

Case and Abraham describe the free use of material containing asbestos in the Westbank region of Louisiana which was in close proximity to asbestos manufacturing plants. Materials were used residentially in substitute of concrete and with time became a friable health hazard. By the early twenty-first century, this region was reported to have the highest mortality rate among high-rate counties in the United States [68]. Pan et al. described mesothelioma risk correlating with proximity of residence to mineral deposits likely to contain asbestos in California [69].

Some unusual exposures to asbestos associated with the development of mesothelioma have been documented, including the manufacture of asbestos-containing cigarette filters [70] or the preparation of silver jewelry and ceremonial clothing by members of a Native American pueblo [71]. Mesothelioma has been reported among individuals exposed as children, whose diapers were made from cotton sacks previously used to transport asbestos insulation [72]. Marchevsky et al. set to establish evidence-based causation guidelines for cases of mesothelioma in individuals with nonoccupational asbestos exposure. The authors undertook an extensive search of the literature looking for cases of nonoccupational asbestos exposure where the source of exposure was identifiable and no additional exposures were confounding factors. They proposed four tiers of “evidence-based causation guidelines” based on (1) fiber analysis data, (2) the type of nonoccupational asbestos exposure (household contact of an asbestos worker, asbestos building occupant, environmental exposure, etc.), (3) duration of exposure and tumor location (pleural versus peritoneal), and (4) the frequency with which such exposures were described in the literature [73].

Mesothelioma is overwhelmingly a disease affecting men, reflecting the predominance of men in those occupations and industries most commonly associated with asbestos exposure. In North America, it has been reported that greater than 90 % of mesotheliomas in men are related to asbestos exposure while only 20 % are in women [74]. The rates of mesothelioma in men increased into the 1990s and may be starting to decline, the rates in women have remained relatively constant

[6–11]. A geographic influence is also noted in North America, with the coastal areas housing the shipbuilding industries of the World War II era having the highest rates [75].

A prolonged *latent interval*, the period of time between initial exposure and the manifestation of disease, is typical of most asbestos-associated illnesses, and mesothelioma is not an exception. The latent interval for mesothelioma is measured in decades, peaks at 30–40 years postexposure, and may extend to 70 years postexposure [47, 76, 77]. The latent interval is virtually never less than 15 years [9] and, when claimed in any particular case, merits the search for evidence of more remote exposure [78]. Mesothelioma tends to be a disease of those in the seventh or eighth decades of life in keeping with the long latent interval. An inverse relationship between dose or level of exposure and latent interval is suggested, as we have observed the development of mesothelioma at a significantly younger age in insulators as compared to other asbestos workers [53].

The risk for the development of mesothelioma appears to increase dramatically with time from initial exposure. Peto et al. have examined this relationship mathematically and found that the available data are best explained by a model in which the mesothelioma risk increases with the third or fourth power of time from first exposure. These investigators also concluded that there is a linear dose-response relationship between the amount of asbestos to which an individual is exposed and the risk of developing mesothelioma [79]. A threshold level of exposure below which mesothelioma will not occur has not yet been identified [80]. Peritoneal mesotheliomas, historically comprising some 30 % of all cases, have fallen in proportion to approximately 10 % of cases as the incidence of pleural mesotheliomas has risen. Peritoneal mesotheliomas are associated on average with heavier and/or more prolonged exposure to asbestos [2, 47, 81], as evidenced by their frequency in the cohort of insulators [47, 49, 82, 83] who tend to have the highest tissue fiber burdens. However, a similar latency period for both pleural and peritoneal forms is observed [79]. The association between peritoneal mesothelioma and higher degrees of