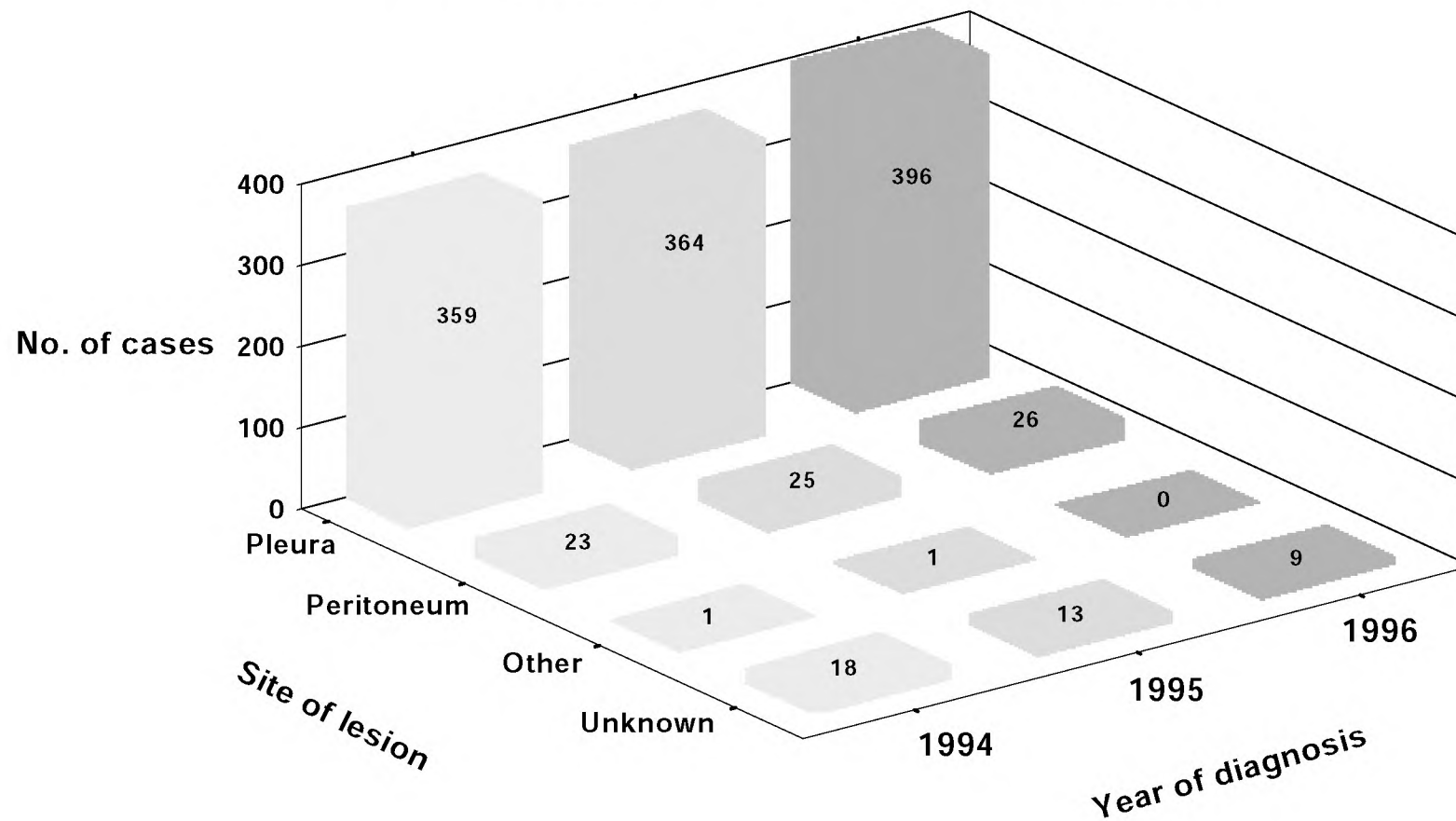
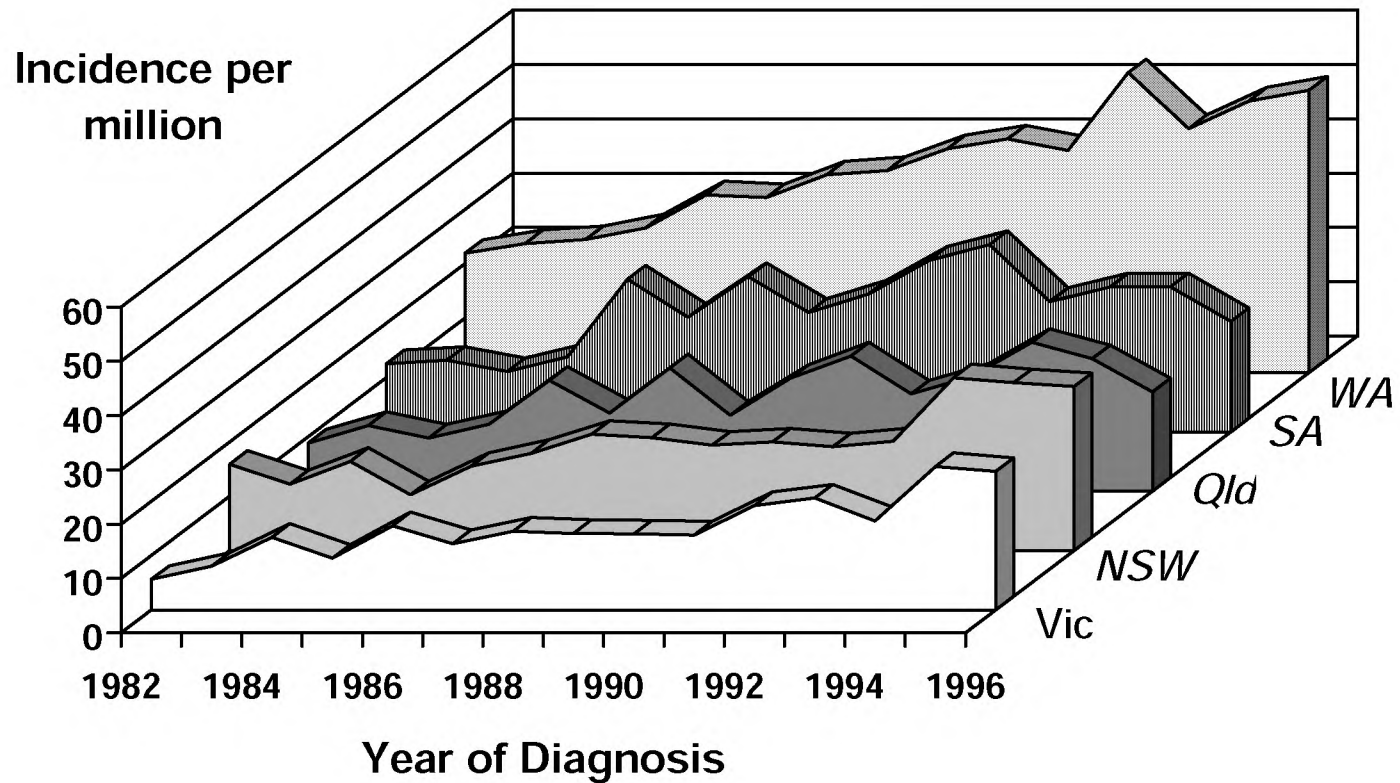


Figure 8

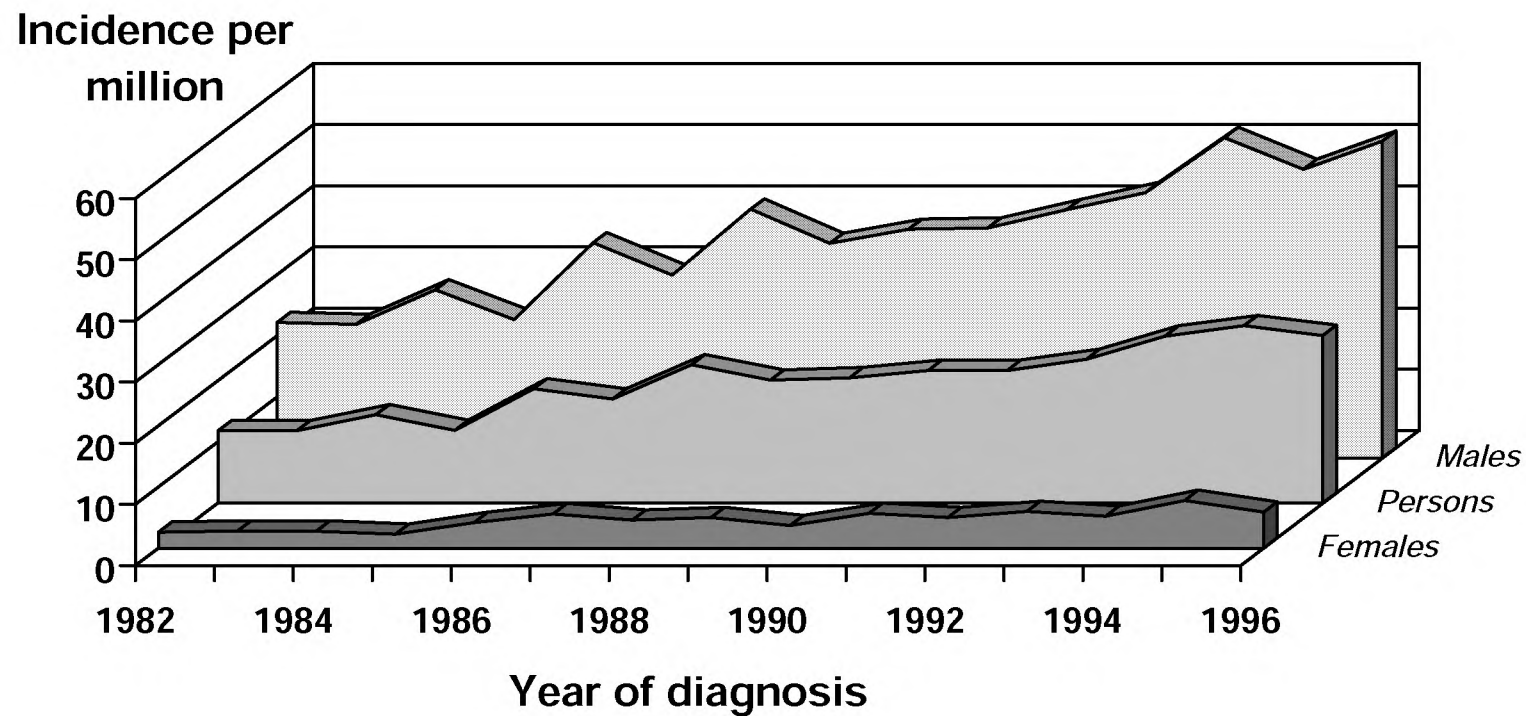
Trends in Australian incidence of mesothelioma per million persons by state, 1982-96



Standardised to World Popn > 20 years

Figure 9

Trends in Australian incidence of mesothelioma per million persons by sex, 1982-96



Standardised to World Popn > 20 years

ASBESTOS EXPOSURES AS DOCUMENTED IN THE AUSTRALIAN MESOTHELIOMA REGISTER FROM 1 JANUARY 1986 TO 31 OCTOBER 1998

CIRCUMSTANCES OF EXPOSURE	NO. EXPOSED (WITH NO OTHER EXPOSURE) (Single)	NO. EXPOSED (WITH OTHER EXPOSURES) (Multiple)	TOTAL EXPOSURES
ACOUSTIC ENGINEER	1	-	1
AIRCONDITIONING	10	8	18
AIRCRAFT	13	-	13
ARMED FORCES /WARTIME	27	8	35
ARMED FORCES /PEACETIME	9	-	9
ASBESTOS BAGGING (NOT WITTENOOM)	3	-	3
ASBESTOS BAGS - HANDLED WHICH HAD CONTAINED	8	-	8
ASBESTOS CLOTHING WORN	7	1	8
ASBESTOS COVERS FOR COOKING	1	-	1
ASBESTOS DWELLING/FENCE – BUILT/RENOVATED	66	6	72
ASBESTOS DWELLING - LIVED IN	27	6	33
ASBESTOS PRODUCTS FACTORY – LIVED NEAR	8	2	10
ASBESTOS PRODUCTS FACTORY – WORKED NEAR	2	-	2
ASBESTOS MINE - WORKED/LIVED NEAR (NOT WITTENOOM)	12	1	13
ASBESTOS PRODUCT HANDLED IN THE WORKPLACE	43	6	49
ASBESTOS PRODUCT MANUFACTURER - WORKED	99	33	132
ASBESTOS PRODUCT PART OF WORKPLACE OR SURROUNDS	15	6	21
ASBESTOS TAILINGS - PLAYED ON AS A CHILD	4	-	4
ASBESTOS /OR PRODUCTS WORKER - LIVED WITH/WASHED CLOTHES	38	3	41
BAKERY (OVENS)	3	-	3
BOILERMAKER/CLEANER/ATTENDANT /INSTALLER/WELDER	77	40	117
BRAKE LININGS - MADE/ REPAIRED	58	12	70
BREWERY	1	-	1

CIRCUMSTANCES OF EXPOSURE	NO. EXPOSED (WITH NO OTHER EXPOSURE) (Single)	NO. EXPOSED (WITH OTHER EXPOSURES) (Multiple)	TOTAL EXPOSURES
BRICKLAYER	13	1	14
BRICKWORKS	8	3	11
BUILDER/ BUILDER'S LABOURER	150	27	177
CARPENTER/JOINER	187	33	220
CEMENT FACTORY WORKER	12	-	12
CHEMICAL ENGINEER	1	-	1
CONCRETING	5	-	5
CONSTRUCTION WORKER	15	1	16
CIVIL ENGINEER	1	-	1
DEMOLITION	5	2	7
DESIGN ENGINEER	1	1	2
DIESEL ENGINEER	-	1	1
DOCKYARD WORKER	22	16	38
ELECTRICAL ENGINEER	5	1	6
ELECTRICAL FITTER	15	4	19
ELECTRICAL MECHANIC	3	-	3
ELECTRICIAN	39	6	45
ELECTROPLATER	-	1	1
ENGINEER	24	-	24
FIREPROOFING	4	-	4
FIREDOORS	3	-	3
FIREFIGHTER	4	3	7
FITTER/TURNER	51	16	67
FOUNDRY	3	1	4
FURNACE	6	-	6
GLASSWORKS/GLAZIERS	4	-	4
INDUSTRIAL CHEMIST	4	-	4
INDUSTRIAL ENGINEER	2	-	2
INSTRUMENT TECHNICIAN	1	-	1
INSULATION	8	1	9
JEWELLER	1	-	1
LABORATORY TECHNICIAN	3	-	3
LABOURER	25	4	29
LAGGER	26	13	39
LAGGING IN WORKPLACE	24	2	26
LAUNDRY/DRYCLEANERS	14	2	16

CIRCUMSTANCES OF EXPOSURE	NO. EXPOSED (WITH NO OTHER EXPOSURE) (Single)	NO. EXPOSED (WITH OTHER EXPOSURES) (Multiple)	TOTAL EXPOSURES
LINESMAN	8	-	8
LOCKSMITH	1	-	1
MACHINE FITTER	3	1	4
MACHINE INSPECTOR	2	-	2
MACHINE OPERATOR	1	-	1
MACHINIST	3	-	3
MAINTENANCE CARPENTER	3	-	3
MAINTENANCE ELECTRICIAN	2	-	2
MAINTENANCE ENGINEER	3	-	3
MAINTENANCE FITTER	13	3	16
MAINTENANCE MECHANIC	3	-	3
MAINTENANCE WORKER	14	2	16
MARINE ENGINEER	7	7	14
MECHANICAL ENGINEER	3	-	3
MECHANICAL FITTER	3	2	5
METAL FABRICATION	2	-	2
METAL TRADES	2	-	2
METALLURGY	1	-	1
NAVY	100	43	143
OIL REFINERY	1	-	1
PAINTER/DECORATOR	49	5	54
PANELBEATER	9	-	9
PAPERMILL	3	1	4
PATTERNMAKER	6	2	8
PIPES - HANDLED/CUT/STORED/DRILLED	18	2	20
PLASTERER	16	6	22
PLUMBING	62	13	75
POWER STATION WORKER	76	39	115
PRESSURE PAK MANUFACTURER	1	-	1
PRINTING	9	-	9
RADIOGRAPHER	1	-	1
RAILWAYS	89	36	125
RENOVATIONS/MAINTENANCE/LAGGING IN WORKPLACE	20	2	22
ROOFING	10	3	13

CIRCUMSTANCES OF EXPOSURE	NO. EXPOSED (WITH NO OTHER EXPOSURE) (Single)	NO. EXPOSED (WITH OTHER EXPOSURES) (Multiple)	TOTAL EXPOSURES
SHEETMETAL	11	9	20
SHIPS - BUILDING/REPAIRING/ON	79	53	132
SHOP FITTER	1	-	1
SITE VISITS/INSPECTIONS	7	2	9
SMEETING	1	-	1
STEELWORKS	13	2	15
STOREMAN	13	-	13
STOVES	2	-	2
SUGAR MILL	6	4	10
TANNERY	1	-	1
TELEPHONE TECHNICIAN	7	2	9
TILER	5	-	5
TOOLMAKER	4	1	5
TRADES ASSISTANT	10	-	10
TRANSPORTING ASBESTOS	13	4	17
TRANSPORTING ASBESTOS PRODUCT	12	1	13
TYRE FACTORY	10	4	14
WATERSIDE WORKER	70	8	78
WEIGHING TRUCKS	1	-	1
WELDER	21	5	26
WHITEWASH -GREECE/CYPRUS	2	1	3
WINE MAKING (FILTERS)	1	-	1
WITTENOOM	189	25	214
WOOD MACHINIST	1	-	1
Asbestos exposure			
single	2,245		
multiple	340		
No apparent asbestos exposure	443		
No response to questionnaire	<u>717</u>		
Total cases from 1/1/86 - 31/10/98	3,745		
Proportion of respondents with asbestos exposure	<u>2,585</u> 3,028	= 85%	



AUSTRALIAN MESOTHELIOMA REGISTER NOTIFICATION

Please direct all correspondence to:

The Registrar
Australian Mesothelioma Register
National Occupational Health and Safety Commission
GPO Box 58 Sydney NSW 2001
Telephone: (02) 9577 9304

Patient details - please supply ALL available information

SURNAME: FIRST NAMES:

ADDRESS:

STATE: POSTCODE: GENDER: M / F DATE OF BIRTH: / /

IF DECEASED, DATE OF DEATH: / / PLACE OF DEATH:

DATE OF INITIAL DIAGNOSIS: Month Year: HISTOLOGICAL: YES / NO

HOSPITAL DIAGNOSED: PRIMARY SITE:

CLINICIAN'S NAME: NAME OF LOCAL GP:

ADDRESS: ADDRESS:

Please describe briefly main occupation(s) of patient's worklife.

OCCUPATION	INDUSTRY	YEAR
1.	1.	19 - 19
2.	2.	19 - 19
3.	3.	19 - 19

KNOWN ASBESTOS EXPOSURE: YES / NO

If "YES" please indicate circumstances and duration:

Details of person completing this form.

NAME: SIGNATURE:

ADDRESS: DATE:

Please circle the appropriate category: CLINICIAN PATHOLOGIST CANCER REGISTRY MEDICAL RECORDS ADMIN
DUST DISEASES BOARD OTHER:

Office Use Only

Date Received:

REGISTRATION NO:

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