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From data to decisions, in the field.

FieldHealth

PHARMACY INVENTORY WORKBOOK v2.1

AFRICA
User Guide

A practitioner-built tool for African health facilities

Designed in Mamfe. Tested in the field.

fieldhealthafrica.org

1. What this workbook is

This workbook is a complete pharmacy inventory management system for a single health facility, designed for use in African primary care and district hospital settings where pharmacy software is either unavailable, unaffordable, or unreliable due to connectivity. It runs entirely offline in Microsoft Excel, LibreOffice, Google Sheets (via upload), or WPS Office on Windows, Mac, Android, or iOS.

It was built by a practising District Medical Officer in Mamfe, Cameroon, in the same context and under the same constraints faced by every facility that will use it: variable electricity, intermittent internet, paper-based supply chains, and pharmacists who do not have time to learn complex software. Every formula in it has been used to manage real stock for real patients.

1.1 What it does

- Tracks 245 pre-loaded drugs and consumables across all 12 months of the year, with room for up to 300 drugs total.
- Computes Quantity Left, Stock Value, Expected Sales, Sales Variance, and Months of Stock for every drug, every month, automatically.
- Computes Average Monthly Consumption (AMC) using a 3-month rolling average, the WHO-standard method for setting reorder levels.
- Computes Minimum Stock, Maximum Stock, Security Stock, and Quantity to Order, so the pharmacist sees exactly what to order each month without having to calculate anything.
- Flags every drug as STOCKOUT, LOW STOCK, ADEQUATE, or OVERSTOCK with colour coding, so the pharmacist can scan the sheet at a glance.
- Tracks every batch of every drug with its expiry date in a separate FEFO (First Expiry First Out) tracker, flagging EXPIRED, EXPIRING SOON, WATCH, or OK.
- Aggregates every month's data into a one-page DASHBOARD and a one-page YEAR_SUMMARY for management reporting.
- Carries the facility name across every sheet from a single cell — type it once on the Cover sheet, and it appears in every monthly title, dashboard, and summary.

1.2 What it does not do

- It does not connect to DHIS2, OpenMRS, or any external system. Data is entered manually each month, exactly as it would be in a paper register.
- It does not handle multi-facility consolidation. Each facility runs its own copy. (A district-level rollup tool is a planned Pro Library product.)
- It does not handle prescribing or dispensing per patient. It is a stock management tool, not a pharmacy dispensing system.

2. Why this beats traditional pharmacy apps

Most pharmacy management software on the market was designed for retail pharmacies in cities with stable electricity, dedicated IT staff, and monthly software subscriptions of \$50 to \$300. None of those conditions hold in the average African district health facility. This workbook makes a different set of design choices, all of them grounded in field reality.

2.1 Side-by-side comparison

Dimension	Traditional pharmacy apps	FieldHealth Africa workbook
Cost	\$50–\$300 per month, often per facility	Free in the Free Library; one-time purchase in the Pro Library
Internet required	Yes, for most cloud-based tools	No. Runs entirely offline.
Installation	Requires IT support, server, or browser compatibility	Open the file. That is the installation.
Learning curve	Multi-day training; ongoing support contracts	A pharmacist can use it productively in 30 minutes
Mobile use	Often desktop-only; mobile apps are limited	Works in Excel mobile, WPS mobile, Google Sheets mobile
Power cuts	Loses unsaved work; cloud sync breaks	Local file. Save frequently. Survives power cuts.
Customisation	Locked to vendor templates	Every formula visible. Adapt anything.
Data ownership	Hosted on vendor servers	Lives on the facility's own device
AMC calculation	Often a black box; many use 1-month consumption	3-month rolling average per WHO supply chain standards, formula visible
Batch & expiry tracking	Premium feature in most apps	Built in, free
Multi-month visibility	Limited to current month in basic tiers	All 12 months side by side on the Dashboard
Crashes if a drug is missing data	Common	Handled — empty rows return blank, not errors
Audit trail	Often hidden; vendor-controlled	Cell history visible to anyone with Excel's track-changes

2.2 The three things this workbook does that almost no app does

Survives the variable conditions of a real African facility

Pharmacy software designed for European or American settings assumes always-on internet, always-on power, and dedicated IT support. In a Cameroonian district hospital, none of these assumptions hold. This workbook is a file. It opens. It works whether you are online or not, whether the diesel generator is running or not, whether the IT focal person is on leave or not.

Shows its work

Every calculation is a visible Excel formula. If the Director asks why a drug is flagged for reorder, the pharmacist can click the cell and show the math: Maximum Stock minus Quantity Left equals Quantity to Order. No opaque algorithms, no vendor lock-in, no surprises. This is essential for audit, training, and trust.

Costs once, not forever

Subscription pharmacy software charges every month, every facility, forever — a structure that drains district budgets and stops working the moment payment lapses. This workbook is bought once or downloaded free from the FieldHealth Africa Free Library. After that, it is yours. No renewal. No license server. No phone-home check that breaks when the facility is offline.

PRO LIBRARY This workbook is the free practitioner version. A more advanced Python-based web application with multi-facility consolidation, automated DHIS2 export, and predictive stock-out forecasting is part of the FieldHealth Africa Pro Library (Drug Stock-Out Predictive Tool, planned for 2026). The free version is fully functional on its own.

3. Workbook structure

The workbook has 18 sheets. They are arranged in the order you will use them.

Sheet	Purpose
Cover	Enter your facility name (one cell). Read the quick-start guide. This sheet is the entry point.
Control_Panel	Stock-control multipliers (lead time, max holding, security stock). Edit these if your supply chain norms differ from the defaults.
DASHBOARD	One-page view of every month's KPIs, with a YTD column and a Data Quality section.
JAN_26 to DEC_26	Twelve monthly sheets, one per calendar month. JAN_26 is the master sheet where drug names, units, and prices live.
YEAR_SUMMARY	One row per month with all major metrics, plus a YTD totals row at the bottom.
BATCH_EXPIRY_TRACKER	Records every batch of every drug with batch number, expiry date, and FEFO status. 200 batch slots.
HOW_TO_ADD_DRUGS	Instructions for adding a new drug mid-year, sorting the drug list, removing a drug, and changing unit prices.

3.1 The role of JAN_26 (the master sheet)

JAN_26 is the single source of truth for drug names, units, and unit prices. Every other monthly sheet pulls these three values from JAN_26 by row number. This design has three important consequences:

- To add a new drug for the whole year, you add it to JAN_26 only. It appears in every other month automatically.
- To change a unit price for the whole year, you change it in JAN_26 only. Every other month uses the new price.
- To sort the drug list alphabetically, you sort JAN_26 only. Every other month re-sorts automatically because it follows JAN_26 by row number.

3.2 The role of the Control_Panel sheet

The three orange cells on Control_Panel define how Minimum Stock, Maximum Stock, and Security Stock are computed from Average Monthly Consumption. The defaults are the WHO supply chain norms for primary care facilities, but they can be edited:

Parameter	Default	Meaning
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Lead Time (months)	0.5	Time between placing an order and receiving stock. 0.5 = 2 weeks. Min Stock = AMC x this value.
Max Stock Holding (months)	3	Maximum months of supply to hold. Max Stock = AMC x this value.
Security Stock (months)	1	Buffer beyond minimum. Security Stock = AMC x this value.

If your facility has 6-week supplier lead times because deliveries come from Yaoundé, change Lead Time to 1.5. If your facility never holds more than 2 months because storage is limited, change Max Stock Holding to 2. Every monthly sheet, every drug, recalculates immediately.



4. Setting up your workbook

4.1 Step one: name your facility

1. Open the workbook in Excel, LibreOffice, or any spreadsheet program.
2. Click the Cover sheet (first tab).
3. Click the orange cell next to 'Facility Name' and type your facility's name. For example: MAMFE CMA, or BUEA REGIONAL HOSPITAL, or KENDEM IHC.
4. Press Enter. The name now appears at the top of every monthly sheet, the Dashboard, the Year Summary, and the Batch Tracker.

4.2 Step two: confirm your stock-control parameters

5. Click the Control_Panel sheet.
6. Review the three orange cells: Lead Time, Max Stock Holding, Security Stock.
7. Edit any that do not match your facility's reality. If you are unsure, leave the defaults — they are WHO standard for primary care.

4.3 Step three: review the pre-loaded drug list

8. Click the JAN_26 sheet.
9. Scroll through the drug list (column A). It contains 245 commonly used drugs and consumables.
10. If a drug is missing a unit (column B) or unit price (column C), fill it in now. The Dashboard's Data Quality section shows you how many are missing.
11. If you want a different set of drugs, see Section 6 (Adding, removing, and sorting drugs).

4.4 Step four: enter your opening stock

12. Still on JAN_26, find the 'Opening Stock' column (column D).
13. For each drug, type the quantity you have on hand at the start of the year.
14. If there is no opening stock, leave the cell at 0 or blank.

RULE Orange cells are the only cells you ever need to type into. Every other cell is a formula that calculates automatically. If you accidentally type over a formula cell, press Ctrl+Z to undo, or ask FieldHealth Africa for a fresh copy.

5. Monthly routine

Once the workbook is set up, the monthly routine is short.

5.1 What to enter each month

Open the current month's sheet (e.g. MAY_26 if it is May 2026). Fill the orange cells:

Column	What to enter	Where it comes from
E — Stock Received	Quantity of each drug received this month	Delivery notes from CENAME or supplier
G — Quantity Sold	Quantity dispensed this month	Dispensing register or daily tally sheet
H — Actual Cash Received	Cash collected for sold items	Cashier register or daily revenue book
T — Remarks	Optional notes (theft, donation, transfer, expired)	Pharmacist judgement

5.2 What the workbook calculates for you

- $\text{Quantity Left} = \text{Opening Stock} + \text{Stock Received} - \text{Quantity Sold}$
- $\text{Expected Sales} = \text{Quantity Sold} \times \text{Unit Price}$
- $\text{Sales Variance} = \text{Actual Cash Received} - \text{Expected Sales}$ (only when both cash and quantity sold are entered)
- $\text{Stock Value} = \text{Quantity Left} \times \text{Unit Price}$
- $\text{AMC} = \text{average of the last 3 months' Quantity Sold}$
- $\text{Min Stock, Max Stock, Security Stock} = \text{AMC times the multipliers from Control_Panel}$
- $\text{Months of Stock} = \text{Quantity Left} \div \text{AMC}$
- $\text{Quantity to Order} = \text{Max Stock} - \text{Quantity Left}$ (zero if already above max)
- $\text{Stock Status} = \text{STOCKOUT} / \text{LOW STOCK} / \text{ADEQUATE} / \text{OVERSTOCK}$
- $\text{Financial Status} = \text{BALANCED} / \text{DEFICIT} / \text{N/A}$

5.3 Reading the colour codes

Colour	Meaning	Action
Red — STOCKOUT	Quantity Left = 0	Order immediately. Note any rupture in patient care.
Yellow — LOW STOCK	Quantity Left below Security Stock	Order this month.

Green — ADEQUATE	Quantity Left between Security and Max	No action.
Blue — OVERSTOCK	Quantity Left above Max	Pause ordering. Consider transfer or risk of expiry.
Red — DEFICIT	Cash collected less than expected	Investigate. Theft, undercharging, or unrecorded credit?
Green — BALANCED	Cash matches expected sales	No action.

5.4 Reading the Dashboard

Open the DASHBOARD sheet at the end of each month. It shows nine key indicators for every month of the year side by side, plus a Year-to-Date column on the far right. The bottom section flags data quality issues (drugs missing unit prices, drugs missing units).

This is the sheet to print and bring to monthly review meetings with the District Medical Officer or the facility management committee. It tells the story of the pharmacy in one page.

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6. Adding, removing, and sorting drugs

The workbook ships with 245 drugs pre-loaded and 55 empty slots ready for new drugs (300 total). All operations are done on the JAN_26 sheet only — the other months follow automatically.

6.1 Why there is no 'Add' button

An 'Add' button would require an Excel macro. Macros are blocked by default on most facility computers for security reasons, and they break in LibreOffice, Google Sheets, WPS, and mobile Excel. Instead, this workbook uses a simpler pattern that works everywhere: PRE-TEMPLATED ROWS. Rows 3 through 302 in every monthly sheet already contain the full formula set. You add a drug by simply typing into the next empty row in JAN_26.

6.2 Adding a new drug

15. Open the JAN_26 sheet.
16. Scroll down to find the first empty row in column A (Drug).
17. Type the drug name in column A.
18. Type the unit (tablet, bottle, vial, etc.) in column B.
19. Type the unit price in FCFA in column C.
20. Type the opening stock in column D. Type any stock received in column E.
21. Save the file. The new drug now appears in FEB_26 through DEC_26 with all formulas wired automatically. It also appears in the Dashboard, Year Summary, and totals.

6.3 Sorting the drug list alphabetically

After adding many new drugs, the list will be out of order. Because every other month pulls drug name, unit, and price from JAN_26 by row number, sorting JAN_26 automatically resorts every other sheet at the same time. To sort:

22. Open JAN_26.
23. Select rows 3 through 302 (the full data range, including empty rows).
24. Open the Data menu and choose Sort.
25. Sort by column A (Drug name), A to Z.
26. Critical: in the sort dialog, tell Excel to sort the ENTIRE row, not just column A. Otherwise the unit and price will become separated from the drug name. (In Excel, this is the 'Expand the selection' option.)
27. Save the file. FEB_26 through DEC_26, the Dashboard, the Year Summary, and the Batch Tracker all reorder automatically.

BEFORE YOU SORT Before sorting, save a backup copy of the workbook. Sorting cannot be cleanly undone if you mix up the columns. A two-second copy is cheaper than a two-hour re-entry.

6.4 Removing a drug

Do not delete the row. Deleting a row breaks the formulas in every other monthly sheet. Instead, clear the contents of columns A, B, C, D, and E in the JAN_26 row. The drug will disappear from every other sheet automatically, totals will exclude it, and the row will become available again for a future drug. Stock Status will show as blank.

6.5 Changing a unit price

Edit the price in JAN_26 column C. All months use that one value, so price changes apply consistently across the year. If you need to record a mid-year price change separately (because the supplier raised the price in June, say), add the drug a second time under a different name such as 'Paracetamol 500mg (post-Jun)' with zero opening stock. Keep the old entry for the older purchases.



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7. Batch and expiry tracking

Drugs do not just have stock levels — they have batches, and batches have expiry dates. The BATCH_EXPIRY_TRACKER sheet records every batch of every drug separately, with 200 batch slots available. This implements FEFO (First Expiry First Out), the international standard for safe drug dispensing.

7.1 What to enter

Column	What to enter
A — Drug	The drug name (can match the JAN_26 spelling or be free text)
B — Unit	Unit of measure
C — Batch No.	Batch or lot number from the manufacturer label
D — Qty Received	Quantity received in this batch
E — Date Received	Date the batch arrived. Use ISO format: YYYY-MM-DD.
F — Expiry Date	Expiry date from the manufacturer label. Use ISO format: YYYY-MM-DD.
I — Supplier/Source	Who supplied this batch (e.g. CENAME, donation, transfer)
J — Location	Where the batch is physically stored (e.g. main pharmacy, ward 2, cold room)
K — Remarks	Optional notes

7.2 What it calculates

- Days to Expiry = Expiry Date minus today's date, recalculated every time the file is opened.
- **Expiry Status:** EXPIRED (already past), EXPIRING SOON (30 days or less), WATCH (90 days or less), OK (more than 90 days). Colour-coded automatically.

7.3 FEFO discipline

When dispensing a drug, always issue the batch with the earliest expiry date first, regardless of when it was received. Sort the BATCH_EXPIRY_TRACKER by column F (Expiry Date) to see the right order. Drugs at EXPIRING SOON should be prioritised for dispensing; if they cannot be used in time, consider transferring them to another facility before they expire.

DATE FORMAT Always use ISO date format (YYYY-MM-DD) when entering dates. Excel interprets dates differently depending on the regional settings of the computer — '12/06/2026' could mean 12 June or 6 December. Writing '2026-06-12' removes the ambiguity.

8. What changed from version 2.0 to 2.1

Version 2.0 had several bugs that produced incorrect numbers without showing any error message — a particularly dangerous category of bug because users trusted the output. Version 2.1 fixes all of them. This section is here for transparency, so any user can understand what was wrong and what was changed.

8.1 AMC formula was off by one row

In version 2.0, the Average Monthly Consumption formula in APR through DEC pointed at the header row instead of the drug row, returning zero for every drug. This silently broke Minimum Stock, Maximum Stock, Security Stock, and Quantity to Order — the workbook would never recommend reordering anything. Version 2.1 fixes the row references and uses a 3-month rolling average (WHO standard) instead of the ever-growing window used in v2.0.

8.2 Sales Variance showed false losses

In version 2.0, the moment the pharmacist entered Quantity Sold but had not yet entered Actual Cash, the variance formula calculated 'zero cash minus expected sales' and reported a negative variance — a false deficit. Version 2.1 only calculates variance when both Quantity Sold and Actual Cash have been entered. Otherwise the cell is blank and Financial Status reads N/A.

8.3 Dashboard missing three months

In version 2.0, the Dashboard sheet only had columns for January through September. October, November, and December were missing. Version 2.1 includes all 12 months plus a Year-to-Date column.

8.4 ABC and VEN classification removed

Version 2.0 had an ABC Class column on the monthly sheets and an ABC_VEN_GUIDE reference sheet, but the VEN classification was never actually captured anywhere. The pairing was incomplete, and the ABC column made sorting harder because users had to decide whether to preserve it. Version 2.1 removes both. If you want priority classification, add a 'Priority' column to the Remarks column or in a future Pro Library version.

8.5 Stock-control multipliers now editable

Version 2.0 hard-coded the 0.5 / 3 / 1 multipliers for Min, Max, and Security Stock into every formula. Changing them required editing thousands of cells. Version 2.1 puts them as three editable cells on the Control_Panel sheet, and every formula references them by name (named cells). Change once, propagates everywhere.

8.6 Facility name added

Version 2.0 had 'MAMFE CMA' hard-coded as the facility name in every title row. Version 2.1 reads the facility name from a single cell on the Cover sheet and inserts it dynamically across every sheet.

8.7 Capacity expanded

Version 2.0 had 245 drug slots with no room to add new ones without breaking formulas. Version 2.1 has 300 slots, with rows 248–302 pre-templated and ready for new entries.



9. Troubleshooting

9.1 'The numbers in column F are wrong'

Check that you have not accidentally typed over a formula cell. The Quantity Left cell (column F) is calculated from columns D, E, and G. If someone typed a number into F directly, that overrides the formula. The simplest fix is to retype the formula. The standard formula in row 3 is: `=IF(A3="", "", D3+IF(ISNUMBER(E3),E3,0)-IF(ISNUMBER(G3),G3,0))`

9.2 'I added a drug to FEB but it does not show in MAR'

Drugs are added in JAN_26, not in FEB or any other month. JAN_26 is the master sheet — every other month reads from it by row number. If you add a drug to FEB_26 directly, it stays only in FEB_26. Move the drug to JAN_26 (same row number) and clear the FEB entry.

9.3 'Stock Status says OVERSTOCK but I know the stock is low'

Check the AMC column (M). If AMC is zero, the workbook does not know how much you usually sell, so Max Stock is also zero, so any positive Quantity Left appears as 'over the max'. AMC = 0 means you have not yet recorded any sales for this drug. Enter the Quantity Sold for the past 1–3 months, and the status will reclassify correctly.

9.4 'The Dashboard shows blanks instead of numbers'

If the Dashboard shows blanks where you expect numbers, the formula has not recalculated. Press F9 (Excel) or Ctrl+Shift+F9 (full recalculation) to force a refresh. In LibreOffice, the equivalent is Ctrl+Shift+F9. If the issue persists, check that the monthly sheets have not been renamed — the Dashboard formulas reference sheets by name (JAN_26, FEB_26, etc.) and cannot find them if the names change.

9.5 'The file opens but is read-only'

Some Excel installations open downloaded files in Protected View. Click 'Enable Editing' at the top of the screen. If the file is on a network drive and another user has it open, you will need to wait until they close it, or save your own copy.

9.6 'I want to email the workbook but it is too large'

The workbook is about 1.5–2 MB, well within standard email limits. If your email server rejects it, try compressing it: right-click the file, choose 'Send to → Compressed (zipped) folder' on Windows, or 'Compress' on Mac. The compressed version is typically half the size.

10. About FieldHealth Africa

FieldHealth Africa is a digital health initiative that builds practical, field-tested tools for African health systems. It is operated by Dr. Nzozone Henry Fomukong — medical doctor, field epidemiologist, District Medical Officer in Mamfe, Cameroon, and trained data scientist.

FieldHealth Africa operates two libraries. The Free Library, of which this workbook is part, serves African practitioners — DMOs, facility managers, district pharmacists, and M&E officers — with practical operational tools at no cost. The Pro Library serves international buyers — global health consultants, NGO M&E officers, researchers, and small consultancies — with premium tools, Python applications, AI-powered builders, and professional dashboards.

Every tool in both libraries is built and tested in the field before it ships. This is the differentiator: the same person who builds the tools also uses them in a real district hospital, in a real conflict-affected setting, with real supply chain problems.

10.1 Feedback and bug reports

If you find a bug, have a suggestion, or want to request a feature, please send a note to hello@fieldhealthafrica.org or hnzozone91.nh@gmail.com with the subject 'Pharmacy Inventory v2.1'. Bug fixes are released as updated versions of the same workbook, with all version history maintained in section 8 of future user guides.

10.2 Stay connected

Visit fieldhealthafrica.org to access the rest of the Free Library, subscribe to the FieldHealth Africa Substack for new tool releases and field stories, and see what is coming next in the Pro Library.

End of user guide.

From data to decisions, in the field.