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The Legislative Council

Parliament House

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Standing Committee on Law and Justice

2019 Review of the Dust Diseases Scheme Inquiry

SUPPLEMENTARY QUESTIONS

Hearing 16 September 2019

Dear Legislative Council,

These are my replies to the supplementary questions.

1. Are you aware of any cases where silicosis or other lung diseases have been diagnosed as a result of secondary exposure to silica dust? Is it a real risk to those who have contact with workers or worksites where there is high exposure to silica dust?

To first provide some clarification an occupational hygienist would generally regards “primary exposure” as where a for instance a stonemason may cut stone and “secondary exposure” when they sweep the dust or blow dust off their clothes with compressed air. Given the context of your enquiry I have interpreted secondary exposure as referring to bystander exposure.

There have been remarkably few studies on the exposures to the general public in relation to silica in workplaces.

I have consulted Michael Weller an Occupational Hygienist from SafeWork NSW who provided the following the article from HSE UK which measured respirable crystalline

silica (RCS) dust exposure levels at construction sites indicating likely exposure rates to workers and bystanders

There are more studies in the asbestos sphere which I attach which could form the basis of a similar valuable research study in silica. For instance communities living around asbestos mines such as Wittenoom in Western Australia acquired a full range of asbestos related illnesses. Asbestos has some similarities but also fundamental differences in its characteristics, pathogenicity and the range of diseases it causes and the latency of these.

I have also consulted Dr Graeme Edwards who is a senior Occupational Medicine Physician who also reported to the committee on behalf of the RACP. In commenting on the levels of RCS around construction sites as reported in the HSE report he notes that this work related to PM10 not PM2.5 dust levels. Recent work from Israel which is a major producer of manufactured stone emphasizes the importance of very fine, respirable dust, less than 1-2 micron AED particles. Diffusion and dilution in airflow is likely to be extremely important for bystanders.

The relatively low levels at some distance from the site that were detected in the HSE paper is reassuring. One thing the HSE paper's numbers suggest, which is concerning: the RCS appears to stay suspended for much longer so the further away from source, the greater the percent it becomes of the respirable dust fraction.

Also airflow and humidity are likely to be important factors not controlled in the HSE paper. Also job type and the level of respiratory personal protective equipment is relevant in a study of this sort. I discuss this later in my response.

The other factor that is important to remember when dealing with the PM2.5 dusts for RCS ~ 0.02 ug/m³ is the limit of reliable detection by current measurement devices.

In our view what is needed and missing is simultaneous sample measurements which compare the source RCS with measurements at stated distances from the source, positioned to reflect the likely worse case plume created by the environment at the time. A study that also controlled for other factors like smoking and preexisting lung diseases which actually documents the diseases acquired would also be very useful. Smoking significantly increases the risk of COPD and lung cancer in patients exposed to silica. This reinforces my advice to the Committee that further investment in research is urgently needed and I would strongly encourage the Committee to do what it can to facilitate this.

The conditions in which the installer works or the fabrication factories would also influence the level of exposure. For instance a stonemason or bystander working in a

small poorly ventilated factory or building would have higher exposure than someone in a well ventilated large facility or cutting and cleaning up outdoors. In SafeWork NSW's experience some of the manufactured stone factories they visited were small and poorly ventilated. Humidity likely effects level as well. Similary the level of RPPE and personal protective equipment (PPE) worn and whether it has been fit tested.

Job type is important. Anecdotally when speaking with patients who work with or alongside engineered stone fabrication and installation or natural stone cutting they attest to the vicinity of the work and clean up procedures being very dusty. This is in spite of safety measures. These groups might include carpenters, electricians, plumbers and cabinet makers and installers who would certainly be present when installation and clean up is being done. Also some report tracking dust into their cars and taking it home on their clothes and uniforms if they are not provided with disposable uniforms. I have been shown photographs of this by patients. As to whether this places partners who may for instance wash their uniforms, I would have thought that the risk would be fairly minimal as larger exposures are generally needed to cause disease. This is not the case with asbestos where a small exposure can lead to mesothelioma with a long latency of 30-40 years.

Similarly in mines and tunnels there are a range of other tradesmen other than the miners themselves working near miners who are exposed to other to high risk mining activities such as bolting ceilings and coal face work in underground mines and work with explosives in open cut mines. Trademen have potentially also have a range of other exposures that can injure the lungs.

I have forwarded a third article funded by NIOSH Egypt looking at exposure levels across a wide range of trades for your interest, published in Industrial Health

2. Could you provide the committee with evidence and/or research on the dangers of secondary exposure to silica dust in relation to the manufactured stone industry?

I have been unable to find much information on this topic except the anecdotal evidence I provide in the response to Question 1. This does not mean however that research studies are not underway. Again I believe this would be an important area for further research. My clinical impression is that bystanders may well be at risk depending on their proximity to the manufacture, processing and installation of manufactured stone and the work and safety practices. The risk of silica related diseases increases with duration and intensity of exposure to this product.

Regards,

Dr Susan Miles

