A 3-DAY INTRODUCTORY WORKSHOP IN POPULATION PK DATA ANALYSIS

A HANDS-ON COURSE USING NONMEM®

UNIVERSITY AT BUFFALO
State University of New York

Thursday, May 13 – Saturday, May 15, 2010
Buffalo, NY

COGNIGEN

WORKSHOP SYNOPSIS

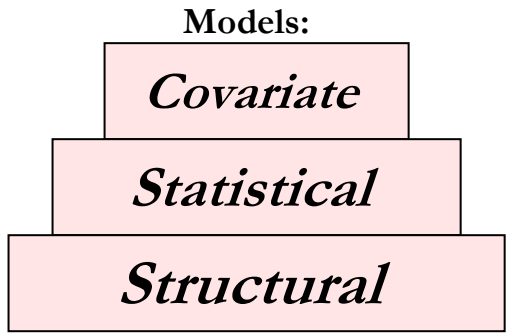
This introductory population PK training workshop has been designed to provide the necessary information to successfully implement population pharmacokinetic methodology in a drug development program. The material is structured to impart both the theoretical and practical aspects of the population approach and is versatile so that participants with diverse backgrounds and areas of expertise may benefit. Examples of the use of population PK studies in drug development programs, especially those from the published scientific literature, will be presented whenever possible to provide specific details of various implementations and better illustrate essential aspects of population PK methods. Emphasis will be placed on compliance with the FDA's Guidance for Industry on Population PK and the EMEA's Guideline on Reporting the Results of Population PK Analyses; participants will gain an appreciation for the importance of protocol compliance, the essentials of accurate and sufficient data collection, and learn how to proactively plan in order to maximize study effectiveness.

The workshop content is provided as a combination of formal lectures, review of data, code, and data analysis results, and hands-on exercises. Participants will be provided with a computer terminal where they will be afforded the opportunity to practice coding control streams, running various models, and evaluating the results. A thorough examination of an example dataset, from development of the structural model, through covariate analysis, and model refinement will be covered. Overall, this workshop will provide the audience with a comprehensive understanding of the population PK approach to data analysis, its usefulness and added value in drug development, as well as when and where to employ population PK methods and sparse sampling within a given development program. The format is designed to be both comprehensive and interactive.

LEARNING OBJECTIVES

Following the workshop, the participant should be able to:

1. Understand the conceptual basis and rationale for the population approach to data analysis
2. Understand where and when population methods may be optimally applied to PK and PK/PD analyses during the drug development process
3. Understand and describe the potential benefits and advantages to implementing a population strategy
4. Identify the critical logistic and practical issues involved in study design, protocol development, case report form development, overall planning, and efficient execution for population PK studies
5. Describe the critical documentation standards for population PK reports intended for submission to the FDA
6. Write, execute, and de-bug basic NONMEM® control streams for simple structural PK models
7. Outline the requirements and format for basic NONMEM® datasets
8. Understand, identify, and code some basic functional forms for covariate-parameter relationships
9. Perform covariate analysis using a forward selection followed by backward elimination approach
10. Understand the importance of exploratory data analysis (EDA) and the interpretation of standard goodness-of-fit diagnostic plots
11. Understand the basis for model selection strategies and discriminate between model candidates on the basis of both quantitative and qualitative factors
12. Have insight into potential model refinement issues



COURSE INSTRUCTION

The workshop is organized and taught by experienced pharmacometricians from Cognigen Corporation and the University at Buffalo School of Pharmacy and Pharmaceutical Sciences, a pioneer and global leader in the field of pharmacodynamics and pharmacokinetics. Cognigen Corporation has been providing clinical pharmacology consulting services, including population PK/PD modeling and simulation to the global pharmaceutical industry for over 15 years. Cognigen specializes in performing innovative data management and pharmacometric analyses to generate and communicate the knowledge required for time-sensitive decision-making and regulatory review. Course faculty will include: Jill Fiedler-Kelly, Alan Forrest, and David Jaworowicz.

Jill Fiedler-Kelly

This session precedes a 3-day separate course in the concepts and applications of Pharmacokinetic/Pharmacodynamic Modeling coordinated by Dr. William J. Jusko. For information see: http://pharmsci.buffalo.edu/symposia/ or contact rrurben@buffalo.edu.

AGENDA

Thursday, May 13, 2010

08:35-08:40 Dr. W. Jusko: **Welcome**
08:40-08:45 Pf. J. Fiedler-Kelly: **Introduction to the Workshop**
08:45-09:45 Pf. J. Fiedler-Kelly: **L1: The Population Approach in Drug Development**
09:45-10:20 Dr. A. Forrest: **L2: Introduction to Population PK/PD Analysis**
10:20-10:40 Break
10:40-11:25 Pf. D. Jaworowicz: **L3: NONMEM® Terminology**
11:25-12:10 Pf. D. Jaworowicz **L4: Estimation Methods in NONMEM®**
12:10-01:10 Lunch
01:10-02:35 Pf. J. Fiedler-Kelly: **L5: Brief Overview of the NONMEM® Program and Writing an NM-TRAN Control Stream**
02:35-02:55 Break
02:55-04:05 Pf. J. Fiedler-Kelly: **L6: NONMEM® Dataset Structure**
04:05-05:30 **Exercise 1: Writing Control Streams and Diagnosing Dataset Problems**

Friday, May 14, 2010

08:30-09:15 **Review Exercise 1**
09:15-09:45 Pf. J. Fiedler-Kelly: **L7: Exploratory Data Analysis**
09:45-10:05 **Exercise 2: Introduction to PANDA**
10:05-10:25 Break
10:25-11:00 Pf. J. Fiedler-Kelly: **L8: Running NONMEM® and Interpreting the Output**
11:00-11:40 Pf. D. Jaworowicz : **L9: Model Diagnostic Plots**
11:40-11:50 **Data Review 1: Introduction to the Example Dataset and Exploratory Data Analysis**
11:50-12:45 **Exercise 3: Developing a Base Structural Model**
12:45-01:45 Lunch
01:45-02:15 **Exercise 3: (cont'd)**
02:15-02:25 **Data Review 2: Base Model**
02:25-03:10 Pf. J. Fiedler-Kelly: **L10: Applications of Bayesian Parameter Estimation**
03:10-03:30 Break
03:30-04:10 Pf. D. Jaworowicz: **L11: Model Selection and Covariate Evaluation–Part 1: The Covariate Assessment Process**
04:10-05:00 Pf. D. Jaworowicz: **L12: Covariate Evaluation–Part 2: Functional Forms and Coding Issues**
05:00-05:15 **Data Review 3: Introduction to Covariate Analysis**

Saturday, May 15, 2010

08:30-09:30 **Exercise 4: Forward Selection of Covariate Effects**
09:30-10:15 **Data Review 4: Forward Selection Results and Multivariable Model Checking**
10:15-10:35 Break
10:35-10:55 **Data Review 4: (cont'd)**
10:55-11:35 **Exercise 5: Backward Elimination of Covariate Effects**
11:35-12:00 Pf. J. Fiedler-Kelly: **L13: Diagnosing Errors, Model Checking, Model Refinement, and Model Evaluation Techniques**
12:00-01:00 Lunch
01:00-01:50 Pf. J. Fiedler-Kelly: **L13: (cont'd)**
01:50-02:05 **Data Review 5: Backward Elimination and Model Refinement**
02:05-03:15 Pf. J. Fiedler-Kelly: **L14: Population PK/PD Modeling and Simulation Examples**
03:15-03:35 Break
03:35-04:15 Pf. J. Fiedler-Kelly: **L15: Good Reporting Practices for Population Analyses**

REGISTRATION DETAILS

Course location: The course will be held at the University at Buffalo, North Campus.

Fee: The fee is $2200. A US government employee rate of $1600 and student rate of $1100 is available for up to 3 participants of each type. The registration fee includes course documentation and handouts. Lunches and break-time refreshments during the course are included.

Accommodations: Ramada Inn & Conference Center, 716-636-7500 or Marriott Hotel, 716-689-6900.

Registration: Given the hands-on nature of the course, enrollment will be limited to 25 persons. Please register by filling out the form and returning to the address shown below. Confirmation of registration will be returned upon receipt, together with an invoice for the course fee. Registration will not be final until payment is received. Checks should be made out to the University at Buffalo Foundation Inc. Bank transfers and credit card payments are also accepted.

Cancellations: Cancellations with a full refund may be made until March 26, 2010. No refunds will be given for cancellations received after this date. Substitutions may be made at any time.

REGISTRATION FORM: INTRODUCTORY NONMEM® WORKSHOP

Name: _____
Organization: _____
Address: _____
City: _____ **State/Country:** _____
Postal Code: _____
Telephone: _____ **Fax:** _____
E-mail: _____
For credit card payment:
Credit card number: _____
Signature: _____ **Expiration Date:** _____

Kindly return to: PK/PD MODELING – NONMEM Workshop, Dept. of Pharmaceutics, School of Pharmacy, University at Buffalo, 519 Hochstetter Hall, Buffalo, NY 14260; phone: 716 645 4834; fax: 716 645 3693; e-mail Rita Urben at rrurben@buffalo.edu.