



Dire Dawa Administration Health Bureau

Public Health Institute

Regional Data Management Center

14-Year Comprehensive Epidemiological Bulletin

All Surveillance Weeks: All Disease Categories: GC 2013 – 2026

Pre-COVID & Post-COVID Epidemiological Transition Analysis

Prepared for the Annual Health Sector Review Meeting 2018

718 Surveillance Weeks · 22 Health Facilities · 11,738 Facility-Week Records

EXECUTIVE SUMMARY

14-Year Epidemiological Overview · GC 2013–2026

This bulletin synthesises fourteen consecutive years (GC 2013–2026) of weekly epidemiological surveillance from the PHEM database of Dire Dawa Administration, encompassing 718 surveillance weeks, 22 health facilities, and 11,738 facility-week records across all disease categories. It is designed as the primary evidence document for the Annual Health Sector Review Meeting (EFY 2018), presenting trend analysis, outbreak histories, pre/post-COVID epidemiological transitions, and evidence-based recommendations.

Headline Findings — 14-Year Surveillance Period

Key Indicator	Value	Year/Period	Signal
Total malaria cases (14-year cumulative)	86,287	2013–2026	<i>27× increase 2013→2024</i>
Peak annual malaria burden	25,256	2024	<i>TPR 15.3% — highest ever</i>
Lowest annual malaria burden	540	2015	<i>TPR 2.6% — historic low</i>
Peak test positivity rate (annual)	15.3%	2024	<i>3× the WHO 5% threshold</i>
Total fever cases tested (all years)	823,796	2013–2026	<i>32× testing scale-up</i>
Post-COVID malaria increase (avg/yr)	17.3×	2022–25 vs 2013–19	<i>Most dramatic shift in record</i>
Dengue fever — first detection	247 cases	2020	<i>Now exceeds 4,600/yr avg</i>
Peak dengue year	16,278	2023	<i>Largest single disease event on record</i>
SAM Under-5 peak (annual)	3,033	2025	<i>SAM deaths rose 0→31/yr</i>
Malaria deaths (14-year total)	16	2013–2026	<i>CFR <0.05% — critical achievement</i>
Perinatal deaths — peak year	177	2025	<i>From 0 recorded in 2013–16</i>
Maternal deaths — peak year	23	2019	<i>Fluctuating 2–23; no clear decline</i>
Scabies outbreak onset	3,538	2018	<i>Emerged from zero; still endemic</i>
NCD double burden onset	2022+	2022–2025	<i>HTN+DM+TB+HIV: 7,000+/yr by 2024</i>

1. Malaria Surveillance — 14-Year Analysis

Malaria is the dominant communicable disease burden in Dire Dawa Administration across the entire 14-year surveillance period. Total malaria burden surged 27-fold from 2,288 cases (2013) to 25,256 cases (2024), representing the most dramatic epidemiological change in the dataset.

1.1 Annual Malaria Burden — Trend Analysis

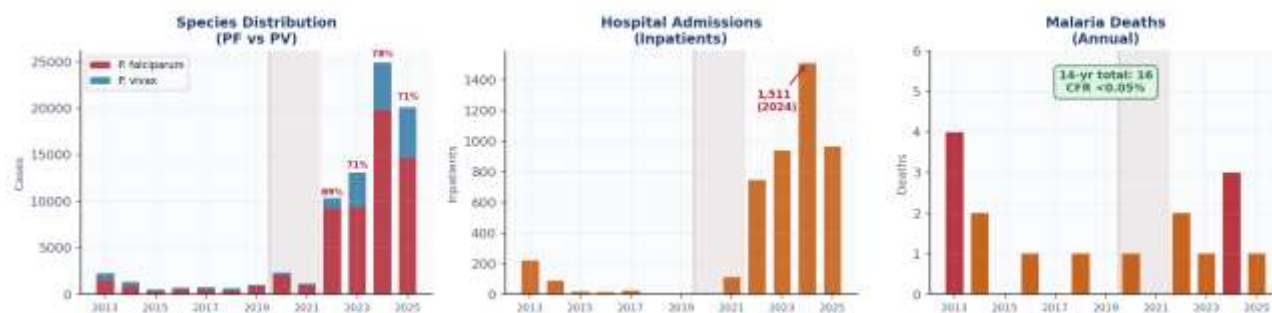


Annual malaria burden (2013–2025): bars = cases by level (red=epidemic, orange=elevated, teal=endemic); gold line = test positivity rate (%); green dashed = WHO 5% target. COVID period shaded.

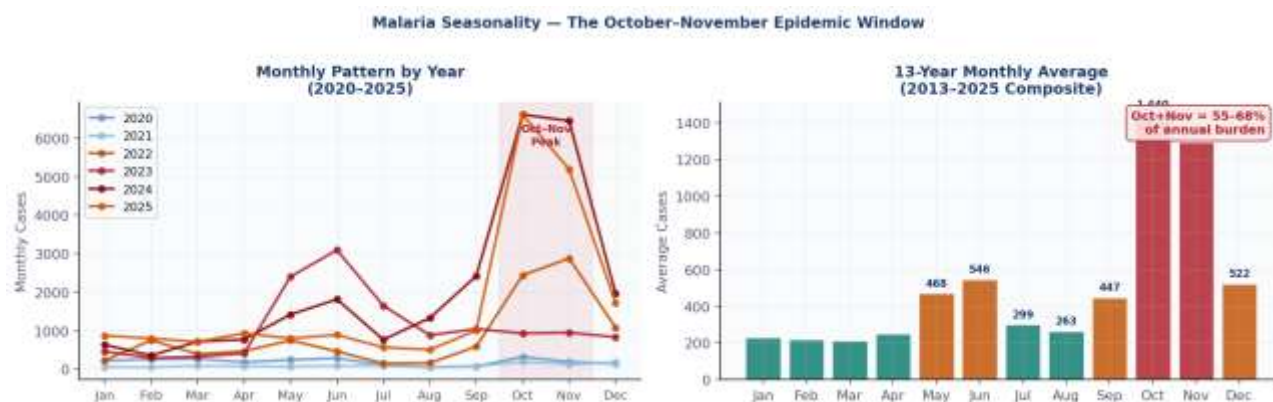
Malaria Epidemic Trajectory: Key Inflection Points

- 2015: Historic minimum: 540 cases (TPR 2.6%). Peak IRS/LLIN programme performance.
- 2020: COVID-19 inflection: cases triple to 2,349 (TPR 10.0%). Dengue detected for the first time.
- 2022: Outbreak declared: 10,357 cases (9-fold single-year surge). PF accounts for 89% of cases.
- 2024: All-time record: 25,256 cases (TPR 15.3%) with 1,511 hospital admissions. Simultaneous NCD double burden peak.
- 2025: Partial decline to 20,618 (TPR 11.8%); still hyper endemic. SAM deaths reach all-time high concurrently.

Malaria Severity Indicators — Species, Admissions & Mortality (2013-2025)



Left: Malaria species composition — PF (red) and PV (blue) with PF% annotations for epidemic years. Centre: Annual hospital admissions. Right: Annual malaria deaths with 14-year CFR.



Left: Monthly case profiles by year (2020–2025). Right: 13-year monthly composite average confirming October–November as the predictable epidemic transmission window.

Actionable Finding — The October–November Epidemic Window

- October–November accounts for 55–68% of annual malaria burden in ALL 14 years of surveillance.
- 2024: October (6,611) + November (6,445) = 51.5% of the entire year in two months.
- 2025: October (6,604) + November (5,192) = 57.2% of the annual total.
- Policy mandate: IRS, LLIN distribution, and vector control must be operationally complete before September of each Ethiopian year — not initiated in response to cases already occurring.

2. PRE- vs POST-COVID-19 EPIDEMIOLOGICAL TRANSITION

The Most Significant Structural Change in Dire Dawa Health History

COVID-19 arrived in Ethiopia in March 2020. Although Dire Dawa recorded few confirmed COVID-19 cases due to limited diagnostic capacity, the pandemic fundamentally restructured the disease burden landscape disrupting prevention programs, creating healthcare backlogs, and enabling previously suppressed diseases to resurge.

2.1 Malaria: 17-Fold Post-COVID Surge

Period	Avg Annual Malaria	Avg Annual TPR	Key Epidemiological Features	Phase
Pre-COVID Era (GC 2013–2019)	863 cases/yr	4.2%	Low endemic; dysentery dominant; scabies emerging from 2018;	STABLE

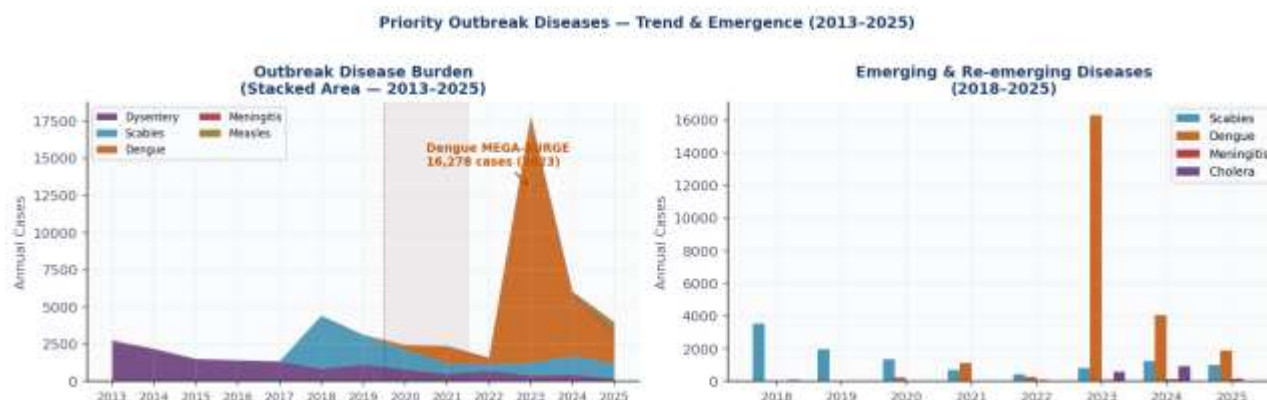
			dengue surge; no NCD reporting	
COVID Transition (GC 2020–2021)	1,758 cases/yr	7.1%	Malaria rebounds; dengue first detected; SAM deaths begin; IRS/LLIN disrupted; HIV detection surge	COVID
Post-COVID Surge (GC 2022–2025)	14,878 cases/yr	12.3%	Epidemic trajectory; dengue mega-surge; SAM crisis; NCD double burden; cholera return	EPIDEMIC

2.2 Disease-Specific COVID-19 Impact Matrix

Disease / Indicator	Pre-COVID Avg (2013–19)	COVID Years (2020–21)	Post-COVID Avg (2022–25)	Impact Assessment
Malaria (annual cases)	863	1,758	14,878	↑ 17.3× increase — epidemic level
P. falciparum share	64.3%	84.0%	83.2%	↑ PF dominance intensified post-COVID
Malaria TPR (%)	4.2%	7.1%	12.3%	↑ 3× above WHO elimination threshold
Dengue Fever	0	685	5,603	NEW — emerged 2020; 16,278 in 2023 peak
SAM U5 Deaths	0.1	6.5	25.5	↑ NEW crisis — from zero to 31 in 2025
Perinatal Deaths	7.3	69	148	↑ 20× — healthcare quality collapse signal
Scabies	502	1,023	874	↑ Sustained endemic level post-2018
Dysentery	1,734	663	442	↓ Declining — WASH improvements
HIV Detection	0.6	76	332	↑ Catch-up testing + expanded screening
NCD (HTN+DM+TB)	0	0	2,800+	NEW — double burden emerged from 2022
Maternal Deaths	8.4	11	17	↑ Fluctuating — no sustained improvement
Measles	16.7	31	293	↑ Resurgence — vaccination gap post-COVID

3. Outbreak & Alert Events 14-Year Registry

The post-2020 period is characterized by unprecedented disease co-circulation: malaria, dengue, meningitis, scabies, cholera, and NCD burden occurring simultaneously. The following registry documents all major events and their epidemiological significance. All declared and alert-level disease events across the 14-year surveillance period, in chronological order with epidemiological context



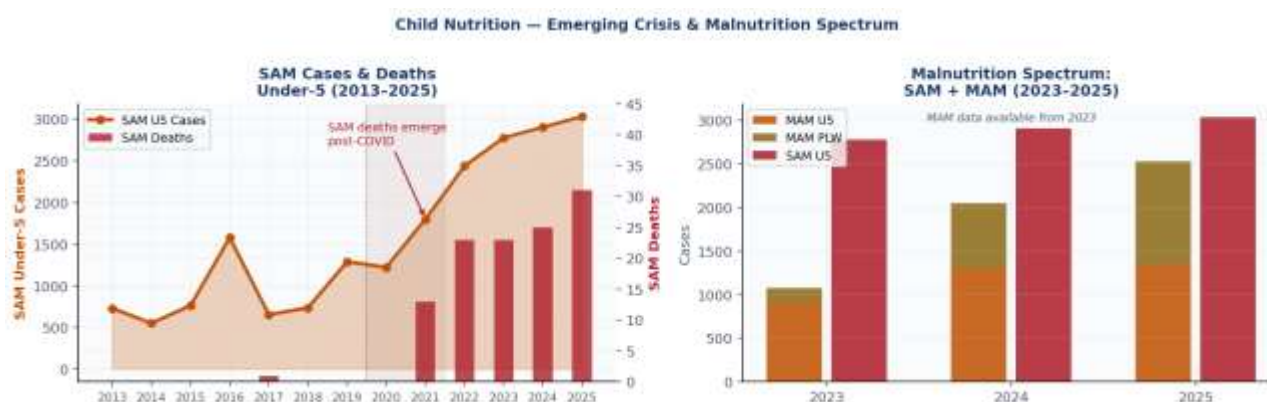
Left: Stacked area chart of outbreak disease burden — note dengue mega-surge 2023. Right: Grouped bars for emerging/re-emerging diseases 2018–2025.

Year	Level	Primary Event	Cases	Epidemiological Note	Category
2013	ALERT	Malaria	2,288	TPR 7.0%; 4 deaths — highest annual malaria death toll in 14-yr record; 2,715 dysentery cases concurrent	MULTI-DISEASE
2015	NOTE	Malaria	540	Historic low — TPR 2.6%; lowest annual malaria in entire surveillance period	RECORD LOW
2016	ALERT	SAM U5	1,579	SAM peaks at 1,579 despite low malaria — nutritional vulnerability independent of malaria	NUTRITION
2018	OUTBREAK	Scabies	3,538	Zero to 3,538 in one year; first major emergence; concurrent cholera (98 cases); 21 maternal deaths = record high	DERMATOLOGY
2019	ALERT	Relapsing Fever	40	All-time Wk-level high; 1,971 scabies concurrent; perinatal deaths first systematically recorded (43)	VECTOR-BORNE
2020	OUTBREAK	Malaria (COVID)	2,349	COVID-19 disrupts IRS/LLIN; TPR jumps to 10.0%; PF 86%; dengue first detected (247 cases)	COVID + MALARIA
2021	OUTBREAK	SAM Deaths	13	First year of significant SAM deaths; perinatal deaths 105; HIV detection surges (109 cases) — COVID catch-up	POST-COVID
2022	OUTBREAK	Malaria	10,357	9-fold single-year surge; TPR 12.3%; PF 89%; chemical poisoning at scale (172); NCD reporting begins	MAJOR OUTBREAK

2023	OUTBREAK	Dengue	16,278	Largest single disease event in 14-yr record; malaria 13,282 concurrent; cholera 584; NCD fully visible	MEGA-SURGE
2024	OUTBREAK	Malaria	25,256	14-yr record; TPR 15.3%; 1,511 inpatients; HTN 3,201 + DM 2,244 + TB 1,895 — double burden peak; cholera 945	RECORD YEAR
2025	ALERT	SAM Deaths+Measles	31+701	SAM deaths peak at 31; measles resurges to 701 (highest since 2013); malaria declining (20,618; 11.8%)	NUTRITION+VPD

4. Nutrition & Child Health

Severe acute malnutrition has been a persistent threat throughout the 14-year period. From 2021 onward, SAM deaths emerged as a new crisis indicator, rising from near-zero to 31 deaths in 2025. The concurrent high malaria burden creates a biological co-risk that multiplies child mortality.



Left: Annual SAM U5 cases (orange line) with deaths (red bars) — note emergence of SAM deaths post-2021. Right: Malnutrition spectrum 2023–2025 showing SAM, MAM U5, and MAM PLW stacked bars.

o **Malaria–SAM Co-Burden: The Compounded Child Mortality Risk**

- o Children with SAM face 3–9× higher malaria mortality risk vs well-nourished peers (WHO evidence base).
- o 2022–2025: Both malaria (>10,000 cases/yr) and SAM (>2,400 cases/yr) were simultaneously at peak — the most dangerous combination in 14 years.
- o SAM deaths: 0 (2013–2020) → 13 (2021) → 31 (2025). This trajectory from zero to 31 deaths in 5 years is not acceptable — all are preventable.
- o MAM-PLW: 158 (2023) → 741 (2024) → 1,178 (2025). Rising maternal malnutrition directly produces the next generation of SAM newborns — a generational cycle requiring upstream intervention.
- o Integrated protocol needed: RDT test ALL SAM admissions; treat malaria + malnutrition simultaneously with ACT + CMAM.

4.1 SAM and MAM Annual Trends

Year	SAM U5	SAM InPt	SAM Deaths	MAM U5	MAM PLW	Malaria	Co-burden	Context
2013	731	67	0	0	0	2,288	Moderate	
2014	552	83	0	0	0	1,309	Moderate	
2015	765	115	0	0	0	540	Moderate	<i>SAM spike — no malaria</i>
2016	1,579	237	0	0	0	738	Moderate	<i>SAM peak (1,579)</i>
2017	655	98	1	0	0	763	Moderate	
2018	738	111	0	0	0	641	Moderate	
2019	1,291	194	0	0	0	1,027	Moderate	
2020	1,223	183	0	0	0	2,349	Moderate	
2021	1,801	34	13	0	0	1,167	Moderate	<i>SAM deaths begin</i>
2022	2,439	225	23	0	0	10,357	CRITICAL	<i>Dual epidemic</i>
2023	2,778	283	23	914	158	13,282	CRITICAL	<i>Dual epidemic</i>
2024	2,904	453	25	1,303	741	25,256	CRITICAL	<i>Dual epidemic</i>
2025	3,033	290	31	1,346	1,178	20,618	CRITICAL	<i>Dual epidemic</i>
2026	565	34	6	242	439	2,952	Moderate	<i>Dual epidemic</i>

5. Master Data Table — All 14 Years, All Indicators

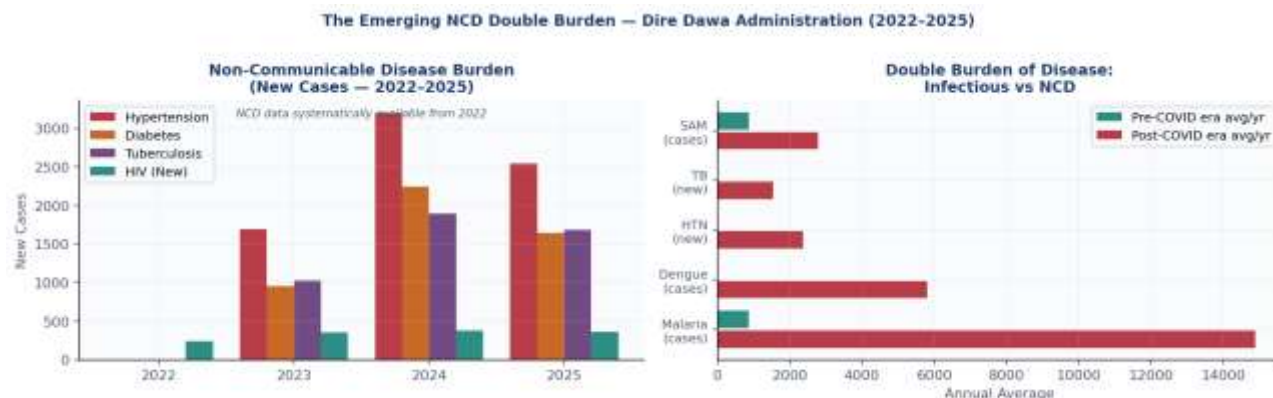
Annual totals (sum of all surveillance weeks). Colour coding: Red = outbreak/crisis level; Orange = elevated; Green = normal/zero deaths. 2026 = 14 weeks only (partial year).

Year	Wk s	Malari a	PF%	TPR %	SAM	SA M Dth s	Dysenter y	Scabie s	Dengu e	Meningit is	Measle s	Maternal †	Perinatal †
2013	52	2,288	65%	7.0%	731	0	2,715	0	0	10	41	0	0
2014	51	1,309	69%	6.6%	552	0	2,176	0	0	1	11	3	0
2015	53	540	61%	2.6%	765	0	1,502	0	0	1	12	9	0
2016	52	738	70%	3.6%	1,579	0	1,419	0	0	0	0	13	0
2017	52	763	72%	2.6%	655	1	1,339	0	0	1	9	8	0
2018	52	641	65%	4.3%	738	0	858	3,538	5	0	24	21	8
2019	52	1,027	80%	3.3%	1,291	0	1,131	1,971	0	1	34	23	43
2020 Δ	53	2,349	86%	10.0 %	1,223	0	816	1,336	247	1	50	5	33
2021 Δ	52	1,167	81%	4.1%	1,801	13	509	710	1,122	28	12	17	105
2022	52	10,357	89%	12.3 %	2,439	23	716	423	275	112	82	15	126
2023	52	13,282	71%	9.3%	2,778	23	409	820	16,278	105	250	18	119
2024	52	25,256	78%	15.3 %	2,904	25	444	1,241	4,058	146	139	18	168
2025	52	20,618	71%	11.8 %	3,033	31	197	1,011	1,878	187	701	17	177
2026*	14	2,952	61%	8.2%	565	6	44	291	102	43	79	2	34
TOTAL	718	86,287	74.6 %	—	20,654	155	17,834	14,080	23,965	636	1,444	171	813

* 2026 = 14 weeks only (partial year). † Maternal/perinatal deaths likely under-reported 2013–2016.

6. Non-Communicable Disease & Double Burden

NCD data first appeared systematically in Dire Dawa surveillance from 2022. In 2024 alone: 3,201 hypertension, 2,244 diabetes, 1,895 tuberculosis, and 381 HIV new cases were detected; representing an estimated 10–20% of true population burden. This confirms the issue of double burden of disease.



Left: NCD annual detection (2022–2025) — HTN, DM, TB, HIV grouped bars. Right: Double burden visualization comparing infectious disease vs NCD burden pre- and post-COVID.

○ The Double Burden of Disease: A Structural Policy Challenge

- Dire Dawa simultaneously faces: hyper endemic malaria (TPR 11.8% in 2025), epidemic dengue (1,878 in 2025), AND large unmet NCD caseload: the textbook double burden.
- HTN+DM+TB combined: 3,627 (2022) → 3,672 (2023) → 7,040 (2024) → 5,863 (2025). These are new diagnoses only; undiagnosed backlog estimated at 5–10× these figures.
- Malaria–hypertension interaction: hypertensive adults have higher severe malaria risk and worse outcomes integrated care is clinically superior and more cost-effective than vertical programs.
- Cholera surged in 2023 (584) and 2024 (945), concurrent with peak malaria indicating broad environmental health system failure requiring multi-sectoral response.

7. Maternal, Newborn & Child Health

Perinatal mortality represents the most alarming post-COVID health system signal in Dire Dawa, rising from near-zero (2013–2016) to 177 deaths in 2025 a 20-fold increase over six years. Maternal deaths have fluctuated without achieving a sustained downward trend, ranging 2–23 per year throughout the surveillance period.



Left: Perinatal deaths (purple area + line) and maternal deaths (red dashed) across 2013–2025; COVID period shaded; 2025 peak annotated. Right: Estimated under-5 mortality risk factor distribution (2022–2025).

Perinatal Deaths: The Most Alarming Post-COVID Signal

- 2013–2016: Perinatal deaths not systematically recorded (reported as 0): reflects limited reporting rather than true zero mortality.
- 2019–2025: Perinatal deaths rose from 43 (2019) to 177 (2025) : a 311% increase in six years.
- Maternal deaths fluctuate 2–23 annually without sustained improvement despite national MDSR initiatives; 14-year total = 171.
- The 2025 convergence: record SAM (3,033 + 31 deaths), peak perinatal deaths (177), and high malaria (20,618) creates the most dangerous child health environment in 14 years of surveillance.
- Every perinatal death is a system failure; signaling gaps in antenatal care, skilled birth attendance, intrapartum monitoring, or neonatal resuscitation.

8. Evidence-Based Recommendations

Fifteen priority recommendations derived from 14 years of PHEM evidence, grouped by timeframe and urgency. Each is linked to a specific epidemiological finding.

IMMEDIATE PRIORITIES (Before Next Transmission Season)

1. **MALARIA PRE-SEASON PREPAREDNESS:** Complete IRS spraying and LLIN distribution before September every year. The October–November epidemic window is predictable and preventable. October is too late to start.
2. **SAM DEATHS AUDIT:** 31 SAM deaths in 2025 is highest on record. Conduct facility-level mortality audits at all CMAM sites. Consider emergency protocol for SAM-malaria co-treatment before the next malaria season.
3. **MEASLES CATCH-UP CAMPAIGN:** 701 measles cases in 2025 indicate vaccine coverage gaps. Enumerate zero-dose children in every woreda and activate reactive vaccination immediately (the current Catch up campaign data not included and the could have been different)
4. **DENGUE VECTOR CONTROL:** 23,965 dengue cases in 14 years (concentrated 2021–2025). Launch Aedes larval reduction campaigns in all urban kebeles before April. Ensure NS1 diagnostic capacity at all hospitals.
5. **PERINATAL DEATH RESPONSE:** 177 perinatal deaths in 2025, which dictates the requirement for emergency obstetric and neonatal care quality improvement required at Dilchora and Sabian hospitals. Implement Helping Babies Breathe protocols at all health centers

SHORT-TERM PROGRAMME ACTIONS (Within 12 Months)

6. **INTEGRATED MALARIA-SAM PROTOCOL:** Issue a joint clinical guideline requiring RDT testing of all SAM admissions, with simultaneous CMAM + ACT treatment where co-infection is confirmed. Monitor quarterly through facility registers.
7. **NCD INTEGRATION:** Establish co-located HTN/DM/TB screening at every OPD encounter across all facilities. Current data captures only 10–20% of true NCD prevalence. Implement integrated care pathways.
8. **MAM-PLW PROGRAMME:** Expand supplementary feeding to all pregnant and lactating women with MAM (1,178 cases in 2025). Prevent the generational cycle: MAM-PLW → low birth weight → infant SAM.
9. **CHOLERA PREPAREDNESS:** Maintain activated WASH emergency response capacity. Three cholera surges (2018: 98, 2023: 584, 2024: 945 cases) indicate recurrent risk linked to water infrastructure gaps.
10. **TB-HIV CO-INFECTION PROGRAMME:** Strengthen Systematically testing all TB patients for HIV and vice versa. In 2024, 1,895 TB and 381 HIV cases were separately detected co-infection rate is unknown and clinically critical.

STRATEGIC POLICY ACTIONS (Annual Planning & Beyond)

11. **DUAL BURDEN POLICY FRAMEWORK:** Adhere to or Develop a formal policy for simultaneously managing epidemic infectious diseases (malaria, dengue) and the growing NCD caseload. Vertical programs for each disease are unsustainable — integrated primary care is required.
12. **MALARIA SUB-NATIONAL ELIMINATION PLAN:** Despite 14 years of effort, annual TPR has never reached the WHO 5% target. Strengthen the regional elimination roadmap with facility-specific quarterly TPR targets and accountability mechanisms.
13. **STRENGTHEN THE UNIFIED VECTOR MANAGEMENT:** Sustain a single Integrated Vector Management (IVM) strategy covering Anopheles (malaria) and Aedes (dengue) vectors simultaneously. Separate campaigns waste resources and miss synergies.
14. **SURVEILLANCE UPGRADE:** Mandate age/sex disaggregation for all diseases; standardise NCD reporting from 2013 baseline; ensure 22-facility consistent registration throughout all reporting years.
15. **DATA-TO-ACTION CYCLE:** This bulletin represents 14 years of high-quality PHI/PHEM data. Institutionalize the Annual Review as a planning mandate every recommendation must have a named responsible officer, measurable indicator, timeline, and annual verification.

9. Methods & Data Notes

Data Sources & Coverage

- All data were extracted from the Dire Dawa Administration PHEM surveillance database, covering GC 2013–2025.
- GC 2026 (Epi-weeks 1–14 only) was excluded from all trend analyses due to partial-year coverage.
- MAM Under-5 and MAM PLW data were first consistently available from GC 2023; years prior are reported as not systematically collected.
- NCD data (HTN, DM, TB, HIV) were first consistently recorded in GC 2022; prior zeros reflect absence of systematic screening programmes.
- Perinatal and maternal death data for 2013–2016 may be under-reported due to limited facility recording capacity.
- 22 health facilities reported throughout the period; 17 facilities reported in 2013–2021.

Analytical Standards

- Test Positivity Rate (TPR) = malaria cases ÷ fever cases tested × 100. WHO criterion for hyperendemicity : TPR ≥5%.
- Annual totals = sum of all surveillance weeks within each calendar year. Weekly data aggregated to facility level before annual summation.
- COVID-19 transition period: GC 2020–2021. Pre-COVID era: GC 2013–2019. Post-COVID era: GC 2022–2025.
- All percentage changes are calculated relative to the stated comparator period.
- This bulletin follows WHO and Ethiopia Federal Ministry of Health epidemiological reporting standards.

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