MOH REPORTS

1. MOH Cohort Report

A quarterly aggregate summary of all patients enrolled in the HIV program at the facility, showing their cumulative treatment outcomes as of the end of the reporting quarter.

The Cohort Report operates on two populations simultaneously:

Population	Definition
Quarterly	Patients enrolled for the first time during the current reporting quarter
Cumulative	All patients ever enrolled since the facility's first ART patient

Key Indicators and Their Derivation

Cohort Report Indicator	Code	How it is calculated
Total Registered (Cumulative)	cum_total_registered	COUNT of all patients in temp_earliest_start_date (deduplicated earliest enrolment per patient) enrolled before the end date
Total Registered (Quarterly)	quarterly_total_registered	COUNT of patients with date_enrolled falling within the current quarter start-to-end date
Initiated on ART First Time (FT)	initiated_on_art_first_time	Patients whose earliest ARV order date equals their ART registration date, excluding transfers-in
Transfers In (TI)	transfer_in	Patients with a Transfer-In program state before the end date
Total Alive and On ART	total_alive_and_on_art	COUNT of patients where moh_cum_outcome = 'On antiretrovirals' at end of reporting period
Defaulted	defaulted	Patients where MoH supply expiry + 60 days < report end date (i.e., overdue for >2 months)

Died Total	died_total	Patients with Patient died state at any time up to end date
Died within 1st month of ART (M1)	died_within_the_1st_month_of_art_initiation	Patients who died AND death date - ART start date ≤ 30 days
Died within 2nd month (M2)	died_within_the_2nd_month_of_art_initiation	Death date 31–60 days after ART start
Died within 3rd month (M3)	died_within_the_3rd_month_of_art_initiation	Death date 61–90 days after ART start
Died after 3rd month (M4+)	died_after_the_3rd_month_of_art_initiation	Death date > 90 days after ART start
Transferred Out (TO)	transfered_out	Patients with Transferred out terminal program state before end date
Treatment Stopped	stopped_art	Patients with Treatment stopped terminal program state before end date
Unknown outcome	unknown_outcome	Patients with outcome = 'Unknown' (enrolled but no ARV orders on record)

Reason for Starting ART Disaggregations

The Cohort Report also records the clinical reason for initiating ART. These are extracted from the HIV Clinic Registration encounter observation (concept: "Reason for ART eligibility"):

Cohort Field	**Clinical Meaning**
no_tb	Never had TB or TB was > 2 years ago
tb_within_the_last_two_years	History of TB within the past 2 years
current_episode_of_tb	Currently on TB treatment at ART initiation
who_stage_two	CD4 count below threshold (CD4-based eligibility)
who_stage_three	WHO clinical stage 3
who_stage_four	WHO clinical stage 4
asymptomatic	Asymptomatic or mild (WHO stage 1/2, treat-all era)
pregnant_women	Pregnant (Option B+)

presumed_severe_hiv_disease_in_infants	Presumed severe HIV disease in infants < 12 months
confirmed_hiv_infection_in_infants_pcr	PCR-confirmed HIV in infants < 12 months

Age/Sex Sub-categories

Field	Definition
all_males	All male patients regardless of age
non_pregnant_females	All female patients not recorded as pregnant
pregnant_females_all_ages	Female patients with "pregnant" at ART initiation
breastfeeding_mothers	Female patients with "breastfeeding" at ART initiation
children_below_24_months_at_art_initiation	Age at ART start < 24 months
children_24_months_14_years_at_art_initiation	Age at ART start 24 months–14 years
adults_at_art_initiation	Age at ART start ≥ 15 years
children_12_59_months	Age at report end date 12–59 months

Adherence Indicators

Field	Source
patients_with_0_6_doses_missed	Last visit before end of quarter — pill count recorded as 0–6 doses missed
patients_with_7_plus_doses_missed	Last visit before end of quarter — pill count recorded as ≥ 7 doses missed

Pill count observations are retrieved from encounters (concept: "Pill count") dated on or before the end of the quarter.

Side Effects, TB Status, CPT/IPT

These are extracted from the most recent clinical encounter (ART visit) before the end of the reporting quarter:

- TB status: From the "TB status" observation on the last visit
- Side effects: From the "Drug-induced" observation on the last visit

- CPT/IPT/3HP: Derived from active drug orders for Cotrimoxazole, Isoniazid, or Rifapentine/Isoniazid combination on or before the end date

Reporting period: Quarterly. Cumulative figures include all history; quarterly figures use the quarter start and end dates for the date_enrolled filter.

2. Disaggregated Report (TX_CURR by Age/Sex/Regimen)

PEPFAR MER Equivalent: TX_CURR (disaggregated)

The number of patients currently alive and receiving ART, disaggregated by age group, sex, and ART regimen as of the end of the reporting period.

Numerator: Patients in temp_patient_outcomes where:

- moh_cum_outcome = 'On antiretrovirals' (MoH definition) OR
- pepfar_cum_outcome = 'On antiretrovirals' (PEPFAR definition)
- AND Sex is 'M' or 'F' (patients with missing or unknown Sex are excluded from the main disaggregation)

Data Source

temp_current_medication table (populated from the most recently dispensed ARV drug orders per patient) joined to temp_patient_outcomes. Regimen is determined by matching the set of dispensed drug IDs (from moh_regimen_combination_drug and moh_regimen_combination) to the MoH-approved regimen combination table.

Regimen Classification Logic:

1. The system retrieves each patient's active ARV drug IDs from their latest dispense date.
2. These are concatenated in drug_id ascending order and matched against the moh_regimen_combination lookup table.

3. If no match exists, the patient is classified as "Unknown" (non-standard regimen or data gap).

4. Regimen codes follow MoH Malawi format: 0P, 0A, 2A, 4PP, 4PA, 4A, 5A, 6A, 7A, 8A, 9PP, 9PA, 9A, 10A, 11PP, 11PA, 11A, 12PP, 12PA, 12A, 13A, 14PP, 14PA, 14A, 15P, 15PP, 15PA, 15A, 16P, 16A, 17PA, 17PP, 17A.

Age Group Disaggregation:

The disaggregated_age_group() database function calculates age in years at the report end date using birthdate. Standard PEPFAR age bands are applied: <1 year, 1–4, 5–9, 10–14, 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65–69, 70–74, 75–79, 80–84, 85–89, 90+ years.

Sex Disaggregation:

- M (Male)

- F (Female — further split into FP pregnant, FNP non-pregnant, FBf breastfeeding in aggregate "All" row)

Maternal Status (FP/FBf):

Applied only to the aggregate "All" row. Pregnancy/breastfeeding status is determined by the ViralLoadCoverage2.vl_maternal_status() service, which checks:

1. Active pregnancy observation on or near the VL due date

2. Active breastfeeding observation recorded in the ART visit encounter near the end date

Denominator: Not applicable (count, not a proportion).

Reporting period: Quarterly. Age is calculated at the end date of the reporting period.

DQ Note:

Patients with no Sex recorded in the system are excluded from all age/sex disaggregations but are included in the total TX_CURR figure. Mismatches between the MoH and PEPFAR disaggregated

totals arise from the different defaulter thresholds (60 days MoH vs 28 days PEPFAR).

3. TX Curr MMD Report (Multi-Month Dispensing)

PEPFAR MER Equivalent: TX_CURR_MMD (MMD sub-indicator)

Among all patients currently alive and on ART (TX_CURR), how many received ≥ 3 months, ≥ 6 months, or < 3 months of ARV supply at their most recent dispense within the reporting period?

Data Source

Each patient's most recent ARV dispensing encounter before the end date (using moh_regimen_combination and drug order records). The number of prescribed days is derived from:

Prescribed Days = (Quantity Dispensed + Pill Count Carryover) ÷ Daily Dose

where daily dose is sourced per-drug from the moh_regimen_doses table based on the patient's current weight. If the weight-based calculation fails, the system uses the auto_expire_date recorded on the order.

Indicator	Definition
< 3 months of ARVs	Prescribed days < 84 days at last dispense
3–5 months of ARVs	Prescribed days ≥ 84 and < 168 days
≥ 6 months of ARVs	Prescribed days ≥ 168 days

Population: Only patients classified as 'On antiretrovirals' per the applicable outcome definition (MoH or PEPFAR). Age/sex filter can be applied (standard PEPFAR age bands).

Disaggregations: Age group × sex (same bands as TX_CURR disaggregated).

Validation: The HIS-Core frontend validates TX Curr MMD totals against the MoH Cohort Report TX_CURR figure. A warning is raised if numbers diverge, indicating rebuilding the cohort is needed.

Reporting period: Quarterly.

4. TX TB Report (TB Screening among ART Patients)

PEPFAR MER Equivalent: TX_TB

Among patients currently alive and on ART (TX_CURR), the proportion of those who were screened for TB during the reporting period. Separate counts are maintained for newly initiated ART patients and those already established on ART.

Indicator	Derivation
TX_CURR	All patients alive and on ART — baseline denominator
Symptom Screen (alone)	Patients with a TB symptom screen observation (no CXR or mWRD ordered) recorded in their ART visit encounter during the period
CXR Screen	Patients with a Chest X-ray (CXR) test ordered or resulted during the period
mWRD Screen	Patients with a molecular WHO-recommended rapid diagnostic (Xpert MTB/RIF, LAMP, or equivalent) test ordered during the period
New on ART / Screen Positive	Patients in their first quarter on ART with a positive screen result
New on ART / Screen Negative	Patients in their first quarter on ART with a negative screen result
Already on ART / Screen Positive	Established ART patients (> 1 quarter) with a positive screen
Already on ART / Screen Negative	Established ART patients with a negative screen
TB RX — New on ART	New ART patients who were started on TB treatment during the period
TB RX — Prev on ART	Established ART patients started on TB treatment during the period

Data Source

TB status observations from ART visit encounters (encounter type: ART Visit). Observations linked to concept "TB status" or "TB treatment" within the reporting period. TB treatment initiation is detected from drug orders for TB drugs (Rifampicin-based regimens).

"New on ART" is defined as: ART start date falls within the reporting quarter (i.e., date enrolled ≥ quarter start date AND ≤ quarter end date).

Disaggregations: Age group × sex (standard PEPFAR bands).

Reporting period: Quarterly.

5. MoH Regimen Report

A patient-level listing of all ARV drugs dispensed to HIV program patients during the selected date range.

Data Source

Drug order records (orders, drug_order, drug tables) for drugs classified under the "ARV" drug concept set, where quantity > 0 and the dispense date falls within the selected period.

Fields per row:

- Patient ARV Number (from patient_identifier table, identifier type = ARV Number)
- Gender and date of birth
- Drug name (from drug table)
- Dispense date (orders.start_date)
- Pack size (from drug.units)
- Number of packs, total pills (from drug_order.quantity)

Population: All patients with an ARV dispense record in the period, not restricted to currently active patients. Transferred-out or stopped patients who received ARVs in the period will appear.

Reporting period: User-defined date range (typically monthly or quarterly).

DQ Note: This report can be used for pharmacy stock reconciliation cross-checks.

6. MoH Regimen Distribution by Weight

Among all patients currently alive and on ART, the distribution of ART regimens stratified by patient weight band and sex.

Weight Bands: Derived from moh_regimen_doses.min_weight and max_weight brackets. Typical bands: 3–5 kg, 6–9 kg, 10–13 kg, 14–19 kg, 20–24 kg, 25–29 kg, 30–34 kg, 35+ kg.

Regimen Classification: Same logic as Disaggregated Report — matched from moh_regimen_combination.

Data Source

Most recent weight observation (concept: "Weight (Kg)") before the end date, combined with the most recent ARV dispense to determine regimen.

Population: TX_CURR patients only.

Disaggregations: Weight band × sex.

Use case: Primarily for paediatric dosing audit, ensuring children are on a weight-appropriate regimen.

7. Survival Analysis Report

Longitudinal tracking of treatment outcomes for historical patient cohorts (grouped by quarter of ART initiation), observed at the current report end date. Reports the number of patients from each starting cohort who are alive and on ART, died, defaulted, transferred out, or have unknown/stopped outcomes as of the observation date.

Cohort Construction:

- The system identifies the quarter of ART initiation for each patient from temp_earliest_start_date.date_enrolled.
- For each historical quarter (going back as far as the facility's earliest HIV encounter), patients enrolled in that quarter are grouped, and their current outcome (as of the report end date) is displayed.
- The observation interval is expressed as: TIMESTAMPDIFF(months, cohort_end_date, report_end_date) i.e., how many months of follow-up have elapsed since that cohort's quarter ended.

Supported Sub-populations:

Sub-group	Inclusion Criteria
General	All patients enrolled in that quarter, regardless of sex or reason
Children	As above, filtered to patients aged < 15 years at the report end date
Option B+ Women (Women)	Female patients aged ≥ 15 years who were pregnant or breastfeeding at ART initiation, determined by: (a) "Reason for starting ART" observation matching 'pregnant' or 'breast', OR (b) pregnancy/breastfeeding observation recorded on the same day as ART initiation

Outcomes reported per cohort/interval cell: On antiretrovirals · Patient died · Defaulted · Transferred out · Treatment stopped · Unknown.

Data Source

temp_earliest_start_date (enrolment dates) joined to temp_patient_outcomes (current outcome at the report end date). Outcomes are computed as per the standard outcome resolution algorithm described in Section 1.

Reporting period: Observation date is the report end date. Cohort quarters extend to the full history of the facility (dynamically calculated from the earliest HIV encounter recorded in the system, up to a default maximum of 10 years if no earlier data exists).

DQ Note: Patients transferred in who were given an earlier ART start date at the original facility will appear in historical cohorts for periods before the patient arrived at this facility. Their outcomes are counted from the registered ART start date.

8. MoH TPT Cohort Report

PEPFAR MER Equivalent: TB_PREV (Denominator and Numerator)

Among HIV-positive patients newly initiated on ART during a defined historical quarter (9 months prior to the current reporting period), how many:

1. Were started on TB Preventive Therapy (TPT)

2. Completed TPT (either 3HP or 6H)

3. Did not complete TPT (and the reason, where recorded)

Cohort Calendar Logic

The TPT Cohort report operates on a shifted time window:

Cohort enrolment window = (Report start date − 9 months) to (Report start date − 9 months + 3 months)

i.e., the quarter that ended approximately 6–9 months before the current reporting period

This allows sufficient follow-up time to observe TPT completion (3HP = ~3 months; 6H = 6 months).

TPT Classification Logic

Patients are classified by the drugs ordered during the TPT initiation window:

Drugs ordered	**TPT Type assigned**
Rifapentine alone or Rifapentine + Isoniazid together	3HP (3-month Rifapentine/Isoniazid)
Isoniazid alone (concept = Isoniazid)	6H (6-month Isoniazid Preventive Therapy)

The system uses concept IDs for: Rifapentine (concept_id = 10565), Isoniazid, and Isoniazid/Rifapentine combination. TPT transfer-in is also considered (from "TPT Drugs Received" observation), where the value_datetime is used as the TPT start date.

Indicators and Their Derivation

Indicator	**Derivation**
Initiated ART	COUNT of patients with first ARV order in the cohort enrolment window (patients with any prior ARV order before the window start are excluded, this ensures "newly initiated" only)
Started TPT	COUNT of patients from the initiated cohort who also have a TPT drug order in the enrolment window
Completed TPT	Patients who completed the full course: • 3HP: drug orders covering ≥ 83 days from TPT start, OR sustained 3 monthly dispenses • 6H: drug orders covering ≥ 168 days from TPT start, OR sustained 6 monthly dispenses

Not Completed	Started TPT but did not meet completion criteria by the report end date
Died	TPT patients whose outcome = 'Patient died'
Defaulted	TPT patients whose ART outcome = 'Defaulted' (MoH definition)
Stopped ART	TPT patients with 'Treatment stopped' state
Transfer Out	TPT patients with 'Transferred out' state
Confirmed TB	TPT patients with TB treatment initiated after starting TPT (i.e., developed active TB)
Pregnant	Female TPT patients with a pregnancy observation recorded during the follow-up period

Data Sources

orders, drug_order (for TPT and ART drug orders), patient_state (for outcomes), obs (for pregnancy/breastfeeding), patient_program (for HIV program enrolment).

Disaggregations: Age group × sex, as standard.

DQ Note:

The "Completed TPT" classification is based on recorded dispenses. If a patient collected TPT from another facility and no transfer-in observation was captured, they will be incorrectly classified as "Not Completed." Data completeness of inter-facility TPT transfer documentation directly affects this indicator.

9. TPT New Initiations Report

PEPFAR MER Equivalent: TX_TB (TB_PREV for the initiation component)

The number of patients newly initiated on TPT during the current reporting quarter, stratified by whether they are new to ART in the same period or were already established on ART, and by TPT regimen type (3HP or 6H).

"New on ART": ART start date falls within the current reporting quarter (first-ever ARV order ≥ quarter start and ≤ quarter end).

"Previously on ART" (Prev): First ARV order was before the current quarter start.

Data Source

TPT drug orders (Rifapentine, Isoniazid concepts) with order dates within the reporting quarter. ART start date from temp_earliest_start_date for classification as new vs. prev.

Disaggregations: District · Age group · Sex · TPT type (3HP / 6H).

Validation: HIS-Core frontend validates total TPT initiations against the MoH Cohort Report. Mismatches are flagged and rebuilding the cohort report is recommended.

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