Submission No 4

INQUIRY INTO 2019 REVIEW OF THE DUST DISEASES SCHEME

Organisation: Australian Institute of Occupational Hygienists, Inc.

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AUSTRALIAN INSTITUTE OF OCCUPATIONAL HYGIENISTS ®

AIOH submission

2019 review of the NSW Dust Diseases scheme

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Prepared by: AIOH External Affairs Committee

Authorisation

AIOH activities are managed through committees and working groups drawn from member hygienists nationally. This submission has been prepared by the AIOH External Affairs Committee, with comments sought from AIOH members generally and active consultation with particular members selected for their known interest and/or expertise in this area.

Summary

The recent epidemic of accelerated silicosis in engineered stone workers has been a failure of WHS systems to protect worker health. This includes a failure of mechanisms to identify new and emerging issues in Australia. Moreover, non-compliance with the workplace exposure standard and lack of compliance with WHS regulations has demonstrated significant regulatory weaknesses in Australia.

There are similarities to previous inquiries, such as the Senate inquiry into Workplace exposure into Toxic Dust, (the so-called White inquiry), and the Inquiry into Black Lung in the Queensland mining sector. Many of the recommendations of the White inquiry were never implemented such the enforcement of hazardous substances regulations and increase the number of government hygienists. The latter inquiry identified a need for a properly resourced health research function. AIOH supports this concept at a national level.

The AIOH are focussed on work practices and controls to protect worker health and prevent occupational disease. Occupational hygienists work closely with other health professionals working in health surveillance and worker's compensation. The AIOH recognises the necessity for compensation, health surveillance and a dust disease registry and supports these functions. However, we are firmly of the view that these are after the event actions and primacy must be given to preventative actions.

Prevention of silicosis is well known and highly regulated, yet workers have suffered. As professionals we need to re-energise the preventative strategies and get occupational hygienists into all work places, large and small.

AIOH has developed *Breathe Freely Australia*, an initiative to provide information to workers in dusty occupations[1]. This uses web based materials that can be delivered via roadshows in regional Australia, in conjunction with state governments. AIOH would like to explore with the Dust Diseases Board the feasibility of working together, with the icare Mobile Lung Bus.

The AIOH would be very happy to nominate a representative to give evidence in person at a public hearing.

[1] AIOH (2019), Breathe Freely Australia, https://www.breathefreelyaustralia.org.au

Consolidated recommendations

Recommendation 1: The AIOH recommends the development of a centralised Australian register for the reporting of dust-related lung disease.

Recommendation 2: AIOH recommends the establishment of a multi-disciplinary Institute of Occupational Health.

Recommendation 3: The AIOH recommends that a major function of the Institute should be the development of robust early warning systems to new and emerging threats to occupational health.

Recommendation 4: AIOH recommends that in relation to the cohort of engineered stone workers, the NSW Dust Diseases scheme commence a prospective health surveillance study.

Recommendation 5: AIOH recommends that both AIOH and the NSW Dust Diseases scheme seek representation on the National Dust Diseases Taskforce.

Recommendation 6: AIOH recommends that the Dust Diseases Board support the proposed exposure standard of 0.05 mg/m^3 and that the Board supports greater compliance with the exposure standard in dusty workplaces.

Recommendation 7: That the NSW Government give consideration to the re-employment of occupational hygienists by the Dust Diseases Board.

Recommendation 8: That AIOH and the Dust Diseases Board discuss a collaborative effort, involving the Mobile Lung Bus and Breathe Freely Australia.

Recommendation 9: The AIOH recommends that the Dust Diseases Board consider standardising information collection via standardised respiratory questionnaires, standardising spirometry and other pulmonary function assessments.

Recommendation 10: The AIOH recommends that consideration be given to accreditation of spirometry providers, and x-ray reporting.

Recommendation 11: The AIOH recommends the Dust Diseases Scheme issue individuals with a “lung passport”, as a record of past results etc. for each individual worker and that they operate a centralised data-storage system.

Introduction

The AIOH thanks the NSW Government for opportunity to make a submission to the review of the Dust Diseases Scheme. It is noted from the terms of reference that on 24 June 2019, the committee resolved that the 2019 review of the Dust Diseases scheme focus on the response to silicosis in the manufactured stone industry in New South Wales.

We note that the Committee's role is primarily to review the operation of the Workers' Compensation (Dust Diseases) Scheme. In making this submission, AIOH will not be discussing provision of compensation as such, as these matters are outside of our expertise. However, there are a number of issues related to prevention of dust diseases, that we believe are relevant to this review and these form the basis of this submission.

It is probably fair to say that the recent outbreak of silicosis in stone masons engaged in the polishing and cutting engineered stone shocked many Australians. Media reports, such as those on ABC 7.30, graphically demonstrated the personal impact of the disease on workers. Particularly shocking was the rapid onset of the disease after exposure: just a matter of 3 – 5 years in some cases, which meant that many victims were relatively young and parents of young families. The first fatality has also been recorded, in a 36 year old stone mason from the Gold Coast[2] and the youngest victim is reported to be just 22 years old[3]. This has been described by no lesser authority than Australia's Chief Medical Officer, Professor Brendan Murphy, as an epidemic[4].

The re-emergence of silicosis, a disease first described in antiquity and known about for centuries, represents a failure of prevention and systems for early detection which parallels the re-emergence of coal workers' pneumoconiosis in Australia, and is totally unacceptable in 2018[5].

This submission will focus on the epidemic of silicosis in stone-masons. In so doing, the AIOH will try to identify factors that may have contributed to the current situation. Also, given that the most effective way of tackling silicosis is to prevent exposure to silica dust, the AIOH will suggest ways in which dust exposure can be controlled to acceptable levels. The AIOH would also like to explore ways in which in we can work with the NSW Dust Diseases Board (icare) to achieve optimal outcomes for workers exposed to silica dust.

[2] ABC News, *Silicosis death of Anthony White sparks calls for action to address 'nationwide epidemic'*,13 March 2019, https://www.abc.net.au/news/2019-03-13/silicosis-victim-dies-from-disease/10895774

[3] ABC News, *Silicosis diagnosed in 22yo stonemason makes him youngest victim in Queensland epidemic*, 30 May 2019, https://www.abc.net.au/news/2019-05-30/stonemason-silicosis-class-action-slater-and-gordon/11162554

[4] Kirby, T., (2019) *Australia reports on audit of silicosis for stonecutters*, www.thelancet.com Vol 393 March 2, 2019.

[5] Yates, D., (2018a), *Artificial stone workers' silicosis: Australia's new epidemic*, MJA InSight, 26 November 2018, https://insightplus.mja.com.au/2018/46/stone-workers-silicosis-australias-new-epidemic/

History of silicosis in engineered stone workers

There were early reports of silicosis in stone-masons working with engineered stone. In Israel, Kramer et. al. reported a, "25 patients with silicosis were referred for evaluation, including 10 patients who went on to undergo lung transplant. All patients were exposed by dry cutting a relatively new, artificial, decorative stone product with high crystalline silica content used primarily for kitchen countertops and bathroom fixtures"[6].

A similar outbreak was reported in stone-masons in Spain in 2014[7]. In men working in the stone cutting, shaping, and finishing industry, silicosis was diagnosed in 46 men between July 2009 and May 2012 with a median age of 33 years and a median of 11 years working in the manufacturing of countertops. One patient died during the study period.

The authors also commented that, "The apparent failure of all stakeholders (manufacturers, occupational risk prevention services, benefit societies/mutual insurance companies for occupational accidents and diseases, and business owners), both in the implementation of protective measures in the workplace and in health surveillance, has led to a serious situation, whose full extent can not yet be accurately foreseen".

The index case of silicosis in Australian stonemasons was detected in NSW in 2016, in a Vietnamese-born Australian man, after an alert clinician trained in South Africa recognised a disease that was thought to have been obsolete[8]. This was described as an "embarrassing first for Australia"[9]. Since then, there have been hundreds of cases reported and the eventual numbers may be similar to the number of sand blasters, which triggered the Senate inquiry into workplace exposure to toxic dusts (see below).

In 2018, Hoy et. al, reported seven male patients, identified from workplaces primarily using artificial stone where dust control measures were poor[10]. Since these initial 7 cases, there have been hundreds of cases reported and the eventual numbers may be similar to the number of sand blasters, which triggered the Senate inquiry into workplace exposure to toxic dusts (see next page).

[6] Kramer, M R, Blanc, P D, Fireman, E, Amital, A, Guber, A, Rhahman, N A and Shitrit, D, (2012) *Artificial Stone Silicosis*, Chest Journal, August 2012, Volume 142, Issue 2, Pages 419–424

[7] Pe´rez-Alonso, A, Co´rdoba-Don˜a, J A, Millares-Lorenzo, J L, Figueroa-Murillo, E, Garc´ıa-Vadillo, C, Romero-Morillo, J, (2014), *Outbreak of silicosis in Spanish quartz conglomerate workers*, Int. J. Occ. and Env. Health 2014 vol. 20 no. 1, p. 26-32, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4137811/pdf/oeh-20-01-026.pdf

[8] Yates, (2018a)

[9] Frankel A, Blake L, Yates D., (2015), Complicated silicosis in an Australian worker from cutting engineered stone: an embarrassing first for Australia. Eur Respir J 2015; 46:PA1144.

[10] Hoy, RF, Baird,B, Hammerschlag,G, Hart,D, Johnson, A R, King, P, Putt,M and Yates, DH, (2018), *Artificial stone-associated silicosis: a rapidly emerging occupational lung disease,* Occup Environ Med 2018; 75:3–5. https://oem.bmj.com/content/oemed/75/1/3.full.pdf

Figure 1

Mr Tahir Ozkul a stone-cutter with silicosis[11]

Melbourne man Tahir Ozkul, 46, has accelerated silicosis. For years he worked in a small factory where all he had was a paper mask, which failed to protect him from the dust created as he cut kitchen bench tops. The ABC reported that in the week of 10 October 2018, Mr Ozkul had a lung transplant and was recovering in a Melbourne hospital[12].

What makes this case so relevant to this submission is the dust shown on Mr Ozkul's face: the 'paper mask' may have afforded him some low level of protection, but his beard would have prevented him from obtaining an adequate face-seal. The negative impact of facial hair on respirator performance is well known. So, not only was the selection of respiratory protection incorrect – he should have been issued a full face respirator with a P3 particulate filter; but there was no fit testing – this would have demonstrated the face-seal leakage. As commonly stated on the ABC 7.30 reports, no-one ever told them about the dust or how to avoid it.

The AIOH initiative, *Breathe Freely Australia*, aims to address this lack of information and awareness, and enable workers to protect themselves better. This was developed by the British Occupational Hygiene Society (BOHS) and they generously authorised the AIOH to use their material and adapt it for local use.

[11] ABC News, *Silicosis: Here's what you need to know about the dust lung disease killing stonemasons*, 12 Oct 2018, https://www.abc.net.au/news/2018-10-12/what-is-the-dust-lung-disease-silicosis/10365604

[12] ABC News, *The biggest lung disease crisis since asbestos: Our love of stone kitchen benchtops is killing workers*, 7.30, 28 October 2018 https://www.abc.net.au/news/2018-10-10/stone-cutting-for-kitchen-benchtops-sparks-silicosis-crisis/10357342

A National Centralised Facility

It appears there have been repeated calls for a centralised dust diseases registry. In 2006, Recommendation 2 of the Senate report into workplace exposure to toxic dust[13] recommended that the Australian Safety and Compensation Council (ASCC) extend the surveillance of Australian Work Based Respiratory Events (SABRE) program Australia wide and that the program provide for mandatory reporting of occupational lung disease to improve the collection of data on dust-related disease.

In the report into the first review of the NSW Dust Diseases scheme in 2017, a recommendation was made that icare consult with stakeholders to examine the feasibility of establishing a national dust diseases data collection system[14]. In response, the Government supported this and noted that preliminary discussions had been held with relevant stakeholders. It also noted that the Government is looking towards obtaining support for this initiative at a Commonwealth and state/territory jurisdiction level[15].

The issue of silicosis in stonemasons was subsequently discussed at the COAG Health Minister's Council meeting in October 2018. In a communiqué of the meeting, Ministers requested that the Clinical Principal Committee examine the creation of a national dust disease register[16].

The AIOH supports the development of a centralised Australian register for the reporting of dust-related lung disease (AIOH, 2018). AIOH is aware that there are major infrastructure projects underway, such as road and rail tunnelling in Melbourne and Sydney; and the proposed tunnelling associated with the Snowy 2 Hydro project. In the past, this activity was associated with numerous fatalities and illness from silicosis.

Nowadays however, it is considered that (unlike the engineered stone industry), as this is a well resourced industry, which is well informed as to the hazards of silica and the requirements for dust monitoring, dust control and health surveillance. Nevertheless, for projects such as the Snowy 2, it makes sense to have a centralised Australian register, to monitor disease rates if any, and to enable tracking of any persons with dust related disease in the future.

Recommendation: The AIOH recommends the development of a centralised Australian register for the reporting of dust-related lung disease.

[13] https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/Completed_inquiries/2004-07/toxic_dust/index

[14] NSW Legislative Council, Standing Committee on Law and Justice, First review of the Dust Diseases scheme, Report 61 - August 2017, recommendation 2.

[15] Perrottet MP, Hon Dominic, Treasurer and Minister for Industrial Relations, *NSW Government response to the Law and Justice Committee's First review of the Dust Diseases Scheme and First review of the Lifetime Care and Support Scheme*. Received 27 February 2018.

[16] Council of Australian Governments (COAG), *Creation of a national dust disease register*, COAG Health Council Communiqué, 12 October 2018 https://www.coaghealthcouncil.gov.au/Portals/0/CHC%20Communique%20121018.pdf

Heeding the early warning signs and focussing on detection

One of the key functions of Safe Work Australia, as set out in the Safe Work Australia Act (2008), is evidence gathering. This function is in order to: collect, analyse and publish relevant data; and undertake and publish research; to inform the development and evaluation of WHS and workers' compensation policies and strategies. The preparation of watching briefs should have identified new and emerging issues. The question has to be asked as to how they failed to identify the emergence of this silicosis epidemic.

In April 2019, Senator R Di Natale (G), raised a motion in the Senate that said, in part:

He called on the Federal Government to:

> (iii) recognise the need for:
>
> > (A) qualified and competent occupational hygienists to be involved in the recognition, evaluation and control of silica exposures, and
> >
> > (B) establishing a multi-disciplinary Institute of Occupational Health[17].

The recommendation for a multi-disciplinary Institute of Occupational Health echoes a similar recommendation from the Queensland 'Black Lung, White Lies' Inquiry (2017)[18], that the Mine Safety and Health Authority should have a properly resourced and dedicated health research function, including epidemiological research into health conditions experienced by mine workers. These research functions should be undertaken in a collaborative way drawing upon and sharing research with leading international research bodies such as the National Institute for Occupational Safety and Health (NIOSH) in the USA.

The AIOH also notes recent establishment of the NSW Centre for Work Health and Safety. Described as a new world class research centre, the centre also monitors emerging WHS issues and enables the NSW Government to respond to these issues appropriately. The centre has published its first research blueprint that sets out the scope of its research over the next four years. The AIOH also notes the Centre intends to engage a research partner to help develop a RCS sensor that provides real time feedback to workers who are at risk of exposure, (Such equipment is already commercially available in Australia).

AIOH agrees with the Senate motion above, and the recommendation and believes that in addition to epidemiologists, such an Institute should include occupational hygienists, occupational physicians and toxicologists. However, to function effectively, such an Institute should be a national body, independent of the Government. It must also be adequately resourced.

A possible model is the UK Institute of Occupational Medicine; the IOM[19] was founded in 1969 by the UK National Coal Board as an independent charity in the UK and retains this charitable purpose and status today.

One obvious role for such an Institute would be horizon scanning for new and emerging occupational health threats. Currently, there is a horizon scanning unit in the Commonwealth Department of Health and Aging, established to provide advance notice of significant new and emerging technologies to health departments in Australia and New Zealand, and to exchange information and evaluate the

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[17] Hansard, Senate 2 April 2019, p. 10514 https://parlinfo.aph.gov.au/parlInfo/download/chamber/hansards/1c00fc1b-688f-430a-a9b3-920bb67a6cce/toc_pdf/Senate_2019_04_02_7034_Official.pdf;fileType=application%2Fpdf#search=%22chamber/hansards/1c00fc1b-688f-430a-a9b3-920bb67a6cce/0127%22

[18] Queensland Government Parliamentary Committees, (2017), *Black lung White Lies,*

Inquiry into the re-identification of Coal Workers' Pneumoconiosis in Queensland, Report No. 2, 55th Parliament, Coal Workers' Pneumoconiosis Select Committee May 2017, recommendation 14. https://www.parliament.qld.gov.au/documents/tableOffice/TabledPapers/2017/5517T815.pdf

[19] See the IOM website at: https://www.iom-world.org

potential impact of emerging technologies on their respective health systems[20]. This is obviously a very broad remit which may indicate why such a specific issue as stone mason's silicosis was not detected.

One example of a suitable subject matter for horizon scanning and monitoring are those materials promoted as a safer substitute for engineered stone. The AIOH notes that in the 2018 review report [21], Unions NSW recommend further research into alternative products such as Geoluxe.

Another such alternative product is Du Pont Corian®. Its primary use is as a countertop/ benchtop surface, and it is composed of acrylic polymer and alumina trihydrate, a material derived from bauxite ore. However, in 2014 a case was reported in the New England Journal of Medicine of a 64-year-old man, who spent about 16 years working on Corian at his small countertop business and died of pulmonary fibrosis[22].

The AIOH acknowledges the excellent service provided by agencies such as the National Industrial Chemical Notification and Assessment Scheme (NICNAS) is assessing risk of industrial chemicals that are new to Australia. However, a possible new or emerging risk may be a consequence of an unknown hazard of a substance, a known hazard of a substance used in a different way leading to a different exposure (e.g. other route of exposure, exposure scenario), or a known exposure in a new work situation[23]. As seen with the example of engineered stone, this arose from a new work situation.

Despite the fact that several early warning systems are available in Australia, there is a lack of integration and collaboration between the systems and states. Since we probably deal with rare events with a long latency, it is important to have a wide, national surveillance system, or a combination of existing initiatives, and interdisciplinary and international research and debate. In addition, expert collaboration is important to use limited resources in the most effective way.

Recommendation: AIOH recommends the establishment of a multi-disciplinary National Institute of Occupational Health.

Recommendation: The AIOH recommends that a major function of the Institute should be the development of robust early warning systems to new and emerging threats to occupational health.

[20] Commonwealth Department of Health, Horizon Scanning, http://www.horizonscanning.gov.au/internet/horizon/publishing.nsf/Content/home-2

[21] NSW Government, Legislative Council Standing Committee on Law and Justice, 2018 review of the Dust Diseases scheme, Report 69, February 2019, para. 2.24.

[22] Raghu, G., (2014), Pulmonary Fibrosis Associated with Aluminum Trihydrate (Corian) Dust, May 29, 2014, N Engl J Med 2014; 370:2154-2157

[23] Palmen, N G M, Lenderink, A F, Godderis, L, (2018), New and emerging risks of chemical carcinogens: detection and prevention, Editorial, Occupational Medicine 2018; 68:80–82 https://academic.oup.com/occmed/article/68/2/80/4955624

The duty of care of manufacturers, importers and suppliers

When interviewed in the media, a common refrain in engineered stone workers, both past and current, is that no-one ever told them just how dangerous the work was. As indicated above, it is just unacceptable that in 2019, this should still be said about the hazard of exposure to silica dust. There are duties under s. 19(1) of the NSW WHS Act (2011), for the person conducting a business or undertaking (PCBU), so far as is reasonably practicable, to ensure the health and safety of persons engaged.

The most effective way of preventing exposure to silica dust in stone masons working with engineered stone, is to use precautions such as wet cutting, local exhaust ventilation and respirators. It would be reasonable to expect manufacturers to provide information on such safe working practices to their customers. It is not known to what extent this has occurred in the past, but it is noteworthy that the suppliers of engineered stone are now being targeted for a class action. Slater and Gordon spokeswoman Margaret Kent has said the largest stone benchtop suppliers – Caesarstone, Quantum Quartz and Smartstone – did not adequately communicate the severe safety risks or convey the necessary safety precautions[24].

Usually, information on hazardous chemicals is provided on product labels and safety data sheets (SDSs). However, engineered stone is not a hazardous chemical, per se, and therefore is not subject to the Hazardous Chemicals Regulations. However, under the NSW WHS Act, engineered stone meets the definition of a substance[25], and therefore, there is a duty of care on manufacturers, importers and suppliers.

Manufacturers of engineered stone are aware of the silica content of their products; as an industry, they will have identified cases in engineered stone workers. Caesarstone, who describe themselves as "the world's leading global quartz surface developer and manufacturer[26]", have their head office in Israel. As such, they would have been well aware of the early cases in that country and it is reasonable to expect that they should have had appropriate product stewardship measures in place and been more proactive in disseminating this information globally.

Product stewardship may be helpful in avoiding the mishandling of potentially dangerous materials, and SDSs may assist in the identification of the dangerous properties of crystalline silica-containing products. In addition, manufacturers should also be actively involved in communicating the risks of manufacturing/working with hazardous products and in providing resources for the adoption of preventive and protective measures to control harmful exposures[27].

The AIOH notes the Manufactured Stone Industry Taskforce has been established and we await any developments to come from this Taskforce.

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[24] Guardian, *'I feel robbed': stonemasons launch class action over silica dust exposure'*, 30 May 2019, https://www.theguardian.com/australia-news/2019/may/30/i-feel-robbed-stonemasons-launch-class-action-over-silica-dust-exposure

[25] **Substance** means any natural or artificial substance, whether in the form of a solid, liquid, gas or vapour (s. 4).

[26] See the Caeserstone website, https://www.caesarstone.com.au/health-safety

[27] Leso, V, Fontana, L, Romano, R, Gervetti, P and Ivo Iavicoli, I (2019), *Artificial Stone Associated Silicosis: A Systematic Review*, Int. J. Environ. Res. Public Health 2019, 16, 568. https://www.ncbi.nlm.nih.gov/pubmed/30781462

Complications associated with Silicosis

The AIOH position paper on silica describes how the following health effects have been attributed to RCS: silicosis, lung cancer, chronic obstructive pulmonary disease (COPD), kidney (renal) disease and development of autoimmune disorders[28].

The AIOH sees that the Dust Diseases scheme, whether nationally or NSW based, could be used to track stone masons longitudinally. The scheme can provide valuable epidemiological information on the development of secondary diseases in this cohort, in much the same way the Petroleum Industry Health Watch study covers employees from all major oil and gas companies.

Recommendation: AIOH recommends that in relation to the cohort of engineered stone workers, the NSW Dust Diseases scheme commence a prospective health surveillance study.

The National Dust Diseases Taskforce

On 26 July 2019, the Commonwealth Department of Health established a National Dust Disease Taskforce to develop a national approach to the prevention, early identification, control and management of dust diseases in Australia.

The AIOH will be making a submission to the Taskforce. Occupational hygienists have the knowledge, skills and experience to provide expert advice in particular, on reducing exposure, workplace design and control of potentially hazardous materials. The AIOH sees their participation in the taskforce as being vital and requests the support of the review committee in this regard.

AIOH would also encourage representation from the NSW Dust Diseases scheme on the taskforce, both to contribute to those areas that fall within their expertise and to help build a more comprehensive solution to the problem.

Recommendation: AIOH recommends that both AIOH and the NSW Dust Diseases scheme seek representation on the National Dust Diseases Taskforce.

Respirable crystalline exposure standard

The AIOH is the association that represents professional occupational hygienists in Australia. That is, they are the scientists who evaluate workplace risk to hazardous chemicals and physical agents by measuring the degree of exposure, and design and implement exposure control strategies. In reality, it is the occupational hygienists whose job it is to apply WES's in the working environment. As such, they hold the greatest accumulation of knowledge on the degree of implementation of exposure monitoring and degree of compliance with the WES's.

The current TWA exposure standard for quartz and cristobalite is 0.1 mg/m^3. On July 31, 2019, Safe Work Australia announced that it would cut the dust exposure limit from 0.1 mg/m^3 over an eight-hour shift to 0.05 mg/m^3 in three years time. The AIOH respects and supports the decision of Safe Work Australia. However, this support is qualified, for reasons given below.

Earlier this year, Safe Work Australia (2019) released a draft evaluation report for respirable crystalline silica[29]. This paper recommended a TWA of 0.02 mg/m^3 to protect for fibrosis and silicosis, and the risk of lung cancer. In its submission, the AIOH noted that if adopted, this exposure standard would be the lowest in the world. The *2018 Review of the Dust diseases scheme* (NSW Government), indicated that they were working with Safe Work Australia to adopt international best practice Workplace Exposure Standards for Crystalline Silica[30].

[28] AIOH (2018), *Respirable crystalline silica position paper*, December 2018.

[29] Safe Work Australia (2019), Draft evaluation report respirable crystalline silica, https://engage.swa.gov.au/43181/documents/98603

[30] 2017-2022 Hazardous Chemicals and Materials Exposures Baseline and Reduction Strategy

However, AIOH considers that the lowest standard does not equate to international best practice.

In responding to the SWA proposal, AIOH stated that, "a legislated RCS WES of 0.02 mg/m^3 has the danger of taking the focus off the implementation of engineering controls to protect workers from dust exposures. If the limit is so low that it is impossible to achieve, it is likely that the PCBU may "give up" on dust control, reasoning that 'all workers will be in respirators anyway', and the focus will deflect from the hierarchy of controls where respiratory protection is the lowest form of protection"[31].

To comply with current WHS legislation, sections 17 and 19 of the WHS Act together require that exposure to substances in the workplace is kept as low as is reasonably practicable.

This requires limiting worker exposure to RCS to concentrations as low as reasonably practicable (ALARP) at all times below the current 8-hour time weighted average (TWA) exposure value of 0.1 mg/m^3. This applies for all forms of crystalline silica (i.e. α-quartz, cristobalite and tridymite).

The AIOH also recommended that a TWA value of 0.05 mg/m^3 (i.e. 50% of the WES) should be applied as an action level that triggers investigation of the sources of exposure and implementation of suitable control strategies as well as health surveillance. Currently, the concept of an action level is not addressed in WHS legislation.

AIOH also made the point in its submission that measuring down to a standard of 0.02 mg/m^3 is technically very difficult, "By all measures, the proposed WES of 0.02 mg/m^3 is at the performance limit of the currently available analytical methodology for RCS and can only be quantitated (with a great deal of uncertainty) for sample volumes of greater than approximately 900 L (about 7 hours) using the current cyclones and sampling pumps. In essence, this makes the proposed WES unenforceable in legislation. Therefore, the AIOH recommends near full-shift monitoring and sample analysis by a laboratory accredited by the National Association of Testing Authorities (NATA), applying standardised analysis and reporting methods".

In addition, AIOH noted that quantification of the risks of silicosis should take account of variations in RCS exposure intensity, particularly for exposure to concentrations of greater than 1 or 2 mg/m^3, even if exposure is for relatively short periods. The risks of silicosis over a working lifetime can rise dramatically with even brief exposure to such high quartz concentrations[32]. It should be noted that a process is not considered to be under reasonable control if short term exposures exceed three times the TWA exposure standard for more than a total of 30 minutes per eight-hour working day, or if a single short term value exceeds five times the 8-hour TWA exposure standard[33].

Such patterns of exposure have been typical for the engineered stone benchtop industry and the stonemasonry creation and restoration industry. In general, monitored exposures exceed the current RCS exposure standard by 10 to 20 times. The AIOH believes that the sad cases of acute silicosis and progressive massive fibrosis (PMF) seen in the engineered stone benchtop industry of recent times would not have occurred if the current RCS WES of 0.1 mg/m^3 had been complied with by the employers and enforced by the regulators, and workers had been made aware of the health hazard of RCS over exposure.

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[31] AIOH (2019), *AIOH Submission to Safe Work Australia regarding Proposed WES for Respirable Crystalline Silica (RCS), Technical Comment on the Recommendation and Basis for the Workplace Exposure Standard,* AIOH Exposure Standards Committee

[32] Buchanan, D, BG Miller & CA Soutar (2003). *Quantitative relations between exposure to respirable quartz and risk of silicosis*. Occup Environ Med; 60; pp 159-164.

[33] Safe Work Australia, (2013), Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants, April 2013, page 6.

https://www.Safe Workaustralia.gov.au/system/files/documents/1705/guidance-interpretation-workplace-exposure-standards-airborne-contaminants-v2.pdf

The government has expressed the view that workplace exposure standards are an essential component in minimising occupational disease through their use in workplace risk mitigation programs. They assist in minimising the risk of adverse health effects by establishing measurable limits for businesses to aim below, and are legally enforceable in all jurisdictions in Australia[34].

The AIOH is firmly of the view that the problem is not so much with the standard per se, but in a failure by Australian WHS regulators to enforce them. The Senate report Workplace exposure to toxic dust (May 2006) recommended that the heads of WHS Authorities consider mechanisms to increase the number of occupational hygienists being trained and employed by regulators. The AIOH is of the view that this epidemic of silicosis in stone masons could have been better controlled had the WHS regulators more adequately resourced their occupational hygiene function.

Recommendation: AIOH recommends that the Dust Diseases Board support the proposed exposure standard of 0.05 mg/m^3 and that the Board supports greater compliance with the exposure standard in dusty workplaces.

The NSW Dust Diseases Scheme and the role of occupational hygienists

The function of the NSW Dust Diseases Scheme is determining the presence of defined dust disease and the payment of compensation. The problem with the Scheme is while there is access to medical surveillance, there is no preventative arm. This is the function of NSW WorkCover inspectors. The 'inspectors' in the DDB collect and assess the industrial history of any claimants, and in addition determine that companies in high risk dust industries pay their high risk levy. If they observe poor work conditions they can call on the testing services of WorkCover. The Scheme works essentially after workers contract the disease, which is contrary to the approach of prevention as practiced by occupational hygienists.

In 1968, 1969 and again in 1980, Trevor Jones who was the Officer in Charge of the Industrial Hygiene Branch of the Division of Occupational Health requested and was granted by the DDB funding to employ 2 then 3 occupational hygienists and purchase sampling and laboratory equipment specific to inspections in dusty industries in NSW.

The hygienists appointed were involved in inspecting, monitoring and regulating the dust industries including construction, brickmaking and refractories, and asbestos manufacturing and removal industry. Both have now retired and have not been replaced and it is understood the funding of their positions has ceased. It is no surprise that the dust diseases such as silicosis and PMF have increased as the government has taken its eye off the industry, as seen by number of occupational hygienists in WorkCover today which is much less than it was in the 1970's. By the end of the 1980's there were only 2 hygienists for the entire NSW inspectorate and these were involved in mainly desk work[35].

Recommendation: That the NSW Government give consideration to the re-employment of occupational hygienists by the Dust Diseases Board.

[34] Australian Government (2018) *Australian Government response to the Senate Education and Employment References Committee report: They never came home-the framework surrounding the prevention, investigation and prosecution of industrial deaths in Australia*, December 2018. https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Education_and_Employment/IndustrialdeathsinAus/Government_Response

[35] A. Rogers, personal communication, 16/7/2019.

Dust Disease Board & AIOH collaboration

It is almost certain that compensation for silicosis in stone-masons to date represents the tip of the iceberg. Yates [36] makes the point that kitchen benchtop manufacturers are frequently sub-subcontractors of the building and construction industry, and individual workers may have little or no training regarding health issues or safe work practices. There is no formal overall oversight of health issues, and responsibility is placed on individual contractors.

The sector has evolved into many micro and small business operators with very limited knowledge of regulatory requirements regarding safe levels of silica exposure. This situation may be exacerbated by poor command of the English language, as many workers in this industry were born overseas.

These businesses also have very limited financial resources to conform to regulatory issues. Workers are often short-term contractors and may change jobs frequently or move between states. Some may even be working illegally and fear deportation if they are identified by authorities. Thus, the situation has snowballed recently into real human costs.

With these limiting factors it is not easy for the Dust Disease Board to target the causes of occupational lung disease, especially for an agent such as silica in the engineered stone sector.

In the 2018 Review report[37], icare noted that it has partnered with Safe Work NSW to assist with its Safety Roadmap for NSW 2022 project. This includes visits to approximately 9,000 businesses over the next five years to reduce worker risks associated with exposure to respirable crystalline silica.

However, AIOH would like to make a positive suggestion, concerning the icare Mobile Lung Bus. This is a great initiative, which AIOH believes could be complemented by the Breathe Freely Australia initiative (www.bfa.org.au). AIOH is working with Commonwealth and State governments, industry and unions to deliver half-day roadshows in regional Australia. The roadshows raise awareness of the hazards of exposure to dust, safe work practices and correct selection and use of personal protective equipment. AIOH would welcome the opportunity to discuss possible collaboration with icare.

Recommendation: That AIOH and the Dust Diseases Board discuss a collaborative effort, involving the Mobile Lung Bus and Breathe Freely Australia.

[36] Yates, 2018.

[37] NSW Government, Legislative Council Standing Committee on Law and Justice, 2018 review of the Dust Diseases scheme, Report 69, February 2019, para 2.4.

Health monitoring

AIOH would like to raise two issues regarding health monitoring:

Firstly, there are many providers offering health monitoring services that include respiratory questionnaires, spirometry (and other pulmonary function testing), and x-ray services. There is a wide spectrum of quality in relation to quality of health monitoring (for example – extremely poor spirometry, non-standardised respiratory questionnaires and x-ray reporting).

There is now an overwhelming need for standardisation and improving quality of health monitoring and testing such as spirometry. Otherwise, these measures, and information collected are not worth the paper they are written on. It is proposed that the Dust Diseases Board should consider standardising information collection via standardised respiratory questionnaires, standardising spirometry and other pulmonary function assessments (including using Global Lung Initiative predicted values). It is also suggest that consideration be given to accreditation of spirometry providers, and x-ray reporting.

Secondly – consideration should be given to the issue of decentralised record keeping of health monitoring workers. This results in a lack of trending of essential information relating to workers.

For example: there are many tunnel workers who have had health monitoring done numerous times; even as often as yearly monitoring. The transient nature of these workers between different sites, companies and even different states means that in practice they are having pre-employment, baseline testing and health monitoring done at numerous different providers. Consequently, this means that previous results aren't available for trend analysis (i.e. spirometry results are never trended and inspected for deteriorating results, new x-rays not compared to baseline, and past x-rays etc.).

In order to reduce the burden and identify the onset of disease earlier – it is necessary to identify the subtle changes in spirometry via trend analysis (and assess the deterioration since baseline and last visits) and viewing past x-rays. Otherwise the medical profession will only be achieving the outcome of identifying someone as silicotic once they have developed the disease and are symptomatic. It is essential to pick up subtle and asymptomatic changes before diseases progress to an advanced state.

It is proposed that the Dust Diseases Scheme either issue individuals with something like a "lung passport" – some sort of record of past results etc. for an individual worker. It is also proposed that the Scheme operates a centralised data-storage system for safe keeping of worker's questionnaires/spirometry results/x-rays that can be made available to various health monitoring providers (with worker's permission) for trending / review purposes.

Recommendation: The AIOH recommends that the Dust Diseases Board consider standardising information collection via standardised respiratory questionnaires, standardising spirometry and other pulmonary function assessments.

Recommendation: The AIOH recommends that consideration be given to accreditation of spirometry providers, and x-ray reporting.

Recommendation: The AIOH recommends the Dust Diseases Scheme issue individuals with a "lung passport", as a record of past results etc. for each individual worker and that they operate a centralised data-storage system.