

**Institute of Primate Research**

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**STANDARD OPERATING PROCEDURE (SOP) DOCUMENT**

**Evaluating disease control programs (epidemiological and cost-effectiveness frameworks)**

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# PURPOSE

To provide a standardized framework for the **evaluation of disease control programs**, integrating:

* **Epidemiological analyses** to assess program impact on disease incidence, prevalence, and transmission dynamics.
* **Cost-effectiveness assessments** to quantify the economic efficiency of interventions.
* **Evidence-based decision-making** for program optimization, policy guidance, and resource allocation.
* Alignment with **institutional SOPs 1–10**, ethical standards, and national/international guidelines (e.g., WHO, GBD, CHEERS 2022).

# SCOPE

Applies to all disease control programs supported by DS&AS, including biomedical, ecological, and primatological health interventions. Covers:

* Epidemiological modelling and surveillance data analysis.
* Economic evaluation, including cost-effectiveness, cost-utility, and cost-benefit analyses.
* Integration of outputs into program decision-making, reporting, and publications.

# PERSONS RESPONSIBLE

* **Principal Investigator (PI):** Provides program objectives, epidemiological data, and context.
* **DS&AS Epidemiologist / Biostatistician:** Conducts epidemiological analyses and cost-effectiveness modelling.
* **Health Economist (if available):** Supports economic evaluation and interpretation.
* **Head of DS&AS:** Reviews methodology, approves final evaluation, ensures alignment with institutional policies.
* **Director of Research & Product Development:** Reviews institutional-level reports and recommendations.

# FREQUENCY

* **Baseline Evaluation:** Prior to program implementation.
* **Mid-Program Evaluation:** Periodic assessment (annually or as specified in program plan).
* **End-of-Program Evaluation:** Comprehensive analysis at completion.
* **Triggered Evaluation:** When significant program changes, outbreaks, or funding reviews occur.

# MATERIALS

* **Epidemiological Models:** Tools for survival analysis, transmission dynamics, regression, and disease progression modelling.
* **Cost-Effectiveness Analysis (CEA) Templates:** Standardized forms for calculating incremental costs, outcomes, and ICERs.
* **Health Outcome Measures:** DALYs (Disability-Adjusted Life Years), QALYs (Quality-Adjusted Life Years), incidence and prevalence reduction metrics.
* **Guidelines:** National health program evaluation frameworks, institutional protocols, and international standards (WHO, GBD, CHEERS).
* **Software and Tools:** R, SAS, Python, Excel, and other modelling platforms for epidemiological and economic analyses.

# PROCEDURE

1. **Planning:**  
    • Define clear evaluation objectives, target population, interventions, comparators, and relevant outcomes.  
    • Ensure alignment with SOPs 1–5 (Policies, Study Design, SAPs, Reporting, Data Management).
2. **Data Collection:**  
    • Gather epidemiological surveillance data, program activity data, and cost/expenditure data.  
    • Verify data quality, completeness, and compliance with SOPs 6–9 (Data Access, Storage, Workflow, Sharing).
3. **Epidemiological Analysis:**  
    • Apply appropriate statistical and modelling methods (e.g., regression, survival analysis, transmission models) to assess program impact on disease incidence, prevalence, or survival outcomes.  
    • Conduct sensitivity analyses where applicable.
4. **Cost-Effectiveness Analysis (CEA):**  
    • Compute incremental costs and health outcomes to derive ICERs (e.g., cost per DALY or QALY averted).  
    • Perform sensitivity and scenario analyses to test robustness of findings.
5. **Validation:**  
    • Internal peer review within DS&AS to ensure methodological soundness, reproducibility, and compliance with SOPs and regulatory guidelines.
6. **Reporting:**  
    • Prepare evaluation reports, dashboards, and policy briefs summarizing epidemiological and economic findings.  
    • Highlight recommendations for program optimization and policy decision-making.
7. **Dissemination:**  
    • Share outputs with institutional leadership, program stakeholders, policymakers, and, where appropriate, the public or scientific community.  
    • Archive final reports, datasets, and analysis scripts in DS&AS repositories for reproducibility and future reference.

# REFERENCES

1. DS&AS SOP 1 – Policies and Strategies.
2. DS&AS SOP 3 – Study Design and Statistical Consultation.
3. DS&AS SOP 4 – Statistical Analysis Plans (SAPs).
4. DS&AS SOP 5 – Reporting Research Results.
5. DS&AS SOP 9 – Data Sharing, Anonymisation, and Compliance.
6. Kenya Data Protection Act (2019).
7. WHO. **Guide to Program Evaluation for Disease Control**. Geneva: WHO; 2017.
8. Drummond MF, et al. **Methods for the Economic Evaluation of Health Care Programs**, 4th Edition, Oxford University Press; 2015.
9. CHEERS 2022 Guidelines – Consolidated Health Economic Evaluation Reporting Standards.
10. Global Burden of Disease (GBD) Study methodological guidelines.

### **8. APPENDICES**

**Appendix 11.1 – Evaluation Templates**

* Epidemiological analysis plan template
* Cost-effectiveness analysis (CEA) template
* Sensitivity analysis template
* Data validation checklist

**Appendix 11.2 – Example KPIs and Metrics**

* Reduction in incidence and prevalence rates
* DALYs/QALYs averted
* Incremental cost-effectiveness ratios (ICERs)
* Program coverage and adherence metrics

**Appendix 11.3 – Data Sources**

* Routine surveillance datasets
* Program monitoring data
* Cost and expenditure records

**Appendix 11.4 – Reporting and Dashboard Formats**

* Standard report template for internal and external dissemination
* Dashboard layout for visualizing epidemiological and economic outcomes