**SWOG/PCPT Linked Data Analysis Pipeline Overview**

This pipeline demonstrates survival analysis on PCPT-linked data (including the synthetic data created from the PCPT-linked dataset), incorporating time-dependent covariates using complete case analysis, augmented complete case analysis, NLAC analysis, and IPLW analysis.

**Workflow Components**

**1. Function Definitions (swog\_analysis\_functions.R)**

* tdcSWOG\_nlac\_analysis\_robust()
  + Implements the NLAC method using time-dependent Cox models.
  + Incorporates treatment effect changes at pre-defined time points.
* tdc\_real\_data\_analysis()
  + Applies all 4 methods:
    - IPLW (Inverse Probability of Linkage Weighting)
    - CC (Complete Case)
    - ACC (Augmented Complete Case)
    - NLAC (Non-Linkage Adjusted Censoring)
  + Computes estimates, SEs, and confidence intervals for treatment effects, including time independent and dependent covariates
* ti\_real\_data\_analysis()
  + Applies all 4 methods:
    - IPLW (Inverse Probability of Linkage Weighting)
    - CC (Complete Case)
    - ACC (Augmented Complete Case)
    - NLAC (Non-Linkage Adjusted Censoring)
  + Computes estimates, SEs, and confidence intervals for treatment effects, including only time independent covariates

**2. Execution Script (run\_SWOGData\_analysis.R)**

* Loads the synthetic PCPT dataset
* Defines change points at 6.5 and 7.5 years
* Constructs time-dependent covariates T1 and T2 using tmerge()
* Runs tdc\_real\_data\_analysis()and ti\_real\_data\_analysis() with appropriate covariates