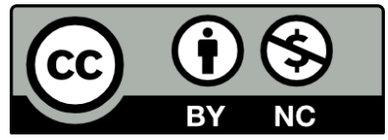
KIT Royal Tropical Institute



These guidelines are an Appendix to the document "Good Epidemiological Practice -- Compendium of best practices and guidelines for research conducted at KIT" KIT Health Royal Tropical Institute, Amsterdam. January 2018

These preliminary guidelines are currently under review and will be piloted internally before finalization. They were developed by KIT staff for KIT staff following the AGREE II methodology. However we welcome reliance, reference or feedback from all interested epidemiologists and researchers. For any queries or comments contact Sandra Alba (s.alba@kit.nl) or Christina Mergenthaler (c.mergenthaler@kit.nl)

Content

Guideline 1: Study preparation

The study should be carefully prepared through a process which meaningfully and fairly involves all relevant stakeholders and study partners

1.1 A literature search of the relevant documents and publications should be carried out at an early stage to identify the knowledge gap. ☐

1.2 Relevant stakeholders should be identified and methods of engagement selected to best meet needs, knowledge, competences, capacities and expectations of all parties involved. ☐

1.3 In-country research partners with relevant compentences and knowledge should be identified and highest levels of enagement sought, including joint decisions for epidemiological capacity building. ☐

1.4 Research questions should be developed jointly with in-country research partners as well as key stakeholders; the right mix of quantitative and qualitative methods should be selected to best adress the knowledge gap. ☐

1.5 Investigators should make all efforts possible to ensure that primary data collection is necessary and that the question cannot be anwered by re-analysing existing data (e.g. DHS/MICS surveys or HMIS data). ☐

1.6 Data sharing agreements (including data ownership considerations); confidentiality agreements; and publication plans (including authorship provisions) should be fairly negotiated with all partners involved and clearly documented ☐

1.7 Adequate time, financial and human resources should be provided for all phases of the investigation ☐

1.8 Project management is the joint reponsibility of the Project Leader and Project Administrator who should ensure that the KIT process as described in the Quality Management System are duly followed ☐

→ KIT QMS Primary Process 3. Project Implemenation (Requirements 1-12)

Guideline 2: Study protocol and ethical review

Planned analysis should be detailed in a study protcol (details can be included in a separate statistical analysis plan) which has obtained ethical clearance before embarking on data collection

2.1 A protocol should be developed according to internationally agreed formats (e.g. WHO template). ☐

2.2 The protocol should obtain ethical clearance from both the KIT REC and the REC in the country where the research is being conducted. ☐

2.3 Adequate budget should be ensured to permit review by both the in-country REC and, if needed, KIT REC. ☐

Guideline 3: Quality Assurance

The quality of the study should be ensured by implementing a quality assurance plan commensurate to the size and scope of the study

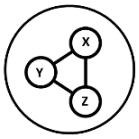
3.1 The project leader (at least a senior or medior advisor) should take responsibility for the ultimate quality of the study and ensure that adequately trained staff are conducting their respective tasks in an adequately supervised manner ☐

3.3 A quality assurance person focal person or team should be nominated for each study to review all study outputs (tools, outputs and reports); all their input and recommendations should be documented ☐

→ KIT QMS Primary Process 3. Project Implemenation (Requirement 6)

3.2 A quality assurance plan commensurate to study scope should be developed to define strategies to put in place at each step of the study -- to prevent things from going wrong (quality design); to detect when things are going wrong (quality control); and to take actions when errors have occured (quality improvement) ☐

→ KIT QMS Primary Process 3. Project Implemenation (Requirement 3)



Guideline 4: Statistical analysis plan

A statistical analysis plan should contain a more technical and detailed elaboration of the principal features of the analysis described in the protocol, and should include detailed procedures for executing the statistical analysis of the data

4.1	Expert epidemiological/statistical advice should be sought during the planning stage of a study to determine the statistical methods required to answer the research questions and to evaluate the need for a stand-alone analysis plan (in addition to what is described in the protocol)	☐
4.2	The statistical analysis plan should include explicit, operationalizable and precisely described research questions	☐
4.3	Hypotheses to be tested in a study should be formulated explicitely; primary (hypothesis-testing) and secondary (hypothesis generating exploratory) research questions must be distinguished from one another	☐
4.4	The target population and the sampling methods for the study participants should be described and adequately justified	☐
4.5	The sample size should be adequately justified	☐
4.6	Planned sub-group analyses should be clearly stated and results viewed as purely exploratory	☐
4.7	The analysis strategy, including models should be detailed in advance	☐

Guideline 5: Data collection

Research instruments should be as valid, reliable and accurate as possible, and field procedures should be clearly described in a manual to be followed by adequately trained staff

5.1 Research instruments (questionnaires or data abstraction forms) that are as valid and reliable as possible should be used ☐

5.2 ☐

Primary data should only be collected from study participants after having obtained informed consent and associated conditions of use; for collation of secondary data, conditions of use should be negotiated and documented with data owners

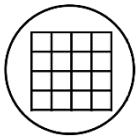
5.2 Standard operating procedures (SOPs) for all routine methods and for individual items of equipment should be described to ensure that data are collected consistently and accurately. ☐

5.3 Rules for for the conduct of data collection should be fixed in a data collection handbook (field manual) made available to all data collection personnel. ☐

5.4 ☐

Tools should be pilot and/or field tested prior to the start of effective data collection; reasons for not pilot and/or field testing tools should be clearly laid out and documented

5.5 Field staff should be selected according to competence criteria; they should have clear roles and responsibilities and should be adequately trained ☐



Guideline 6: Data management

Data management procedures should be put in place to ensure the quality and validity of the final statistical data files and to ensure that all datafiles are fully traceable and reproducible

6.1 A detailed plan should be made describing the complete process of data collection and management for the study. ☐

6.2 For primary data collection, a data entry application and database should be created prior to data collection; one of the datasets in the study database should contain study metadata. ☐

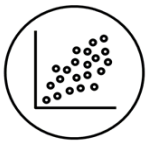
6.3 For primary data collection, all data collected during the study (documentation, forms/questionnaires, measured values and laboratory values etc.) should be entered promptly into the study database. ☐

6.4 Data verification procedures resulting in the compilation of the raw data file should be documented throughout data entry.

6.5 All data processing (data validation, reshaping and merging) leading up to the final database for analyses should be done on the raw datasets; all processing syntax should be stored. ☐

6.6 All datasets created during data entry, verification and validation should be saved, backed up, and labeled to indicate their status of completion; for each file annonymization and privacy protection should should be defined and corresponding access rights put in place. ☐

6.7 When preparing existing data for secondary analysis, data quality should be systematically appraised using existing frameworks for data quality. ☐



Guideline 7: Analysis

Analyses should closely follow the statistical analysis plan, using correctly sequenced and fitting methods; in combination with any qualitative research, epidemiological results should coherently answer the original research questions.

7.1 Analysis should be conducted in accordance to the data analysis plan; major deviations from the statistical analysis plan should be justified and documented. ☐

7.2 Descriptive statistics should be used to describe the data at hand and to understand the distribution and basic characteristics of the dataset; if relevant, inferential statistics should follow and should be executed in accordance with the statistical analysis plan. ☐

7.3 Sensitivity analyses should be performed to investigate the impact of different analytical approaches (including strategies to handle missing data) to understand whether results are affected by different assumptions. ☐

7.4 Primary analyses (for which the study is powered) and secondary (exploratory) analyses should be clearly distinguished from each other and should relate to the original research questions ☐

7.5 Tables and graphs should be self-explanatory and contain enough description in the title, legend, labels and footnotes to be be perfectly understood if pasted into a different document and not be used for misleading representations of the data ☐

7.6 As much as possible study results should be obtained from stored statisical syntax (Stata do-file, R-script) so as to enable complete reproduction of results based on the analysis datasets ☐

7.7 At pre-determined timepoints in the analysis phase, provisions should be made for reflection on whether the epidemiological study results, in combination with any qualitative research, coherently answer the original research questions. ☐

Guideline 8: Reporting and disseminating

Results should be reported accurately and completely with means of communication which appropriately and effectively target all stakeholders to maximise uptake of study results

8.1 Researchers should develop contextual (user-specific) dissemination plans together with research partners and in consultation with stakeholders; all stakeholders should be targeted with appropriate and effective means of communication ☐

8.2 Any scientific publication arising from a project should refer to agreements for authorship stipulated during the preparatory phases; changes or additions to those agreements should be openly and fairly discussed and agreed with all research ☐

8.3 For academic publications, reporting should conform to relevant standard guidelines relevant to the study design (c.f. EQUATOR Network). ☐

8.4 All data reporting should only be in the form of anonymous tables, charts or maps where individuals cannot be identified; stigma and discriminatory language should be ☐

8.5 Results should be reported accurately and without any misleading omissions, in a language and style targeted for the audience ☐

Guideline 9: Data storage

Data should be stored and shared safely, in a manner that guarantees confidentiality and minimises risks of data loss (physical and electronic), accidental sharing or alteration.

9.1 A data security plan (which can also be part of the data management plan) should address safe storage, back-up techniques, data access protocols, archiving, publishing and sharing plans, and plans to protect confidentiality and anonymity of data ☐

9.2 An electronic archive which preserves data confidentiality (i.e preferably only including anonymised data), should be prepared at the beginning of the study and should be regularly updated to contain all documents relating to the study: protocols, data analysis plans, data management plans, IRB/REC submissions and responses, informed consent forms, data collection tools, anonymised raw datasets and transcripts, metadata, data management programs, analysis programs, statistical outputs, reports and publications. ☐

9.3 Primary research data (e.g. filled in data collection forms and informed consent forms, audios, videos and photos) should be retained safely, preserving the confidentiality of data, in their original form within the research establishment that generated them; after a pre-agreed time period primary research data should be destroyed (deleted, shredded or burned). ☐

9.4 Publication of the archive according the FAIR principles in an openly accessible online repository should be considered and discussed with stakeholders and research partners; this should be considered within the frame of leveled partnerships where training and infrastructure development in developing countries are assigned high priority. ☐

These guidelines were developed following the AGREE II guidelines for guideline development: Appraisal of guidelines for research and evaluation (AGREE) II Available from: http://www.agreetrust.org/wp-content/uploads/2013/10/AGREE-II-Users-Manual-and-23-item-Instrument_2009_UPDATE_2013.pdf [cited 2018 Jan 9].

AGREE II guidelines	**Implementation**
Domain 1. Scope and Purpose	
• The overall objective of the guideline is clearly specified	• The overall objective of the guidelines is to ensure that epidemiological studies conducted at KIT Health comply to the accepted international standards for the conduct of epidemiological studies, and in particular the RERP guidelines of the Dutch Society for Epidemiology
Domain 2. Stakeholder Involvement	
• The guideline development group includes individuals from all the relevant professional groups.	• The guidelines were developed by epidemiologists of KIT Health. They were peer reviewed by selected representatives of each of the other KIT Health Teams (Education, Sexual and Reproductive Health and Rights and Health System Strengthening).
• The views and preferences of the target population have been sought.	• Three consultative meetings with all KIT health staff were organised to get views and preferences of other potential users.
• The target users of the guideline are clearly defined.	• Users of the guidelines include all staff at KIT Health involved in studies where epidemiological methods are used
• The guideline has been piloted among end users	• The guidelines will be piloted on three studies and feedback incorporated in the final version. Changes will be documented and shared with all users upon dissemination of the final version
Domain 3. Rigour of Development	
• Systematic methods were used to search for evidence.	• The reference for the guidelines is the compendium. This was compiled based on existing guidelines, enriched with specific practical guidance obtained from internet searches with targeted key words for each stage of implementation of a study. This was not a systematic literature review, but our approach was deemed to be appropriate given that it relies on exiting internationally or nationally recognised guidelines
• The criteria for selecting the evidence are clearly described	
• The methods for formulating the recommendations are clearly described.	• Candidate recommendations were formulated by the authors and validated with KIT staff through a series of consultative meetings
• There is an explicit link between the recommendations and the supporting evidence.	• Each guidelines refers to elements in the compendium, which are clearly referenced or justified.
• The guideline has been externally reviewed by experts prior to its publication.	• The guidelines are currently under review by 2 international epidemiological experts
• A procedure for updating the guideline is provided.	• Guidelines will be reviewed and updated within maximum 5 years of implementation.

Domain 4. Clarity of Presentation • The recommendations are specific and unambiguous	• We have attempted to make guidelines as clear and specific as possible.
Domain 5. Applicability • The guideline describes facilitators and barriers to its application	• The main facilitator of the application of these guidelines is that it increases the transparency and accountability of our work. Stated compliance to our guidelines can be a determining factor in acquiring projects but of course this needs to be followed up with actual implementation.
• The potential resource implications of applying the recommendations have been considered.	• The main barrier to the application of these guidelines is the time and effort investment. There is a grey area as to what constitutes a research study at KIT, as well as to what constitutes the application of epidemiological methods. It is possible that, partly because constraints in time and resources available, KIT staff will discard their studies as being neither research nor epidemiological and chose not to refer to these guidelines.
• The guideline provides advice and/or tools on how the recommendations can be put into practice.	• In a first instance we recommend that each individual project leader is responsible for ensuring adherence to the guidelines and suggest a simple 'tick-boxing' exercise, for each stage of implementation of a study, based on the excel spreadsheet prepared.
• The guideline presents monitoring and/or auditing criteria.	• On a yearly basis face-to-face interviews will be conducted with KIT researchers known to have been involved in studies employing epidemiological methods to enquire about application of guidelines.
Domain 6. Editorial Independence • The views of the funding body have not influenced the content of the guideline • Competing interests of guideline development group members have been recorded and addressed	• Not applicable. These guidelines were developed through funding from on an internal KIT Investment Fund Grant.