

Large Pictorial Health Warning Labels Help Tobacco Users Quit

Product packaging is a key element in marketing and is used by tobacco companies to make deadly tobacco use appear acceptable, attractive, and even healthy. To counter this and to warn tobacco users and non-users about the dangers of tobacco, the WHO Framework Convention on Tobacco Control (WHO FCTC) requires countries to adopt large pictorial (or graphic) health warning labels (HWLs) on tobacco products.

As countries around the world have adopted more graphic and larger HWLs, the evidence is clear that they are an effective way to reduce tobacco use, especially as part of a comprehensive approach including public policies (e.g., smoke-free, tax) and other efforts to communicate the dangers of tobacco use and help users. The evidence has also become clear that HWLs are most effective when they are large and graphic, use multiple warnings with rotating content themes, are updated regularly, and include quitline numbers.

HWLs are an important opportunity to communicate the risks of tobacco use

Public awareness is low about the true risks of tobacco use, even in countries with widespread anti-smoking campaigns.¹ HWLs can play a critical role in correcting this.

- Most smokers cannot recall the specific health effects associated with smoking.¹
- Even smokers who understand the dangers of smoking underestimate the severity of its impact on health.²
- Most smokers perceive other smokers to be at greater risk from smoking than themselves.³
- Smokers tend to be even less aware of the risks of secondhand smoke to others.⁴
- An understanding of both the risks and severity of smoking are important factors in motivating smokers to quit.⁵

The tobacco package is an educational and motivational opportunity. Pack-a-day smokers are exposed to images printed on packs at least 20 times per day (and 7,000 times per year), when they buy and use cigarettes. That's 20 opportunities a day to deliver warnings about smoking at critical junctures: the point of purchase and the time of smoking.⁶ The use of pictorial images enhances the impact of the public health message.

“One of the most cost-effective and impactful tobacco control measures available to governments is warning people about the harms caused by tobacco through the implementation of graphic health warnings on tobacco product packaging and anti-tobacco mass media campaigns.”¹

Dr Rudiger Krech, Director, Department of Health Promotion, World Health Organization

“...if you smoke, a cigarette pack is one of the few things you use regularly that makes a statement about you. A cigarette pack is the only thing you take out of your pocket 20 times a day and lay out for everyone to see.”⁷

Marketing Backgrounder, Brown & Williamson (1985)

Pictorial HWLs effectively increase knowledge about health harms from tobacco use

Smokers report that they receive more information about the risks of smoking from the tobacco product package than from any other source except television.⁸ As more countries introduce stronger HWLs and evaluate their effectiveness, growing evidence shows that pictorial HWLs have a greater impact than text-only HWLs on awareness of the risks of tobacco use:

- A 2011 review of health warning messages on tobacco products concluded that pictorial HWLs eliciting emotional reactions are significantly more effective than text-only warnings at increasing health knowledge and risk perception, promoting cessation, and preventing initiation of smoking.⁹
- A 2016 meta-analysis of 37 experimental studies found that, compared to text-only warnings, pictorial HWLs:¹⁰
 - Attracted and held attention better;
 - Evoked stronger cognitive and emotional reactions;
 - Resulted in more negative attitudes toward packs and smoking;
 - More effectively discouraged smoking initiation and increased intention to quit.

The assessing the impact of strengthening cigarette pack warnings, a 2016 review concluded that introducing stronger warnings—either changing from text-only to pictorial, and/or increasing size—led to increased knowledge and quitline calls, and reduced smoking prevalence.¹⁰

Pictorial HWLs motivate tobacco users to quit and reduce initiation

- A study on U.S. and Canadian adult smokers found that more graphic representations of health consequences evoked more fear and resulted in stronger intentions to quit smoking.¹¹
- After Brazil introduced new pictorial HWLs in 2002, 67% of smokers said the new warnings made them want to quit.¹²
 - Brazil introduced a second round of labels in 2004. In a study evaluating both rounds, researchers found that the most threatening and fear-arousing images on HWLs increased intentions to avoid smoking.¹³



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- After the introduction of pictorial HWLs on cigarettes in Taiwan in 2009, the prevalence of thinking about health hazards of smoking increased from 51% to 80% among smokers, and from 69% to 94% among nonsmokers. Additionally, the prevalence of smokers thinking of quitting rose from 30% to 52%.¹⁴
- A study in Canada suggested that the large pictorial HWLs had a significant effect on behavior by reducing smoking prevalence and increasing quit attempts.¹⁵
- A follow-up investigation of the four-country study revealed that larger, pictorial HWLs (as seen in Canada and Australia) were associated with increased quit attempts in comparison with text-only labels (as seen in the U.S.).¹⁶
- In a study comparing the impact of small, text-only HWLs in Malaysia with large, pictorial HWLs in Thailand, the Thai warnings were more likely to lead to quitting behaviors.¹⁷
 - An additional study in Thailand before and after implementation of pictorial HWLs found that smokers were significantly more likely to think about quitting in response to the larger, pictorial HWLs compared to the previous text-only HWLs.¹⁸
- After implementation of pictorial HWLs in Mauritius, smokers had over twice the odds of thinking about smoking-related health risks or thinking of quitting than before.¹⁹
- An investigation of the impact of the Chinese text-only HWLs compared to other pictorial HWLs from around the world found that larger pictorial HWLs were perceived to be more effective at informing about the dangers of smoking, convincing youth not to start, and motivating smokers to quit.²⁰
- A Greek study of adolescents found that approximately 84% of non-smoking adolescents reported that the proposed EU pictorial HWLs were more effective than the old EU text-only HWLs in preventing smoking initiation.²¹
- A 2018 literature review of 14 studies conducted in Asian countries (Malaysia, Thailand, India, China, Lao PDR, Qatar, Bangladesh, Pakistan, Jordan, Turkey, and Indonesia), found that pictorial HWLs were perceived as more effective in discouraging smoking initiation among non-smokers than text-only HWLs.²²
- A 2019 French survey conducted among adolescents aged 12 to 17 years, found that one year after implementation of plain packaging along with increased graphic HWLs, as compared with before implementation, adolescents' smoking initiation significantly decreased.²³



Larger HWLs are more noticeable and promote smoking cessation behavior

- Larger HWLs are more noticeable to youth and smokers, forcing them to pay attention to the warning and think about its message.
- Larger HWLs more effectively communicate and increase knowledge about the risks of tobacco use and influence plans to quit smoking.
- Larger HWLs decrease the amount of space available for the tobacco industry to market its product.^{9,17}

As more countries implement larger HWLs, growing evidence shows that larger HWLs are more effective than smaller HWLs:

- A study conducted after Canada strengthened its HWLs by moving from 25% text-only HWLs to 50% pictorial HWLs in 2001, showed that both current and former smokers thought that the new labels were more effective than previous labels in discouraging people from starting to smoke, motivating people to quit, motivating people to not start smoking again, and causing people to worry about the health effects of smoking.²⁴
- A major multi-country study that compared HWLs in Australia, Canada, the United Kingdom, and the United States, found that larger, more comprehensive HWLs were more likely to be noticed and rated as effective by smokers.^{5,8}
- In 2010, Uruguay increased pictorial HWLs from covering 50% to 80% of the tobacco packaging. A survey of Uruguayan smokers found that the larger images were more effective than the smaller images. The larger labels were more noticeable, caused smokers to think more about the health harms related to smoke, increased thoughts about quitting and caused smokers to forgo smoking a cigarette more than the smaller labels.²⁵
- A study assessing the effects of Australia's new HWLs adopted in December 2012 as the country also implemented plain packaging for tobacco products, found that the new pictorial HWLs (75% on the front and 90% on the back) on plain packages, were better at stimulating thoughts about the associated risks of smoking than the previous pictorial HWLs (30% of the front and 90% of the back) on branded packs. This cognitive reaction suggests that the increase in the size of a HWL had positive behavioral effects.²⁶



Adding quitline information to HWLs encourages smokers to quit

- Studies show that intentions to quit smoking improve when a quitline number is provided with the pictorial HWL:
 - After Australia introduced pictorial HWLs with quitline information in 2006, the rate of quitline callers doubled from the previous two years.²⁷
 - After New Zealand introduced pictorial HWLs with quitline information in 2008, the number of new quitline callers increased. The rate doubled from 12% to 27% the first month and then remained at 30% thereafter.²⁸
- A study of adult smokers from Brazil, Uruguay and Mexico found that Brazilians were more likely than Uruguayans or Mexicans to be aware of and have used telephone-based cessation assistance. In Brazil, quitline information was publicized on HWLs and in tobacco media campaigns, whereas in Mexico and Uruguay it was only publicized in media campaigns.²⁹



Key Takeaways

- **Large, multiple, rotating pictorial HWLs counter tobacco industry advertising on tobacco products, increase knowledge about risks associated with tobacco use, reduce adolescents' intentions to use tobacco, and motivate tobacco users to quit.**
- **Pictorial HWLs have a greater impact than text-only HWLs and can be recognized by low-literacy audiences and children—two vulnerable population groups.**
- **Large pictorial HWLs are more effective than smaller HWLs.**
- **Countries should require that pictorial HWLs occupy as much area on tobacco product packaging as possible. They should also consider requiring a minimum size of the HWL (establishing a minimum width and a minimum height in inches/cm), especially for packages that are small.**
- **Rotating pictorial HWLs to introduce new content information and images will maintain noticeability, enhance impact, and prevent de-sensitization to warnings.**
- **Governments should establish a rotation system for HWLs and require that a set of multiple different HWLs be printed during a specific rotation period.**
- **Parties to the WHO FCTC are required to implement large, clear, rotating pictorial HWLs on all tobacco product packaging.**

References

- World Health Organization. WHO report on the global tobacco epidemic, 2025: warning about the dangers of tobacco. <https://www.who.int/publications/item/9789240112063>
- Ayanian JZ. Perceived Risks of Heart Disease and Cancer Among Cigarette Smokers. *JAMA*. 1999;281(11):1019. doi:10.1001/jama.281.11.1019
- Hammond D. Tobacco Labeling and Packaging Toolkit: a guide to FCTC article 11. Published online 2008. Accessed April 23, 2026. <https://davidhammond.ca/wp-content/uploads/2024/01/2009-Tobacco-labelling-Toolkit-Hammond.pdf>
- Environics Research Group. Assessment of perceived health risks due to smoking. Published online 1999. Accessed April 23, 2026. https://publications.gc.ca/collections/collection_2017/sc-hc/H49-131-1999-eng.pdf
- Hammond D, Fong GT, Borland R, Cummings KM, McNeill A, Driezen P. Text and Graphic Warnings on Cigarette Packages. *Am J Prev Med*. 2007;32(3):202-209. doi:10.1016/j.amepre.2006.11.011
- Hammond D, Fong GT, McDonald PW, Cameron R, Brown KS. Impact of the graphic Canadian warning labels on adult smoking behaviour. *Tob Control*. 2003;12(4):391-395. doi:10.1136/tc.12.4.391
- Sandefur T. REMARKS OF T.E. SANDEFUR JR. MARKETING BACKGROUNDER NEW YORK, 850723. Published online July 23, 1985. <https://www.industrydocuments.ucsf.edu/docs/nlyb0136/>
- Hammond D, Fong GT, McNeill A, Borland R, Cummings KM. Effectiveness of cigarette warning labels in informing smokers about the risks of smoking: findings from the International Tobacco Control (ITC) Four Country Survey. *Tob Control*. 2006;15(suppl 3):iii19-iii25. doi:10.1136/tc.2005.012294
- Hammond D. Health warning messages on tobacco products: a review. *Tob Control*. 2011;20(5):327-337. doi:10.1136/tc.2010.037630
- Noar SM, Hall MG, Francis DB, Ribisl KM, Pepper JK, Brewer NT. Pictorial cigarette pack warnings: a meta-analysis of experimental studies. *Tob Control*. 2016;25(3):341-354. doi:10.1136/tobaccocontrol-2014-051978
- Kees J, Burton S, Andrews JC, Kozup J. Understanding how Graphic Pictorial Warnings Work on Cigarette Packaging. Accessed April 23, 2026. <https://journals-sagepub-com.cscs.ohionet.org/doi/10.1509/jppm.29.2.265>
- Costa e Silva V. Presentation to EU Commission on enforcement of health warnings in Brazil. Published online 2002.
- Nascimento BEM, Oliveira L, Vieira AS, et al. Avoidance of smoking: the impact of warning labels in Brazil. *Tob Control*. 2008;17(6):405-409. doi:10.1136/tc.2008.025643
- Chang F c., Chung C h., Yu P t., Chao K y. The impact of graphic cigarette warning labels and smoke-free law on health awareness and thoughts of quitting in Taiwan. *Health Educ Res*. 2011;26(2):179-191. doi:10.1093/her/cyq073
- Azagba S, Sharaf MF. The Effect of Graphic Cigarette Warning Labels on Smoking Behavior: Evidence from the Canadian Experience. *Nicotine Tob Res*. 2013;15(3):708-717. doi:10.1093/ntr/nts194
- Borland R, Yong HH, Wilson N, et al. How reaction to cigarette packet health warnings influence quitting: Findings from the ITC Four Country survey. *Addict Abingdon Engl*. 2009;104(4):669-675. doi:10.1111/j.1360-0443.2009.02508.x
- Fathelrahman AI, Li L, Borland R, et al. Stronger pack warnings predict quitting more than weaker ones: finding from the ITC Malaysia and Thailand surveys. *Tob Induc Dis*. 2013;11(1):20. doi:10.1186/1617-9625-11-20
- Yong HH, Fong GT, Driezen P, et al. Adult smokers' reactions to pictorial health warning labels on cigarette packs in Thailand and moderating effects of type of cigarette smoked: findings from the international tobacco control southeast Asia survey. *Nicotine Tob Res Off J Soc Res Nicotine Tob*. 2013;15(8):1339-1347. doi:10.1093/ntr/nts241
- Green AC, Kaai SC, Fong GT, Driezen P, Quah ACK, Burhoo P. Investigating the Effectiveness of Pictorial Health Warnings in Mauritius: Findings From the ITC Mauritius Survey. *Nicotine Tob Res*. 2014;16(9):1240-1247. doi:10.1093/ntr/ntu062
- Fong GT, Hammond D, Jiang Y, et al. Perceptions of tobacco health warnings in China compared with picture and text-only health warnings from other countries: an experimental study. *Tob Control*. 2010;19(Suppl 2):i69-i77. doi:10.1136/tc.2010.036483
- Vardavas CI, Connolly G, Karamanolis K, Kafatos A. Adolescents perceived effectiveness of the proposed European graphic tobacco warning labels. *Eur J Public Health*. 2009;19(2):212-217. doi:10.1093/eurpub/ckp015
- Ratih SP, Susanna D. Perceived effectiveness of pictorial health warnings on changes in smoking behaviour in Asia: a literature review. *BMC Public Health*. 2018;18(1):1165. doi:10.1186/s12889-018-6072-7
- El-Khoury Lesueur F, Bolze C, Gomajee R, White V, Melchior M. Plain tobacco packaging, increased graphic health warnings and adolescents' perceptions and initiation of smoking: DePICT, a French nationwide study. *Tob Control*. 2019;28(e1):e31-e36. doi:10.1136/tobaccocontrol-2018-054573
- O'Hegarty M, Pederson LL, Nelson DE, Mowery P, Gable JM, Wortley P. Reactions of Young Adult Smokers to Warning Labels on Cigarette Packages. *Am J Prev Med*. 2006;30(6):467-473. doi:10.1016/j.amepre.2006.01.018
- Gravely S, Fong GT, Driezen P, et al. The impact of the 2009/2010 enhancement of cigarette health warning labels in Uruguay: longitudinal findings from the International Tobacco Control (ITC) Uruguay Survey. *Tob Control*. Published online December 15, 2014:tobaccocontrol-2014-051742. doi:10.1136/tobaccocontrol-2014-051742
- Yong HH, Borland R, Hammond D, Thrasher JF, Cummings KM, Fong GT. Smokers' reactions to the new larger health warning labels on plain cigarette packs in Australia: findings from the ITC Australia project. *Tob Control*. 2016;25(2):181-187. doi:10.1136/tobaccocontrol-2014-051979
- Miller CL, Hill DJ, Quester PG, Hiller JE. Impact on the Australian Quitline of new graphic cigarette pack warnings including the Quitline number: Figure 1. *Tob Control*. 2009;18(3):235-237. doi:10.1136/tc.2008.028290
- Li J, Grigg M. New Zealand: new graphic warnings encourage registrations with the quitline: Figure 1. *Tob Control*. 2009;18(1):72-72. doi:10.1136/tc.2008.027649
- Thrasher JF, Villalobos V, Szklo A, et al. Assessing the impact of cigarette package health warning labels: a cross-country comparison in Brazil, Uruguay and Mexico. *Salud Pública México*. 2010;52:S206-S215. doi:10.1590/S0036-36342010000800016