

Data and Safety Monitoring Plan

Definitions:

A data and safety monitoring plan (DSMP) is a specific plan, developed by the local principal investigator (PI), that outlines how study progress will be monitored throughout the course of the research to ensure the safety of subjects as well as the integrity and confidentiality of data.

Overview:

It is required that every research study, with the exception of studies designated as “exempt,” includes a **formal** data and safety monitoring plan.

The federal regulations governing research with human subjects require the following:

- The research plan, when appropriate, shall make adequate provisions for monitoring of the collected data to ensure the safety of research subjects (45 CFR 46.111(a)(6) and 21 CFR 56.111(a)(6))
- There shall be adequate provisions to protect the privacy of subjects and to maintain the confidentiality of the research data (45 CFR 46.111(a)(7) and 21 CFR 56.111(a)(7)).

Description:

There are four main issues that must be addressed in each plan, and the following information will assist you in developing your plan.

- 1. Who (the individual or entity) is responsible for the oversight of the data and safety monitoring plan?**
 - a. Generally the plan can be carried out by the PI and research team. However, there are circumstances when a more extensive plan that includes a Board or Committee may be needed (see Guidance on Data and Safety Monitoring Committees).
- 2. What will be monitored?** In developing an appropriate DSMP, consideration should be given to incorporating the following elements:
 - a. evaluation of the progress of the research study, including subject recruitment and retention, and an assessment of the timeliness and quality of the data
 - b. review of collected data (including adverse events, unanticipated problems, and subject withdrawals) to determine whether there is any change to the anticipated benefit-to-risk assessment of study participation and whether the study should continue as originally designed, should be changed, or should be terminated. If appropriate and if

specified in the IRB protocol, interim analyses of the efficacy of the intervention should be performed in accordance with previously defined stopping rules.

- c. assessment of external factors or relevant information (e.g., pertinent scientific literature reports or therapeutic developments, results of related studies) that may have an impact on the safety of study participants or the ethics of the research study
 - d. review of study procedures designed to protect the privacy of the research subjects and the confidentiality of their research data
 - e. stated commitment to comply with the IRB's policies for reporting unanticipated problems involving risk to subjects or others (including adverse events)
 - f. for studies in which the University of Pittsburgh serves as the overall coordinating center, the DSMP must include a description of how the results of monitoring will be communicated to the other sites
3. **When will the monitoring occur?**
- a. frequency of data and safety monitoring will be dependent on the nature of the research study but, at a minimum, formal monitoring must be performed at least annually
4. **What will be reported to the IRB? At a minimum, the IRB expects that information will be reported at the time of Renewal or more often as required depending on the complexity or risk of the study**
- a. list of the research personnel who participated in the data and safety monitoring
 - b. frequency of monitoring that took place during the renewal interval and/or the date(s) that data and safety monitoring was conducted (frequency should be generally consistent with what is written in the protocol).
 - c. rate of subject accrual and retention; if rates are falling behind projections, describe plans to improve recruitment / retention process
 - d. summary (i.e., for the study as a whole) of cumulative data related to unanticipated problems (including adverse events) including a determination of causality and whether the risk to benefit assessment has changed
 - e. summary of pertinent scientific literature reports, therapeutic developments, or results of related studies that may have an impact on the safety of study participants or the ethics of the research study

- f. summary of the outcome of reviews conducted to ensure subject privacy and research data confidentiality
- g. final conclusions regarding changes to the anticipated benefit-to-risk assessment of study participation and final recommendations related to continuing, changing, or terminating the study
 - i. if a recommendation is made to change the research study, an adequate rationale for this decision should be provided.

Considerations:

The method and extent of monitoring may vary across different types of studies, depending on multiple factors, including the experimental design and complexity of the study (e.g., Phase I vs. Phase III trial vs. a descriptive psychosocial interview study), and the degree of risk to subjects. The following factors should also be taken into account when determining the level of monitoring: 1) the policies of the study sponsor; 2) the number of sites involved (single vs. multicenter) 3) the phase of the study; 4) the public profile of the study; 5) any conflicts of interest; 6) the level of risk to subjects; 7) the study locations; and 8) the study generates data that is blinded.

Various funding sources also may have additional requirements related to data and safety monitoring which must be considered when preparing your application.

As with all procedures outlined in an IRB application, you must adhere to what the IRB approves. It is not uncommon for a research team to describe an overly ambitious data and safety monitoring plan when it may not be necessary based on the research being conducted.

The IRB will make the final determination regarding the level of monitoring required.

OSIRIS:

Study application

Section 5, question 5.13 Potential Risks and Benefits of Study Participation

Renewal Report

Section 4, question 4.1-4.11 Data and Safety Monitoring

Note: If the response to question 4.12 (study has a data and safety monitoring board or committee) is 'Yes', investigators are required to upload the minutes of those meetings. If the response is 'No', the OSIRIS questions in the renewal form serve as the DSMP report. There is no need to upload an additional report unless more space is required to provide more details or information.

Additional Information:

Code of Federal Regulations Title 21; U.S. Food and Drug Administration (FDA)

<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?CFRPart=56>

Code of Federal Regulations Part 46 Protection of Human Subjects

<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html>

National Institutes of Health

<http://nih.gov/>