



Australian Government
Department of Health and Ageing



Australia and New Zealand Horizon Scanning Network

ANZHSN

AN INITIATIVE OF THE NATIONAL, STATE AND
TERRITORY GOVERNMENTS OF AUSTRALIA
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National Horizon Scanning Unit

Horizon scanning prioritising summary

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Blood test for soluble mesothelin-related proteins: Used to identify asbestos-exposed individuals who may develop mesothelioma.

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PRIORITISING SUMMARY

REGISTER ID: 0000009

NAME OF TECHNOLOGY: BLOOD TEST FOR SOLUBLE MESOTHELIN-RELATED PROTEINS

PURPOSE AND TARGET GROUP: USED TO IDENTIFY ASBESTOS-EXPOSED INDIVIDUALS WHO MAY DEVELOP MESOTHELIOMA

STAGE OF DEVELOPMENT (IN AUSTRALIA):

- | | |
|---|---|
| <input type="checkbox"/> Yet to emerge | <input type="checkbox"/> Established |
| <input type="checkbox"/> Experimental | <input type="checkbox"/> Established <i>but</i> changed indication or modification of technique |
| <input checked="" type="checkbox"/> Investigational | <input type="checkbox"/> Should be taken out of use |
| <input type="checkbox"/> Nearly established | |

AUSTRALIAN THERAPEUTIC GOODS ADMINISTRATION APPROVAL

- | | |
|--|---|
| <input type="checkbox"/> Yes | ARTG number |
| <input checked="" type="checkbox"/> No | <input type="checkbox"/> Not applicable |

INTERNATIONAL UTILISATION:

COUNTRY	LEVEL OF USE		
	Trials Underway	Limited Use	Widely Diffused
Australia, case series, consecutive patients	✓		

IMPACT SUMMARY:

Researchers from the University of Western Australia and other associated research institutes have developed an ELISA assay (enzyme linked immunosorbant assay) with the aim of detecting serum concentrations of soluble mesothelin-related proteins (SMR) in patients who have been exposed to asbestos, or relatives of exposed individuals, who may be at risk of developing mesothelioma.

Mesothelioma is a rare and highly aggressive malignancy of the pleura, the serous membranes covering the lungs and lining the inner aspect of the pleural cavity. Mesothelioma is difficult to detect by conventional means. Early detection by the use of the SMR ELISA can facilitate early therapeutic intervention (specifically chemotherapy, radiation or surgery), which is likely to be more beneficial than late intervention.

The AIHW reported 466 cases of mesothelioma in Australia in the year 2000. The majority of cases occur in males, 391/466 (84%), who are over the age of 50 (95.5% of mesothelioma occurs in individuals >50 years of age). Exposure to asbestos in Australia peaked during the late 1960s and 1970s. Mesothelioma most commonly presents in patients approximately 35 years after exposure, therefore it is likely that an increase in the number of detected cases in Australia will begin to appear in the early part of this century.

The initial study by Robinson et al (2003) reported 37/44 (84%) of patients with mesothelioma had raised levels of SMR compared to 0/28 (0%) of the controls who had not

been exposed to asbestos. In addition, 40 healthy individuals with a history of asbestos exposure were assessed. Normal concentrations of SMR were detected in 33/40 (82.5%) patients who did not develop mesothelioma after a follow-up of 8 years. Increased SMR concentrations were reported for 7/40 (17.5%) of these patients. Three of these patients went on to develop mesothelioma and one patient developed lung carcinoma.

CONCLUSION:

Based on this initial study, the early detection of mesothelioma would be applicable to a small group of individuals in Australia but may have far-reaching benefits. Early detection followed by early therapeutic intervention may result in an increased survival time and improved quality of life.

HEALTHPACT ACTION:

Therefore it is recommended that this technology be monitored.

SOURCES OF FURTHER INFORMATION:

Robinson, B. W., Creaney, J. et al (2003). 'Mesothelin-family proteins and diagnosis of mesothelioma', *Lancet*, 362 (9396), 1612-1616.

Cvitanovic, S., Znaor, L. et al (2003). 'Malignant and non-malignant asbestos-related pleural and lung disease: 10-year follow-up study', *Croat Med J*, 44 (5), 618-625.

Heineman, E. F., Bernstein, L. et al (1996). 'Mesothelioma, asbestos, and reported history of cancer in first-degree relatives', *Cancer*, 77 (3), 549-554.

SEARCH CRITERIA TO BE USED:

Asbestos/*toxicity

Environmental Exposure

Mesothelioma/*genetics

Pleural Neoplasms/*genetics