Ways to drug safety:

Utilizing FDA guidance to prevent medication errors caused by pharmaceutical labels

The purpose of a container label on a prescription biopharmaceutical product is to communicate the contents of the package and any pertinent information needed for the safe and effective use of the product to the end user. In the United States, the actual text and placement of the text are both governed by the U.S. Food and Drug Administration (FDA), with input from other standard-setting organizations, such as the United States Pharmacopeia (USP). The basic rules are set forth in the Code of Federal Regulations (title 21, part 201); however, compliant labels can still fall victim to confusing elements that can lead to medication errors — that's where Addison Whitney comes in.

To help mitigate potential medication errors, our medication safety experts collaborate with our visual designers to create aesthetically pleasing, safe container labels that comply with regulations. We incorporate the FDA's recently finalized Guidance for Industry entitled **Guidance for Industry,** which had been in draft form since 2013. It is one of several published documents specifically dealing with preventing medication errors and how a product's name, design, container label or packaging configuration can contribute to those errors.

DID YOU KNOW?

In the biopharmaceutical word, the word "label" can mean different things in different contexts. "Label" is often used synonymously with "package insert" or "prescribing information" to denote the FDA- approved indications and dosing information contained in the leaflet for a product. The term "off-label" is used to connote an indication, patient population or dosing scheme for which a product Is not approved, and, therefore, this information is not contained in the package insert or "label".

For this article, "label" will mean the printed matter affixed to the primary or secondary product container that identifies what is contained in the bottle, via, box or blister. Since the word "label" is open to interpretation, we prefer to use the terms "container label" and "carton label" to refer to the printed matter that identifies the product and "package insert" or "prescribing information" for the leaflet.

The history of the Guidance traces back to the Institute of Medicine's 2006 report "Preventing Medication Errors" as well as the commonly cited statistic that label and package issues cause or contribute to approximately one-third of medication errors. Some of these issues include:

- Confusing placement or expression of the product name, dosage form and strength or concentration
- Confusion between different strengths of the same product
- Confusion between different products manufactured by the same company
- Label clutter and difficult-to-read text
- Use of error-prone symbols or abbreviations

The application of general rules to avoid the pitfalls listed above can vary based on the type of product (e.g., solid oral dosage form, liquid for injection, powder for injection), the size of the label and the number of products in a product line. With that said, all of the recommendations given in the Guidance do not necessarily apply to all product container labels. One of the main differences between the draft and finalized version of the Guidance is the level of detail provided for specific issues that can arise with some types of dosage forms. The level of detail varies for issues such as large volume intravenous solutions, solid oral dosage forms in blister packaging and dry powder solids that require reconstitution. The final version also incorporates recent USP updates to labels of injectable products and contains medication safety updates based on reported errors.

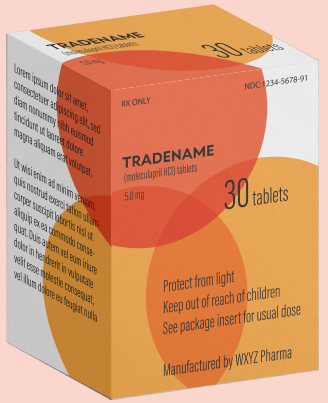
The collaborative process between our medication safety experts and visual designers means we provide extra safety-related recommendations and risk-mitigation strategies throughout the entire creative development of a label, ensuring a label that's both safe and aesthetically pleasing.

If regulatory experts are left out of the creative process, you might end up with an error-prone label. The following mock “before” and “after” images depict the differences when patient safety principles are incorporated into container label design.

IMPROVEMENTS:

- Improved readability by increasing color contrast ratio.
- Increased size of drug name.
- Included positive warnings only.
- Omitted dangerous abbreviations.
- Correctly expressed per mL and per vial amounts.
- Identification of dosage form and route of administration.
- Placed a space between numerical values and dosage units.
- Moved non-critical information off the principal display panel.
- Used coloring and boxing to highlight warning.
- Used mixed-case lettering rather than all caps.
- Place logos and graphics on principal display panel only if size of vial allows.

BEFORE

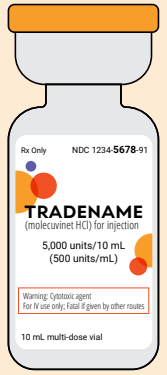


Oral Tablets

Vial (Injection)

AFTER

Oral Tablets



Vial (Injection)

For a snapshot of our visual design and safety assessment process, here are a few FAQs that summarize some of the best practices addressed
in the FDA's guidance:

What is the Principal Display Panel (PDP) and what information should be contained there?

The PDP is the panel most likely to be seen by the end user to identify the product. It should contain critical information such as the proprietary and nonproprietary names, the dosage form, the strength or concentration, the route of administration, and any pertinent warnings. Additionally, if the product is a controlled substance, the schedule should appear on the PDP. Not to say that other information cannot be placed on the PDP, but it should not compete in size or prominence with the critical information.

How should the nonproprietary (established) name appear on the label with respect to the brand name and dosage form? Where do the parentheses go?

The established name should appear with the dosage form on the line directly below the brand name. The Guidance states that the parentheses can be around just the name or the name and dosage form, with some exceptions existing for biologics and labels with limited space. Please note that the examples cited here pertain to the appearance of the product name on container labels and cartons only. Name presentation may differ in other places where a product name appears (e.g., print and online advertisements).

How should the route of administration be expressed?

The route of administration should be expressed as a positive statement without the use of any abbreviations. If space permits, the route should be completely spelled out, even though abbreviations such as IV and IM are well understood. Further, wrong route errors have occurred with the use of negative statements like “NOT for intrathecal use” in cases where a practitioner overlooked the word “not.” Depending on the drug, the outcome of inappropriate intrathecal administration can be fatal. A more appropriate way to express this would be, “For intravenous use only. Fatal if given by another route.”

What is the best layout for an expiration date?

There are several acceptable layouts for an expiration date, as explained in the Guidance. All the layouts require four digits to denote the year, such as YYYY-MM-D if using all numbers. If using letters to denote the month, three characters are recommended, since two-letter abbreviations for months have been confused and can lead to misinterpretation (e.g., JU could mean June or July).

Want evidence-based support to strengthen your commitment to preventing medical error?
Reach out to our team of experts today.

addison whitney

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