

FY 2013 Regulatory Science Plan

Topic 1: Bioequivalence of local acting orally inhaled drug products

Impact: Continue to develop new and improved PD endpoints and study designs or establishment of alternative approaches to ensure equivalent local delivery of orally inhaled drug product to the lung would lead to more efficient development of generic products in a sector that lacks any generic competition

Topic 2: Bioequivalence of local acting topical dermatological drug products

Impact: Continue developing new bioequivalence methods in order to reduce the need for relatively insensitive clinical endpoint bioequivalence studies. Development of in vitro release tests or other product characterization to ensure consistent drug release or product performance

Topic 3: Bioequivalence of local acting gastro-intestinal drug products

Impact: Developing new bioequivalence methods for direct measurement of drug concentrations in the GI tract and establishing better correlations between pharmacokinetic measurements and GI concentration would allow more efficient demonstration of bioequivalence than by clinical endpoint studies.

Topic 4: Quality by design of generic drug products

Impact: Continue developing science-based recommendations for product development, raw material, APIs and process controls, and life-cycle management of complex dosage forms (e.g. orally inhaled drug products and modified-release dosage forms)

Topic 5: Modeling and simulation

Impact: Modeling and simulation (including in-vitro and in-vivo correlations) is essential to efficient implementation of quality by design and can help to identify and eliminate unneeded in-vitro and/or in-vivo studies. Models (PK/PD, exposure-response, clinical use simulation) support generic drug evaluation policies especially for NTI drugs and complex products.

Topic 6: Pharmacokinetic studies and evaluation of anti-epileptic drugs

Impact: Improving public confidence in bioequivalent generic epilepsy drugs.

Topic 7: Excipient effects on permeability and absorption of BCS Class 3 Drugs

Impact: Extension of biowaivers to BCS Class 3 Drugs and eliminating the need for unnecessary in vivo bioequivalence studies

Topic 8: Product- and patient-related factors affecting switchability of drug-device combination products (e.g., orally inhaled and nasal drug products and injection drug products)

Impact: Establishing a systematic, science- and risk-based approach to ensure device switchability, and improving the patient's compliance and acceptability of generic devices

Topic 9: Postmarketing surveillance of generic drug usage patterns and adverse events. Impact: Improved data collection about usage patterns (which strengths are used in which populations, extent

of switchability, back switches to RLD products, medication errors) will be fed back into regulatory policy development including those for excipients and impurities. Baseline data collection on adverse event reports on switching to an authorized generic would improve the ability to investigate reports.

Topic 10: Evaluation of drug product physical attributes on patient acceptability

Impact: Laboratory and human studies on physical attributes such as tablet size, shape, coating, odor perception (residual solvents), score configuration, taste masking or color on the ability of patient to use (for example swallow) or perceive quality (for example smell) will allow OGD to provide better guidance to applicants on how these physical attributes should be controlled and compared to the RLD.

Topic 11: Postmarketing assessment of generic drugs and their brand-name counterparts

Impact: Stronger public confidence in generic drugs because of pro-active responses to product concerns. An integrated response to product concerns involving laboratory investigations and post-marketing data collection.

Topic 12: Physicochemical characterization of complex drug substances

Impact: Developing analytical methods for demonstrating pharmaceutical equivalence for complex drug substances (non-small molecules) characterized by natural source origin, polydisperse mixture, and/or supramolecular structure, and therefore expanding the boundary of the generic drug program for these complex drug products

Topic 13: Develop a risk-based understanding of potential adverse impacts to drug product quality resulting from changes in API manufacturing and controls.

Impact: The ability to predict the potential impacts of manufacturing changes on product quality will allow manufacturers to target assessments and controls on high-risk areas for regulators to focus their reviews on these areas too.