Abstract:

Pediatric drug development is challenging and fairly unique in several aspects (1) Most of the development programs have just one chance to perform an informative set of trials. After that, industry does not have any financial incentive. Pharmacokinetic (PK) information is useful in (1) selecting dose range for future studies; (2) assessing drug exposure for efficacy and safety purposes, especially by matching exposures to adults, and ultimately (3) supporting dosing approval. Different guidances were published to explain the role of pediatric studies under various conditions and the growth and developmental changes in factors influencing absorption, distribution, metabolism, and elimination of drugs in the pediatric population.2,3 Even though sample size justification is provided for pediatric efficacy studies, the sample size selection for pediatric PK and safety studies has been vastly different without clear justification. As a consequence, either the pediatric exclusivity determination or the approval decision was affected. Hence, there is a need for a uniform definition of study quality for PK studies. One of the important goals of the pediatric PK study is to ensure the precise estimate of important PK parameters, such as clearance and volume of distribution, to justify the choice of a safe and effective dose from a PK perspective. To achieve this goal, a standard regulatory requirement has been drafted and communicated to the sponsors, where applicable, as follows: The study must be prospectively powered to target a 95% CI [confidence interval] within 60% and 140% of the geometric mean estimates of clearance and volume of distribution for DRUG NAME in each pediatric sub-group with at least 80% power. The scientific and regulatory basis for this pediatric precision requirement will be explained.

Biography:

Dr. Gobburu is Professor & Executive Director, Center for Translational Medicine, School of Pharmacy and School of Medicine, University of Maryland, Baltimore, USA. He held various positions at US FDA between 1999 and 2011. Under his leadership, a Division of Pharmacometrics (DPM) was formed at the FDA and several policies were established. Dr. Gobburu, a Senior Biomedical Research Scientist (SBRS), has experience from over 250 New Drug Applications (NDA) and Biologic Licensing Applications (BLA) across a wide variety of therapeutic areas. He is a world-recognized scientific leader in the area of quantitative disease models and their application to decisions. Dr. Gobburu is best known for transforming the field of Pharmacometrics across the world into a decision-supporting science. He also established a Pharmacometrics Fellowship program at the FDA. He received numerous awards such as FDA’s Outstanding Achievement Award; Outstanding Leadership Award from the American Conference on Pharmacometrics (2008) and Tanabe’s Young Investigator Award from American College of Clinical Pharmacology (2008). Dr. Gobburu is on the Editorial Boards of several journals. He published over 60 papers and book chapters.