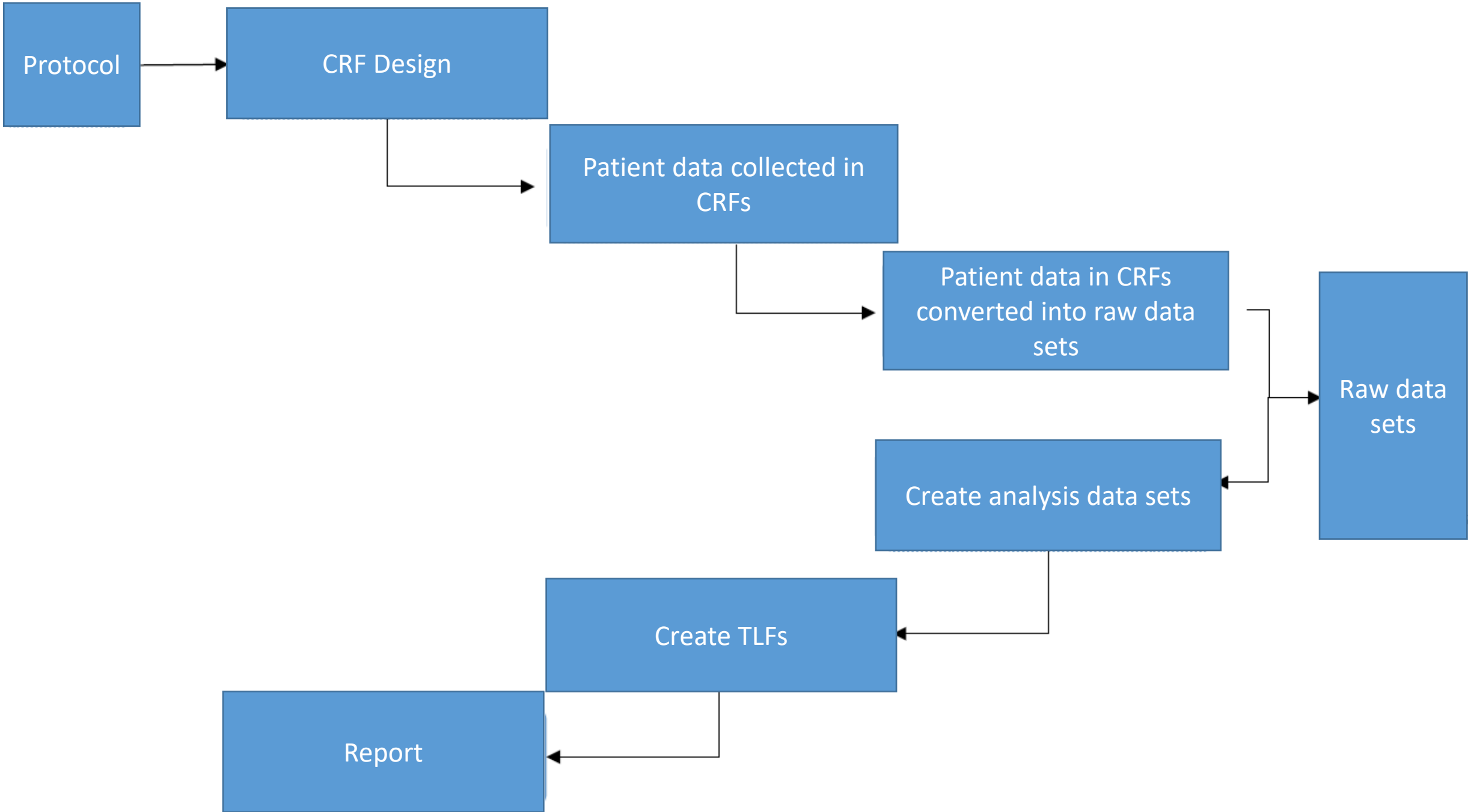
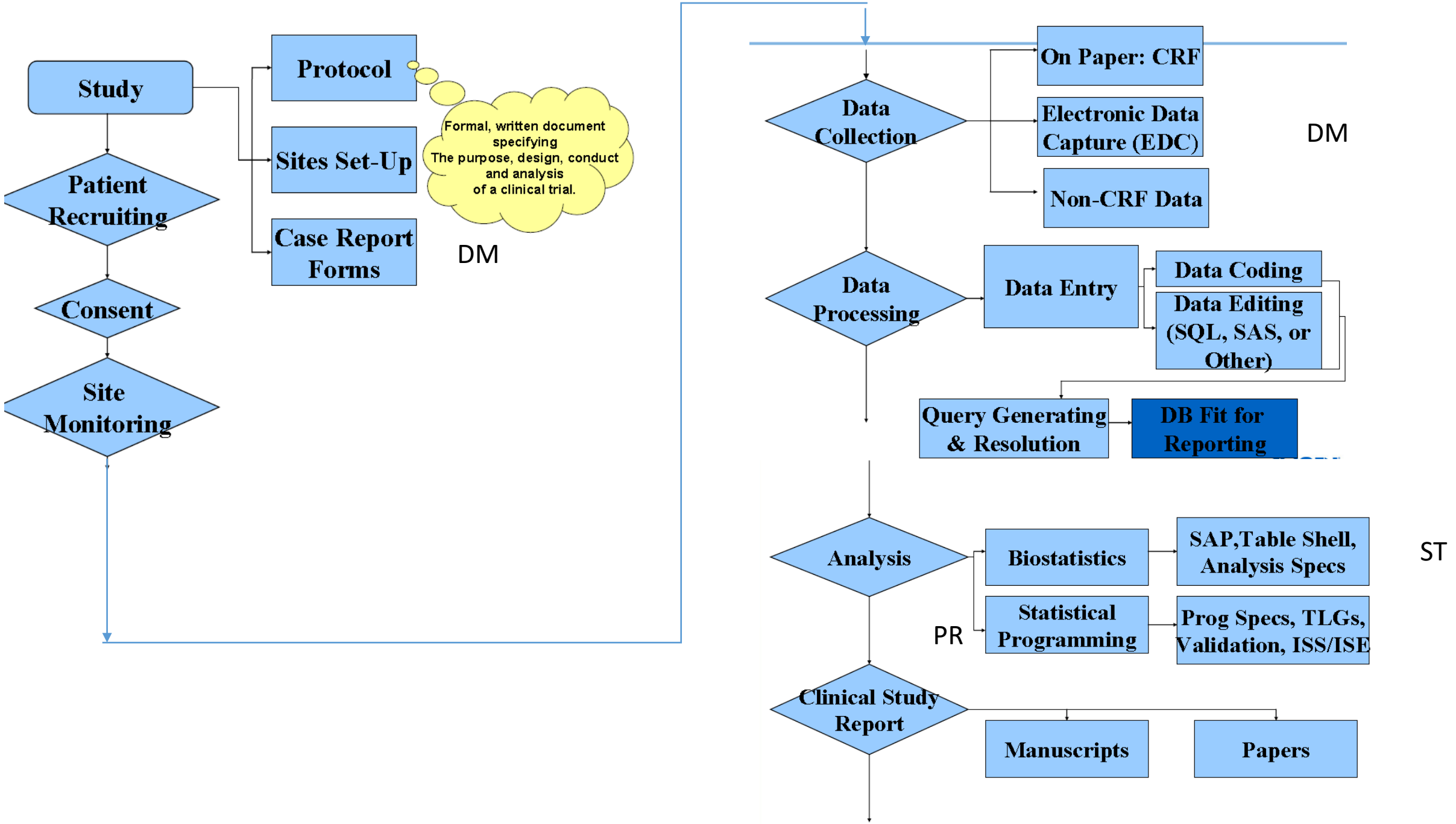
Flow of data in clinical trials

Data management


Protocol
CRF Design
Patient data collected in CRFs
Patient data in CRFs converted into raw data sets
Raw data sets
Create analysis data sets
Create TLFs
Report


Study
Patient Recruiting
Consent
Site Monitoring
Protocol
Sites Set-Up
Case Report Forms
Formal, written document specifying The purpose, design, conduct and analysis of a clinical trial.
DM
Data Collection
On Paper: CRF
Electronic Data Capture (EDC)
Non-CRF Data
DM
Data Processing
Data Entry
Data Coding
Data Editing (SQL, SAS, or Other)
Query Generating & Resolution
DB Fit for Reporting
Analysis
Biostatistics
SAP,Table Shell, Analysis Specs
Statistical Programming
Prog Specs, TLGs, Validation, ISS/ISE
PR
ST
Clinical Study Report
Manuscripts
Papers

Clinical data management (CDM)

- **Clinical data management** is a critical phase in clinical research, which leads to generation of high-quality, reliable, and statistically sound data from clinical trials.
- Clinical data management assures collection, integration and availability (transfer) of data.
- It also supports the conduct, management and analysis of studies.

Subject Data Collection

- Data is collected on case report forms (CRF)
- Much of clinical data is taken from the subjects medical record (source documents)
- Pharmaceutical and device trials, data is verified by multiple players
- A good protocol leads to a simple, clear CRF, built from a standard template: Restrictive

Can I trust the data generated?

- Accuracy
- Reliability
- Integrity – can’t be modified
- Availability – for staff and inspectors
- Authenticity – is it from the correct person

- Does the system do what it is meant to do?

CDISC standard

- The **Clinical Data Interchange Standards Consortium** leads the development of global, system independent data standards which are now commonly used as the underlying data structures for clinical trial data.
- These describe parameters such as the name, length and format of each data field (variable) in the relational database.

Non-profit organization in 2000

Clinical Data Interchange Standards Consortium (CDISC)

1. Development of industry standards to support the
   a) electronic acquisition
   b) exchange
   c) submission and
   d) archiving
   of clinical trials data
2. Development of global, platform independent standards
5. Improve data quality and accelerate product development

hbp://www.cdisc.org/sdtm/

Study Data Tabulation Model (SDTM)

- SDTM provides a standard for organizing and formatting clinical data to streamline processes in collection, management, analysis and reporting.
- SDTM is also used in non-clinical data (SEND), medical devices and pharmacogenomics/genetics studies.

SDTM

- SDTM is built around the concept of observations collected about subjects who participated in a clinical study.
- Each observation can be described by a series of variables, corresponding to a row in a dataset or table. Each variable can be classified according to its Role:
  - Identifier variables, which identify the study, subject of the observation, the domain, and the sequence number of the record
  - Topic variables, which specify the focus of the observation (such as the name of a lab test)
  - Timing variables, which describe the timing of the observation (such as start date and end date)
  - Qualifier variables, which include additional illustrative text, or numeric values that describe the results or additional traits of the observation (such as units or descriptive adjectives).

Dry Run?

- A dry Run (also called **Blind Delivery Review)** is conducted to allow the evaluation of the reporting datasets (SDTM/RDb) and statistical output tables, listings, and figures (TLFs) prior to database lock, to ensure that all outputs are prepared as expected as per agreement

- DM will deliver: SDTM; the reporting datasets; TLF outputs whilst the data is still blinded

- Cross functional representation will be required to undertake review of the outputs, and at the DR Comments Resolution Meeting (CRM), to ensure the success of the DR

What is the purpose of DR?

The purpose of DR is primarily for verification of the assumptions of the analysis methods detailed in the Clinical Study Protocol (CSP) and/or Statistical Analysis Plan (SAP) and to also include an assessment of:

- *Recruitment, i.e. to ensure the correct subject population is being recruited*
- *Review of protocol deviations*
- *Investigate any potential safety issues*

As a result of DR**, the following changes may be needed:**

- Additional supporting tables may be considered (associated additional costs may apply)
- Analysis set rules may be reviewed, changes in rules for analysis sets documented in SAP amendment/addendum (optional format)
- Analysis set rules may include updated rules related to protocol deviations

• Planned analysis may need to change