AUSTRALIAN INSTITUTE OF OCCUPATIONAL HYGIENISTS

Enquiry into Biotoxin-Related Illnesses in Australia

Standing Committee on Health, Aged Care and Sport

Association number: A0017462L
ABN: 50 423 289 752

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Approved by AIOH 2018 Treasurer

1. Authorisation

This submission has been prepared by AIOH members with specialised experience, knowledge and training in the identification and assessment of indoor air quality (IAQ) issues. Indoor environmental quality (IEQ) is a significant area of activity for AIOH members. The following questions are typical of those asked of our professional members by employers, householders, restoration contractors and insurers.

- Is this home/workplace safe for continued occupancy?
- Has this building been adequately remediated to a safe and/or a pre-loss condition?
- Can homeowners or employees safely return to this building?
- What is the cause of my adverse symptoms? How can they be prevented?

Submission has been authorised by the 2018 AIOH Treasurer.

2. Australian Institute of Occupational Hygienists Inc (AIOH)

The Australian Institute of Occupational Hygienists Inc. (AIOH) is the association that represents professional occupational hygienists in Australia. Occupational hygiene is the science and art of anticipation, recognition, evaluation and control of hazards in the workplace and the environment. Occupational hygienists specialise in the assessment and control of:

Chemical hazards (including dusts such as silica, carcinogens such as arsenic, fibrous dusts such as asbestos, gases such as chlorine, irritants such as ammonia and organic vapours such as petroleum hydrocarbons);

Physical hazards (heat and cold, noise, vibration, ionising radiation, lasers, microwave radiation, radiofrequency radiation, ultra-violet light, visible light); and

Biological hazards (mould, bacteria, endotoxins, fungi, viruses, zoonoses).

Therefore, the AIOH has a keen interest in the potential for exposures to hazardous agents of biological origin, as its members are the professionals most likely to be asked to identify associated hazards and assess any exposure risks.

The Institute was formed in 1979 and incorporated in 1988. An elected governing Council, comprising the President, President Elect, Secretary, Treasurer and three Councillors, manages the affairs of the Institute. The AIOH is a member of the International Occupational Hygiene Association (IOHA).

The overall objective of the Institute is to help ensure that workplace and environmental health hazards are eliminated or controlled. It seeks to achieve this by:

- Promoting the profession of occupational hygiene in industry, government and the general community.
- Improving the practice of occupational hygiene and the knowledge, competence and standing of its practitioners. To this end, the Institute has developed a certification scheme, which was approved by IOHA in May 2006.
- Providing a forum for the exchange of occupational hygiene information and ideas.
- Promoting the application of occupational hygiene principles to improve and maintain a safe and healthy environment for all.
- Representing the profession nationally and internationally.

More information is available at our website – http://www.aioh.org.au.

Some AIOH members are also members of the Indoor Air Quality Association (Australian Chapter).

The AIOH recognises the knowledge and skills held by members of the Restoration Industry Association (RIA). The RIA is a long-established trade association representing the restoration industry – the specialist cleaning contractors who clean up after flood, water-damage, fire, hoarding, squalor, and clandestine drug laboratories. It is based in the USA and is active in Australia.

Some AIOH members are also trained and certified by the Institute of Inspection, Cleaning and Restoration Certification (IICRC). The IICRC educates, certifies and sets standards for the inspection, cleaning, and restoration industry. It is based in the USA and has an office in Australia.

AIOH activities are managed through committees and working groups drawn from member hygienists. This submission has been prepared at short notice by consultation with particular members selected for their known interest and expertise in this area. Due to time constraints this submission has not been considered by Council.

4. Executive Summary

The AIOH is the professional association that represents occupational hygienists. Occupational hygienists specialise in the assessment and control of biohazards. Our members are often asked to assess mould hazards in homes and workplaces.

We support quality public health research into mould health effects.

We support quality public health research into mould testing methods.

We would support a scientific review of non-asthma, non allergy mould research.

We would support a national mould and health monograph by the Commonwealth.

We suggest that all health departments issue guidance on mould.

We suggest that all WHS authorities issue guidance on mould.

We would support a national mould information portal by the Commonwealth.

We recommend prominence to all effects of mould exposure in your final report.

We recommend prominence to control of mould exposure in your final report.

5. Biotoxin Illness

Biotoxin is a term that can be found in a medical dictionary, with definitions that include *one of the toxins formed in living body tissues*. Our understanding is that *biotoxin illness* is a term used by Dr Ritchie Shoemaker in the USA and his followers, including some qualified medical practitioners in Australia. A more-specific term is now commonly used - chronic inflammatory response syndrome (CIRS) - a multi-symptom, multi-system illness caused by exposure to biotoxin.

Our understanding is that CIRS proponents believe the most common sources of biotoxins are toxic metabolic products and cell wall fragments from mould water-damaged buildings. Mould in water damaged buildings is a key area of attention for many AIOH members. AIOH members who practice in the field of indoor air quality are accustomed to the difficulties associated with the environmental assessment of multi-symptom, multi-system illnesses.

Our understanding is that CIRS proponents believe once a positive diagnosis is confirmed, the first step in treatment is to ensure that there is no exposure to any biotoxin – this places control of this condition firmly within the bailiwick of AIOH members.

Indoor environment professionals need to understand enough about situations, and the thinking of our clients, to know how we can provide useful and timely help. AIOH members need to know if our understandings about CIRS are correct, and if the condition is evidence-based medicine or a pseudomedical diagnosis. We hope the Enquiry will engage medical expertise that will be able to sift through the many issues involved and express them clearly to laypeople. The AIOH has seen reports that Dr Shoemaker has come to the attention of the Maryland State Board of Physicians and the United States Food and Drug Administration (FDA)] - we need to know if this has any significance for our professional practice.

Our understanding is that CIRS proponents also believe offending biotoxins can also originate from a number of other sources - tick bites (that cause Lyme Disease) – anobacteria - dinoflagellates (like

ciguatera, Pfiesteria) - and some poisonous spiders. These issues are of interest to the AIOH, but have much less impact on the daily practice of most of our members.

6. Biotoxin Enquiry Terms of Reference

The prevalence and geographic distribution of biotoxin-related illnesses in Australia, particularly related to water-damaged buildings.

The AIOH would support quality public health research into this issue. Our members may be able to assist by advising people of doctors and/or researchers working in the field.

Our expectation would be that adverse reactions to mould are evenly spread across population centres, because water-damaged buildings are evenly spread across population centres. There may be temporary changes in response to widespread local events such as floods, storms and cyclones.

We are not aware of any increase in the tropics, so this is an interesting avenue for research. That said, we are aware of increased mould control activity associated with the air-conditioning of temporary buildings in tropical areas.

The prevalence of Chronic Inflammatory Response Syndrome (CIRS) or biotoxin-related illness in Australian patients and the treatment available to them.

The AIOH supports quality research into evidence-based medicine.

AIOH members are not physicians, and do not have expert opinions on available treatments.

The current medical process of identifying biotoxin-related illness in patients and the medical evaluation of symptom complexes attributed to biotoxins and CIRS.

The AIOH supports quality research into evidence-based medicine.

Any intersection with other chronic diseases.

The AIOH asks the enquiry to give prominence in the final report to the known effects of mould exposure.

People with asthma, allergies, or other breathing conditions may be more sensitive to mould. People with weakened immune systems (such as people with HIV infection, cancer patients taking chemotherapy or people who have received an organ transplant) and with chronic lung diseases (such as chronic obstructive pulmonary disease (COPD) and emphysema) are more at risk of mould infection particularly in their lungs (NSW Health 2012).

Investment in contemporary Australian research to discover and provide evidence of CIRS as a chronic, multi-system disease.

The NH&MRC has a National Register of Public Health Research

https://www.nhmrc.gov.au/national_register_public_health_research/search

Only one mould and health project is listed – a project into asthma. The AIOH supports quality public health research into non-asthma, non-allergy responses to mould exposure.

Research into biotoxin-related illness caused from water damaged buildings.

To assist our members with evidence-based science, the AIOH would support quality public health research into these issues.

Any related matters.

In some instances, building owners have been known to ignore or dismiss potentially serious problems. One method of circumventing this issue is quality information from the Commonwealth.

The AIOH asks the enquiry to give prominence in the final report to the known methods of mould control. Starting points can include guidance issued by NSW Health, WA Health and the Australian Building Codes Board (ABCB).

7. National Mould Monograph

The AIOH suggests a national mould and health monograph by the Commonwealth. In our view a document of this nature would be important for public health, and could play a significant role in the health, construction and insurance sectors of the economy.

The report could include information and advice for building owners/managers, health professionals, environmental health professionals and building professionals.

8. National Mould Portal

Much of the available information on the internet alarms many readers. The AIOH suggests a national mould information portal by the Commonwealth Department of Health, perhaps assisted by agencies such as the Australian Building Codes Board (ABCB).

One of our sister organisations in the USA – the American Industrial Hygiene Association (AIHA) - has developed an online resource.

https://www.aiha.org/publications-and-resources/TopicsofInterest/Hazards/Pages/Mold.asp

The portal could include information and advice for building owners/managers, health professionals, environmental health professionals and building professionals.

The AIOH suggests that all health departments issue guidance on mould – some (such as NSW Health and the Department of Health in WA) have already done so.

The AIOH suggests that all WHS authorities also issue guidance on mould – some have already done so.

AIOH suggests a national mould and health monograph by the Commonwealth. In our view a document of this nature would be important for public health, and could play a significant role in the health, construction and insurance sectors of the economy.

9. Building Code of Australia

The *Condensation in Buildings* handbook is commended to the Enquiry.

http://www.abcb.gov.au/Resources/Publications/Education-Training/Condensation-in-Buildings

This a non-mandatory handbook issued by the Australian Building Codes Board (ABCB). It is intended to assist architects, designers and builders in the assessment and the management of condensation and should be read with the building code provisions relating to damp and weatherproofing. It covers the environment, construction and behavioural factors that contribute to condensation risk – and therefore mould risk.

10. Mould in Water-Damaged Buildings

Mould occurs naturally outdoors. It becomes a problem when there is water damage, elevated or prolonged humidity, and/or dampness. Common sources of excessive indoor moisture that can lead to mould problems include:

- Flooding from surface waters or from severe storms.
- Roof leaks from damaged roofing or blocked gutters.
- Storm-driven rain through window frames, exterior walls or door assemblies.
- Leaking pipes, sewer back-ups or overflows.
- Damp basements or subfloor spaces due to a high water table or poor drainage.
- Condensation on cold surfaces.

As recently as 35 years ago, inhaled mould was considered primarily a nuisance, not a serious health threat. But the growing scientific and medical evidence suggests the threat is widespread and, for some people, quite serious.

The issue of mould contamination has drawn the international spotlight following some prominent events:

- Severe illness (and 1 death) of 10 infants in Cleveland Ohio (USA) in about 1994.
- A major insurance battle over a house in Texas (USA) in 2001.
- Mould issues after Hurricanes Katrina and Rita slammed ashore the USA in 2005.
- Ongoing reports from people with symptoms not supported by current medical paradigms.

11. Testing for Mould

How should a building be evaluated for mould growth? The first step is to perform an inspection to check for visible growth, signs of moisture damage, elevated humidity, and/or condensation. Any occupant complaints should be noted, as well as any musty odour. Components of the ventilation system should be inspected.

Air, surface or bulk sampling may or may not be required, depending on the goal of the investigation. If visible mould is present, it should be remediated (regardless of whether or not samples have been collected). In situations where there is a need to have the mould identified, surface or bulk sampling may be warranted - where specific health concerns are an issue, or if litigation is involved.

Sampling for airborne mould spores can indicate whether the mix of indoor moulds is typical of the outdoor air or unusual at the time of collection. If mould is suspected but not visible after a thorough inspection, air sampling conducted in accordance with guidance documents (such as the AIHA green book) may reveal hidden mould - behind walls and other structures. If mould is being removed and there is a question about how far the colonization extends, then surface or bulk sampling, in combination with moisture readings, may be useful.

Any sampling that does occur must be performed by professionals such as an occupational (aka industrial) hygienist experienced with mould issues and familiar with current guidelines and local regulations. If samples are collected, regardless of the purpose, the results should help answer a clear question. Laboratories vary in experience and proficiency - some are accredited by the AIHA Environmental Microbiology Laboratory Accreditation Program (EMLAP).

The risk of health consequences varies depending upon the amount of visible mould/moisture damage and the degree of isolation from the occupied space.

There is an absence of consensus on mould testing methods. To assist our members work with evidence-based science, the AIOH supports quality public health research into this area.

Many indoor air quality (IAQ) problems are not related to mould exposure, and buildings often have more than one indoor environmental quality problem. During an investigation, it is essential to consider the multiple potential sources of building IAQ problems.

12. References

In order to meet the submission deadline, the AIOH has pasted quality text from some excellent published sources that provided support for our opinions.

Weinhold B (2007) A Spreading Concern: Inhalational Health Effects of Mold Environmental Health Perspectives 115(6): A300–A305.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1892134/

NSW Health (2012) Mould fact sheet accessed 29 July 2018

http://www.health.nsw.gov.au/environment/factsheets/Pages/mould.aspx

AIHA Facts about Mold

https://www.aiha.org/publications-and-resources/TopicsofInterest/Hazards/Pages/Facts-About-Mold.aspx

Other published sources that will be of interest to the enquiry include the following:

Institute of Medicine (2004) Damp Indoor Spaces and Health [The National Academies Press; Washington, DC] https://doi.org/10.17226/11011

AIHA (2008) Recognition, Evaluation and Control of Indoor Mold (the AIHA green book)

IICRC S500 (2006) Standard and Reference Guide for Professional Water Damage Restoration

EPA-USA (2001 Mold Remediation in Schools and Commercial Buildings

ACGIH (1999) Bioaerosols: Assessment and Control [American Industrial Hygiene Association, Cincinnati USA]

13. Contact

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