WARNINGS & INSTRUCTIONS: Research Findings and Best Practices

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 Speakers
- Kenneth Ross, Product Safety Attorney
  - Bowman and Brooke LLP
- Carol Pollack-Nelson, Ph.D.
  - Independent Safety Consulting
- Tim Smith, Senior Human Factors Engineer in the Division of Human Factors
  - U.S. Consumer Product Safety Commission

Defects in Warnings
- Definition: Defective if reasonably foreseeable risks could have been reduced by providing reasonable instructions or warnings and omission renders product not reasonably safe

Warnings Must Be Provided If
- The product is hazardous
- The manufacturer knows or should know the product is hazardous
- The hazard is not obvious to the user
- The hazard will exist during reasonably foreseeable use or misuse

What is an adequate warning in the U.S.
- It is in a form that could reasonably be expected to catch the attention of a reasonably prudent person in the circumstances of the product’s use;
- The content is of such a nature as to be comprehensible to the average user; and
- It conveys a fair indication of the nature and extent of the danger to the mind of a reasonably prudent person

Best Practices and Research
Carol Pollack Nelson
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Guidance for Warnings & Instructions

- **For Warnings**
  - ANSI Z535.4 – Product Safety Signs & Labels (2011)
  - ANSI Z535.3 – Symbols (2011)

- **For Instructions**
  - ANSI Z535.6 – Safety Information in Product Manuals, Instructions & other Collateral Materials (2011)

Components of ANSI Z535.4 Warning for Consumer Products

- Signal Word Panel
- Message Panel
- Safety Symbol Panel

Purpose of Signal Words & Color

- Draw attention & train consumers to understand hazard levels
- Research Findings:
  - Ability of signal words and color to convey hazard - equivocal
  - Not helping – Unnecessary warnings
  - Best Practices – Comply with ANSI standard guidance

Other Ways to Draw Attention to Warning

- Size of warning
- Boxing, white space
- Placement
  - Put warnings in line of sight, before encounter hazard
  - Some studies show warnings that interfere with task are most likely to be noticed
  - However, even some conspicuous warnings go unnoticed

Signal Word Panels

- DANGER
- WARNING
- CAUTION
Message Panel – What Should it Convey?

ANSI Z535.4
- The hazard
- How to avoid it
- Consequences of ignoring the warning

Unless easily inferred

How to Say It

• Be explicit
  - Clearly state the hazard
  - Give clear directions, benchmarks for safe/unsafe behavior
• Readability of text
  - Flesch-Kincaid readability scores
  - Cut down on long, wrapping sentences
  - Use brief, meaningful phrases - eliminate unnecessary words

Check Syntax

Pictograms

• Optional panel
• Research
  - Reduce search time & draw attention
  - Facilitate comprehension (e.g., across languages)
  - Aid memory of warning
• ANSI Z535.3
  - Procedures for evaluating symbol comprehension
  - Criterion to use symbol alone: 85% correct with maximum 5% critical confusions
  - Couple with text to increase comprehension

Pictogram Problems

Instruction Manuals

• Comprehension
• Picture & text not aligned
• Pictogram overload
• Distraction from other text

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Instruction Manuals

- People are task-oriented
  - Not reading cover-to-cover
- Most likely to read
  - Assembly
  - Instructions for Use
  - Troubleshooting

Facilitate Reading

- Use - Organizing the material
- Search - Table of contents & section headings
- Reading - Readable font & format - outline, bullets, checklists, numbered lists - Don’t overwhelm the page

Diagrams can Facilitate Understanding

- Show components
- Show safety gear being used
- For critical steps – both correct vs incorrect assembly
- Show a diagram of finished product
- Use good quality drawings – Not photographs due to extraneous details

Where to Put Warnings in Instructions

- To increase chance of being read, insert warnings in relevant section of instructions (i.e., Assembly, Use, Troubleshooting)

Other Places for Warnings & Instructions

- Follow guidance for print warnings and instructions
- Consider requiring consumers to check a box before purchase, confirming they understand…
  - Age of intended user
  - Awareness of any hazards
- Don’t bury important warnings – Connect to product information and/or purchase

Website Warnings & Instructions

- Follow guidance for print warnings and instructions
- Consider requiring consumers to check a box before purchase, confirming they understand…
  - Age of intended user
  - Awareness of any hazards

- Don’t bury important warnings – Connect to product information and/or purchase
Warnings/Instructions at Point of Purchase

Is there something you want them to know before purchase?

- Who should not purchase or use product
- Safety gear required
- Limitations for use (e.g., minimum room size for a heater)

Signage & new technologies (e.g., Video demonstrations)

Questions and Comments on Carol’s tutorial

Discussion Topics

CPSC Generator Warning

DANGER

Using a generator indoors CAN KILL YOU IN MINUTES. Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.

NEVER use inside a home or garage. EVEN IF doors and windows are open.

Only use OUTSIDE and far away from windows, doors, and vents.

Overwarning on product?

- Can you warn too much in an on-product label?
- How do you decide?
- When can you warn in the manual and not on the product?
Overwarning?

PWC Labels

WARNING

To prevent serious injury or death:
- Read and understand operator's manual before using. Review all safety precautions annually.
- Place all controls in neutral, stop/motor off before starting.
- Do not allow riders.
- Properly attach tow rope using a boat with a trailer and an auxiliary towing device.
- Keep all guards and covers in place before starting.
- Keep hands, feet, hair, and clothing away from moving parts.
- Be sure that the rope, and/or tow rope is visible before stepping on or in the water.
- When repairing or servicing equipment, refer to operator's manual.

How to Warn on Small Surface Area – What happens when you run out of room?

Overwarning in instructions?

Safety Precautions

State Of The Art Instructions

- Label on product referring to manual
- Incorporate safety information into manual
- Warning on cover to read manual
- Safety information consistent with labels, ads
- Reproduce labels in product manual
- Written for intended audience
- Delivered to customer
Pictograms are not the language free answer to written safety warnings. There is no clear objective evidence to suggest that they have any significant effect on ultimate compliance with safety warnings on products. Therefore the desire to decrease text information on packaging due to the internationalisation of markets must not take the route of language free pictorial warnings unless they have been proven to be effective across all the relevant cultures.

**How to do it?**
- Individual company or industry?
- Test for comprehension?
- Test for compliance?
Based on testing†, the preferred language for the warning was:

**WARNING:** Keep out of reach of children. Packets can burst if children put them in mouth or play with them. Harmful if put in mouth or swallowed. Eye irritant. See warning on back label.

...[F]indings clearly indicate that the first sentence should be “Keep out of reach of children.” The findings could be further interpolated to indicate that the sentence “Packets can burst if children put them in mouth or play with them” is preferred over “Packets can burst if children put them in mouth or if they get wet.”

† Liquid Laundry Packets Consumer Packaging Labeling Research, Great Lakes Marketing, Feb 2015

**FHSA Compliant Warning**

**WARNING:** HARMFUL IF PUT IN MOUTH OR SWALLOWED. EYE IRRITANT. Packets can burst if children put them in mouth or play with them. See warning on [back/side] label.

**Preferred Warning:**

**WARNING:** Keep out of reach of children. Packets can burst if children put them in mouth or play with them. Harmful if put in mouth or swallowed. Eye irritant. See warning on back label.

**Foreign language on labels?**

› When do you need to add a foreign language to the labels or instructions or website?
› Should foreign text follow English text or should there be a separate label or manual for each language?

**Bilingual labels**

**Discussion**

› Is there a risk in being inconsistent with competitor’s labels? Can you make them stronger? Weaker?

For more information on warnings and instructions, see: www.productliabilityprevention.com
Thank you!