

***The Institute for Physical and Chemical Medicine and the USC
Laboratory of Applied Pharmacokinetics present a Workshop
on***

**Clinical Approaches to Individualizing Therapy with Toxic
Drugs: Problem Cases and Methods for Solving them.**

Wednesday and Thursday, April 21-22, 2004

Location: The Institute for Physical and Chemical Medicine, Moscow, Russia

This course is for physicians and pharmacists who are interested in optimal individualization of therapy with potentially toxic drugs, those which usually need therapeutic drug monitoring. **Day 1** will introduce and review **Basic PK/PD tools, building blocks, and concepts** of pharmacokinetic modeling, and will emphasize their application to optimal patient care. **Day 2** will continue with detailed analyses of clinical cases and specific methods used in their understanding and management. **Note:** if you would like to bring your own laptop computer to obtain and learn the relevant software (not included in the registration fee), you are encouraged to do so.

Preliminary Program

Faculty:

*Irina Bondareva, Ph.D., Course organizer, Institute of Physical and Chemical Medicine,
Moscow*

*Roger Jelliffe, M.D., Professor of Medicine, Laboratory of Applied Pharmacokinetics, USC
School of Medicine, Los Angeles, USA*

For registration and more information, contact:

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Wednesday, April 21, 2004 – Concepts, Building Blocks, and Tools

8:30 AM – Registration

9:00 AM – Welcome – Dr. Irina Bondareva

9:15 AM - Review of Basic Pharmacokinetic Concepts – Dr. Bondareva

Nonparametric Pharmacokinetic Population Models

9:45 AM - The Nonparametric Bayesian scenario and feedback strategy – Dr. Bondareva

10:00 AM - Estimation of Creatinine Clearance without a urine specimen in acutely ill, unstable patients – Dr. Jelliffe

10:15 AM – Break

10:30 AM - When to obtain serum data for Therapeutic Drug Monitoring – Dr. Jelliffe

Not just the trough
Capture the dynamics
Some optimal strategies

11:15 AM - Modeling the assay error – Dr. Bondareva

11:45 AM - Nonparametric population modeling approaches – Dr. Jelliffe

What is the ideal population model?
What “nonparametric” means here
The NPAG approach
Using the assay error and stated ranges

12:00 noon - Using population modeling approaches optimally

Get the assay error polynomial
Then use NPAG, get the entire joint density, essentially resolving the population into up to one model (support point) for each subject studied.

12:30 PM – Lunch

2:00 PM - Introduction to multiple model (MM) dosage design – Dr. Jelliffe

Software for MM dosage regimens

3:00 PM - Getting MM Bayesian posterior joint densities – Dr. Jelliffe

MM Bayesian posteriors
A new method – IMM – for detecting changing parameter values in patients

3:30 PM – Break

3:45 PM - Modeling Drug Diffusion into Endocardial Vegetations – Dr. Jelliffe

4:15 PM – “Concentration and Time – Dependent Drugs”: Modeling Organism Growth and Kill by Antibiotics – Dr. Jelliffe

5:00 PM – Adjourn

Thursday, April 22, 2004 –Analysis and Management of Clinical Cases and Problems

9:00 AM – Review and Discussion - Dr. Bondareva

9:15 AM – How to Plan, Monitor, and Adjust Individualized Drug Dosage Regimens for Patients.

Set a target goal for each patient according to the need for the drug.
Aminoglycosides 10 and 1, or 20 and 0.5

Vancomycin trough 10
 Digoxin – really a 2 compartment model
 Clinical effect correlates better with tissue than serum concentrations
 How to manage this problem clinically
 Serum troughs usually 0.9 ng/ml
 Peripheral peaks usually 7.0 ug/kg
 Patients with atrial fibrillation need more
 Antiepileptic Drugs: set specific target goals.
 Carbamazepine is 3-12 mg/l;
 Valproate - 50 - 100 (150) mg/l;
 Phenytoin - 3 - 20 mg/l;
 Phenobarbital - 10 - 30 mg/l.

10:30 AM - Case studies in aminoglycoside therapy

Therapeutic drug monitoring
 Making the individualized, Bayesian posterior, model
 Planning the initial regimen
 A Gentamicin patient with changing renal function
 A Gentamicin patient on dialysis
 A problem patient on Tobramycin

12:30 PM – Lunch

2:00 PM - Cost-effectiveness of individualized therapy – Dr. Jelliffe

Aminoglycosides
 Vancomycin
 Digoxin
 Lidocaine
 Outcomes in Busulfan therapy for bone marrow transplants in children

2:30 PM –Case studies in digoxin therapy

An initial regimen for a patient with atrial fibrillation
 A case history: another patient with atrial fibrillation
 A patient on digoxin and quinidine

3:00 PM – Case studies in Vancomycin therapy – Dr. Jelliffe

Planning the initial regimen
 Monitoring it

3:30 PM – Break

3:45PM – Modeling Antiepileptic drugs – Dr. Bondareva

4:15 PM – Case studies in antiepileptic therapy – Dr. Bondareva

5:00 PM – Adjourn