

Questions and answers on plain packaging in Australia

Prepared by the Cancer Council Victoria

Fact sheet no. 4:

What is happening to the prevalence of smoking in Australia?

On 17 July 2014, the independent statutory authority, the Australian Institute of Health and Welfare (AIHW), [released highlights](#) from the 2013 National Drug Strategy Household Survey.¹ This and the [detailed report](#) published on the 25 November 2014² revealed substantial drops in smoking among Australians 14 years and over since 2010.³

Australia's National Drug Strategy Household Survey is conducted every three years. It is a drop-and-collect survey of households involving over 23,000 respondents. The decline in smoking in Australia has been driven by both an increase in the proportion of Australians who have never taken up smoking—see **figure 1**, and also an increase in the proportion of ever-smokers who have quit—see **figure 2**.

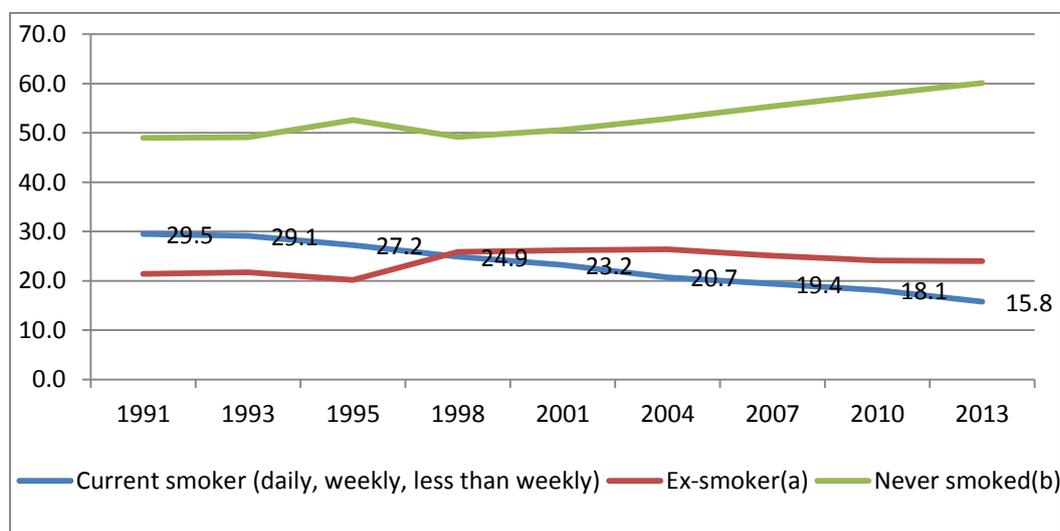


Figure 1 Percentage of Australians 14 yrs and over reporting current smoking, never smoking and ex-smoking— 1991 to 2013

¹ 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: <http://www.aihw.gov.au/alcohol-and-other-drugs/ndshs/2013/data-and-references/>

² 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>

³ 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>

Source: National Drug Strategy Household Survey; AIHW 2014 <http://www.aihw.gov.au/alcohol-and-other-drugs/ndshs/2013/data-and-references/>

(a) Smoked at least 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco in their life, and reported no longer smoking.

(b) Never smoked 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco.

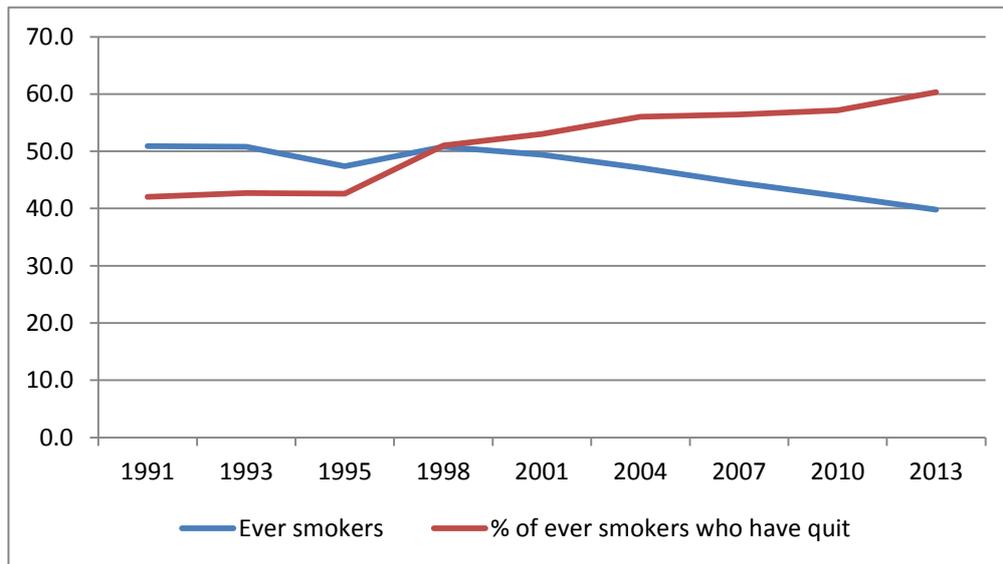


Figure 2 Percentage of Australians 14 yrs and over reporting ever smoking and proportion of ever smokers who have quit— 1991 to 2013

Source: National Drug Strategy Household Survey; AIHW 2014 <http://www.aihw.gov.au/alcohol-and-other-drugs/ndshs/2013/data-and-references/>

(a) Smoked at least 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco in their life, and reported no longer smoking.

(b) Never smoked 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco.

The percentage of Australians who smoke daily declined significantly from 15.1% in 2010 to 12.8% in 2013. As is evident in **figure 3**, this decline was significant both among men and among women.

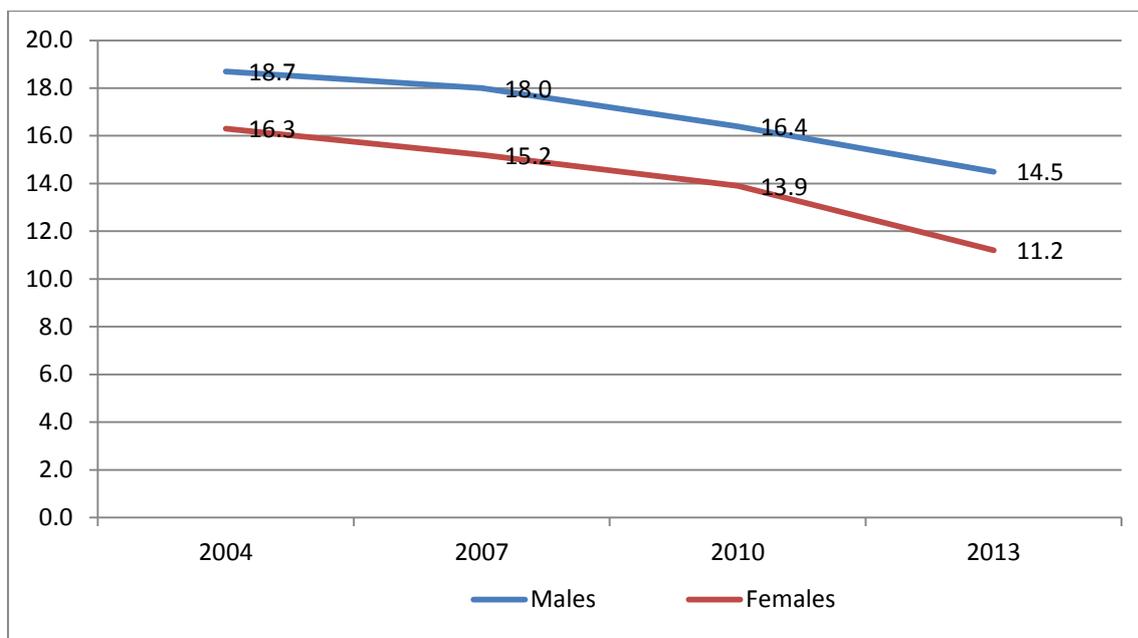


Figure 3 Percentage of Australians 14 yrs and over reporting smoking daily, 2004 to 2013, males and females

Source: National Drug Strategy Household Survey; AIHW 2014 <http://www.aihw.gov.au/alcohol-and-other-drugs/ndshs/2013/data-and-references/>

(a) Smoked at least 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco in their life, and reported no longer smoking.

The downward trend in daily smoking rates was later confirmed by preliminary data from Australia's 2014-15 National Health Survey released in December 2015—see **figure 4**.⁴

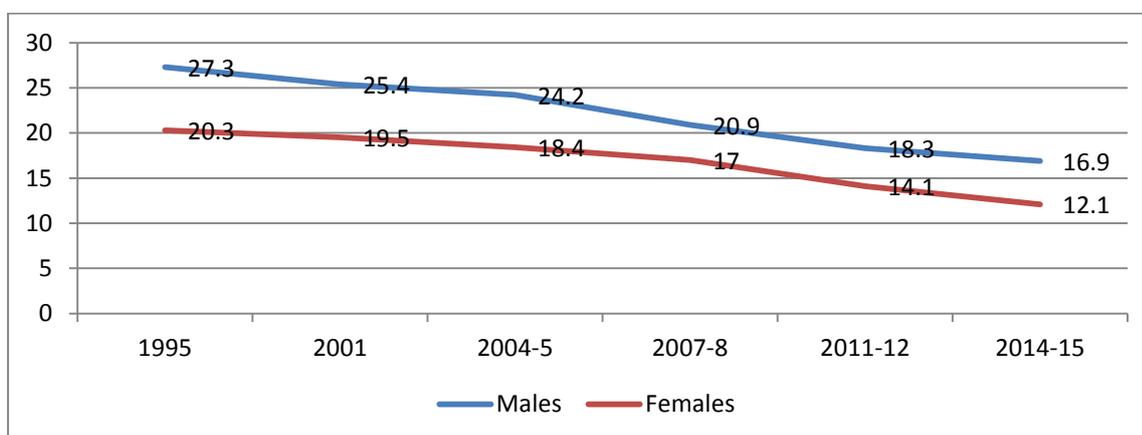


Figure 4 Australians 18 years and older who are daily smokers, 1995 to 2014-15

Source: ABS National Health Survey, first results⁵

⁴ See <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4364.0.55.001>

⁵ ABS National Health Survey, Smoking, <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.001~2014-15~Main%20Features~Smoking~24>

Results from the Australian Secondary School Students' Alcohol and Drugs survey collected in 2014 were published on the 24th November 2015⁶. This report shows adolescent smoking rates in Australia at an historical low, with rates among 12 to 17 year olds falling from 22% in 1984 to 5% in 2014. Rates of smoking in the past seven days fell both among older and younger age groups—see **figure 5**.

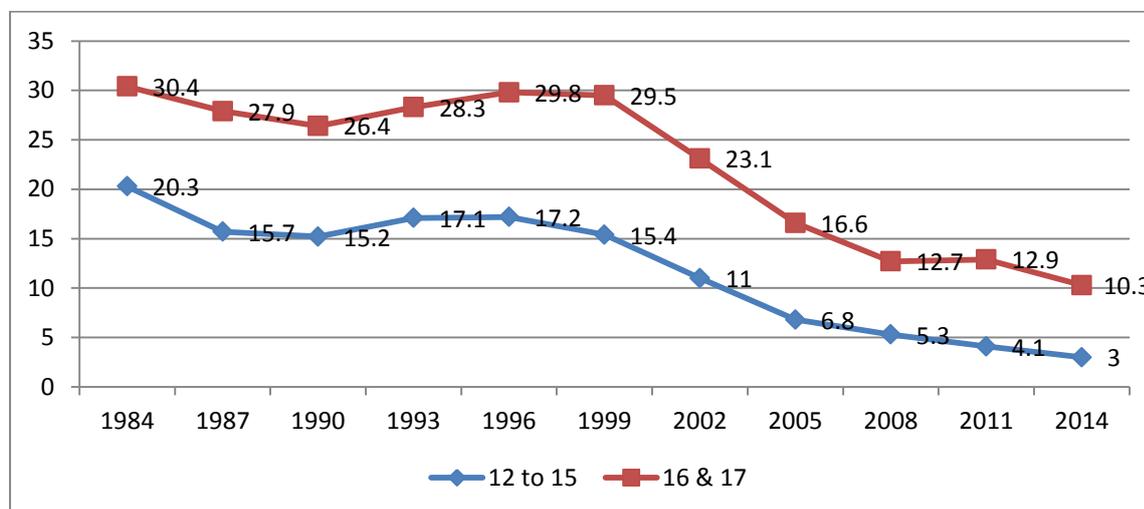


Figure 5 Trends in proportion of current (smoked in past seven days) among students, Australia, 1984-2014 —12-15-year olds and 16&17-yr olds

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.

<http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/home>

4.1. But wasn't the decline in adult smoking in line with existing trends?

In response to release of findings from the National Drug Strategy Household Survey, 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 is more than twice as large as the average drop between surveys since 1991 <http://www.aihw.gov.au/alcohol-and-other-drugs/ndshs/2013/tobacco/>—see **figure 6**.

The drop in smoking prevalence appears 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.

⁶ 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. <http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/Publishing.nsf/content/school11>

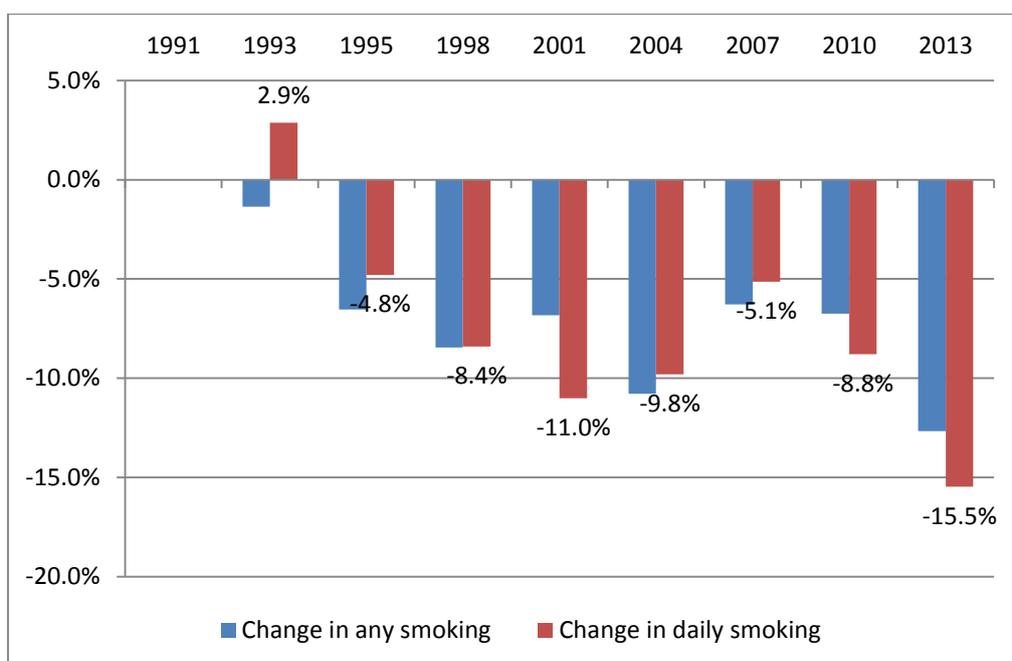


Figure 6 Changes in prevalence of any and daily smoking (labelled) between three-yearly surveys—Australia 1991 to 2013

Source: National Drug Strategy Household Survey; AIHW 2014 <http://www.aihw.gov.au/alcohol-and-other-drugs/ndshs/2013/data-and-references/>

4.2. 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.

4.3. But doesn't the National Drug Strategy Household Survey (NDSHS) show that smoking rates have increased among Australian teenagers?

In November 2014, the Australian Institute of Health and Welfare (AIHW) released a full report of the results of the 2013 National Drug Strategy Household Survey (NDSHS) showing a record level of decline in smoking rates in Australia between 2010 and 2013⁷. The figures

⁷ 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>

on daily smoking were lower for 2013 than 2010 for most age groups, however the very small numbers of respondents aged under 18 who reported 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 the # reference to the footnotes to the table, this change was not statistically significant—see **Table 1** below which reproduces the first part of the relevant table. 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’.⁸ When the Australian Institute of Health and Welfare 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.⁹

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 release¹⁰ 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 1**. 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.

⁸ 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_7WYKG8.nsf/vwPagesWebLive/DO9FC38M?opendocument&SKN=1

⁹ 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>

¹⁰ 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_7WYKG8.nsf/vwPagesWebLive/DO9FC38M?opendocument&SKN=1

Table 1 Changes in smoking among selected young people, Australia

Smoking status	2001	2004	2007	2010	2013
12–17					
Daily	n.a.	5.2	3.2	2.5	3.4
Occasional ^(a)	n.a.	1.5	0.9	1.3	*1.6
Ex-smokers ^(b)	n.a.	1.7	0.9	1.6	*0.3#
Never smoked ^(c)	n.a.	91.6	95.0	94.6	94.7
18–24					
Daily	24.1	20.2	16.5	15.7	13.4
Occasional ^(a)	7.9	5.3	4.9	4.9	5.1
Ex-smokers ^(b)	10.3	9.5	8.3	7.3	4.7#
Never smoked ^(c)	57.7	65.1	70.3	72.1	76.8#

Source: AIWH report of National Drug Strategy Household Survey, 2013¹¹

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 Australian Secondary School Students Alcohol and Drug survey (ASSAD) which surveys about **23,000 students under anonymous conditions at school**¹² and is much better able to detect small changes in the low rates of smoking participation by Australian teenagers.

The recently 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 2**.

Table 2 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 <http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/Publishing.nsf/content/school11>

¹¹ 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>

¹² 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://www.nationaldrugstrategy.gov.au/internet/drugstrategy/Publishing.nsf/content/school11>

4.4. Didn't tobacco control experts predict that prevalence of smoking would reduce by 3% among children and 1% among adults 'within two years'?

John Player tobacco company in the Republic of Ireland posted an information brochure repeating the claims above in relation to the teenage smoking figures from the National Drug Strategy Household Survey and contrasting these with findings of a paper by Pechey *et al.*¹³ which reported results of a survey of tobacco control experts predicting a decline of smoking within two years. The brochure states 'the two years are up'. Notwithstanding the fact that the NDSHS data were collected in 2013 (one not two years after implementation!) and are in any case not an optimal indication of teenage smoking rates in Australia, this claim ignores several important qualifications reported in the study. First, many experts felt the Pechey study was simplistic and refused to participate, and several participated but refused to provide an estimate arguing that strategies worked in concert and that effects cannot always be disaggregated. Those who did provide an estimate did so on the assumption that 'all else would be equal'... a condition clearly not met in relation to spending on mass media campaigns in 2013 compared to 2012.

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

The Kaul and Wolf report¹⁴ was funded, and its release closely directed, by Philip Morris International.¹⁵ 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. In any case, **the effects of plain packaging are**

¹³ Pechey R, Spiegelhalter D, and Marteau TM. Impact of plain packaging of tobacco products on smoking in adults and children: an elicitation of international experts' estimates. *BMC Public Health*, 2013; 13:18. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23302325>

¹⁴ 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.

¹⁵ Angeli T. Universität Zürich lässt «Review» einer Studie durch Philip Morris zu. Zurich: [angelisansichten](http://angelisansichten.ch/universitaet-zuerich-laesst-review-einer-studie-durch-philip-morris-zu/), 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>

more likely to be gradual,¹⁶ affecting prevalence only as adolescents mature into the age in which they are vulnerable to experimenting, with effects amplified over time 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.¹⁷

4.6. 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 25 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 prior¹⁸ 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 prevalence, the Philip Morris study was not sufficiently powered to find one. See [here](#) for a detailed critique of this study.

¹⁶ Lavery 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>

¹⁷ And for a detailed critique of statistical analysis see Lavery 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>

¹⁸ 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).

4.7. Hasn't British American Tobacco shown that a survey by the NSW Cancer Institute 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.¹⁹ In this submission it claimed that the British Government had not considered the results of a study conducted by The Cancer Institute New South Wales—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.²⁰

British American Tobacco UK commissioned not a public health *scientist* but, rather a *consultant* with expertise in regulation, to produce a critique of the NSW Cancer Institute 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,²¹ 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 percentage of all smokers who are daily smokers would have increased between 2012 and 2013. Similarly, the percentage of smokers stating that they are

¹⁹ 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)

²⁰ 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>.

²¹ 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>

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 participants²², 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.

4.8. Doesn't data from state government surveys also show that prevalence of smoking has not declined since 2012? Isn't it possible that smoking declined sharply between 2010 and 2012 and then went up again in 2013?

Philip Morris International has posted on its website data compiled from five disparate state surveys.²³ Philip Morris International uses these to purport to show that smoking rates may have increased between 2012 and 2013 in four out of five states and that the decline in New South Wales is not significant. In fact—*none* of the changes in prevalence presented on the Philip Morris website are significant, with confidence intervals around prevalence estimates overlapping in all cases—see **figure 5**. The Philip Morris International data is also misleading in that it fails to make it clear that point estimates in each state fluctuate widely from year to year, not infrequently going up slightly.

Further, in four out of five cases, the 2012 surveys were conducted over a period which spanned the period of introduction of plain packaging²⁴—i.e. between October and

²² 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>

²³ Philip Morris International. Data from Australian states revealed. 2015. Last update: 22 January 2015; Viewed Available from: <http://justthefacts.pmi.com/data-from-australian-states-revealed/>

²⁴ **New South Wales** Interviews are carried out continuously between February and December each year, so three of 11 months during implementation http://www.healthstats.nsw.gov.au/Indicator/beh_smo_age; **Victoria** The surveys are conducted in November, bang in the middle of implementation in 2012; **Queensland** Interviews were held between 3 October 2011 and 1 April 2012 <http://www.health.qld.gov.au/epidemiology/publications/phs-qld.asp>; **South Australia** Data collection for the Health Omnibus Survey is carried out in Spring, ie. September to November... two thirds of survey

December 2012—so that 2012 is not a valid ‘before’ period with which to compare the 2013 data.

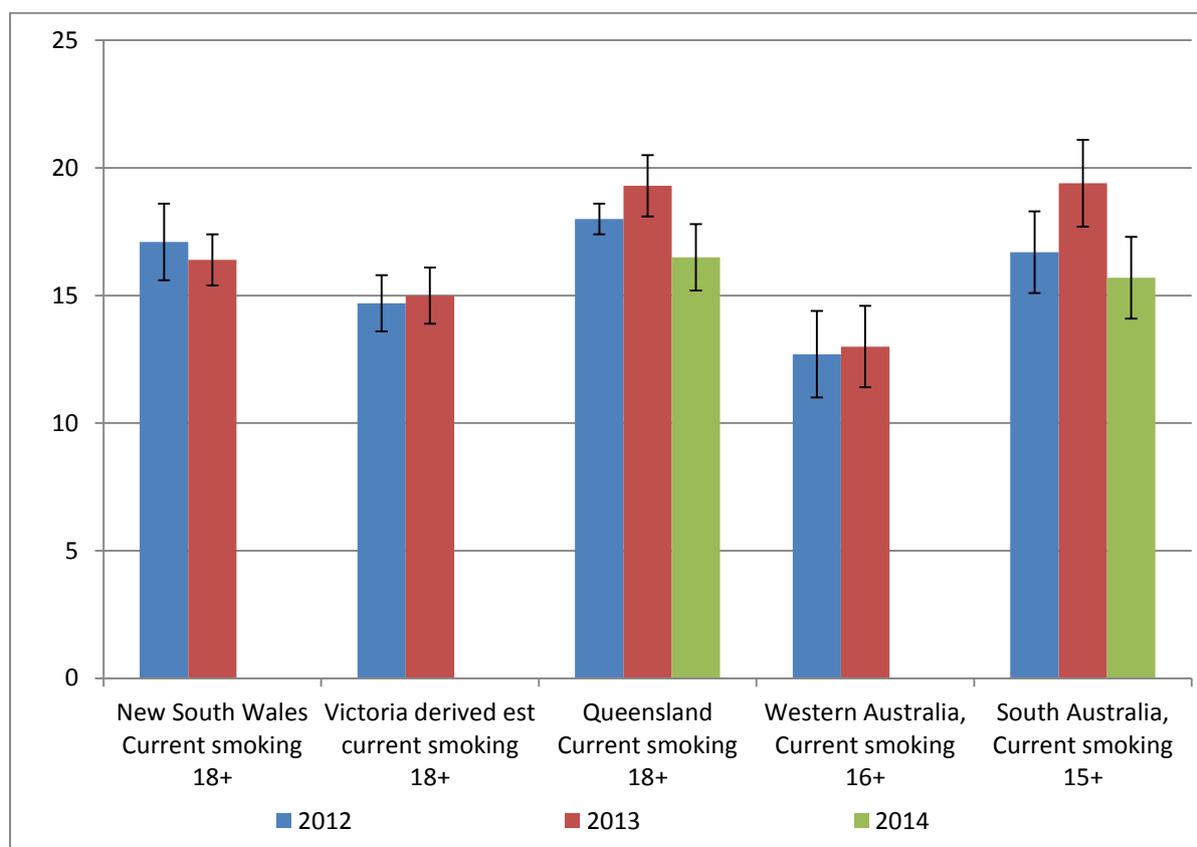


Figure 7 Prevalence of current smoking selected Australian states—2012 compared to 2013

Sources: NSW Health of the people data²⁵ Victorian Smoking and Health Survey,²⁶ Queensland Preventive Health Indicators,²⁷ Western Australian Health and Wellbeing Survey,²⁸ and the SA Health Omnibus Survey.²⁹³⁰

conducted during implementation https://health.adelaide.edu.au/pros/docs/reports/hos_prospectus_spring_2012_.pdf ;
Western Australia Between January and December, so three of 12 months during implementation
http://www.health.wa.gov.au/Publications/documents/HWSS_Adult_Overview_and_Trends_2012.pdf;

²⁵ Centre for Epidemiology and Evidence. Current smoking in adults by age and sex, NSW 2013, Health Statistics New South Wales. Sydney, NSW: Ministry of Health, Created 5 February 2015. Available from: www.healthstats.nsw.gov.au

²⁶ The data cited from Victoria was drawn from a study on a different topic and was not presented as a validated prevalence estimate. Like the NSW Cancer Institute, surveys in Victoria have started to contact respondents by mobile phone. Those who no longer have phone-lines at home are likely to be younger and this needs to be taken into account in the process of weighting survey results.

²⁷ Department of Health. Self reported health status 2011–12. Health indicators: chronic disease and behavioural risk factors, Queensland. Brisbane: Department of Health, Queensland Government: Brisbane, 2012. Available from: <http://www.health.qld.gov.au/epidemiology/publications/phs-qld.asp>; Department of Health. Self reported health status 2013. Preventive health indicators: Queensland., Brisbane: Department of Health, Queensland Government, 2013. Available from: <http://www.health.qld.gov.au/epidemiology/publications/phs-qld.asp>; Department of Health. Self reported health status 2014. Preventive health indicators: Queensland. Brisbane: Department of Health, Queensland Government, 2014. Available from: <http://www.health.qld.gov.au/epidemiology/publications/phs-qld.asp>.

²⁸ Tomlin S and Joyce S. Health and Wellbeing of Adults in Western Australia 2012, Overview and Trends. East Perth: Department of Health, Western Australia, 2013. Available from: http://www.health.wa.gov.au/publications/pop_surveys.cfm.; Radomiljac A and Joyce S. Health and Wellbeing of Adults in Western Australia 2013, Overview and Trends. East Perth: Department of Health, Western Australia, 2014. Available from: http://www.health.wa.gov.au/publications/pop_surveys.cfm.

The tobacco company's demand for immediate changes in prevalence after implementation of plain packaging assumes that all other policy factors are equal before and after the implementation of this policy. However—to take just one example—spending on media campaigns in Australia was substantially lower in most jurisdictions in 2013 than in 2012. Expenditure was particularly low in the second half of 2013 in Queensland, and in Victoria and South Australia (where surveys are conducted towards the end of the year). In fact, there appears to have been no expenditure on mass media campaigns at all in the latter half of 2013 in South Australia.

Are there more reliable estimates of changes in prevalence over time?

The National Drug Strategy Household Survey is more easily able to detect change because sample sizes are large and surveys are conducted using a consistent method over time and only every three years. While it does not provide an indication of changes in prevalence between 2012 and 2013, state level data from this survey³¹ show that the drop between 2010 and 2013 observed in this survey was significant, both overall and in three of the four largest states where sample sizes were largest—see **table 3** below.

Table 3 Daily tobacco smokers, people aged 18 years and older, by state/territory, 1998 to 2013 (per cent)

State/territory	1998	2001	2004	2007	2010	2013	
NSW	21.8	18.6	17.2	17.2	15.0	12.2	#
Vic	22.9	19.9	18.2	17.4	15.5	12.6	#
Qld	24.3	21.6	20.7	17.9	17.7	15.7	
WA	23.6	20.8	16.4	15.6	16.5	12.5	#
SA	19.4	20.5	17.2	17.6	15.7	13.6	
Tas	25.3	21.4	22.3	24.0	16.9	16.7	
ACT	22.9	18.5	16.1	15.2	11.7	9.9	
NT	32.5	28.7	28.5	27.1	23.9	22.2	
Australia	22.7	20.0	18.2	17.5	15.9	13.3	#

Statistically significant change between 2010 and 2013.

²⁹ Dono J and Miller C. Key Smoking Statistics for SA – 2013. Adelaide, Australia: South Australian Health and Medical Research Institute (SAHMRI), April 2014. Available from: <https://www.sahmri.com/our-research/themes/cancer/research/list/key-smoking-statistics>; Harrison Health Research. The Health Omnibus Survey, Spring 2012. Adelaide: Harrison Health Research, 2012. Available from: https://health.adelaide.edu.au/pros/docs/reports/hos_prospectus_spring_2012_.pdf

³⁰ Dono J, Bowden J, and Miller C. Key Smoking Statistics for SA – 2014. April. Adelaide, Australia: South Australian Health and Medical Research Institute (SAHMRI), 2015. Available from: https://www.sahmri.com/user_assets/1785280bbe4eb537684265591d82ab6f7e0a05b9/key_smoking_stats_for_sa_2014_-_final_-_300415.pdf

³¹ Australian Institute of Health and Welfare. National Drug Strategy Household Survey detailed report: 2013 - Supplementary tables. State tables, Canberra: AIHW, 2014. Available from: <http://www.aihw.gov.au/publication-detail/?id=60129549469&tab=3>

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

Recent claims by the tobacco industry³² that prevalence of smoking among young women has increased in Australia appear to be based on a calculation using preliminary data from the 2011-12 Australian Health Survey (released in October 2012)³³ which was subsequently updated after more up-to-date population estimates became available (in June 2013)³⁴. Looking at updated estimates of smoking (daily plus non-daily) among females in Australia,³⁵ the reported percentages are lower in 2014-15 than in 2011-12 for every age group—refer **Figure 7**. Female smoking fell from 15.7% of Australians 15+ in 2011-12 to 12.8% in 2014-15, a decline of almost 16%.

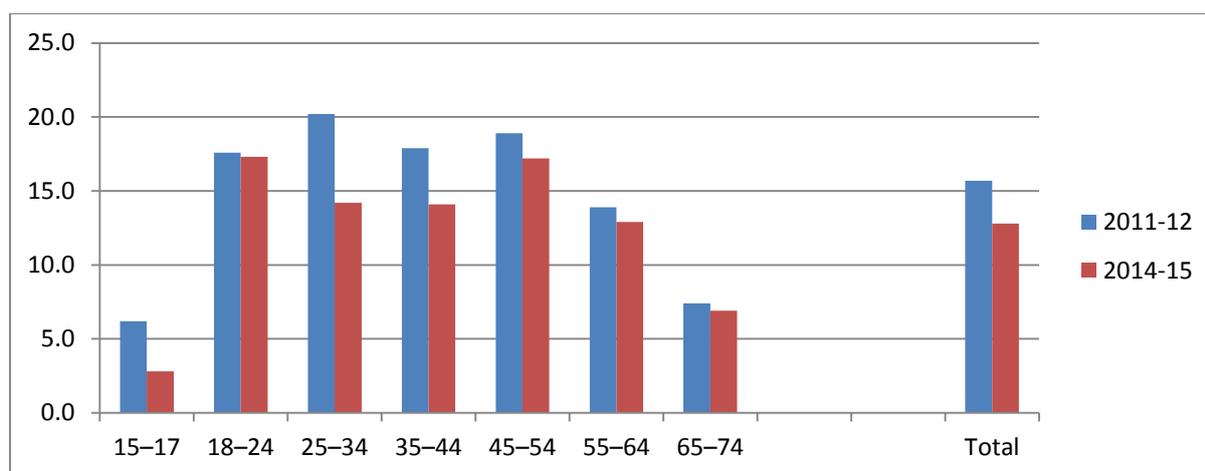


Figure 7. Current smoking, Australian females, 2011-12 compared to 2014-15

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.

³² <http://www.independent.ie/irish-news/politics/plain-tobacco-packaging-plan-at-risk-due-to-delay-in-forming-government-34721310.html>

³³ See <http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/79CFD9E8B1DB36EACA257F140013347E?opendocument>

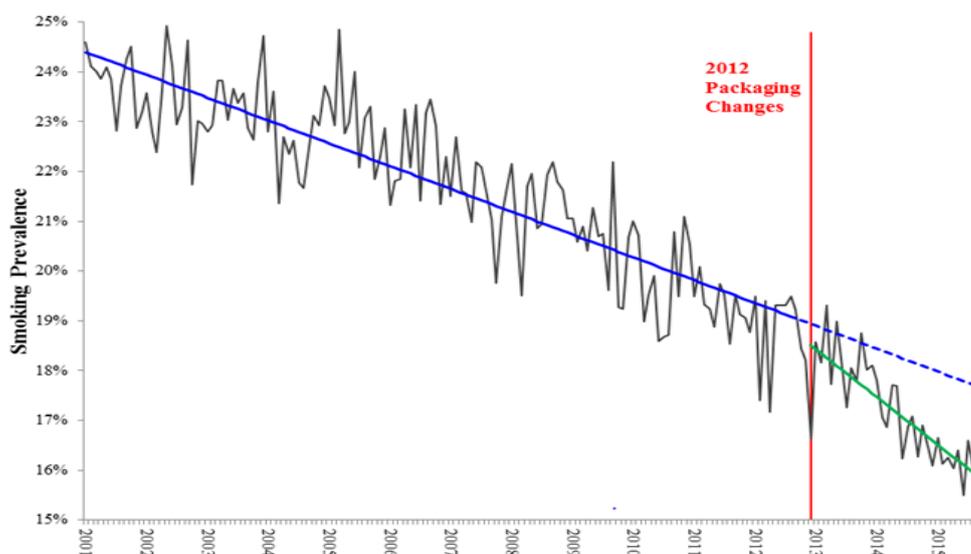
³⁴ <http://www.abs.gov.au/ausstats/abs@.nsf/PrimaryMainFeatures/4364.0.55.003?OpenDocument>

³⁵ 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>

4.10 What is the best evidence that plain packaging has contributed to declining prevalence in Australia?

In February 2016 the Australian Government released a report of a Post-Implementation Review on the effects of plain packaging.³⁶ This report included a close analysis of data from the Roy Morgan Research Company's single source survey—see figure 1 reproduced from the Chifty report³⁷ 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.

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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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>

³⁶ Australian Government Department of Health. Tobacco plain packaging post-implementation review - Department of Health. 2016. Available from: <https://ris.govspace.gov.au/2016/02/26/tobacco-plain-packaging/>

³⁷ Chifty 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: <https://ris.govspace.gov.au/2016/02/26/tobacco-plain-packaging/>