FRAUD PREVENTION PROTOCOL HANDBOOK

&

BASIC DEPLOYMENT ROADMAPS

Version 1.3 | December 2025
(Optimized for Solo-Staff Operations)

International Foundation for Recovery and Development (IFRAD)
In Partnership with Uganda Ministry of Health

Funded by Elrha's Humanitarian Innovation Fund | UK FCDO

DOCUMENT CONTROL

Document Title	Fraud Prevention Protocol Handbook & Basic Deployment Roadmaps
Version	1.3 (Optimized for Solo-Staff Operations)
Date	December 2025
Author	IFRAD Technical Team
Validation	Kyambogo University, Ministry of Health, District Health Teams
Grant Period	July - December 2025 (Phase 1 Pilot)
Classification	Public - Open Access

OPERATIONAL CONTEXT NOTICE

This handbook is designed for low-resource humanitarian settings (Karamoja/Refugee Settlements) where facilities operate with severe constraints: staff shortages (below 65% capacity), unreliable power, and intermittent connectivity.

Primary legal record: During Phase 1, the physical Stock Card remains the official legal record. The AI system functions as a decision-support layer. However, significant variances (>5%) trigger physical audits to prevent paper-based manipulation.

Design principle: Controls must be usable by a single nurse in a solar-powered clinic.

PART 1: FRAUD PREVENTION PROTOCOLS

Purpose and Scope

This handbook establishes fraud prevention protocols for Uganda's AI Supply Chain Optimization Framework. It addresses risks identified through baseline assessments where 68% of facilities experience regular stockouts and inventory discrepancies. It applies to all pilot facilities, complementing existing MoH accountability mechanisms.

Fraud Risk Categories

The framework targets four primary risk categories identified in the baseline:

- Category A - Inventory Discrepancies: Phantom stock entries, over-reporting consumption to hide theft, manipulation of expiry data.
- Category B - Data Quality Manipulation: Backdating records or falsifying patient numbers to justify higher allocations.
- Category C - Procurement Manipulation: Ghost delivery documentation and collusion enabled by lack of budget visibility.
- Category D - Stock Diversion: Unauthorized redistribution or private sale of commodities, often justified by "emergency" needs.

Automated Detection Mechanisms

The AI framework uses automated alerts calibrated to minimize false positives in volatile contexts. The system cross-references morbidity data (from DHIS2) before flagging consumption anomalies. A spike in malaria drugs is not fraud if malaria cases have also spiked.

Alert Thresholds

Anomaly Type	Threshold	Context Check	Response
Consumption spike	>30% above 3-month avg	Correlate with DHIS2 disease cases	Flag only if morbidity stable
Stock count variance	>5% system vs physical	None required	Mandatory physical audit
Order frequency	>2 emergency orders/30 days	Check for documented outbreaks	DHO review at weekly meeting
Expiry losses	>5% batch-level losses	Review storage conditions	Storage/distribution audit

Alert Response Timelines

Deadlines are tied to workflow touchpoints, not arbitrary hours:

- System Detection: Immediate.
- Local Verification: Before next order submission (prevents ignoring alerts).
- District Escalation: Weekly DHO coordination meeting.

Audit Trail & Data Security

Data Captured Automatically

- User ID: Authenticated user for every transaction.
- Timestamp: Date/time of all entries.
- Pre/Post Values: Record of all data changes.

Location Verification (Battery-Optimized)

To preserve battery life on solar-dependent devices:

- Active GPS: Captured *only* for high-risk events: stock delivery receipt, physical stock counts, emergency orders.
- Routine Dispensing: Uses static Facility ID, not active GPS.

Data Security & Storage

- Encryption: All logs encrypted at rest using AES-256 via Android Keystore.
- Storage Management: To respect the 2GB device limit, the system auto-archives logs older than 24 months to compressed storage, keeping the active database lightweight.

Paper-Digital Reconciliation (Anti-Loophole Clause)

- Primacy Rule: Paper is the legal record.
- The Check: However, if the variance between Digital and Paper records exceeds 5%, the system triggers a Mandatory Physical Audit by the District Health Team within 14 days. The paper record is not accepted as truth if the digital variance is significant.

Human Override and Emergency Protocols

Many HCIIs are run by a single staff member. "Two-person authorization" is impossible. We use a Break-Glass Protocol.

Break-Glass Protocol for Solo Staff

Component	Protocol
Trigger	Single staff member needs to perform high-risk action (emergency order, stock adjustment).
Action	Single-person override permitted.
System Flag	Transaction automatically flagged for Retroactive DHO Review.
Documentation	Drop-Down Menu Selection (e.g "Outbreak," "Transport Failure," "Staff Shortage") + Optional text box. *Replaces mandatory typing to speed up workflow.*
Review	Flagged transactions reviewed at next weekly DHO meeting.

Standard Review Triggers (Multiple Staff Available)

- AI Confidence <80%: Manual review by facility in-charge.
- High-Volume Redistribution: DHO approval required for moves affecting >500 patients.

Verification Procedures

Stock Count Verification (Cycle Counting): To reduce staff burden while maintaining accuracy:

- Protocol: Weekly Cycle Count. Instead of counting all 15 tracer items every week, staff count 3-5 distinct items on a rotating basis.
- Goal: Every tracer item counted at least once per month, but weekly labor burden reduced by ~70%.
- Full Inventory: Monthly count of all items per HMIS 105(6) requirements.

Delivery Verification

- Documentation: Delivery note vs. System Order matched at receipt.
- GPS Capture: Location verified at point of delivery.

Whistleblowing

Confidential reporting channels aligned with safeguarding policies:

- Internal: Anonymous reporting function within mobile application.
- District: Direct reporting to DHO or integrity officer.
- National: Ministry of Health Inspectorate Division.

PART 2: DEPLOYMENT ROADMAPS

Deployment Philosophy

- Offline-First: Facilities with the poorest connectivity are piloted first to validate the architecture where it is needed most.
- Integration: The framework is an interoperability layer, not a replacement for DHIS2 or NMS systems.

Phase 1: Pilot Validation (FUNDED)

- Timeline: July - December 2025 (6 Months).
- Funding: Elrha HIF (£50,000).
- Target: 10 baseline facilities (Karamoja & Southwestern Uganda).
- Objectives: Validate technical specs, refine offline sync, test fraud thresholds, gather user feedback.
- Success Metrics: 80% data capture rate; Successful offline operation for 14+ days; Staff satisfaction >70%.

Phase 2: District Expansion (SUBJECT TO FUTURE FUNDING)

- Status: Unfunded. No commitment to implementation without new grants.
- Target: Scale to ~50 facilities in Karamoja/Nakivale.
- Focus: Validate cross-facility redistribution algorithms.

Phase 3: Regional Scale-Up (SUBJECT TO FUTURE FUNDING)

- Status: Unfunded.
- Target: ~200 facilities in Northern Uganda.
- Focus: Integration with WFP/UNHCR systems.

Phase 4: National Adoption (SUBJECT TO FUTURE FUNDING)

- Status: Unfunded.
- Target: National Health Information System integration.

Training Sequence

Training is task-based and visual to accommodate varying digital literacy:

- Tier 1 (Facility Staff - 4 hrs): Basic data entry, offline sync, handling AI alerts, using Break-Glass protocol.
- Tier 2 (In-Charges - 8 hrs): Dashboard interpretation and data quality monitoring.
- Tier 3 (District Teams - 16 hrs): Analytics, fraud investigation, and break-glass review.

Integration Timelines

- Phase 1 (Funded): DHIS2 (Morbidity data), eLMIS (Sync).
- Phase 2+ (Unfunded): CSSP (NMS Orders), eAFYA (Patient Data), WFP LESS (Refugee Supply).

Sustainability Mechanisms

- Technical: Open-source codebase (GitHub), local hosting (MoH servers), standard APIs.
- Institutional: MoH ownership of implementation post-pilot; "Train-the-Trainer" model.
- Financial: Cost recovery via reduced procurement waste (projected 25% savings).

ANNEXES

Annex A: Summary of Operational Adaptations

Reflecting the operational reality check updates.

Issue	Standard Approach	Adapted Protocol (v1.3)
Staff Shortages	2-person authorization	Break-glass protocol with retroactive DHO audit
Data Entry Burden	Typed explanations	Drop-down menus for common override reasons
Inventory Labor	Weekly full counts	Weekly Cycle Counts (3-5 items/week)
Unreliable Power	GPS on every transaction	GPS on High-Risk events only
Alert Fatigue	24-hour response deadline	Response tied to Next Order Submission
Volatile Demand	Fixed fraud thresholds	Thresholds correlated with DHIS2 morbidity
Legal Ambiguity	Paper vs. Digital conflict	>5% Variance triggers mandatory physical audit
Storage Limits	Unlimited log retention	Auto-archive logs >24 months to compressed storage

Annex B: Key Contacts

1. **Ministry of Health**

   National Medical Stores Coordination: [TBD]
   Health Information Division: [TBD]
   Inspectorate Division: [TBD]

2. **IFRAD Technical Support**

   Email: ifraduganda@gmail.com

3. **Incident Reporting**

   Email: [TBD]

Annex C: Document References

1. Uganda Essential Medicines and Health Supplies Management Manual 2023
2. IFRAD Baseline Assessment Report, October 2025
3. AI Supply Chain Framework Technical Specifications v0.1
4. Kyambogo University Technical Validation Report
5. Elrha Incident Reporting and Safeguarding Policy

— End of Document —