Mathematics, Statistics, and Computer Science **@ UIC**

Statistics and Data Science Seminar

Pharmacometrics: Application of MSCS to Pharmaceutical Development

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Abstract: Pharmacometrics is the application of biological and pharmacological science and statistical/ mathematical/ computational methods to optimize pharmaceutical development. The goal of a pharmacometrician is to get the right dose of the right drug to the right patient at the right time! Pharmacometrics includes a wide span of models and applications, but the primary focus of the seminar is on understanding the pharmacokinetics of the drug (how a drug is absorbed, processed, distributed, and eliminated, and how much is in the plasma and site of action at a given time). Every subject will have their own unique concentration-time profile for a given dose and formulation, which is dependent upon intrinsic and extrinsic factors (weight, smoking status, other drugs, health state, etc). One important job of the pharmacometrician is to understand the quantitative impact of these factors on the pharmacokinetics, and to determine which have enough of an impact to make a change to the recommended dose. Once a model is fit to a patient population, simulations can be performed to assess the outcome with different inputs (higher and lower doses, less/more frequent doses, etc). The seminar will also include a discussion of some of the technical details of Pharmacometrics, including some of the mathematical methods, software, data sources, validation techniques, and challenges that pharmacometricians face in their day-to-day work.

Wednesday, September 11 at 4:00 PM in 636 SEO