

Title: Longitudinal Data Techniques Using SAS Software

Author: Ron Cody

Ron Cody has done it again. His newest “Book by Users” titled Longitudinal Data Techniques, offers new and intermediate users, working with longitudinal data, the basic tools for success.

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Longitudinal Data Techniques is a well organized book describing the tools available to “set up” longitudinal data for summarization and analysis in SAS. One example of this type of data is clinical a dataset which includes a separate observation for each visit resulting in more than one observation per subject.

The early chapters cover data statements and functions often used to make comparisons when there are multiple observations for a given subject. Included are the RETAIN statement, The LAG and DIF functions and the FIRST. and LAST. temporary variables. Beginning and intermediate programmers will appreciate the detailed explanations of each technique and special attention paid when listing the advantages and cautions. A chapter demonstrating when and where to use Flags and Counters follows. Flags are useful to tally the number of subjects who experienced a particular event during the total study period. Counters are used to determine the number of times the event of interest occurred for each subject. The next chapter has, two tools to summarize multiple observations per subject data, PROC MEANS and PROC FREQ. Though they yield the same results, the examples show when one PROC may be more straightforward or involve less coding. The method selected may be based on user preference.

There are several choices in SAS to create multiple observations per subject from a single observation and vice versa. The sample programs on restructuring data use arrays in a data step or the SQL or TRANSPOSE procedure. These chapters provide programs and step-by step definitions for each method. The similarities and differences are explained and the choice, again, is one of personal preference.

For users new to clinical data, the lessons learned in the earlier chapters are strengthened in the Case Study presented in Chapter 9: Operations on a Clinical Database. This sample application addresses many issues that often occur in actual clinical data. One example, missing values, is given special attention. Throughout the SAS programming examples,

key lines of code are given reference numbers, i.e. {1}. It is important to know they are NOT part of the program. These reference numbers match the numbers in the descriptive text that follows each program.

Additional applications are titled Operations on Daily Weather Data and Ozone and Summary Reports on a Library Dataset. For users familiar with macros, the final chapter includes SAS Macros that perform several of the data tasks described in the earlier chapters.

Ron Cody has done it again. His newest “Book by Users” titled Longitudinal Data Techniques, offers new and intermediate users, working with longitudinal data, the basic tools for success. If you wish to learn by example, this book provides short SAS programs covering the most often used techniques for summarizing and restructuring longitudinal data. The comments following each program provide important hints to remember. You will gain experience by creating the sample datasets, testing the methods and verifying the results.