Chapter 3 Tobacco Labeling Toolkit

DESIGNING EMMISSION & CONSTITUENT WARNINGS

Prepared by:

David Hammond
Department of Health Studies
University of Waterloo

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This chapter is taken from the **Tobacco labelling and packaging toolkit**.

A complete copy of this toolkit and additional resources are available at:
www.tobaccolabels.org , or by contacting the author directly:

David Hammond
Department of Health Studies
University of Waterloo
200 University Ave West
Waterloo, ON
Canada N2L3G1
Email: dhammond@uwaterloo.ca

BACKGROUND

The goal of this section is to provide recommendations and steps for designing emission and constituent messages on packages. Although this aspect of labelling is more straightforward than designing health warnings, it presents unique challenges. Cigarette smoke contains approximately 4,000 chemicals, including over 60 carcinogens and toxins, such as formaldehyde, benzene, and hydrogen cyanide. Although there is general agreement that cigarette packages should provide some information on these chemicals, regulators continue to struggle with how best to communicate this information in a feasible and meaningful way to consumers.

Article 11 of the FCTC currently requires that packages contain "information on relevant constituents and emissions of tobacco products as defined by national authorities"; however, there remains considerable confusion regarding what constitutes "relevant" information. Some regulators have required manufacturers to print the levels of three emissions (tar, nicotine, and carbon monoxide) on the side of packages. This remains the most common practice throughout the world. However, there is strong evidence that printing emission numbers on packages should be immediately abandoned given that it reinforces the tobacco industry's deceptive marketing campaign and the false belief that low tar cigarettes are less hazardous. For example, the Elaborated Guidelines for FCTC Article 11 state that: "Parties should prohibit the display of figures [i.e. numbers] for emission yields, such as tar, nicotine, and carbon monoxide, on packaging and labelling, including when used as part of a brand name or trademark."[1] A more complete explanation of these issues is provided in Chapter 1.

At present, the most effective practice for meeting the Article 11 guidelines is to provide non-numerical descriptive information on emissions and

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[1] Conference of the parties to the WHO Framework Convention on Tobacco Control. Final Report Committee A. World Health Organization, 2008. Available at: http://www.tobaccolabels.ca/fctcandh/fctcarticl

constituents. The current section provides recommendations on how to follow and improve upon existing practices in descriptive emission and constituent messages.

◎ *"What is the difference between a constituent and an emission?"*

Constituents generally refer to the chemicals and substances in un-burnt tobacco. This includes "additives", as well as chemicals naturally present in tobacco. *Emissions* refer to the chemicals released by products when they are used by consumers. Although all tobacco products have emissions, the term is usually used to refer to the chemicals found in the smoke of combustible products. Smoke emissions are tested using a machine that "smokes" cigarettes according to a fixed puffing regime then collects and analyzes the smoke. Neither the levels of constituents or emissions in cigarettes are a good predictor of what humans ingest, mainly because each smoker adapts their behaviour to the type of cigarette. A more complete explanation of these issues is provided in Chapter 1.

Step1: Layout and Design

The figure below illustrates two recent approaches to the design and layout of the emission and constituent messages.

Brazil

- Number of chemicals
- Specific chemicals
- Effects of chemicals

Australia

Number of chemicals
Effects of chemicals
Cessation message
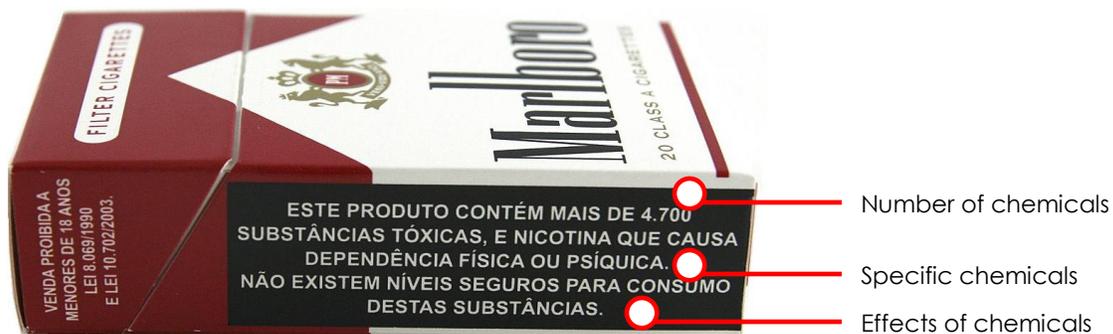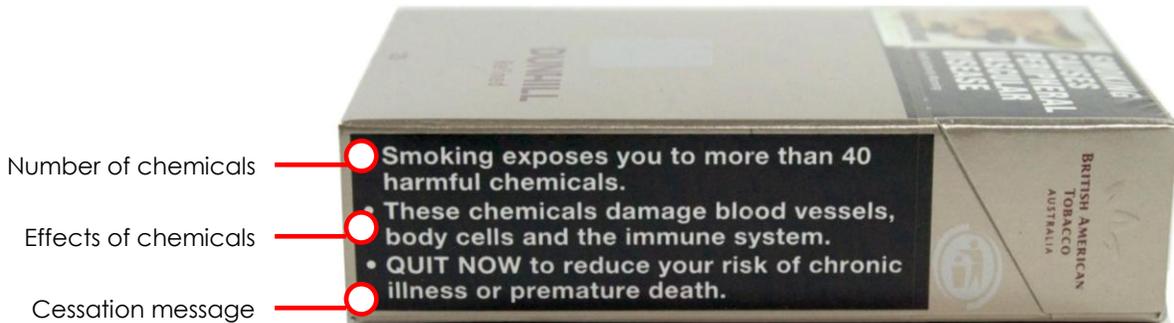
Size & Position

Emission and constituent messages are typically located on one side of the package. Many jurisdictions have used the entire side, up to the point where the package separates for "flip-top" packages, to avoid cutting off the text information (see example above). However, in some cases, manufacturers use a different background colour and print company information on the "unused" section. In the future, this portion of the pack should be in the same colour as the rest of the TEM (e.g., black) and should either remain blank or should feature the toxic skull symbol, which would appear on either side of the text message. The picture below illustrates this concept using a yellow line to depict the part of the pack that opens.
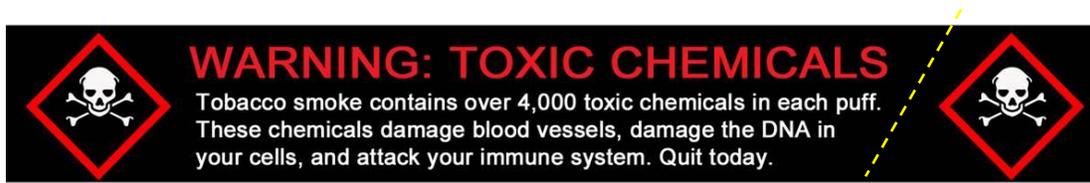
Contrasting colours

As with health warnings, it is important to ensure high contrast between the wording and the background. White letters on black background or black letters on white background are the most effective combinations. The font

size should be sufficiently large to be legible.

Use of symbols and pictures

The most consistent finding from both quantitative and qualitative research conducted among tens of thousands of smokers throughout the world is that pictures enhance the effectiveness of health warnings. The same principles that have been adopted in designing the primary Health Warning Messages should be applied to the toxic and constituent message on the side of packages: use pictures to attract attention and improve risk comprehension.

To date, no jurisdictions have included symbols or pictures in the side messages for emissions and constituents. Previous research with international hazard symbols indicates a picture with signal word, a hazard/marker word, and a precautionary statement is most effective. Pictures can be used in two ways to increase the vividness of these messages. First, a symbol that is widely recognized as a warning for poisonous or dangerous goods could be added to the text. The skull and bones used by the globally harmonized system (GHS) of classification and labelling of hazardous chemicals is one example (see right). There is extensive evidence that using the GHS toxic symbol increases the salience and comprehension of toxic chemical warning messages.[2]
For example:

- Symbols allow consumers to avoid hazards in their environment because they attract attention.[3,4]
- Symbols act as reminders to perform necessary safety behavior by cueing existing knowledge within memory.[5]

[2]Dewar RE. 1999. Design and evaluation of public information symbols. In: Zwaga HJG, Boersma T, Hoonhout HCM, editors. Visual information for everyday use: Design and research perspectives. London: Taylor and Francis. pp. 285–303.
[3]Sojourner RJ, Wogalter MS. 1998. The influence of pictorials on the comprehension of and recall of pharmaceutical safety and warning information. Int J Cog Ergon 2:93–106.
[4]Kalsher MJ, Wogalter MS, Racicot BM. 1996. Pharmaceutical container labels and warnings: Preference and perceived readability of alternative designs and pictorials. Int J Indus Ergon 18:83–90.

- Widely recognized symbols, such as a skull, have been found to be especially effective in diverse populations, including among individuals with low literacy and education.[6]
- In a recent study, more children were able to recognize the skull symbol than any other hazard symbol.[7]

Second, different images could be used for each warning. Finding an image that smokers readily associate with a chemical may be easier in some cases than others. For example, formaldehyde is commonly used as an embalming fluid and lends itself well to an image (see example below). In contrast, chemicals such as benzene may have no recognizable associations or images.

WARNING: FORMALDEHYDE

Cigarette smoke includes formaldehyde. Formaldehyde may cause headaches, burning sensations in the throat, and difficulty breathing. Formaldehyde cause cancer.

Marker words

Marker words, such as "WARNING" may also be an effective addition to emission and constituent messages. Marker words for each warning should include at least one distinctive word to draw consumers' attention to the message. As with health warnings, marker words should have a larger font size and distinct font colour to attract attention.

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[5] Leonard SD, Otani H, Wogalter MS. 1999. Comprehension and memory. In: Wogalter MS, DeJoy DM, Laughery KR, editors. Warnings and Risk Communication. London: Taylor and Francis. pp. 149–187.
[6] Banda SF, Sichilongo K. Analysis of the level of comprehension of chemical hazard labels: A case for Zambia. *Science of the Total Environment* 2006; 363: 22–27.
[7] Hara K, Mori M, Ishitake T, et al. Results of recognition tests on Japanese subjects of the labels presently used in Japan and the UN-GHS labels. *J Occup Health* 2007;49(4):260-7.

Step 2: Select Number of Messages and Rotation Period

To date, most countries require that only than one emission and constituent message appear on packages. In other words, the same descriptive information appears on all packages. This is a significant limitation of existing practices. Jurisdictions should design sets of between 4 and 8 different emission and constituent messages that would appear in rotation on packages. The rotation period for different sets of warnings should be the same rotation period as for the "main" health warnings on the face of packages.

Step 3: Existing Warnings

Before developing new emission and constituent warnings, existing warnings in other jurisdictions should be examined to help generate ideas. To date, the following countries have recently implemented descriptive emission and constituent warnings: Brazil, Uruguay, Venezuela, Chile, Australia, Thailand, and New Zealand.

◎ **RESOURCE: Emission and Constituent Messages Online**

An extensive list of emission and constituent warnings that have been implemented throughout the world can be reviewed at:

www.tobaccolabels.org

Step 4: Content of the messages

The general theme of emission and constituent messages is relatively fixed. However, there are a number of ways to communicate emission and constituent information, including the amount, type, and effects of chemicals.

Every attempt should be made to "personalize" the text of messages and to

link chemical information to specific products and behaviour. As far as possible, the explanatory text should be linked directly with the act of inhaling or puffing to help smokers visualize the process of ingesting chemicals. Recent focus group testing in Canada found that the following phrase was the most effective: "Every time you inhale, this product releases [chemical name] into your body." A second sentence describing specific health effects or providing specific health effects about the chemicals can follow. For example:

Sentence 1:
Every time you inhale, this product releases arsenic into your body.

Sentence 2:
Arsenic causes cancer of the lung, skin, bladder, liver, and kidney.

As with all health warnings, the text in emission and constituent messages should be as <u>clear</u> and <u>direct</u> as possible. Technical language should be avoided in all cases. For example, rather than saying that a chemical is "carcinogenic", messages should say that a chemical "causes cancer." Text should be at an appropriate literacy level.

Amounts or levels of chemicals
As indicated previously, numbers that refer to the amount of chemicals for each brand (such as tar, nicotine, and carbon monoxide emissions) should <u>not</u> be displayed on packages. These numbers are derived from machine testing and are not related to the amount of chemicals released during human smoking.

Types of chemicals and health effects

There are two approaches to communicating the *types* of constituent and emission chemicals. The first is to include a general statement about the range of toxic or dangerous substances. For example, Australian messages mention "more than 40 harmful chemicals", while the Brazilian messages mention "4,700 toxic substances." Focus group testing suggests that this may be an effective way to communicate the magnitude of toxic chemicals in tobacco smoke. These messages can be improved by adding a second sentence that refers to specific health effects.

The second approach is to identify <u>specific</u> chemicals in consituents or emissions. Previous research commissioned by Health Canada found that the most common recommendation for improving the side messages was: "explaining the harmful effects of the chemicals found in cigarettes."[8] When shown a series of toxic emission messages, respondents were most likely to select the option that listed a specific chemical followed by an explanation of that chemical: "When shown a series of possible statements, smokers in a qualitative study were most supportive of texts that were short, clear, and simple and that presented only one substance with information on the impact that substance has on health.[9] See examples below.

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[8] Toxics information on cigarette packaging: Results of a survey of smokers. Environics Research Group; May 2003.

[9] Summary Report of Four Focus Groups in Toronto & Montreal on Awareness and Understanding of Toxic Emissions Information on Tobacco Packaging; Environics Research Group Limited (2003b).

Effects of chemicals

In addition to naming specific types of chemicals, the most effective emission and constituent messages also explain the effects of those chemicals. Several examples are provided below.
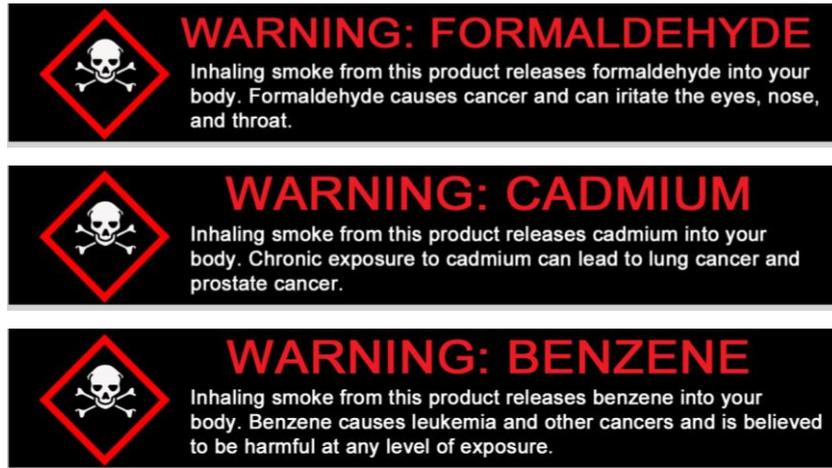
◎ **How should I choose what chemicals to display?**

As a first step, the most effective approach is to select chemicals that smokers already recognize as poisonous or toxic. In some countries, the general public is aware that chemicals such as arsenic and hydrogen cyanide are very dangerous, although few may be aware that they are present in tobacco smoke. Future versions or "rotations" of emission and constituent messages might also include chemicals that may be very dangerous, but for which there is little awareness. Descriptions of the effects of these chemicals will be particularly important.

Several countries have also developed toxic emission and constituent messages that focus on the nicotine, the primary addictive component of tobacco smoke. Messages on nicotine should go beyond the basic statement that tobacco smoke contains nicotine, a widely known fact in many countries. As far as possible, toxic emission messages should try to

communicate new information or to make the addictive properties more vivid for consumers. An example is provided below.
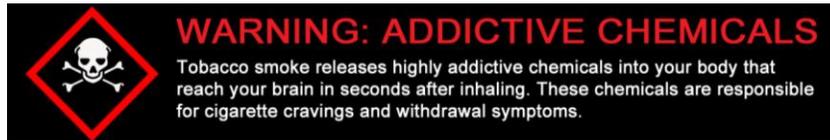
> ◎ *Should the messages explain the difference between tobacco constituents and smoke emissions?*
>
> No, the source of the chemical does not need to be explained to smokers. However some of the wording may need to be adapted depending upon whether it is referring to chemicals in the tobacco or the smoke. Messages for chemicals that are only found in constituents (i.e., the tobacco) should read: "This *product* contains…" or "This cigarette contains…" Messages for chemicals that are only present in emissions (i.e., chemicals only found in the smoke) should read: "Cigarette smoke contains…"

Step 5: Develop the Message

By Step 5, the layout and content of the messages should be established. At this point, the individual messages can be developed for testing.

Summary

As with health warnings, there is considerable value in pre-testing emission and constituent messages prior to implementation. This is particularly important given that less research has been conducted on these messages. It is highly recommended that resources be set aside for at least some pre-testing to ensure that the messages are not only noticeable and vivid, but also clear and easily understood. Pre-testing should also focus upon the effectiveness of using images and descriptions of specific health effects.