

Title: Hands-on workshop on dose optimisation and population pharmacokinetic (PoP-PK) studies in special populations

Designing a dosing regimen involves integration of pharmacokinetic information from host (infected person/animal) and impact on outcomes (decrease in bacterial load). This exercise though appears simplistic, centers around modern methods of pharmacokinetic modelling and simulation runs for suggestion of possible doses which are likely to strike a balance between optimized clinical benefit and reducing side effects. In special populations such as those who are critically ill, newborns, renal impairment and more require multiple considerations for reaching a meaningful conclusion.

With this background, the workshop aims at introducing participants to the concepts and applications of **Population Pharmacokinetic (Pop-PK) modelling** through illustrative examples in various clinical scenarios. The participants will learn about the key concepts through hands-on sessions, group work and discussion.

The following resource persons are suggested for the workshop

Prof Nusrat Shafiq, Dr Rachna Rohilla, Dr Soumya Vij, Dr Ritika Bhandari, Dr Avaneesh K Pandey, Dr Mahesh, Dr Nikhil Aravind and Ms Tania Sidana
PGIMER, Chandigarh and AIIMS, Bhatinda

Who should attend: Pharmacologist, Clinicians, Microbiologist. It is desirable to have some familiarization with key concepts and terms in Pharmacokinetics.

Proposed number : 30-50

Participants will need to bring their laptops and internet connections

Learning objectives:

1. Understand the key concepts in designing and conduct of a population pharmacokinetic (Pop-PK) study, including identification of relevant covariates, data structuring, and model development.
2. Interpret Pop-PK model outputs with attention to covariate effects and biological plausibility, and understand their clinical relevance.
3. Apply model-based simulations to inform and optimise dosing regimens in special populations.

Tentative program:

1. Introduction to Pop-PK
2. Designing a Pop-PK study
3. Creating a case record form and a data spreadsheet
4. Defining covariates, developing and refining the Pop-PK Model
5. Interpreting results
6. Prediction and suggestions on the dosing regimen

The participants will be divided into three groups and each group will be assigned a case based scenario (critically ill, neonates, specific organ dysfunction). Each group will work together with facilitators in hands-on sessions to help develop an understanding of the concepts of Population PK modelling.