First Review of the Dust Diseases and Lifetime Care and Support Schemes

Thoracic Society of Australia and New Zealand response to questions taken on notice

The following responses have been prepared by the Occupational and Environmental Lung Disease Special Interest Group of the Thoracic Society of Australia and New Zealand

Question 1. Incidence of dust diseases

For compensation purposes, the most relevant data would be incidence, i.e. the number of new cases per year. Prevalence is all cases currently present in the community. Please note these estimates below are approximates and often based on overseas data as very little data is available in NSW.

1. Occupational asthma including reactive airway dysfunction (RADS) and occupationally exacerbated asthma

Systematic reviews of studies from various countries have concluded that 9–15% of asthma cases in working-age adults can be attributed to occupational exposures (Balmes et al. 2003; Blanc & Toren 1999; Newman Taylor et al. 2004). This includes occupational (new-onset) asthma and reactivated pre-existing asthma (asthma that has been asymptomatic for a long time). In Australia, from a survey of about 5,300 adults aged 18–49 years in New South Wales in 2000–01, we estimated 9.5% of adult-onset asthma cases were due to occupational exposures (Johnson et al. 2006). An incidence rate of 250–300 cases per million workers per year was found by (Kogevinas et al. 2007) this would equate to about 925-1110 cases of occupational asthma in NSW in 2016, given a labour force of about 3.7 million in that year (ABS Labour Force Survey).

2. Occupational lung cancers including those related to causes other than asbestos (e.g. silica, arsenic)

There were approximately 3400 new cases of lung cancer in NSW in 2016 (AIHW). Epidemiological studies suggest approximately 10% are attributable to occupational exposures (Gustavson et al., 2000), this would equate to about 340 cases of occupational lung cancers. This estimate would include those due to asbestos and silica exposure which are already covered under the scheme.

3. Dust-induced pulmonary fibrosis

Some epidemiological data in the United States indicates the prevalence of dust induced pulmonary fibrosis in those with pulmonary fibrosis to be 14% while the incidence was reported as 12% (Coultas et al., 1994). The European Registry suggests a prevalence of 4–18% of occupational pulmonary fibrosis

and an incidence of 13–19% (Thomeer et al 2001, Khalil et al 2007). In various populations, the incidence estimates for idiopathic pulmonary fibrosis have ranged from 6 per 100,000 to as high as 32 per 100,000 (Coultas et al., 1994). Approximately 10 per 100,000 is a reasonable estimate for the US (Ley et al., 2013), there is no current data in Australia available. This would equate to about 700 new cases a year in NSW, 12 to 19% may be dust induced pulmonary fibrosis, i.e. 84 to 133 cases per year

4. Chronic obstructive pulmonary disease (COPD) related to dust, fume and mist exposure

Vapors, gas, dust, or fumes on the longest held job exposure was associated with an increased risk of COPD (OR 2.11; 95% CI 1.59-2.82) and a Population Attributable Fraction (PAF) of 31% (95% CI 22-39%) (Blanc et al, 2005). After adjusting for smoking status and demography, the odds ratio for COPD related to self-reported occupational exposure was 2.0 (95% confidence interval (CI) 1.6-2.5), resulting in an adjusted population attributable risk (PAR) of 20% (95% CI 13-27%). (Trupin et al., 2003). Using these data approximately 13 to 31 % of new cases of COPD may be related to occupational exposures. The incidence of COPD is approximately 300 per 100,000 (Rycroft et al, 2012). This would equate to about 2,700 to 6500 new cases a year of COPD related to dust, fume and mist exposure.

5. Pneumonia related to occupational exposures

Among men aged 20-64 years there was increased mortality from infectious pneumonias among construction workers exposed to metal fumes (RR 2.31, 95% CI 1.35 to 3.95), inorganic dust (RR 1.87, 95% CI 1.22 to 2.87) and chemicals (RR 1.91, 95% CI 1.37 to 3.22). (Toren et al., 2011). Hospitalisations for pneumonia in NSW are about 300 per 100,000 per year. I was unable to find data on what proportion of these may be due to occupational exposures

6. Systemic diseases related to occupational dust exposures

There are several diseases which are related to dust exposure or interact with such exposures but which do not primarily affect the lung. One example is scleroderma, which has been related to occupational silica exposure, and Caplan's syndrome (rheumatoid pneumoconiosis).

In Australia the annual incidence of scleroderma is 16 per 1 000 000 with a prevalence of 233 per 1 000 000. The female to male ratio of the condition is 4:1 respectively. A review of the literature disclosed 32 published series, with clinical data of 254 scleroderma with silica exposure patients (96% males). Scleroderma with silica exposure patients represented 37.5–86% of the scleroderma males and 0–2.7% of the scleroderma females (Freire et al 2015). This would equate to about 8 to 19 new cases per year of scleroderma with silica exposure in NSW.

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Question 2. Supply of Dr. Ryan Hoy's presentation on dust diseases to DDB Board.

Attachment A – Presentation

Attachment B - Matar, E., Frankel, A., Blake, L. K. M., Silverstone, E. J., Johnson, A. R., & Yates, D. H. (2017). Lessons from practice. *Med J Aust*, *206*(9), 385-386.

Question 3. Recommendation on how to update the list of compensable occupational lung disease and associated outcomes.

TSANZ believes the current list of 13 compensable occupational lung diseases requires updating and should be expanded to include:

- Occupational asthma including reactive airway dysfunction (RADS) and occupationally-exacerbated asthma
- Occupational lung cancers including those related to causes other than asbestos (e.g. silica, arsenic, exposure to ionising radiation, bischloromethylether (BCME) etc)
- Dust-induced pulmonary fibrosis e.g due to wood dusts
- Chronic obstructive pulmonary disease (COPD) related to dust, fume and mist exposure
- Pneumonia related to occupational exposures e.g. brucellosis, psittacosis in poultry workers, Legionnaire's disease, lobar pneumonia in welders, occupationally-acquired tuberculosis in health care workers etc.

Serious consideration should also be given to including diseases affecting the upper airways and nasopharyngeal tract (such as laryngeal cancer and carcinoma of the sinuses), and including systemic diseases induced by occupational exposures e.g. connective tissue disorders attributable to silica exposure.

This list should be kept up to date as new diseases emerge. Provision needs to be made for inclusion of newly recognised occupational diseases and new causes of e.g. occupational asthma. One mechanism which allows this is by having a particular category which allows individual recognition of attribution. A Medical Advisory Panel consisting of 3 independent expert physicians would be useful in this regard.

In order to keep the list up to date we recommend establishing an independent scientific advisory committee with the long term responsibility for occupational lung disease. This committee should review the list of diseases at regular intervals (for example, every 5 years) or when requested. The committee should be primarily scientific and medical with experts from a range of relevant specialties who can make detailed assessments of the evidence. These specialties could include respiratory and occupational medicine, epidemiology, occupational hygiene, medical oncology etc. where applicable, and potentially also lawyers with special expertise in this area.

A similar model is already in Australia used for updating compensation arrangements in the Dept of Veterans Affairs. The Specialist Medical Review Council (SMRC) is an independent statutory body responsible to the Minister for Veterans' Affairs. The SMRC consists of medical practitioners and medical scientists appointed as Councilors by the Minister and selected by the Convener of the SMRC for a particular review (3-5 Councilors) on the basis of their expertise in the injury or disease relevant to the subject to review. The legislative authority for the Specialist Medical Review Council is contained in Part XIB of the Veterans' Entitlements Act 1986 (VEA).

Useful international models of this system include the United Kingdom's Industrial Injuries Advisory Council (IIAC), established in 1946. IIAC is an advisory non-departmental public body, sponsored by the Department for Work and Pensions. The Council does not have any staff of its own but DWP provides a small administrative team. The council holds an annual public meeting in a different place in the UK each year, with other council meetings are usually held in DWP offices. Various International Labour Organisation/World Health Organisation committees also consider occupational lung diseases and support the global occupational health network. Currently, for example, there is a Global Program for the Elimination of Silicosis (GOHNET).

Useful list of occupations and of current evidence relating to occupational diseases are available from these models, as well as criteria for disease attribution and disablement assessment.

References:

www.iiac.independent.gov.uk

www.who.int

www.smrc.gov.au

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