International Association for Therapeutic Drug Monitoring and Clinical Toxicology - - Post Congress Workshop on

New Advances in Therapeutic Drug Monitoring and Individualized Drug Therapy

Friday April 29 - Saturday April 30, Louisville, KY

Registration information

Congress Office:
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Overview: This course is intended for physicians, clinical pharmacologists and pharmacists, clinical chemists and toxicologists, and biomedical scientists with an interest in therapeutic drug monitoring, optimal drug dosage individualization for optimal patient care, and in population pharmacokinetic and pharmacodynamic modeling. Prior experience in clinical pharmacokinetics will be an advantage, but is not required. Participants will be introduced to the USC*PACK software which can be used both for therapeutic drug monitoring as well as for parametric and nonparametric population PK/PD and physiological modeling.

Expected Outcomes: After this conference, the participant should:

1. Be able to design optimal initial individualized dosage regimens of drugs to hit selected target goals most precisely.
2. Be able to enter and store patient data of doses, TDM serum concentrations, etc., and to make an individualized model of drug behavior in that patient.
3. Be able to develop an adjusted dosage regimen based on the patient's individualized model.
4. Understand how to apply these techniques to therapy with other TDM drugs such as Vancomycin, Digoxin, anticonvulsants, and drugs for AIDS, cancer, and transplants.
5. Understand the basic concepts of parametric and nonparametric population PK/PD modeling.
6. Know how to develop the error polynomial for a drug assay, to fit each data point by an optimal measure of its credibility.
7. Be able to make population models of common drugs
8. Understand the basic concepts of multiple model dosage design.

Faculty: **Roger Jelliffe, MD**, USC Laboratory of Applied Pharmacokinetics, Los Angeles CA, Course coordinator
Alan Forrest, Pharm.D., ACSU, Buffalo NY
Michael Neely, MD, USC Laboratory of Applied Pharmacokinetics, Los Angeles CA
Sander Vinks, PhD, Children's Hospital Medical Center, Cincinnati, OH

Preliminary Program:
Day 1 - Introduction and Review of Basic Pharmacokinetics, related responses, and Clinical Applications

8:30 AM	Registration
9:00 AM	Welcome - Dr. Jelliffe
9:15 AM	Review of basic concepts in pharmacokinetics, including Basic Pharmacokinetic behavior, Models, Elimination, and Renal Function - Dr. Vinks
9:30 AM	PK Building Blocks - Evaluating Creatinine Clearance Dr. Jelliffe
9:45 AM	PK Building Blocks - Determining the Assay Error Pattern – Dr. Jelliffe
10:00 AM	Bayes' Theorem – its use with parametric and nonparametric PK/PD models - the Bayesian scenario of planning, monitoring, and adjusting drug dosage regimens for patients. - Dr. Jelliffe
10:30 AM	BREAK
10:45 AM	Demonstration: the MM-USC*PACK Nonparametric Bayesian Clinical Program for Optimally Precise Tracking of Drug Behavior and Optimally Precise Dosage. – Dr. Jelliffe A Patient on Gentamicin, with changing renal function. A very difficult patient on Tobramycin.
11:15 AM	Modeling diffusion into endocardial vegetations, and the postantibiotic effect - Dr. Jelliffe
11:30 AM	Modeling bacterial growth and kill - Dr. Vinks The difficult patient on Tobramycin.
11:45 AM	Demo Vancomycin - Setting the initial goals, planning the initial regimen - Dr. Jelliffe Continuous versus intermittent IV regimens.
12:00	Demo 2 compartment model Digoxin - Dr. Jelliffe

noon	Setting the initial goals, planning the initial regimen A simple patient with atrial fibrillation Another interesting patient with atrial fib
12:30 PM	Lunch
1:30 PM	An introduction to Population Pharmacokinetic Modeling – Dr. Jelliffe
2:00 PM	Multiple Model Dosage Design – Basic Concepts – Dr. Jelliffe
2:30 PM	Demonstration – Making a parametric model of Amikacin – Dr. Jelliffe
2:50 PM	Demonstration – Making an NPAG model of Amikacin – Dr. Jelliffe
3:15 PM	Break
3:30 PM	Demonstration – Multiple model dosage design – Tobramycin – Planning the Initial Regimen - Dr. Jelliffe
4:00 PM	Demonstration – A patient with past therapy. Entering Doses and data, Analyzing the data, Developing the next Regimen. – Dr. Jelliffe
4:30 PM	Antifungal Therapy and TDM – Dr. Michael Neely
5:00 PM	Modeling Antibiotic Resistance – Dr. Forrest
5:30 PM	Adjourn

Day 2 - Intermediate and Advanced Population Modeling

9:00 AM	Optimal Times to get Serum concentrations – Dr. Vinks
9:20 AM	Modeling of Antiepileptic Drugs – Dr.Vinks
9:50 AM	General Guidelines for making, validating, and comparing population PK/PD Models – Dr. Jelliffe Weighting the data appropriately. Fitting the data – comparing methods. Validating models – what does this involve? Comparing patient populations – how to do this. Likelihoods, correlations.

10:15 AM	Break
10:30 AM	Comparing results – Parametric and Nonparametric methods – Dr. Jeliffe
11:00 AM	Cost Effectiveness of Goal-Oriented, Model-Based Drug Regimens - Dr. Vinks
11:30 AM	Optimizing TDM with Aminoglycosides – Dr. Jelliffe
12:00 Noon	Lunch
1:15 PM	Demonstration - Using the BOXES program to make large and nonlinear PK/PD Models – Dr. Jelliffe
1:40 PM	Demonstration - The IT2B program. - Dr. Vinks making a Michaelis-Menten model of Piperacillin
2:00 PM	Demonstration: Big NPEM: Modelling Piperacillin - Dr. Vinks Using gamma, ranges
2:30 PM	Demonstration – Planning an initial Digoxin regimen – Dr. Jelliffe et al
3:00 PM	Break
3:15 PM	Demonstration – Planning initial vancomycin therapy – intermittent and continuous IV – Dr Jelliffe et al
4:00 PM	Review and discussion – all participants
5:00 PM	Adjourn