Supplementary File 4

Ethics, data governance, safeguarding, scientific integrity and dissemination plan

Version 1.4 - 17 August 2026

Companion to: Implementing a competency-based Advanced Field Epidemiology Training Programme in Sierra Leone: protocol for a mixed-methods pilot evaluation

1. Ethical status and prerequisite approvals

At protocol submission, resident recruitment and research data collection have not started. The evaluation begins only after written SLESRC determination, NPHA institutional authorization, approved data-processing arrangements and prospective public registration. Each resident field project receives its own classification as public health practice, surveillance, programme evaluation or research and follows the applicable approval, consent and data-governance route. Programme urgency does not waive evaluation ethics.

2. Ethical principles and risk profile

The evaluation creates minimal physical risk but meaningful informational, professional and relational risks. Residents depend on mentors, supervisors, assessors and employers, which can create perceived coercion, retaliation risk or concern about confidentiality. Qualitative accounts may identify a site or role even after names are removed. Field service can expose residents to infectious, environmental, transport, security and psychosocial hazards. The study therefore applies respect, proportionality, necessity, confidentiality, independent review, non-retaliation, fair opportunity and rapid corrective action [21,22,47,49]. The programme also creates time, workload, authorship and publication-pressure risks for residents and mentors. Protected time, workload monitoring, independent assessment, publication-delay safeguards and corrective support address these risks without lowering competency standards.

3. Separation of programme and research

Function	Programme role	Research protection
Admission	Determined by national programme criteria.	Research consent is not considered and is recorded separately.
Progression/graduation	Based on approved academic and field evidence.	Survey/interview participation and research responses are never supplied to assessors.
Routine monitoring	Needed for programme management and quality.	Research use follows SLESRC-approved consent, waiver or aggregate route.
Interviews/surveys	Not required for academic credit.	Voluntary informed consent; may skip items or withdraw without programme penalty.
Safeguarding report	May require action to protect a person or system.	Confidentiality limits and mandatory escalation are explained before participation.
IRET	May provide independent system feedback and urgent risk notification.	Controls research consent, fidelity scoring, source verification, data locks, analysis and dissemination; holds no teaching, supervision, assessment or progression role.

4. Independent Research and Evaluation Team

Before enrolment, NPHA appoints an Independent Research and Evaluation Team (IRET) through a documented competence and conflict-screening process. The minimum functions are a research lead, fidelity and quantitative analyst, qualitative lead and interviewers, data manager and health economist. No IRET member teaches, mentors, supervises, assesses, examines or votes on progression for the cohort. A person affiliated with NPHA may serve only when no programme-delivery, assessment or participant line-management role creates a conflict.

The IRET controls research recruitment and consent, voluntary data collection, programme-record research extracts, fidelity extraction and scoring, source verification, discrepancy adjudication, data quality, data locks, analysis, interpretation and scientific dissemination. Programme staff remain responsible for programme records and corrective action. They may respond to factual queries but cannot access confidential voluntary responses, determine fidelity status, alter locked results or suppress findings. The IRET reports protocol deviations, material integrity concerns and required safety matters to independent oversight, SLESRC and NPHA authorities under approved procedures.

5. Recruitment and informed consent

A researcher who does not supervise or assess the invitee will provide written and verbal study information. Potential participants receive time to ask questions and may consult another person. Consent options are separated for surveys, interviews/focus groups, recording, programme-record linkage, quotation and recontact. A person may decline one option and accept another. Electronic consent may be used only through an approved secure process. Consent records are stored separately from response data.

Interviewers complete preparation in consent, confidentiality, qualitative interviewing, power dynamics, distress response and reflexivity. They do not supervise, assess or decide progression for their interviewees. Their relationship to participants and relevant assumptions are recorded in field notes and reflexive memos.

1. Study purpose, sponsor/owner, duration and why the person is invited.
2. Research procedures and distinction from mandatory programme activity.
3. Foreseeable professional, privacy, emotional and time burdens and available protections.
4. No effect of refusal or withdrawal on admission, assessment, supervision, employment or access to support.
5. Confidentiality procedures, limits, small-group disclosure risk and mandatory safety escalation.
6. Recording, transcription, translation, quotation and future contact choices.
7. Data retention, sharing limits, repository outputs and publication plans.
8. Contacts for the study, independent safeguarding route and ethics committee.

6. Privacy and confidentiality

- Assign study IDs that do not contain initials, site abbreviations or other meaningful identifiers.
- Store the linkage file separately with access restricted to the data manager and principal investigator or approved delegate.
- Use role categories and broader site descriptions in reports when exact labels create deductive-disclosure risk.
- Review quotations against combinations of profession, site, event and timing; paraphrase or omit when consent and confidentiality cannot both be protected.
- Suppress quantitative cells smaller than five and avoid site ranking unless governance, ethics and disclosure review approve it.
- Do not place identifiable or confidential information in email, consumer cloud storage, public collaboration tools or generative artificial-intelligence systems.

7. Data architecture and access

Store	Content	Access	Control
Identifiable consent/linkage store	Names/contact, consent, study ID linkage	IRET data manager and research lead only	Encrypted, separate location
Programme academic store	Field weeks, products, ratings, progression, remediation	Authorized programme and assessment personnel; IRET receives only approved de-identified extracts and source evidence required for fidelity	Not accessible to qualitative researchers unless de-identified and approved
Research quantitative store	Coded surveys, assessments, monitoring extracts, costs	IRET quantitative and economic analysts	Role-based read/write; audit log
Qualitative store	Coded audio, transcript, memo and framework matrix	IRET qualitative team	Audio separated from de-identified transcripts
Safety/integrity store	Confidential reports, investigations, actions	Independent safeguarding lead and authorized authorities	Restricted case files; aggregate research extract
Analysis repository	De-identified analysis data, code, logs, outputs	IRET analysis team	Read-only signed data locks, version control and audit log; no direct identifiers
Public repository	Protocol, instruments, code, metadata and permitted aggregate/de-identified outputs	Public	Disclosure and rights review before release

8. Security controls

- Agency-approved encrypted devices, full-disk encryption, strong authentication and automatic screen lock.
- Encryption in transit and at rest, role-based permissions, least privilege and quarterly access review.
- Secure backup with restoration testing and a documented business-continuity plan for power/connectivity interruption.
- Approved offline capture for low-connectivity settings, with physical protection and secure synchronization at the earliest safe opportunity.
- No use of removable media unless encrypted, logged and explicitly approved.
- Incident response that contains exposure, preserves evidence, assesses people affected, notifies required authorities and verifies corrective action.

9. Retention, destruction and sharing

The linkage file, consent records and research data will be retained for seven years after the final empirical publication unless national law, ethics or a funder requires longer retention. Audio will be destroyed after transcript verification and completion of the approved quality period, unless explicit consent and ethics approval permit longer retention. Destruction uses verified secure deletion or confidential physical destruction. Public sharing is limited to protocol materials, data dictionaries, code, aggregate data and de-identified datasets whose disclosure risk is acceptable and whose third-party rights permit release [50].

10. Field safety and wellbeing

Every site and deployment requires a risk assessment, supervisor, communication plan, transport plan, emergency contacts, personal protective equipment or other controls, and authority to stop unsafe work. Residents receive infection prevention and control, biosafety, biosecurity, occupational, travel, security, harassment and wellbeing orientation. Exposure or injury follows national clinical and occupational pathways. A resident may decline or leave an unsafe task without academic retaliation; the programme must arrange an equivalent safe opportunity when feasible.

11. Safeguarding, non-retaliation and grievance

Participants receive at least two reporting routes: programme management and an independent confidential route. Reports may concern harassment, discrimination, coercion, retaliation, unsafe workload, supervisor conflict, authorship abuse, assessment bias, privacy or scientific integrity. The safeguarding function acknowledges reports promptly, triages immediate protection, manages conflicts, explains confidentiality limits, records action and verifies non-retaliation. Appeals against academic decisions follow a separate published process and do not block urgent safety action.

12. Event classification and response times

Class	Examples	Response
Immediate/life-threatening	Threat to life, serious injury/exposure, active violence or severe acute distress	Emergency action at once; sponsor/authority notification under policy.
Serious	Material privacy breach, coercion/retaliation, severe harassment, major assessment or scientific-integrity threat	Protect within 24 hours; independent review and required ethics/NPHA notification.
Moderate	Non-serious injury, repeated unsafe workload, significant conflict or limited data incident	Review within three working days; corrective plan and follow-up.
Minor/near miss	No material harm but a weakness or close call	Log, correct locally and include in quarterly system review.

13. Scientific and assessment integrity

- Use transparent protocols, dictionaries, code, source records, version control and correction logs.
- Require resident-contribution statements and oral defence for high-stakes products.
- Screen manuscripts for plagiarism, image/data manipulation, unsupported authorship and deceptive journals.
- Manage assessor, examiner, supervisor and editorial conflicts before assignment.
- Do not allow one person to create evidence, mentor it and make the sole high-stakes decision without independent review.
- Faculty may hold more than one programme role, but conflicts must be declared before assignment. A mentor or supervisor cannot make the sole final decision on a high-stakes product; alternative raters, separate committees and an appeal route provide independent judgment.
- Investigate fabrication, falsification, plagiarism, ghost authorship, coercive authorship or deliberate misrepresentation through an independent process.
- Correct the academic record and publications when an integrity finding changes evidence or interpretation.

14. Authorship and resident publication rights

Authorship follows ICMJE contribution, drafting/revision, approval and accountability criteria [42]. Programme position, supervision or funding alone does not confer authorship. Each product starts with a contributorship discussion and records changes. Residents retain appropriate lead-author opportunity for work they lead, subject to scientific quality and accountability. Institutions retain lawful stewardship of public health data; data stewardship does not erase resident intellectual contribution. Disputes use a documented mediation and appeal route.

Publication expectations and fair graduation evidence

The programme controls the named internal or national editorial channels and can therefore require editorial acceptance for two products. External peer-reviewed acceptance remains a target rather than a condition controlled by the resident. Graduation evidence is complete when a lead-author manuscript passes independent technical and reporting-checklist review, is submitted to a legitimate journal, and editorial correspondence is recorded. The resident remains responsible for revision or resubmission through Month 30. Workload, authorship and editorial pressure enter the safeguarding and progression review.

15. Responsible use of artificial intelligence

Artificial intelligence may support approved teaching, coding assistance, language editing or administrative tasks only under programme policy. Users verify outputs, protect confidentiality, disclose material use, preserve source evidence and avoid automated progression decisions. Identifiable patient, participant, personnel, security, unpublished outbreak or confidential institutional data cannot enter unapproved systems. Automated citations or analyses require independent source and code verification [22,42,47,49].

16. Operational continuity and external disruption

Continuity plans cover mentor loss, resident interruption, site suspension or reassignment, power or connectivity failure, public health emergencies, political or security disruption, financing interruption and loss of data or laboratory access. Prepared controls include substitute mentors, specialist backup, alternate accredited placements, printed or offline delivery, deferred secure synchronization, emergency communication, protected completion windows and contingency funds. Immediate safety action takes priority. Any change affecting the primary outcome, progression rule, consent, material risk or principal analysis requires formal amendment and approval before implementation or analysis.

17. Dissemination, feedback and publication independence

The IRET leads analysis, interpretation and preparation of research reports. Programme and NPHA reviewers receive a fixed 15-working-day opportunity to identify factual errors, confidentiality risks, legal restrictions or third-party rights. They cannot change locked scores, remove unfavorable findings, require a green conclusion or veto publication. The IRET records every comment, response and unresolved disagreement. Urgent safety, privacy or integrity findings follow immediate reporting duties rather than the routine dissemination calendar.

Audience	Output	Timing	Lead	Review/decision boundary	Record
Residents and programme actors	Plain-language quarterly dashboard; Month-24 findings meeting; Month-30 summary	Quarterly; M24; M30	IRET	Programme response appears separately; no individual voluntary responses disclosed	Dashboard, attendance, questions and response log
Field sites and decision users	Site-confidential fidelity and opportunity feedback; product follow-up; contribution verification	Quarterly; M24; M30	IRET	Site may correct facts and propose action; IRET retains score and interpretation	Site report, factual-query log and action record
NPHA, steering and national governance	Month-12 interim report; Month-24 final implementation, cost, equity, safety and scale-up report; Month-30 follow-up	M12; M24; M30	IRET research lead	NPHA records management response and scale-up decision; cannot revise locked analysis	Signed reports, presentation minutes and decision record
SLESRC and independent oversight	Safety, privacy, integrity, deviations, amendments and required progress/close-out reports	As required; close-out	IRET research lead and safeguarding lead	Reporting follows approval conditions and law	Submission and acknowledgement record
National partners and policy users	Policy brief, technical workshop and decision slide deck	After M24; update M30	IRET with NPHA dissemination focal point	Factual and disclosure review only; findings and uncertainty remain intact	Brief, workshop report and participant list
Scientific community	Registered protocol; primary empirical mixed-methods article; distinct cost or assessment paper when justified; conference outputs	Protocol before enrolment; results after M30 or earlier when prespecified	IRET and contribution-based author group	Authorship follows contribution; no institutional publication veto	Submission, peer-review and presentation records
Public and repository users	Plain-language summary; permitted protocol materials, instruments, metadata, code and aggregate or de-identified outputs	After disclosure and rights review	IRET data manager and research lead	Ethics, confidentiality, law and third-party rights govern release	Repository DOI/version and disclosure checklist

The primary empirical report is submitted regardless of whether the programme receives a green, amber or red classification. Reports distinguish implementation failure, opportunity failure, resident performance, documentation failure and external editorial delay. Participants and sites receive findings before public release when confidentiality permits. Negative, null and harmful findings receive the same reporting commitment as favorable findings. Supplementary File 9 provides the dedicated dissemination and knowledge-translation schedule, release boundaries and audit records.

18. Ethics and governance document set required before launch

☐ IRET terms of reference, membership, competencies, conflict declarations, independence and publication-rights agreement

☐ Final protocol and amendment procedure
☐ SLESRC determination and NPHA authorization
☐ Prospective public registration and repository record
☐ Participant information and modular consent forms
☐ Routine programme-data research-use route and data-processing agreement
☐ Resident field-project ethics/data-governance routing guide
☐ Data management, security, retention and breach-response plan

☐ I07 source-evidence register, two-reviewer fidelity SOP, adjudication rules, quarterly data-lock certificate and programme factual-query procedure

☐ Field safety, occupational exposure and emergency plan
☐ Safeguarding, non-retaliation, grievance and appeal procedures
☐ Authorship, publication, AI-use and scientific-integrity policies

☐ Independent incident-review and stopping-rule terms of reference

Version record

1.1 - 21 July 2026: initial prospective protocol package. 1.2 - 17 August 2026: expanded workload and publication ethics, interviewer independence, conflict controls and continuity planning. 1.3 - 17 August 2026: established an independent research and evaluation team, separated programme and research authority, specified fidelity and data-lock access, and added an audience-specific dissemination plan with factual-review limits, no-veto protection and reporting records. The corresponding author will reconfirm study status before upload. 1.4 - 17 August 2026: final coordinated audit aligned the dedicated Supplementary File 9 dissemination plan, two-figure manuscript and independent review boundaries.

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