

SmokeLess New Zealand

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Reducing the excess nicotine in cigarettes

Proposed policy to reduce tobacco addiction

Aim Assist smokers and protect young people by making cigarettes less addictive.

- Most smokers know they ought to quit for health reasons.
- Tobacco addiction varies among smokers from mild to fierce.
- A less fierce addiction could make it easier for many adolescents to quit before becoming regular smokers, and make it easier for many older smokers to quit.

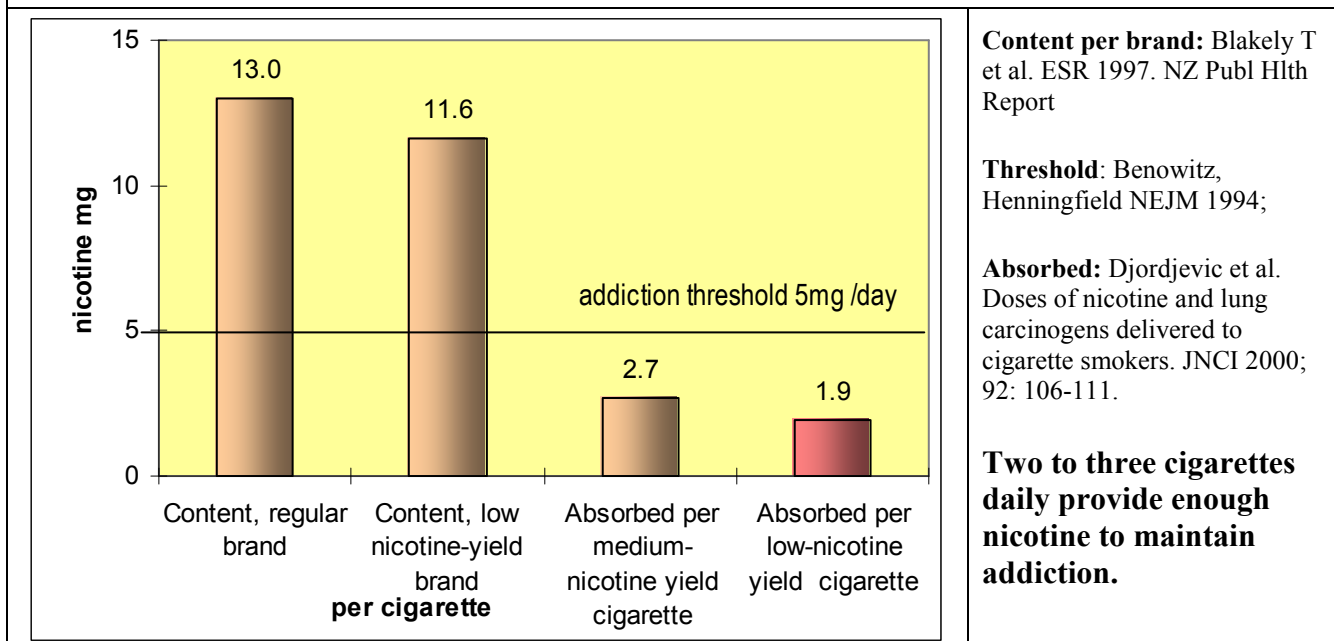
Feasibility. The nicotine content of cigarettes can be reduced, without smokers noticing, and safely, without compensatory smoking or increased harm to smokers.

- **Manufacturers can remove nicotine.** Example: Quest low-nicotine-content cigarettes sold in the US.
- **Without smokers noticing:** With a minimum of seven step-downs each at least four months apart, with 90% of smokers not expected to notice any given stepping down of nicotine. The reduction is applied to all brands simultaneously. The reduction can be spread over a longer time frame, for example six months per step. www.smokeless.org.nz/nicfadeout.htm
- **Safely, without causing compensatory smoking.** Nicotine reduction is safe. Health and tobacco company researchers^{8,9} have recently shown that if the nicotine but not the tar yield is reduced, smokers will not over-smoke (compensatory smoking). Thus nicotine can be safely reduced without breathing more toxicant gases, and addiction can be reduced also.

Perceived problem: Reducing nicotine content can reduce nicotine yield (the nicotine in mainstream smoke), which in turn can persuade the smoker to inhale more smoke to obtain sufficient nicotine (compensatory smoking). Compensatory smoking leads to increased inhalation of smoke whenever low tar low nicotine cigarettes are smoked. This would be harmful if nicotine was decreased.

Solution: Leading scientists both outside⁸ and inside⁹ the cigarette manufacturing industry, have recently found that compensatory smoking only occurs when tar is also reduced. It does not occur for example, with Quest (low nicotine medium tar) cigarettes (Vector Tobacco Company).⁸ Compensatory smoking is thus something that manufacturers know about and can produce or eliminate by their control of the engineering design and tobacco blend used for each cigarette brand. Regulations can require manufacturers to retain sufficient tar deliveries, or otherwise demonstrate to the Ministry of Health as regulator, that a reduced nicotine content cigarette will not produce compensatory smoking. As most of the harm comes from gases not tar,¹² the overall effect of reducing nicotine content is not harmful.

Figure 1. Nicotine content and nicotine absorbed per cigarette, versus threshold (minimum) required daily to sustain addiction



Cigarettes provide more than sufficient nicotine for smoking pleasure, whether measured by nicotine content or by yield. Even when nicotine content has been reduced by 30% over five years to 9 mg per cigarette, and the amount absorbed reduced in proportion, it would only require 2 to 3 cigarettes a day to stay addicted.

Rationale for a national nicotine reduction policy

This policy is aimed to particularly assist the 34% of smokers that are most addicted, who smoke 10 or more cigarettes a day and who smoke a cigarette within half an hour of waking.² If the addiction was less fierce, they could be free to enjoy life more, and have a real choice to quit if they wished.

Those most addicted are most at risk. Lung cancer patients for example, have a higher addiction score.³

Cigarette nicotine is excessive -higher than in other countries. New Zealand cigarettes contain on average 12.8 mg nicotine per cigarette,⁴ higher than reported from the UK, US and Canada.⁵

Cigarette nicotine is higher than needed to maintain addiction Of the 12.8 mg cigarette nicotine, 15% is found in mainstream smoke (1.9 mg).⁶ Thus 3 cigarettes a day will provide the 5 mg nicotine daily needed to maintain addiction.⁶ Intensely smoked, one or two cigarettes could maintain addiction.

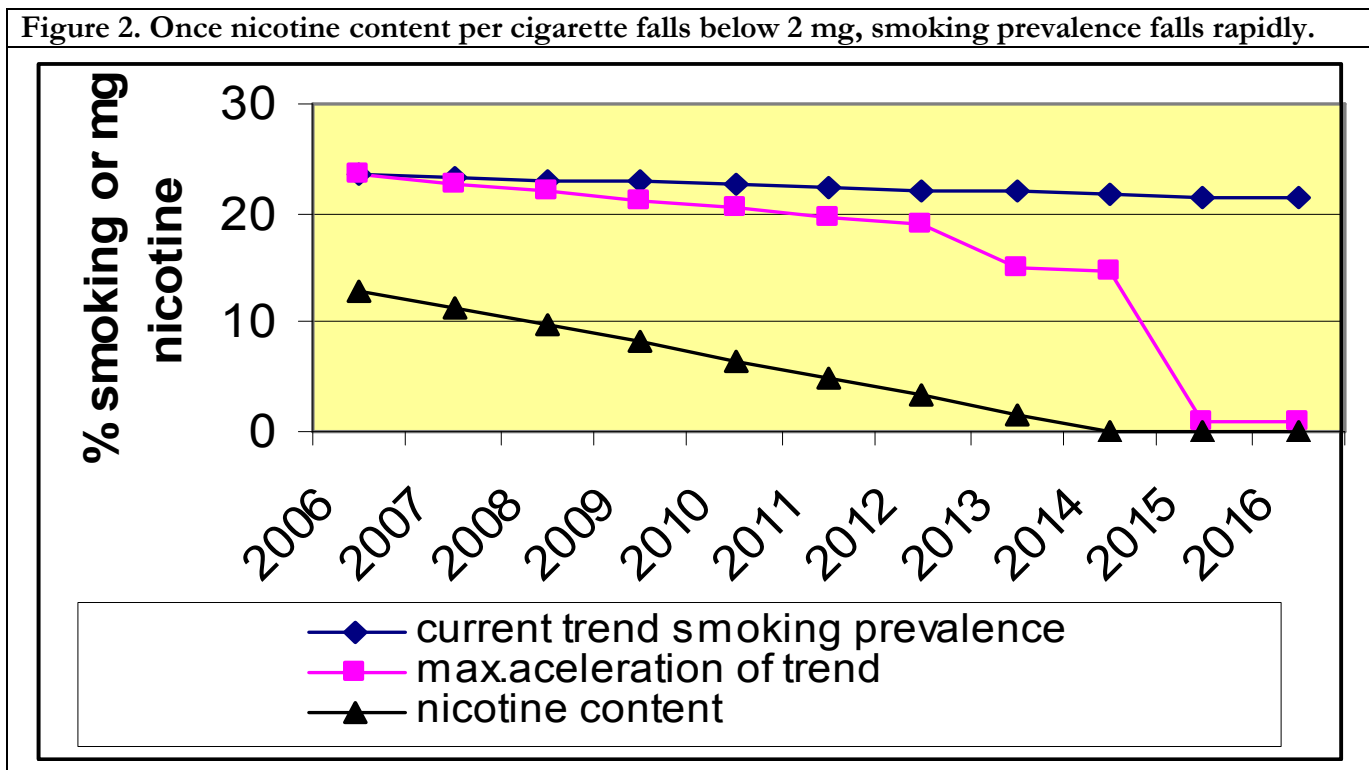
All cigarettes contain excess nicotine. Even “low nicotine yield” cigarettes sold in New Zealand contain excess nicotine. (11 mg).⁴ In May 2005 New Zealand smokers could not buy any brand which is truly low nicotine, to help them “taper” or wean themselves off nicotine.

Feasibility. Cigarette makers can supply low nicotine cigarettes. In the United States, Vector Tobacco Company manufactures one brand (Quest), a truly low nicotine content cigarette and sells it in northwestern states. Smokers wishing to quit can switch to Quest 1 which contains 8.9 mg nicotine, then to Quest 2 which contains

4.9 mg; then to Quest 3, containing 0.5 mg nicotine. (www.vectortobacco.com)

Acceptability A significant minority of smokers will switch to truly non-nicotine cigarettes if both are available, but not to gum.¹⁰ Regulation would allow sale only of only low nicotine cigarettes.

Misleading packet labeling. Mild, extra-mild, and light labels, and low nicotine ratings on packets indicate that smokers get less tar and nicotine. However, nicotine yield on smoke test, as stated on cigarette packets, bears no relation to the amount of nicotine absorbed by smokers.¹¹ Current regulations, the Smoke-free Environments Regulations 1999, also require or permit the same misleading nicotine smoke yield labeling.



- **Current trend** The upper plot line is the current trend.
- **Giving smokers access to smokeless nicotine or tobacco.** The middle plot line represents the accelerating effect of making addictive nicotine available as an alternative to smoking. In addition, cigarette nicotine content is reduced by one eighth (12.5%) each year.
- **Reduced nicotine content.** From 2012, when nicotine content falls below 2 mg per cigarette, smoking is no longer attractive, so smokers either switch to smokeless forms of nicotine or tobacco which now seem more appealing, or quit altogether. The percentage still smoking dwindles, aiding any ban on cigarette sales.

Current government policy

- Nicotine replacement therapy (NRT) as gum and patches are subsidized through the Quit programme.
- Nicotine yield of cigarette smoke is tested by the manufacturer but not audited, and printed on the packet.
- There is no requirement to state the nicotine content of the tobacco or cigarette to the smoker.

- There is no regulation controlling how much nicotine is in the cigarette.
- Nicotine keeps smokers smoking (dirty or smoke nicotine). Nicotine in other products is seldom lethal.

Why strengthening this policy is high priority

- Addiction to smoking tobacco kills - by causing smokers to keep on smoking – for 20 years or more, until smoking causes fatal diseases for over 4000 smokers annually (12 per day). Pure nicotine (gum) seldom addicts, and can be chewed daily for five years without ill effect.¹
- 84% of NZ smokers said their smoking is a form of addiction² – a much higher percentage than for alcohol or other drug users. The proportion of smoking their first cigarette of the day within half an hour of rising was 78% of those smoking over 20 cigarettes a day, 43% of men, 43% of women, 37% of white collar, 41% of blue collar workers, 50% of those not in paid work, 43% of European, 41% of Maori, and 34-38% of those age 20-34, 45% of those age 35 years and over.²
- Addiction is perpetuating tobacco smoking. Most New Zealand smokers have tried to quit but almost as many as quit, relapse. This explains why adult smoking decreases slowly despite some quitting activity.

Proposed national cigarette nicotine policy

Nicotine content reduction to make it easier for smokers trying to quit. That Ministry of Health develop a national policy to reduce tobacco addiction with the aim of making it easier for smokers to quit, with new regulations to take effect in 2006.

Nicotine content labeling. Following its 2005 regulatory review, that Ministry of Health draft new regulations under the Smokefree Environments Act to update cigarette packet labeling so that it informs smokers of nicotine content.

In detail: the policy would be multi-faceted

1 Regulation (under existing powers of Section 31 of the Smokefree Environments Act) to gradually remove the excess nicotine in New Zealand cigarettes, simultaneously across all brands sold. Manufacturers control the nicotine content of their brands, directly or indirectly. Government can monitor nicotine content of cigarettes and tobacco sold by requiring spot testing (at manufacturers' expense) of cigarettes sold. The maximum permitted nicotine content of all cigarettes sold in New Zealand can and should be reduced gradually towards zero. Done gradually, this should not interfere with smoking pleasure until the 6th reduction, provided steps are at least four months apart. Its gradual reduction would tilt the balance and make it easier for many to quit smoking.

Substantial reduction in nicotine content will require parliamentary approval by amendment to the Smoke-free Environments Act. www.smokeless.org.nz/lawchanges.htm

2. Enhanced quitting services- These will be needed more than ever once nicotine content decreases.

3. Use of cigarette manufacturers' knowledge as to how to add or subtract nicotine as required.

4. Ban on import of cigarettes for personal use. Personal import of cigarettes would circumvent the

requirement for reduced nicotine content. This ban would therefore have to apply to the duty free tobacco and cigarette allowance for returning residents.

5. Supportive policies Support for gradually reducing nicotine to low levels will require

- Access to nicotine products once cigarettes no longer satisfy smokers' nicotine addiction.
- Monitoring; Regular surveys of smokers and their level of addiction are needed before during and after the intervention goes into effect.
- Policy research.
 - Research to determine whether this type of cigarette (Reduced nicotine cigarette or RNC) helps smokers to quit when given Quest 1, 2 and 3. The Clinical Trials Research Unit, School of Population Health, University of Auckland, funded by Health Research Council of NZ, will recruit participants to this trial in 2008.
 - Acceptability trials for smokers staying on Quest 1, compared with acceptability of nicotine substitutes.
- Public education; particularly before the law is passed, and again before it is implemented;
- Sale of nonsmoking nicotine products alongside cigarettes can be required by regulation;
- Regulatory approval of more effective nicotine products that would provide a nicotine fix without the dangers of smoking

Expected consequences. Smoking prevalence, at 21% initially, would be largely unaffected until 20 months, when it would fade rapidly to a new low plateau of approximately 5% still smoking. Demand for nicotine patches and gum (and personal mail orders for smokeless tobaccos perhaps) would likely increase greatly for a few months, and then decrease to a new steady level.

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