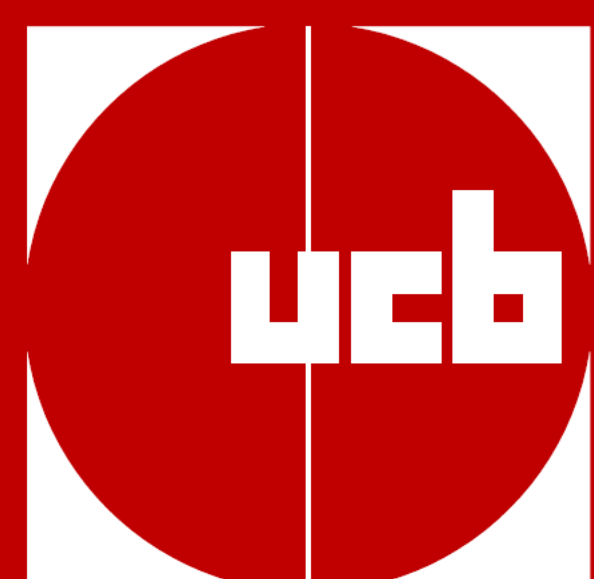
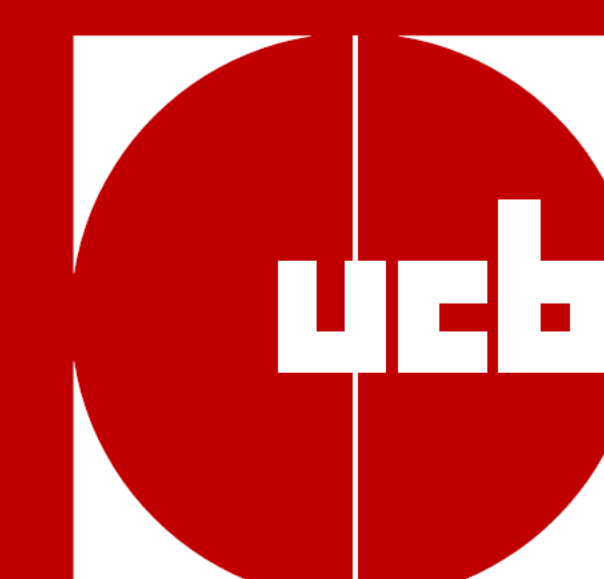




# ADaM in a pool! A concept on how to create integrated ADaM datasets



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## Introduction

While CDISC specifications for SDTM are - with very few exceptions - well defined and make it possible to start work right away, the ADaM specifications, in order to be able to cover several types of analyses, offer a high degree of flexibility in how we prepare analysis datasets (ADS). Therefore it is obvious that we need a concept on how to construct our analysis database before we can start programming. There are several questions we have to answer in order to have our ADS consistent and compliant:

- How do we want to handle treatments and sub-groups?
- How do we want to put data in place either in a horizontal or vertical structure?
- How to integrate studies with different designs?
- How to handle study periods and phases?

## Situation

- **Treatment handling:** Different study designs are a challenge to integrate. For example if even one study has switches in treatment within one study period it will not be easy to integrate with the other studies in the pool.
- **STUDYID information:** Subjects might continue from a study to another. For an analysis per study we have to keep the STUDYID of each study the subject was enrolled in.
- The need for different kinds of analyses on the same integrated data.
- Updating the database with new studies. This will be a challenge if the new studies have completely different designs.

## Goals

- **Treatment handling:** This has to be handled better than described in the ADaM implementation guide. It is obvious that in its current form ADSL does not match the needs for integrated analyses.
- **STUDYID:** A method to keep this information has to be implemented.
- **Different analyses on same integrated data:** In order to make this possible the ADS structure has to achieve some grade of independence from the Statistical Analysis Plan (SAP).

## Conclusion

- **ADSL:** issues were solved by reducing this panel to the minimum number of variables required
- **STUDYID:** By keeping this variable in ADTRTG and ADTRT and in all other ADS as a copy of SDTM STUDYID, reporting by study is possible.
- **Different analysis on same integrated data:** By replacing the treatment matrix used in ADTRT and re-running PR\_PH\_RD.SAS this is easily implemented.

| Period | Treatment | Date                |
|--------|-----------|---------------------|
| 1      | Trt 1     | 2011-03-21T13:14:00 |
| 1      | Trt 1     | 2011-03-21T13:18:00 |
| 1      | Trt 1     | 2011-04-04T10:35:00 |
| 1      | Trt 2     | 2011-04-04T10:37:00 |
| 1      | Trt 2     | 2011-05-03T12:00:00 |
| 1      | Trt 2     | 2011-05-18T11:30:00 |
| 1      | Trt 2     | 2011-05-18T11:32:00 |
| 2      | Trt 3     | 2011-05-30T10:25:00 |
| 2      | Trt 3     | 2011-06-15T12:40:00 |
| 2      | Trt 3     | 2011-06-15T12:42:00 |
| 2      | Trt 3     | 2011-06-29T10:30:00 |

**SDTM EX**

- Collapse continuous treatment in one record with start and end date
- „Continuous“ means same study medication, dose, dose unit, formulation, frequency etc.

| Period | Treatment | Start Date          | End Date            |
|--------|-----------|---------------------|---------------------|
| 1      | Trt 1     |                     |                     |
| 1      | Trt 2     | 2011-04-04T10:37:00 | 2011-05-18T11:32:00 |
| 2      | Trt 3     | 2011-05-30T10:25:00 | 2011-07-19T11:25:00 |
| 3      | Trt 4     |                     |                     |
| ...    | ...       | ...                 | ...                 |
| 4      | Trt 5     | 2011-09-07T16:18:00 | 2011-09-07T16:18:00 |

**ADTRTG**

- This is the so called generic treatment dataset. “Generic” because is independent of any SAP rules
- Furthermore each record contains the start and end dates of the continuous treatment. If we have to consider drug interruption then a new record (=interval) for the same treatment has to be created.



- This is a file containing the mapping of existing treatments to the ones described in the SAP. If we need to perform a new analysis on the same integrated data we only need to replace this file with a new one
- The SAP rules and treatment definitions will be applied on ADTRTG and ADTRT is created.
- For example some treatments might be combined and others might be ignored in the actual analysis

| Period | Treatment | Start Date          | End Date            |
|--------|-----------|---------------------|---------------------|
| 1      | Trt 1     |                     |                     |
| 2      | Trt 3     |                     |                     |
| 3      | Trt 4     |                     |                     |
| ...    | ...       | ...                 | ...                 |
| 4      | Trt 5     | 2011-09-07T16:18:00 | 2011-09-07T16:18:00 |

**ADRT**

| Period | Treatment | Event | Event Date |
|--------|-----------|-------|------------|
| 1      | Trt 1     | aaaa  | 21.03.2011 |
| 1      | Trt 2     | bbbb  | 30.05.2011 |
| 3      | Trt 4     | cccc  | 21.07.2011 |
| ...    | ...       | ...   | ...        |
| 4      | Trt 5     | eeee  | 07.09.2011 |

**ADAE**

| Period | Treatment | Event | Event Date |
|--------|-----------|-------|------------|
| 1      | Trt 1     | aaaa  | 21.03.2011 |
| 1      | Trt 2     | bbbb  | 30.05.2011 |
| 3      | Trt 4     | cccc  | 21.07.2011 |
| ...    | ...       | ...   | ...        |
| 4      | Trt 5     | eeee  | 07.09.2011 |

**ADDS**

## ADTRT and PR\_PH\_RD.sas

- **ADTRT** contains one record per subject and treatment interval after SAP rules were applied.
- **PR\_PH\_RD** This program assigns a study event (AE, medication, measurements over time like vitals signs, laboratory etc.) to a treatment, a study period (PR), a study or treatment phase (PH) and calculates relative days (RD). This also uses ADTRT. For example to assign a study event to a treatment, the program looks up in which treatment interval (=ADTRT record) the event occurred