Helping to Protect Patient Safety

An Overview of USP Monographs

The *United States Pharmacopeia–National Formulary (USP–NF)* includes over 5000 quality standards for medicines, both chemical and biologic; active pharmaceutical ingredients (APIs); and excipients (inactive ingredients). It is the most comprehensive source for medicine quality standards in the world. The standards in *USP–NF* are used to help ensure the quality of medicines and their ingredients, and to protect the safety of patients.

USP is an official quality standard for medicines marketed in the US. In addition, USP is utilized in over 140 countries worldwide and integrated into the laws of more than 40 countries.

USP–NF includes three types of quality standards for prescription medicines:

1. **Monographs** articulate the quality expectations for a medicine including its identity, strength, and purity. They also describe the tests to validate that a medicine and its ingredients meet these criteria.
2. **General Chapters** provide broadly applicable information to industry on accepted processes, tests and methods to support product development and manufacturing for innovative, generic, and biosimilar medicines.
3. **Material reference standards** are used in conjunction with monographs and general chapters to verify that a medicine and its ingredients can pass tests to ensure adherence to quality requirements.

The monograph development process

Development of a monograph generally begins a few years before an originator medicine loses patent protection. In most cases, the license holder for a medicine works collaboratively with the relevant USP Expert Committee to develop the monograph in a transparent process. The monograph may be revised as follow-on products (e.g., generics, biosimilars) are approved by FDA.

USP Expert Committees are comprised of scientific experts from academia, industry, and the healthcare practitioner community. Expert committee members are not compensated. They volunteer their time and work. FDA experts participate in each of the standard-setting expert committees as government liaisons.

Publication of a USP monograph

A USP monograph becomes publicly available after a medicine's patent protection expires and following completion of a transparent process that includes multiple opportunities for input from stakeholders.

Key components of a USP monograph

A monograph is a written document that reflects the quality attributes of medicines approved by the U.S. Food and Drug Administration (US FDA). **Some of these attributes include:**

Identity—Tests to identify that a particular substance is the medicine that it claims to be.

Strength—Testing methods and acceptable ranges for the potency of a medicine, as reflected in FDA's approvals. For example, this indicates the amount of API in a medicine.

Purity—Information on impurities that may be present in a medicine and the amounts of these that are permitted, along with testing methods to identify and measure them. An impurity is any component in the API or finished dosage form which is not the desired product or other formulation components. Levels that exceed may present patient safety concerns.

Performance—Laboratory tests to predict and demonstrate how a medicine will be released as it enters the human body.

Monographs articulate quality expectations. Compliance with a monograph does not demonstrate biosimilarity or interchangeability, nor is it a license to market a medicine. Approval, biosimilarity, and interchangeability are determined by the US FDA.

Revision of a USP monograph

USP monographs are continually updated to reflect the following:

- **New FDA approvals.** Monographs are updated when FDA approves medicines with new or different quality specifications than those expressed in an existing monograph.

  For example, if FDA approves a second generic or biosimilar version of a medicine with an impurity profile that differs from that of the first approved generic or biosimilar, the USP monograph would be revised to also integrate the quality specifications approved by FDA for the second generic or biosimilar. The same revision process would be undertaken for any additional FDA approvals of that medicine. In this way, monographs evolve as FDA approves new medicines. They are a publicly available articulation of the quality expectations of medicines approved by FDA.

  Through the USP Pending Monograph Program (PMP), monographs are updated rapidly prior to FDA approval. Through the PMP, USP works with the sponsor of a medicine under FDA review for approval, so that the monograph reflects the medicine's quality specifications as soon as it receives market approval from FDA. Monographs revised through the PMP process become publicly available as soon as FDA approves a medicine.

- **Changes requested by FDA or others based on safety data.** A monograph may be revised to reflect new data or science, subsequent to FDA product approval or monograph publication.

- **Advances in technology.** Monographs are revised to reflect new testing and manufacturing technologies.

Monograph revisions can be requested by any stakeholder including industry and FDA.

Monographs are utilized to help ensure patient safety

USP's publicly available monographs are used by regulators, public health authorities, and others to confirm that the medicines provided to patients meet quality expectations for safety and effectiveness.

Monographs help secure the global drug supply chain

USP's monographs are used by customs and border officials and public health and law enforcement authorities to confirm the quality of medicines and their ingredients from overseas sources. Medicine manufacturers use USP's monographs for APIs and excipients to test the quality of drug ingredients from suppliers, including ingredients produced overseas.

Monographs accelerate product development, competition, and patient access

Because USP's publicly available monographs articulate the regulatory expectations for quality, they accelerate product development and provide more regulatory predictability. As a result, monographs support competition, which generally reduces prices and expands patient access.

About USP

Founded in 1820, USP is an independent, scientific non-profit organization, committed to advancing public health and patient safety through standards and related programs that help to ensure the quality of medicines, dietary supplements and foods. USP standards are established by over 800 expert volunteers from academia, industry, and the healthcare practitioner community. We are governed by a Convention of over 460 organizations representing the healthcare community. Our staff of over 1000 scientists and dedicated professionals help to advance our mission for the people of the United States and from around the world.