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GOOD CLINICAL LABORATORY PRACTICE (GCLP)

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**GOOD CLINICAL
LABORATORY PRACTICE
(GCLP)**

FOREWORD

For some years, it has been internationally recognized that clinical laboratories processing specimens from clinical trials require an appropriate set of standards to guide good practices.¹ With that aim in mind, the *Good Clinical Laboratory Practice Guidelines* presented here were drafted and published in 2003 by a working party of the Clinical Committee of the British Association of Research Quality Assurance (BARQA).²

This guidance identifies systems required and procedures to be followed within an organization conducting analysis of samples from clinical trials in compliance with the requirements of Good Clinical Practice (GCP). It thus provides sponsors, laboratory management, project managers, clinical research associates (CRAs) and quality assurance personnel with the framework for a quality system in analysis of clinical trial samples, ensuring GCP compliance overall of processes and results.

In April 2006, the Special Programme for Research and Training in Tropical Diseases (TDR), sponsored by UNDP, UNICEF, the World Bank and WHO, convened a meeting of organizations engaged in clinical trials in disease endemic countries to discuss the applicability of these guidelines to their work. Invited organizations included Epicentre, Drugs for Neglected Diseases initiative (DNDi), the Foundation for Innovative New Diagnostics (FIND), and the Kenya Medical Research Institute (KEMRI). It was agreed that GCLP would be a valuable tool for improving and assuring quality laboratory practice in clinical trials in the tropical settings in which they work. It was recognized that the GCLP Guidelines were not widely available, and it was recommended that WHO/TDR publish the guidelines on its website as the standard for laboratories undertaking samples from TDR-supported clinical trials. The TDR Diagnostics Evaluation Expert Panel (DEEP) has since recommended GCLP as the standard for clinical laboratories involved in the evaluation of diagnostics for infectious diseases.³

Good Clinical Laboratory Practice Guidelines is now published by WHO/TDR under the terms of an agreement between WHO and BARQA. Meanwhile, GCLP training materials specifically addressing the conduct of clinical trials in tropical countries also are under development by WHO/TDR and its partners.

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1. Stevens W. (2003) Good Clinical Laboratory Practice (GCLP): The need for a hybrid of Good Laboratory Practice and Good Clinical Practice guidelines/standards for medical testing laboratories conducting clinical trials in developing countries. *Quality Assurance*, 10: 83-89.
 2. *The Guidelines* were written by the late Nick Mawbey, Vanessa Grant and Tim Stiles and first published by BARQA in 2003.
 3. S Banoo, D Bell, P Bossuyt, A Herring, D Mabey, F Poole, PG Smith, N Sriram, C Wongsrichanalai, R Linke, R O'Brien, M Perkins, J Cunningham, P Matsoso, C-M Nathanson, P Olliaro, RW Peeling, A Ramsay (The TDR Diagnostics Evaluation Expert Panel). Evaluation of diagnostic tests for infectious diseases: general principles. *Nature Reviews in Microbiology*, September 2006 (S21). http://www.nature.com/nrmicro/journal/v6/n11_suppl/abs/nrmicro1523.html

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1. | PREFACE

The regulatory environment in which clinical trials are conducted continues to evolve. The changes are generally focused on requiring more rigorous control within the organisations performing clinical trials in order to ensure patient safety and the reliability of data produced. The global acceptance of the ICH Guideline for Good Clinical Practice (GCP) and the implementation of the European Union Clinical Trials Directive (2001/20/EC) are two clear examples of such change.

While the EU Clinical Trials Directive and ICH GCP Guideline clearly specify roles such as that of the Ethics Committee, the Sponsor and the Investigator to name just a few, they only vaguely define the standards to be applied in the analysis of samples from a clinical trial.

The EU Clinical Trial Directive states that guidance documents may be issued to define the requirements for various aspects of trials, but it is not clear at this time whether these will include the analyses of trial samples.

The most applicable reference within ICH that indicate the standards required for the analysis of samples are in sections 2.13 “Systems with procedures that assure the quality of every aspect of the trial should be implemented”, and in section 8 “Essential Documents” parts 8.2.12 and 8.3.7.

This document is intended to provide a framework for the analysis of samples from clinical trials on the facilities, systems and procedures that should be present to assure the reliability, quality and integrity of the work and results generated by their contribution to a clinical trial.

2. | SCOPE

It is recommended that the framework outlined in this document be adopted by any organisation that analyses samples generated by a clinical trial.

The principles defined in this framework are intended to be applied equally to the analysis of a blood sample for routine safety screening of volunteers (haematology/biochemistry) as to pharmacokinetics or even the process for the analysis of ECG traces.

The types of facilities undertaking analyses of clinical samples may include pharmaceutical company laboratories, contract research organisations (CROs), central laboratories, pharmacogenetic laboratories, hospital laboratories, clinics, Investigator sites and specialized analytical services.

3. | INTRODUCTION

Good Clinical Practice (GCP) is an international ethical and scientific quality standard for designing, conducting, recording and reporting trials that involve the participation of human subjects. Compliance with this standard provides public assurance that the rights, safety and well-being of trial subjects are protected, consistent with the principles that have their origin in the Declaration of Helsinki (ICH GCP Guideline).

Good Laboratory Practice (GLP) is intended to promote the quality and validity of test data. It is a managerial concept covering the organisational process and the conditions under which laboratory studies are planned, performed, monitored, recorded and reported (OECD GLP Guideline).

Good Clinical Laboratory Practice (GCLP) applies those principles established under GLP for data generation used in regulatory submissions relevant to the analysis of samples from a clinical trial. At the same time it ensures that the objectives of the GCP principles are carried out. This ensures the reliability and integrity of data generated by analytical laboratories.

It is recognized that a number of countries are already applying the GCLP principles to the analysis of clinical trial samples. Indeed it is possible within some of these countries for clinical laboratories to be accredited by the National Monitoring Authority.

Some organizations and indeed countries operate proficiency testing schemes to which laboratories subscribe. While these ensure the integrity of the analytical process they may not assure compliance with GCP.

This document is intended to provide a unified framework for sample analysis to lend credibility to the data generated and facilitate the acceptance of clinical data by regulatory authorities from around the world.

It is important to recognize that the framework outlined in this document will be applied across a diverse set of disciplines involved in the analysis of samples from clinical trials. It is therefore important to understand that this framework should be interpreted and applied to the work of those organisations that undertake such analyses with the objective of assuring the quality of every aspect of the work that they perform.

4. | DEFINITIONS

Analytical Plan: a formal document describing all aspects of the work to be performed by the trial facility.

Analytical Project Manager: the individual responsible for the overall conduct of the work defined by the analytical plan.

Analytical Report: a formal report which may be issued on completion of the work as detailed in the analytical plan.

Analytical Results: a document(s) containing the results of the analyses issued on completion of sample analysis.

Facility Records: records that confirm and support non-trial activities essential to the reconstruction of the work performed. This may include supporting data such as fridge/ freezer temperature records, equipment service, maintenance and calibration records.

Investigator: the individual responsible for the conduct of the clinical trial whose role is as defined by ICH GCP.

Quality Audit: a defined system, including personnel, which is independent of trial conduct and is designed to assure trial facility management of compliance with Good Clinical Laboratory Practice.

Raw Data: all original records and documentation, or verified copies of these, generated by observations and activities during the conduct of the work. They are necessary for the reconstruction and evaluation of the reported results. For the purposes of this guideline, “source data” (ICH GCP) and “raw data” are the same.

Sponsor: an individual, company, institution, or organization that takes responsibility for the initiation, management, and/or financing of a clinical trial.

Trial Facility: the persons, premises and facilities necessary for conducting the work.

Trial Facility Management: the individual(s) within an organisation performing the analysis who is responsible for ensuring that the facility operates according to Good Clinical Laboratory Practice.

Trial Material: any material from a clinical trial that is to be analyzed; this may include, but is not limited to the following: samples, specimens, data, results, ECG traces or x-ray plates.

Trial Protocol: the overall Study Protocol approved by the sponsor which describes the entire activities which make up the study.

GOOD CLINICAL LABORATORY PRACTICE

5. | ORGANIZATION AND PERSONNEL

5.1 | Trial Facility Management Responsibilities

- 5.1.1 Trial facility management should ensure that the principles of Good Clinical Laboratory Practice as defined in this document are complied with in their facility.
- 5.1.2 At a minimum it should:
- a) ensure that qualified personnel, appropriate facilities, equipment, and materials are available;
 - b) maintain a record of the qualifications, training, experience and job description for each individual working within the trial facility;
 - c) ensure that personnel clearly understand the functions they are to perform and, where necessary, provide training for these functions;
 - d) ensure that health and safety precautions within the trial facility are applied according to national and/or international regulations;
 - e) ensure that appropriate standard operating procedures are established and followed and an historical file of all standard operating procedures is maintained;
 - f) ensure that there is a quality audit programme with designated personnel;
 - g) ensure as and when appropriate, a programme of quality control is operated within the trial facility;
 - h) ensure an analytical plan exists which defines the analyses to be performed by the facility. This instruction maybe included as part of the trial protocol;
 - i) ensure that any amendments to the analytical plan are agreed and documented;
 - j) maintain copies of all trial protocols and analytical plans;
 - k) ensure that a sufficient number of personnel are available for the timely and proper conduct of the work;
 - l) for each trial designate an individual with the appropriate qualifications, training, and experience as the Analytical Project Manager before the work is initiated in the trial facility. If it is necessary to replace the Analytical Project Manager during a trial, this should be documented;

- m) ensure that an individual or organisation is identified as having responsibility for the management of the archives used for the retention of trial and facility records;
- n) for any work sub-contracted by the trial facility, trial facility management are responsible to the sponsor for its conduct.

5.2 | Analytical Project Manager Responsibilities

5.2.1 The Analytical Project Manager has the responsibility for the overall conduct of the analyses performed by the trial facility and for its report.

5.2.2 These responsibilities should include, but not be limited to, the following functions:

- a) agree to the analytical plan by dated signature;
- b) ensure the procedures specified in the analytical plan are followed, and that authorisation for any modification is obtained and documented together with the reasons for change;
- c) ensure that all results of the analyses are fully documented and recorded;
- d) sign and date the analytical report, if issued, to indicate acceptance of responsibility for the validity of the results and to confirm compliance with Good Clinical Laboratory Practice;
- e) when analytical results are issued the Analytical Project Manager should ensure that these results are only issued under the dated signature of an authorized signatory.
- f) ensure that after completion of the analyses, the analytical plan, the analytical report and/or analytical results, raw data and supporting documentation are archived and retained.

5.3 | Trial Staff Responsibilities

5.3.1 All staff working with trial materials should be aware of those guidelines that apply to their work.

5.3.2 All staff are responsible for recording raw data promptly and accurately and in compliance with these guidelines and are responsible for the quality of their data.

5.3.3 All staff are responsible for following the instructions given in the trial protocol, analytical plans and standard operating procedures.

6. | FACILITIES

6.1 | Trial Facilities

- 6.1.1 The trial facility should be of suitable size, construction and location to meet the requirements of the trial and minimize any disturbances that might interfere with the validity of the trial.
- 6.1.2 The trial facility should have appropriately designed areas of sufficient size for the type of work being performed and provide an adequate degree of separation and security to assure the integrity of trial samples at all times.
- 6.1.3 Suitable facilities should be available for the preparation of trial supplies in order to ensure accurate preparation of such materials.
- 6.1.4 There should be appropriate storage areas as needed for samples and supplies. Storage areas should be separated as appropriate to prevent contamination or mix up of trial samples or materials.

6.2 | Archive Facilities

- 6.2.1 Where appropriate space should be provided for the safe and secure archive storage and retrieval of data, reports, samples and specimens.
- 6.2.2 If suitable facilities cannot be provided for the storage of trial records alternative arrangements should be made. This could include the use of third party contract archive facilities.

6.3 | Waste Disposal

- 6.3.1 The handling and disposal of wastes generated during the performance of a trial should be carried out in a manner that is consistent with local regulatory requirements.

7. | EQUIPMENT, MATERIALS and REAGENTS

7.1 | Equipment

- 7.1.1 Equipment used in the analysis of trial material and operation of the trial facility should be suitably located and of appropriate design and adequate capacity.

- 7.1.2 Equipment used should be periodically inspected, cleaned, maintained, and calibrated, as appropriate. Records of such maintenance and any unscheduled maintenance or calibration should be retained.
- 7.1.3 An equipment service schedule listing all relevant equipment and the schedule of planned service and calibration activities should be maintained.
- 7.1.4 Any equipment that is out of service for any reason should be clearly identified as such.
- 7.1.5 Equipment users should be suitably qualified and trained in the operation of the equipment.
- 7.1.6 In all cases equipment used should be demonstrably fit for purpose.

7.2 | Material

- 7.2.1 Materials used in the analysis of trial materials should be demonstrably fit for purpose.

7.3 | Reagents

- 7.3.1 Reagents should be suitably labeled and indicate the identity, concentration, specific storage instructions and stability. Stability information may include the preparation date and expiration date.

8. | STANDARD OPERATING PROCEDURES (SOPS)

8.1 | General

- 8.1.1 A trial facility should have documented standard operating procedures approved by Trial Facility Management. These are intended to ensure the quality and integrity of the work performed and the data generated.
- 8.1.2 Standard operating procedures should be periodically reviewed to ensure that they remain current and up to date.
- 8.1.3 A list of current standard operating procedures which includes the version number should be maintained current and up to date.
- 8.1.4 Staff within the trial facility should have immediately available standard operating procedures relevant to the activities being performed therein. Published textbooks, articles and manuals may be used as supplements to these standard operating procedures provided that these are also retained.

8.2 | Application

8.2.1 Standard operating procedures should be available for, but not be limited to, the following types of activities. The details given under each heading are to be considered as illustrative examples.

- a) *Trial supplies*
Supply, preparation, labeling, handling, shipment and storage.
- b) *Equipment*
Operation, maintenance, cleaning, calibration of equipment.
- c) *Record keeping, reporting, storage, and retrieval*
Coding of trials, data collection, preparation of reports, indexing systems, handling of data, the use of computerized data systems and the operation of the archive.
- d) *Trial materials (where appropriate)*
Storage, retrieval and chain of custody of samples.
- e) Preparation of trial packs.
- f) Procedures for receipt, transfer, sampling, storage, identification and care of trial materials and samples.
- g) Procedures for the analysis of trial samples.
- h) *Quality control procedures*
The quality control procedures operated by the trial facility to ensure the quality and accuracy of results.
- i) *Quality audit procedures*
Operation of quality audit personnel in performing and reporting trial audits, inspections, and analytical report reviews.

9 | PLANNING OF THE WORK

9.1 | Analytical Plan

- 9.1.1** For each trial, a written analytical plan should exist prior to initiation of the work and be available to the staff involved in the work.
- 9.1.2** This plan should be agreed to by the dated signature of the Analytical Project Manager and Sponsor, and as appropriate the Investigator.
- 9.1.3** The analytical plan may form part of the contractual agreement with the Sponsor or be contained within the trial protocol.
- 9.1.4** The analytical plan should be retained as part of the records for the trial.

- 9.1.5** All changes, modifications, or revisions to the agreed analytical plan should be documented, including justification(s). Agreement by the Analytical Project Manager and Sponsor should be indicated by dated signatures. Copies of all such amendments should be maintained with the original analytical plan.

9.2 | Content of the Analytical Plan

- 9.2.1** The analytical plan should be sufficiently detailed to provide clear instruction to those undertaking the work and contain, but not be limited to, the following information:

Identification of the work

- a) A descriptive title.
- b) A statement that indicates the nature and purpose of the work.
- c) A unique identifier that will link the work within the analytical plan to the trial protocol while retaining the chain of custody and identity of all trial samples.

Information Concerning the Sponsor and the Trial Facility

- d) Name and address of the Sponsor.
- e) Name and address of the Investigator.
- f) Name and address of the Trial Facility.
- g) Name of the Analytical Project Manager.

Dates

- h) The date of agreement to the analytical plan by signature of the Analytical Project Manager and the Sponsor.
- i) The proposed starting and completion dates for the work.

Analytical Process

- j) The methods to be used during the analysis of trial materials. Reference to published analytical methods may also be made. This should include detailed information on the analytical design, methods, materials and conditions, type and frequency of analysis, measurements, observations and examinations to be performed.

- k) The preparation and shipment of materials such as sample kits to be used in the collection of trial materials must be covered by an analytical plan. A separate plan for the preparation of trial packs could be produced or such logistics could be included in the analytical plan.
- l) The type and number of trial materials to be received by the trial facility.
- m) The method and condition under which trial materials are transported from one location to another.
- n) For “blinded” or “coded” trials the conditions of blinding and the unblinding procedures to be followed.

Records

- o) A list of the records to be retained and their location on completion of the work.
- p) Method of reporting results.

Quality Audit

- q) The quality audit to be performed to assure the quality and integrity of the data generated and the accuracy of its reporting.

10. | SUB-CONTRACTING

10.1 | No analytical or other study related work should be subcontracted without the prior approval of the sponsor.

10.2 | When work is sub-contracted by the trial facility, trial facility management are responsible to the sponsor for the conduct of this work.

10.3 | Prior to placement of sub-contracted work, assurance should be obtained to confirm the subcontractor will work in accordance with Good Clinical Laboratory Practice and any trial requirements.

10.4 | The contract for sub-contracted work (agreement, protocol or analytical plan) should clearly spell out the detail of the analyses and the retention of trial data.

11. | TRIAL MATERIALS

11.1 | Receipt

- 11.1.1** Procedures for the receipt, handling, storage, retrieval and management of trial materials should be designed to prevent mix-ups and maintain their integrity. Trial materials should be adequately identified at all times.
- 11.1.2** Trial materials should be checked on receipt to confirm their identification. Records of identity, source, date of arrival, and condition on arrival should be maintained.

11.2 | Chain of Custody

- 11.2.1** Facilities and procedures should be designed and operated to maintain trial materials identification and traceability at all times.
- 11.2.2** Records should be maintained to allow the reconstruction of the chain of custody of trial materials received and to allow the retrospective evaluation of material storage.
- 11.2.3** Trial material storage areas should be monitored where controlled conditions are required to maintain the integrity of trial materials. Contingency plans that define the actions to be taken in the case of failure of such equipment should be in place. Such plans should ensure the integrity of the stored trial materials.

11.3 | Logistics

- 11.3.1** When a trial facility prepares sample kits or materials used for the collection of trial samples, the systems used for the preparation, distribution, sample collection and return of such materials to the trial facility must be documented and the systems and procedures used, validated.
- 11.3.2** Details of the logistics required on a given trial should be documented in the analytical plan or similar document approved by the Sponsor and Analytical Project Manager.
- 11.3.3** The type of material required, the type and design of the package, the timing and means of distribution both from the trial facility to the Investigator site and return, the checks performed and storage requirements should be detailed in the above document.
- 11.3.4** The processes involved in these logistics should be subject to quality control procedures to confirm conformance of practice with defined requirements.

12. | CONDUCT OF THE WORK

12.1 | General

- 12.1.1** The work should be conducted in accordance with the Trial Protocol and the analytical plan.
- 12.1.2** All data generated during the conduct of the analytical phase should be recorded directly, promptly, accurately, and legibly. These entries should be signed or initialled and dated.
- 12.1.3** Any change in the data should be made so as not to obscure the previous entry, and should indicate the reason for the change and should be identified by date and signed or initialled by the individual making the change.

12.2 | Computer systems

- 12.2.1** Computerized systems should meet the general requirements for equipment as described in this document. Due to the nature of computerized systems and their key role in operations, further requirements apply to their use. In all cases computer systems should be appropriately validated and maintained and be demonstrably fit for purpose.
- 12.2.2** Computerized systems used to receive, capture, process or report data should be acquired, developed, tested, released, used, maintained and retired according to established guidelines or laws. These may include the OECD Monograph “The application of GLP Principles to computerized systems” the FDA 21CFR Part 11: Electronic Records, Electronic Signatures, Rule and the FDA Guideline for the use of computer systems in the conduct of clinical trials.
- 12.2.3** Procedures that address the security and operation of the computer systems should exist. These should include the maintenance of a data audit trail, the date/time and individual responsible for the collection of the data, system change control procedures, maintenance and system security procedures that ensure the integrity of trial data.
- 12.2.4** Access to computer systems should be restricted to authorized personnel.
- 12.2.5** If data is retained electronically means should exist to ensure the data held can always be retrieved.

12.3 | Method validation

- 12.3.1** The selection of instrument platforms and analytical methodologies should take into account current regulatory standards and sponsor expectations, where appropriate.
- 12.3.2** Each analytical method used in the analysis of trial materials should be appropriately documented, validated, controlled and approved. Changes to a method should be controlled and validated and result in the issue of a further version of the method.
- 12.3.3** Each analytical method should be appropriately validated to establish and demonstrate its fitness for purpose.
- 12.3.4** Records to demonstrate the validity and suitability of such methods within the trial facility should be retained.
- 12.3.5** Analytical platforms/methods should not be changed during the course of a trial, without prior consultation and agreement with the Sponsor. Such changes must be controlled, documented and appropriately authorized and may result in the need for further method validation.

12.4 | Processing trial materials

- 12.4.1** Trial material should be analysed and reported within a time frame consistent with patient safety issues and trial protocol, analytical plan, standard operating procedure and any contractual requirements.

Repeat analysis

- 12.4.2** The laboratory should have documented procedures governing rules for repeat analysis consistent with pharmaceutical industry standards. These may be included within the analytical plan.
- 12.4.3** Specific rules covering the performance of repeat analysis may also be covered in the trial protocol or analytical plan.

Safety

- 12.4.4** Laboratory procedures should take account of local legislation and standard practice in addressing the safe handling of hazardous substances and trial materials.

13. | REPORTING RESULTS

13.1 | General

13.1.1 There are two basic types of report that might be produced when reporting results from analytical work.

1) *Analytical Report*: a formal report which may be issued on completion of the work detailed in the analytical plan.

2) *Analytical Results*: a document(s) containing just the results which is usually issued rapidly on completion of sample analysis on a given day.

13.1.2 The analytical plan should indicate the type of reporting mechanism to be followed and the timeline for issuance of any such documents.

13.1.3 The decision as to the type of document produced should be agreed upon by the Sponsor and Analytical Project Manager and, when appropriate, the Investigator.

Issue of reports

13.1.4 All results should be subject to a quality control review to ensure the accuracy of the information produced.

13.1.5 Copies of analytical reports or analytical results should be provided to the Sponsor and Investigator, as appropriate.

13.1.6 A copy of all issued analytical reports and analytical results should be retained by the trial facility.

13.2 | Analytical Report

13.2.1 The analytical report should be signed and dated by the Analytical Project Manager to indicate acceptance of responsibility for the validity of the data reported. The extent of compliance with these principles should be indicated.

13.3 | Content of the Analytical Report

An analytical report should contain, but not be limited to, the following:

- a) Identification of the analytical work by a descriptive title and identification number;
- b) The clinical trial number;
- c) Name and address of the Sponsor;
- d) Name and address of the Investigator(s);

- e) Name and address of any trial facilities and any investigator sites involved; including identity of any Investigators;
- f) Name and address of the Analytical Project Manager;
- g) The start and completion dates of the laboratory work;
- h) A Quality Audit Certificate;
- i) Description of methods and materials used including data manipulation techniques and any statistical methods used;
- j) Presentation of the results;
- k) All information and data required by the analytical plan;
- l) The location(s) where the analytical plan, any specimens required to be retained, data and the final analytical report are to be stored.

13.3.1 Corrections or additions to a final analytical report once issued should be in the form of an amendment. Amendments should clearly state the reasons for corrections or additions and should be authorized by the dated signature of the Analytical Project Manager.

13.4 | Analytical results

13.4.1 Analytical results should be appropriately and accurately reported. Such reports should include but not necessarily be limited to the following:

- a) Identification of the analytical work by unique identification number.
- b) The clinical trial number.
- c) Identity of the Sponsor.
- d) Identity of the trial facilities and the Investigator to whom the results are directed.
- e) Name of the Analytical Project Manager.
- f) Presentation of the results.

13.4.2 The analytical results should be issued under the dated signature of an authorized signatory.

13.4.3 Analytical results may be reissued when corrections or additions are required. In such circumstances the amended document must clearly indicate that the results have been amended and the reason for any such change.

14. | QUALITY CONTROL

14.1 | The trial facility should maintain appropriate quality control procedures to ensure the quality and accuracy of all aspects of the work performed and reported.

14.2 | Where appropriate, test facilities should subscribe to membership of external accreditation/performance/proficiency schemes to demonstrate the competency of the work performed.

15. | QUALITY AUDIT

15.1 | Independent auditing of the trial facility should be conducted to assure compliance with the trial protocol, analytical plan, standard operating procedures and these principles.

15.2 | Facilities, systems, equipment, methods, quality control procedures, personnel, reports and documentation should be audited at intervals following a prearranged programme.

15.3 | Audits should be conducted by a competent person(s) designated by trial facility management. This person(s) should be independent of the work being audited. Independent audits by external experts may also be utilized.

15.4 | All audit results should be recorded. Reports of the audits should contain all the observations made during the audit and, where applicable, any corrective actions.

15.5 | Analytical Project Managers and Trial Facility management should respond to these audit reports in a timely manner.

15.6 | Any corrective actions indicated should be tracked to ensure appropriate implementation.

15.7 | On the satisfactory completion of an audit, an audit certificate should be produced, which identifies the activities audited, and an indication of the compliance of those activities with this guideline.

16. | STORAGE AND RETENTION OF RECORDS

16.1 | The following should be retained for the period specified by the appropriate authorities or as defined by the trial protocol:

- a) The analytical plan, data, samples/specimens (where appropriate), analytical results and if issued the final analytical report;
- b) Records of all audits performed by the quality audit function;
- c) Records of the qualifications, training, experience and job descriptions of personnel;
- d) Records and reports of the maintenance and calibration of equipment;
- e) The historical file of standard operating procedures including the index, plus any operating manuals used as part of an SOP;
- f) The records and results of all the quality control tests performed to confirm the accuracy of the work.

16.2 | Samples and specimens should be retained as required by GCP but only as long as the quality of the preparation permits evaluation.

16.3 | Trial materials should be retained in such a way as to ensure the integrity and accessibility to the material retained.

16.4 | If a trial facility does not have appropriate facilities for the storage of such materials in the manner defined the use of commercial contract archive facilities should be used.

16.5 | If a trial facility goes out of business and has no legal successor, the archive material should be transferred to a suitable archive designated by the sponsor of the trial.

17. | CONFIDENTIALITY

17.1 | Procedures for the handling of trial materials, collection of data and reporting of results should be designed to maintain subject confidentiality and study blinding/coding arrangements within the requirements of Good Clinical Practice, Declaration of Helsinki and the trial protocol.

17.2 | The Sponsor should be informed of any event, either accidental or arising as a result of an investigation, which may compromise study blinding.

17.3 | Procedures should assure that a sponsor's proprietary information is not disclosed to anyone other than authorized individuals.



**Special Programme for Research & Training
in Tropical Diseases (TDR) sponsored by**
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