Snapshot of Australians at Risk of Serious Health Decline from Wood Heater Smoke

Table 1 includes known vulnerable groups in Australia who are at risk of disease or disease progression from wood spoke. This table includes only a few examples of lung disease (i.e., COPD and Alpha-1 Antitrypsin Deficiency). However, 31% of the Australian population has lung disease which needs to be considered. (8) This snapshot indicates that the majority of people in each state is extremely vulnerable to wood smoke and from poor air quality.

Table 1: Vulnerable Groups at Risk from Wood Heater Smoke by State and Territory

Vulnerable Groups	Percentages & Numbers Affected	NSW Vulnerable People	VIC Vulnerable People	QLD Vulnerable People	SA Vulnerable People	WA Vulnerable People	TAS Vulnerable People	NT Vulnerable People	ACT Vulnerable People
Alpha-1 Antitrypsin Deficiency# (1)	11% 2.7 million people	898,260	734,910	570,350	194,000	293,370	59,512	27,115	47,434
Asthma (2)	11% 2.7 million people	898,260	734,910	570,350	194,000	293,370	59,512	27,115	47,434
COPD ## (3)	4.8% over 45 years	464,000	457,696	409,706	456,706	353,570	381,530	457,706	457,705
Diabetes (4)	11.1% 2,852,077.62	906,426	741,591	575,535	196,581	296,037	60,059	27,362	47,865
Heart disease (5)	5.6% 1.2 million people	457,296	374,136	290,360	99,176	149,352	30,300	13,804	24,148
Children 0-14(6)	19% 1.4 million children	1,551,540	1,269,390	985,150	336,490	506,730	10,273	46,835	81,930
Pregnancies (7) (live births)	298,630	96,909	79,675	59,91	19,485	32,677	5,716	4,052	6,112
Over 65 years	16.3%	1,331,058	1,089,003	845,155	288,673	434,721	88,1945	40,179	70,288
TOTALS	-	**6,603,749**	**5,481,311**	**4,246,606**	**1,785,111**	**2,359,827**	**1,488,847**	**644,168**	**782,916**

One in nine Australians (11%) have at least one faulty Alpha-1 Antitrypsin gene putting them at risk of early onset genetic emphysema. ## COPD = emphysema and bronchitis.

1. **Blanco I, Beuno P, Diego I, et.al.** Alpha-1 antitrypsin Pi*Z gene frequency and Pi*ZZ genotype numbers worldwide: an update. *International Journal of COPD,* 2017, Vol. 12, pp. 561-569.

2. **Australian Institute of Health and Welfare.** Asthma. *Australian Institute of Health and Welfare.* [Online] 2018. [Cited: 27 June 2021.] aihw.gov.au.

3. **Australian Institute of Health and Welfare**. Chronic Obstructive Pulmonary Disease (COPD). *Australian Institute of Health and Welfare.* [Online] 2018. [Cited: 27 June 2021.] aihw.gov.au.

4. **Australian Institute of Health and Welfare**. Diabetes Overview. *Australian Institute of Health and Welfare.* [Online] 2018. [Cited: 27 June 2021.] aihw.gov.au.

5. **Australian Institute of Health and Welfare**. Cardiovascular Disease. *Australian Institute of Health and Welfare.* [Online] 2018. [Cited: 27 June 2021.] aihw.gov.au.

6. **Australian Bureau of Statistics.** Census of Population and Housing. [Online] 2016. [Cited: 27 June 2021.]

7. **Australian Bureau of Statistics,** Census of Population and Housing. Australia Five Year Age Groups. *Australia community profile.* [Online] 2016. [Cited: 2021 June 2021.] profile.id.com.au.

8. **Australian Government, Department of Health.** What we're doing about lung respiratory conditions. [Online] [Cited:] www.health.gov.au .

Alpha-1 Antitrypsin Deficiency

This genetic condition is thought to be the most common rare disease, but is often not considered or not included in diagnostic tests when diagnosing patients.

Estimates suggest that 10% or fewer of people with a severe deficiency in alpha-1 antitrypsin have been diagnosed.

The most common symptom of A1AD is emphysema, which becomes noticable in adults who were previously thought to be healthy, usually between 30 and 50 years of age. This is often mistaken for adult-onset asthma or early onset COPD.

Smoke and Dust

Lung irritants can cause rapid lung destruction leading to emphysema so should be avoided.

Individuals deficient in the protein, alpha-1 antitrypsin, lack protection in the lungs against the enzyme neutrophil elastase, which flares up with infections.

Those at risk should be prescribed antibiotics at the first sign of infection.

Levels of alpha-1 antitrypsin expected with different genotypes

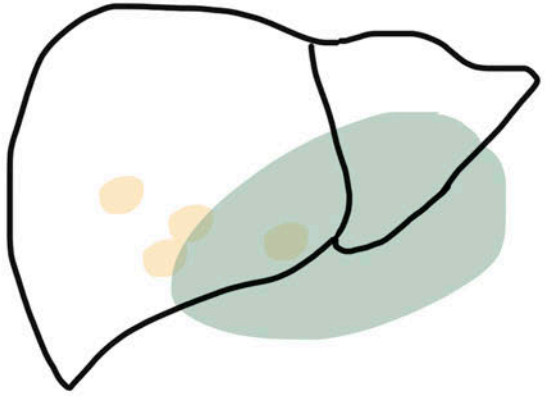
MM	Normal
MS	80% normal
MZ	60% normal
SS	60% normal
ZZ	10% normal
NullNull	zero

Alpha-1 Antitrypsin Deficiency (A1AD)

A1AD is a genetic condition, caused by a mutation in the Serpina 1 gene on chromosome 14.
There is a large number of variants with a small number of these causing medically significant problems. The two most common of the latter are designated Z and S, with M being normal. Other rare genotypes are hard to detect as the usual gene test only looks at Z and S, so must be ascertained by gene sequencing.

The gene coding for the Z variant causes a misshapen molecule of alpha-1 antitrypsin to be produced in the liver, which then becomes trapped therein and can lead to cirrhosis or lung cancer when it builds up to toxic levels.
Patients with unexplained liver problems should be tested for A1AD.

a1ad



alpha-1
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www.a1oa.org.au

Alpha-1 Antitrypsin Deficiency

Short of breath?

Do you have unexplained shortness of breath, COPD, or adult onset asthma?

Itchy?

Do you have unexplained liver problems or itchiness?

These can be symptoms of the genetic condition Alpha-1 antitrypsin deficiency.

Ask your doctor for a blood test if this sounds like you.