

Questions and answers on plain packaging in Australia

Prepared by the Cancer Council Victoria, updated August 2020

Fact sheet no. 4:

What is happening to the prevalence of smoking in Australia?

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4.1 What is happening to smoking rates in Australia?

Trends in smoking rates in Australia over the past decade have been the subject of intense international attention.

4.1.1 Smoking continues to decline among adults in Australia

Different surveys in Australia suggest slightly varying patterns of decline in adult smoking, depending on the survey and whether it is examining daily smoking, regular smoking (daily or at least weekly) or current smoking (daily or at least weekly or less than weekly).

Data from Australia’s National Drug Strategy Household Survey suggest that smoking continues to decline in Australia—see **Figure 1**. The proportion of Australians 18 years and over who were current smokers declined significantly between 2016 and 2019, as did the proportion of Australians 18 years and over who smoked daily. The overall reduction in the nine years since 2010 was roughly the same as the reduction in the ten years before.¹

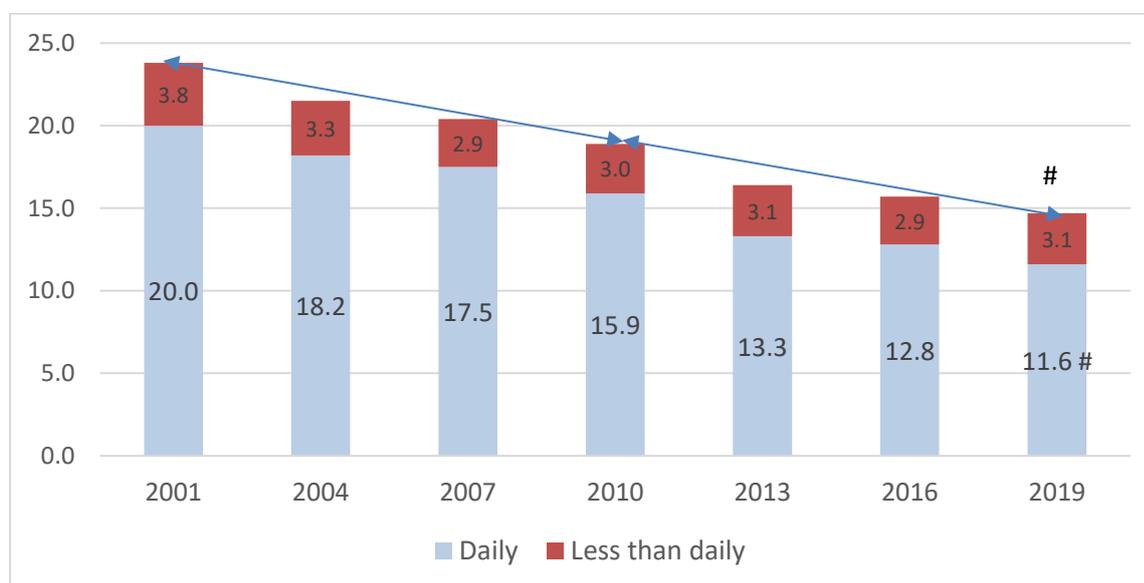


Figure 1 Proportion of daily smokers* and current smokers** in Australia—Australians 18+, 2001 to 2019

Source: Australian Institute of Health and Welfare. Data tables: National Drug Strategy Household Survey 2019 – Table 2.7, 2. Tobacco smoking chapter, Supplementary data tables. Canberra: AIHW, 2020. Available from: <https://www.aihw.gov.au/reports/illicit-use-of-drugs/national-drug-strategy-household-survey-2019/data>.

* Daily smokers are those who report having smoked at least 100 cigarettes in their lifetime and who currently smoke at least once every day.

**Current smokers are those who report having smoked at least 100 cigarettes in their lifetime and who currently smoke, daily or less than daily.

indicates a significant change since 2016

¹ Plain packaging was introduced in Australia at the end of 2012 after intense media and political debate commencing from the time the policy was announced in April 2010. By the time the 2013 National Drug Strategy Survey was conducted (from April to November 2013), the policy had already been in place for six to 12 months.

The decline in smoking in Australia has been driven by both a steady increase in the proportion of Australians who have never taken up smoking and also in increases in the proportion of ever-smokers who have quit—see **Figure 2**.

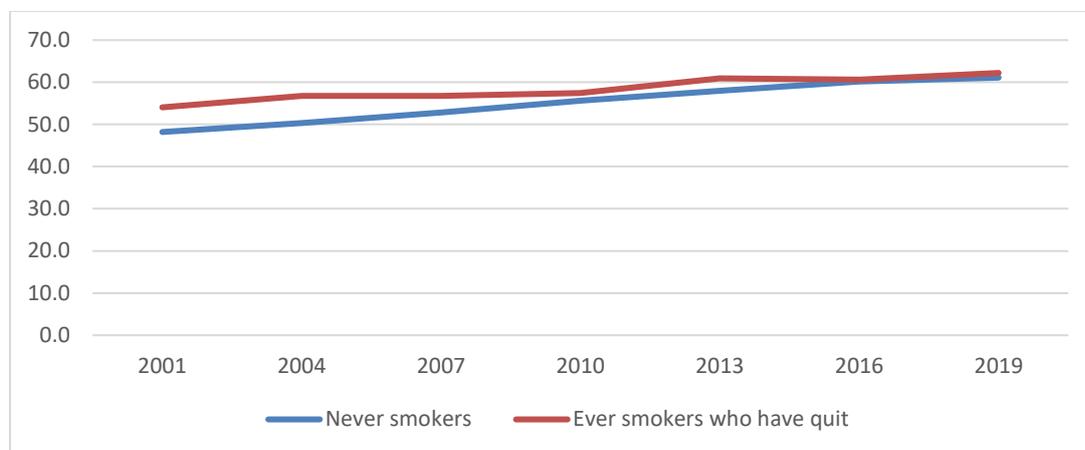


Figure 2 Proportions of Australians 18+ who are never smokers and proportion who have ever smoked but no longer smoke, 2001 to 2019

Source: National Drug Strategy Household Surveys from 1995 to 2019, Australians 18+ , Table 2.7²

Notes: ever smoker =smoked >100 cigarettes

The downward trend in regular and daily smoking rates demonstrated in the NDSHS is mirrored in data on daily smoking from the Australia Bureau of Statistic’s National Health Survey—see **Figure 3**.

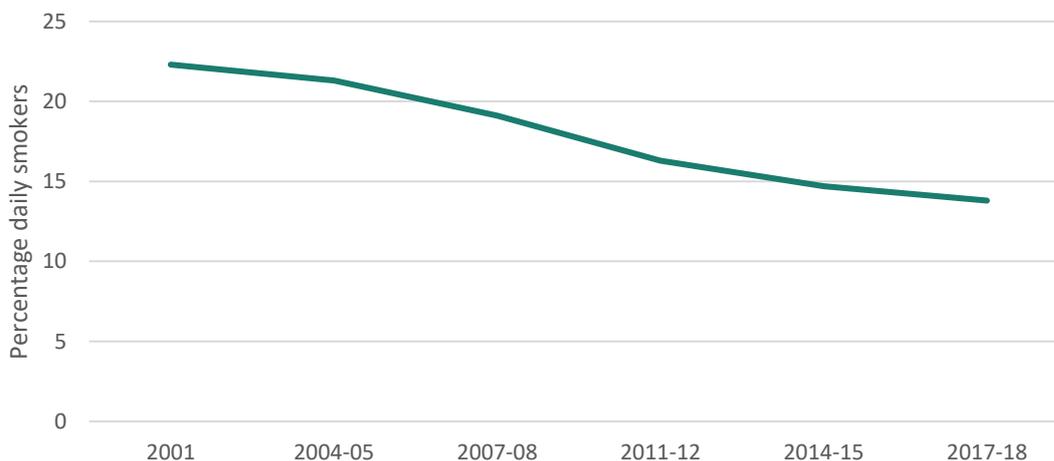


Figure 3 Australians 18+ who are daily smokers, 1995 to 2017-18

Source: ABS National Health Survey, first results³

² See <https://www.aihw.gov.au/reports/illicit-use-of-drugs/national-drug-strategy-household-survey-2019/data>

³ ABS National Health Survey, Smoking, See

<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.001~2017-18~Main%20Features~Smoking~85>

Another long-running source of information about the prevalence of smoking is the Single Source survey established in 1974 by the Roy Morgan Research Company. Door-to-door interviews conducted each week throughout Australia generate data from over 50,000 survey respondents each year. Cancer Council Victoria analysis of monthly data from this survey from the largest five-capital cities over the 15 years to August 2017 shows a continuing decline in smoking since mid-2006—refer **Figure 4**.

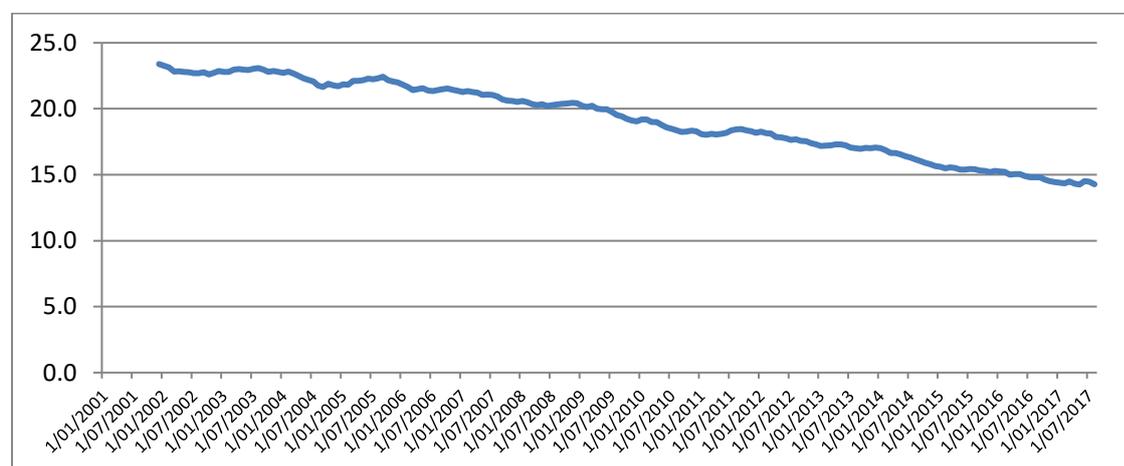


Figure 4 Proportions of Australians 18+ living in largest five capital cities who report being current* smokers—12-month rolling average, January 2001 to August 2017

Source: Cancer Council Victoria calculation of 12-month rolling average, [Roy Morgan Research Single Source survey data](#), five largest capital cities, (*now smoking factory-made cigarettes and/or who have smoked RYO, cigars or pipe tobacco in the last month), January 2001 to August 2017

4.2 But wasn't the decline in adult smoking between 2010 and 2013 in line with existing trends?

On 17 July 2014, the independent statutory authority, the Australian Institute of Health and Welfare (AIHW), [released highlights](#) from the 2013 NDSHS.⁴ This and the [detailed report](#) published on the 25 November 2014⁵ revealed substantial drops in smoking among Australians 14 years and over since 2010. The percentage of Australians who smoke daily declined significantly from 15.1% in 2010 to 12.8% in 2013. This decline was significant both among men and among women.

In response to release of findings from the NDSHS, Imperial Tobacco told Australia's ABC radio that the survey showed there was [no departure from the existing trends](#) in relation to declines in smoking prevalence. In fact the 15% drop between 2010 and 2013 was more than twice as large as the average drop between surveys since 1991—see **Figure 5**.

⁴ Australian Institute of Health and Welfare. Highlights from the 2013 survey: Tobacco Smoking. Canberra: AIHW, 2014. Last update: 27 July; Viewed AIHW cat. no. PHE 145. Available from: <https://www.aihw.gov.au/alcohol-and-other-drugs/ndshs>

⁵ Australian Institute of Health and Welfare. National Drug Strategy Household Survey detailed report: 2013. Cat. no. PHE 183 Canberra: AIHW, 2014. Available from: <http://www.aihw.gov.au/publication-detail/?id=60129549469&tab=3>

The drop in smoking prevalence appeared to be larger than in the previous three years, larger than the average drop over each three-year period since 1998 and larger than the drop between 1998 and 2001. The previous largest drop which coincided with Australia’s most far-reaching national anti-smoking campaign and changes to cigarette taxes resulting in 20% increases in the price of budget brands.

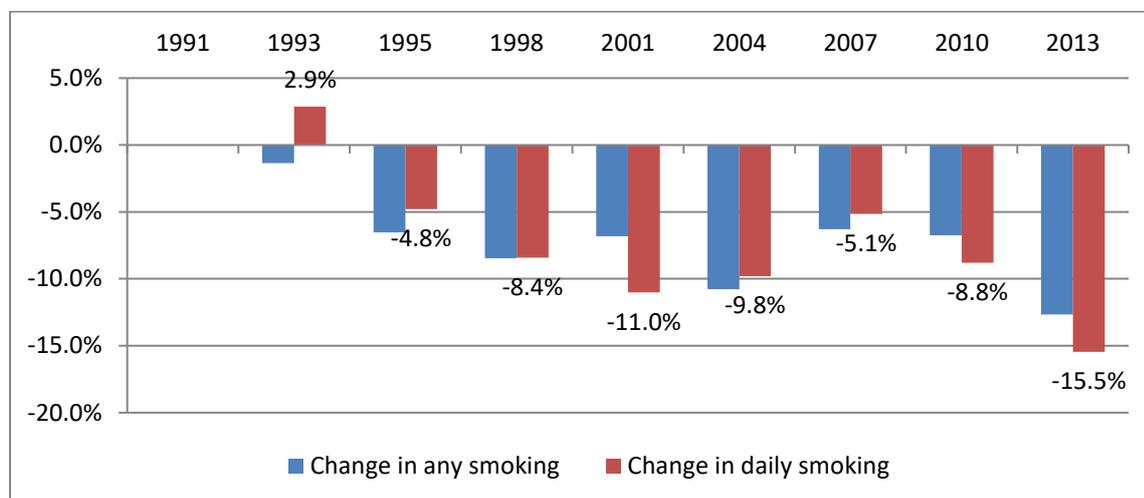


Figure 5 Changes in prevalence of any and daily smoking (labelled) between three-yearly surveys—Australia 1991 to 2013

Source: [National Drug Strategy Household Survey; AIHW 2014](#)

4.3 But couldn’t the decline in adult smoking between 2010 and 2013 be attributable to the large increase in excise and customs duty on tobacco in April 2010?

In a statement released to politicians and journalists on the 17th July 2014, Philip Morris International suggested that the fall in prevalence in Australia was due to increases in taxes. It is likely that higher prices contributed to the decline in smoking between 2010 and 2013. However, note that the 2010 survey was conducted between March and December 2010, mostly *after* the 25% increase in excise and customs duty on the 29th April 2010. Smokers’ initial responses to the very sharp rise in prices in 2010 would already have contributed to the decline between 2007 and 2010. The tax increase that occurred on the 1st December 2013 was announced several months earlier in August 2013. Knowledge of the upcoming tax increase may have had some impact on quitting behaviours over the period during which the survey was conducted, but most of the impact between 2010 and 2013 appears to have occurred between December 2010 (well after the April 2010 tax increase) and mid-2013 (well before the December 2013 tax increase).⁶

⁶ Scollo M, Zacher M, Coomber K, Bayly M, and Wakefield M. Changes in use of types of tobacco products by pack sizes and price segments, prices paid and consumption following the introduction of plain packaging in Australia Tobacco Control, 2015; 24:ii66-ii75. Available from: http://tobaccocontrol.bmj.com/content/24/Suppl_2/ii66.full

4.4 But haven't declines in smoking stalled in Australia?

As highlighted in Section 4.1 above, the decline in smoking in Australia in the nine years since 2010 is pretty much the same as the decline between 2001 and 2010.

It is true that the reported figure for 2016 from the National Drug Strategy Household Survey was not significantly lower than the notably low figure for 2013.⁷ It could not have been concluded at that point, however, that smoking rates stalled. Measured figures are subject to sampling variation, and are affected by the exact timing of the survey in relation to seasonal trends and various policy interventions. One would need to see at least two surveys without significant declines (as occurred in the early 1990s) to draw a firm conclusion that the NDSHS was indicating a stalling of decline in smoking. As noted above, this did not happen: the decline between 2016 and 2019 was once again a significant one.

Further, as set out in 4.1 above, the National Health Survey and the Roy Morgan Ltd Single Source Survey both showed continuing declines over the last 20 years. Prevalence estimates from surveys are all subject to sampling error and are affected by small variations in timing and collection methods. It is important not to rely too heavily on small changes from survey to survey, but rather to focus on longer-term trends. An article published in [the Lancet](#) based on the National Health Survey data noted that Australia is one of only 13 countries (out of 195) in the world where smoking declined both between 2005 and 2015 as well as between 1990 and 2005.

Even if smoking had stalled over this period, it does not necessarily mean that plain packaging had not been effective. Other major factors historically that have driven reductions in smoking prevalence are price and mass media advertising.⁸ Between 2013 and 2016 investment in anti-smoking campaigns in Australia fell to an all-time low—see **Figure 6**.

⁷ It is worth noting that —while smoking in the NDSHS did not decline significantly between 2013 and 2016 among higher income groups— the decline *was* significant among people living in the most disadvantaged areas of the country. This was on top of an earlier major decline between 2010 and 2013.

⁸ Wakefield M, Durkin S, Spittal M, Siahpush M, Scollo M, et al. Impact of tobacco control policies and mass media campaigns on monthly adult smoking prevalence: time series analysis. *American Journal of Public Health*, 2008; 98(8):1443–50. Available from: <http://www.ajph.org/cgi/content/abstract/98/8/1443>

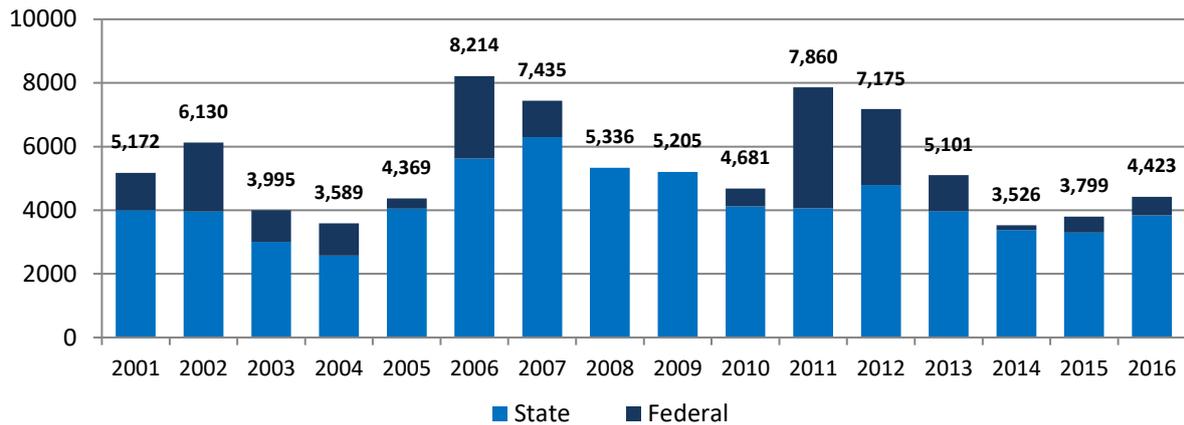


Figure 6 Weighted average annual TARPs, 5 largest capital cities

Source: CBRC analysis of Nielsen data provided for IMPACT study in progress

At the same time, tobacco companies aggressively marketed cheaper tobacco products including roll-your-own (RYO) pouches in progressively smaller pouch sizes that were substantially more affordable to consumers. It is likely that declines in smoking would have been more pronounced in Australia since 2010 if tax increases on tobacco had not been undermined by industry pricing strategies. While smoking rates have fallen, the proportion of smokers using RYO tobacco has increased, dramatically so, among younger smokers—see **Figure 7**.

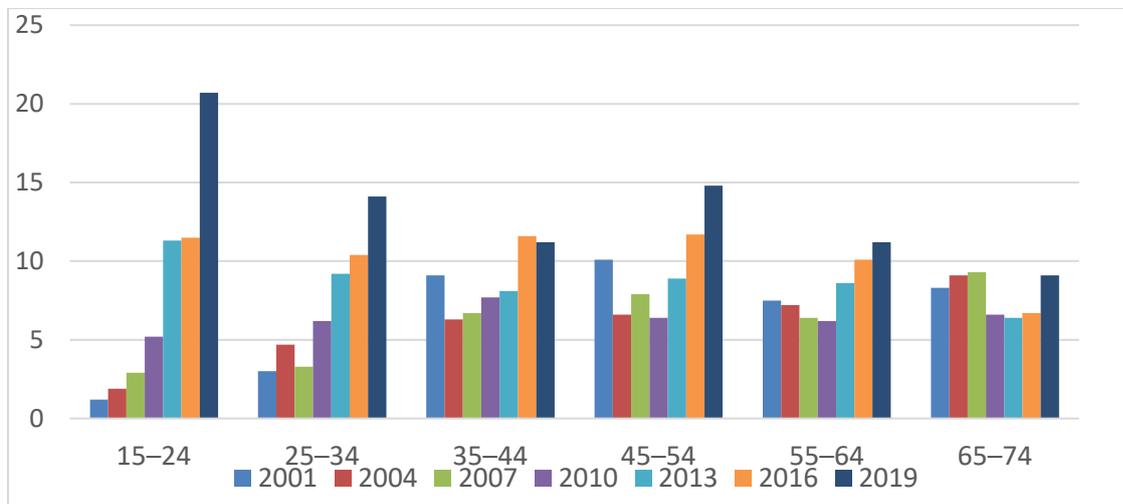


Figure 7 Proportion of current* Australian smokers 15-74 years who exclusively smoke RYO - 2001 to 2019, by age

Source: AIHW. National Drug Strategy Household Survey 2019 – Table 2.18, 2. Canberra: AIHW, 2020

*Daily, weekly or less than weekly smokers; change in RYO use since 2016 is significant in all age groups other than 35-44

It is likely that declines in smoking would have been greater in Australia had investment in media campaigns been maintained, and had taxes on cigarettes using RYO tobacco kept pace with those on ready-made cigarettes.

4.5 But didn't the National Drug Strategy Household Survey (NDSHS) 2013 show that smoking rates increased among Australian teenagers?

In November 2014, the AIHW released a full report of the results of the 2013 NDSHS showing a record level of decline in smoking rates in Australia between 2010 and 2013.⁹ The reported figures on daily smoking were lower for 2013 than 2010 for most age groups, however the small numbers of respondents aged under 18 who report smoking made it very difficult to detect change between years among this youngest age group.

The figure in the NDSHS for 12-to-17-year olds was 0.9% percentage points higher in 2013 than in 2010, but as was clear from the absence of a # symbol explained in the footnotes of the table, this change was not statistically significant. British American Tobacco Australia nevertheless put out a media release shortly after release of this data, with the headline 'Youth smoking rates soar two years post plain packs'.¹⁰ When the AIHW was asked by a journalist to comment on this interpretation, the Institute's head of tobacco and other drugs unit, Amber Jefferson, said the report clearly stated the sample size was too small for a conclusion of a spike in uptake.

'The results remain stable. There might appear to be a percentage point increase, but it's not statistically significant,' she said.¹¹

Just three days after this refutation of British American Tobacco Australia's interpretation was published in *The Age* newspaper, British American Tobacco Australia put out another media release¹² stating 'As we approach the second anniversary of the introduction of plain packaging we know that Australian Government youth smoking figures show a 32 per cent growth since the policy was introduced.'

No mention was made of changes in smoking prevalence among the next oldest cohort—see **Table 2**. Among people aged 18 to 24 the proportion who had never smoked increased significantly between 2010 to 2013, from 72.1% to 76.8%. Daily smoking also declined among 25-to-29-year-olds.

⁹ Australian Institute of Health and Welfare. National Drug Strategy Household Survey detailed report: 2013. Cat. no. PHE 183 Canberra: AIHW, 2014. Available from: <http://www.aihw.gov.au/publication-detail/?id=60129549469&tab=3>

¹⁰ British American Tobacco Australia. Youth smoking rates soar two years post plain packs. Sydney: BATA, 27 Nov 2014. Available from:

[http://www.bata.com.au/group/sites/bat_9rnflh.nsf/vwPagesWebLive/DOA3CJ8E/\\$FILE/medMD9R87RB.pdf?openelement](http://www.bata.com.au/group/sites/bat_9rnflh.nsf/vwPagesWebLive/DOA3CJ8E/$FILE/medMD9R87RB.pdf?openelement)

¹¹ Hawthorne M and Desloires V. Tobacco giants, retailers join forces in new attack on plain-packaging laws. *The Age*, 2014; 28 Nov. Available from: <http://www.theage.com.au/federal-politics/political-news/big-tobacco-distributes-report-bullying-plain-packaging-laws-20141127-11v7ov.html>

¹² British American Tobacco Australia. Industry consultation a must during plain pack review Sydney: BATA, 1 Dec 2014. Available from:

[http://www.bata.com.au/group/sites/bat_9rnflh.nsf/vwPagesWebLive/DOA3CJ8E/\\$FILE/medMD9RD2H3.pdf?openelement](http://www.bata.com.au/group/sites/bat_9rnflh.nsf/vwPagesWebLive/DOA3CJ8E/$FILE/medMD9RD2H3.pdf?openelement)

In the report of the 2016 survey published several years later, the figure for this age group was once again lower than it had been in 2010.¹³

Data from the 2016 and 2019 surveys released since these claims were made and also presented in **Table 2** shows an overwhelmingly downward trend across all young Australians.

Table 2 Changes in smoking among selected young people, Australia

Smoking status	2001	2004	2007	2010	2013	2016	2019
14–17							
Daily	11.2	7.5	4.6	3.7	5.1	*2.2	*1.9
Occasional ^(a)	4.1	2.3	*1.3	1.8	*1.9	*0.9	*1.3
Ex-smokers ^(b)	2.9	2.3	*1.1	2.3	*0.4	**0.5	**0.2
Never smoked ^(c)	81.7	88.8	93.0	92.2	92.6	96.4	96.6
18–24							
Daily	24.0	20.2	16.5	15.7	13.4	11.6	9.2
Occasional ^(a)	8.1	5.2	4.9	4.6	5.1	4.3	5.7
Ex-smokers ^(b)	10.2	9.5	8.3	7.2	4.7	5.0	5.5
Never smoked ^(c)	57.7	65.1	70.3	72.4	76.8#	79.0	79.6
15–24							
Daily	20.5	17.0	13.4	12.6	11.3	9.1	7.5
Occasional ^(a)	7.0	4.5	4.0	4.0	4.4	3.4	4.6
Ex-smokers ^(b)	8.0	7.4	6.2	6.0	3.6	3.8	4.1
Never smoked ^(c)	64.5	71.1	76.4	77.5	80.7	83.7	83.8

Source: AIWH report of National Drug Strategy Household Survey, 2019¹⁴

Notes

* Estimate has a relative standard error of 25% to 50% and should be used with caution.

Statistically significant change between 2010 and 2013.

Australia’s recognised source of data for adolescent smoking is not the NDSHS which surveys approximately **1,500 teenagers using a home-based questionnaire**. It is the ASSAD survey which surveys about 23,000 **students under anonymous conditions at school**¹⁵ and is much better able to detect small changes in the low rates of smoking participation by Australian teenagers.

The published data on adolescent smoking from the ASSAD survey collected in 2014 shows a significant drop between 2011 and 2014 in current smoking among teenagers aged 12 to 17 years, both overall and for younger and older age groups—refer **Table 3**.

¹³ See Table 2.2. <https://www.aihw.gov.au/reports/illicit-use-of-drugs/ndshs-2016-key-findings/contents/tobacco-smoking>

¹⁴ Australian Institute of Health and Welfare. National Drug Strategy Household Survey detailed report: 2019 <https://www.aihw.gov.au/reports/illicit-use-of-drugs/national-drug-strategy-household-survey-2019/data>

¹⁵ White V and Bariola E. Chapter 3. Tobacco use among Australian secondary students in 2011, in Australian secondary school students’ use of tobacco, alcohol, and over-the-counter and illicit substances in 2011. Canberra: Drug Strategy Branch Australian Government Department of Health and Ageing; 2012. Available from: <http://darta.net.au/wordpress-content/uploads/2017/01/ASSAD-2011.pdf>

Table 3 Percentage of students who are current smokers (smoked in the past 7 days) in 2008, 2011 and 2014, by gender

	12 to 15 years			16 to 17 years			12 to 17 years		
	2008	2011	2014	2008	2011	2014	2008	2011	2014
	%	%	%	%	%	%	%	%	%
Males	4.8**	4.4**	2.8	12.8	13.4	11.6	6.9**	7.0**	5.4
Females	5.8**	3.8	3.2	12.5**	12.3**	8.9	7.7**	6.3**	4.9
Total	5.3**	4.1**	3.0	12.7	12.9**	10.3	7.3**	6.7**	5.1

** Significantly different from 2014 at $p < 0.01$.

Source: White V and Williams T. Australian secondary school students' use of tobacco in 2014. Prepared for Tobacco Control Taskforce, Australian Government Department of Health, 2015. Available from <https://www.health.gov.au/resources/publications/secondary-school-students-use-of-tobacco-alcohol-and-other-drugs-in-2014>

Smoking in the past seven days has been declining in Australia both among older and younger age groups since 1999—see **Figure 7**.

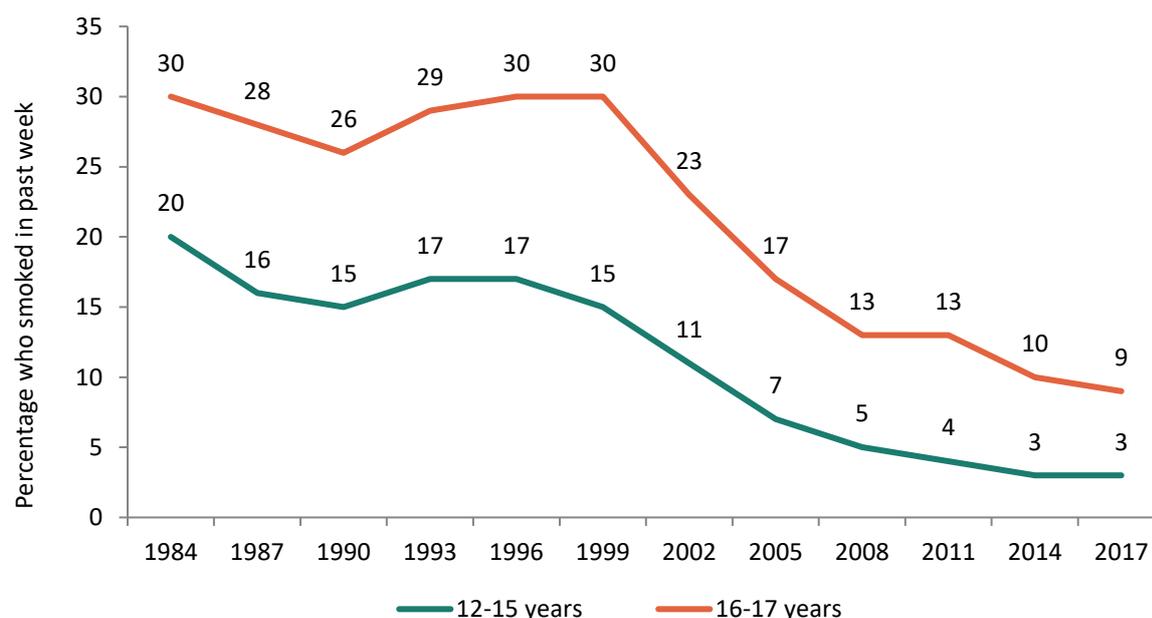


Figure 7 Trends in proportion of current smoking (smoked in past seven days) among students, Australia, 1984-2017—12-15-year-olds and 16 & 17-yr-olds

Source: Guerin N and White V. Statistics & Trends: Australian Secondary Students' Use of Tobacco, Alcohol, Over-the-counter Drugs, and Illicit Substances, Second edition. Cancer Council Victoria, 2020. Available from: <https://www.health.gov.au/resources/publications/trends-in-substance-use-among-australian-secondary-school-students-1996-2017>

While a large number of young people continue to take up smoking after school age, reductions in smoking rates among teenagers are nevertheless translating into sustained reductions in smoking among young people in the 15-24 age group—see **Figure 8**.

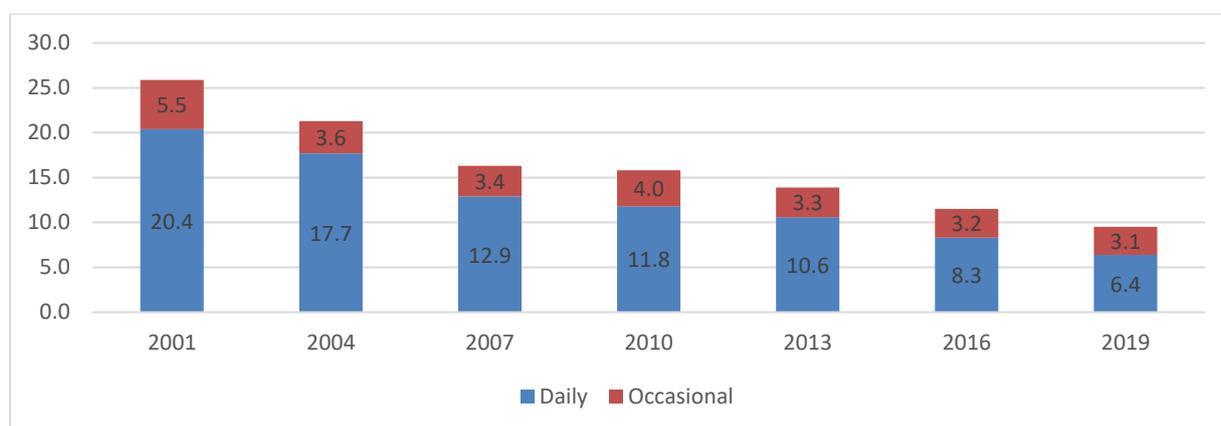


Figure 8 Prevalence of daily smoking and occasional smoking among Australians 15-24 years of age, 2001 to 2019

Source: Australian Institute of Health and Welfare. Data tables: National Drug Strategy Household Survey 2019 – Table 2.7, 2. Tobacco smoking chapter, Supplementary data tables. Canberra: AIHW, 2020. Available from: <https://www.aihw.gov.au/reports/illicit-use-of-drugs/national-drug-strategy-household-survey-2019/data>

4.6. But didn't Kaul and Wolf demonstrate that smoking increased among teenagers using data from the monthly Roy Morgan survey immediately before and after implementation?

The Kaul and Wolf report¹⁶ was funded, and its release closely directed, by Philip Morris International.¹⁷ It was based on a survey of population smoking by the Roy Morgan Research Company which is not intended to provide reliable estimates of smoking specifically among teenagers. The authors describe the sample as being between 200 to 350 adolescents per month, although they neglect to point out the sample size in the last several years has been reduced to closer to 200 per month. The authors conclude no impact of plain packaging on youth smoking because they can detect no immediate drop in prevalence, however the small sample size would have made it much more difficult to detect anything but extremely large changes in prevalence. Most of the impact of plain packaging on young people is more likely to be more gradual,¹⁸ affecting prevalence only as adolescents mature into the age in which they are vulnerable to experimenting. Effects are amplified over time

¹⁶ Kaul A and Wolf M. The (possible) effect of plain packaging on smoking prevalence in Australia: a trend analysis. 165.Zurich, Switzerland: University of Zurich, 2014. Available from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2460704.

¹⁷ Angeli T. Universität Zürich lässt «Review» einer Studie durch Philip Morris zu. Zurich: angelisansichten, 2015. Last update: Viewed February 2015. Available from: <http://angelisansichten.ch/universitaet-zuerich-laesst-review-einer-studie-durch-philip-morris-zu/>; Doward J. Row over Marlboro-funded research that undermined plain cigarette packs. The Guardian, 2015. Available from: <http://www.theguardian.com/business/2015/feb/14/ow-over-arlboro-funded-research-that-undermined-plain-cigarette-packs>. See also, <https://www.nicswell.co.uk/health-news/no-evidence-that-plain-cigarette-packs-work-says-industry-funded-study>

¹⁸ Laverty AA, Watt HC, Arnott D, and Hopkinson NS. Standardised packaging and tobacco-industry-funded research. Lancet, 2014; 383(9926):1384. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24726722>

as fewer older role models and peers influence others through example and peer pressure. See [here](#) for a detailed critique of the Kaul and Wolf study.¹⁹

Studies conducted by the Cancer Council Victoria in two states evaluated the impact of plain packaging and enlarged graphic health warning on school students' perception of the health warnings and of the social image of smoking connoted by the packs. Researchers reported in the sample a significant increase between 2011 and 2013 in the percentage of teenagers classified as 'non-susceptible never smokers' and a significant decline in those classified as having tried smoking or who were past-month smokers—refer Table 1, White *et al* 2015a²⁰ and Table 2, White *et al* 2015b.²¹

4.7 Don't other industry studies (e.g. London Economics) also suggest that there has been no change in prevalence among adults immediately following the implementation of plain packaging?

A Philip Morris-funded report by London Economics was released on Monday 25th November 2013, shortly before the one-year anniversary of plain packaging. This brief report outlines the results of three cross-sectional surveys of Australian adults—one conducted in July–October 2012 prior²² to the implementation of plain packaging and larger graphic health warnings—and two conducted shortly afterwards, in March 2013 and in July 2013, five and 8 months after implementation. The report describes itself as 'one of the first comprehensive studies considering smoking prevalence following plain packaging' and draws a conclusion that there has been no change in smoking prevalence since the introduction of plain packaging. This Philip Morris-funded survey used an online panel to obtain responses from Australians and it used those responses to estimate prevalence, so that only Australians who are members of online market research panels could be included. While panel members comprise people of a wide range of demographic characteristics, these people opt-in to become members of an ongoing online panel for the purpose of taking part in many different surveys or studies and they earn rewards each time they participate. In this way, they are going to be different from a representative cross-section of the Australian population. Even if the aim had been to prompt an immediate drop in

¹⁹ And for a detailed critique of statistical analysis see Laverty AA, Diethelm P, Hopkinson NS, Watt HC, and McKee M. Use and abuse of statistics in tobacco industry-funded research on standardised packaging. *Tobacco Control*, 2015. Available from: <http://tobaccocontrol.bmj.com/content/early/2015/02/03/tobaccocontrol-2014-052051.abstract>

²⁰ White V, Williams T, Faulkner A, and Wakefield M. Do larger graphic health warnings on standardised cigarette packs increase adolescents' cognitive processing of consumer health information and beliefs about smoking-related harms? *Tobacco Control*, 2015; 24:ii50-ii57. Available from: http://tobaccocontrol.bmj.com/content/24/Suppl_2/ii50.full

²¹ White V, Williams T, and Wakefield M. Has the introduction of plain packaging with larger graphic health warnings changed adolescents' perceptions of cigarette packs and brands? *Tobacco Control*, 2015; 24:ii42-ii49. Available from: http://tobaccocontrol.bmj.com/content/24/Suppl_2/ii42.full

²² Note however that a sizeable proportion of consumers were already smoking from plain packs in October 2012. Scollo M, Lindorff K, Coomber K, Bayly M, and Wakefield M. Standardised packaging and new enlarged graphic health warnings for tobacco products in Australia - legislative requirements and implementation of the *Tobacco Plain Packaging Act 2011* and the *Competition and Consumer (Tobacco) Information Standard, 2011*. *Tobacco Control*, 2015; 24(Suppl).

prevalence, the Philip Morris study was not sufficiently powered to find one. See [here](#) for a detailed critique of this study.

4.8 Hasn't British American Tobacco shown that a survey by the Cancer Institute New South Wales suggests that prevalence increased in New South Wales following implementation?

British American Tobacco UK misrepresented data from the Cancer Institute NSW Tobacco Tracking Survey data to UK Government's 2014 plain packaging consultation.

On the 7th August 2014, British American Tobacco UK lodged a submission to the UK Department of Health in response to its consultation on the proposed introduction of regulations for the standardised packaging of tobacco products in the United Kingdom.²³ In this submission it claimed that the British Government had not considered the results of a study conducted by the Cancer Institute NSW—a report which had not been published at the time that Sir Cyril Chantler visited Australia in February 2014 as part of his independent review of the evidence on plain packaging conducted to assist the UK with its deliberations.²⁴

British American Tobacco UK commissioned not a public health *scientist* but, rather a *consultant* with expertise in regulation, to produce a critique of the Cancer Institute NSW data (the Gibson report) which it appended to its submission to the UK consultation. The Gibson report was not peer reviewed, and it was not provided to the Cancer Institute NSW for comment or review. By contrast with the Cancer Institute's peer-reviewed paper on the effects of plain packaging subsequently published,²⁵ British American Tobacco UK failed to make it clear that—being a survey not of the total population but of smokers and recent ex-smokers—the survey provided no indication of smoking prevalence. Among many problems with the British American Tobacco presentation of the data:

- i. The graphs contrast aggregate statistics for 2013 with those for 2012 but this ignores the fact that plain packs started to come onto the market early in October 2012, so that the total figure for 2012 in fact includes the effects of three months of the policy.
- ii. Surveys of smokers and recent ex-smokers necessarily fail to represent people who have stopped smoking and are no longer eligible to be in the survey. Given that non-daily smokers are more likely to quit, it is hardly surprising that the

²³ British American Tobacco UK. Consultation on the introduction of regulations for the standardised packaging of tobacco products. Response of British American Tobacco UK Limited. London: BATA UK, 2014. Available from: [http://www.bat.com/group/sites/uk_9d9kcy.nsf/vwPagesWebLive/DO9DKJEB/\\$FILE/medMD9MWB4B.pdf?openement](http://www.bat.com/group/sites/uk_9d9kcy.nsf/vwPagesWebLive/DO9DKJEB/$FILE/medMD9MWB4B.pdf?openement)

²⁴ Chantler C. Report of the independent review into standardized packaging of tobacco. London Kings College, 2014. Available from: <http://www.kcl.ac.uk/health/10035-TSO-2901853-Chantler-Review-ACCESSIBLE.PDF>.

²⁵ Dunlop SM, Dobbins T, Young JM, Perez D, and Currow DC. Impact of Australia's introduction of tobacco plain packs on adult smokers' pack-related perceptions and responses: results from a continuous tracking survey. *BMJ Open*, 2014; 4(12). Available from: <http://bmjopen.bmj.com/content/4/12/e005836.abstract>

percentage of all smokers who are daily smokers would have increased between 2012 and 2013. Similarly, the percentage of smokers stating that they are affected by health warnings will be net of all the ex-smokers who have already quit that *did* attribute their quit attempt to the warnings.

- iii. Graphs are presented with y axes from 50 to 80% rather than 0 to 100%, exaggerating small increases and declines. Confidence intervals around statistical estimates are not presented, so that much is made of increases such as 3.7% to 3.8% (p22) which are almost certainly due to chance.
- iv. The analysis fails to acknowledge that there was a change in survey methodology in mid- 2013, so that the survey began to include mobile phone survey participants, as well as landline survey participants. Since mobile phone users have a higher smoking prevalence than landline participants,²⁶ this artefact alone would explain change over time in most of the outcomes reported by British American Tobacco. Note that in its peer-reviewed paper, the Cancer Institute NSW limited its evaluation of plain packaging to June 2013 because of this change in sample composition.

4.9 Didn't the 2014 Australian Health Survey show an increase in smoking among young women?

Claims by the tobacco industry in mid-2016²⁷ that prevalence of smoking among young women has increased in Australia appear to have been based on a calculation using preliminary data from the 2011-12 Australian Health Survey (released in October 2012)²⁸ which was subsequently updated after more up-to-date population estimates became available (in June 2013).²⁹ Looking at updated estimates of smoking (daily plus non-daily) among females in Australia,³⁰ the reported percentages are lower in 2014-15 than in 2011-12 for every age group—refer **Figure 9**. Female smoking fell from 15.7% of Australians 15+ in 2011-12 to 12.8% in 2014-15, a decline of almost 16%.

²⁶ Barr ML, van Ritten JJ, Steel DG, and Thackway SV. Inclusion of mobile phone numbers into an ongoing population health survey in New South Wales, Australia: design, methods, call outcomes, costs and sample representativeness. *BMC Med Res Methodol*, 2012; 12:177. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23173849>

²⁷ <http://www.independent.ie/irish-news/politics/plain-tobacco-packaging-plan-at-risk-due-to-delay-in-forming-government-34721310.html>

²⁸ See <http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/79CFD9E8B1DB36EACA257F140013347E?opendocument>

²⁹ <http://www.abs.gov.au/ausstats/abs@.nsf/PrimaryMainFeatures/4364.0.55.003?OpenDocument>

³⁰ Figures as used by the ABS in graph labelled Persons aged 18 years & over - Proportion who are current daily smokers by age, 1995 to 2014-15 at <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.001~2014-15~Main%20Features~Smoking~24>

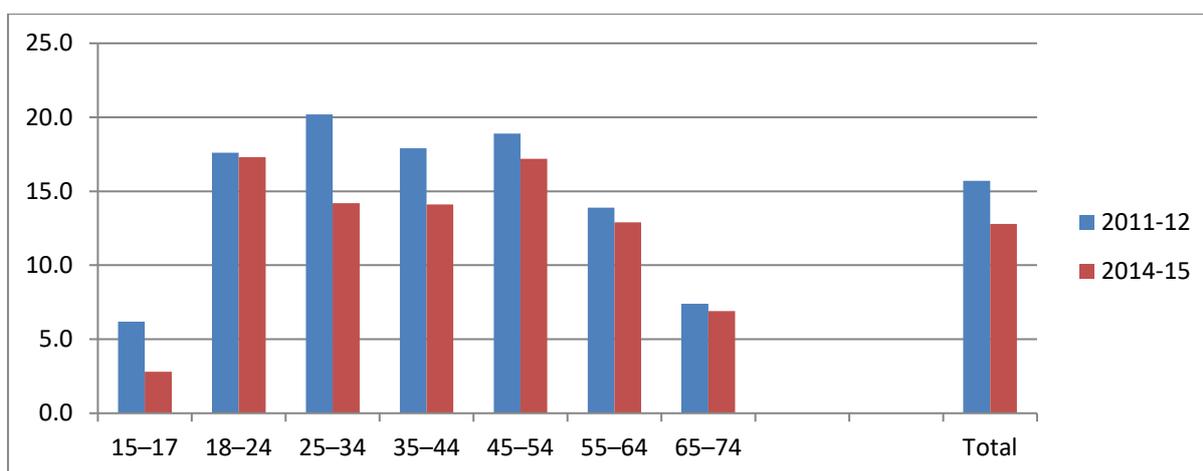


Figure 9 Current smoking, Australian females, 2011-12 compared to 2014-15

Sources:

ABS National Health Survey: Updated results, 2011-12—Australia, Table 2.1

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4364.0.55.0032011-2012?OpenDocument>

ABS National Health Survey: First Results, 2014-15 — Australia, Table 9.3

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4364.0.55.0012014-15?OpenDocument>

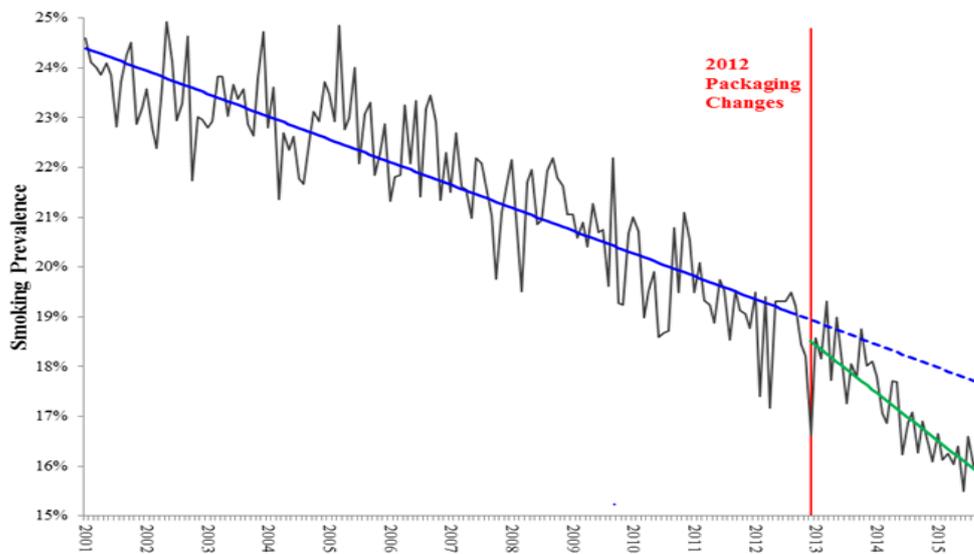
While the figures for 2011-12 and 2014-15 in the 18–24 year-old age group are close, the reported percentages are lower in 2014-15 than in 2011-12 for every age group; 55% lower among the 15-17 year olds, 30% lower among the 25-34 year olds and 21% lower among the 35-44 year olds. And also 30% lower among males of the same age group. Tobacco companies have neglected to mention any of these figures.

4.10 What is the best evidence of the impact of plain packaging on smoking prevalence in Australia?

In February 2016 the Australian Government released a report of a Post-Implementation Review on the effects of plain packaging.³¹ This report included a close analysis of data from the Roy Morgan Research Company’s Single Source survey—see Figure 1 reproduced from the Chipty report below. Because this data is monthly rather than three-yearly and the sample size is very large, this data set enables examination of effects of individual policies.

³¹ Australian Government Department of Health. Tobacco plain packaging post-implementation review - Department of Health. 2016. Available from: <http://www.health.gov.au/internet/main/publishing.nsf/content/tobacco-plain-packaging-evaluation>

Figure 1: Overall Smoking Prevalence



Note: Data are weighted using the population weights in the RMSS data.

Source: RMSS data (January 2001 – September 2015).

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Figure 10 Econometric analysis of contribution of plain packaging to decline in smoking prevalence in Australia, from Chipty report (Figure 1) forming part of Australian Government’s Post-Implementation Review.³²

The analysis examined the reduction in prevalence in Australia since the implementation of the plain packaging policy and took into account a large range of demographic factors as well as the effects of price increases both before and after the implementation of the legislation. The analysis finds that about a quarter of the drop in prevalence observed in the months subsequent to introduction could be attributed to the plain packaging policy.

The Post-Implementation Review concluded that plain packaging *has* contributed along with other tobacco control policies to continuing reductions in the prevalence of smoking in Australia.

For further facts sheets on plain packaging in Australia see

<https://www.cancervic.org.au/plainfacts/browse.asp?ContainerID=factsheets1>

³² Chipty T. Study on the Impact of the Tobacco Plain Packaging Measure on Smoking Prevalence in Australia. Appendix 1 to Australian Government Post-Implementation Review Tobacco Plain Packaging. 2016. Available from: <http://ris.pmc.gov.au/sites/default/files/posts/2016/02/Tobacco-Plain-Packaging-PIR---Appendix-A.pdf>