

What Have I Done? Analysis Specification Document for Retrospective Database studies

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Agenda

Introduction:

- Issue: What Have I done?
- What was done in study XYZ?
- Why and when is this an issue

Retrospective Database studies – Process and Documentation

- Stakeholders
- Documents
- Guidelines

Analysis Specification Document

Evaluation and first experiences

Issue: What has been done?

When is this an important question?

- Manuscript needs to be written based on a completed study
- Request to do additional analysis on study XYZ
- Request to repeat study XYZ with a different population
- Stakeholders ask for additional detail on a completed study



Why can this be a difficult question?

- Study has been completed 20 or more years ago
- Programmers are no longer available
- Detailed Documentation is spread over several documents or email chains



Retrospective database study

Observational study on retrospective data

Data is already collected

→ data is as is

Data was not collected for the purpose of the analysis

→ assumptions need to be made

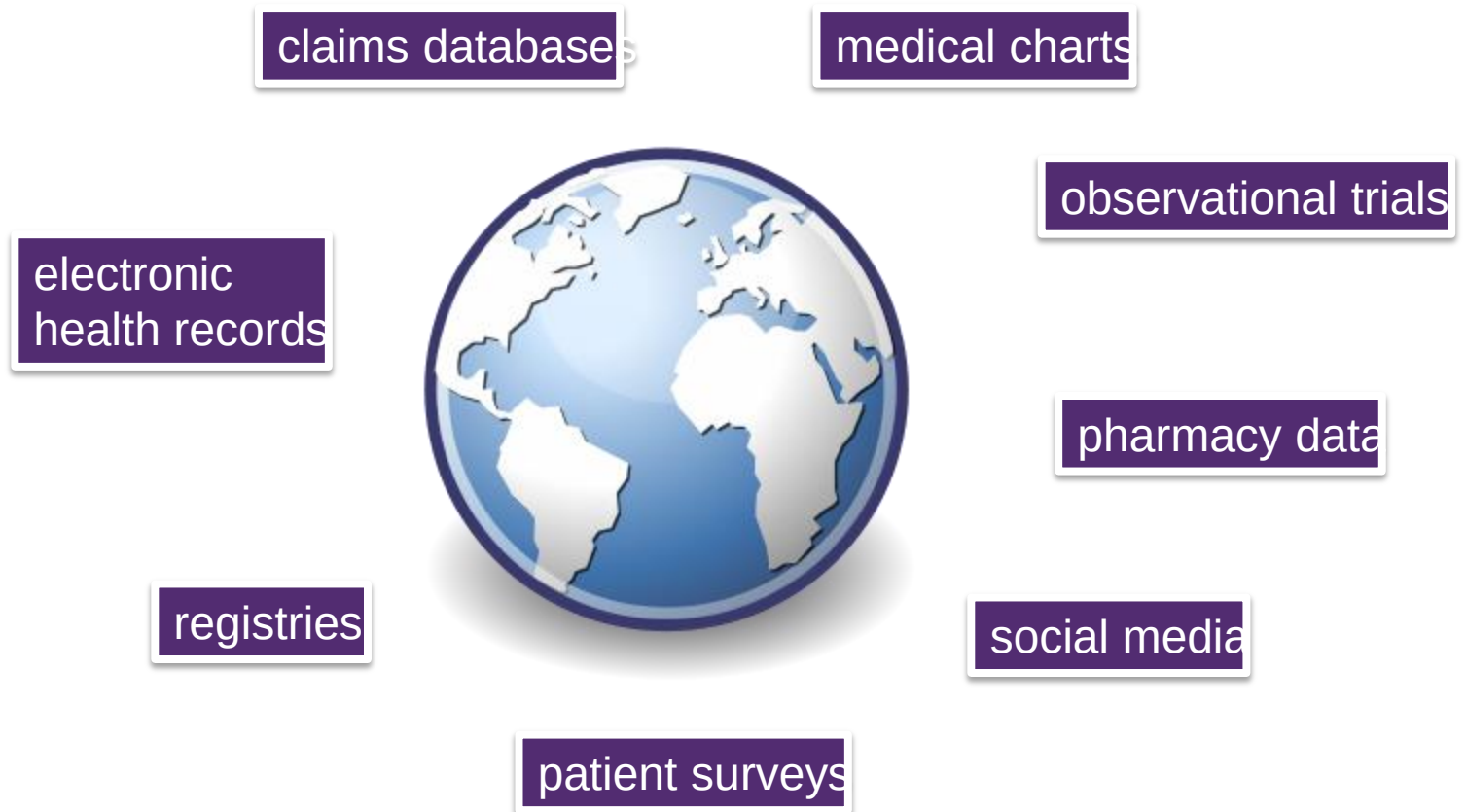
→ variables of interest need to be derived

Real World Data

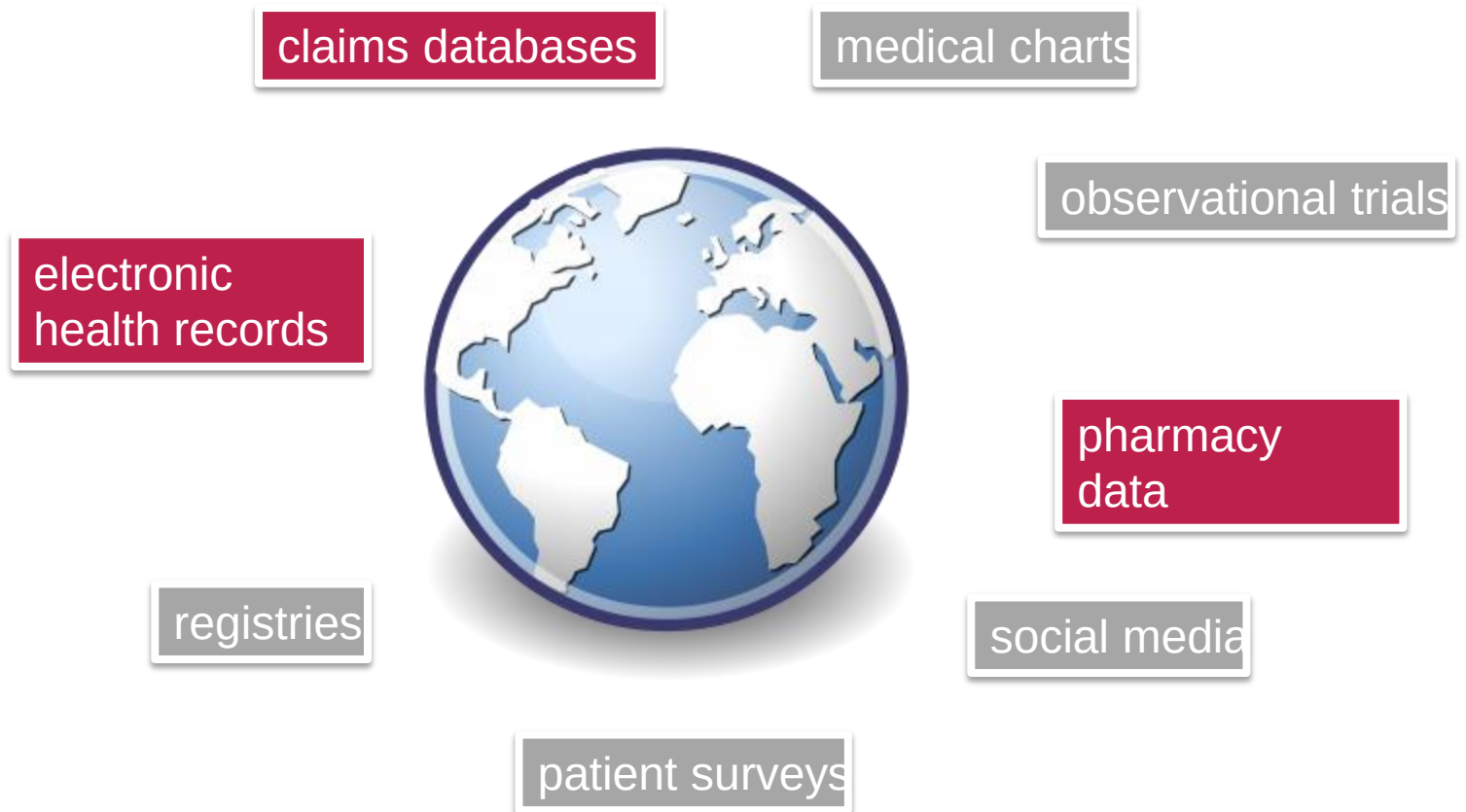
→ Data may be incomplete

→ Data may contain inconsistencies

Real World Data



Real World Data



Retrospective Database studies

Process and study team / stakeholders

Requestor

Study Owner,
Epidemiologist,
Health Economist

Programmers

visionary/
strategist



architect



builder



protocol

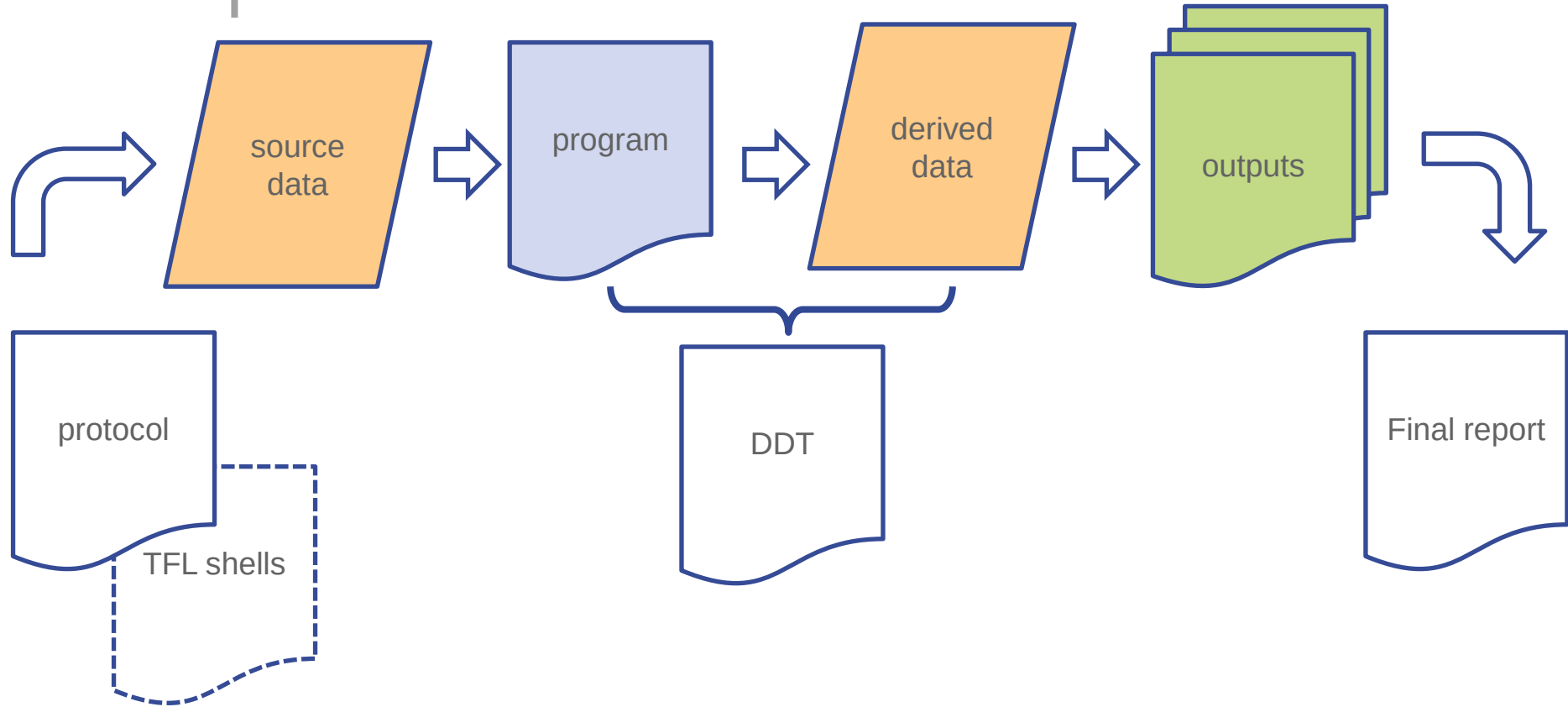


programming



Retrospective Database studies

Process flow and documentation



Issue: What has been done?

How to answer this question?

- Study Protocol

- TFL shells



What am I gonna do?

- Data Definition Tables

- SAS Programs

- Tables and Figures

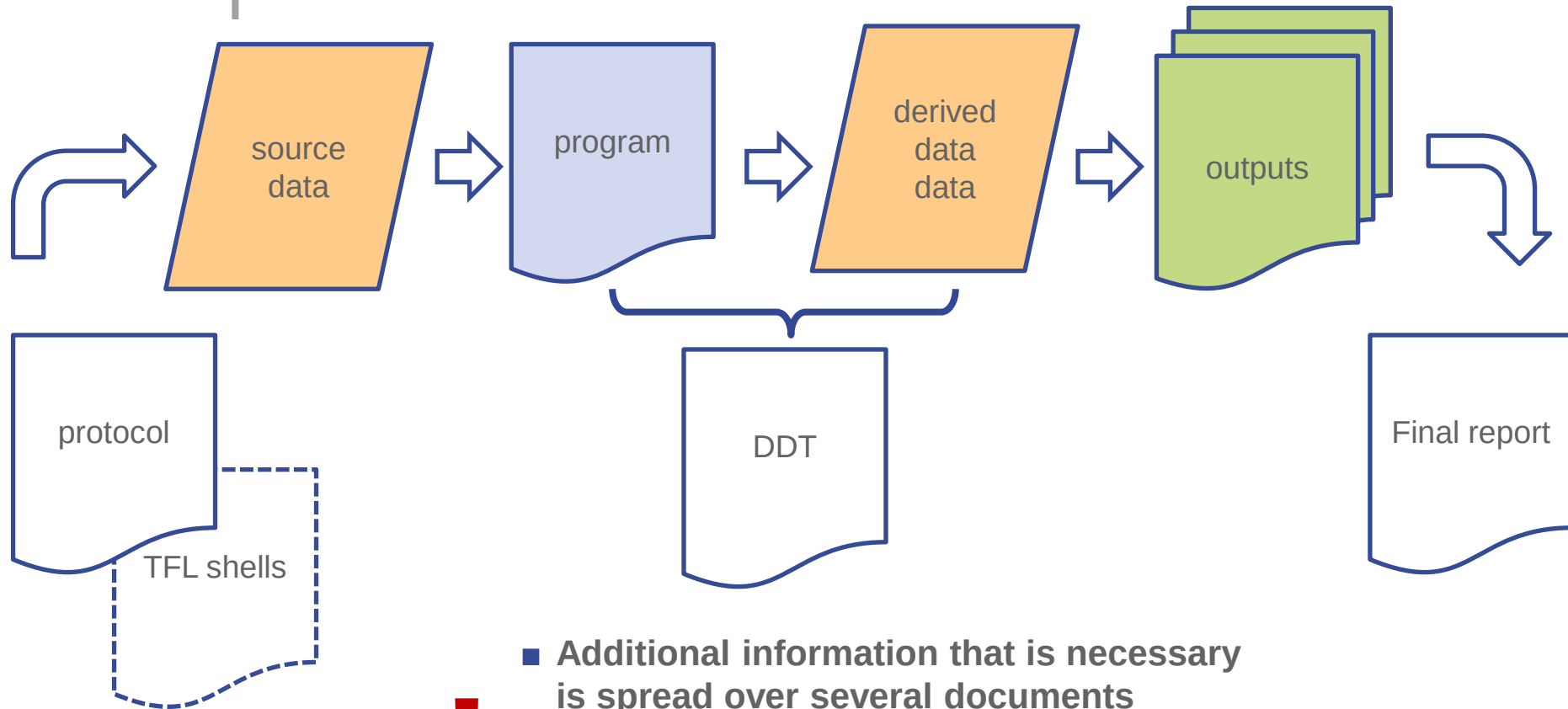
- Study Report



What was done and how was it done

Retrospective Database studies

Process flow and documentation



- Additional information that is necessary is spread over several documents
- Details are missing from the protocol
- Protocol may need to get updated after it's final

Analysis Specifications Document (ASD)

■ Study Design

■ Population

- Detailed eligibility criteria
- Detailed inclusion-/exclusion criteria

■ Analysis periods and analysis timepoints

- Study period, index date, baseline period, follow up period, ...

■ Study variables

- Detailed derivation rules (incl. order of application)
- Examples in case of complex derivation rules

■ Statistical Analysis

- Detailed Description of procedures
- Description of outcome of iterative or data-driven steps
- Capture deviations from protocol after protocol is final

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Analysis Specifications Document (ASD)

■ Study Design

■ Population

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- Detailed inclusion-

■ Analysis periods

- Study period, index

■ Study variables

- Detailed derivation
- Examples in case

■ Statistical Analysis

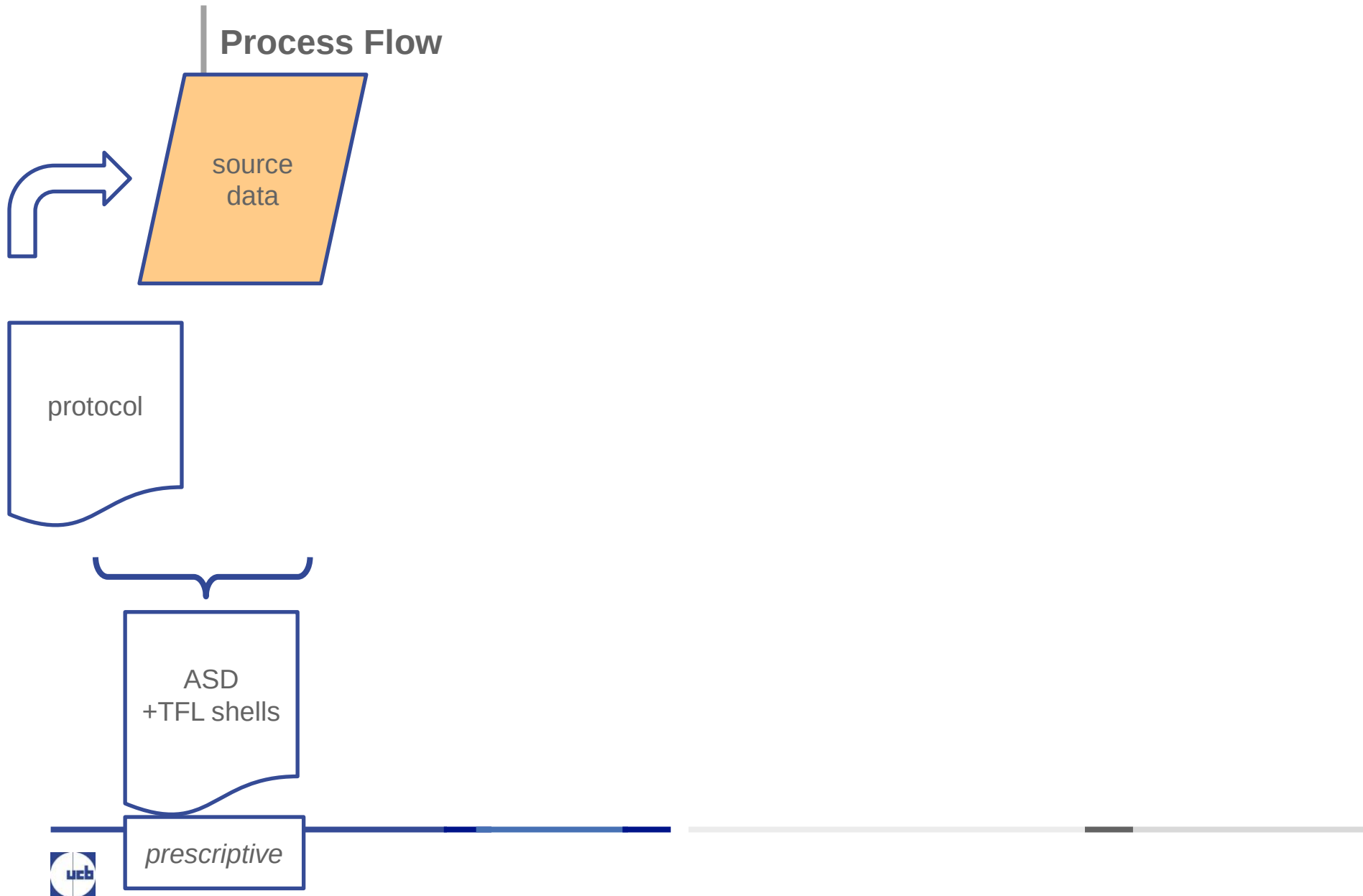
- Detailed Description of outcomes
- Description of outcome of iterative or data-driven steps
- **Capture deviations from protocol after protocol is final**

enhanced
protocol

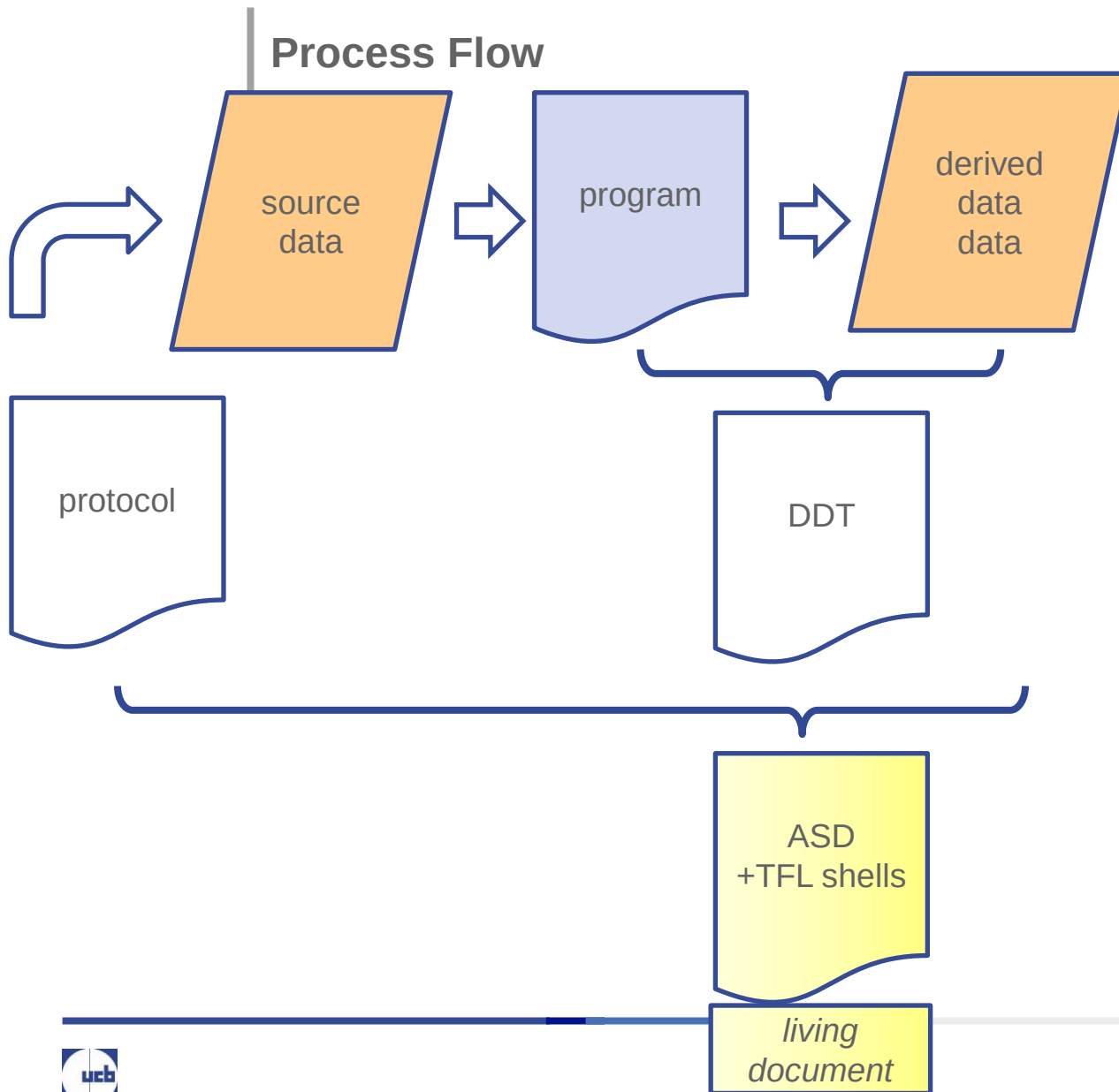
up period, ...

n)

Analysis Specifications Document (ASD)



Analysis Specifications Document (ASD)



Retrospective Database studies

Process and study team

Requestor

visionary/
strategist



Study Owner,
Epidemiologist,
Health Economist

architect



protocol



Programmers

builder



programming



Retrospective Database studies

Process and stakeholders

Requestor

**visionary/
strategist**



**Study Owner,
Epidemiologist,
Health Economist**

architect



protocol



**Observational Data
Analysts**

engineer



specifications



builder



programming



First Experiences

Additional effort and time involved

Additional review necessary

Documents need to be checked against each other for consistency



Late additional requests can be handled much easier

Helpful for manuscripts and other publications

Collects all information that otherwise is spread in e-mail communication

Reference document for future studies



First Experiences

Study Owners

- Less documentation on their end (+)
- Less work with TFL shells (+)



Observational Data Analysts/Programmers

- **Additional Work (-)**
- Enhanced Role (+)
- More visibility (+)



Better mutual understanding (+)



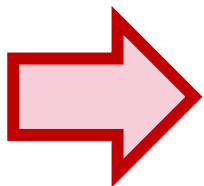
Conclusions

ASD is helpful for ...

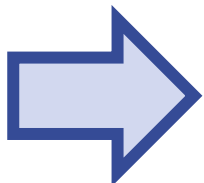
- complex studies
- studies that may be used as pilot studies
- complex feasibility assessments

ASD facilitates ...

- successor studies
- the identification of areas of standardization
- the collaboration between departments



Small, easy and one-off request may not need an ASD
A good protocol may be sufficient



Trade-off between additional effort for current study and possible blueprint for future studies

Questions?

Thanks!

Documentation

Protocol Checklists

Good Pharmacoepidemiological Practice (GPP)

Guideline

ENCEPP

Checklist

STROBE: STrengthening the Reporting of OBservational studies in Epidemiology

Checklist

ISPOR

Checklist



Is that sufficient?

Is more specification too much for the protocol?

Guidelines

ISAC guidelines

Independent Scientific Advisory Committee for MHRA database research (ISAC)

Guidance Notes: Content of CPRD ISAC Research Protocols

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If it is not possible at the time of the ISAC application to provide operational definitions of exposures and/or outcomes because these will be elucidated during the course of the study, an acceptable alternative is to describe the process by which these definitions will be reached.

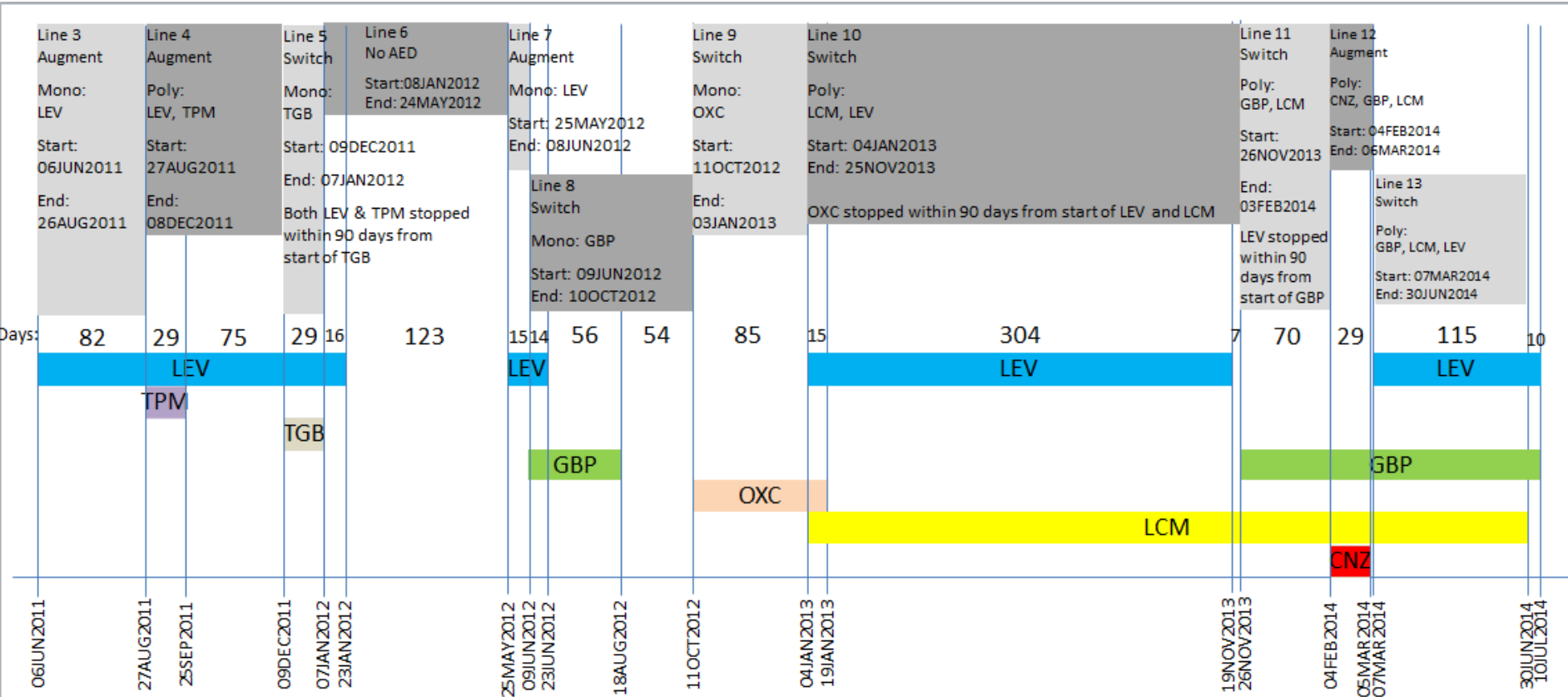


Is that sufficient?

Is more specification too much for the protocol?

Analysis Specification Document

Examples

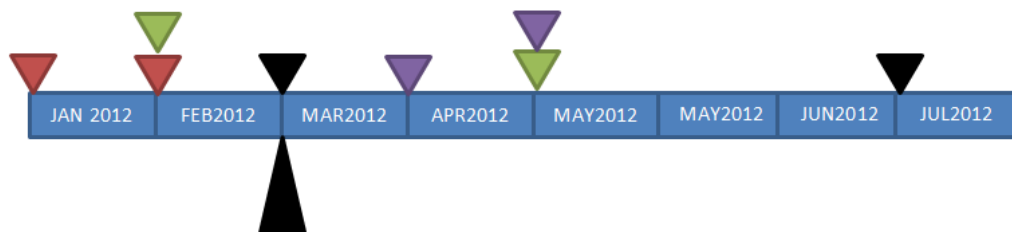


Based 'largely' on treatment line algorithm from EPD091, EPD116, and EPD127

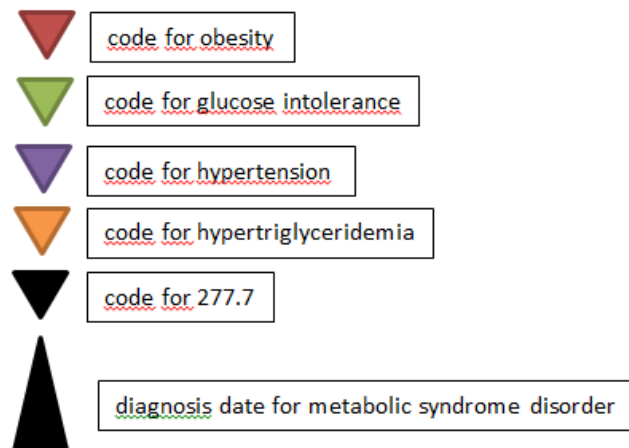
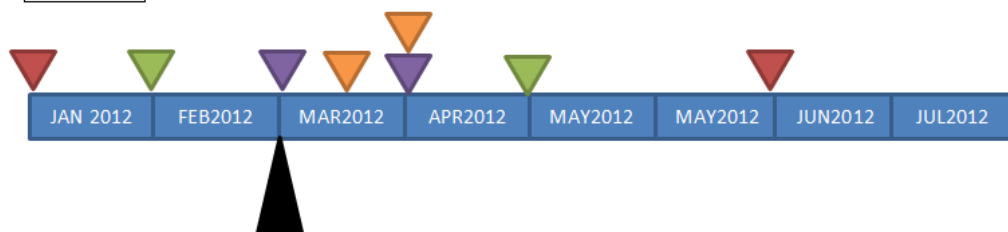
Analysis Specification Document

Examples

Example 1



Example 2



Analysis Specification Document

Examples

3.6.1.7 Notes on Health Care Resource Utilisation

For each date where a patient has a claim we look at the type of files contributing on the date.

Hospitalizations: If a date appears in any of the I (Inpatient), S (Inpatient Services) or F (Facility) files with non-missing CASEID then we consider a hospitalization to have occurred on this date. ED visits that result in a hospitalization are included as hospitalizations.

ED Visit: If a date has SVCSCAT ending in 20 and no hospitalizations on this date. (This is definition recommended by Marketscan)

Outpatient Visit: Any other dates from the O (Outpatient File) file or F (Facility) file with CASEID missing which are not hospitalizations or ED Visit.

O (Outpatient File) records or F (Facility File, with CASEID missing) records which have the variable STDPLAC=21 are removed prior to applying the above classifications, as they may represent inpatient services, because the claim was not incorporated into an inpatient admission (e.g., no room and board charge was found). Also see MarketScan User Guide.