STANDARD OPERATING PROCEDURE 21

Statistical Analysis Plan

Version:	V3.0	Effective Date:	19 October 2023
Issue Date:	5 October 2023	Review Date:	19 October 2025
Author:	Dr Ranjit Lall, Professor of Clinical Trials, Warwick Clinical Trials Unit (WCTU)		
WCTU Reviewers:	Felix Michelet, Research Associate, WCTU Dr Helen Parsons, Associate Professor, WCTU Dr Andrea Marshall, Associate Professor, WCTU		
Sponsor Reviewers:	Mathew Gane, Research Governance & Quality Assurance (QA) Manager, Research & Impact Services (R&IS)		
WCTU approval:	Natalie Strickland, Head of Operations, WCTU		
Sponsor approval:	Carole Harris, Assistant Director, R&IS (Systems & Strategic Projects) & Head of Research Governance		
Review Lead:	WCTU Statistics Team		

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Revision Chronology:	Effective date:	Reason for change:
Version 3.0	19 October 2023	Biennial review: Updates to SAP template and minor amendments to text (sections 3 and 4.3)
Version 2.0	22 June 2021	Biennial review: Minor amendments to text (Section 4.3) and update of SAP template
Version 1.6	11 July 2016	Biennial review: Clarification of who should review and sign off the SAP in section 3.3. Minor text changes to clarify link to SAP template.
Version 1.5	13 January 2014	Addition of template for Statistical Analysis Plan and process for its generation, review and approval.
Version 1.4	4 February 2013	Minor text changes to section 3.3.9
Version 1.3	8 October 2012	Minor text change to section 3.3.3
Version 1.2	30 March 2012	Format change to comply with SOP 1. Minor amends to text in section 3.3.10
Biennial review March 2010		No changes.
Version 1.1	31st January 2008	Bi-annual review: Format change.
Version 1.0	March 2006	

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Statistical Analysis Plan

1. Purpose and Scope

The purpose of this Standard Operating Procedure (SOP) is to detail what is required in a Statistical Analysis Plan (SAP) for a Randomised Controlled Trial (RCT).

It is applicable to all University of Warwick staff involved in the development and use of the SAP for research studies.

2. Definitions

Statistical Analysis Plan	A document containing a detailed elaboration of the principal features of the analysis described in a clinical trial protocol, and which includes procedures for statistical analysis of the primary and secondary variables and other data.

3. Background

The statistical analysis plan (SAP) provides guidelines for the presentation and analysis of data at various stages of the trial (e.g., interim reporting and final reporting of the trial). There may be several versions of the SAP during the course of a trial.

4. Procedure

4.1 Responsibilities

Statistician	• Exercise appropriate judgment to develop the SAP by interacting closely with other members of the study team, including but not limited to the Chief Investigator (CI) and Study/Trial Manager. • Approve the SAP by the designated trial statistician(s) • Work with Study/Trial Manager to liaise with the independent statistician to review and sign off the SAP.
Chief Investigator	• Provide support to the development of the SAP. • Review and approve the SAP.
Study/Trial Manager	• Coordinate procedures for the study/trial team to review the SAP. • Work with the trial statistician to liaise with the independent statistician to review and sign off the SAP. • Ensure the final approved version is signed off by required people and the signed form is retained in the S/TMF. • Ensure all formal versions are documented.

4.2 When?

The SAP should be based on the trial protocol but need not be written until after the trial protocol and Case Report Forms (CRFs) are finalised. It should be written prior to any formal analysis of the data and finalised prior to final data lock.

4.3 How?

Once the SAP has been drafted by the trial statistician, it will initially be reviewed by the CI and any other appropriate members of the Trial Management Group (TMG) before being sent to an

independent statistician (e.g., statistician on the Data Monitoring Committee (DMC) or Trial Steering Committee (TSC)). The final approved version should be signed off, using the key document review/approval form, from an individual's professional email account (following G33 – email approval guidance) in the meeting minutes or via the Q-Pulse system for studies managed within Warwick Clinical Trials Unit (WCTU), by the author, the CI, the senior statistician and an independent statistician. Once signed-off, only major amendments made to the SAP would warrant it being reviewed and approved again.

Each signed version should be filed in the Trial Master File (TMF) or Statistical Analysis Master File (SAMF) with previous versions clearly marked as superseded. If appropriate, the latest signed version of the SAP could be made publicly available (e.g., on Warwick CTU website or published in a journal).

The structure of the SAP should follow the SAP template, using the sections that are relevant for the trial. The SAP template is in accordance with published guidelines for the content of SAPs in clinical trials which can be accessed via: https://www.equator-network.org/reporting-guidelines/guidelines-for-the-content-of-statistical-analysis-plans-in-clinical-trials/

4.3.1 Template for Statistical Analysis Plan

Refer to the template SAP document (T21) aligned to this SOP for additional details.

1. **Administrative information**
2. **Aims and design of the trial**
3. **Monitoring of the trial**
4. **Clinical outcomes and analysis datasets**
5. **Main statistical analysis and estimand framework**
6. **References**
7. **Template tables**

List of Abbreviations

CI	Chief Investigator
CRF	Case Report Form
DMC	Data Monitoring Committee
QA	Quality Assurance
R&IS	Research & Impact Services
RCT	Randomised Controlled Trial
SAMF	Statistical Analysis Master File
SAP	Statistical Analysis Plan
SOP	Standard Operating Procedure
TMF	Trial Master File
TMG	Trial Management Group
TSC	Trial Steering Committee
WCTU	Warwick Clinical Trials Unit

Template Documents

T21	Template Statistical Analysis Plan
T09	Key Document Review/Approval Form