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Vision Report

Clinical Trials Register Platform for Latin America and the Caribbean

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VISION REPORT

1 Introduction

The World Health Organization (WHO) Registry Platform is a project within the World Health Organization, involving the Research Policy & Cooperation Department (RPC) in the Information, Evidence and Research cluster (IER). The mission of the WHO Registry Platform is to ensure that a complete view of research is accessible to all those involved in health care decision making, improving research transparency and strengthening the validity and value of the scientific evidence base.

The WHO has been urging research institutions and companies to register all medical studies that test treatments on human beings. A trial register lists key administrative and scientific information about planned, ongoing, and completed trials, sufficient to identify that trial's existence. There are several registers of clinical trials around the world but little coordination among them.

The Registry Platform seeks to bring participating registers together in a global network to provide a single point of access to the information stored in them. The Registry Platform is not a register itself, but rather provides a set of standards for all registers. Besides standardizing what must be reported to register a trial, and implementing a unified search system, there is a third important goal: achieving a

global trial identification system that confers a unique reference number on every qualified trial.

The International Clinical Trials Registry Platform (ICTRP) is a WHO project to establish norms and standards upon which international trial registration can take place ethically and scientifically. The main components of the platform are: (i) A Register Network; (ii) a one-stop search portal for searching registers worldwide; and (iii) norms and standards. At present, ICTRP integrates the following registries: Australian Clinical Trials Register (Australia, New Zealand), ISRCTN (England), Chinese Clinical Trial Register – ChiCTR (China), Clinical Trials Registry (India) and ClinicalTrials.gov (USA).

On August 2006, in Rio de Janeiro/Brazil, adherence to ICTRP it was discussed in a workshop during the 8th Brazilian Congress on Collective Heath and the 11th World Congress on Public Health. At the opening session of the workshop, were present: Ida Sim, WHO project coordinator, Moisés Goldbaum, Secretary of Science, Technology and Strategic Resources of the Ministry of Health (SCTIE/MS), Luis Gabriel Cuervo, Coordinator of PAHO's Health Research Support Unity, Susanne Serruya, Director of DECIT/SCTIE/MS, José da Rocha Carvalheiro, member of ICTRP's International Advisory Board, Cristiane Quental, technician from FIOCRUZ's Technology Management Coordination and Abel L. Packer, BIREME/PAHO/WHO Director.

As a direct consequence of the workshop, starting 2007, BIREME/PAHO/WHO demanded that all authors of publications related to clinical trials should submit their work to an ICRTP certified Register prior to acceptance. This report represents another concrete step towards the realization of a Clinical Trials Register Platform for LAC.

2 Concepts and Goals

There are many definitions of clinical trials. However, they are generally considered to be biomedical or health-related research studies performed in human beings following a predefined protocol.

Registration of clinical trials facilitates the dissemination of information among clinicians, investigators, researchers, care providers, sponsors, institutional review boards/independent ethics committees and trial participants (patients). It helps to assure trial participants that the information that accrues as a result of their altruism will become part of the public record. Therefore, the purpose of a clinical trials registry (or register) is to promote the public good by ensuring that everyone can find key information about every clinical trial whose principal aim is to shape medical decision-making.

Quoting the Ottawa Group Report [14], the rationale behind allowing public access to trial protocol information includes the following benefits:

- Minimize known risks and potential harm arising from unnecessary exposure to previously tested interventions;
- Accelerate research by making knowledge available about prior experiences with interventions;
- Identify and deter unnecessary duplication of research and publications;
- Identify and deter selective reporting of research (reporting biases);

- Provide a means of comparing the original protocol upon which ethics approval was based with the study as it was carried out;
- Enhance collaboration among researchers by informing them of ongoing trials.

Only an orchestrated network of collaborative Clinical Trials Registers will be capable of materializing these goals.

3 Platform Architecture

The WHO Network of Collaborating Clinical Trial Registers (The Register Network) provides a forum for registers to exchange information and work together to establish best practices for clinical trial registration. ICTRP defines the following components of the Register Network:

- WHO Central Repository (Reference Database)
- WHO Search Portal
- WHO Collaborating Registers:
    - Contributing registers
        - Primary Registers (provides data directly to the Central Repository)
        - Partner Registers (provides data indirectly to the Central Repository)
    - Non-contributing Registers (do not submit data to the Central Repository)
- Non-collaborating Registers (do not belong to the Register Network)

Any clinical trial register that registers trials prospectively; that is, before the first participant is recruited, can be a Collaborating Register in the Register Network. The non-contributing registers category allows a register to be included in the Register Network even if they do not meet one or more of the criteria for a Contributing Register. This architecture is depicted in Figure 1.

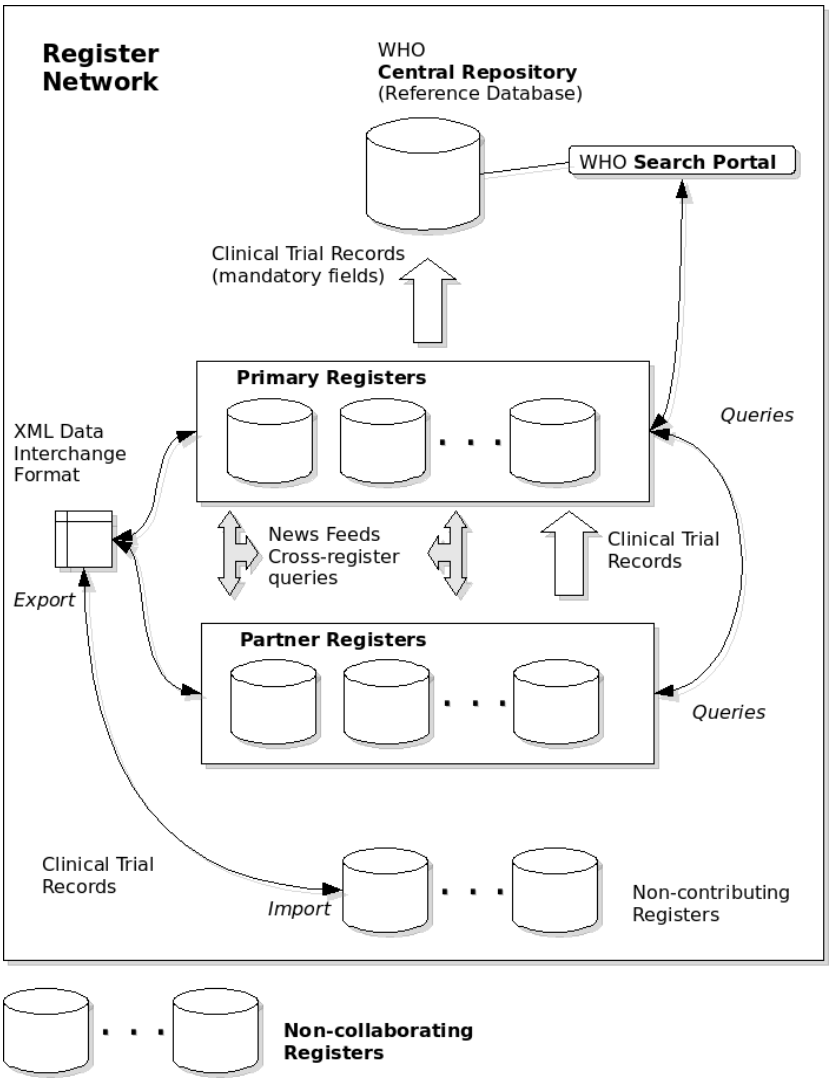

Figure 1 – Clinical Trials Register Architecture

4 Project Requirements

Clinical Trial Registries built upon our platform must adhere to the following requirements:

- register clinical trials data records
- provide a unified and integrated record search mechanism
- adhere to WHO/ICTRP guidelines
- allow operation and customization, independently from a central register
- global coherence and integration between registries

4.1 Clinical Trials

The two important aspects of clinical trials registration are: what to register and how to do it? The answer to the first question lies on the data schema definition, the answer to the second is the registration protocol and interface.

The data schema supported in this proposal is divided in two sections: mandatory and customized. A detailed field list of the mandatory schema is defined in Appendix I of this report. It encompasses all the fields defined by ICTRP Trial Registration Data Set [2]. All fields in the mandatory section are required. The customized section allows register users to expand the schema to accommodate

local, regional, and national needs. In Appendix II and III of this report we present a compilation of fields present in other Registries. This compilation provides input for the discussion about the creation of a mandatory trial registration data set for LAC and weather or not it is required.

In addition to the mandatory sections, register users will be capable of selecting field definitions from a set of suggestions, compiled from Appendix III. This means customized record section will be composed by fields selected from the suggestions list and new field definitions (custom fields) created by the register user. Ideally, there will be no need for custom field definitions. There are many advantages in reusing field definitions: (i) quicker and less error-prone record schema definition; (ii) better data compatibility and interoperability; (iii) richer and semantic-aware distributed searches. Nevertheless, register users will be given the tools to define custom fields for the customized sets that are not present in the mandatory sections neither in the suggestion set. This workflow is depicted in Figure 1.

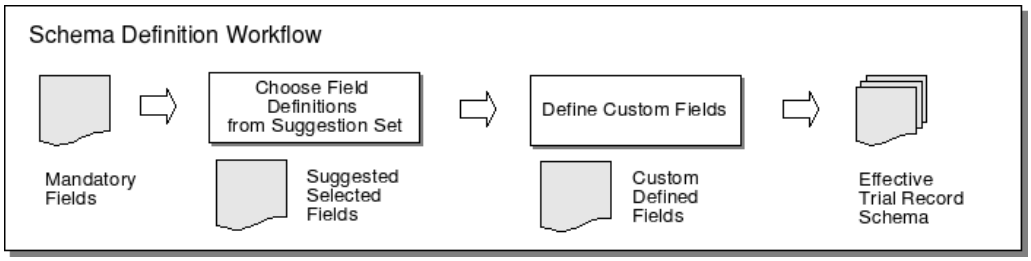

Figure 2 – Proposed Trial Record Data Schema Definition Workflow

Semantic record annotation will also be supported. Four fields from the WHO mandatory data set describe the trial's scientific nature: Conditions, Interventions, Primary and Secondary Outcomes. These fields should be coded in the standard MeSH vocabulary to standardize the description of trials and allow accurate searches. We propose the adoption of BIREME/PAHO/WHO DeCS [8] to enhance annotation. DeCS or Health Science Descriptors is a structured vocabulary where each term from the vocabulary is mapped in three languages: Portuguese, Spanish and English. Moreover, DeCS is used to index several digital libraries improving precision in queries.

Only after the definition of the trial record data schema, register users will be allowed to enter record trials to the register. Record data input will be done in phases, corresponding to the section of the schema: mandatory, custom-suggested, custom-defined.

Moreover, each data record will be associated with a state from the following set: draft, pending, rejected and published. A new record is created in the draft state, and remains in this state while being edited by the user. After the mandatory field set is filled-in and validated, the user will be allowed to command a state transition (submission) to the pending state.

Submission will trigger an automated mechanism to obtain the Universal Trial Reference Number (UTRN) from WHO. UTRN would facilitate the unique clinical trials identification. The intention is that this number becomes part of the trial's identity. The UTRN would be used whenever information about the trial is communicated, should be verifiable and have built-in error-detecting logic.

UTRN should have the following properties:

- Enables unique identification of individual trials and their publications even if they are registered in multiple registries with multiple IDs;
- Enables global checking for duplication across multiple certified registries rather than within a single registry;
- Minimizes potential confusion introduced by multiple IDs from different registries;
- Easily recognizable;
- Internationally uniform.

There are two possible outcomes from the record trial submission: the record state will be either rejected or published. Either way, the responsible user will be notified by an e-mail notification and a news alert accessible at the user's home page inside the portal register. If the submission was rejected, the user will be able to examine the reason, apply corrective measures and re-submit the record. If the submission was published, the record has a valid UTRN and will show up in queries to the unified record search mechanism. It is important to notice that, at the present time, WHO has not yet released the protocol specification for UTRN distribution.

4.2 Record Search Mechanism

Clinical trials are one of the most important sources of scientific evidence on the safety and effectiveness of health interventions. Access to information about ongoing, completed and published clinical trials is essential for informed decision-making. Researchers, research funders, policy-makers, medical practitioners, patients and the general public need such information, to help guide research or to make treatment decisions. Therefore, a powerful, reliable and easy-to-use search mechanism is crucial.

Each register instance will be able to create its own database of information sources, according to BIREME/PAHO/WHO decentralized model. When a user issues a query at a register instance, the search activity will span through all information sources present at the register instance, including the register instance itself. An information source can be another register instance or any other information provider or search engine. The goal is to implement a flexible, distributed, extensible and scalable search mechanism.

There are three devised types of search: (i) logic search expression (using Boolean connectors such as AND, OR, NOT) ; (ii) advanced search (taking advantage of specific field-sensitive information); (iii) browsing by category (initially restricted to local data).

The diversity of search mechanisms is necessary to satisfy different user demands: simple and quick query, specific and focused query, exploratory browsing.

4.3 WHO/ICTRP guidelines

The exact procedure to accomplish automatic protocol registration is not public documented yet at the WHO/ICTRP Portal [7]. We quote from ICTRP:

> "Discussions in relation to how the UTRN might be implemented are ongoing. Regular updates will be posted to this website."

> "The WHO will start assigning UTRNs when the Registry Platform's global deduplication processes are finalized and implemented. We are currently developing guidance on the use of the UTRN. Please check back here periodically for updates. Last update: 19 June 2007"

BIREME/PAHO/WHO project members should contact WHO/ICTRP representatives to clarify the matter. The only information available so far, regarding UTRN acquisition, is that a set of web services will be available for handling requests automatically.

4.4 Independent Operation and Customization

The end product of the Clinical Trials Register Platform will be a cross-platform software artifact called Register Instance or Register Portal. Each instance, once deployed, will be self-sufficient, meaning the institution responsible for installing and running the instance will have autonomy to manage it, configure it, feed it with data and open it to public. However, UTRN acquisition and distributed searches will depend on interaction with other instances or registries.

Furthermore, each instance will provide facilities for local interface customization (look-and-feel) and local information publication. Interface customization consists of changing page layouts, document templates, text formatting and any other form of decoration. Local Information publication will be made available by means of folders, files, news and document objects; these building blocks can be used ad hoc to build a hierarchical documentation structure.

4.5 Coherence and Integration between Registers

Coherence among registries is achieved because they all share the same structure, the same feature set, and the same inter-operation protocols. Two means of cooperation were already discussed: the distributed record search mechanism and

UTRN acquisition protocol. There are two other means of integration: bulk record transfer and news syndication.

Bulk record transfer is a mechanism to exchange (import and export) record sets as a single operation between registries. Two common use cases that justify the need for bulk record transfer are: (i) to incorporate data from legacy systems; (ii) when one register is to be deactivated and another register will be in charge of preserving and serving its data. WHO is working with CDISC [9] to define an XML standard for Registration Data Set interchange, consisting of an extension of the CDISC Object Data Model (ODM) and linked to HL7, BRIDG, caBIG. The CDISC Submission Data Standards (SDS) Team has released a draft version of the SDTM Implementation Guide (SDTMIG) for Human Clinical Trials, Version 3.1.2, for public review and comment. Reviewers are asked to submit comments by the close of business on Friday, September 28, 2007. A final version is expected to be available in early 2008.

In general, syndication means the distribution a news article through a syndicate - in this case an RSS feed - for publication in a number of newspapers or periodicals simultaneously. In our case, each register instance can act as a provider or as a consumer (or both) of news related to clinical trials. There will be an interface for administrative users to define external news source feeds. Symmetrically, if a remote instance defines the local instance as a source feed, it will receive transparent and implicit access to all local news objects published in the local instance.

5 Implementation Strategy and Methodology

There are two strategies to implement Clinical Trial Registries. The first one is to design and implement a light-weight portal from scratch, specifically designed to the task of clinical trials registration. The second strategy is to reuse and adapt code from a web content management system (CMS). Considering that the former strategy takes longer and it is more error prone, we propose the adoption of the latter.

A CMS is a web application designed to make it easy for non-technical users to add, edit and manage a website. Not only do content management systems help website users with content editing, they also take care of a lot of "behind the scenes" work such as:

- automatically generating navigation elements
- making content searchable and indexable
- keeping track of users, their permissions and security settings
- associating a publication workflow to content

These processes must be adapted to conform to the requirements and goals described in section 2. Moreover, it is desirable that the chosen CMS infra-structure satisfies the additional criteria:

- easy to install
- easy to use
- internationalization (i18n) of interface and content
- comply with accessibility standards
- be an open source effort
- offer world-wide community support
- be extensible
- be cross-platform
- be open and interoperable through web services interfaces (SOAP/WSDL)

We suggest combining state-of-the art CMS open source frameworks with BIREME's ISIS persistence toolset, therefore pursuing a flexible yet scalable solution.

In spite of the adoption of a CMS, several implementation challenges remain to be tackled, namely: data interoperability, record deduplication, data customization and role-oriented data accessibility. Each challenge and a suggested strategy is dicussed next.

Data interoperability presents the dichotomy between a unified schema versus multiple schemas. The unified schema is desirable, altough achieving it is an utopy considering the different needs of national and local registers to accomodate legislation and different scientific methodologies. Supposing that WHO's minimal trial data set will not suffice to answer all possible user queries, a hybrid solution must be met. We suggest two measures to tackle this problem: discuss and define a minimal **searchable** trial data set enabling cross-register queries, and follow-up the *Clinical Trial Ontology Initiative* and *CDISC's proposal for XML data exchange*.

The analysis presented in Appendix III – Schema Map has shown that, there are many pitfalls trying to establish one-to-one relationships amongst fields from different primary registers. The matching problems are:

- fields with same name but with different semantics;
- fields with different names but same semantics;
- fields with same name/semantics but different domain values;
- fields with different format representations;
- fields with different hierarchical (generalization/specialization) levels;

We suggest the compilation of a superset schema and each register will have to define a mapping from its own schema to the superset. Although laborious, these approach allows precise search results. Inference and heuristic techniques could be employed to replace the handcrafted schema mapping table, but these are subject to imprecise results.

Another challenge is preventing or at least detecting record duplication, considering that the same trial can be submitted to more than one register in the network. We propose the strategy of unifying intra-register deduplication with inter-register deduplication. The latter is considerably more difficult to solve than the former, and if the latter is solved then the former is solved as well. Therefore, we propose the implementation of a deduplication distributed service, to be implemented independently of the register network. Prior to each trial acceptance in a register, a query is issued to the deduplication network to flag the trial with a status flag (new or duplicate) and link it to the other duplicate instances in remote registers. This strategy does not prevent duplication, but attempts to keep it under control. The feasibility of this approach lies in the identification of field combinations that contribute to trial uniqueness.

6 Schedule

Considering the open-source based CMS systems available and their supported features, we enumerate the following list of customization activities to achieve the goals described in section 2:

Activity	**Description**	**Time frame**
1) Data modeling	define the list of available operations to portal users. Such as: a) create users; b) create information sources for searches; c) create news sources; d) create news items; e) create trials; f) perform queries; g) create local content and documentation (folders, documents and files)	4 weeks
2) Role modeling	define user roles and their respective scope of allowed operations. *Trialist* and *Administrator* are two predefined roles.	2 week
3) DDL Interface	create a adaption layer over the CMS native *data definition language* (DDL) to accommodate the clinical trials schema described in Appendix I (mandatory) and II (suggested). Each portal instance will have the minimal dataset defined by default. And the DDL interface will be made available to authorized users to augment the schema with fields from the suggested set or to create their own custom fields.	4 weeks

4) ISIS bridge	adapt the CMS to use ISIS instead of its native storage system.	8 weeks
5) IAH integration	incorporate BIREME/PAHO/WHO *Interface for Access on Health Information* (IAH) to accomplish distributed queries.	3 weeks
6) DeCS integration	interoperate with DeCS to allow semantic annotation.	3 weeks
7) Bulk data exchange	implement data translation to and from XML layout.	3 weeks
8) WHO UTRN protocol	implement UTRN negotiation protocol	3 weeks

Table 1 – *Preliminary Activity Schedule*

7 Related Work

There are several registries in operation and some have been acknowledge by WHO ICTRP as primary registries. These efforts are documented in Table 2, extracted from WHO List of Registers [11].

Register Identification	URL	Status
Australian Clinical Trials Registry	http://www.actr.org.au/	Primary WHO Register
Chinese Clinical Trial Register (ChiCTR)	http://www.chictr.org/	Primary WHO Register (final stages of development)
Clinical Trials Registry - India	http://www.ctri.in/	Primary WHO Register (first trial has yet to be registered)
ISRCTN	http://www.controlled-trials.com/isrctn/	Primary WHO Register
ClinicalTrials.gov	http://www.clinicaltrials.gov	NOT a Primary Who Register (included in WHO Search Portal)
European Leukemia Trial Registry - ELTR	http://www.leukemia-registry.eu/	Partner Register (NOT included in WHO Search Portal)

Centre for Clinical Trials, Chinese University of Hong Kong	http://www.cct.cuhk.edu.hk/eng/services/info.html	Potential Contributing Registers (NOT included in WHO Search Portal)
Clinical Trial Database of the University Hospital Freiburg	http://www.zks.uni-freiburg.de/uklreg/php/index_en.php	Potential Contributing Registers (NOT included in WHO Search Portal)
German Somatic Gene Transfer Clinical Trial Database	http://www.dereg.de/	Potential Contributing Registers (NOT included in WHO Search Portal)
HIV/AIDS, Tuberculosis and Malaria Clinical Trial Registry (ATM Registry)	http://www.mrc.ac.za/cochrane/cochrane.htm	Potential Contributing Registers (NOT included in WHO Search Portal)
HKClinicalTrials.com	http://www.hkclinicaltrials.com/	Potential Contributing Registers (NOT included in WHO Search Portal)
Latin American Clinical Trials Register (LatinRec)	http://www.latinrec.org/	Potential Contributing Registers (NOT included in WHO Search Portal)
Registro Público Cubano de Ensayos Clínicos	http://registroclinico.sld.cu	Potential Partner Register
National Swedish Competence Centre for Musculoskeletal Disorders	http://nko.se/en/	Potential Contributing Registers (NOT included in WHO Search Portal)
South African National Clinical Trial Register (SANCTR)	http://www.sanrr.gov.za/	Potential Contributing Registers (NOT included in WHO Search Portal)
Sri Lanka Clinical Trials Registry	http://www.slctr.lk/	
University Hospital Medical Information Network (UMIN)	http://www.umin.ac.jp/	Potential Contributing Registers (NOT included in WHO Search Portal)

Table 2 – *Clinical Trial Registers*

8 Final Remarks

This report is still a preliminary vision for a Clinical Trial Register Platform for LAC. However, it collects and presents valuable information to accomplish the task and foster further discussion and more detailed specifications. Future versions of this document will give further information about lacking details such as: data preparation and how the search and retrieval engine is supposed to work.

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Appendix I - Minimal Trial Registration Data Set

This section presents the minimal trial registration data set (version 1.0) defined by the International Clinical Trials Registry Platform (ICTRP) at WHO [2]. All fields described here are mandatory.

The schema below matches ICMJE proposal [1] specified at a meeting convened by the WHO in April 2005, the only difference is that ICMJE proposal suggested a boolean (true or false) research ethics review field documenting if the study, at the time of registration, received appropriate ethics committee approval. This field was replaced by Countries of Recruitment field in the final ICTRP WHO standard. Therefore, the research ethics review field was moved to the additional non-mandatory field list, described in Appendix II.

1. **Primary Register and Trial ID #**
   Name of Primary Register, and the unique ID number assigned by the Primary Register to this trial.

2. **Date of Registration in Primary Register**
   Date when trial was officially registered in the Primary Register.

3. **Secondary ID#s**
   Other identifying numbers and issuing authorities besides the Primary Register, if any. Include the sponsor name and sponsor-issued trial number (e.g., protocol number) if available. Also include other trial registers that have issued an ID number to this trial. There is no limit on the number of Secondary ID numbers that can be provided.

4. **Source(s) of Monetary or Material Support**
   Major source(s) of monetary or material support for the trial (e.g., funding agency, foundation, company).

5. **Primary Sponsor**
   Name the individual, organization, group or other legal entity which takes responsibility for initiating, managing and/or financing a study. The Primary Sponsor is responsible for ensuring that the trial is properly registered. The Primary Sponsor may or may not be the main funder

6. **Secondary Sponsor(s)**
   Additional individuals, organizations or other legal persons, if any, that have agreed with the primary sponsor to take on responsibilities of sponsorship.A secondary sponsor may have agreed:

   - to take on all the responsibilities of sponsorship jointly with the primary sponsor; or
   - to form a group with the primary sponsor in which the responsibilities of sponsorship are allocated among the members of the group; or
   - to act as the sponsor's legal representative in relation to some or all of the trial sites; or
   - to take responsibility for the accuracy of trial registration information submitted.

7. **Contact for Public Queries**
   Email address, telephone number, or postal address of the contact who will respond to general queries, including information about current recruitment status

8. **Contact for Scientific Queries**

Email address, telephone number, or postal address, and affiliation of the person to contact for scientific queries about the trial (e.g., principal investigator, medical director employed by the sponsor). For a multi-center study, enter the contact information for the lead Principal Investigator or overall scientific director.

9. **Public Title**
   Title intended for the lay public in easily understood language.

10. **Scientific Title**
    Scientific title of the study as it appears in the protocol submitted for funding and ethical review. Include trial acronym if available.

11. **Countries of Recruitment**
    The countries from which participants will be, are intended to be, or have been recruited.

12. **Health Condition(s) or Problem(s) Studied**
    Primary health condition(s) or problem(s) studied (e.g., depression, breast cancer, medication error). If the study is conducted in healthy human volunteers belonging to the target population of the intervention (e.g., preventative or screening interventions), enter the particular health condition(s) or problem(s) being prevented. If the study is conducted in healthy human volunteers not belonging to the target population (e.g., a preliminary safety study), an appropriate keyword will be defined for users to select.

13. **Intervention(s)**
    Enter the specific name of the intervention(s) and the comparator/control(s) being studied. Use the International Non-Proprietary Name if possible (not brand/trade names). For an unregistered drug, the generic name, chemical name, or company serial number is acceptable. If the intervention consists of several separate treatments, list them all in one line separated by commas (e.g., "low-fat diet, exercise").

    The control intervention(s) is/are the interventions against which the study intervention is evaluated (e.g., placebo, no treatment, active control). If an

active control is used, be sure to enter in the name(s) of that intervention, or enter "placebo" or "no treatment" as applicable.

For each intervention, describe other intervention details as applicable (dose, duration, mode of administration, etc)

14. **Key Inclusion and Exclusion Criteria**
Inclusion and exclusion criteria for participant selection, including age and sex.

15. **Study Type**
A single arm study is one in which all participants are given the same intervention. Trials in which participants are assigned to receive one of two or more interventions are NOT single arm studies. Crossover trials are NOT single arm studies.

A trial is "randomized" if participants are assigned to intervention groups using a method based on chance (e.g., random number table, random computer-generated sequence, minimization, adaptive randomization).

16. **Date of First Enrollment**
If the trial is being registered after recruitment of the first participant record actual date of Anticipated date of enrollment of the first participant.

17. **Target Sample Size**
Number of participants that this trial plans to enroll.

18. **Recruitment Status**
Recruitment status of this trial.

- Pending: participants are not yet being recruited or enrolled at any site
- Active: participants are currently being recruited and enrolled
- Temporary halt: there is a temporary halt in recruitment and enrollment
- Closed: participants are no longer being recruited or enrolled

19. **Primary Outcome(s)**
Outcomes are events, variables, or experiences that are measured because it is believed that they may be influenced by the intervention. The Primary Outcome should be the outcome used in sample size calculations, or the main outcome(s) used to determine the effects of the intervention(s).

Enter the names of all primary outcomes in the trial as well as the pre-specified timepoint(s) of primary interest. Be as specific as possible with the metric used (e.g., “% with Beck Depression Score > 10 ”rather than just “depression”).

20. **Key Secondary Outcomes**

Secondary outcomes are events, variables, or experiences that are of secondary interest or that are measured at timepoints of secondary interest. A secondary outcome may involve the same event, variable, or experience as the primary outcome, but measured at timepoints other than those of primary interest (e.g., Primary outcome: all-cause mortality at 5 years; Secondary outcome: all-cause mortality at 1 year, 3 years), or may involve a different event, variable, or experience altogether (e.g., Primary outcome: all-cause mortality at 5 years; Secondary outcome: hospitalization rate at 5 years).

Enter the name and timepoint(s) for all secondary outcomes of clinical and/or scientific importance. Be as specific as possible with the metric used (e.g., “% with Beck Depression Score > 10” rather than just “depression”).

Appendix II - Additional Fields

This section enumerates fields adopted by several Clinical Trials Registries [1, 3] that are either not included in the minimal data set presented in Appendix I or simply have a different name but similar (equivalent / superset / subset) definition. These field definitions may be useful to support record exchange activities and services.

1. **Research ethics review**
   Has the study at the time of registration received appropriate ethics committee approval (yes/no)? (It is assumed that all registered trials will be approved by an ethics board before commencing.)

2. **Study Type**
   Nature of the investigation. Content is selected from.

   - Interventional: studies in human beings in which individuals are assigned to receive specific interventions. Subjects may receive diagnostic, therapeutic or other types of interventions. The
   - assignment of the intervention may or may not be random. The individuals are then followed and biomedical and/or health outcomes are assessed.
   - Observational: studies in human beings in which biomedical and/or health outcomes are assessed in a pre-defined group of individuals. Subjects in

the study may receive diagnostic, therapeutic, or other interventions, but the investigator does not assign specific interventions to the subjects of the study.

- Expanded Access: records describing the procedure for obtaining an experimental drug or device for patients who are failing on currently available treatments for their condition and also are unable to participate in ongoing clinical trials. Expanded Access records are used to register all types of non-protocol access to experimental treatments, including protocol exception, single-patient IND, treatment IND, compassionate use, emergency use, continued access and parallel track.

3. **Investigational New Drug Application (IND)/Investigational Device Exemption (IDE)**

Indicate if the protocol involves an Investigational New Drug Application (IND) or Investigational Device Exemption (IDE) under US Food and Drug Administration regulations (Will not be made public - for administrative purposes only.)

1.1. IND/IDE Grantor

FDA center to which the IND or IDE was submitted, i.e., Center for Drug Evaluation and Research (CDER) or Center for Biologics Evaluation and Research (CBER) for INDs; Center for Devices and Radiological Health (CDRH) for IDEs. Select one. (*Will not be made public - for administrative purposes only*.)

1.2. IND/IDE Number

Number assigned to an Investigational New Drug Application (IND) or Investigational Device Exemption (IDE). (*for administrative purposes only*.)

1.3. IND/IDE Serial Number

Use the serial number from the first submission of the protocol to the IND or IDE. (*for administrative purposes only*.)

1.4. Has Expanded Access?

Indicate whether any non-protocol access is to be provided for the investigational drug or device. If so, an Expanded Access record should also be created for this IND/IDE.

4. **Collaborators**

Other organizations providing support, including funding, design, implementation, data analysis and reporting. The data provider is responsible

for confirming all collaborators before listing them. Provide up to 10 full names of collaborating organizations.

5. **Brief Summary**
   Short description of the primary purpose of the protocol intended for the lay public. Include a brief statement of the study hypothesis.

6. **Detailed Description**
   Extended description of the protocol, including more technical information (as compared to the Brief Summary) if desired. Do not include the entire protocol; do not duplicate information recorded in other data elements, such as eligibility criteria or outcome measures.

7. **Study Start Date**
   Date that enrollment to the protocol begins.

8. **Completion Date**
   Final date on which data was (or is expected to be) collected. A "Type" menu is also included, with options Anticipated and Actual. For active studies, set Type to Anticipated and specify the expected completion date, updating the date as needed over the course of the study. Upon study completion, change Type to Actual and update the date if necessary.

9. **Record Verification Date**
   Definition: Date the protocol information was last verified. Verification date is shown along with organization name on ClinicalTrials.gov to indicate to the public whether the information is being kept current, particularly recruiting status and contact information.

10. **Overall Recruitment Status**
    Overall accrual activity for the protocol. Content is selected from:

    - Not yet recruiting: participants are not yet being recruited
    - Recruiting: participants are currently being recruited
    - Enrolling by invitation: participants are being (or will be) selected from a predetermined population
    - Active, not recruiting: study is ongoing (i.e., patients are being treated or examined), but participants are not currently being recruited or enrolled
    - Completed: the study has concluded normally; participants are no longer being examined or treated (i.e., last patient's last visit has occurred)

- Suspended: recruiting or enrolling participants has halted prematurely but potentially will resume
- Terminated: recruiting or enrolling participants has halted prematurely and will not resume; participants are no longer being examined or treated
- Withdrawn: study halted prematurely, prior to enrollment of first participant

11. **Why Study Stopped**

For suspended, terminated or withdrawn studies, provide a *brief* explanation of why the study has been halted or terminated. If desired, use brief summary or detailed description to provide additional information.

12. **Expanded Access Status**

Status indicating availability of an experimental drug or device outside any clinical trial protocol. This data element is only applicable for Expanded Access records (see Expanded Access under Study Type). Content is selected from:

- Available: expanded access is currently available for this treatment.
- No longer available: expanded access was available for this treatment previously but is not currently available and will not be available in the future.
- Temporarily not available: expanded access is not currently available for this treatment, but is expected to be available in the future.
- Approved for marketing: this treatment has been approved for sale to the public.

13. **Primary Purpose**

Reason for the protocol

- Treatment: protocol designed to evaluate one or more interventions for treating a disease, syndrome or condition
- Prevention: protocol designed to assess one or more interventions aimed at preventing the development of a specific disease or health condition
- Diagnostic: protocol designed to evaluate one or more interventions aimed at identifying a disease or health condition
- Supportive Care: protocol designed to evaluation interventions where the primary intent is to maximize comfort, minimize side effects or mitigate against a decline in the subject's health or function. In general, supportive care interventions are not intended to cure a disease.
- Screening: protocol designed to assess or examine methods of identifying a condition (or risk factors for a condition) in people who are not yet known to have the condition (or risk factor).

- Health Services Research: protocol design to evaluate the delivery, processes, management, organization or financing of health care.
- Basic Science: protocol designed to examine the basic mechanism of action (e.g., physiology, biomechanics) of an intervention.
- Other: describe in Detailed Description.

14. **Study Design**

Intervention assignments

- Single Group: single arm study
- Parallel: participants are assigned to one of two or more groups in parallel for the duration of the study
- Cross-over: participants receive one of two alternative interventions during the initial phase of the study and receive the other intervention during the second phase of the study
- Factorial: two or more interventions, each alone and in combination, are evaluated in parallel against a control group

15. **Study Phase**

Phase of investigation, as defined by the US FDA for trials involving investigational new drugs. Content is selected from:

N/A: for trials without phases

Phase 0: exploratory trials, involving very limited human exposure, with no therapeutic or diagnostic intent (e.g., screening studies, microdose studies). See FDA guidance on exploratory IND studies for more information.

Phase 1: includes initial studies to determine the metabolism and pharmacologic actions of drugs in humans, the side effects associated with increasing doses, and to gain early evidence of effectiveness; may include healthy participants and/or patients

Phase 1/Phase 2: for trials that are a combination of phases 1 and 2

Phase 2: includes controlled clinical studies conducted to evaluate the effectiveness of the drug for a particular indication or indications in patients with the disease or condition under study and to determine the common short-term side effects and risks

Phase 2/Phase 3: for trials that are a combination of phases 2 and 3

Phase 3: includes expanded controlled and uncontrolled trials after preliminary evidence suggesting effectiveness of the drug has been obtained,

and are intended to gather additional information to evaluate the overall benefit-risk relationship of the drug and provide an adequate basis for physician labeling

Phase 4: post-marketing studies to delineate additional information including the drug's risks, benefits, and optimal use

16. **Number of Arms**

Number of intervention groups (enter 1 for single-arm study).

17. **Masking**

Knowledge of intervention assignments

- Open: no masking is used. All involved know the identity of the intervention assignment.
- Single Blind: one party, either the investigator or participant, is unaware of the intervention assignment; also called single-masked study.
- Double Blind: both participants and investigators are unaware of the intervention assignment
- If Single Blind or Double Blind is selected, check the role(s) that are to be masked: Subject, Caregiver, Investigator or Outcomes Assessor.

18. **Allocation**

Participant selection

- N/A: single arm study
- Randomized Controlled Trial: participants are assigned to intervention groups by chance
- Nonrandomized Trial: participants are expressly assigned to intervention groups through a non-random method, such as physician choice

19. **Study Classification**

Type of primary outcome or endpoint that the protocol is designed to evaluate.

Content is selected from:

- N/A: not applicable
- Safety: show if the drug is safe under conditions of proposed use
- Efficacy: measure of an intervention's influence on a disease or health condition
- Safety/Efficacy
- Bio-equivalence: scientific basis for comparing generic and brand name drugs
- Bio-availability: rate and extent to which a drug is absorbed or otherwise available to the treatment site in the body

- Pharmacokinetics: the action of a drug in the body over a period of time including the process of absorption, distribution and localization in tissue, biotransformation, and excretion of the compound
- Pharmacodynamics: action of drugs in living systems
- Pharmacokinetics/dynamics

20. **Enrollment**

Number of subjects in the trial. A "Type" menu is also included, with options Anticipated and Actual. For active studies, set Type to Anticipated and specify the expected enrollment, updating the number as needed over the course of the study. Upon study completion, change Type to Actual and update the enrollment if necessary.

21. **Keywords**

Words or phrases that best describe the protocol. Keywords help users find studies in the database. Use NLM's Medical Subject Heading (MeSH) controlled vocabulary terms where appropriate. Be as specific and precise as possible. Avoid acronyms and abbreviations.

22. **Study Population Description**

For observational studies only, a description of the population from which the groups or cohorts will be selected (e.g., primary care clinic, community sample, residents of a certain town).

23. **Sampling Method**

For observational studies only, select one and explain in Detailed Description.

- Probability Sample: exclusively random process to guarantee that each participant or population has specified chance of selection, such as simple random sampling, systematic sampling, stratified random sampling, cluster sampling, and consecutive patient sampling
- Non-Probability Sample: any of a variety of other sampling processes, such as convenience sampling or invitation to volunteer

24. **Eligibility Criteria**

Summary criteria for participant selection. The preferred format includes lists of inclusion and exclusion criteria as shown below.

Example:

Inclusion Criteria:

- Clinical diagnosis of Alzheimer's Disease
- Must be able to swallow tablets

Exclusion Criteria:

- Insulin dependent diabetes
- Thyroid disease

25. **Gender**

Physical gender of individuals who may participate in the protocol. Select one.

- Both: both female and male participants are being studied
- Female: only female participants are being studied
- Male: only male participants are being studied

26. **Minimum Age**

Minimum age of participants. Provide a number and select a unit of time (years, months, weeks, days, hours or minutes). Select "N/A (No limit)" if no minimum age is indicated.

27. **Maximum Age**

Maximum age of participants. Provide a number and a unit of time (years, months, weeks, days, hours or minutes). Select "N/A (No limit)" if no maximum age is indicated.

28. **Accepts Healthy Volunteers**

Indicate if persons who have not had the condition(s) being studied or otherwise related conditions or symptoms, as specified in the eligibility requirements, may participate in the study. Select Yes/No.

29. **Facility**

Multiple locations may be specified.

- Name: Full name of the organization where the protocol is being conducted.
  Examples: UCLA Eye Institute; Springfield Memorial Hospital
- City
- State/Province

- Postal Code
- Country

30. **Investigators (at the protocol location)**
    - First Name
    - Middle Initial
    - Last Name
    - Degrees
    - Role: Site Principal Investigator or Site Sub-Investigator (pick one)

31. **Facility Contact**
    - First Name
    - Middle Initial
    - Last Name
    - Degree
    - Phone: office phone of the facility contact person. Use the format 123-456-7890 within the United States and Canada. Otherwise, provide the country code.
    - Ext: phone extension, if needed
    - Email: electronic mail address of the facility contact person

32. **Central Contact**

    Person providing centralized, coordinated recruitment information for the entire study.

    - First Name
    - Middle Initial
    - Last Name
    - Degree
    - Phone: Office phone of the central contact person. Use the format 123-456-7890 within the United States and Canada. Otherwise, provide the country code.
    - Ext: phone extension, if needed
    - Email: electronic mail address of the central contact person

33. **Overall Study Officials**

    Person(s) responsible for the overall scientific leadership of the protocol, including study principal investigator.

    - First Name
    - Middle Initial
    - Last Name
    - Degree

- Official's Role: Position or function of the official. Select one (Study Chair/Study Director/Study Principal Investigator).
- Organizational Affiliation: Full name of the official's organization. If none, specify Unaffiliated.

34. **References**

Citations to publications related to the protocol: background and/or results. Provide either the unique PubMed Identifier (PMID) of an article or enter the full bibliographic citation.

35. **Results Reference**

Indicate if the reference provided reports on results from this clinical research study.

36. **Recruitment Status**

Protocol accrual activity at a facility. Select one.

- Not yet recruiting: participants are not yet being recruited
- Recruiting: participants are currently being recruited
- Enrolling by invitation: participants are being (or will be) selected from a predetermined population
- Active, not recruiting: study is ongoing (i.e., patients are being treated or examined), but participants are not currently being recruited or enrolled
- Completed: the study has concluded normally; participants are no longer being examined or treated (i.e., last patient's last visit has occurred)
- Suspended: recruiting or enrolling participants has halted prematurely but potentially will resume
- Terminated: recruiting or enrolling participants has halted prematurely and will not resume; participants are no longer being examined or treated
- Withdrawn: study halted prematurely, prior to enrollment of first participant

37. **Links**

A Web site directly relevant to the protocol may be entered, if desired. Do not include sites whose primary goal is to advertise or sell commercial products or services. *Links to educational, research, government, and other non-profit Web pages are acceptable.*

38. **Applicant Details**
The person making the application, can be contacted should there be any query on the application.

39. **Principal Investigator**
Address to include contact telephone and fax numbers and email id. For a multi-center study, enter the contact Name and Address information for the lead Principal Investigator or overall Trial Coordinator.

40. **Site/s of study**
First list all site/s within the country including the site address as well as the complete address, email, telephone number and Fax No of responsible contact person at each site. For multi-country trials, list all site/s within each country (if available) including the site address as well as the complete address, email, telephone number and Fax No of responsible contact person at each site.

41. **Method of generating randomization sequence**
The method used to generate the random allocation sequence. The main purpose of randomization is to eliminate selection bias and balance known and unknown confounding factors in order to create a control group that is as similar as possible to the treatment group. Methods for randomly assigning participants to groups, which limits bias, include the use of a table of random numbers and a computer program that generates random numbers. Methods of assignment that are prone to bias include alternating assignment or assignment by date of birth or hospital admission number.

42. **Method of allocation concealment**
Any method whereby allocation of the next participant is known beforehand, such as alternation or an open list of random numbers, may prompt investigators to select the next participant according to conscious or unconscious needs that can seriously bias the selection process. Concealment of the randomization sequence is critical to prevent selection bias. Adequate allocation concealment is a pre-requisite for adequate blinding. Adequate allocation concealment methods include:

- centralized (e.g. allocation by a central office unaware of subject characteristics)
- pharmacy-controlled randomization

- pre-numbered or coded identical containers which are administered serially to participants
- on-site computer system combined with allocations kept in a locked unreadable computer file
- sequentially numbered, sealed, opaque envelopes

Allocation concealment that is prone to bias include

- alternation
- case record numbers
- dates of birth or day of the week
- an open list of random numbers and
- any procedure that is entirely transparent before allocation

43. **Phase of Trial**

Phases of investigation, usually applied to a drug trial Phase 1: includes initial study to determine the metabolism and pharmacologic actions of drugs in humans, the side effects associated with increasing does, and to gain early evidence of effectiveness; may include healthy participants and/or patients (such as those testing anticancer or anti-HIV drugs) . Trials are often dose ranging trials which are done to determine the maximum dose of a new medication that can be safely given to a patient.

Phase 1 / Phase 2: for trials that are at a combined stage of phases 1 and 2Phase 2: includes controlled clinical study conducted to evaluate/test the effectiveness of a new drug/medication or intervention for a particular indication or indications in patients with the disease or condition being studied and to determine the common short-term side effects and risks

Phase 2 / Phase 3: for trials that are at a combined stage of phases 2 and 3

Phase 3: includes expanded controlled and uncontrolled trials after preliminary evidence suggesting effectiveness of the drug has been obtained, and are intended to gather additional information to evaluate the overall benefit-risk relationship of a new drug/medication or intervention, including possible adverse reactions. It is also to provide an adequate basis for physician labeling

Phase 3 /Phase 4: for trials that are at a combined stage of phases 3 and 4

Phase 4: post-marketing study to delineate additional information. Trials are done to monitor the toxicity, risks, utility, benefits and optimal use after the efficacy of the drug/medication or intervention has been proven

Not applicable: this selection is for a non-drug trial

Appendix III – Schema Map

Field name / Register	WHO	ICMJE	CT.gov	ISRCTN	CTRI	ACTR	type	aliases	subfields
Primary Register	●						single selection of primary register names		
Trial ID #	●	●	●	●	●	●	text	UID, Organization's Unique ID(CT.gov), Unique Trial Number (ICMJE), Protocol/Serial Number (ISRCTN), UTRN (CTRI)	
Date of Registration in Primary Register	●	●					date	Trial Registration Date (ICMJE)	
Secondary ID#s	●	○	○	○	○	○	record list	MEDLINE Identifier (CT.gov), ISRCTN	(Issuing Authority, id #, date assigned)
Source(s) of Monetary or Material Support	●	●		●	●		text list	Funding Sources (ICMJE), Sources of Funding (ISRCTN)	
Primary Sponsor	●	●	●	●	●	●	text	Sponsor (CT.gov, ISRCTN)	
Funding Source(s)						●	record list (max: 20 entries)		(type, name, address, country)
Secondary Sponsor(s)	●	○	○		●	●	text list	Collaborators (CT.gov)	
Other Collaborator(s)						○	record list (max: 20 entries)		(type, name, address, country)
Applicant				●			record		(title, forename, surname, address, town, country, zip, tel, fax, email, reference)
Contact for Public Queries	●	●	●	●	●	●	text	Responsible Contact Person (ICMJE), Central Contact (CT.gov), Contact (ISRCTN), Contact Person (CTRI)	(name, email, phone, address)

Field name/Register	WHO	ICMJE	CT.gov	ISRCTN	CTRI	ACTR	type	aliases	subfields
Contact for Scientific Queries	●	●	●		●	●	text	Research Contact Person (ICMJE), Overall Study Officials (CT.gov), Contact Person (CTRI)	(name, email, phone, address, role, affiliation)
Contact Person responsible for updating information						○			(name, email, phone, fax, address, affiliation)
Facility			●		●		record	Sites of Study (CTRI)	(name, city, state/province, postal code, country)
Facility Contact			●				record		(name, middle initial, last name, degree, phone, ext, email)
Facility Contact Backup			●				text		
Investigators			○		○		record list	Principal Investigator (CTRI)	(name, middle initial, last name, degree, role[principal|sub])
Public Title	●	○	●		●	●	text	Brief Title (CT.gov), Title of the study (ICMJE, CTRI)	
Scientific Title	●	●	○	●	●	●	text	Official Title (CT.gov), Official scientific title (ICMJE), Title of trial (ISRCTN), Study Title in PICO format (ACTR)	Acronym
Countries of Recruitment	●			●	●	●	multi-selection list of country names		
Health Condition(s) or Problem(s) Studied	●	●	●	●	●	●	text (CT.gov: use MeSH)	Condition (CT.gov, ICMJE), disease/condition/study domain (ISRCTN)	
Condition category and code						●	multi-selection list of (category,code)		
Brief Summary			●			●	text		
Intervention(s)	●	●	●	●	●	●	record list	Intervention and comparator agent (CTRI)	(name, details)
Intervention Name			●				text		
Intervention Description			●				text		
Intervention Type			●				single selection from (drug, device, biological/vaccine, procedure/surgery, radiation, behavioral, genetic, dietary, other)	Intervention Code (ACTR)	
Intervention Code						●	multi-selection {max. 3} from (N/A, Diagnosis, Early detection/ screening, prevention, treatment: drugs, treatment: surgery, treatment: devices, treatment: other, rehabilitation, lifestyle, behaviour, other interventions)	Intervention Type (CT.gov)	
Comparator/ control treatment						●	text		
Inclusion Criteria	●	●		●	●	●	text	Key Inclusion Criteria (ACTR)	
Exclusion Criteria	●	●		●	●	●	text	Key Exclusion Criteria (ACTR)	
Patient Information Material				○			text		
Control group						●	single selection from (placebo, active, uncontrolled, historical, dose comparison)		
Study Type	●				●		single selection from (single arm, randomized, non-randomized)	Study Design (ISRCTN)	
Study Type		●					single selection from (randomized, non-randomized), type of masking (double-blind, single-blind), type of control, group assignment)		(randomization, masking, control, assignment)
Study Type			●			●	single selection from (Interventional, Observational, Expanded Access)		

Field name/Register	WHO	ICMJE	CT.gov	ISRCTN	CTRI	ACTR	type	aliases	subfields
Method of generating randomization sequence					■		single selection from (Coin toss, lottery, toss of dice, shuffling cards, Random number table , Computer generated randomization, Permuted block randomization, fixed Permuted block randomization, variable Stratified randomization, Stratified block randomization , Adaptive randomization, Other)	Sequence Generation (ACTR)	other:(detailed description)
Sequence Generation						■	text	Method of generating randomization sequence (CTRI)	
Date of First Enrollment	■	■	■	■	■	■	date	Study Start Date (CT.gov), Anticipated Trial Start Date (ICMJE), Anticipated Start/End Date (ISRCTN), Anticipated or actual start date (ACTR)	
Target Sample Size	■		■	■		■	number	Enrollment (CT.gov), Target Number of participants (ISRCTN)	
Completion Date			■		■		date, type (anticipated, actual)	Last Follow-up Date, Estimated Duration of Trial (CTRI)	(date, type)
Record Verification Date			■				date		
Target Sample Size	■	■			■		number		
Recruitment Status	■	■		■	■	■	single selection from (pending, active, temporary halt, closed)	Overall Recruitment Status (CT.gov), Status (ISRCTN), Status of Trial (CTRI)	
Overall Recruitment Status			■				single selection from (not yet recruiting, recruiting, no longer recruiting, enrolling by invitation, completed, suspended, terminated, withdrawn)	Recruitment Status (WHO, ICMJE)	
Primary Outcome(s)	■	■	■	■	■	■	record list	Measure+Time Frame (CT.gov)	(name, timepoints)
Key Secondary Outcomes	■	■	■	■	■	■	record list		(name, timepoints)
Research ethics review		■		■	■	■	boolean (yes/no)	Ethics Approval (ISRCTN), Approval Status (CTRI)	ACTR: (name, address, country, date, HREC number) max 50 entries
Regulatory Clearence from DCGI					■		boolean (yes/no)		
IND/IDE Protocol			■				boolean (yes/no)	Trial ID #, UID	
IND/IDE Grantor			■				text		
IND/IDE Number			■				number		
IND/IDE Serial Number			■				number		
Expanded Access			■				boolean (yes/no)		
Expanded Access Status			■				single selection from (available, no longer available, temporarily not available, approved for marketing)		
Board Approval			■				single selection from (not submitted, pending, approved, exempt, denied, not required) and number		(status, number)
Board Name			■		■		text	Name of ethics committee (CTRI)	
Board Affiliation			■				text		
Board Contact			■				text		(phone, ext, email, address)
Data Monitoring Committee			■				boolean (yes/no)		

Field name/Register	WHO	ICMJE	CT.gov	ISRCTN	CTRI	ACTR	type	aliases	subfields
Oversight Authorities			●				record list		(country, organization name)
Detailed Description			○				text		
Why Study Stopped			○				text		
Primary Purpose			●				single selection from (treatment, prevention, diagnostic, supportive care, screening, health services research, basic research, other)	Purpose of Study (ACTR)	other:(detailed description)
Purpose of Study						●	single selection from (treatment, prevention, diagnosis, educational/counselling/training)	Primary Purpose (CT.gov)	
Purpose (Observational)						○	single selection from (natural history, screening, psychosocial)		
Duration (Observational)						○	single selection from (longitudinal, cross-sectional)		
Study Phase			●		●	○	single selection from (N/A, 0, 1, 1/2, 2, 2/3, 3, 4)	Phase of Trial (CTRI), Phase (ACTR)	
Study Design (Interventional)			●			○	single selection from (single group, parallel, cross-over, factorial, other)	study type:assignment (ICMJE), assignment (ACTR)	other:(detailed description)
Study Design (Observational)			○				single selection from (cohort, case-control, case-only, case-crossover, ecologic or community studies, family-based, other)		other:(detailed description)
Study Hypothesis				●	●		text	Brief Summary (CTRI)	
Number of Arms			○				number		
Masking			●				single selection from (open, single blind, double blind)	study type:masking (ICMJE), Blinding and Masking (CTRI),	
Masking/blinding						○	open or blinded. if blinded: who is blinded is single selection from (subjects, therapist/clinician, assessor, data analyst)	Masking	
Allocation			●			●	single selection from (N/A, randomized, non-randomized)	study type (ICMJE), allocation to intervention (ACTR)	
Method of allocation concealment					●	○	single selection from (centralized, pharmacy-controlled randomization, pre-numbered, on-site computer system, sequence number sealed opaque envelopes)	allocation concealment procedures (ACTR)	
Selection						○	single selection from (convenience sample, defined population, random sample, case control)		
Study Classification			○			○	single selection from (N/A, safety, efficacy, safety/efficacy, bio-equivalence, bio-availability, pharmacokinetics, pharmacodynamics, pharmacokinetics/pharmacodynamics)	Endpoint, type of endpoints (ACTRsychosocial	
Time Perspective			●			○	single selection from (prospective, retrospective, cross-sectional, other)	Timing (ACTR)	other:(detailed description)
Biospecimen Retention			○				single selection from (none retained, with DNA, without DNA)		
Biospecimen Description			○				text		
Number of groups/cohorts			○				number		
Arm/Group Intervention			○				record list		(number, type, description)
Keywords			○				text list (MeSH vocabulary)		
Study Population Description			○				text		
Sampling Method			○				single selection from (probability, non-probability)		

Field name/Register	**WHO**	**ICMJE**	**CT.gov**	**ISRCTN**	**CTRI**	**ACTR**	**type**	**aliases**	**subfields**
Eligibility Criteria							text		
Eligibility Gender							single selection from (both, male, female)	Gender (ACTR)	
Eligibility Age							(number or N/A, number or N/A)	Age (ACTR)	(minimum, maximum)
Age							(min. age, max.age, unit:(years, months, weeks, days, hours, no limit, N/A, not stated))	Eligibility Age (CT.gov)	
Accept Healthy Volunteers							boolean (yes/no)		
Links							record list	Trial Website (ACTR, ISRCTN)	(URL, description)
References							record list	Publications (ISRCTN), Presentations/Publications (ACTR)	(citation, identifier, reference_trial)