

# **Public Health Amendment (Prevention of Sale of Smoking Products to Under-Age Persons) Bill 2018 (Tas) – Full Submission**

*Legislative Council, Tasmanian Parliament*

*- 6 August 2019*

## **Introductory Remarks**

My name is Dr Adrian Reynolds, and I am here representing Australian Medical Association Tasmania, in support of the T21 (MLSA21) Bill. The AMA thanks you for the opportunity to address you on this very important issue.

My credentials relevant to the Bill are as follows. I am an Addiction Medicine specialist and the immediate Past President of the Chapter of Addiction Medicine, Royal Australasian College of Physicians. I have an honorary appointment as Clinical Associate Professor with the University of Tasmania Medical School. I am the Clinical Director of the Tasmanian Alcohol and Drug Services. I am a member of the Tasmanian Tobacco Control Coalition. I have in the past, worked in various roles with six agencies of United Nations, including Regional Adviser in Health Promotion; Alcohol, Drugs & Tobacco & Mental Health in the Western Pacific Regional Office of the World Health Organization, Philippines. In that role, I actively engaged with Member States of the Western Pacific Region in their tobacco control planning.

The AMA Tasmania wishes to convey its strong support for this Bill as part of a comprehensive mix of tobacco control policies and actions, noting that the AMA has been consistently supportive of broad-based policy reform in the area of tobacco control.

In our daily professional roles as doctors, we witness smokers, many of them in their middle as well as later years of life, struggling with every breath they take, and we witness how traumatic this is for family members and other loved ones to watch. I can tell you; it is also traumatic for us, watching this struggle for life.

This is why the AMA and its members are so passionate about addressing the trauma and the agony of tobacco-related disease in a progressive, legislative empowered manner.

## **An Addiction Medicine Perspective**

As a doctor specialising in Addiction Medicine, I am particularly aware and concerned about the dire health outcomes associated with smoking but just as significantly, I am aware that addiction prevents most smokers from quitting and that most smokers try to stop again and again but are simply unable to do so. Even when smokers do manage to stop, a large majority quickly and repeatedly relapse demonstrating the hold that nicotine addiction can have on a smoker's capability to exercise true autonomy and self-determination. This is why any measure that can reduce access, prevent experimentation with and uptake of smoking in adolescents and young adults is so important. It is also why providing ready access to the treatment of nicotine

dependence is an important role and responsibility for those engaged in health policy and health system design as it is for health professionals in delivering this treatment.

Once addicted to a substance; citizens can't choose not to be addicted just as they can't choose not to have a wide range of other serious medical conditions. If smoking was a genuine informed adult choice that is freely made and if education was all that is needed, State and National smoking rates would likely have plummeted long ago when the evidence of substantial health harm emerged, particularly given that up to 90% of smokers regret ever starting. We would likely have closer to 7,000 smokers rather than approximately 70,000 smokers in Tasmania.

While sociological and commercial factors play an important role in shaping the use of unhealthy commodities including tobacco and other smoking (to which we can now add 'vaping') products, smokers would be more able to make a genuine free choice to stop smoking when recognising the benefit-risk-harm calculus is unfavourable, if there were no addictive substances in the product (nicotine) and if industry was not permitted to engineer tobacco products in ways that increase their addictiveness.

Some of you may argue this Bill is a step too far in discrimination based on age. We disagree.

You might ask smokers how they feel about the role of the State in protecting young people from ever beginning to smoke and whether they feel this would constitute an unconscionable infringement on liberty or whether they feel the real infringement on their liberty occurred when the state and the community in which they lived and grew as young people, failed to protect them from ever taking up smoking and losing their liberty through addiction. That said, I recognise values and theoretical frameworks in relation to liberty, human rights and related ethical considerations are complex and highly contested in the literature.

The AMA was of course supportive of the Tobacco Free Generation proposal<sup>1</sup> when introduced into the parliament by the Honourable Ivan Dean, noting as others did at the time that laws that actively support smoking when young people reach the age of 18 years, sends a clear and strong message to youth that smoking is a normal and even desirable adult behaviour, while removing a tobacco Industry and retailer choice to be able to sell tobacco products to young people of today and as they grow older would send a countervailing message that smoking is not a rite of passage and not a normal activity at any age.

However, since this tobacco control initiative was unable to gain necessary backing in the Parliament, we now turn our minds to and are supportive of this alternative proposition which focuses on providing greater protections to children and young adults from the lawful retail supply of and easy access to tobacco products.

***I emphasise that what follows below is my own Addiction Medicine based and medical professional analysis of matters, pertaining to the T21 Bill.***

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<sup>1</sup> Khoo D, Chiam Y, Ng P, BerrickAJ & Koong HN. (2010) Phasing-out tobacco: Proposal to deny access to tobacco for those born from 2000. *Tob Control* 19:355-360.

## **The Evidence & the Rationale for T21**

My health professional and research colleagues will present the evidence in support of the T21 Bill today. Given that my medical specialty is Addiction Medicine, I will focus on matters related to addiction, salient neurobiological research findings, ethical considerations and the application of this scientific evidence to the 'choices' and 'responsibilities' arguments in relation to young people's uptake of smoking.

More specifically, I present evidence and arguments in support of '*regulating to eliminate choice*' among retailers to sell and to profit from the sale of one of the most dangerous articles of commerce available in the Australian market place. I argue this, in turn, will substantially reduce the opportunity and likelihood that adolescents and young adults will begin smoking and continue to smoke.

A key issue arising from a decision to increase the minimum legal age of tobacco and other smoking product sales to young people under 21 years of age relates to society's responsibility to protect children and young people from avoidable harm. The idea of protecting our youth and promoting their best health and safety interests is one that is deeply embedded in Australian culture, as it is in other countries and cultures.

The evidence is irrefutable - tobacco and other smoking products present a major threat to future health and well-being of our children. No caring and suitably knowledgeable parent would want their child to ever begin smoking, yet alone in their childhood or early adult years.

However, the argument is made in effect by some libertarians that civil society, can't and indeed, should not interfere or make decisions for their children when they reach the age of 18 years and that on reaching this age, young people become primarily responsible for their own choices ethically and legally, and per force, the outcomes of those decisions. I will discuss consequential issues of concern that arise from this viewpoint.

This libertarian perspective does not appear to consider or give adequate if any weight to biological, developmental health, sociological and pathophysiological considerations and their impacts of human decision making and its consequences. A commercially motivated libertarian view may place emphasis on a particular interpretation of liberty rights and on what is lawful and may argue simplistically (and with curious moral compass from where I stand) that if something is lawful, there is no role for the State in regulation or in any way interfering with the free market and its ability to make available, promote and maximise the sale of its articles of commerce, regardless of the consequential and significant population-level danger and completed harm. By inference, that is the demonstrated viewpoint of the unhealthy commodity industries and parties that support them. I strongly reject those perspectives.

Turning to the 'choices' issue, we might ask: what is required for any human being to make a genuinely well-informed, free choice, particularly one that will impact on their present and future health, safety and well-being and to the safety and well-being of others?

- Relevant and adequate knowledge and understanding of the choices and their likely impact?
- Brain maturity and normal brain function in order to process information in a coherent, logical, and sufficiently well considered way?

- Adequate physical, financial, social, emotional, cultural, and spiritual resources that support good decision-making and in ways that protect and promote an individual's optimum health, safety and well-being?
- What about freedom from persuasion even coercion by various means including commercial advertising and promotion designed to make available, accessible and attractive an unhealthy even dangerous commodity or service while minimising or denying risk or harm?
- In the case of a psychoactive drug like nicotine that is highly addictive – what about freedom from craving, a sense of compulsion, impairment or loss of control over use, leading to continuing use in the face of significant risk or harm, noting that the presence and severity of addiction might be gauged by the salience of use of that substance, the level of impairment or loss of control over its use (how difficult is it to stop and stay stopped?) and the presence and severity of withdrawal symptoms.

Early uptake of smoking is associated with increased risk of longer-term smoking and related harms.

An earlier age of initiation is associated with greater intensity and persistence of smoking beyond adolescence and through adulthood. tobacco cessation among adolescents is challenging. Despite a lower frequency and intensity of use in adolescents compared with adults, the rates of cessation among adolescents are low, and most adolescents experience difficulty in quitting (Mermelstein, 2003<sup>2</sup>; O'Loughlin et al., 2009<sup>3</sup>).

The developmental challenges of adolescence may also interfere with an adolescent smoker's ability to quit. These challenges include the adolescent's stage of cognitive development and ability to problem-solve and maintain coping skills under periods of emotional arousal, particularly arousal brought on during nicotine withdrawal, as well as other age-based challenges that come with an adolescent's lack of control over his or her environment and lack of ability to modify cues that may promote smoking (Curry et al., 2009<sup>4</sup>). Thus, not all adolescents who smoke may have the cognitive, environmental, and emotional resources to make cessation attempts successful. Cessation attempts are also less successful among adolescents who smoke more or who smoke daily (Bancej et al., 2007<sup>5</sup>).

In relation to this question of true autonomy and capacity to make genuinely free and rational decisions about how to lead one's life and then act on them, Griffiths and Webb (2015) observe this requires:

Information, imagination, critical reasoning abilities, literacy and numeracy skills and personal attributes (self-confidence, courage, forbearance, self-control), which can exist only

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<sup>2</sup> Mermelstein, R. 2003. Teen smoking cessation. *Tobacco Control* 12(Suppl 1):i25–i34.

<sup>3</sup> O'Loughlin, J., A. Gervais, E. Dugas, and G. Meshefedjian. 2009. Milestones in the process of cessation among novice adolescent smokers. *American Journal of Public Health* 99(3):499–504.

<sup>4</sup> Curry, S. J., R. J. Mermelstein, and A. K. Sporer. 2009. Therapy for specific problems: Youth tobacco cessation. *Annual Review of Psychology* 60:229–255.

<sup>5</sup> Bancej, C., J. O'Loughlin, R. W. Platt, G. Paradis, and A. Gervais. 2007. Smoking cessation attempts among adolescent smokers: A systematic review of prevalence studies. *Tobacco Control* 16(6):e8.

with the appropriate social and institutional protections and supports. It also requires independence from internal and external sources of domination and control. Concern for individual autonomy may therefore justify interventions that foster these abilities and conditions.

Autonomy is not something that individuals have by default they add, just so long as no one interferes with them.

## **Drug Dependence Diminishes Free Choice**

Notwithstanding a *historical 'commercial choice'* of the tobacco industry to glamorise, promote, normalise, socialise, persuade and enable the uptake and continuance of smoking in young people, primary responsibility for any of those young people's later tragic life outcomes has so often been sheeted home to the 'choices' of the smoker, even when the smoker's decision making may already be impaired and their human agency diminished by nicotine dependence, in the context of an incompletely developed brain. To emphasise the point once again, drug dependence ('addiction') is characteristically accompanied by craving, impairment or loss of control over use and continuing use in the face of observable risk or harm, in order to mitigate withdrawal related 'stress' and various physical symptoms.

The reinforcing effects of nicotine are central to the development of dependence and continued tobacco use. Adolescent brains have a heightened sensitivity to the rewarding effects of nicotine, and this sensitivity diminishes with age (Adriani et al., 2006<sup>6</sup>; Jamner et al., 2003<sup>7</sup>).

Although most logical reasoning abilities are developed by age 16 (Steinberg et al., 2009<sup>8</sup>), the fact that some psychosocial capacities of adolescents are still immature, including delay of gratification, impulse control, emotional regulation, and the ability to resist social influences, may undermine the plans and efforts needed to resist tobacco use in the presence of cues to use. Steinberg (2007<sup>9</sup>) suggests that when adolescents are emotionally aroused, their cognitive control mechanisms are further compromised.

Nicotine exposure also affects the adolescent brain differently than the adult brain. Individuals exposed to nicotine during adolescence are more likely to experience the symptoms of a protracted abstinence syndrome than are individuals exposed to nicotine only in adulthood; thus, adolescents who use tobacco products are more at risk for continuation

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<sup>6</sup> Adriani, W., V. Deroche-Gamonet, M. Le Moal, G. Laviola, and P. V. Piazza. 2006. Preexposure during or following adolescence differently affects nicotine-rewarding properties in adult rats. *Psychopharmacology* 184(3–4):382–390.

<sup>7</sup> Jamner, L. D., C. K. Whalen, S. E. Loughlin, R. Mermelstein, J. Audrain-McGovern, S. Krishnan-Sarin, J. K. Worden, and F. M. Leslie. 2003. Tobacco use across the formative years: A road map to developmental vulnerabilities. *Nicotine & Tobacco Research* 5(Suppl 1):S71–S87.

<sup>8</sup> Steinberg, L., E. Cauffman, J. Woolard, S. Graham, and M. Banich. 2009. Are adolescents less mature than adults?: Minors' access to abortion, the juvenile death penalty, and the alleged APA "flip-flop." *American Psychologist* 64(7):583–594.

<sup>9</sup> Steinberg, L., and K. C. Monahan. 2007. Age differences in resistance to peer influence. *Developmental Psychology* 43(6):1531–1543.

and relapse than individuals who started to use tobacco products in adulthood (Lydon et al., 2014<sup>10</sup>).

We are all aware of the adverse impacts that nicotine dependence can have on the smoker's daily routine and lives and ultimately, their well-being and life course. Smokers must regularly interrupt their daily routine at work, home or elsewhere to find a place where they can smoke, given the cultural and regulatory shifts in society requiring smoke free environments. Smoke-free environments are important because they prompt quit attempts which can in turn increase the rate of successful quitting across the population over time and smoke free environments protect non-smokers from tobacco smoke exposure.

While many members of the community may not be fully apprised of the commonality and severity of harm associated with the unhealthy commodities or if they are, not able to translate this knowledge into appropriate and sustained behavioural change, the medical profession is cognisant and naturally highly concerned that smokers have a two in three chance of dying from tobacco-related causes, of losing ten years of life expectancy and of living with serious suffering and disability for many years before they die.

As a member of the medical profession I say to you all, these are extraordinary statistics. I say to you all, it is an exceedingly poor reflection on us as a nation that we have been so willing to ignore this level of avoidable harm over so many decades and to give priority to the commercial interests and to the complaints of the tobacco industry and retailers about red tape, over the health and safety of the community. Australian Tobacco and other smoking products are indeed highly dangerous articles of commerce.

As I witness on a daily basis among our patients, drug dependence and the associated loss of control and salience of maintaining access to and use of the drug in the face of risk and completed harm is axiomatically accompanied by reduced life choices, reduced life opportunities, reduced life chances and increased disparities in health, social and economic well-being.

While young people attaining the age of 18 years are expected to take full responsibility for their health influencing actions and the benefits and harms that arise, industry reaps the financial benefits but neither accepts nor is held accountable for the poor (health harming) commercial choices that it makes. One could be forgiven for concluding this is seriously at odds with common values in Australian society, and with the intent of our laws, which are among other objectives, designed to protect citizens from potential harm done by others.

The T21 proposal goes some way to addressing this currently inequitable and scientifically unsupportable situation in relation to the supply of tobacco products to young people.

I will return to this issue after discussing salient neurobiological evidence.

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<sup>10</sup>Lydon, D. M., S. J. Wilson, A. Child, and C. F. Geier. 2014. Adolescent brain maturation and smoking: What we know and where we're headed. *Neuroscience and Biobehavioral Reviews* 45:323–342.

## Young People Underestimate Risk of Addiction

Adolescents are the age group most likely to engage in behaviours such as dangerous driving, unprotected sex, and substance abuse (Steinberg, 2005<sup>11</sup>). This occurs on a backdrop rapid neurobiological development, further shaped by psychosocial factors including the commercial determinants of health, in a way that predisposes adolescents to spontaneous, emotionally-driven behaviours. This may include dysfunctional, hazardous, harmful and unsanctioned use of alcohol, tobacco and other substances.

Early substance use predicts the use of other drugs. Early uptake of smoking may increase the relative risk of consuming alcohol, cannabis, and other illicit or prescription drugs in an unsanctioned context (Kandel et al, 1992<sup>12</sup>; CDC, 1994<sup>13</sup>; Ellickson et al, 2001<sup>14</sup>; WHO, 2019<sup>15</sup>). As noted, adolescence is also a time typically associated with high levels of risk-taking and sensation-seeking behaviours, and increased emphasis on and valuing of peer relationships, adding to the opportunities or triggers for experimenting with drugs (Steinberg, 2008<sup>16</sup>).

Adolescents and young adults typically underestimate the addictive potential of nicotine – as many as nine in ten may predict they will quit within a year, although perhaps only a third will succeed during that time frame (CDC, 1992<sup>17</sup>). This is well understood by the tobacco industry, which has aggressively promoted cigarettes to children over many decades, with increasingly greater focus on children living in low income countries as high-income countries have introduced progressively more comprehensive and stringent tobacco control measures. This is no morally robust industry. Legislators ought not concern themselves about nebulous claims of unintended consequences on industry of MSLA21, noting that nothing could be worse than the very visible though preventable consequences of smoking.

The implication is that adolescents are a group that require special protection, both from smoking initiation and from targeting and grooming by the tobacco industry (TI) as a security source of guaranteed TI income into the future (van der Eijk, 2015<sup>18</sup>).

The proportion of dependent users is, like illegal drugs, considerably lower for alcohol than for tobacco; an estimated 2–9% of adult alcohol users are alcohol dependent (Rehm, et al., 2009<sup>19</sup>) whereas for tobacco this figure is closer to 90%. Since both drugs are legally available in most countries, this disparity likely reflects among other possible explanations, variations in the addictiveness of nicotine versus alcohol, the mode of administration (inhalation versus oral), and social perceptions regarding the appropriate uses of tobacco and alcohol (van der Eijk, 2015).

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<sup>11</sup> Steinberg L (2005) Cognitive and affective development in adolescence. *Trends Cognit Sci* 9:69–74.

<sup>12</sup> Kandel DB, Yamaguchi K, Chen K (1992) Stages of progression in drug involvement from adolescence to adulthood: Further evidence for the gateway theory. *J Stud Alcohol* 53:447–457.

<sup>13</sup> CDC (1994), *Preventing Tobacco Use Among Young People—A Report of the Surgeon General*.

<sup>14</sup> Ellickson PL, Tucker JS, Klein DJ. (2001 Jun). High-risk behaviors associated with early smoking: results from a 5-year follow-up. *J Adolesc Health*.28(6):465-73.

<sup>15</sup>WHO (2018) *Tobacco Free Initiative-Health effects of smoking among young people*.

[https://www.who.int/tobacco/research/youth/health\\_effects/en/](https://www.who.int/tobacco/research/youth/health_effects/en/) (accessed 6 August 2019)

<sup>16</sup> Steinberg LA (2008). Neurobehavioral perspective on adolescent risk-taking. *Dev Rev* 28:78-106.

<sup>17</sup> Centers for Disease Control (1992). *Recent Trends in Adolescent Smoking, Smoking-Uptake Correlates, and Expectations About the Future*. Department of Health and Human Services, USA.

<sup>18</sup> Yvette van der Eijk (2015-01-19). *An Ethical Framework for Tobacco Control Policy*. ScholarBank@NUS Repository. <https://scholarbank.nus.edu.sg/handle/10635/120428>.

<sup>19</sup> Rehm J, Mathers C, Popova S, et al. (2009). Alcohol and global health 1: Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *Lancet* 373:2223-2233.

The effects of prolonged drug use on the prefrontal cortex may further impair cognitive capacity, which could explain, to some extent, why most addictions develop before prefrontal development is complete. Hence, adolescents - as well as young adults under age 25 - are especially susceptible to smoking initiation and developing addictions to tobacco (van der Eijk, 2015).

In summary, there is an important link between adolescent age and a heightened susceptibility to developing addictions, that is reflected on both neurobiological and psychosocial levels. Psychosocially, adolescence is an introduction to the adult world, peer affiliations, and novel stimuli. Neurobiologically, adolescence is a sensitive developmental period for the prefrontal cortex, which means that, as in addiction, stress - and affect-driven responses are not properly inhibited (van der Eijk, 2015).

I will now describe how recent neurobiological research has uncovered changes in brain structure and function that underpin the difficulties which drug dependence presents to any individual in exercising informed free choice and self-determination.

## **What Does Neuroscience Research Tell us about Addiction?**

A great deal has been learned through neurobiological research during the past several decades about the brain and its growth and development, before birth through childhood, to adolescence and finally, into early 'adulthood'. This knowledge has significant potential but is yet to meaningfully influence public policies aimed at promoting and protecting the best health and social interests of young people.

In the following section, I outline a number of important neurobiological findings (including direct excerpts) and analyses from key reviews of the literature such as Hall et al (2009), Arain et al (2013) and van der Eijk (2015).

Hall et al (2009<sup>20</sup>) were commissioned by the Australian Ministerial Council on Drug Strategy to review the neurobiological research evidence related to addiction and among other findings, showed how the repeated use of addictive drugs can produce long-lasting changes in neural circuits that are involved in:

- Reward and motivation
- Affect (e.g. withdrawal)
- Learning and memory (e.g. the ability for memories to trigger relapse)
- Responses to stress
- **Decision-making** (e.g. the ability to inhibit impulses or urges to use drugs)

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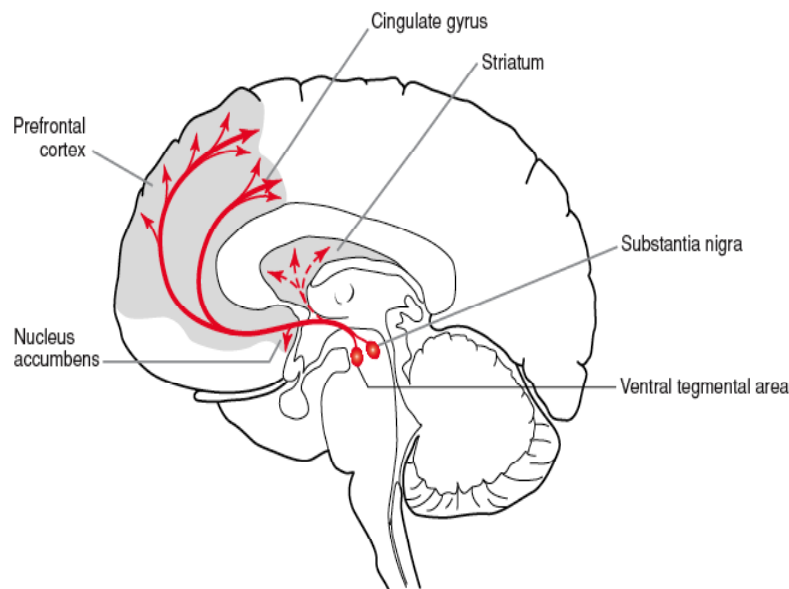
<sup>20</sup>Hall, W., Carter A., Capps B. and Daghli M. NSW Health and The Ministerial Council on Drug Strategy. *Neurobiological Research on Addiction. A Review of the Scientific, Public Health and Social Policy Implications for Australia*. Final Report, 30th January 2009.



It is well established that the brain undergoes a “rewiring” process that is not complete until approximately 25 years of age (Brown and Tappert, 2008<sup>21</sup>; Gavin et al, 2009<sup>22</sup>). This finding has improved our basic understanding regarding adolescent brain maturation and behaviours observed in late adolescence and early adulthood.

Spear (2000<sup>23</sup>; 2002<sup>24</sup>) notes that among the prominent brain transformations of adolescence are alterations in the prefrontal cortex, limbic brain areas, and their dopamine input, systems that are sensitive to stressors and form part of the neural circuitry modulating the motivational value of drugs and other reinforcing stimuli.

Based on the evidence of brain maturity adduced, Hall et al (2009) make two key observations. First, as the regions of the brain responsible for impulse inhibition and reasoning about consequences are not fully developed, adolescents are more likely to engage in risky behaviours such as drug use. They find it more difficult to inhibit impulses, are more likely to engage in novelty seeking, and suffer from a temporal myopia that prevents a full appreciation of the future consequences of their behaviour (Volkow and Li, 2004; Walker, 2008<sup>25</sup>).



SCHEMATIC DIAGRAM OF THE BRAIN'S CENTRAL REWARD PATHWAY. DOPAMINERGIC NEURONS IN THE VTA PROJECT FROM THE MIDBRAIN TO THE NACC AND FOREBRAIN

Of importance is the finding that the frontal lobes are involved in movement control, problem solving, spontaneity, memory, language, initiation, judgment, future perspective thinking, sensation seeking, delay of gratification, impulse control, emotional regulation, peer susceptibility and conformity, the ability to resist social influences and other social and sexual behaviour. The prefrontal cortex, which is implicated in drug-seeking behaviour, remains in a

<sup>21</sup> Brown S and Tapert S (2004) Adolescence and the trajectory of alcohol use: basic to clinical studies. *Annals NY Acad Sci* 1021: 234–44.

<sup>22</sup> Gavin L, MacKay AP, Brown K, et al; Centers for Disease Control and Prevention (CDC). Sexual and reproductive health of persons aged 10–24 years – United States, 2002–2007. *MMWR Surveill Summ.* 2009;58(6):1–58.

<sup>23</sup> Spear, LP. The adolescent brain and age-related behavioral manifestations. *Neurosci Biobehav Rev.* 2000 Jun;24(4):417-63.

<sup>24</sup> Spear, LP. The adolescent brain and the college drinker: biological basis of propensity to use and misuse alcohol. *J Stud Alcohol Suppl.* 2002 Mar;(14):71-81.

<sup>25</sup> Walker, T. (2008) 'Giving addicts their drug of choice: The problem of consent', *Bioethics* 22, pp. 314-20.

process of continuous reconstruction, consolidation, and maturation during adolescence (Arain et al, 2013<sup>26</sup>).

Neurobiological research has provided a scientific basis for redefining adolescence as a stage of neurobiological development that involves and that is shaped by physical, cognitive, and social-emotional maturation, spanning the ages of 10 to 24 years of age (Gavin et al, 2009; Sylwester, 2007<sup>27</sup>).

Nearly all drugs of addiction, directly or indirectly, increase the release of dopamine into the limbic regions (e.g. nucleus accumbens, amygdala and hippocampus) and the prefrontal cortex (e.g. the anterior cingulate gyrus and orbitofrontal cortex) (Hall et al, 2009). These regions mediate different aspects of addiction: limbic regions, such as the amygdala and hippocampus, are involved in conditioned learning in addiction, whereas the prefrontal cortex mediates emotional responses to drugs and control over drug use, such as the ability to inhibit strong urges to use drugs. Research undertaken at the beginning of the 21st Century raised our awareness of natural delays in attaining full brain maturity until at least the early 20's of life.

The neuroanatomical connections between the amygdala and PFC – the circuit responsible for cognitive control over emotions – are not fully developed until adult life (Cunningham et al., 2002<sup>28</sup>). The prefrontal cortex (PFC) does not fully mature until the early 20's (Gogtay et al., 2004<sup>29</sup>, Brown and Tappert, 2008).

### The Adolescent Brain is a Work in Progress

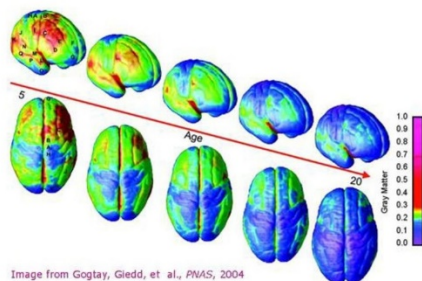
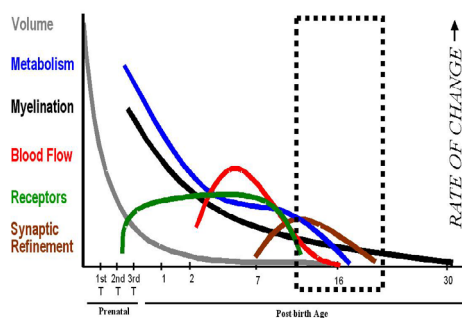


Image from Gogtay, Giedd, et al., *PNAS*, 2004

- Gogtay et al, 2004



- Brown & Tappert, 2008

As shown in the figure above (Brown and Tappert, 2008), substantial neuromaturation continues throughout adolescence. Structural magnetic resonance imaging (MRI) studies have described disproportionate growth in the hippocampal region and decreases in gray matter volume and density during adolescence, particularly in frontal and parietal brain regions, which

<sup>26</sup> Arain M, Haque M, Johal L, Mathur P, Nel W, Rais A, Sandhu R and Sharma S. Maturation of the Adolescent Brain. *Neuropsychiatric Disease and Treatment*, 2013:9 449-461.

<sup>27</sup> Sylwester R. *The Adolescent Brain: Reaching for Autonomy*. Newbury Park (CA): Corwin Press; 2007.

<sup>28</sup> Cunningham MG, Bhattacharyya S, Benes FM (2002) Amygdalo-cortical sprouting continues into early adulthood: Implications for the development of normal and abnormal function during adolescence. *J Comp Neurol* 453:116-130.

<sup>29</sup> Gogtay N, Giedd JN, Lusk L, et al. (2004) Dynamic mapping of human cortical development during childhood through early adulthood. *PNAS* 101:8174–8179.

underlies maturation of cognitive processing (Giedd et al, 1999<sup>30</sup>; Jernigan et al, 1991<sup>31</sup>; Giedd et al, 1996<sup>32</sup>). Neuronal myelination continues throughout adolescence and young adulthood and is thought to be related to increases in cognitive efficiency (Sowell et al, 2001<sup>33</sup>; Courchesne et al, 2000<sup>34</sup>). Stages of increased cerebral blood flow support periods of rapid brain growth (Epstein, 1999<sup>35</sup>). Synaptic pruning occurs through mid-adolescence, varies in relation to environmental stimulation, and results in greater efficiency, as evidenced by decreased energy requirements and diminished glucose metabolism (Huttenlocher and Dabholkar, 1997<sup>36</sup>; Chugani, 1998<sup>37</sup>). Changes in functional regional activity become increasingly evident and are indicative of regional specialization and maturation (Casey et al, 2000<sup>38</sup>).

The nucleus accumbens (NAcc) is a critical part of the neural system that is involved in learning of reward and motivation. The increase in dopamine released into the nucleus accumbens in response to drug use signals that it is a salient event that should be repeated. Drugs of addiction act upon this natural reward pathway to motivate their repeated use. Learned drug associations can be cues for internal states of craving that lead to relapse.

As outlined already, we now know a great deal about the processes and sequences of brain maturation. We know the prefrontal and other cortical networks that are so critical for judgment and self-regulation do not fully mature until people reach 21 to 25 years of age. As a consequence, the adolescent brain is much less able to cognitively modulate strong desires and emotions.

Longitudinal MRI studies have demonstrated there is a surge of neuronal growth occurring just before puberty (Giedd et al, 1999<sup>39</sup>; Baird et al, 1999<sup>40</sup>), resembling the rapid growth that occurs during infancy. There is a thickening of the grey matter.

Following neuronal proliferation, the brain rewires itself from the onset of puberty up until 24 years old, especially in the prefrontal cortex. The rewiring is accomplished by dendritic pruning and myelination. Dendritic pruning eradicates unused synapses and is generally considered a

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<sup>30</sup> Giedd JN et al. 1999. Brain development during childhood and adolescence: a longitudinal MRI study. *Nature Neurosci.* 2: 861-863.

<sup>31</sup> Jernigan TL et al. 1991. Maturation of human cerebrum observed in vivo during adolescence. *Brain* 114(Pt. 5): 2037-2049.

<sup>32</sup> Giedd JN et al. 1996. Quantitative magnetic resonance imaging of human brain development: ages 4-18. *Cereb. Cortex*, 6: 551-560.

<sup>33</sup> Sowell ER et al. 2001. Improved memory functioning and frontal lobe maturation between childhood and adolescence: a structural MRI study. *J. Int. Neuropsychol. Soc.* 7: 312-322.

<sup>34</sup> Courchesne E et al. 2000. Normal brain development and aging: quantitative analysis at in vivo MR imaging in healthy volunteers. *Radiology* 216: 672-682.

<sup>35</sup> Epstein HT 1999. Stages of increased cerebral blood flow accompany stages of rapid brain growth. *Brain Dev.* 21: 535-539.

<sup>36</sup> Huttenlocher PR & Dabholkar AS. 1997. Regional differences in synaptogenesis in human cerebral cortex. *J. Comp. Neurol.* 387: 167-178.

<sup>37</sup> Chugani HT 1998. A critical period of brain development: studies of cerebral glucose utilization with PET. *Prev. Med.* 27: 184-188.

<sup>38</sup> Casey BJ, Giedd JN & Thomas KM. 2000. Structural and functional brain development and its relation to cognitive development. *Biol. Psychol.* 54: 241-257.

<sup>39</sup> Giedd JN, Blumenthal J, Jeffries NO, et al. Brain development during childhood and adolescence: a longitudinal MRI study. *Nat Neurosci.* 1999;2(10):861-863.

<sup>40</sup> Baird AA, Gruber SA, Fein DA, et al. Functional magnetic resonance imaging of facial affect recognition in children and adolescents. *J Am Acad Child Adolesc Psychiatry.* 1999;38(2):195-199.

beneficial process, whereas myelination increases the speed of impulse conduction across the brain's region-specific neurocircuitry. The myelination also optimizes the communication of information throughout the CNS and augments the speed of information processing. Thus, dendritic pruning and myelination are functionally very important for accomplishing efficient neurocybernetics in the adolescent brain (Arain et al, 2013).

During adolescence, the neurocircuitry strengthens and allows for multitasking, enhanced ability to solve problems, and the capability to process complex information. Furthermore, adolescent brain plasticity provides an opportunity to develop talents and lifelong interests; however, neurotoxic insult, trauma, chronic stress, drug abuse, and sedentary lifestyles may have a negative impact during this sensitive period of brain maturation (Frontline, 2009<sup>41</sup>; Dahl, 2003<sup>42</sup>).

The prefrontal cortex is one of the last regions of the brain to reach maturation, which explains why some adolescents exhibit behavioral immaturity. There are several executive functions of the human prefrontal cortex that remain under construction during adolescence. The fact that brain development is not complete until near the age of 25 years refers specifically to the development of the prefrontal cortex (Casey et al, 2008<sup>43</sup>).

MRI studies show that developmental processes tend to occur in the brain in a back-to-front pattern, hence, the prefrontal cortex develops last. These studies also show that teens have less white matter (myelin) in the frontal lobes compared to adults, and that myelin in the frontal lobes increases throughout adolescence (Giedd, 1999; Baird et al 1999; Giedd, 2004<sup>44</sup>). Increased myelin accompanies the development of important neurocircuitry, allowing for better flow of information between brain regions. (Walsh et al, 2004<sup>45</sup>).

The head of the National Institutes for Drug Addiction (NIDA) in the USA, Nora Volkow has remarked there are compelling arguments provided by neurobiology studies of addiction... for increasing the legal smoking age to 21 years, by which time the brain networks that underlie the capacity for self-regulation are more fully formed (Volkow et al, 2016 <sup>46</sup>).

Numerous other researchers have examined the developing brain and have observed the hind brain develops first and that the last region to mature is the forebrain (pre-frontal cortex),

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<sup>41</sup> Frontline: *Inside the Teenage Brain*, Arlington (TX): Public Broadcasting Service; 2002. Available from: <http://www.pbs.org/wgbh/pages/frontline/shows/teenbrain/>.

<sup>42</sup> Dahl RE. Beyond raging hormones: the tinderbox in the teenage brain. *Cerebrum*. 2003;5(3):7–22.

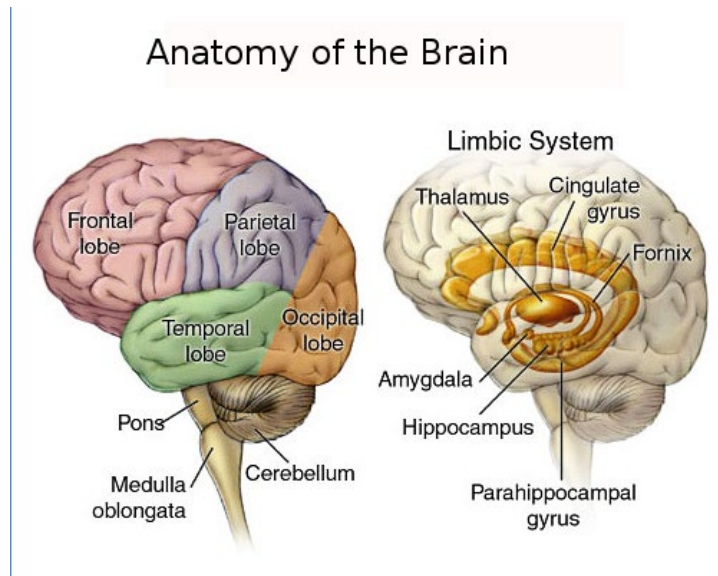
<sup>43</sup> Casey BJ, Jones RM, Hare TA. The adolescent brain. *Ann NY Acad Sci*. 2008;1124:111–126.

<sup>44</sup> Giedd JN. Structural magnetic resonance imaging of the adolescent brain. *Ann N Y Acad Sci*. 2004;1021:77–85.

<sup>45</sup> Walsh D, Bennett N. *Why Do They Act That Way? A Survival Guide to the Adolescent Brain for You and Your Teen*. New York: Simon and Schuster; 2004.

<sup>46</sup> Volkow, N, Koob GF, McLellan AT. Neurobiologic Advances from the Brain Disease Model of Addiction *N Engl J Med* 2016;374:363-71.

where the executive functions reside. The pre-frontal cortex (PFC) does not fully develop until individuals reach the age of approximately 25 years (Giedd, 2004<sup>47</sup>; Gogtay et al, 2004). The neuroanatomical connections between the amygdala and PFC – the circuit responsible for cognitive control over emotions – are not fully developed until then.



These findings have led to the concept of frontalization, whereby the prefrontal cortex develops in order to regulate the behavioral responses initiated by the limbic structures. During adolescence, white matter increases in the corpus callosum, the bundle of nerve fibers connecting the right and left hemispheres of the brain, which allows for efficient communication between the hemispheres and enables an individual to access a full array of analytical and creative strategies to respond to complex dilemmas that may arise in adolescent life. Hence, the role of experience is critical in developing the neurocircuitry that allows for increased cognitive control of the emotions and impulses of adolescence.

Areas of the brain Involved in human emotions, motivation and reward are important in regulating behaviours in adolescents and young adults.

The nucleus accumbens, a component of the brain's reward system located within the limbic system, is the area that processes information related to motivation and reward. Brain imaging has shown that the nucleus accumbens is highly sensitive in adolescents, sending out impulses to act when faced with the opportunity to obtain something desirable (Benes, 2001).<sup>48</sup> Adolescents are more vulnerable to nicotine, alcohol, and other drug addictions

<sup>47</sup> Gogtay N, Giedd JN, Lusk L, et al. (2004) Dynamic mapping of human cortical development during childhood through early adulthood. *PNAS* 101:8174–8179.

<sup>48</sup> Benes FM. *The development of the human frontal cortex: The maturation of neurotransmitter system and their interactions*. In: Nelson CA, Luciana M, editors. *Handbook of Developmental Cognitive Neuroscience*. Cambridge, MA: MIT Press; 2001:79–92.

because the limbic brain regions that govern impulse and motivation are not yet fully developed (CDC, 2004).<sup>49</sup>

Critical hormonal changes in puberty impact on brain development and related attraction to risky behaviours.

During puberty, the increases in estrogen and testosterone bind receptors in the limbic system, which not only stimulates sex drive, but also increases adolescents' emotional volatility and impulsivity. Changes in the brain's reward sensitivity that occur during puberty have also been explored. These changes are related to decreases in DA, a neurotransmitter that produces feelings of pleasure (Lopez et al, 2008<sup>50</sup>). Due to these changes, adolescents may require higher levels of DAergic stimulation to achieve the same levels of pleasure and reward, driving them to make riskier decisions.

Behavioural control involves a higher level cognitive and executive functions, which involves the prefrontal cortex. There are neurobiological and sociological reasons why parents and communities must manage the important challenge of protecting children from preventable, serious harm while allowing them to make mistakes, so they can learn from their own experiences and practice self-regulation.

Adolescents, who tend to engage in risky behaviors in relatively safe environments, utilize this circuitry and develop the skills to tackle more dangerous situations; however, with an immature prefrontal cortex, even if adolescents understand that something is dangerous, they may still engage in such risky behaviour. (Giedd, 2004 - in Arain et al, 2013)

That said, there are strong arguments for protecting adolescents and young adults from highly unsafe products, social contexts and environments. It would be untenable of course to suggest adolescents be exposed to tobacco products in order to learn skills in managing life's risks.

First, as the regions of the brain responsible for impulse inhibition and reasoning about consequences are not fully developed, adolescents are more likely to engage in risky behaviours such as drug use. They find it more difficult to inhibit impulses, are more likely to engage in novelty seeking, and suffer from a temporal myopia that prevents a full appreciation of the future consequences of their behaviour (Volkow and Li, 2005<sup>51</sup>). Secondly, the developmental immaturity of the adolescent brain means that

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<sup>49</sup> <http://www.hhs.gov> [homepage on the Internet]. *New Research on Adolescent Brain Development*. Center for Substance Abuse Prevention;2004. [http://www.hhs.gov/opa/familylife/tech\\_assistance/etraining/adolescent\\_brain/risk\\_taking/changes/sensation\\_seeking/index.html#fn3](http://www.hhs.gov/opa/familylife/tech_assistance/etraining/adolescent_brain/risk_taking/changes/sensation_seeking/index.html#fn3)

<sup>50</sup> Lopez B, Schwartz SJ, Prado G, Campo AE, Pantin H. Adolescent neurological development and implications for adolescent substance abuse prevention. *J Prim Prev*. 2008;29(1):5–35.

<sup>51</sup> Volkow N & Li, TK. (2005). *The Neuroscience of Addiction*. *Nature neuroscience*. 8. 1429-30. 10.1038/nn1105-1429.



adolescents may be particularly vulnerable to the neurobiological changes that occur as the result of chronic drug use.

The ability for events to induce craving after months of abstinence and trigger a return to drug use is a central feature of addiction. It is among the factors that make addiction so difficult to overcome in the long-term. Early experimentation with tobacco and other substances present particular risks in this regard.

Neuropsychological changes at such a developmentally sensitive period can reduce the individual's cognitive capacities in overcoming addiction. This could explain why epidemiological studies show that people who engage in substance abuse in early adolescence are more likely to develop addiction and less likely to recover than those who delay drug use until early adulthood.

These observations of increased risk of addiction associated with early uptake of substance use are of course highly salient to the question of value in raising the legal age of sale of tobacco products.

Neuroscience research has shown that events or stimuli associated with drug use (conditioned drug cues) can elicit craving in abstinent drug users and trigger relapse. A single exposure to a conditioned drug cue is enough to reinstate addictive behaviours in animals that have been abstinent for long periods of time. We commonly observe the same responses in our patients.

Neuroimaging studies of human addiction have identified neurobiological changes in decision-making and executive control that are thought to explain the apparent “loss of control” and “compulsive drug” taking seen in addiction.

These neural changes tend to focus the attention of addicted users on drug use, producing intense cravings for drugs, impairing appreciation of the consequences of drug use, and making it more difficult to resist urges to use drugs. These changes make the cessation of drug use difficult for a person who is addicted to that drug.

Changes in the frontal cortex of addicted individuals, particularly the orbitofrontal cortex (OFC) and the anterior cingulate gyrus (aCG), are thought to be responsible for craving and compulsive drug taking, and loss of control over drug use, respectively. The OFC provides internal representations of the saliency of events and assigns values to them, allowing individuals to compare the likely consequences of pursuing different outcomes. The aCG is involved in the inhibition of impulses to act and in the control of attention. Both of these regions appear to be dysregulated in addiction (Galvin et al, 2006<sup>52</sup>).

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<sup>52</sup> Galvan A, Hare TA, Parra CE, et al. (2006) Earlier development of the accumbens relative to orbitofrontal cortex might underlie risk-taking behavior in adolescents. *J Neurosci* 26:6885-6892.

In addition to increased motivation to use drugs, addicted individuals often have cognitive impairments arising from the direct toxic effects of a substance, from drug induced anoxia (e.g. opioids) or from drug-related falls, accidents or violence (alcohol). This cognitive impairment can further prevent affected individuals from either recognising the consequences of their drug use or inhibiting their impulses to use drugs.

Changes in the dorsolateral PFC and the aCG that seem to prevent addicted individuals from either considering options other than drug use or inhibiting their drug use. Neurocognitive tests have also found that addicted individuals have impairments in these aspects of decision-making (Hall et al, 2009).

The effects of prolonged drug use on the prefrontal cortex may further impair cognitive capacity, which could explain, to some extent, why most initiations take place in adolescents and why most addictions develop before prefrontal development is complete. Therefore adolescents—as well as young adults under age 25—are especially susceptible to smoking initiation and developing addictions to tobacco. The implication is that preventive efforts should be focused not just on adolescents, but also on young adults aged below 25. (van der Eijk, 2015)

Children and young adults are more vulnerable to biological harm than adults. The capacity to inhibit risky, irrational behaviours is not complete until brain maturity is attained, around 25 years of age.

The orbitofrontal cortex (OFC), appears to follow a late developmental schedule in adolescence, since its activity in adolescents is relatively low, matching that of children more than adults. This is accompanied with exaggerated activity in the NAc (Galvan et al, 2006). Adolescents have not yet fully developed their prefrontal capacity to veto affect driven behaviours, as a result of the relatively slow maturation of the OFC. These observations are highly relevant to addiction, because efficient connections are needed from subcortical to cortical regions, particularly the OFC, for the inhibition of affect driven, impulsive behaviours, and these connections are typically impaired in addiction (van der Eijk, 2015).

Adolescents—as well as young adults under age 25 - are especially susceptible to smoking initiation and developing addictions to (alcohol and) tobacco (van der Eijk, 2015).

Consequently, they are more susceptible to peer pressure, and more likely to experiment with drug use; and since their cognitive, prefrontal capacities are not fully developed, they are prone to these behaviours despite having some presumed



awareness of the risks (Slovic, 1998<sup>53</sup>; Slovic, 2000<sup>54</sup>). The effects of prolonged drug use on the prefrontal cortex may further impair cognitive capacity, which could explain, to some extent, why most initiations take place in adolescents and why most addictions develop before prefrontal development is complete.

## **Genetic & Social Vulnerability**

Addiction is among the most heritable of the complex clinical disorders. Genes may affect: behavioural traits that influence an individual's willingness to try drugs (e.g. risk-taking behaviour, impulsivity, novelty seeking); the way in which individuals respond to particular substances (e.g. drug metabolism, absorption and excretion, and activity or sensitivity to drugs); or the likelihood of developing problem use or dependence if they use drugs (e.g. by affecting how rewarding they find the effects of particular drugs or how they respond to stress).

In addition to changes at the synapse, chronic drug use also involves changes in the regulation of gene expression, referred to as epigenetics. Environmental events (epigenetic factors) can interfere with gene expression by physically altering the ability of transcription factors to bind to the DNA (deoxyribonucleic acid) and transcribe a given gene.

Neuroscience research is also beginning to provide a deeper appreciation of how social factors (such as upbringing, education, socio-economic status, and exposure to drugs, abuse or violence) can interact with an individual's genetic make-up to make them more vulnerable to developing an addiction or experiencing harms if they use drugs.

Genes and environment can have significant impacts upon brain function and behaviour, particularly during adolescence when many young people begin to experiment with drugs.

Environmental stressors and early exposure to drug use, particularly during adolescence and early development, can also have significant neuropsychological effects that leave individuals vulnerable to dysfunctional, hazardous, harmful and unsanctioned substance use or addiction.

These studies have provided possible explanations of why adolescents are more likely to engage in harmful drug use and are more susceptible to their detrimental effects (van der Eijk, 2015).

## **Poor Health Literacy & Health Policy Literacy Must be Considered**

Health literacy and health policy literacy are highly salient to the choices and responsibilities argument. The Australian Commission on Safety and Quality in Health Care (ACSQHC, 2014) observes that health literacy is a safety and quality issue. It finds that only about 40 per cent of Australian adults have the level of individual health literacy needed to meet the complex demands of everyday life, meaning that perhaps only 40% of adults can understand and follow health messages in the way in which they are usually presented. It also means that

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<sup>53</sup> Slovic P (1998) Do adolescent smokers know the risks? *Duke Law J* 47:1133-1141.

<sup>54</sup> Slovic P (2000) What does it mean to know a cumulative risk? Adolescents' perceptions of short-term and long-term consequences of smoking. *J Behav Decis Making* 13:259-266.

at best, only about 40% of adults will be able to make good choices based on a thorough understanding of the issues they face and the choices available. In Tasmania, clinicians observe this percentage is likely to be higher and perhaps substantially higher. This is significant in terms of who bears primary responsibility for protecting and promoting population health in Tasmania.

The level of health literacy will be much lower among many (but not all) cohorts of adolescents and young adults who are paradoxically assigned primary responsibility by the unhealthy commodity industries to make the “healthy choices”, as noted, in the face of industry best efforts to persuade young people to do otherwise through wide ranging and clever marketing strategy. Of course, other personal, structural and macro-environmental factors will also likely influence whether young people and the population more generally are able to translate health knowledge into health protective and health promoting behaviours.

## **Arguments for Protecting Adolescents & Young Adults**

In alignment with the above evidence and principles, I present the state has a duty of care to enact policies that all reduce avoidable risks to young people.

Measures that protect the best interests of children are relatively uncontroversial, because children are not yet considered capable of making sound judgements. Accordingly, the importance of protecting adolescents from smoking initiation is already widely recognized by the public health community.

Neuroscience and genetic research in addiction has challenged traditional notions of addiction as a voluntary choice. Studies reviewed above suggest that prolonged drug use results in long-lasting, and possibly irreversible, changes in brain structure and function that undermine voluntary control (Leshner, 1997<sup>55</sup>; Volkow and Li, 2004<sup>56</sup>).

Many adolescents, and certainly most young adults aged 18–25 years, are generally considered capable of exercising rational decisions. However, as outlined above, the neurobiological evidence shows this ability is not yet fully developed until about 25 years of age; furthermore, it may be diminished if smoking initiation occurs before age 25 as a result of the psychoactive effects of nicotine and of addiction.

A range of evidence indicates that people should be protected from smoking initiation (and subsequent addictions) until age 25, when prefrontal development is complete. In other words, there is an argument for extending current restrictions on the minimum age for tobacco sales to people aged below 25 (van der Eijk, 2015).

While I have focused on evidence pertaining to maturation of the brain by the age of 25 years, it is important to acknowledge here that in presenting the *Public Health Amendment (Prevention of the Sale of Smoking Products to Underage Persons) Bill 2018*, the Honourable Ivan Dean APM, MLC has acknowledged the Tasmanian government is unlikely to support a bill to prevent the sale of tobacco and other smoking products until the age of 25 (MLSA25), so

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<sup>55</sup> Kalivas, P. W. and Volkow, N. D. (2005) 'The neural basis of addiction: A pathology of motivation and choice', *American Journal of Psychiatry* 162, pp. 1403-13.

<sup>56</sup> Walker, T. (2008) 'Giving addicts their drug of choice: The problem of consent', *Bioethics* 22, pp. 314-20.

pragmatically, has elected to seek to gain the support of the Parliament for the MLSA21 Bill for the time being.

Neuroscience research on addiction has implications for: the attribution of responsibility for addictive behaviour (the individual, their families, their peers, the broader community in which they live, commerce, governments), the way in which addiction is treated. Neuroscience research can also inform the public policies we adopt to protect and promote the health and safety of those who use substances and who continue to use substances in dysfunctional, hazardous, harmful and unsanctioned ways and which so often impacts adversely on the individual as well as others in the community - leading by way of example to wide ranging substance related diseases, accidents, violence and injury and related impacts on health and human services and the economy more generally, and so on.

A key issue in debates about the ethical implications of addiction neuroscience is how much 'autonomy' people who are addicted to drugs possess, that is, how much capacity do they have to make free and informed 'choices'.

## **What Works in Addressing the Unhealthy Commodity Industries?**

A long-term decline in daily smoking in Australia has largely been driven by people never taking up smoking rather than smokers quitting (AIHW, 2019<sup>57</sup>), emphasising once again, the importance of public policy and intervention to do whatever we can in Australia to make it less likely adolescents and young adults ever start smoking.

Successful public health strategies over several decades have seen daily smoking rates in Australia decline. The National Drug Strategy Household Survey shows that daily smoking rates halved between 1991 and 2016 (from 24% to 12%). However, there was no decline between 2013 and 2016 (AIHW 2019). Tasmania has similarly stalled in continuing to drive smoking rates down highlighting the importance of doing more to expand and strengthen tobacco control measures, noting the evidence that:

*"Public regulation and market intervention are the only evidence-based interventions to prevent harm by the unhealthy commodity industries"*

*- Moodie et al, 2013<sup>58</sup>*

Moodie et al (2013) focus on public regulation and market intervention in relation to the unhealthy commodity industries, which includes of course, the tobacco industry and related commerce.

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<sup>57</sup> AIHW (2019). Australia's health 2018, 4.5 Tobacco smoking. <https://www.aihw.gov.au/getmedia/3fd37284-905a-4ee4-bdbe-2b27ee25a941/aihw-aus-221-chapter-4-5.pdf.aspx>

<sup>58</sup> Moodie R, Stuckler D, Monteiro C, Sheron N, Neal B, Thamarangsi T, Lincoln P & Casswell, S (2013). Profits and Pandemics: Prevention of Harmful Effects of Tobacco, Alcohol, And Ultra-Processed Food and Drink Industries. *Lancet*. 381. 670-9. 10.1016/S0140-6736(12)62089-3.

## ④ Non-Communicable Diseases 4

### Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries

Rob Moodie, David Stuckler, Carlos Monteiro, Nick Sheron, Bruce Neal, Thaksaphon Thamarangsi, Paul Lincoln, Sally Casswell, on behalf of The Lancet NCD Action Group

*Lancet* 2013; 381: 670-79 The 2011 UN high-level meeting on non-communicable diseases (NCDs) called for multisectoral action including

I highly commend this publication to anyone interested in gaining keen insights into the evidence of what works in health promotion and prevention, especially as it relates to the unhealthy commodity industries. Like Moodie et al (2013), I present the evidence in support of public regulation and market intervention is compelling, notwithstanding strong personal and publicly expressed opinions to the contrary that we sometimes hear from those who may not have a salient educational background or knowledge.

#### Good Stewardship in Health (WHO)

Arguably, the most important choices are those made by governments and what choices they allow industry to make that impact on the choices of individuals. This is synonymous with the concept of good stewardship in government (Nuffield Council on Bioethics, 2007).

Given the neurobiological and sociological findings of high vulnerability to making unhealthy choices, the high probability of extremely serious adverse outcomes including addiction, the difficulty of altering these patterns of maladaptive and harmful behaviours once commenced and the absence of shared health, economic, life chances and moral accountability for the outcomes, there are strong ethical arguments for applying the highest level of intervention outlined in the Nuffield Ladder<sup>59</sup>, 'elimination of choice'.



Of course, that is what our Commonwealth, State and Territory governments have done in a wide range of regulatory interventions for health. Effective evidence driven tobacco control in Australia over the past several decades stands as an exemplar of public regulation and market intervention.

<sup>59</sup> Nuffield Council on Bioethics. *Public health ethical issues*. London: Nuffield Council on Bioethics. 2007.

By way of example, Australian governments eliminated the right of the tobacco industry to advertise tobacco products on television and radio in 1976 though it took our nation until 2011 before we saw complete bans on point-of-sale tobacco product displays and in 2012 it was made an offence for any person to publish tobacco advertising on the internet or other electronic media.



### *Nuffield Intervention Ladder*

That said, the Nuffield Council on Bioethics 'Intervention ladder' has been the subject of further examination and nuancing in the literature, as one would expect. By way of example, Griffiths and West (2015<sup>60</sup>) observe that the Nuffield intervention ladder is based on an assumption that personal autonomy is maximised by non-intervention, which these authors see as encouraging an extreme negative perspective on autonomy.

Griffith and West (2015) propose replacing the one-sided Nuffield intervention ladder, *which has any intervention coming at a cost to autonomy, with a two-sided 'balanced intervention ladder,' where intervention can either enhance or diminish autonomy.* The authors make reference to 'alternative, richer accounts of autonomy' and observe that 'even Mill's classic version of negative liberty puts some interventions on the positive side of the ladder'. They challenge the idea that autonomy is always diminished by state interference

- The Intervention Ladder embodies a conception of freedom that can be termed negative, liberal, or libertarian and which equates autonomy with non-interference. On this conception, any intervention designed to promote public health necessarily

<sup>60</sup> Griffiths PW and West C (2015).A balanced intervention ladder: promoting autonomy through public health action, *Public Health*; 129, 1092 e1098.

comes at a cost to individual autonomy; and, consequently, stands in need of justification. This non-interference conception of autonomy means that the burden of proof is placed on public health advocates to demonstrate that the welfare benefits of any proposed intervention outweigh the costs to individual liberty.

- However, interventions may sometimes enhance individual autonomy, and even sometimes be required for it. With these alternative accounts, we need not view public health interventions as necessarily posing a trade-off between freedom and other values (e.g. welfare).
- The negative account of individual freedom finds its classic expression in John Stuart Mill's *On Liberty*. Mill is primarily concerned with self-determination: the ability to decide for yourself how to live your life. He writes, '[t]he only freedom which deserves the name is that of pursuing our own good in our own way, so long as we do not attempt to deprive others of theirs, or impede their efforts to obtain it.'



**Figure 2 Assessing the effects on positive freedom with the help of Griffiths & West's (2015) ladder.**

- For Mill, external threats to freedom can take several forms: formal legal prohibitions and punishments, or informal social pressures to conform to established norms or sanctioned ways of life.
- Indeed, Mill asserts that a precondition for autonomous deliberation is foreknowledge of the likely consequences of one's choices and actions.
- Mill states explicitly that the harm principle is supposed to apply only to 'human beings in the maturity of their faculties. Thus, even more paternalistic measures may be justified in dealings with children, and with adults whose decision-making



capacities are temporarily or permanently impaired (e.g. through drunkenness, illness or mental in-capacity); again, with no cost to liberty.

- The provision of information should instead be represented as an intervention that enhances autonomy.
- We note that the disproportionate power wielded by corporations to constrain and dictate the options available to ordinary consumers can be viewed as posing a very substantial threat to individual freedom, a threat from which individuals may have a freedom-based claim for protection.
- Autonomy is not something that individuals have by default, just so long as no one interferes with them. Making free and rational decisions about how to lead one's life, and then acting on them, requires information, imagination, critical reasoning abilities, literacy and numeracy skills and personal attributes (self-confidence, courage, forbearance, self-control), which can exist only with the appropriate social and institutional protections and supports. It also requires independence from internal and external sources of domination and control. Concern for individual autonomy may therefore justify interventions that foster these abilities and conditions.
- Thus, while the role of corporations and corporate marketing in shaping and manipulating individuals' desires may not be seen to pose a threat to (negative) freedom, it poses a prima facie threat to individual autonomy.
- The provision of information is treated in the original Ladder as a small infringement of autonomy. But it is uncontroversial that full information is a precondition of any genuinely autonomous choice. The balanced ladder therefore places the provision of accurate, relevant information on its first positive rung, as an autonomy-enhancing intervention.
- These interventions do restrict corporations, but we should not conflate the freedom of corporations with the freedom of citizens.

### ***Stewardship in Health is the Essence of Good Government***

The WHO observes that “stewardship in health is the very essence of good government”. Stewardship assumes that the necessary infrastructures and social conditions for freedom and human flourishing are not pre-existent, particularly for people affected disproportionately by health inequalities; thus, they should be provided by the state. Governments are then viewed as having a responsibility to protect the health of their citizens and to minimize health inequalities (van der Eijk, 2015).

Consistent with these principles, the neuroscience literature supports the proposition that delaying uptake of smoking and thus reducing its likelihood, should be a key strategic and public policy goal in Australia.

## **Human Rights-Based Approaches to Tobacco Control**

The WHO is very clear about the role and responsibilities of the State in support health as a human right.

“The right to the highest attainable standard of health” implies a clear set of legal obligations on states to ensure appropriate conditions for the enjoyment of health for all people without discrimination.”

**The WHO Constitution (1946) envisages “...the highest attainable standard of health as a fundamental right of every human being.”**

- Understanding health as a human right creates a legal obligation on states to ensure access to timely, acceptable, and affordable health care of appropriate quality as well as to providing for the underlying determinants of health, such as safe and potable water, sanitation, food, housing, health-related information and education, and gender equality.
- A States’ obligation to support the right to health – including through the allocation of “maximum available resources” to progressively realise this goal - is reviewed through various international human rights mechanisms, such as the Universal Periodic Review, or the Committee on Economic, Social and Cultural Rights. In many cases, the right to health has been adopted into domestic law or Constitutional law.
- A rights-based approach to health requires that health policy and programmes must prioritize the needs of those furthest behind first towards greater equity, a principle that has been echoed in the recently adopted 2030 Agenda for Sustainable Development and Universal Health Coverage.

**The right to health, as with other rights, includes both freedoms and entitlements:**

- Freedoms include the right to control one’s health and body (for example, sexual and reproductive rights) and to be free from interference (for example, free from torture and non-consensual medical treatment and experimentation).
- Entitlements include the right to a system of health protection that gives everyone an equal opportunity to enjoy the highest attainable level of health.

A human rights-based approach to health provides a set of clear principles for setting and evaluating health policy and service delivery, targeting discriminatory practices and unjust power relations that are at the heart of inequitable health outcomes.

It is argued that in pursuing a rights-based approach, health policy, strategies and programmes should be designed explicitly to improve the enjoyment of all people to the right to health, with a focus on the furthest behind first.



van der Eijk and Porter (2013<sup>61</sup>) examine four international human rights documents: the Universal Declaration of Human Rights (UDHR), the International Covenant on Civil and Political Rights (ICCPR), the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the Convention on the Rights of the Child (CRC) in the context of the Tobacco Free Generation proposal.

They argue (in relation to the Tobacco Free Generation proposal) that "given the addictive properties of tobacco, it can be suggested that smoking is incompatible with the notion of 'liberty', as the addict is not entirely free to choose whether to continue smoking or not".

Furthermore, while "the TFG2000 proposal imposes liberty restrictions on would-be smokers born after 2000"; this would not extend beyond "a level that unjustifiably violates their liberty rights, given the balance of interests at stake.

They conclude that the tobacco-free generation proposal, a more ambitious tobacco control measure than MLSA21, is compatible with human rights principles. They observe it supports some fundamental rights, including the rights to life, health and a clean environment, and does not unduly violate the rights to liberty, self-determination, privacy or equality.



## Human rights and ethical considerations for a tobacco-free generation

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### ABSTRACT

In recent years, a new tobacco 'endgame' has been proposed: the denial of tobacco sale to any citizen born after a certain year, thus creating new tobacco-free generations. The proposal would not directly affect current smokers, but would impose a restriction on potential future generations of smokers. This paper examines some key legal and ethical issues raised by this proposal, critically assessing how an obligation to protect human rights might limit or support a state's ability to phase out tobacco.

### INTRODUCTION

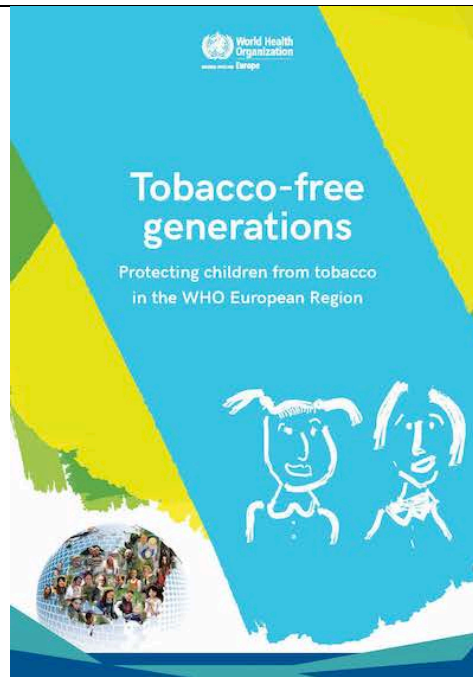
Most anti-tobacco policies and legislation ratified under the WHO Framework Convention on

given the public support, the phase out was regarded as 'a feasible next step in reducing tobacco consumption'.<sup>3</sup>

The TFG2000 proposal also caught on elsewhere. Earlier this year, a unanimous vote in Tasmania's Upper House passed the same proposal.<sup>4</sup> In Guernsey, the idea is also being considered.<sup>5</sup> Finland<sup>6</sup> and New Zealand<sup>7</sup> also share visions of a tobacco endgame, but their exact strategies for achieving it have not been determined yet. It is worth noting that the five places mentioned all have tough anti-tobacco policies that also target smoking uptake in youth, and no tobacco growers. Hence, they are more likely candidates for TFG2000 than countries where tobacco growing contributes substantially towards the economy, or

<sup>61</sup> van der Eijk Y, Porter G. Human rights and ethical considerations for a tobacco-free generation. *Tob Control* Published Online First: [accessed 6 Aug 2019] doi:10.1136/tobaccocontrol-2013-051125.

In a recent and salient WHO Euro publication, *Tobacco Free Generations – Protecting Children from Tobacco in the WHO European region* (WHO, 2017<sup>62</sup>), van der Eijk observes that a number of European countries are moving towards becoming tobacco-free, identified as synonymous with attaining a smoking prevalence of less than 5%<sup>63</sup>. Emphasis is placed on protecting younger generations from smoking initiation and other tobacco-related harm. The report outlines the reasons why Member States of the WHO should take a range of actions to protect their young citizens.



The international conventions are discussed, by way of example:

- Children, as anyone else, have a right to life according to Article 3 of the Universal Declaration of Human Rights (UDHR) and Article 6 of the International Covenant on Civil and Political Rights, and a right to health (ICESCR Article 12).
- The CRC clearly states that children have a right to life and healthy development (Article 6). This entails that children are protected from second-hand smoke exposure, which impairs their development, and from smoking initiation, which threatens their neurobiological development, life and overall health.
- Their right to a “clean and safe environment” (CRC Article 24) should be used to protect them from second-hand smoke exposure, and the right of children to be protected from “the use of harmful drugs” (CRC Article 33) includes protection from initiating the use of harmful and addictive drugs such as tobacco. Otherwise, children are a vulnerable target for the exploitative marketing practices of the tobacco industry. However, children have a right to “be protected from any activity that takes advantage of them or could harm their welfare and development” (CRC Article 36). These rights should be used to protect children from second-hand smoke exposure, tobacco industry marketing and smoking initiation.
- Other rights may be engaged to address issues related to health inequalities. Some tobacco promotions are specifically targeted at girls in the Region; Article 12 of the

<sup>62</sup> WHO (2017) *Tobacco Free Generations – Protecting Children from Tobacco in the WHO European region*.

<sup>63</sup> Beaglehole R, Bonita R, Yach D, Mackay J, Reddy KS (2015). A tobacco-free world: a call to action to phase out the sale of tobacco products by 2040. *The Lancet*.385(9972):1011-8.

Convention on the Elimination of All Forms of Discrimination Against Women, which obliges Parties to eliminate all discrimination against women in the field of health care, should be used to support more gender-specific ways of addressing this issue. Children from marginalized or socially disadvantaged communities are more likely to initiate smoking and are more exposed to other tobacco-related harm. According to UDHR Articles 2 and 7, everyone is entitled to their rights without discrimination based on race, social origin or other status. Everyone is also entitled to social conditions that support good health (UDHR Article 25). Supporting these rights, then, requires Parties to pay more attention to the needs of children in socially disadvantaged groups and recognize the interconnection between tobacco use and other complex societal issues.

### **Key Message**

- The equal protection of all children from tobacco is not only a means of improving public health and socioeconomic development in the Region, but also an ethical imperative that is reflected in various human rights treaties. Member States who are Parties to these treaties are obliged to protect and promote these rights: in doing so, they need to step up efforts to protect children from tobacco.

It is relevant to note that when in the role of Tasmanian Anti-Discrimination Commissioner, Robin Banks, advised that the Tobacco Free Generation Amendment Bill introduced into the Tasmanian Parliament by Ivan Dean would not give rise to successful complaints for unlawful discrimination on the basis of age because of the exemptions contained within the of the Tasmanian Anti-Discrimination Act (1998) and the Commonwealth Anti-Discrimination Act (2004). The TFG amendment was of course more far reaching than the T21 amendment.

## **An Ethical Framework for Tobacco Control**

Related to a human rights basis for tobacco control is an ethical framework that can inform and provide a sound moral compass to guide national and state strategy and public policy decision making.

In her thesis, van der Eijk (2015<sup>64</sup>) explores an ethical framework for tobacco control policy, building on existing theories of public health ethics in light of the complex factors that can affect autonomy in addiction. van der Eijk (2015) describes an ethical framework for tobacco control policy, building on existing theories of public health ethics considering the complex factors that can affect autonomy in addiction.

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<sup>64</sup> Yvette van der Eijk (2015-01-19). *An Ethical Framework for Tobacco Control Policy*. ScholarBank@NUS Repository.

The author's central argument is that tobacco control policies should protect the public's health and maximize individual freedom through autonomy-promoting social conditions. Addiction is autonomy-undermining, so having an option to use tobacco - an addictive and autonomy-undermining product for most users - does not enhance freedom.

van der Eijk (2015) argues that in the context of an ethical framework for public policy, the preventive efforts of governments should be focused not just on adolescents, but also to young adults aged below 25. She presents this protection should focus primarily on smoking initiation but given the tobacco industry's consistent efforts to encourage smoking initiation and addiction among youth, concludes there are strong arguments for ensuring these groups are completely protected from the marketing activities of the tobacco industry.

She also argues that interventions that promote future autonomy by restricting tobacco, then, are not a violation of freedom because adolescents are not yet fully autonomous (van der Eijk, 2015). She argues these findings provide strong reason for governments to protect young people from smoking initiation, tobacco addiction, and the marketing activities of the tobacco industry until age 25.

The T21 Bill meets a high standard of ethical behaviour by governments to protect and promote the best health interests and safety of its citizens, particularly its youth.

## **Duty of Care Arguments for Tobacco Control**

Further related to the above human rights and ethical dimensions of tobacco control policy are the duty of care considerations, in a society that aspires to be civil and demonstrate mutual care and protection of all citizens from avoidable harm.

If asked, I hope that most Australians would say they share a common value of a 'fair go for all' and of the importance of looking after each other. I hope they would also share a common value of not wanting to avoidably harm others.

The question arises, to what extent would the Australian people extend this value to ensuring their governments did what is reasonable to protect them from harm arising from commercial endeavours that may benefit a small few while harming a far greater number and in a wide range of ways, today and into the future? To what extent do elected representatives see, understand and accept their most important responsibility and ability to protect the health and safety of citizens in tension with the idea that citizens can and should accept full responsibility for their health-related behaviours and the consequential benefits and harms?

If citizens being accorded primary responsibility is the ethical framework to be adopted, albeit in tension with the evidence and analyses that I present in this paper, then the consequential question arises, will governments ensure that principle is adopted universally so that commercial enterprises and their personnel are assigned the very same responsibility and accountability for the consequential benefits and harms arising in their customers?

The question also arises, in which circumstances does a retailer owe a duty of care at common law to customers which requires them to protect customers from the consequences of the products they choose to sell? Hitherto, it is apparent that our courts of law have concluded

– they bear no real responsibility. At what point does the state owe a duty of care to protect its citizens and in particular, its young citizens?

I cite in this regard, the work of Gostin (2000<sup>65</sup>) who argues that while public health interventions affect rights and incur costs, they are generally justified in three circumstances:

- To avert a risk of serious harm to others – by acting to control those in a position to harm ‘patients’, such as industry and prescribers
- To protect the vulnerable – given a power and knowledge imbalance that means all ‘patients’
- To prevent a person harming her or him self

These are important principles that guide our clinical management of risk in patients who find themselves in serious life jeopardy as a consequence of their dysfunctional hazardous, harmful or unsanctioned use of substances. The work of Gostin aligns with the research findings and analysis of Moodie et al (2013), that I reference above.

## **Tobacco End Game Strategies**

All of these considerations lead us to the point where nation states and their governments must inevitably come to a policy view that tobacco and other smoking products no longer have a legitimate role to play in their national economies. They must then decide what mix and level of tobacco control measures they will adopt, including new measures aimed at preventing the uptake of smoking (noting the above referenced report from the WHO, 2017).

It is salient to note in this regard, the policy objective of the New Zealand government of leading its country to become ‘smoke free’ by 2025. In practice, this goal has been seen as synonymous with attaining a smoking prevalence of less than 5%, in alignment with the stated policy goal of a number of other countries with tobacco end game targets, including Ireland, Sweden, France, Denmark, Scotland, Finland and multiple Pacific Island Nations. Both Tasmania and Singapore (where the TFG proposal was conceived) had the opportunity to become the first state or country in the world to enact the Tobacco Free Generation proposal but regrettably, elected not to take that wonderful opportunity to lead the world in tobacco control. Balanga, Province of Bataan, Philippines became the first place in the world to do so when the *City of Balanga Tobacco Free Generation Ordinance* was enacted on 21 November 2016. Naturally, and as with the plain packaging laws enacted by the Australian government, the tobacco industry is doing what it can through legal means to stop the Bataan Province government from threatening its hitherto more secure future revenue stream in Asia and globally.

Importantly, while identifying an admirable population health target, the New Zealand government had no viable plan to achieve its policy objective. It was clear that business as usual in tobacco control would not drive down smoking prevalence to that extent and that quickly. It

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<sup>65</sup> Gostin LO (2000). A Theory and Definition of Public Health Law. Public Health Law: Power, Duty, Restraint, University of California Press. Available at: SSRN: <https://ssrn.com/abstract=242580> or <http://dx.doi.org/10.2139/ssrn.242580>

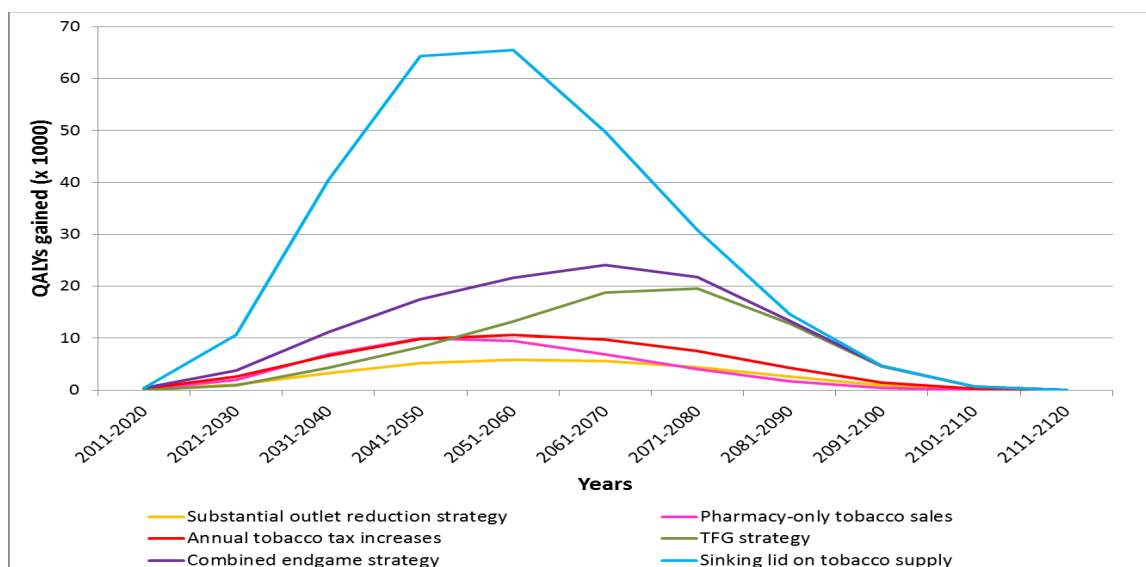
was also evident there was insufficient information and guidance to legislators to enable them to craft a suitable tobacco control plan.

A range of tobacco endgame strategies were discussed including a sinking lid on supply (Wilson et al, 2013<sup>66</sup> - annual reduction in import quotas until commercial sales stop in 2025) outlet restrictions, no more sales to future generations (the TFG initiative) and so on.

With this in mind, van der Deen et al (2017<sup>67</sup>) examined the data in New Zealand and modelled likely smoking prevalence, health impacts including Quality Adjusted Life Years (QALYS) saved and timing of cost savings associated with a number of tobacco control strategies:

1. A substantial outlet reduction strategy
2. A tobacco free generation strategy
3. Annual (10%) tobacco tax increases
4. A sinking lid on tobacco supply
5. A combined end game strategy (1,2 & 3)

Two models were used: (1) a dynamic population forecasting model for smoking prevalence and (2) a closed cohort (population alive in 2011) multistate life table model (including 16 tobacco-related diseases) for health gains and costs.

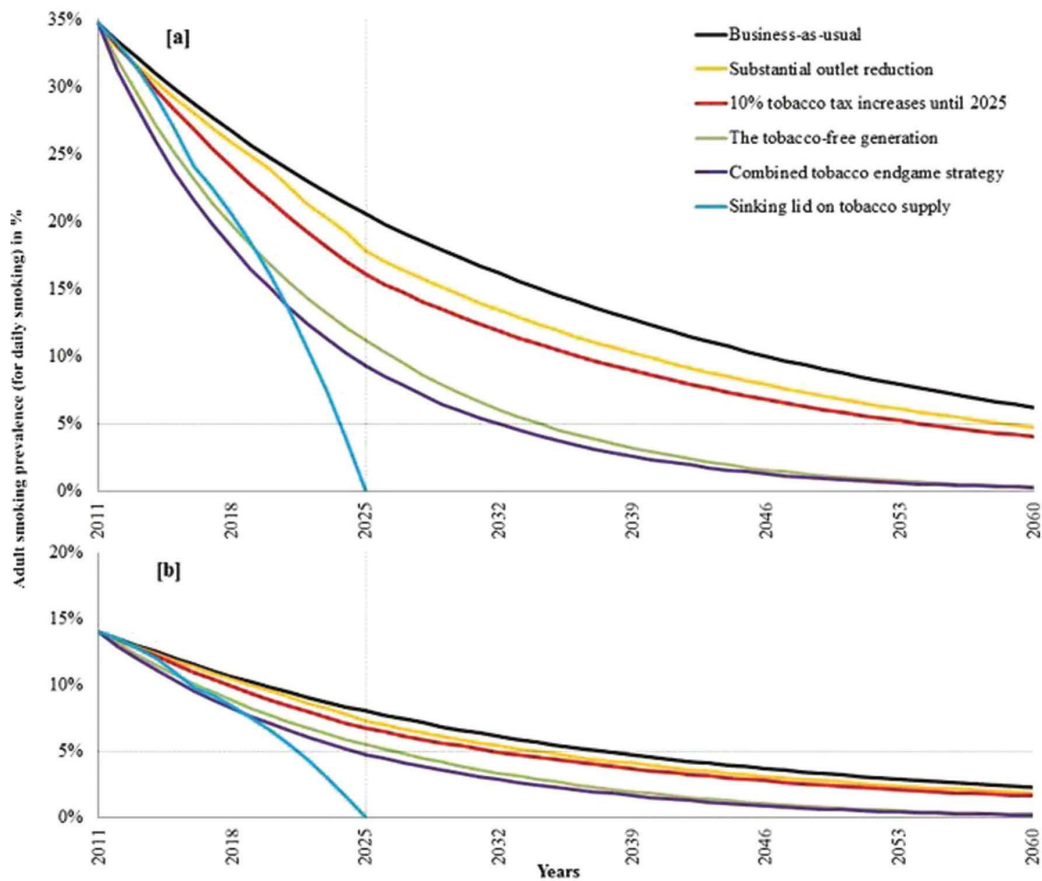


### Results: Timing of Health Impacts

<sup>66</sup> Wilson N, Thomson GW, Edwards R, et al (2013). Potential advantages and disadvantages of an endgame strategy: a 'sinking lid' on tobacco supply. *Tob Control* 22(suppl1):i18–21.

<sup>67</sup> van der Deen FS, Wilson N, Cleghorn CL, et al. *Tob Control*. Published Online First: 24 June 2017. doi: 10.1136/tobaccocontrol-2016-05358.





**Projections of adult daily tobacco smoking prevalence for Māori in New Zealand (indigenous population) (a) and non-Māori (b) under BAU and five tobacco endgame strategies.**

*(Note: As can be seen from the above figures, the effect of the combined tobacco endgame strategy on future smoking prevalence is smaller than the sum of the effects of the three individual endgame strategies (tax, outlet reduction and TFG strategy). Due to the TFG strategy, smoking uptake among young people is completely prevented from 2011 onwards, as such the effect of the outlet reduction and tax strategies will no longer affect the younger population of the 2011 cohort. TFG, tobacco-free generation).*

## Impact of five tobacco endgame strategies on future smoking prevalence, population health and health system costs: two modelling studies to inform the tobacco endgame

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► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/tobaccocontrol-2016-053585>)

### ABSTRACT

**Objective** There is growing international interest in advancing 'the tobacco endgame'. We use New Zealand (Smokefree goal for 2025) as a case study to model the impacts on smoking prevalence (SP), health gains

adult population use tobacco<sup>2</sup>. While a number of countries have made significant progress in reducing smoking prevalence in recent decades, for the vast majority of countries achieving endgame goals most likely requires intensified beyond business-as-usual

The authors observe modelling-level evidence suggests tobacco endgame strategies accelerate progress towards 2025 and would offer large health gains, cost-savings, and equity benefits to New Zealand.

Unfortunately, the authors did not model MLSA21 or MLSA25 so a comparison could not be made with the sinking lid and TFG initiatives, perhaps because the researchers recognised that given the lofty policy objective of the New Zealand government, the TFG proposal was a superior cohort policy intervention, one that is more compatible with and likely to contribute more to its identified tobacco end game policy goal. That said, I am unaware of any concrete plans to introduce any of these tobacco end game options or combination of options into the New Zealand parliament at this time.

I communicated with Frederieke van der Deen in 2018 and asked if she and her research group could consider undertaking this additional simulation modelling work to examine the MLSA21 and MLSA25 and she agreed this would be useful, only to later advise that her funding had been cut and that she was unfortunately unable to take this idea forward.

## **Treating Tobacco Dependence – the Other Missing Element?**

The WHO and international tobacco control experts identify that intensified action in monitoring the tobacco industry and exposing its poor conduct is necessary to sustain the progress made so far in tobacco control (Lancet, 2018<sup>68</sup>). I present the international health community holds a strong view that there can be no health policy justification for breaching Article 5.3 of the WHO International Framework Convention on Tobacco Control <sup>69</sup>

One area not yet fully realised in Britain and without doubt in most countries of the world, is the potential contribution of health-care services in tobacco control (Lancet, 2018). In a report published by the UK's Royal College of Physicians (RCP<sup>70</sup>) in June 2018 (*Hiding in plain sight: Treating tobacco dependency in the NHS*), it is argued that the policies and practices that should have helped patients who smoke to quit have singularly failed.

- The overall message is relevant globally: tobacco dependence should be treated routinely, and smoking prevention and treatment should become core activities for all health professionals and services. As the report rightly points out, “Failure to identify and treat smokers is no less negligent than failure to identify and treat patients with cancer. Systems failure is no less negligent in this respect than individual failure (Lancet, 2018).”

It has long been known that the most effective tobacco control measures are (a) Permanent price increases, scaled to inflation; (b) Comprehensive bans on advertising and promotion of tobacco products; (c) Strong restrictions on smoking in work places and public spaces; (d) Education, counter-advertising/ social marketing campaigns; e) improved product

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<sup>68</sup> Editorial Progress towards a tobacco-free world. *www.thelancet.com* Vol 392 July 7, 2018.

<sup>69</sup> WHO *Framework Convention on Tobacco Control* (WHO FCTC)". WHO. <http://www.who.int/fctc/en/>

<sup>70</sup> Royal College of Physicians. *Hiding in plain sight: treating tobacco dependency in the NHS*. London: RCP, 2018.



warning labels; (f) Plain packaging laws and now; (g) Age based laws prohibiting sale; (h) Increased access to cessation therapies.

Candidly, we need to do much more in relation to smoking cessation intervention in Tasmania if we are to ensure tobacco control measures don't increase rather than decrease disparities in health across socio-economic subpopulations and if we are to rise to the challenges identified by the RCP (2018), noting that health services managers in the Tasmanian Health Services and clinicians alike need to identify their roles and responsibilities and rise to the occasion. The policy position of the Royal College of Physicians (RCP, 2018<sup>71</sup>) is as follows:

We argue that responsibility for treating smokers lies with the clinician who sees them, and that our NHS should be delivering default, opt-out, systematic interventions for all smokers at the point of service contact (RCP, 2018).

## Summary

- The principle of autonomy requires that patients who smoke and who are in contact with health services have their smoking ascertained, and information and treatment offered, to enable autonomous decisions on future smoking.
- The principle of justice requires that we offer smokers help to quit smoking; failure to do so implies that smokers' health is less important than that of other patients.
- Failing to provide help to quit smoking while delivering other similarly or less cost-effective interventions to smokers represents distributive injustice which both perpetuates and exacerbates health inequalities. > Opt-out models of treatment help to sustain autonomy and justice in treating smoking, and should be the norm.
- It is at least as important to address smoking in patients using secondary care as those in primary care.
- Treating the physical health of patients is also no less important than treating mental health. Treating smoking improves both.
- Since most people would prefer to avoid being ill than to go through illness and treatment, prevention should be given a proper place in the allocation of health service resources.
- Proper use of health service resources also requires that more cost-effective treatments are used in preference to less cost-effective treatments.
- Smoke-free NHS estates protect the health of patients and staff, signals that smoking is a crucial health issue, and supports smokers who are trying to quit.
- Health service commissioners and practitioners have a responsibility to ensure that cost-effective smoking interventions are provided and properly implemented. Failure to identify and treat smokers is no less negligent than failure to identify and treat

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<sup>71</sup> Royal College of Physicians. *Hiding in plain sight: treating tobacco dependency in the NHS*. London: RCP, 2018.

patients with cancer. Systems failure is no less negligent in this respect than individual failure.

- Smoking cessation should be incorporated, as a priority, as a systematic and opt-out component of all NHS services as a complement to local authority services and delivered in smoke-free settings. It is unethical to do otherwise.

An intended and predictable outcome of more effective tobacco control through aged based policy reform (MLSA21) will be a need to provide readily accessible and affordable (heavily subsidised) smoking cessation support to those under 21 years who have already started smoking and who are nicotine dependent.

## **Unequivocal Leadership Is Needed**

Finally, I wish to comment on leadership, noting that the best scientific evidence in the world is worthless if those in positions of policy decision making authority and influence do not read, heed and/ or act upon that evidence with fidelity and if they do not lead, and with courage, determination and tenacity.

*"Bad things happen if good people do nothing"*

- Chappel, 2006<sup>72</sup>

*"What we think, or what we know, or what we believe, is in the end, of little consequence. The only consequence is what we do"*

- Ruskin (1819-1900)

I teach the medical students at the University of Tasmania and every year when speaking about their potential future role as our doctors of tomorrow in shaping and indeed, implementing public policy reforms that can significantly improve the health and well-being of the people they will serve, I ask them to identify a 'history changing leader' in Australia today, someone who stands up and stands out from the pack. It is a confronting reality that each year, in a theatre of about 120 students whom I identify are among the brightest young people in our state and in our country, there is silence. They are unable to identify an outstanding leader of this nature.

Even with prompting and when I lower the bar and say, "well okay, let me set aside the 'history changing' standard and ask you to identify someone whom you admire and respect as a nation leader", they still struggle. Sometimes a student will volunteer a notable Australian who made an important contribution some decades ago, though not of a history changing nature. Never do they identify someone in present day Australia.

Now of course there are many people in Australia who are doing wonderful things and of course, in a different setting those individuals might be identified as great leaders. In this regard,

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<sup>72</sup>Chappell I. ABC TV interview with Andrew Denton, 2 October 2006 in relation to the treatment of refugees.

I identify and applaud the Honourable Ivan Dean and Andrew ('Twiggy') Forrest (Eliminate Cancer Minderoo Foundation) for their wonderful work in leading this T21 initiative. That said, the question arises, who else among us in Australia and in Tasmania has the incompletely fulfilled potential to be that ethical, big picture, future focussed leader of our nation whom everyone will come to admire and respect and remember?

## **Summary & Concluding Remarks**

Notwithstanding a historical and lawfully allowed 'commercial choice' to glamorise, promote (now largely regulated in Australia but not internationally), normalise, socialise, persuade and enable the uptake and continuance of smoking in young people, primary responsibility for any of those young people's later tragic life outcomes has so often been sheeted home to the 'choices' of the smoker, even when the smoker's decision making may already be impaired and their human agency diminished by nicotine dependence, in the context of an incompletely developed brain and poor health literacy. Once socialised into regular smoking and when nicotine dependence is established, true choice is axiomatically further diminished, noting that drug dependence is characteristically accompanied by craving, impairment or loss of control over use and continuing use in the face of observable risk or harm, in order to mitigate withdrawal related 'stress' and physical symptoms.

While citizens may be assigned primary responsibility for their 'health behaviours' and consequential life outcomes, it is surprising to note our legislative and other public policy frameworks have hitherto afforded too little if any weight to the decision making of unhealthy commodity industries and their responsibility in making available and promoting consumption of their products in the face of significant risk and completed harm. The industry in all of its parts has not been held fully accountable (if at all) as citizens have with respect to their dismal health and life outcomes. This reflects inconsistency in application of key values of any civil society aspiring to demonstrate enlightenment in adhering to a universal application of the principles of beneficence and non-maleficence and all citizens being treated equally and justly before the law.

It is disturbing as a doctor to witness unhealthy commodity industries including the tobacco industry and retailers demonstrating apparent comfort and even vociferously promoting the idea that the individual has primary responsibility for making the unwise choice to purchase or otherwise obtain tobacco and other smoking products, even young people whose brains are far from fully developed, who have limited life experience to draw upon, who generally have poor health literacy and health policy literacy, who are vulnerable to peer and industry influence, who are exposed to potential harm by child-adult power imbalances, and who are attracted by risk. And in no small way influenced by industry's best marketing efforts to persuade and seduce young people to make poor unhealthy commodity consumption choices. Even more surprising and disappointing is a message that many small businesses are operating a business model that places significant reliance on tobacco sales for their survival (are they really?) and questions about or complaints that any legislative reforms designed to prevent the sale of tobacco products to those aged under 21 years will place an unacceptable bureaucratic and financial burden on them.

While young people are expected to accept full responsibility for their health influencing actions and the benefits and harms that arise, industry reaps the financial benefits while neither accepting nor being held accountable for its commercial choices. It is disappointing to witness retailers expressing concerns and even criticising the efforts of the medical profession and public

health experts seeking to protect and promote public health. It is perplexing to witness business people and their advocates complaining about regulation aimed at safeguarding the best health interests of the populace, branding it as unnecessary 'red tape' and inappropriate protection. It is telling that they present no scientific evidence to support any of their claims. If a commercial operator is willing to sell a dangerous, even lethal product or service, the least they can do is adhere to any and all legislative and administrative requirements that are designed to lessen the risks and without complaining.

It is certainly unimpressive to witness those who oppose public policy reforms for public health making ill-informed catastrophising comments designed it seems to invoke fear in the community and among decision makers so no changes are made, noting that a core skill in a clinician working in the drug and alcohol field is to identify and correct (de-catastrophise) unhelpful and incorrect thoughts and commentary and to help the patient reframe their negative self-talk in ways that promote therapeutic optimism and motivation for adaptive changes in behaviour. It appears this is what is needed here.

Notwithstanding these observations, in alignment with the clear guidance provided by the WHO, it is my presentation that industry should not be accorded legal or social license to freely, actively and knowingly adopt commercial practices designed to persuade or enable young Australians to make highly unhealthy, unsafe and ultimately health harming and life shortening decisions. They should not be afforded the right to supply and make a profit from supplying a highly dangerous drug to young people and certainly not at an age when those young persons are not yet able to access or fully process information nor make genuinely well informed, carefully considered best interest decisions about whether to use a drug that kills more Australians than any other drug by a wide margin.

In this presentation I have laid bare and put to rest the choices arguments of the tobacco industry. I have demonstrated that it is the choices made by the tobacco industry and its commercial arms that must be addressed, not those of the individual citizen who stands exposed and vulnerable to all of the neurobiological and sociological factors that shape their health options and behaviours, including in particular those of a commercial nature. Based on the neurobiological evidence including those impacting on the immature young brain and based on what we know about the structural and functional brain underpinnings of drug dependence, the 'personal choices and responsibilities' argument as commonly put in isolation from the health and functional literacy, neurobiological, sociological and commercial factors that powerfully influence health decision making - as described in this submission - has no legs and is discredited.

I have also argued like others that the T21 Bill is ethically sound, and is compatible with Tasmanian, Australian and international human rights conventions and standards.

Echoing my comments above, the AMA and the medical profession more generally would applaud the Tasmania parliament if it would lead our nation in implementing the MLSA21 as a first step towards the pursuit of the 'tobacco end game', noting there is strong community support for raising the minimum legal age of sale of tobacco and other smoking products. Once bedded down and accepted, government could work with the people to progress sequentially through to MLSA25 (or TFG) and then finally, to the *sinking lid on tobacco supply* tobacco end game solution.

The T21 Bill is not a silver bullet, but it goes some way to addressing this currently unjust, unethical, inequitable and medically unsupportable situation in relation to the supply of tobacco products to young people. It also offers a viable pathway towards the tobacco end game in Australia. What is now needed is multi-partisan support for this and other tobacco control investments.



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**Member, AMA Tasmania**  
**6 August 2018**

## **Appendix: Other Issues of Concern Commonly Raised**

### **Nanny State Alarmist Pushback**

We commonly hear the tobacco industry mantra “nanny state”, when arguing against evidence-based tobacco policy reform because it is seen as over protective and interfering unduly with personal choice. The term was apparently coined by British politician Iain Macleod in 1965. Ironically and sadly, Macleod, who was health Minister at one stage of his career, smoked heavily and died at 57 years of a heart attack.

Edwin Chadwick, the architect of the first Public Health Act in England in 1848, famously proposed regulatory measures to control overcrowding, drinking water quality, sewage disposal & building standards. In response, the Times strongly protested:

*“We prefer to take our chance with cholera and the rest than be bullied into health. There is nothing a man hates so much as being cleansed against his will, or having his floors swept, his walls whitewashed, his pet dung heaps cleared away”*

This demonstrates the often-poor health literacy in the community and more specifically, poor health policy literacy, to which I add, absence of sound critical thinking skills and a broken moral compass. Those who protest in this way are rarely motivated by the freedoms they purport to defend. We are all aware that changes to laws, regulations, mandatory product standards and public awareness campaigns have saved countless lives over the years.

In any civil society and over time, governments regulate, permit and enable or alternatively, regulate and tightly control, limit or prohibit literally thousands of products, services and behaviours for these and similar reasons.

To demonstrate the point, Chapman (2013<sup>73</sup>) references: public safety laws; disease control laws; product safety; occupational safety; drug control; drugs regulation; building

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<sup>73</sup> Chapman, S. *One hundred & fifty ways the Nanny State is good for us*. The Conversation, 2 July 2013.

standards; air quality control; water quality standards; waste water and sewerage controls; food safety standards; food preparations standards; building standards; violence controls; disability protections; road safety, occupational health and safety controls; environmental health and safety standards; and of course, tobacco control.

I am very sure that if we lifted the blanket off the bed, we would quickly learn those who would rail against these protections have been only too happy to personally accept and benefit from and in all the ways described by Chapman, including by way of example, universal education and universal healthcare.

Elected representatives 'govern' by sitting in parliament to debate and amend or pass new legislation and in this way, review and shape how the communities they are elected to represent, can behave. Those who make self-interested and by implication, often uncaring comments about the 'Nanny State' seem to forget or ignore the reality that a core component of the job of all elected representatives is to legislate and in other ways regulate, and they do so every day they sit in the parliament.

There is no credibility to be had in cherry picking which policy reforms are to be deemed acceptable because they fit with an individual's likes, wants, beliefs and views of the world and their motivation to protect self-interests. It is always disappointing to witness strong statements about which policy reforms are to be rejected and labelled 'prohibition' or 'nanny state' when they do not suit. It is always unimpressive when we read or hear demeaning statements directed at those who demonstrate leadership in health protection being referred to as '*anti-cancer crusaders*', '*zealots*' or '*fanatics*'. Such opinions and statements actually signal an uncaring and reckless attitude towards those who need and deserve the protections that any civil society can provide and towards those who seek to do the right thing by the people. They actually bring great shame on the individuals and corporations making such statements.

I emphasise the important point that nannies are good, not bad and I always feel sad for those who appear not to value or not to have enjoyed the support, wise counsel, guidance and protection of a kindly grandmother or mother.

## **T21 Bill Will Not Criminalise Gifting, Possession or Use**

Contrary to what we are hearing from many commentators who oppose the Bill, this Bill is not about saying young people cannot smoke and neither does it criminalise, criticise or otherwise punish smoking, loaning or gifting from others (who are not retailers) or possession. It is not a prohibition bill (over 700 licenses able to lawfully sell tobacco to those aged 21 years and over will remain) and bears no similarity to alcohol prohibition in the USA 100 years ago. All tobacco and other smoking products will still be freely and lawfully available in the market place. This Bill is aimed solely at eliminating a retailer choice of being able to sell tobacco products to those under 21 years of age.

We note the evidence shows that children are most likely to access tobacco products from peers. This Bill will reduce access through retail sales. Increasing the age at which tobacco can be sold will increase the age gap between those able to lawfully purchase tobacco products and

young adolescents who might otherwise be influenced by peer smoking and be less able to access tobacco and other smoking products through these peers.

In other words, we expect it will have an impact through peer influence and peer supply, as well as gradually re-shaping social norms in relation to smoking behaviour more generally including peer gifting or supply of tobacco and other smoking products to those unable to lawfully purchase them.

If young people choose to obtain tobacco from other sources, that won't be affected. The Bill will not stop people from traveling interstate to obtain supplies or obtaining supplies by other means including the Internet, but contrary to the speculative comments of some, it is highly unlikely many young persons aged under 21 years would go to that amount of trouble or expense to do so. You see, access really matters in relation to any article of commerce and its consumption. So too does price and affordability.

Reducing access is the key health protection of principle being applied here, for which there is compelling replicated evidence more generally in the public health literature.

### **Peer Gifting Likely to Diminish with Increase Age Gap for Lawful Sale**

It is acknowledged some children will start smoking regardless of a new aged based law, whether TFG, MLSA21 or MLSA25 are adopted in policy. However, it is anticipated this effect will wear off as smoking prevalence gradually drops, smoking is progressively denormalized with each year, and the age gap between smoking-free generations and those born just before the cut-off date increases (Berrick, 2013<sup>74</sup>).

As mentioned, since a primary source of tobacco products for underage smokers are 18 to 20-year-old peers and since a substantial proportion of high school students turn 18 before they complete year 12, younger school students currently have easy access to tobacco and other smoking products through their peers (IOM, 2015<sup>75</sup>).

A 21-year-old is less likely to gift tobacco products to a 14-16-year-old than an 18-year-old because: (a) The greater age gap will mean lesser likelihood of association (b) A 21-year-old is biologically and socially more developed and likely to possess better insights into why gifting of tobacco to a younger person would not be a socially acceptable action to take (c) A 21-year-old would, after the law takes effect, be less likely to have started smoking and therefore less likely to possess and be a potential source of supply (d) There would be few people in High School who are old enough to lawfully buy tobacco products for younger students.

When properly enforced, Tobacco 21 laws disrupt the social availability of tobacco and other smoking products to young people (IOM, 2015).

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<sup>74</sup> Berrick AJ. The tobacco-free generation proposal. *Tob Control* 2013;22:i22–i26.

<sup>75</sup> IOM (Institute of Medicine). 2015. *Public health implications of raising the minimum age of legal access to tobacco products*. Washington, DC: The National Academies Press.

An earlier age of initiation is associated with greater levels of nicotine dependence and an earlier age of initiation is also associated with greater intensity and persistence of smoking beyond adolescence and through adulthood (IOM, 2015). The T21 bill will reduce this risk.

## **T21 Bill is Not Anti-Small Business**

We hear the concerns of small retailers in Tasmania. But supporting this Bill does not mean that you are anti-small business. Contrary to the concerns and claims of some, this bill will not send small retail business broke. In fact, as colleagues have pointed out, based on calculations of the number of young people in the age groups affected and the number of retailers, it will reduce small business tobacco sales by less than 1% (Scollo et al,2017<sup>76</sup>; Winickoff et al, 2014<sup>77</sup>).

We also hear the tobacco industry and retailers complaining they are not consulted, well article 5.3 of the WHO FCTC to which Australia is signatory, places certain international treaty obligations and consequential boundaries around governments in this regard. We hear the tobacco industry and retailers say their contribution is not valued, to which as a medical practitioner I respond, please think again about what you are saying here. The manufacturing and sale of tobacco products offers no positive value to the community, only avoidable harm and suffering.

We hear the tobacco industry and retailers say that education and law enforcement are more effective (with a focus on possession and use penalties for smokers rather than on enforcement of aged based sale laws targeting retailers, which is important where retailer compliance is poor), to which we should all ask, enforcement of what measure in particular and on the basis of what evidence. Moreover, it is disappointing to witness those who bring a potent fire source into the room then suggest we educate everyone to not play with the fire, only to abrogate all moral and legal responsibility when citizens do light the fire and what is more, assert the problem is not theirs but rather one of inadequate education and enforcement and poor choices made by the individual (smoker). The tobacco industry knows full well that its proposed approach to the problem that it creates will have little or no impact on its sales and profits.

The goals of health and the commercial goals of the tobacco industry are irreconcilable. That is, there is no common ground to be found between a medical professional interested in protecting and promoting good health and an industry or retailer wanting to maintain or increase their profits from the sale of tobacco products. Money that is not spent on tobacco and other smoking products will not disappear into thin air, rather, it will be available to be spent on other products and services, for which 'the free market can compete'. It's conceivable that a loss of one job at a tobacco retailer will be a gain of one job at the fruit and veg shop down the road.

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<sup>76</sup> Scollo M et al, 2017, Table 10.3.3 *Tobacco in Australia, Facts and issues*. [link?] *Percentage of sales of cigarettes\* from each retail channel, 2012 to 2015* Source: Euromonitor International, <http://www.euromonitor.com/tobacco> data provided to Cancer Council Victoria.\*Data on sales of smoking tobacco and cigars by retail channel also available to Euromonitor subscribers.

<sup>77</sup> Winickoff, J., Hartman, L., Chen, M., Gottlieb, M., Nabi-Burza, E., & DiFranza, J. (2014). Retail Impact of Raising Tobacco Sales Age to 21. *American Journal of Public Health* 104(11):18-21.



## Concerns about Promoting Illicit Trade

It is important to recognise that illicit trade is driven by those who have become addicted, seeking to satisfy their addiction at the lowest possible cost. Illicit sale of tobacco is not driven by hordes of young non-smokers hankering to give it a go for the first time. The tobacco industry is known to greatly exaggerate the extent of the problem, as Scollo and Winstanley (2019<sup>78</sup>) describe:

Quantifying the extent of use of illicit tobacco products is extremely difficult and all current estimates of the size of the illicit market should be regarded with caution. The major tobacco companies appear to be exploiting fears about the potential loss of revenue and alleged involvement of criminal organisations to discourage governments in many countries from adopting measures likely to significantly reduce consumption of tobacco products. Most industry-sponsored estimates of the extent of illicit trade appear to be highly exaggerated. This section describes the various ways by which taxes on tobacco products can be avoided. It describes attempts to quantify the extent of illicit trade both internationally and in Australia. Industry estimates put the illicit market in Australia at about 13% of the legal market, but estimates based on data from the National Drug Strategy Household Survey would suggest that it is more like 2–3% of the total market

If you are deeply concerned about illicit trade in tobacco, then you should give your support to this supply control measure that will reduce the number of young people who become addicted in the first place. There will still be over 700 licenses able to lawfully sell tobacco products to people over 21 years in Tasmania and these products will therefore remain readily available in Tasmania. T21 will not create a black market since the absolute numbers of persons purchasing cigarettes in the restricted age group right now is small and will become smaller still by the year.

## Age Discrimination Arguments

Anticipating other common poorly thought through arguments against the policy option of increasing the legal tobacco sale age, is the idea that retail should be able to sell tobacco products to 18-year-old youth because those young people are able to vote or go to war. These are non sequitur arguments that arise from poor scientific knowledge and analysis and a conflation of evidence with personal values and beliefs.

Firstly, the bill targets what adults in retail can do, not youth. Furthermore, the voting age or the age when young people are sent to war represent a value judgment by individuals, sections of society and governments and certainly not one that is based on what is known about the stage of intellectual and other biological, emotional, physical, educational and social

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<sup>78</sup> Scollo, MM and Winstanley, MH. *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria; 2019. Available from [www.TobaccoInAustralia.org.au](http://www.TobaccoInAustralia.org.au)

development (though perhaps these other policy decisions should also be based on such more erudite consideration).

Indeed, those who carefully consider the neurobiological evidence that I have presented in this submission will recognise that a 20-year-old youth is at substantially increased risk of being injured or killed in a theatre of war given their incompletely developed prefrontal cortex and all of its ramifications that I describe. On this basis, governments wishing to act responsibly and minimise avoidable injury and mortality would not send a 20-year old let alone an 18-year old youth to war.

A policy decision about where we set the minimum legal age for the sale of tobacco products is and must be based on a broad array of metrics that have nothing to do with these other aged based laws. What is more, contesting strategies designed to protect and promote public and population health motivated seemingly by a desire to 'win the legal argument' is not something the medical profession and many others I am sure, can applaud or support.

Where there are legal impediments, it would be preferable if the legal profession and our legislators would refocus and together with health experts, examine ways of finding a legal remedy to any barriers in law that are identified if any, so we can move forwards as a state and as a nation. I present that to do otherwise is to continue setting our children up for substantially avoidable harm and to miss an opportunity to build a healthier, safer and more economically secure nation into the future.

I add that young people protected by this Bill will be the lucky ones whose future health and lives stand to be spared great suffering, disability and early loss of life.