





## ECTU Central Office WPD ECTU\_ST\_W5: Statistical Analysis and Reporting

Version No:	5.0
Issue Date:	19 Mar 2024
Effective Date:	03 Apr 2024

Authorship and Approval			
Name and Designation	Author/Reviewer/Approval/ Authorisation	Date	Signature
Catriona Keerie, Senior Statistician	Author	18 Mar 2024	
Sharon Tuck, Senior Statistician	Reviewer	18 Mar 2024	
Steff Lewis, Statistics Team Lead	Approver	19 Mar 2024	
Tanya Tharakan, QA Manager	QA Authorisation	19 Mar 2024	 Tanya Tharakan (Mar 19, 2024 15:50 GMT)

Document Revision History		
Version No	Effective Date	Summary of Revisions
1.0	13 Mar 2017	Initial creation/New Document
2.0	12 Mar 2018	Alteration to section 2.4.2 regarding patients who have withdrawn
3.0	24 Dec2018	Document moved to new template. Section 2.1 (Access to Unblinded Data) removed (included in new SOP). Document renumbered throughout
4.0	21 Apr 2021	Scheduled review. Minor edits to improve clarity of processes. New Section 2.3 (Database Lock) included to clarify process. Greater detail added to Section 2.4 to ensure process is clear.
5.0	03 Apr 2024	WPD has been transferred to new ECTU WPD template. Additional updates incorporated to better reflect current processes.

The user of this document is responsible for ensuring it is the current version.

## 1. INTRODUCTION

This Working Practice Document provides guidance on statistical analysis and reporting as detailed in ECTU Central Office SOP ECTU\_SOP\_ST\_05 Statistical Analysis and Reporting.

## 2. INSTRUCTIONS and GUIDANCE

### 2.1 Analysis requirements (including DMC reporting)

**2.1.1** Store all formal documentation, programs and data sets on the ECTU shared drive in the relevant statistics folder within the study TMF – data should not be saved outwith of the ECTU folder.

**2.1.2** Version control and file naming conventions should be in line with ACCORD guidelines as set out in ACCORD SOP QA008 Document Version Control.

**2.1.3** Ensure the most up-to-date version of the protocol is available and that all planned analyses are in line with what is documented in the protocol. Most studies run through ECTU will have the protocol saved here: [\\...TMF\1 STUDY DOCS\01 CURRENT\Protocol](#). If there is doubt which version of the protocol is the most up-to-date, consult with another member of staff, for example, Trial Manager or Trial Statistician.

**2.1.4** In terms of programming, the ECTU general practice is as follows:

- Download data from the main trial database, ensuring this raw data remains untouched as a record of the final database
- Manipulate data into the few flat files that will be used for analysis
- Analyse the data using the files created in previous process

**2.1.5** Whichever method or if an alternative method is used, there must be an audit trail which tracks the logical progression of the analysis from start to finish and it should be in a format that is simple enough to be repeated by another statistician in the absence of the regular unblinded statistician, if necessary. This can be done via sensible file naming or else by including a README.TXT file in the program directory which documents the running order and purpose of each piece of program code, together with any other relevant information.

**2.1.6** Do not overwrite files once they have been finalized. Create a new folder for new work.

**2.1.7** Obtain finalised lists of protocol deviations and violations, serious adverse events and pregnancy information from the sponsor (for example ACCORD), if not recorded on the trial database, and if not already requested by another member of the trial team (for example the Trial Manager). Refer to ECTU\_WPD\_TM\_W4: Requesting and Recording Protocol Deviation Logs and Protocol Violations in ACCORD Sponsored Studies. For ACCORD studies, the appropriate contact details are:

The user of this document is responsible for ensuring it is the current version.

SAEs: safety@accord.scot

Deviations/Violations: qa@accord.scot

If not done by another member of the trial team, arrange for these data to be uploaded to the trial database prior to database lock, and ensure any data sheets are version controlled and dated.

**2.1.8** Requirements for the European Clinical Trials Data Base (EudraCT) reporting should be considered, particularly in terms of summarising age and adverse events (AEs) appropriately. Reference to current guidelines is provided in Section 3.

**2.1.9** Save the SAS log file(s) (or equivalent from other software packages) to a separate folder to the folder containing statistical programs and check for error messages.

## **2.2 Studies with no Data Monitoring Committee (DMC)**

**2.2.1** Ensure that some basic analyses are run throughout the course of the trial such as checking that randomisation is working correctly, compliance with treatment, data quality etc. Liaise with the trial team once the database is live to ensure that an efficient system is in place.

## **2.3 Database lock**

**2.3.1** Prior to database lock and formal unblinding of the trial team, unblinded data, analyses and reports for a study should be stored in a subfolder named 'unblinded' within the statistics subfolder of that particular study. Before anything is stored in the 'unblinded' folder, the trial statistician should send an email to the ECTU statistics team leads who will arrange with IS support for access to the folder to be restricted and controlled by their Group Maintenance Manager app. They will document this in the ECTU Project Planning document (see section 3) when people are added or removed from this access.

**2.3.2** Agreement on the date of database lock should be reached by discussion between Trial Statistician, or designee, and other study personnel (for example, Trial Manager, Chief Investigator, Data Management). Further details are provided in ECTU Central Office SOP [ECTU\\_OP\\_20: Requests to Lock and Unlock a Study Database](#).

**2.3.3** The length of time required to carry out final analysis and reporting should be taken into account, together with any external reporting and publication deadlines.

**2.3.4** Ensure that the database lock and any subsequent unlocking and relocking (if applicable) is documented and that this is recorded in the Statistical Review Checklist (ST007).

The user of this document is responsible for ensuring it is the current version.

**2.3.5** If there is a requirement to unlock and relock the database, the new analysis files (for example, raw data download, analysis data set, output) should not overwrite any previous versions that were created at the time of the original database lock.

## **2.4 Final reporting requirements (excluding DMC reporting)**

**2.4.1** It is good practice to program final reporting requirements well in advance of database lock. This code can be based on previous DMC reporting to ensure consistency and efficiency. However, it is recognised that often pre-programming is not possible – any programming done in advance is beneficial, but not essential.

**2.4.2** If not already done, finalise the Statistical Analysis Plan (SAP) and arrange sign-off with the Chief Investigator and Trial Statistician. The signed copy should be filed in the Statistics Master File. The final SAP should be signed prior to database lock.

**2.4.3** Analysis populations (intention-to-treat, per-protocol, safety, etc.) should be defined in the final SAP, if appropriate to the study.

**2.4.4** To create these populations, deviation and violation logs obtained from the Sponsor should be used, and in conjunction with compliance information in the study database. Deviation and violation logs should also be included as a listing in the final statistical report.

**2.4.5** All analysis populations (other than analysis of all participants randomised in their allocated treatment groups) should be agreed and signed-off (using the Final Report – Analysis Population Agreement form (ST005A)) prior to unblinding the Chief Investigator and prior to database lock. Ensure the current version of form ST005A is used.

**2.4.6** Consideration should be given to handling of patient data where consent has been withdrawn, particularly where a request has been made for all data to be deleted.

**2.4.7** Check whether any patient identifiable data (for example, names and addresses) will be in the database and ensure these fields are not included in the final statistical analysis dataset.

**2.4.8** The static minimisation/stratification variables should not be used for statistical reporting. Access to the static minimisation/stratification variables for the Trial Statistician, or designee, is granted only for checking purposes. Refer to [ECTU Central Office SOP ECTU\\_SOP\\_ST\\_07: Defining Data Access Requirements for Blinded and Unblinded Statisticians](#) for further details.

**2.4.9** In general, it is best practice to run the analysis report with dummy treatment codes (to ensure blinding). This step can occur prior to database lock. This version of the report

The user of this document is responsible for ensuring it is the current version.

can be shown to the Chief Investigator, to agree exactly what the final report will look like, ahead of unblinding the Chief Investigator.

- 2.4.10** Hard coding of data in statistical programs is not acceptable. If there is an error in the data, a decision should be reached by discussion between Trial Statistician, or designee, and other study personnel (for example, Trial Manager, Chief Investigator, Data Management) whether to alter it in the trial database. If it is not altered, the error should be appropriately documented in the footnote of the relevant table in the statistical report, or a suitable alternative. If it is to be altered, then the appropriate database unlocking/relocking procedures in ECTU\_SOP\_OP\_20 Requests to Lock and Unlock a Study Database should be followed.
- 2.4.11** The title of the analysis report should be clear and unambiguous and include a version number and date. Ensure that it is clear if the version is a draft or final version. If the report consists of separate parts (for example, ITT and per protocol parts), these should be clearly labelled.
- 2.4.12** The analysis report should contain a note making reference to the location of the program(s) used to create the output and should also include the software used and its version number so that any outputs can be recreated.
- 2.4.13** Following confirmation of database lock (as detailed in ECTU\_SOP\_OP\_20 Requests to Lock and Unlock a Study Database, Section 4.1.9), download the final version of the data from the trial database for analysis. This downloaded snapshot of the locked database should be the sole source of data for statistical reporting.
- 2.4.14** Run the final report with real treatment codes.
- 2.4.15** If any analyses are done as part of the official final report that do not follow the SAP, an amended SAP should be created and formally signed off by the Trial Statistician and Chief Investigator. The details of such changes should be included in the final trial report.
- 2.4.16** The report must be validated. This generally involves a second statistician reprogramming the primary outcome from the beginning and sense checking the remainder unless otherwise stated in the SAP. It is often worth validating anything that the CI thinks is 'unusual/ unexpected or that is likely to get prominence in the abstract (for example, significant p values). This is documented in ST005B Final Report Authorisation. Save the validation programs and document in the Statistics folder within the study TMF.
- 2.4.17** Complete the Final Report Authorisation form (ST005B) and send the final report to the Chief Investigator, documenting the date this was sent in the ECTU Project Planning document (see reference in Section 3). Ensure the current version of form ST005B is used. The final statistical report is considered to be the official final report
- The user of this document is responsible for ensuring it is the current version.

of the trial, unless there is formal information supplied to suggest otherwise. This is noted in the Final Report Authorisation form.

**2.4.18** It is good practice to share the statistical report via a secure method such as the University of Edinburgh DataSync service. Instructions on how to do this are available on the site (see Section 3 for details).

**2.4.19** Initiate the data sharing process and create any data files and metadata that are needed.

**2.4.20** When the primary paper is published, keep note of the reference in the ECTU Project Planning document (see Section 3) and record on the ECTU publication list (see Section 3)

## **2.5 Interim reporting requirements**

**2.5.1** Where a study has formal interim reporting requirements, the process described above for final reporting should be followed as far as possible, including the database lock process (see ECTU\_SOP\_OP\_20 Requests to Lock and Unlock a Study Database).

**2.5.2** The interim analysis report should be validated, sense-checked and approved (see section 2.4.17), in line with the requirements for a final analysis report.

**2.5.3** Complete the Interim Report Authorisation form (ST005C) and send it along with the interim report, if applicable to the relevant trial lead (for example, Chief Investigator, Data Monitoring Committee Chair), ensuring no blinded staff members are exposed, documenting the date this was sent in the ECTU Project Planning document (see reference in Section 3).

## **3. RELEVANT DOCUMENTS AND REFERENCES**

### **On ECTU Website**

- ECTU\_SOP\_ST\_05 Statistical Analysis and Reporting
- ECTU\_SOP\_ST\_07 Defining Data Access Requirements for Blinded and Unblinded Statisticians
- ECTU\_SOP\_OP\_20 Requests to Lock and Unlock a Study Database

### **On ECTU Shared Drive**

- ST007 Statistical Review Checklist
- ST005A Final Report – Analysis Population Agreement
- ST005B Final Report Authorisation Template
- ST005C Interim Report Authorisation Template
- ECTU Publications

The user of this document is responsible for ensuring it is the current version.



ECTU WPD Identifier ECTU ST W5  
Version No 5.0  
Effective Date 03 Apr 2024

#### Others

- ECTU Project Planning document (Microsoft Teams) ECTU statos/Files/ECTU statistics projects and funding.docx
- [EudraCT](#) website

The user of this document is responsible for ensuring it is the current version.









# Adobe Approval: SOP\_ST\_05 Statistical Analysis and Reporting v6.0 and WPD\_ST\_W5 Statistical Analysis and Reporting v5.0

Final Audit Report

2024-03-19

Created:	2024-03-15 (Greenwich Mean Time)
By:	Tanya Tharakan (tanya.tharakan@ed.ac.uk)
Status:	Signed
Transaction ID:	CBJCHBCAABAArRMGTXi5zKDJK6NtndFzth24EDIZWmP

## "Adobe Approval: SOP\_ST\_05 Statistical Analysis and Reporting v6.0 and WPD\_ST\_W5 Statistical Analysis and Reporting v5.0" History

-  Document created by Tanya Tharakan (tanya.tharakan@ed.ac.uk)  
2024-03-15 - 10:29:23 GMT
-  Document emailed to Steff Lewis (Steff.Lewis@ed.ac.uk) for signature  
2024-03-15 - 10:34:52 GMT
-  Document emailed to Sharon Tuck (Sharon.Tuck@ed.ac.uk) for signature  
2024-03-15 - 10:34:52 GMT
-  Document emailed to Catriona Keerie (Catriona.Keerie@ed.ac.uk) for signature  
2024-03-15 - 10:34:52 GMT
-  Email viewed by Catriona Keerie (Catriona.Keerie@ed.ac.uk)  
2024-03-18 - 08:35:28 GMT
-  Document e-signed by Catriona Keerie (Catriona.Keerie@ed.ac.uk)  
Signature Date: 2024-03-18 - 08:36:20 GMT - Time Source: server
-  Email viewed by Sharon Tuck (Sharon.Tuck@ed.ac.uk)  
2024-03-18 - 13:18:19 GMT
-  Document e-signed by Sharon Tuck (Sharon.Tuck@ed.ac.uk)  
Signature Date: 2024-03-18 - 13:19:40 GMT - Time Source: server



 Email viewed by Steff Lewis (Steff.Lewis@ed.ac.uk)

2024-03-19 - 09:48:37 GMT

 Document e-signed by Steff Lewis (Steff.Lewis@ed.ac.uk)

Signature Date: 2024-03-19 - 09:49:15 GMT - Time Source: server

 Agreement completed.

2024-03-19 - 09:49:15 GMT