RANZCO Position Statement:
Smoking Cessation as a protective factor against eye disease and vision loss
1. Purpose and scope
This position statement was developed by The Royal Australian and New Zealand College of Ophthalmologists (RANZCO). The purpose of this position statement is to raise awareness among ophthalmologists and the general public of the current evidence for smoking cessation as a protective factor against Age Related Macular Disease (AMD) and other eye conditions.

This position statement is to be viewed with reference to Diabeties and Diabetic Eye Disease and Impact of Health and Lifestyle on Age-Related Cataract-ARC and other age related eye conditions.

2. Background and context

2.1 Prevalence and health impact of smoking

2.1.1 Impact of tobacco smoking
Tobacco smoking is the leading preventable cause of both human and economic costs of preventable disease in Australia. An estimated 20,933 deaths in Australia in 2015 were caused by tobacco use.

The National Drug Strategy Household Survey conducted by the Australian Institute of Health and Welfare (AIHW) and the National Health Survey conducted by the Australian Bureau of Statistics both report on the prevalence of smoking in Australia. The National Drug Strategy Household Survey is considered to be the benchmark as it is the leading survey of licit and illicit drug use in Australia. According to the National Drug Strategy Household Survey, the proportion of daily smokers (aged 14 or older) has declined from 12.2% in 2016 to 11% in 2019.

According to the most recent AIHW data, smoking was responsible for 9.3 per cent of the total burden of disease in Australia in 2015 and for more than one in every eight deaths. However, Australia has been among the most successful in terms of tobacco control resulting in reduced prevalence of smoking – 13%, down from 16% in 2012. In 1997, Michael Wooldridge launched a National Quit campaign. As a result, significant reductions in smoking rates were observed highlighted by changes in individual jurisdictions. Smoking rates vary considerably across states and territories. In 2019, the ACT had the lowest daily smoking prevalence of the states and territories and NT the highest (8.6% and 15.4%, respectively).

---

3 Australian Institute of Health and Welfare. Alcohol, tobacco and other drugs in Australia. Canberra: AIHW; 2020 Dec
5 Australian Bureau of Statistics. Australian Health Survey 2011/12 (4364.0)
6Australian Institute of Health and Welfare. Alcohol, tobacco and other drugs in Australia. Canberra: AIHW; 2020 Dec
Smoking in Victoria declined from 33.2% in 1984 to 15.5% in 2008, a relative decline of 53%. Reduction in smoking rates can be attributed to mass media campaigns alongside other tobacco control measures.

Overall, the prevalence rate of tobacco smoking remains high for Australian Indigenous people despite declining rates in other Australian populations. For the impact of these higher smoking rates on risks of major eye health conditions, refer to section 2.2 below.

In New Zealand, according to 2019/20 data, overall smoking rates were 13.4%. The prevalence of smoking remains significantly higher for Māori (31.4%) and Pacific Islander (22.4%) populations compared with the general population. Māori were 2.8 times as likely to be current smokers and Pacific adults 1.7 more likely than the general population.

Australia and New Zealand are both members of the World Health Organisation (WHO) Framework Convention on Tobacco Control which aims to implement measures to reduce tobacco consumption. The association between cigarette smoking and Age-related macular degeneration (AMD) is well established. Other eye conditions considered to be smoking-related ocular morbidities include inflammatory eye disease and Graves' ophthalmopathy, vascular diseases, dry-eye syndrome, and contact lens–related keratitis.

Smoking prevalence is also higher in other groups including culturally and linguistically diverse populations, people experiencing homelessness, people with lower socioeconomic status, prison populations, users of other drugs, and lesbian, gay, bisexual, trans, queer and intersex (LGBTQI) people.

### 2.1.2 Impact of e-cigarettes

In 2019 prevalence data on e-cigarette usage in Australia showed use has increased significantly over the last six years:

- 11% of those aged 14 years and over had ever used e-cigarettes.
  - 60% reported using e-cigarettes once or twice only.
  - 2.0% (equivalent to 412,000 people) reported daily, weekly or monthly use.
  - 1.1% (equivalent to 227,000 people) reported daily.

There is insufficient evidence and no clinical trials to ascertain the health impacts of long-term use of e-cigarettes. Preliminary data, although inconclusive, indicates likelihood of relapsing is higher for former smokers using e-cigarettes than for those who had not. The lack of regulation and manufacturing standards has intensified confusion and uncertainty around components of e-cigarettes. Unregulated levels of toxicity, inconsistent labelling, and...
lack of clarity around actual content and concentrations has resulted in potentially harmful and widely varying ingredients.\textsuperscript{13} As testimony to the unknown harms associated with e-cigarettes, the TGA recently announced that vapouriser (liquid) nicotine can be prescribed as a second-line cessation aide for a medically supervised cessation attempt using e-cigarettes. Please note the Therapeutic Goods Administration has not approved any e-cigarettes to help people quit smoking.\textsuperscript{14}

Whilst researchers acknowledge biases in the data on tobacco and e-cigarettes, prevalence estimates of e-cigarette usage is low\textsuperscript{15}.

- 1\% of Aboriginal and Torres Strait Islander adults currently use e-cigarettes.
- a total of 8\% have ever used e-cigarettes.
- use of e-cigarettes containing nicotine is also at a low prevalence (3\% in the past year).
- e-cigarette use is most common in younger adults and in urban and regional (compared to remote) areas, which may be a function of access.

### 2.2 Awareness of risks associated with smoking

Whilst patient awareness of the general risks associated with smoking is high, awareness of the risks related to eye disease\textsuperscript{16} vision loss and delayed surgical healing are much lower.

#### 2.2.1 Age-related macular degeneration

AMD is a leading cause of blindness and causes irreversible loss of central vision.

Smoking and the greater number of pack-years smoked increases the risk of developing advanced AMD\textsuperscript{17} and progression of age-related macular degeneration (AMD)\textsuperscript{18}. Evidence for an association between smoking and nuclear cataract is confirmed in the 2004 US Surgeon General Report.\textsuperscript{19} This has important health care implications because smoking is a modifiable behaviour. In addition, smoking cessation even in very old age groups, has been shown to be protective against AMD\textsuperscript{20}. Passive smoking has also shown to be associated with a higher risk of developing advanced AMD.\textsuperscript{21}


\textsuperscript{15} Thurber, K, Walker, J, Maddox, R, Marmor, A, Heris, C, Banks, E, Lovett, R. A Review of evidence on the prevalence and trends in cigarette and e-cigarette use by Aboriginal and Torres Strait Islander youth and adults http://hdl.handle.net/1885/210669

\textsuperscript{16} Asfar T, Lam BL, Lee DJ. Smoking causes blindness: time for eye care professionals to join the fight against tobacco. Invest Ophthalmol Vis Sci. [Research Support, U.S. Gov't, P.H.S.


Smokers have a 3-to-5-fold increased risk of development of advanced AMD. This finding was the basis of successful lobbying of the government to include “Smoking Causes Blindness” warning labels on cigarette packaging from March 2007, which has increased knowledge, amongst smokers, of the harmful effects of smoking on the eye.

Emerging evidence from the US has found patients who continue to smoke following the commencement of treatment for wet AMD do not respond as well to treatment as those who stop smoking, whereas outcomes for those who quit smoking at the commencement of treatment are almost equivalent to those for non-smokers.22

### 2.2.2 Cataract

Several modifiable risk factors have been identified for nuclear cataract, cortical cataract, and posterior subcapsular cataract (PSC), including smoking, diabetes, and steroid medications.23

#### 2.2.3 Retino-vascular disease and diabetic retinopathy

Central vein occlusions and branch retinal vein occlusions have been associated with smoking, highlighting smoking as a risk factor for these conditions.24 The effects of smoking on Diabetic Retinopathy have not been clearly demonstrated in studies to date. Cessation of smoking should still be encouraged due to benefits on overall health and mortality.

#### 2.2.4 Inflammatory eye disease

Evidence indicates smokers are both more likely to develop ocular inflammation and to have more severe disease with poorer vision at diagnosis and a higher risk of recurrent disease compared to non-smokers.25 26 27 28

#### 2.2.5 Thyroid Eye Disease

The literature provides evidence for an association between smoking and thyroid eye disease (TED) with worse outcomes for current smokers in terms of both disease progression and impact of treatment.29 New Zealand research highlights gender and smoking status as risk factors for TED with Māori more likely to develop TED (a finding directly explained by smoking). It is estimated that a 28.1% reduction in TED incidence in New Zealand could be expected through smoking elimination smoking.30

---

22 Smoking and your risk MDFA Website at: [https://www.mdfoundation.com.au/content/smoking-risks](https://www.mdfoundation.com.au/content/smoking-risks)
30 Angelo, L, Niederer, R, Hart, R. Thyroid Eye Disease in New Zealand. Interaction between ethnicity and smoking status. NZ MJ vol 133 No. 1526 December 2020
3. Implications for management and treatment of smokers at risk of eye health conditions or vision loss

Recommended best practice is for ophthalmologists to integrate smoking cessation treatment in the standard care of patients. This may involve upskilling to provide effective clinical management to best provide advice on the risks and potential harms associated with smoking and e-cigarettes as well as strategies on cessation. This may involve increased knowledge of screening and Brief Interventions\textsuperscript{31}, cessation options and pharmacotherapies and/or appropriate referral pathways. Ophthalmology practices could consider implementing systems to track smoking status and provision of offers of support, referral to Quitline and General Practitioners (GPs).


1. Ask (do you smoke or vape? and record response)
2. Advise (risk to eye health and the best approach to quitting, combining behavioural intervention with pharmacotherapy, as appropriate)
3. Help (refer to Quitline and advise to return to GP)

Treating clinicians can offer patients appropriate information and advice for seeking further help from sources such as their GPs, Aboriginal, Community Controlled Health Services (ACCHOs) or the smoking Quitline or provide Australian Health Department endorsed information resources.

Some peak health organisations are dovetailing with national smoking cessation strategies to increase awareness of the link between smoking and eye health and also provide a call to action for current smokers. Macular Disease Foundation Australia (MDFA) includes a smoking risk factor question in its online macular disease self-assessment quiz, ‘Check My Macula’ \texttt{www.checkmymacula.com.au}’.

Those who self-identify as having smoked in the previous 2 years are directed to the Quit website \texttt{(https://www.quit.org.au/)}.

For further information on appropriate smoking cessation strategies and strategies to prevent uptake among younger people, reference the following:

- RACGP Supporting Smoking Cessation: A guide for health professionals
- National Preventative Health Strategy
- MDFA
- Australian Government Department of Health Therapeutics Goods Administration
- NZ Ministry of Health

\textsuperscript{31} RACGP Smoking Cessation Guidelines: \texttt{https://www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/supporting-smoking-cessation}
4. Record of Amendments

<table>
<thead>
<tr>
<th>Page</th>
<th>Details of amendment</th>
<th>Date approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire document</td>
<td>Created</td>
<td>July 2021</td>
</tr>
</tbody>
</table>