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VIEWPOINT

Changes to Vial Labels May Affect Patient Safety

Frederick J. Balboni, Jr.

USP's revised chapter on injectables could harm anticounterfeiting efforts and drug administration.

The United States Pharmacopeia (USP) has revised General Chapter <1> Injections, Labeling on Ferrules and Cap Overseals to limit printing and other types of messaging on drug packaging. The revision is scheduled to be implemented in May 2010, at which point printing on the top surface of a ferrule or cap overseal of an injectable drug product would be limited to cautionary statements, defined in the revised chapter as "one intended to prevent an imminent life-threatening situation if the injectable drug is used inappropriately."

The revision to USP General Chapter <1> would force pharmaceutical manufacturers to abandon certain technologies that have been used to improve patient safety and to help combat the growing threat of drug counterfeiting. As a result, patient safety and supply-chain security may suffer.

In the world of healthcare administration and pharmaceutical product development, nothing is more important than patient safety. Pharmaceutical companies go to extraordinary lengths to help ensure that the products they market are not only efficacious, but also are safe for patients and healthcare providers.

Packaging benefits and limits

Drug packaging is designed with this



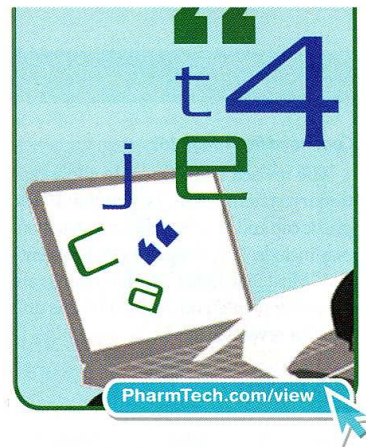
Frederick J. Balboni, Jr., is executive director of the Consortium for the Advancement of Patient Safety (CAPS), fbalboni@balbonicg.com.

safety in mind. Elastomeric stoppers used for drug vials are manufactured from clean formulations and incorporate films and coatings to protect the packaged drug against leachables. The vials themselves are manufactured from inert materials that help protect drug purity against similar effects as well as particles. The stopper and vial are secured by a secondary seal that consists of an aluminum shell (ferrule) and plastic button (cap). Crimping the seal to the vial keeps contaminants from entering the vial.

The seal plays another vital role in patient safety. Instructions printed on the plastic buttons and aluminum shells provide those who administer the injectable drug with valuable information at the point of administration. This information often serves as a final check for healthcare providers to help ensure that the correct drug in the correct strength is being given to the patient. In addition, it is common industry practice to print or emboss unique product identifiers on caps and shells that help to identify products as genuine at the point of use. These measures are increasingly important as more and more counterfeit drugs make their way into the supply chain. The technologically sophisticated markings can be torturous for counterfeiters to copy.

Despite efforts to prevent medication errors, they do occur. In 2007, six infants were mistakenly given adult doses of the drug heparin in an Indianapolis hospital. Three of the babies died.

Heparin is commonly used in hospitals and there is little difference between the packaging used for the 10-unit pediatric dose and the 10,000-unit adult dose. The vials are identical in size and shape. The



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only difference is the shade of the blue plastic button, which may not be sufficient to differentiate the two if they are not seen together. One safety solution for heparin could encompass printing dosage strength on the plastic button and aluminum shell, a solution that would be proscribed by the revised USP <1>.

Pharmaceutical companies print and emboss a variety of messages on plastic buttons and seals that would be prohibited by the revised USP <1>. Examples include:

- Dosing information such as "Multi-dose," which can provide a final check at the point of administration
- Drug administration instructions such as "Dilute with 100 mL," which can help assure that the patient receives the correct dose
- Corporate or drug product logos, which can help identify the drug's authenticity
- Storage instructions such as "Store Frozen" and "Refrigerate," which can help prevent mishandling of the drug in pharmacies and can support cold-chain management.

The aluminum shell provides a platform for important messages as well.

Printing on the shell can be concealed until the plastic button is removed, providing covert protection against counterfeiting. Some pharmaceutical companies use a clear plastic button so the message printed on the seal is visible before the button is removed. Such applications provide valuable point-of-administration information and can be an effective anticounterfeiting measure because the plastic button cannot be reattached after it is removed.

The revised USP (1) would allow cautionary statements to be printed on the plastic cap and seal. A cautionary statement may include: “Warning: Paralyzing Agent” and “Must Be Diluted.” Such warnings are currently printed on plastic buttons and seals for several drugs.

CAPS’ position

The Consortium for the Advancement of Patient Safety (CAPS) was established to help reduce overall medication errors in the healthcare industry. A primary means of achieving this goal is to make sure that pharmaceutical manufacturers have access to all available technologies and methods

to mitigate the risks of medication errors. Pharmaceutical manufacturers use the ferule and cap overseal as a platform for anticounterfeiting technology, and to display information on dosage, cold-chain management, and point-of-use administration instructions to help preserve patient safety. Limiting the type of information that can be printed or otherwise displayed on drug packaging could compromise patient safety and thwart efforts to combat drug counterfeiting. USP (1) is germane to pharmaceutical manufacturers based out of the US because they must meet the standard for products imported into the US.

CAPS believes USP should permit printing and embossing of instructional infor-

mation intended to prevent medication errors and allow printing and embossing that helps combat drug counterfeiting. Comments on the revised chapter can be submitted to USP at www.usp.org. **PT**

Since this article was written, CAPS and USP have engaged in collaborative dialogue to ensure that patient safety concerns are addressed with regard to printing on ferules and cap overseals on injectable drug products. CAPS is optimistic that USP will evaluate its position on General Chapter (1) quickly so that industry has clear direction for planning product-development initiatives. In addition, the US Food and Drug Administration has agreed to meet with CAPS to discuss this important issue.