

Possible Health and Social Impacts of Exposure to Mould

The following information was published by the Australian Parliament in 2018 after a serving MP was inundated with similar claims of mould illness after she told constituents that she was unable to continue due to CIRS.

Please note as I'm sure you know some of the decontamination information in Table 2.1 is flawed and even contradictory in 2022.

You should particularly note the remediation section which is, I believe accurate information although again requires some clarification



Australian Parliament

Background

2.1

Mould is naturally occurring in our environment and is commonly regarded as harmless to humans and animals. In some cases, however, exposure to mould can have an adverse impact on health. Health effects associated with mould exposure tend to be temporary reactions including headaches, sinus and nasal congestion and skin and eye irritation. Some people may have an allergy to mould, or may be more susceptible to the health effects of mould due to their immune system being compromised.

2.2

In addition, some have linked a range of symptoms with exposure to mould, which has been referred to as a biotoxin-related illness named *Chronic Inflammatory*

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Response Syndrome (CIRS). There are a range of views within the medical profession regarding the relationship between mould and the range of physical and cognitive symptoms identified as related to CIRS.

2.3

Factors that can lead to a building developing mould or damp include: climate; natural weather events (such as floods); building and structural issues; or occupant behaviour. In rental properties, mould remediation may be the responsibility of a tenant (if their actions have led to the mould growth) or landlord (if it is a structural issue), although it can sometimes be challenging to determine the exact cause of mould growth.

2.4

A range of professionals offer services to test and remediate a building or dwelling suspected of having mould and/or water damage. There are limited legislative and regulatory guidelines pertaining to this industry, including how testing is undertaken.

What is Mould?

2.5

Mould is a type of fungi, and is present in the natural environment. Mould produces tiny particles called spores which are carried in the air, and help it to grow and spread.¹ These spores are not visible to the naked eye.²

2.6

Mould can be found in both indoor and outdoor environments³, and can be black, grey, green or white.⁴ Mould may also have a musty odour.⁵ Naturally occurring mould in outdoor environments has a part in helping to breakdown organic matter.⁶

2.7

While mould spores can also be commonly found indoors, higher concentrations of indoor mould may appear in areas of a building which are poorly ventilated and become wet or damp.⁷ This type of environment may increase the amount of mould spores, which could potentially lead to health problems.⁸

2.8

Human contact with mould primarily occurs through inhalation of airborne spores, skin contact with mould affected surfaces or by ingesting mould affected food.⁹

Potential Health Effects of Mould

2.9

The Department of Health advised that the World Health Organization (WHO) has 'concluded that there is an association between exposure to dampness or mould

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and conditions such as asthma, allergic alveolitis and mould infections in susceptible individuals.¹⁰

2.10

Australian state and territory governments set out the health effects of mould and provide advice on dealing with dampness and mould in the home. This advice is detailed in Table 2.1.

Table 2.1: State and Territory Governments' Advice on Mould

Government	Health Effects	Advice on Mould Removal
Australian Capital Territory	Nasal congestion; sneezing, coughing, and/or wheezing; respiratory infections; and worsening of asthma and allergic conditions. People with certain pre-existing conditions may be more susceptible to mould. ¹¹	Wash area with water and vinegar solution, wipe with a cloth and dispose of cloth. ¹²
New South Wales	If sensitive or allergic: running or blocked nose; irritation of the eyes and skin; and/or wheezing. For people with asthma, inhaling mould spores may cause an asthma attack. People with weakened immune systems are more at risk of severe reaction such as infection.	Use diluted mild detergent or vinegar solution and dry the affected area. Use diluted bleach solution if mould is difficult to remove. Absorbent materials may need to be professionally cleaned or replaced. ¹³
Northern Territory	If sensitive to mould: stuffy nose; irritated eyes; wheezing; and/or skin irritation. If allergic to mould: shortness of breath; and/or mould infections (if you have a weak immune system or chronic lung condition).	Clean using household products, disinfect surfaces, dry area. ¹⁴
Queensland	‘Health problems, especially for people with asthma, sensitivities or allergies.’	Use household cleaning agents, detergents or vinegar on area. Wash soft fabric articles, or take them to a professional cleaner or discard if necessary. Have air conditioning or ventilation unit serviced. ¹⁵
South Australia	Allergic reactions; coughs; congestion; and/or runny nose; eye and skin irritation; and headaches. If immuno-compromised or suffering from a respiratory disease: fever; and/or breathing problems.	Clean small areas of mould using bleach or commercial product; consult professional cleaner if mould is extensive. ¹⁶

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Tasmania	‘Damp, condensation and mould can make you sick, especially in winter when colds and flus are common.’	Spray area with tea tree oil or grapefruit seed extract mixed with water, or white vinegar; or wipe bleach and water solution onto area. ¹⁷
Victoria	Nasal congestion; sneezing, coughing, and/or wheezing; respiratory infections; and/or worsening of asthma and allergic conditions. People with allergies, asthma, lung disease or weakened immune systems are more susceptible. ¹⁸	Use household detergent on area, wipe area with sponge, use antibacterial disinfectant spray afterwards. Wash soft fabric articles (such as bedding). A vinegar, tea tree oil, or hydrogen peroxide solution can be used to treat small areas of mould regrowth. ¹⁹
Western Australia (WA)	Asthma attacks; watery, itchy and red eyes; respiratory infections; rashes (dermatitis); sinus problems; and/or blocked nose.	Scrub mould using soapy water, wipe with damp cloth, dry area. ²⁰

2.11

Professor Matthew Cook provided further information regarding allergies, hypersensitivity disorders and mould and stated:

... [there are] immunological disorders that arise ... from either an excessive or an abnormal immune response. We can think about allergies as such an example — hay fever, asthma, eczema — where the immune response occurs to what is an otherwise innocuous environmental antigen, a substance, that might be derived from a microbe. That microbe doesn't really pose any immediate threat of infection to the individual, and yet they become unwell as a result of the wrong sort, or an excessive magnitude, of immune response. We call these hypersensitivity disorders.²¹

2.12

Tenants Victoria stated that allergic reactions associated with mould or mould spores include ‘hay fever-type symptoms such as sneezing, runny nose, red eyes and skin rash’.²²

2.13

Professor Cook also outlined the role of the immune system in responding to microorganisms including mould, and that some people with suppressed immunity may contract an infection from microorganisms. Professor Cook stated:

... [there are] rare disorders where people who have deficiencies of their immune system get unusual infections because their immune response is somehow defective ... Amongst those ... are individuals who suffer infections from moulds, yeasts and fungi. This is an extremely rare situation, and in many cases we understand the molecular basis of that — the precise abnormality that occurs in someone's immune system to develop that illness.²³

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2.14

The Real Estate Institute of New South Wales (REINSW) was of the view that in most cases, mould is not dangerous and that there is 'a general unwarranted fear surrounding the identification and presence of mould with little medical or scientific evidence to support such fear.'²⁴ The REINSW further stated that there are often 'common sense solutions' regarding the removal of mould.²⁵

Mould and Biotoxins

What is a Biotoxin-related Illness?

2.15

The Royal Australasian College of Physicians (RACP) stated that "biotoxins" is an umbrella term for substances of biological origin, some of which can produce toxic effects in humans.²⁶ Greencap stated that 'biotoxin is defined as toxins from any biological source', including animals and plants.²⁷ MouldLab defined biotoxins as including 'toxic chemicals found on spores, fine or ultrafine fragments of mould or fungus ... that are able to be released into the air'.²⁸

2.16

Dr Sandeep Gupta stated that 'biotoxins can be of various different origins, but the most common is related to water-damaged buildings.'²⁹ In addition, MouldLab put forward that human contact with biotoxins occurs 'mostly by inhalation', but can also occur through tick and spider bites, and contaminated water.³⁰

2.17

MouldLab stated that there are a group of 'genetically susceptible' people who may develop inflammation and chronic illness after coming into contact with biotoxins, often within a building that has had water damage.³¹ This illness has been termed by some as CIRS.³²

2.18

Dr Mark Donohoe described his experience of seeing patients who reported being exposed to mould and also presenting with a range of symptoms:

*... I have had a large number of patients with mould exposure and ongoing persistent unexplained illnesses ... There are acute respiratory tract illnesses that the patients I've seen from interstate around Australia and overseas get from being in mould affected buildings. After the initial illness they get persistent ongoing inflammatory responses that result in severe illness and fatigue.*³³

2.19

Dr Gupta stated that in addition to mould, other substances found in buildings that have been impacted by water damage may also contribute to ill-health. Dr Gupta listed these substances as including: bacteria, volatile organic compounds, parasites, and dust-mites. Dr Gupta considered that health effects associated with

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CIRS are the result of the 'sum total of all the different constituents of a water-damaged building.'³⁴

2.20

Dr Tim Law similarly stated:

... mycotoxins³⁵ are only a part of the entire biotoxin load an occupant [of a water damaged building] is exposed to. Moreover mould is not the only problem, but an indicator of excessive moisture that permits the occurrence and continuation of an entire microbiological ecology that contributes to the total biotoxin load of a [water damaged building].³⁶

2.21

In contrast, the RACP stated that while 'there is relatively good consensus that there is some form of association' between mould and a range of health effects, there is contention as to whether 'mould exposure causes all these other consequences'.³⁷

2.22

The Department of Health similarly stated that there is insufficient evidence supporting a causal link between mould and the chronic symptoms associated with CIRS:

The department understands that some people suffer from a collection of chronic debilitating symptom complexes that have been attributed to exposure to mould ... At this stage, there is insufficient evidence to support a direct link between these symptoms and mould exposure.³⁸

2.23

Greencap stated that awareness of CIRS and biotoxin-related illnesses has been driven by online communities of individuals who have had difficulty obtaining a medical diagnosis for their often debilitating symptoms. Greencap stated:

Much of the interest around "biotoxin-related illness" and "CIRS" has stemmed from health issues faced by thousands of Australians, many of whom are part of online self-help forums ... Many individuals have not been able to resolve their issues with chronic illness through mainstream medicine and are therefore seeking a better understanding and cure for their condition and advice on how to manage their living situations.³⁹

2.24

The REINSW stated that 'there is limited evidence suggesting that biotoxin-related illnesses are directly the result of water-damaged buildings.' The REINSW further stated that mould is an 'easy scapegoat', and is 'often identified as the cause of diseases, many of which cannot be properly diagnosed or proven to be related to toxic mould.'⁴⁰

Reported Prevalence in Australia

2.25

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While a number of individuals have relayed their experiences with biotoxin-related illnesses⁴¹, the Department of Health advised that 'as biotoxin-related illnesses are not captured within the National Notifiable Diseases Surveillance system, the department does not retain data on their frequency or distribution.'⁴²

2.26

Toxic Mould Support Australia (TMSA) similarly stated that the prevalence of CIRS among Australians is 'unknown at present.'⁴³

2.27

In the absence of Australian estimates, both the TMSA and MouldLab cited estimates from the United States of America (USA). The TMSA drew attention to a USA study which had 'estimated the prevalence of CIRS as being seven per cent.'⁴⁴ MouldLab stated that millions of people in the USA could be predisposed to developing CIRS:

*Given the finding ... that 50 per cent of buildings in the US are water-damaged, and the finding that 24 per cent of exposed patients are at risk to develop CIRS, up to 40 000 000 people in the US are at risk of developing CIRS.'*⁴⁵

Mould Exposure and Testing

Prevalence of Indoor Mould

2.28

The WHO estimated that the prevalence of indoor dampness may affect between 10 and 50 per cent of indoor environments in Australia, particularly in settings such as river valleys and coastal areas.⁴⁶

2.29

Dr Law put forward an estimate that one third of new buildings in Australia may be affected by condensation problems.⁴⁷ Dr Law stated that this estimate indicates that 'condensation is a very common problem to encounter in residential buildings'.⁴⁸

2.30

The Australasian Society of Building Biologists (ASBB) stated that 'mould is frequently found in pre-purchase house assessments particularly in older houses, as well as new apartments that lacked adequate ventilation in wet areas.'⁴⁹

2.31

The ASBB further stated that the true prevalence and geographic distribution of dampness in Australian buildings is yet to be quantified. The ASBB stated:

*We definitely need to quantify the prevalence of dampness—it's been done in many countries, not in Australia—to see if there are at least correlations to things like asthma allergies, which is well documented in literature, and, potentially, to chronic fatiguing illness.'*⁵⁰

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Possible Sources of Indoor Mould

2.32

The TMSA put forward three main causes of mould and/or indoor moisture in buildings:

Design or construction flaws and inadequate maintenance, which the TMSA stated was 'the leading cause of water damage';

Natural events such as floods, storms, hail and/or cyclones; and

Occupant behaviour, such as keeping windows shut at all times or flooding of sinks and baths.⁵¹

Building and Construction Practices

2.33

Building Biology Sydney stated that there is a 'lack of understanding' that dampness and mould in houses may have health effects. Building Biology Sydney stated that this lack of awareness has 'resulted in the continuance of poor building practices, poor building design [and] insufficient building maintenance'.⁵²

2.34

Building practices that were put forward as potentially increasing dampness and/or mould levels included: exposing building materials to moisture during construction;⁵³ inadequate ventilation (such as buildings that are air-conditioned at all times);⁵⁴ practices that enable a build-up of condensation (such as the use of foil to wrap buildings);⁵⁵ the use of timber framing and/or gypsum board which may encourage mould growth;⁵⁶ or inadequate and/or incorrectly installed waterproofing.⁵⁷ The ASBB also put forward concerns that the uncovering of 'hidden mould' in wall cavities during renovation works could expose occupants to biotoxins.⁵⁸

2.35

Dr Law was of the view that the creation of highly energy-efficient and fireproof homes over recent years may have had the unintended consequence of increasing the incidence of condensation, and consequently increasing the risk of dampness and mould build-up. Dr Law further stated that 'the persistent damp from condensation has led to other problems with mould and its deleterious effects on human health.'⁵⁹

2.36

The TMSA pointed to the Australian Building Codes Board's (ABCB) non-mandatory guide for condensation in buildings and an ABCB scoping study regarding condensation, and recommended both these items be incorporated into Australia's Building Code. The TMSA also recommended 'a remediation program be instigated for buildings already built to the current building code to mitigate condensation issues.'⁶⁰

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2.37

Dr Law stated that Australia's codes 'are decades behind international best practices in managing and responding to condensation problems'.⁶¹ Countries Dr Law considered to be best practice included Canada and Ireland, while the United Kingdom of Great Britain, the USA and New Zealand are also 'way ahead' of Australia.⁶²

Air Conditioning Systems

2.38

Ducted Air Solutions (DAS) stated that in recent decades 'buildings have become "sealed", relying on mechanical air processes to provide breathable air over natural ventilation.'⁶³

2.39

HydroKleen advised that air conditioning systems that are not properly maintained can become clogged with mould and dust, and can subsequently spread airborne mould spores throughout a building.⁶⁴ The DAS similarly stated that mould spores within air conditioning systems that are then dispersed become 'a major contaminant of indoor air.'⁶⁵ The ASBB added that 'heating, ventilation and air conditioning systems that are not properly maintained are frequently a source of biotoxins, especially in commercial buildings'.⁶⁶

2.40

HydroKleen stated that inhaling mould spores may potentially cause lung and respiratory issues, virus and bacteria reactions, and/or allergic reactions.⁶⁷ As such, HydroKleen recommended greater public awareness on the cleaning and maintaining of air conditioning units.⁶⁸

Rental Homes

2.41

Whilst tenancy legislation across the states and territories varies, the National Association of Tenant Organisations (NATO) stated that:

*Across Australia the experience of dealing with mould and other biotoxins while renting a home is similar ... In all states, the enforcement of the applicable standards of repair and habitability are primarily left to the tenant through the enforcement of contractual obligations.*⁶⁹

2.42

The Tenants' Union of NSW stated that some tenants it surveyed who had mould in their dwellings described 'being dismissed by real estate agents and landlords' when raising the problem, being evicted, or staying silent due to a fear of being evicted.⁷⁰ The NATO recommended that the Australian Government work with state governments to end 'evictions where the landlord does not have to give a reason.'⁷¹

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2.43

Tenants Victoria stated mould in rental properties can take a long time to be addressed as it is generally treated as a non-urgent repair.⁷² As such, Tenants Victoria recommended that mould-related issues be listed as an urgent repair under tenancy statutes and regulations.⁷³

2.44

In contrast, the REINSW stated that it sees:

*... a lot of leases that are broken because people see mould and have what industry believes at the moment to be unwarranted fear. While people may be susceptible to related illnesses, we're finding that they're getting a doctor's certificate from doctors who are told "there's mould on the property," and that's a reason to break lease when that mould might not actually be dangerous.*⁷⁴

2.45

The NATO stated that 'the issue of who deals with the mould depends on the cause of the mould.'⁷⁵ Mr Stephen Burke, external advisor to REINSW, stated that tenant behaviour can affect mould levels, and that there 'are a lot of lifestyle issues that contribute to this problem.'⁷⁶ In contrast, the TMSA stated that occupant behaviour is 'overemphasised by the insurance and real estate industries, when the underlying fault is due to the design, construction or maintenance flaws.'⁷⁷

2.46

The ASBB and Biological Health Services both stated that the damage and repair history of a home may not be available to a tenant.⁷⁸ The ASBB commented that this information is necessary for prospective tenants 'to make an informed choice prior to signing a lease'.⁷⁹ To address this, Tenants Victoria recommended that the Australian Government 'facilitate [the] creation of mandatory uniform disclosures about health and safety matters including ... previous flood damage or mould occurrence and repairs.'⁸⁰

2.47

In contrast, the REINSW stated that tenants already have the opportunity to inspect the premises and ask questions prior to entering a tenancy agreement.⁸¹

Guidelines and Regulations for Rental Homes

2.48

The REINSW stated that there is a 'lack of standardised plans or guides for property managers and strata managers in how to deal with mould.'⁸² To address this, Biological Health Services recommended 'the development of checklists, assessment protocols, [and] advice and advocacy options for all stakeholders.'⁸³

2.49

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The NATO stated that tenancy legislation across Australia sets obligations for landlords to 'provide and maintain premises at a certain level of repair'. Despite this, the NATO stated that most states and territories do not 'adequately provide a level of standard which the landlord must comply with' in their legislation.⁸⁴

2.50

The Tenants' Union of NSW put forward that 'every state currently has no effective minimum standard system that allows a tenant to know what the minimum acceptable standard [is].'⁸⁵ The Tenants' Union of NSW further advised that whilst we 'are seeing some advancement in some states', all states need to improve.⁸⁶ In this vein, the NATO recommended that:

*The Federal Government work with state governments to ensure each state implement standards for tenanted residential premises ... including identifying particular standards concerning building quality; such as dampness, drainage, insulation, and adequate cooling and heating facilities.*⁸⁷

2.51

The TMSA also supported more explicit definitions of standards for rental accommodation, and recommended that Australia follow the Californian (USA) example of adding 'visible mould growth to the list of dangerous health conditions which define substandard housing'.⁸⁸

Mould Testing and Remediation

Mould Testing Methods

2.52

The Australian Institute of Occupational Hygienists (AIOH) outlined a process of testing for mould, which begins with a physical inspection for mould, moisture damage, humidity, condensation and/or a musty odour. Inspection of ventilation systems may also be undertaken. Following this, air, surface, or bulk sampling may be required.⁸⁹

2.53

If any mould is sighted, the AIOH stated that it should be remediated. If mould is suspected but not sighted, air sampling may be used to test for 'hidden mould – behind walls or structures.' Bulk sampling and moisture readings may assist in determining how far mould extends into an area.⁹⁰

2.54

Dr Law stated that there is no consistent mould sampling method or the minimum level at which mould starts to effect human health.⁹¹ The AIOH further advised that 'there is an absence of consensus on mould testing methods.' To address this, the AIOH supported 'quality public health research into this area.'⁹²

2.55

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Mr Jeremy Stamkos stated that 'there is no consensus anywhere in the world as to what level of mould exposure for certain individuals is tolerable or allowable.'⁹³ Mr Stamkos further stated that when assessing a house for mould, 'it's not so much about particular levels of particular moulds; it's in relation to the amount of moisture and dampness in a building', and in addition, the 'odour is a big factor.'⁹⁴

ERMI and HERTSMI-2

2.56

The ACIIDS stated that '[CIRS] patients are commonly advised to organise testing of their home and work/study environments', to determine whether a building is 'safe to reoccupy'.⁹⁵ The testing methodologies that were put forward for this purpose are: the Environmental Relative Mouldiness Index (ERMI) and the HERTSMI-2⁹⁶ (which was described as 'a derivative of ERMI'⁹⁷).⁹⁸ The ACIIDS advised that these can cost between \$188 and \$466 in Australia.⁹⁹

2.57

The ACIIDS further stated that:

*Those with a high ERMI/HERTSMI-2 and a firm diagnosis of CIRS may need to consider remediation of their home or work environment or face the onerous task of relocating their home or work premises before formal treatment can be undergone. This step can lead to some degree of emotional trauma for the patient and experience has shown that a great deal of psychological support is required by patients during this stage.*¹⁰⁰

2.58

The ERMI was developed by the USA Environmental Protection Agency (EPA). The ERMI is an 'index or scale', against which dust samples can be compared. This analysis can then 'be used by researchers to estimate the amount of mould in a home as well as indicate some of the types of mould that are present.'¹⁰¹

2.59

The USA EPA advice states that 'at this point in its development, the ERMI should be used only for research.'¹⁰² Greencap agreed and stated that it 'could not identify sufficient research to be basing decisions around chronic systemic inflammation treatment, building occupancy or diagnostic decisions based on ERMI.'¹⁰³

2.60

MouldLab also stated that ERMI 'could not be confirmed to give reliable information about safety of re-occupancy of a building by a CIRS patient.' As such, MouldLab stated that HERTSMI-2 has 'come to broad, international clinical use.'¹⁰⁴

2.61

Mr Goldsworthy stated that HERTSMI-2 analyses five types of moulds, and the results are 'used to complete a scorecard which is designed to help patients who were previously sickened by water damaged buildings understand if a building is safe for them to occupy.'¹⁰⁵

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2.62

The TMSA stated that the testing of a building for people who identify as having CIRS should include a HERTSMI-2 score.¹⁰⁶

2.63

In contrast, Mr Goldsworthy stated that the 'HERTSMI-2 system's dependency on ERMi means it encounters the same controversies and limitations'.¹⁰⁷ Further, Biological Health Services stated that HERTSMI-2 allows for 'selective reporting and interpretations', which 'leads to misleading interpretations and extrapolations'.¹⁰⁸

Mould Testing Industry

2.64

The TMSA stated that testing of buildings for water damage and/or mould can be undertaken by a range of professionals. These include: indoor environmental professionals, certified occupational hygienists, mycologists, building biologists and/or remediators. Building occupants can also use self-test kits, which are then mailed to mycologists to be analysed.¹⁰⁹

2.65

Mr Stamkos stated that there is 'no uniform approach' across these professions for assessing buildings for mould. Consequently, there is wide variation in accuracy of advice. Mr Stamkos stated:

*Consumers will pay several thousands of dollars to have an indoor environmental professional, building biologist or people who are self-proclaimed experts in mould investigations, come in and give very different results, from the way they do their sampling to giving different scope of works. They provide incorrect advice on buildings [by] saying that they either don't have contamination issues where they clearly have mould growing ... to other people going in and over analysing a building and giving misinformation about the levels of contamination saying the whole building has to be condemned because of certain types of mould present.*¹¹⁰

2.66

The REINSW stated that anxiety around indoor mould has 'created the development of an industry with inexperienced mould inspectors capitalising on the fear factor'.¹¹¹ The REINSW recommended that the mould testing industry be regulated to ensure methods of testing that are used are 'approved and verified'.¹¹²

2.67

Greencap stated that many individuals have self-tested their house for evidence of dampness and mould, using 'off the shelf mould testing kits and expensive analyses.' Greencap advised that self-testing by someone who is unqualified may lead to incorrect conclusions about the level of mould or water damage in a building.¹¹³

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The Indoor Air Quality Association (IAQA) Australia considered that there is a need for education, training and the development of guidelines to assist the mould testing and remediation industries and commented:

Currently, in Australia, there are limited avenues for accessing education and training in accurately assessing the potential health effects of mould damaged buildings. IAQA Australia supports intersectoral collaboration in developing and delivering consistent, evidence-based guidelines for mould assessment and remediation; and education and training programs to the remediation industry, housing associations and the public, as appropriate.¹¹⁴

2.69

Biological Health Services recommended that training for mould remediation and assessment should be moved to the Vocational Education and Training framework, in order to 'enhance the calibre and delivery of quality educational content'.¹¹⁵

Remediation

2.70

The TMSA was of the view that 'the Australian mould remediation industry is currently one without regulation, recourse, or accountability.' The TMSA further stated that some commonly used mould remediation methods may have negative health impacts for individuals experiencing CIRS-attributed symptoms:

A major trend in this country is to remediate water damage and fungal growth by using gassing, fogging or spraying of biocides to kill microbes in place of source removal. This practice is dangerous for those with CIRS-[water damaged buildings] as fungi and their fragments are even more toxic when dead than when living.¹¹⁶

2.71

The ASBB also made the point that 'the use of fogging, spraying and gassing of water-damaged buildings ... only provides a band-aid approach to this complex issue.'¹¹⁷

2.72

To address this, the TMSA recommended the implementation of an accreditation or regulation program for the mould remediation industry. Remediators used by insurance companies, assessors, real estate agencies and landlords would be required to comply with relevant international standards.¹¹⁸

2.73

The TMSA further recommended that the ability of remediators to test their own work should be disallowed, as 'this is an obvious conflict of interest.'¹¹⁹

Regulations and Standards

2.74

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Greencap was concerned that there is no regulatory framework for assessment and remediation of damp and mould-affected buildings. In regard to the risk to human health, Greencap stated:

There is no standardised framework in Australia for the assessment, remediation or independent works certification of damp and fungal contaminated buildings despite their impacts on health being significant. There remains no Australian certification for operatives in the remediation or building/health assessment space, with some practitioners providing services that ultimately have potential to put health at risk. Lack of accepted standards and regulation is leaving occupants at significant risk and causing confusion in the industry.¹²⁰

2.75

MouldLab recommended that the development of nationally consistent guidelines for mould identification and remediation in buildings be 'a major consideration'.¹²¹

2.76

Biological Health Services similarly called for minimum testing standards and guidelines for the inspection, assessment and remediation of buildings with water damage and/or mould. Biological Health Services further stated that these standards and guidelines should be:

... based on existing and established indoor air quality testing methods that provide evidence-based whole-of-home results to guide both occupants and clinicians in terms of managing risk. Priority should be given to quantitative over qualitative metrics that allow for statistical significance testing.¹²²

2.77

The DAS stated that there is a lack of legislation to regulate indoor air quality in Australia. In particular, the DAS considered regulation was needed in relation to 'manufactured/mechanical air' in air-conditioned buildings.¹²³

2.78

Mr Stamkos stated that 'compliance with the existing Australian standard ... needs to be regulated to help prevent exposure.'¹²⁴ In addition, Mr Stamkos recommended the development of:

'Australian standards for conducting assessments of water-damaged buildings, as well as drying and remediation of water-damaged and contaminated buildings';

'Australian training and certification for individuals conducting assessments/investigations of water-damaged buildings and microbial contamination, as well as for those conducting drying and remediation of such buildings'; and

'an Australian standard for indoor air quality.'¹²⁵

Further Research

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2.79

A range of recommendations for further research were put forward in order to create a stronger evidence base and consensus regarding mould, its effects, and testing and remediation methods.

2.80

The REINSW was of the view that a scientific study on mould and its potential effects is needed to determine at what levels mould may become a danger to human health. The REINSW stated:

*We encourage a scientific study on mould—its levels of toxicity and what level is dangerous. We find that, whilst mould might exist in properties, more often than not it is not dangerous. The tests used to determine the extent of toxicity are not scientifically proven. A lot of the inspectors don't have qualifications. They use a lot of common sense and the experience they've had in the industry ... we need to work out the problems we actually have before we start solving issues.*¹²⁶

2.81

Mr Stamkos called for 'research to better understand the mechanisms causing illness resultant from water-damaged buildings and how to better identify the risks'.¹²⁷

2.82

Tenants Victoria recommended a research centre be established to undertake:

'building standards research into the precursors for and conditions to promote mould, and those that prevent mould and biotoxin formation (with a view to revision of the [National Construction Code]),

building research into structural requirements, building techniques and materials to avoid growth of moulds and development of biotoxins, the best methods to treat mould in commercial and domestic situations (including methods to avoid spreading fungal spores), and

*medical research into respiratory and other conditions caused by biotoxins.*¹²⁸

2.83

The Myalgic Encephalomyelitis/Chronic Fatigue Syndrome and Lyme Association of WA recommended research into 'the efficacy of numerous mould remediation techniques'.¹²⁹ Greencap similarly advised that research is needed to develop a stronger understanding 'of the impact of testing, analysis and methodology on the reliability of findings in [water damaged building] investigations'.¹³⁰ In addition, the AIOH and IAQA Australia both supported public health research into mould health effects and mould testing methods.¹³¹

2.84

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The ASBB recommended research in relation to water damaged buildings and stated:

Future research needs to focus on patients with chronic fatiguing illnesses brought on by [water damaged buildings] and to establish predictive tools to test and effectively remediate [water damaged buildings]. This needs to include epidemiological research, economic modelling, collection of anecdotes, observational studies, before and after clinical studies, randomized control trials and targeted clinical research to determine the causes, implications and treatment for patients with chronic fatiguing illnesses brought on by [water damaged buildings].¹³²

Increasing the Availability of Information

2.85

The AIOH considered that the Australian Government could provide information and advice regarding mould, particularly for 'building owners/managers, health professionals, environmental health professionals and building professionals.' The AIOH recommended that the Australian Government develop:

a 'national mould and health monograph', which 'would be important for public health, and could play a significant role in the health, construction and insurance sectors of the economy'; and

a 'national mould portal', to ensure ready access to government advice and factual information.¹³³

2.86

Biological Health Services also saw a need for information related to mould that reflects 'consensus scientific opinion' and is 'independent of internet-era medical misinformation'.¹³⁴

Concluding Comment

2.87

Mould is naturally occurring and so can be found almost everywhere in the environment, and it seems may not be possible to avoid. While mould is generally harmless and will not cause health issues for the majority of the population, a small number of people however may experience allergic reactions or more serious effects through exposure to mould.

2.88

The Committee received evidence that there is no general consensus on the potential health impact of biotoxins associated with mould and water damaged buildings. Further, the Committee heard there is some uncertainty regarding the level at which mould may begin to pose a health risk, as well as the most effective method to test and remediate mould issues in buildings.

2.89

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As such, the Australian Government could have a role in the provision of scientific information regarding mould, any associated health risks, and reliable mould testing and remediation methods. This may assist in creating a consensus across mould testing and remediation industries as to the most effective and scientifically supported method to address mould issues.

2.90

The Committee was concerned to hear that some tenants of rental properties, social and public housing have faced challenges in having mould-related issues resolved. Providing potential tenants with timely information regarding any mould and/or water damage incident that has occurred in a property will ensure all parties are in receipt of previous damp and mould related issues before entering into a residential leasing arrangement.

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