**Activity Outline**
**Clinical Investigator Training Course**
**November 7 - 9, 2016**
**Location: Silver Spring Civic Building at Veterans Plaza**
**8525 Fenton Street, Silver Spring, MD 20910**

## Description

The Clinical Investigator Training Course is designed for physicians, nurses, pharmacists and other healthcare professionals involved in clinical trials. Lectures presented by senior FDA experts as well as guest lecturers from industry and academia explore the scientific, regulatory and ethical aspects of clinical trials. They also include discussions of non-clinical, early clinical, and phase 3 studies, issues in the design and analysis of trials, safety and ethical considerations and FDA regulatory requirements related to the performance and evaluation of clinical studies.

## References

1. Title 21, Chapter I, Subchapter A, parts 50 (protection of human subjects), 54 (financial disclosure by clinical investigators), and 56 (IRBs)
2. Title 21, Chapter I, Subchapter D, parts 300-499 (drugs for human use)
3. Title 21, Chapter I, Subchapter F, parts 600-680 (biologics)
4. Title 21, Chapter I, Subchapter H, parts 800-898 (medical devices)

**Learning Objectives:** After completion of this activity, the participant will be able to:

1. Explain the responsibilities of an investigator conducting a clinical trial.
2. Describe what to look for in drugs being studied in a clinical trial.
3. Describe the basic concepts of clinical trial design.
4. Review clinical data for sources of bias and error.

## Target Audience

This activity is intended for physicians, pharmacists, nurses, researchers and others who are responsible for the conduct of clinical trials.

## Schedule

**Agenda**

| **Monday, November 7** | | |
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| **Session 1: The Clinical Trial Protocol** | | |
| 8:20 a.m.–8:30 a.m. | Course Overview | Leonard Sacks, M.D. (CDER) |
| 8:30 a.m.–9:00 a.m. | FDA Structure and Mandate | Leonard Sacks, M.D. (CDER) |
| 9:00 a.m.–10:00 a.m. | The Design of Clinical Trials (Part 1) | Robert Temple, M.D. (CDER) |
| **10:00 a.m.–10:15 a.m.** | **Break** | |
| 10:15 a.m.–10:45 a.m. | The Design of Clinical Trials (Part II) | Robert Temple, M.D. (CDER) |

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| 10:45 a.m.–11:00 a.m. | Discussion/Questions | Robert Temple, M.D. (CDER) |
| 11:00 a.m.–11:30 a.m. | Clinical Trial Endpoints | Eugene Sullivan, M.D.<br>(Insmed, Inc., & Principal, EJS Consulting, LLC)<br>***not offered for CE*** |
| 11:30 a.m.–12:00 p.m. | Issues in Clinical Trial Designs for Devices | Owen Faris, Ph.D. (CDRH) |
| **12:00 p.m.–1:00 p.m.** | **Lunch** | |
| 1:00 p.m.–1:30 p.m. | Issues in Clinical Trial Design for Companion Diagnostic Devices | Hisani Madison, Ph.D., M.P.H. (CDRH) |
| 1:30 p.m.–2:00 p.m. | Issues in Clinical Trial Design for Rare Diseases | Jonathan Goldsmith, M.D. (CDER) |
| 2:00 p.m.–2:45 p.m. | Informed Consent and Ethical Considerations in Clinical Trials | Christine Grady, R.N., Ph.D.<br>(NIH) |
| 2:45 p.m.–3:00 p.m. | Discussion/Questions | Hisani Madison, Ph.D., M.P.H.<br>Jonathan Goldsmith, M.D.<br>Christine Grady, R.N., Ph.D. |
| **3:00 p.m.–3:15 p.m.** | **Break** | |
| 3:15 p.m.–3:45 p.m. | Safety Considerations in Phase 1 Trials | Sumathi Nambiar, M.D. (CDER) |
| 3:45 p.m.–4:15 p.m. | Safety Assessment in Clinical Trials and Beyond | Yuliya Yasinskaya, M.D. (CDER) |
| 4:15 p.m.–4:45 p.m. | Special Cardiac Safety Concerns | Shari Targum, M.D. (CDER) |
| 4:45 p.m.–5:15 p.m. | Drug Induced Liver Injury (DILI) | Mary Ross Southworth, Pharm.D. (CDER) |
| 5:15 p.m.–5:30 p.m. | Discussion/Questions | Sumathi Nambiar, M.D.<br>Yuliya Yasinskaya, M.D.<br>Shari Targum, M.D.<br>Mary Ross Southworth, Pharm. D. |
| **Tuesday, November 8** | | |
| **Session 2: FDA and the Regulation of Clinical Trials** | | |
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| 8:30 a.m.–9:00 a.m. | FDA Perspective on International Studies | Kassa Ayalew, M.D., M.P.H. (CDER) |
| 9:00 a.m.–9:45 a.m. | Good Clinical Practice (GCP) Key Topics | Bridget Foltz, M.S. (OC) |
| 9:45 a.m.–10:15 a.m. | Investigator Responsibilities – Regulation and Clinical Trials (Part I) | Cynthia Kleppinger, M.D. (CDER) |
| **10:15 a.m.–10:30 a.m.** | **Break** | |

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| 10:30 a.m.–11:00 a.m. | Investigator Responsibilities – Regulation and Clinical Trials (Part II) | Cynthia Kleppinger, M.D. (CDER) |
| 11:00 a.m.–11:30 a.m. | Electronic Technologies in Clinical Trials | Leonard Sacks, M.D. (CDER)<br>Patrick McNeilly, Ph.D. (OC) |
| 11:30 a.m.–11:45 p.m. | Discussion and Questions | Kassa Ayalew, M.D., M.P.H.<br>Bridget Foltz, M.S.<br>Cynthia Kleppinger, M.D.<br>Leonard Sacks, M.D.<br>Patrick McNeilly, Ph.D. |
| **11:45 p.m.–12:45 p.m.** | **Lunch** | |
| **Session 3: Understanding the Investigator Brochure – Non-Clinical and Phase 1 Studies** | | |
| 12:45 p.m.–1:15 p.m. | CMC and the Investigator Brochure (Drugs): Ensuring the Quality of a Drug used in a Clinical Trial | Dorota Matecka, Ph.D. (CDER) |
| 1:15 p.m.–1:45 p.m. | Biosimilar Biological Products | Sue Lim, M.D. (CDER) |
| 1:45 p.m.–2:30 p.m. | Pharmacology/Toxicology in the Investigator Brochure | Brenda Gehrke, Ph.D. (CDER) |
| 2:30 p.m.–2:45 p.m. | Discussion/Questions | Dorota Matecka, Ph.D.<br>Sue Lim, M.D.<br>Brenda Gehrke, Ph.D. |
| **2:45 p.m.–3:00 p.m.** | **Break** | |
| **Session 4: Early Clinical Studies Session** | | |
| 3:00 p.m.–3:30 p.m. | Clinical Pharmacology 1: Phase 1 Studies and Early Drug Development | Shirley Seo, Ph.D. (CDER) |
| 3:30 p.m.–4:00 p.m. | Clinical Pharmacology 2: Clinical Considerations During Phase 2 and Phase 3 of Drug Development | Su-Young Choi, (CDER) |
| 4:00 p.m.–4:30 p.m. | Clinical Discussion of Special Populations | Zhixia (Grace) Yan, Ph.D. (CDER) |
| 4:30 p.m.–4:45 p.m. | Discussion/Questions | Shirley Seo, Ph.D.<br>Su-Young Choi, Pharm.D.<br>Zhixia (Grace) Yan, Ph.D. |

| Wednesday, November 9 | | |
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| **Session 5: Putting It All Together – IND/IDE Application and Compliance Issues<br>Concurrent Breakout Sessions for Drugs/Devices/Biologics** | | |
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| Session 1A<br>8:30 a.m.–9:30 a.m. | **Center for Drug Evaluation and Research**<br>How to put Together an IND Submission | Judit Milstein, B.Sc.(CDER)<br>Ei Thu Z. Lwin, Pharm.D. (CDER) |
| Session 1B<br>8:30 a.m.–9:30 a.m. | **Center for Biologics Evaluation and Research**<br>How to put Together the IND Application (CBER): CMC, Preclinical Testing, and Clinical Trial Design<br>Expectations for a First-in-Human Clinical Investigation | Donald Fink, Ph.D. (CBER-CMC)<br>Allen K. Wensky, Ph.D. (CBER-Preclinical)<br>Rachel Witten, M.D. (CBER-Clinical) |
| Session 1C<br>8:30 a.m.–9:30 a.m. | **Center for Devices and Radiological Health**<br>How to put Together an Application,<br>Ensuring the Safety of Clinical Trials | Nilsa Loyo-Berrios, Pharm.D. (CDRH)<br>Benjamin Eloff, Ph.D.(CDRH)<br>Veronique Li, B.S.E., M.B.A. (CDRH) |
| **9:30 a.m.-9:45 a.m.** | **Break** | |
| Session 2A<br>9:45 a.m.–10:45 a.m. | **Center for Drug Evaluation and Research**<br>Repeat of Session 1A | Judit Milstein, B.Sc. (CDER)<br>Ei Thu Z. Lwin, Pharm.D. (CDER) |
| Session 2B<br>9:45 a.m.–10:45 a.m. | **Center for Biologics Evaluation and Research**<br>Repeat of Session 1B | Donald Fink, Ph.D. (CBER-CMC)<br>Allen K. Wensky, Ph.D. (CBER-Preclinical)<br>Rachel Witten, M.D. (CBER-Clinical) |
| Session 2C<br>9:45 a.m.–10:45 a.m. | **Center for Devices and Radiological Health**<br>Repeat of Session 1C | Nilsa Loyo-Berrios, Pharm.D. (CDRH)<br>Benjamin Eloff, Ph.D.(CDRH)<br>Veronique Li, B.S.E., M.B.A. (CDRH) |
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| 10:45 a.m.–11:15 a.m. | Clinical Investigator Site Inspections-What to Expect | Patricia Holobaugh, M.S. (CBER) |
| 11:15 a.m.–11:45 a.m. | **Panel Discussion** | Patricia Holobaugh, M.S. (CBER)<br>Irfan Khan, M.S. (CDRH)<br>Constance Cullity, M.D. (CDER) |
| **11:45 a.m.–12:45 p.m.** | **Lunch** | |
| **Session 6: Safety of Clinical Trials and Special Populations** | | |
| 12:45 p.m.–1:30 p.m. | The Analysis of Investigator Data, Sources of Bias and Error | Susan Ellenberg, Ph.D. (University of Pennsylvania) |
| 1:30 p.m.–2:00 p.m. | Patient Engagement in Drug Development | Eleanor M. Perfetto, Ph.D, M.S.<br>Patricia Furlong, B.S.N.<br>Steven Taylor, M.B.A. |
| 2:00 p.m.–3:00 p.m. | The Clinical Investigator's Role | Stephen N. Davis, M.B.B.S.<br>Shyamasundaran Kottilil, Ph.D., M.B.B.S.<br>Michael Terrin, M.D., C.M., M.P.H.<br>Maria Jison, M.D.<br>***not offered for CE*** |
| 3:00 p.m.–3:30 p.m. | Explain Evaluation Process, Wrap up and Adjourn | Leonard Sacks, M.D. (CDER) |

**Continuing Education**

The Food and Drug Administration, Center for Drug Evaluation and Research is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The Food and Drug Administration – Center for Drug Evaluation and Research designates this live activity for a maximum of 18.5 *AMA PRA Category 1 Credit(s)*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

This activity has been planned and implemented in accordance with the accreditation requirement and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the University of Maryland Center of Excellence in Regulatory Science and Innovation (M-CERSI) and the Food and Drug Administration, Center for Drug Evaluation and Research Office of Medical Policy, (FDA/CDER/OMP) under a co-sponsorship agreement to conduct the Training Course.

The FDA-Center for Drug Evaluation and Research is accredited by the Accreditation Council for Pharmacy Education as a Provider of continuing pharmacy education. (ACPE Universal Activity No. 0601-9999-16-103-L04-P). This program meets the criteria for 18.5 contact hour(s) of pharmacy education.

This activity is a knowledge-based CE activity**.** These CE activities are primarily constructed to transmit knowledge (i.e., facts). The facts must be based on evidence as accepted in the literature by the health care professions.

FDA, Center for Drug Evaluation and Research is an approved provider of continuing nursing education by the Maryland Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation. This 18.5 contact hour Education Activity is provided by FDA, Center for Drug Evaluation and Research. Each nurse should claim only the time that he/she actually spent in the educational activity.

**Requirements for receiving CE credit**
Physicians, pharmacists, nurses and those claiming non-physician CME: attendance is verified by a sign-in sheet and completion of the final activity evaluation. For multi-day activities, participants must sign in every day. Final activity evaluations must be completed within two weeks after the activity.

Pharmacy participants: partial credit cannot be awarded therefore you must attend the entire activity to receive CPE credit. No exceptions. Pharmacists will need their NABP e-profile ID number as well as their DOB in MMDD format in order to claim CE credit.

**Statements of Credit**
Physicians and Nurses Statements of Credit for CE will be issued 10 weeks after the last session of this activity. Pharmacists should log into the CPE monitor 10 weeks after the last session of the activity to obtain their CE credit.

**Disclosures**

**Faculty**
Kassa Ayalew, M.D., M.P.H., Supervisory Medical Officer/Branch Chief, OMPT/CDER/OC/OSI, nothing to disclose
Su-Young Choi, Pharm.D., Ph.D., Clinical Pharmacologist, Division of Clinical Pharmacology, CDER, FDA, nothing to disclose

Constance Cullity, M.D., M.P.H., Supervisory Medical Officer/GCP Oversight Branch Chief, CDER, FDA, nothing to disclose
Stephen N. Davis, M.B.B.S., Professor & Chair, Dept of Medicine, University of Maryland School of Medicine, nothing to disclose
Susan Ellenberg, Ph.D., Professor of Biostatistics, University of Pennsylvania, discloses the following: "Receives honorarium from the following companies as a consultant: Acadia, Optimal Strategix, Squibb, Sarpeta, Spectrum, Vantage Point Management." Both her and her spouse receives honorarium from Bristol Myers Squibb as members of the Independent Data Monitoring Committee. Her husband received consulting fees from Roche as a member of Independent Data Monitoring Committee and Braeburn, scheduled but has not yet occurred, consultant.
Benjamin Eloff, Ph.D., Acting Associate Director, Office of Surveillance and Biometrics/Division of Epidemiology, CDRH, FDA, nothing to disclose
Owen Faris, Ph.D., Clinical Trials Director, Office of Device Evaluation, CDRH, nothing to disclose
Donald Fink, Ph.D., Regulatory Review Scientist/Expert Biologist, Office of Cellular, Tissue and Gene Therapies, CBER, FDA, nothing to disclose
Bridget Foltz, M.S., Health Scientist, Policy Analyst, Office of Good Clinical Practice, OC, FDA, nothing to disclose
Patricia Furlong, B.S.N., President/CEO, Parent Project Muscular Dystrophy, nothing to disclose
Brenda Gehrke, Ph.D., Pharmacologist, Office of New Drugs, CDER, FDA, nothing to disclose
Jonathan Goldsmith, M.D. , Associate Director Rare Disease Program, OND/CDER/FDA, nothing to disclose
Christine Grady, M.S.N., Ph.D., Chief, Department of Bioethics, NIH Clinical Center, nothing to disclose
Patricia Holobaugh, M.S., Chief, Bioresearch Monitoring Branch, CBER, FDA, nothing to disclose
Maria Jison, M.D., Clinical Research Physician, AstraZeneca, discloses the following: "received salary and stocks as an employee of AstraZeneca"
Irfan Khan, M.S., Operations and Outreach Lead, Division of Bioresearch Monitoring/Office of Compliance, CDRH, FDA, nothing to disclose
Cynthia Kleppinger, M.D., Medical Officer, Good Clinical Practice Compliance Assessment Branch, CDER, FDA, nothing to disclose
Shyamsundaran Kottilil, M.D., Ph.D., M.B.B.S., Professor, University of Maryland, nothing to disclose
Veronique Li, B.S.E., M.B.A., Interdisciplinary Scientist (Biomedical Engineer), Office of Device Evaluation, CDRH, FDA, received stocks from St Jude Medical and has mutual funds in biotechnology and healthcare, otherwise nothing to disclose
Sue Lim, M.D., Medical Officer, Office of New Drugs, CDER, FDA, nothing to disclose
Nilsa Loyo-Berrios, Pharm.D.,MSc., Associate Director, Division of Epidemiology, Office of Surveillance and Biometrics, CDRH, nothing to disclose
Ei Thu Z. Lwin, Pharm.D., Regulatory Health Project Manager, Division of Transplant and Ophthalmology Products, CDER, FDA, nothing to disclose
Hisani Madison, Ph.D., M.P.H., Regulatory Reviewer, Office of In Vitro Diagnostics and Radiological Health, CDRH, FDA, nothing to disclose
Dorota Matecka, Ph.D., Chemistry, Manufacturing and Controls Lead, Office of Pharmaceutical Quality, CDER, FDA, nothing to disclose
Judit Milstein, B.Sc., Chief, Project Management Staff, Office of New Drugs/Division of Transplant and Ophthalmology Products, CDER, FDA, nothing to disclose
Patrick McNeilly, Ph.D., Senior Health Policy Analyst, Office of Good Clinical Practice, OC, FDA, nothing to disclose
Sumathi Nambiar, M.D., M.P.H., Director, Division of Anti-Infective Products, CDER, FDA, nothing to disclose
Eleanor Perfetto, Ph.D., M.S., Senior Vice President Strategic Initiatives and Professor PHSR, National Health Council and University of Maryland, discloses the following, "receives salary from The National Health Council. The National Health Council receives membership and sponsorship funding from a variety of companies and nonprofit organizations. I do not receive the funding from directly".
Leonard Sacks, M.D., Associate Director for Clinical Methodology, Office of Medical Policy, CDER, FDA, nothing to disclose
Shirley Seo, Ph.D., Clinical Pharmacology Team Leader, Office of Translational Sciences, CDER, FDA, nothing to disclose
Mary Ross Southworth, Pharm.D., Deputy Director for Safety, Division of Cardiovascular and Renal Drug Products, CDER, nothing to disclose
Eugene Sullivan, M.D., Chief Medical and Scientific Officer, Insmed, Inc; Principal, EJS Consulting, LLC, discloses the following: "Salaried employee of Insmed Incorporated, receives consulting fees from Multiple Pharma Firms (confidential)"

Shari Targum, M.D., Clinical Team Lead, Division of Cardiovascular and Renal Products, CDER, FDA, nothing to disclose
Steven Taylor, B.A., M.B.A., CEO, Sjogren's Syndrome Foundation, nothing to disclose
Robert Temple, M.D., Deputy Center Director, Clinical Science, CDER, FDA, nothing to disclose
Michael Terrin, M.D.C.M., M.P.H., Professor, University of Maryland School of Medicine, nothing to disclose
Allen K. Wensky, Ph.D., Biologist/Regulatory Reviewer, Office of Cellular, Tissue and Gene Therapies, CBER, FDA, nothing to disclose
Rachel Witten, M.D., Medical Officer, Office of Cellular, Tissue, and Gene Therapies , CBER, FDA, nothing to disclose
Grace (Zhixia) Yan, Ph.D., Clinical Pharmacology Reviewer, Division of Clinical Pharmacology, CDER, FDA, nothing to disclose
Yuliya Yasinskaya, M.D., Medical Officer, Division of Anti-Infective Products, CDER, FDA, nothing to disclose

**Planning Committee**
Cheryl Grandinetti, Pharm.D., Health Scientist Policy Analyst, OMP, CDER, FDA, nothing to disclose
Leonard Sacks, M.D., Associate Director, OMP, CDER, nothing to disclose
Virginia Giroux, MSN, ARNP, CE Program Administrator, FDA/CDER/OEP/DLOD, nothing to disclose

**CE Consultation and Accreditation Team**
Isaac J. Miller, CE Consultant, FDA/CDER/OEP/DLOD, nothing to disclose
Karen Zawalick, CE Team Leader, FDA/CDER/OEP/DLOD, nothing to disclose

**Registration Fees and Refunds**
Registration is complimentary therefore refunds are not applicable.

**Requirements for Certificate of Completion (Non CE)**
Must attend 80% of the lectures (verified by a sign-in sheet).

**Initial Release Date**: November 7, 2016