STU-SOP-DMS-004 – Standard Operating Procedure on Creating a Statistical Analysis Plan

Version No:	4	**Effective Date:**	27-Mar-2026
Description of changes:	SOP reviewed in light of clinical trial regulations 2025 and GCP updates. Specific references to QPulse as the QMS have been removed. We now only refer to a QMS system.		

List of Abbreviations	
CI	Chief Investigator
CRF	Case Report Forms
CTIMP	Clinical Trial of an Investigational Medicinal Product
DMC	Data Monitoring Committee
GCP	Good Clinical Practice
MHRA	Medicines and Healthcare products Regulatory Agency
PI	Principal Investigator
SAP	Statistical Analysis Plan
SHEAP	Statistical and Health Economics Analysis Plan
SOP	Standard Operating Procedure
STU	Swansea Trials Unit
SU	Swansea University
TM	Trial Manager
TMF	Trial Master File
TS	Trial Statistician
TSC	Trial Steering Committee

1. Purpose and Definitions

To describe the procedure for preparing and finalising a statistical analysis plan (SAP) for a trial. The SAP is a comprehensive and detailed description of the methods of data analysis. Statistical analyses of Clinical Trials of Investigational Medicinal Products (CTIMPs) are required to comply with Good Clinical Practice (GCP) requirements within the Medicines for Human Use (Clinical Trials) Regulations.

Definitions	
Statistical Analysis Plan	A comprehensive description of the methods and presentation of data analysis and expands the detail contained in the protocol.

2. Background

The SAP is the guiding document for all analysis in the trial and should carefully align with the research objectives and hypotheses stated in the trial protocol to avoid post hoc decisions that may affect the interpretation of trial findings. There should always be a pre-specified statistical methodology documented in a structured, written, agreed plan for every trial. A statistical

analysis which includes a health economics analysis is called a Statistical and Health Economics Analysis Plan (SHEAP).

Further analyses of a more exploratory nature will not be bound by the SAP, although they are expected to follow the broad principles laid down within it.

Whilst a SAP is typically considered good practice for all projects with quantitative analyses, observational studies may not require a separate SAP. However, the protocol must contain all necessary information on the analysis, including adjusting for multiple testing and handling missing data as required.

3. Roles and Responsibilities

The **Sponsor** has overall responsibility for confirming that a SAP has been developed prior to interim analysis and finalised before database lock. This role will usually be delegated to the Chief Investigator, with appropriate oversight by the relevant trial committees e.g. Data Monitoring Committee (DMC), Trial Steering Committee (TSC), etc.

The **Chief Investigator** (CI) usually has delegated responsibility for ensuring a SAP is produced that reflects the requirements of the approved protocol. The CI will involve a Statistician as early as possible and ensure that any required amendments to the protocol are submitted for approval to the relevant committees.

A **Trial Statistician** (TS) will be designated for each trial and will have appropriate qualifications and experience and assume responsibility for all statistical aspects of the trial. The TS is responsible for ensuring that the SAP is written, finalised and signed off.

The **Trial Manager** (TM) supports the drafting of the SAP and ensures the document is agreed, finalised and filed in the Trial Master File (TMF) before commencing the final statistical analysis of trial data.

External use of SOP: This SOP and Associated Documents (AD) may be used for research projects not adopted by STU where Swansea University (SU) staff and associated NHS organisations require guidance. In such instances, oversight responsibility for any associated tasks will not be the responsibility of STU.

4. Procedure

The SAP is not a standalone document and must be based on the trial protocol statistical section and should be version controlled, dated, written, finalised and signed off prior to data analysis and any unblinding of the data. A flow chart of the development procedure is available in Appendix 1 to this SOP.

4.1 Development of the Statistical Analysis Plan

The SAP contains a detailed description of the pre-specified statistical methods and analyses that will be carried out upon completion of the study. It will also detail any planned interim analyses.

The SAP should be drafted at an early stage of the study, for example, prior to the first TSC/DMC. To prevent bias, the primary analysis must be finalised in the SAP prior to any analysis that uses assigned treatment allocations.

The SAP is a detailed description of the planned analyses and the statistical considerations of the trial protocol. Details of the descriptions of these items can be found in the STU SAP template. The SAP must provide a comprehensive description of the methods that will be used to analyse the data and present the results of the research study.

4.2 Statistical Analysis Plan Content

The SAP should be a detailed description of the methods and presentation of the data for the study for the main and any interim analysis.

The SAP Template (STU-AD-TMP-009) should be used to draft the SAP. Template sections can be amended as appropriate, depending on the trial requirements. It is recommended the SAP include the following items:

Section 1: Administrative information for an audit trail of amendments made
Section 2: Introduction
Section 3: Study methods
Section 4: Statistical Principles
Section 5: Trial or Study Population
Section 6: Presentation of data for analysis
Section 7: Analysis References

Differences between the methods in the protocol and SAP should be explained in the SAP and an assessment made of the need for a protocol amendment.

The SAP and any updates will be circulated for review and comment to the CI and TM and where required for an external review e.g. DMC, TSC.

Any changes to the SAP during the trial must be documented, and the reasons for change noted and an assessment made of the need for a protocol amendment. Any changes made before unblinding must be fully justified and communicated in the report of the results of the trial.

4.2 Approved versions

The SAP must be version controlled during its production. The SAP must be ratified by the relevant trial oversight group(s) e.g. TSC, DMC.

The SAP is applied when finalised to a locked, clean data set.

The SAP will include sufficient details for any suitably qualified statistician to replicate the analysis.

The SAP will include a set of dummy data tables reflecting the contents of the final report(s).

4.3 Amendments to the Statistical Analysis Plan

It is recognised that in light of data collected, or other considerations, amendments to the SAP may be necessary.

Any changes to planned analyses following data release and unblinding, for example additional exploratory efficacy analyses, should be fully justified and communicated in the report of the results of the trial and a formal amendment of the SAP may be required.

5. References

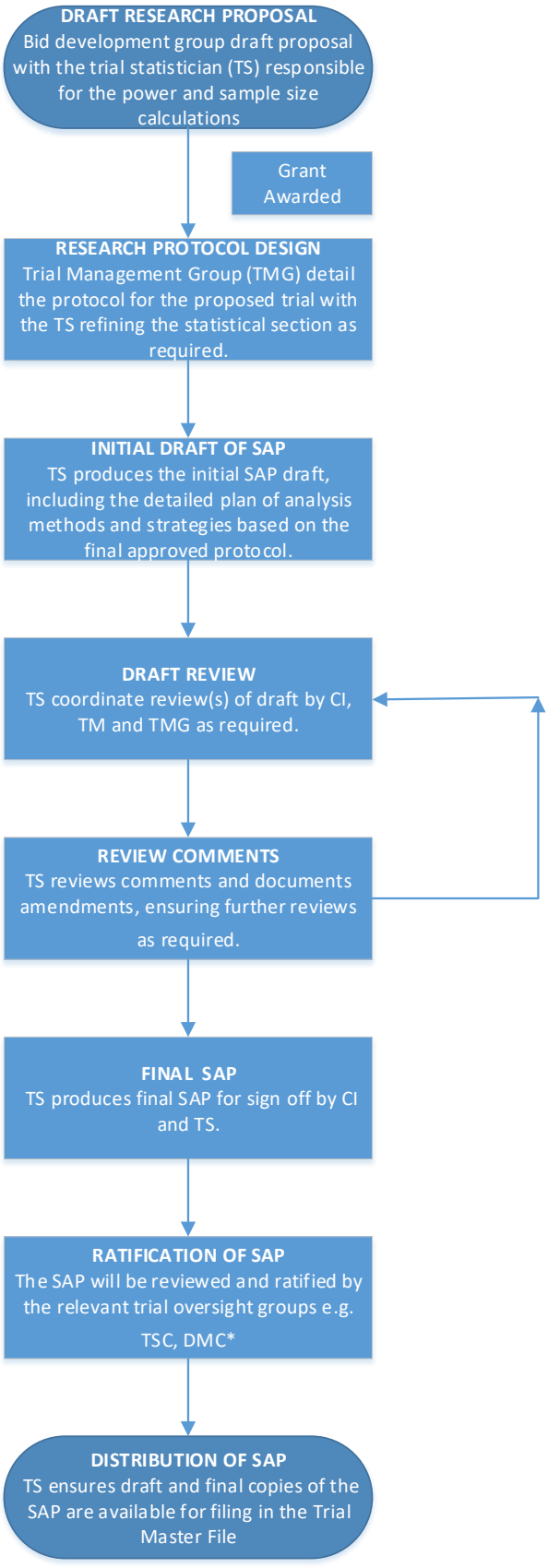
- Gamble, C., et al. (2017). "Guidelines for the Content of Statistical Analysis Plans in Clinical Trials." JAMA 318(23): 2337-2343.
- Health Research Authority website (HRA) - http://www.hra.nhs.uk/
- Medicine and Healthcare products Regulatory Agency website (MHRA) - https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency/services-information
- UK policy framework for health and social care research (2017) - https://www.hra.nhs.uk/planning-and-improving-research/policies-standards-legislation/uk-policy-framework-health-social-care-research/
- UK Medicine for Human Use (Clinical Trials) Regulations 2025 - https://www.legislation.gov.uk/uksi/2025/538/contents

It is assumed that by referencing the principal regulations that all subsequent amendments are included in this citation.

6. Associated Documents

Number	Title	Location
STU-AD-TMP-009	SAP Template	QMS

Appendix 1: SAP Development Process Flowchart



* DMC emergency reviews of safety data may result in an amendment to the protocol and subsequently to the SAP. Any SAP amendments will follow the same development procedure as above.