

Chapter 580

Time Calculator

Introduction

This program module generates and stores elapsed times and censor codes from a database of patient entry, follow-up, and termination dates. It was designed as a supplement for programs like Kaplan-Meier survival analysis and Cox regression which require elapsed times and censor codes as inputs.

Data Structure

This procedure uses up to three date variables to calculate elapsed time and censor codes for each row. These are discussed further below.

Procedure Options

This section describes the options available in this procedure.

Data Tab

Specify the variables to be processed.

Data Variable Specification

Entry (Surgery) Date Variable

This (optional) variable contains the date the subject entered the study. Usually, this corresponds to the surgery or procedure date. The value should be a standard date value such as *mm/dd/yyyy* or *dd/mm/yyyy*. A non-missing value here will override the 'Group Start Date' value.

The elapsed time is calculated by subtracting the entry date from either the Last Follow-Up Date or the Event Date.

Last Follow-Up Date Variable

This variable contains the date the subject was last seen before an event occurred. It is assumed that if, on that visit, the event of interest was seen, the date will be entered in the 'Event Date Variable' and not here. Thus, only subjects who have not exhibited the event should have their times recorded here. The value should be a standard date value such as *mm/dd/yyyy* or *dd/mm/yyyy*. If a 'Group End Date' is specified, this value will override it.

The elapsed time is calculated by subtracting the entry date from either the Last Follow-Up Date or the Event Date. If the Last Follow-Up Date value is non-missing and the Event Date is missing, the censor variable will be set to a zero (signaling a censored value). Otherwise, the censor variable will be set to a one (signaling an event).

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Event (Death) Date Variable

This variable contains the date the subject showed the event (death, remission, etc.). If a subject has not shown the event, this value should be left blank on the database. The value should be a standard date value such as *mm/dd/yyyy* or *dd/mm/yyyy*.

The elapsed time is calculated by subtracting the entry date from either the Last Follow-Up Date or the Event Date. If the Last Follow-Up Date value is non-missing and the Event Date is missing, the censor variable will be set to a zero (signaling a censored value). Otherwise, the censor variable will be set to a one (signaling an event).

Group Date Specification

Group Start Date

If all subjects begin the study on the same date and this date is not on your database, you can enter that date here. The value should be a standard date value such as *mm/dd/yyyy* or *dd/mm/yyyy*. If an 'Entry Date Variable' is specified, its value will override this value.

Group End Date

If follow-up on all subjects ended on the same date and this date is not on your database, you can enter that date here. The value should be a standard date value such as *mm/dd/yyyy* or *dd/mm/yyyy*. If a non-missing 'Last Follow-Up Date Variable' value is entered, it will override this value.

Storage Variable Specification

Elapsed-Time Variable

This variable will receive the calculated elapsed-time. This value can be used as the Time Variable in the Kaplan-Meier or Cox Regression procedures. Note that this value will either be the time to event or the time until end of follow up. The scale of the elapsed time (day, month, or year) is set by the Time Scale option

The elapsed time is calculated by subtracting the entry date from either the Last Follow-Up Date or the Event Date. If the Last Follow-Up Date value is non-missing and the Event Date is missing, the censor variable will be set to a zero (signaling a censored value). Otherwise, the censor variable will be set to a one (signaling an event).

Censor Variable

This variable will receive the censor indicator. A one will appear for all subjects that exhibited the event and a zero will appear for all others. This value can be used as the Censor Variable in the Kaplan-Meier or Cox Regression procedures.

If the Last Follow-Up Date value is non-missing and the Event Date is missing, the censor variable will be set to a zero (signaling a censored value). Otherwise, the censor variable will be set to a one (signaling an event).

Warning: any existing data in this variable will be lost, so choose an empty variable.

Time Scale

Specify the scale that you want to use for the time values.

Example 1 – Preparing Data for Kaplan-Meier Analysis using the Time Calculator

This section presents an example of how to prepare a set of date data for analysis by the Kaplan-Meier procedure. The date values are contained on a database called TimeCalc.

You may follow along here by making the appropriate entries or load the completed template **Example 1** by clicking on Open Example Template from the File menu of the Time Calculator window.

1 Open the TimeCalc dataset.

- From the File menu of the NCSS Data window, select **Open Example Data**.
- Click on the file **TimeCalc.NCSS**.
- Click **Open**.

2 Open the Time Calculator window.

- Using the Analysis menu or the Procedure Navigator, find and select the **Time Calculator** procedure.
- On the menus, select **File**, then **New Template**. This will fill the procedure with the default template.

3 Specify the variables.

- Select the **Data** tab.
- Set the **Entry Date Variable** to **Entry**.
- Set the **Last Follow-Up Date Variable** to **FollowUp**.
- Set the **Event Date Variable** to **Event**.
- Set the **Elapsed-Time Variable** to **Time**.
- Set the **Censor Variable** to **Censor**.
- Set the **Time Scale** to **Year**.

4 Run the procedure.

- From the Run menu, select **Run Procedure**. Alternatively, just click the green Run button.

This procedure does not produce any output. Upon running the procedure, the elapsed times and censor codes will be displayed on the spreadsheet.