Spring 2020

Brought to you by the Office of Translational Sciences (OTS) in collaboration with the Office of Communications (OCOMM) in the Center for Drug Evaluation and Research (CDER)

What's New in Regulatory Science is a quarterly newsletter from the Food and Drug Administration's Center for Drug Evaluation and Research. It features new developments, opportunities, and initiatives in regulatory science, with the goal of advancing medical product development.

Please share this message and the sign-up link with colleagues, and if you have comments or questions contact us at OTSCommunications@fda.hhs.gov.

HIGHLIGHTS

CORONAVIRUS INFORMATION

The Center for Drug Evaluation and Research (CDER) is engaged in numerous activities to protect and promote public health during the COVID-19 pandemic. These efforts include accelerating development of treatments for COVID-19, maintaining and securing drug supply chains, providing guidance to manufacturers, advising developers on how to handle clinical trial issues, and keeping the public informed. Below are links to 1) a page that connects you to information on a special emergency program for possible coronavirus therapies, and 2) a web page with links to COVID-19-related information on clinical trial conduct and relevant guidances; drug shortages; hand sanitizers; compounding; fraudulent activity; manufacturing, supply chain and drug inspections; drug registration and listing; drug imports; and stakeholder engagement.

- FDA Coronavirus Treatment Acceleration Program (CTAP)
- CDER COVID-19 Web Page

Updates on CDER's New Drugs Regulatory Program Modernization

In 2017, FDA's Center for Drug Evaluation and Research (CDER) embarked on an initiative to modernize the New Drugs Regulatory Program. For more information on this initiative, please visit Modernizing FDA's New Drugs Regulatory Program.

The modernization restructures the Office of New Drugs (OND) while making corresponding changes in the Office of Translational Sciences (OTS) and Office of Pharmaceutical Quality (OPQ). Click here for information.

Generic Drug Science and Research updates

FY 2020 GDUFA Science and Research priorities

Consistent with FDA's commitment reflected in the GDUFA Reauthorization Performance Goals And Program Enhancements Fiscal Years 2018-2022 (GDUFA II Commitment Letter), FDA held a public workshop on May 1, 2019. To help identify FY 2020 priorities to accelerate access to generic drug products, participants were specifically asked for comments on the 15 scientific priorities posted in FY 2019 . Click here to view the FY 2020 GDUFA Science and Research priorities

GDUFA Reports

- The newly available FY 2018 GDUFA Science and Research Outcomes Report includes annual outcome reports describing research outcomes at an aggregate level and not at the individual project level. Click here to view report.
- The recently published FY 2018 GDUFA Science and Research Report includes information on the specific outcome types that resulted from specific projects. Click here to view report.

CURE ID App

Last December, FDA in collaboration with the NIH's National Center for Advancing Translational Sciences (NCATS), launched a data-sharing app called CURE ID. The CURE ID platform is an internet-based repository that allows clinicians to report novel uses of existing drugs for difficult-to-treat infectious diseases through a website, a smartphone or other mobile device. The app works by collecting a simple case report form from caregivers about their experience using an approved product for an unapproved use. Health care professionals can browse the reported cases, including successful and unsuccessful treatments and current information on new clinical trials at clinicaltrials.gov. The crowdsourcing of medical information from providers is intended to help guide potentially life-saving interventions and facilitate the development of new treatments for neglected diseases. Cure-ID is

currently is being used by health care providers to report and discuss cases related to the COVID-19 pandemic. Learn more.

Dr.Janet Woodcock Launches Twitter Account

Follow the CDER Center Director, Dr. Janet Woodcock on her new Twitter account.

Keep up with her latest tweets: https://twitter.com/DrWoodcockFDA

PHUSE/FDA Data Science Innovation Fridays Webinar Series

Webinars are held every Friday, at 9:00 a.m. (EDT). To view the schedule, go to: PHUSE/FDA Data Science Innovation Challenge .

PDUFA Performance Dashboard Demonstrates FDA's Commitment to Transparency

FDA launched the new Prescription Drug User Fee Act (PDUFA) Performance Dashboards on FDA-TRACK, the agency's performance management program.

Meet the Faces Behind FDA Science

Every day, FDA scientists carry out scientific research and regulatory actions that have a profound impact on the health and well-being of all Americans.. They use their expertise to promote public health and foster therapeutic innovations. The FDA scientists highlighted in this section talk about their passion for the work they do, the Agency's pioneering regulatory science culture and opportunities for professional growth, and why they love working at FDA. Click here to read more

RECENT CDER IMPACT STORIES

CDER is continuing to highlight its regulatory science research in a series of regulatory science impact stories. Recent posts include:

Improved Assessment of Cardiotoxic Risk in Drug Candidates: The Comprehensive in vitro Proarrhythmia Assay

This impact story provides an update on CDER-led research supporting the CiPA initiative which is developing ways to predict the risk of drug induced *torsades de pointes*, a potentially fatal heart arrythmia. Click here to read more

RECENT SPOTLIGHT ON CDER SCIENCE

CDER continues with its *Spotlight on CDER Science* series featuring the Center's noteworthy scientific and research-oriented activities. Recent *posts* include:

Assessing effects of drugs in wastewater on aquatic wildlife

CDER researchers recently assessed the potential of human pharmaceuticals, after bodily excretion and entry into wastewater, to affect the endocrine (hormonal) physiology of aquatic wildlife, an important environmental problem that is not easily studied in the wild. Drawing from open-source toxicology data and computational resources, the researchers predict that among 175 pharmaceuticals that can affect estrogen pathways, several manifest properties that warrant further investigation into their pharmacological activity in fish. Click here to read more

RECENT *CDER CONVERSATIONS*

Jacqueline Corrigan-Curay, MD, JD, Director, Office of Medical Policy (OMP) and David Martin, MD, Associate Director for Real-World Evidence Analytics, OMP, discuss how real world evidence has the potential to enhance the efficiency of drug development and provide new evidence on risks and benefits of medical products. Click here to read more.

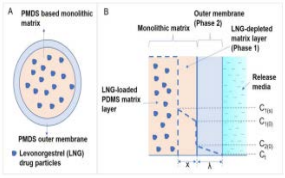
Scott Winiecki, MD, Director of FDA's Safe Use Initiative discusses how the Safe Use Initiative works to reduce the risk of serious harms that can result from medication use. FDA believes that, in many instances, these risks can be significantly reduced if people committed to the safe use of medications work together. Click here to read more

IN PRESS

Drug release testing of long-acting intrauterine systems

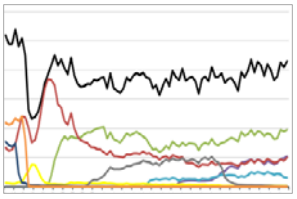
Bao Q, Zou Y […] Burgess DJ. (2019). Journal of Controlled Release 316: 349-358

The publication is the first report on *in vitro* drug release method development and discussion on the release mechanism of levonorgestrel intrauterine systems (LNG-IUSs). The in-depth understanding of the drug release mechanism from LNG-IUSs lays the groundwork for potentially utilizing accelerated drug release testing for establishing equivalence between generic and brand LNG-IUSs.



Evaluation of switching patterns in FDA's Sentinel System: a new tool to assess generic drugs.
Gagne JJ, Popovic JR, […] Dutcher SK, Drug Saf 2018 Dec;41(12):1313-23

A tool developed in Sentinel, the FDA's national medical product safety monitoring system, evaluated generic drug utilization and brand-generic switching patterns at the manufacturer level. Use patterns consistent with recalls and other access difficulties were uncovered, and such analysis could be useful in identifying therapeutic equivalence issues.

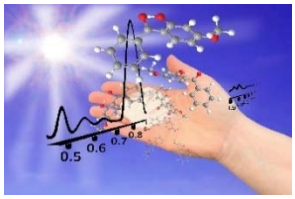


Advancing biosimilar development using pharmacodynamic biomarkers in clinical pharmacology studies.
Li J, Florian J, Campbell E, […] Strauss DG, Clin Pharmacol Ther 2020 Jan;107(1):40-2

FDA is conducting research to inform the Agency's thinking on the use of pharmacodynamic biomarkers to demonstrate biosimilarity. This research, which includes analyzing information on potential biomarkers, exploring computational models, and developing clinical studies, could streamline or negate the need for comparative clinical studies.

Effect of sunscreen application on plasma concentration of sunscreen active ingredients: a randomized clinical trial.

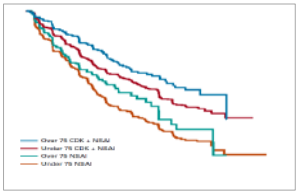
Matta MK, Florian J […] Strauss DG, JAMA 2020 Jan 21;323(3):256-67



A randomized clinical trial examined the systemic absorption of six active ingredients in four sunscreen products. All six ingredients were systemically absorbed and had plasma concentrations beyond the FDA threshold for potentially waiving some additional safety studies. These findings support the need for additional studies to determine their clinical significance; they do not indicate that individuals should refrain from the use of sunscreen.

Outcomes of Older Women with Hormone Receptor–Positive, Human Epidermal Growth Factor Receptor–Negative Metastatic Breast Cancer Treated With a CDK4/6 Inhibitor and an Aromatase Inhibitor: An FDA Pooled Analysis

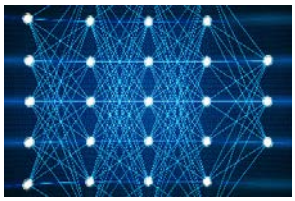
Howie, LJ, Singh H […] Beaver, JA, Journal of Clinical Oncology 2019 37:36, 3475-3483



Women older than 75 are underrepresented in breast cancer clinical trials. A new meta-analysis by CDER and FDA's Oncology Center of Excellence compares the efficacy, toxicity, and quality of life in older and younger patients treated with CDK4/6 inhibitors and endocrine therapy. The analyses may provide valuable information for women considering treatment options.

Application of Machine Learning in Drug Development and Regulation: Current Status and Future Potential

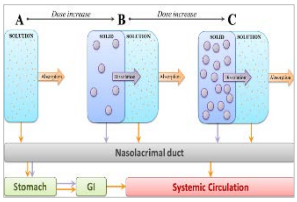
Liu, Q, Zhy, H {…] Wang, Y Clin Pharmacol Ther. 2020 Jan 11. doi: 10.1002/cpt.1771.



The applications of machine learning, (i.e., computer programs that learn from experience to improve performance) are expanding rapidly. Liu et al. provide a succinct update of recent regulatory submissions to FDA that contain machine learning components and examples of how FDA is exploring machine learning to improve pharmacometric analyses, toxicity prediction, safety surveillance, and other activities.

Physiologically Based Pharmacokinetic Model to Support Ophthalmic Suspension Product Development

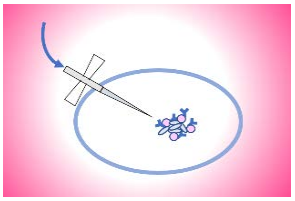
Le Merdy, M Tan, ML […] Zhao, L AAPS J. 2020 Jan 6;22(2):26



In treating diseases of the eye, delivery of drugs to the intended site of action while avoiding potentially harmful systemic exposure is a significant challenge. CDER researchers used a physiologically based pharmacokinetic model previously validated in rabbits to compare a drug's pharmacokinetics when it is applied to the eye as a solution or a suspension of the active ingredient. The agreement of the simulation results with empirical data, suggest that a model incorporating the interaction between formulation characteristics and physiological processes may be a valuable tool for development of ophthalmic drug products.

Defining the right diluent for intravenous infusion of therapeutic antibodies

Luo, Shen […] Zhang, Baolin, mAbs 2020 12:1



Luo et al. evaluated the compatibility of 11 therapeutic, intravenously (IV) administered monoclonal antibodies (mAbs) with dextrose and found that mAbs formulated at low pH formed insoluble aggregates under conditions mimicking the blood-IV interface. The authors discuss the implications for selection of the diluent for infusion of these antibody-based therapeutics and note that the experimental procedures they describe can be adopted by drug developers to assess compatibility of therapeutic mAbs with diluent solutions and human plasma or serum.

UPCOMING EVENTS

Below are upcoming meetings, conferences, and workshops sponsored or co-sponsored by CDER. For details on each event, click here.

CAREER OPPORTUNITIES

FDA has a new campaign to advance ongoing efforts to recruit and retain a world-class workforce dedicated to protecting and promoting the public health. Information on job vacancies, employment events, and hiring programs can be found by following @FDAJobs on Twitter and by visiting FDA's LinkedIn page and the Jobs at CDER and the Career Opportunities at CDER webpages. In addition, you can contact OTS directly at CDEROTSHires@fda.hhs.gov. Help us spread the news through your social media networks!

For more information, please visit the FDA In Brief webpage.

Scientific Internships and Fellowships / Trainees and Non-U.S. Citizens

Whether you're an undergraduate looking to pursue a career in science, a graduate student seeking experience in regulatory science, a postgraduate looking for fellowship opportunities, or a senior scientist pursuing research experience in your field of expertise, FDA offers you many paths to learning about the exciting field of regulatory science. Click here for more information.