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**Title:** Exposure characteristics of patients with different pathological types of malignant mesothelioma

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**Body:** Background: Malignant mesothelioma (MM) of the pleura and peritoneum has 3 main pathological sub-types: epithelioid, sarcomatoid and biphasic with different clinical behaviour and prognosis but all related to asbestos exposure. Aim: To identify any distinguishing characteristics of patients with different subtypes of MM that may relate to their differing clinical manifestations. Methods: All cases of MM that have been recorded in Western Australia since the first case in 1962 until 2010 were reviewed for the demographic characteristics, histological type, and asbestos exposure history. Results: There have been 1867 (1612 male) confirmed cases of MM between 1960 and June 2011. Of those there are 237 sarcomatoid, 744 epithelioid and 367 biphasic subtypes with 519 cases not specified. Analyses were confined to cases with defined pathological sub-types. Results from univariable analyses are presented in Table 1. In a multinomial logistic regression, age at diagnosis, exposure route and topography were significantly associated with subtype.

## Characteristics of MM subtypes

	Epithelioid	Sarcomatoid	Biphasic	p-value
Sex (%male)	84.0	90.3	89.4	0.009
Age at diagnosis (yrs)*	66.8 (11.9)	70.2 (9.9)	66.4 (11.4)	<0.001
Time since 1st exposure (yrs)*	43.2 (11.9)	45.4 (11.5)	41.7 (11.8)	0.004
Smoking (%)	55.6	50.2	53.7	0.390
Exposure type (%Crocidolite)	24.7	14.7	26.9	0.003
Exposure route (%Environmental)	15.9	8.4	11.2	<0.001

Topography (%Pleural)	91.5	98.7	94.3	<0.001
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\*Mean (SD)

Conclusion: Compared to other subtypes sarcomatoid MM appears in older subjects and is less common with environmental exposure to asbestos. It is also less common in the peritoneum than pleura.