

Fast track to Domain: SDTM.PC and SDTM.PP

Use Graphic overview of variables to speed up learnings curve.

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ABSTRACT

Pharmacokinetics concentration (PC) and Pharmacokinetics Parameters (PP) Domain Models are described in CDISC Implementation Guide. To work with these domains gives some challenges. This poster shows all variables on a graph representing an output from a PKPD analysis. It provides you with a fast overview and makes the learning curve less steep.

The Poster shows how to link SDTM.PC and SDTM.PP domain together gathering information from a PK curve.

INTRODUCTION

Novo Nordisk A/S is in a transition period where all Trial data are converted to SDTM. In that connection we works with SDTM.PC and SDTM.PP domain.

SHORT ABOUT PHARMACOKINETICS (PK)

Pharmacokinetics is the analysis of Concentration/Time profiles, i.e. a set of concentration measurements taken immediately before a drug administration and repeatedly thereafter according to a sampling scheme, e.g. at time 0min, 100min, 200min, 300min, 400min, 500min and 600min.

Sometimes one or more pre-dose sampling points are included. A profile is 'tied' to a dosing. When a new dose is given, a new profile starts.

PK describes what the body does to the drug

Pharmacodynamics - PD - describes what the drug does to the body, colloquially all is just called pkpd.

The purpose of the PK analysis is to estimate various PK parameters for a single profile.

Some are simple and can be calculated for (almost) any profile, e.g. AUC_{0-tz}, AUMC, C_{max}, T_{max}, C_{mean}, some are more complicated and require certain conditions to be met, e.g. t_{1/2}, - some are calculated from other PK parameters and may depend on 'Type' of profile (Single Dose, SD, or Steady State, SS), route of administration, dose or other additional information, e.g. Clearance, AUC_{0-inf} and MRT.

NOVO NORDISK A/S PKPD SAS MACRO.

Novo Nordisk has its own macro developed in SAS software to calculate all relevant Pharmacodynamics parameters. Its primary used in phase1 trials. The macro calculates standard PK parameters for single, individual PK profiles. The macro is independent of data models and can be used in all Novo Nordisk A/S projects. It can run on dataset SDTM.PC data where as a minimum information about the dose must be added. The macro can be compared with the software WinNonlin.

Novo has a team of statisticians that take care of all knowledge sharing and challenges related to pkpd and the use of pkpd macro.

DOMAIN SDTM.PC AND SDTM.PP.

To populate domain SDTM.PC with data is fairly easy. It is populated particularly from Lab data, SDTM.LB.

To populate domain SDTM.PP is a challenge.

It is recognized that SDTM.PP contains derived data, even though it an SDTM dataset. It holds all the PK parameters in the variable PPTTESTCD=*Parameter Short Name* and PPTTEST=*Parameter Name*, e.g. the text C_{max} will go into variable PPTTESTCD.

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The linking of the 2 domains is important and is primary done with use of variable PCRFTDTC, *Date/Time of Reference Point* from SDTM.PC domain against PPRFTDTC, *date/Time of Reference Point in SDTM.PP*. These variable holds the [Time for nom time=0]. Extra links are by PCSEQ and PCGRPID. This is shown on the Graph on the Poster.

Not every concentration from SDTM.PC is used to calculate the Pharmacokinetics parameters to SDTM.PP, so there is NOT a one to one relation between the 2 dataset; it's a requirement that sponsors document the concentrations used to calculate each parameter. Luckily this can be done by submitting the analysis datasets, based on SDTM.PP + dose.

Novo Nordisk A/S considering to using ADaM.ADPP domain instead of SDTM.PP domain. **Check out the Poster and have a chat about this.**

CONCLUSION

The purpose of this Poster is to give a Graphic overview of where to find and where to put the variable describe in SDTM implementation Guide.

Often it's the simplest graphic approach that helps you a lot in understanding difficult items. Just by a quick glance at this Poster you will get knowledge to do the Pharmacokinetics Domains.

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Your comments and questions are valued and encouraged. Contact the author at:

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