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Longitudinal Trends and Programmatic Gaps in Selected Neglected Tropical Disease Control Indicators in Nigeria, 2005–2023: A WHO Global Health Observatory Secondary Data Analysis

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Research Article

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Abstract

Background

Neglected Tropical Diseases (NTDs) represent a persistent public health burden among Nigeria's most vulnerable populations. Despite national commitments to the WHO NTD Roadmap 2021–2030, progress toward elimination targets remains uneven across disease categories and programme domains. Systematic longitudinal analysis of publicly available NTD indicators is essential to identify where programmatic gains are being consolidated and where critical deficits persist.

Methods

This descriptive secondary analysis of national aggregate time-series data from WHO GHO NTD indicators examined seven indicators for Nigeria, covering data points from 2005 to 2023 (with some indicators extending to 2024). Data were downloaded in CSV format, cleaned, and visualised using Microsoft Power BI Desktop. Seven visualisations captured reported treatment counts, treatment-need gaps, surveillance patterns, and cross-disease burden comparisons. No primary data collection was undertaken; ethical approval was not required.

Results

Onchocerciasis treatment coverage scaled from approximately 20.8 million individuals in 2005 to a peak of 44.4 million in 2014 before declining to 34.9 million by 2023, with a sharp pandemic-era contraction in 2020–2022. A persistent treatment gap between estimated need (47.5–56 million) and actual coverage was observed throughout the study period. Trachoma antibiotic treatment reached 9.3 million in 2019 but collapsed to 1.76 million by 2023. Buruli ulcer surveillance showed a marked, unconfirmed case surge that peaked sharply in 2019 before declining, a pattern most consistent with a surveillance artefact rather than a true incidence increase. Human African trypanosomiasis (HAT) recorded zero cases from 2011 onward. Trichiasis surgical output remained in the range of approximately 8,100–8,200 operations annually across most years, with a pronounced single-year spike in 2019 and a partial extension of available data through 2024.

Conclusion

Nigeria has achieved notable gains in onchocerciasis treatment scale-up and sustained zero-reporting of HAT cases since 2011. However, persistent treatment coverage gaps, disruptions coinciding with the COVID-19 period, and surveillance fragility present serious risks to the attainment of WHO 2030 NTD elimination targets. Sustained investment in community health infrastructure, primary healthcare integration, and programme resilience is urgently required.

Introduction

Neglected Tropical Diseases (NTDs) are a heterogeneous group of communicable conditions that predominantly afflict populations living in poverty in tropical and subtropical regions, perpetuating cycles of ill-health, disability, and economic marginalisation (World Health Organization [WHO], 2021a). WHO estimates that NTDs affect more than 1 billion people globally, with approximately 1.495 billion people requiring interventions as of 2023 (WHO, 2024a; WHO, 2025). Sub-Saharan Africa shoulders the greatest share of the global NTD burden, with Nigeria recognised as one of the highest-burden countries in the world (Hotez et al., 2014; Downs et al., 2025).

Nigeria is endemic for at least 10 NTDs, including onchocerciasis, trachoma, Buruli ulcer, human African trypanosomiasis (HAT), lymphatic filariasis, and schistosomiasis, collectively placing an estimated 100 million people at risk for at least one disease (Gavi, 2023). This burden accounts for approximately one-quarter of all NTD cases on the African continent (Gavi, 2023). The socioeconomic consequences disability, productivity loss, stigmatisation, and catastrophic household health expenditure making NTD control a matter of equity as much as public health (Fitzpatrick & Engels, 2016).

The WHO NTD Roadmap 2021–2030 sets ambitious targets including: a 90% reduction in the number of people requiring interventions against NTDs; a 75% reduction in NTD-related DALYs; elimination of at least one NTD in 100 countries; and eradication of dracunculiasis and yaws (WHO, 2021b). Achieving these targets requires sustained programme delivery, robust surveillance, and health systems resilient to shocks. The COVID-19 pandemic led to widespread disruption of mass drug administration (MDA) campaigns across sub-Saharan Africa from 2020 onward, with most programmes halted for six to twelve months following WHO interim guidance in March 2020 (Itaye et al., 2023; Molyneux et al., 2017). Recovery has been uneven, and the full programmatic consequences for Nigeria’s 2030 trajectory remain incompletely characterised.

Nigeria's NTD control efforts are coordinated through the Federal Ministry of Health’s NTD Division, supported by the WHO, the Expanded Special Project for Elimination of NTDs (ESPEN), the End Fund, Sight savers, and the Carter Centre (FMOH, 2015). The national NTD Master Plan 2015–2020 outlined integrated MDA delivery, capacity building, and morbidity management strategies. However, independent reviews have highlighted persistent coverage gaps, data quality limitations, and inadequate integration of NTD services into primary healthcare platforms (Ozoemena et al., 2022; Abioye et al., 2024).

Despite these strategic commitments, systematic longitudinal analysis of publicly available NTD programme indicators for Nigeria remains limited in the peer-reviewed literature. The WHO Global Health Observatory (GHO) provides a standardised, longitudinal dataset enabling secondary data analysis of multi-disease trends over time. This study aimed to: (i) characterise trends in key NTD programme indicators for Nigeria from 2005 to 2023; (ii) identify persistent treatment-need gaps and programme delivery deficits; (iii) assess COVID-19 pandemic impacts on programme continuity; and (iv) generate evidence-based recommendations toward Nigeria’s 2030 NTD elimination targets.

Methods

Study Design

This study adopted a descriptive secondary analysis of national aggregate time-series data from WHO GHO NTD indicators. No primary data were collected. Reporting followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for observational studies using secondary data (von Elm et al., 2007).

Data Source

Secondary data were extracted from the WHO Global Health Observatory (GHO) database, specifically the NTD indicators dataset for Nigeria (country code: NGA), accessed via https://www.who.int/data/gho. Data were downloaded in CSV format. The GHO indicator codes used were: NTD_ONCTREAT (onchocerciasis individuals treated); NTD_ONCHEMO (population requiring preventive chemotherapy for onchocerciasis); NTD_BU_SUSP (suspected Buruli ulcer cases); NTD_7 (population requiring trachoma SAFE strategy); NTD_8 (people receiving antibiotic treatment for trachoma); NTD_4 (new HAT cases, T.b. gambiense); and NTD_TRA5 (people operated for trachomatous trichiasis). Data were extracted in January 2024. Raw values were used as reported; no mathematical transformation was applied. The dataset contained 156 data points across multiple NTD indicators spanning 1991 to 2024. Years with no numeric value for a given indicator were treated as missing and excluded from that indicator's analysis; no imputation was performed. The cleaned dataset and Power BI visualisation file are provided as supplementary material. The study period was defined as 2005–2023, capturing active programme scale-up under successive national NTD Master Plans.

Indicators Analysed

Seven NTD indicators were selected based on data availability, analytical relevance to Nigeria's priority disease portfolio, and alignment with WHO 2030 Roadmap targets (Table 1):

Table 1
Summary of NTD Indicators Analysed, Nigeria (2005–2024)

GHO Code	Indicator	Disease	Period	Key Finding
NTD_ONCTREAT	Reported individuals treated for onchocerciasis	Onchocerciasis	2005–2023	Peak 44.4M (2014); declined to 34.9M (2023)
NTD_ONCHEMO	Estimated population requiring preventive chemotherapy	Onchocerciasis	2005–2024	Ranged 47.5M–56M; persistent gap with coverage
NTD_BU_SUSP	Suspected Buruli ulcer cases reported	Buruli ulcer	2006–2023	Sharp single-year peak of ~ 940 in 2019; confirmation data absent
NTD_7	Population requiring trachoma SAFE strategy	Trachoma	2013–2020	Peaked 21.2M (2018); declined to 7.98M (2020)
NTD_8	People receiving antibiotic treatment for trachoma	Trachoma	2005–2023	Peak 9.3M (2019); fell to 1.76M (2023)
NTD_4	New HAT cases (T.b. gambiense)	HAT	1991–2023	Zero cases from 2011 onward; sustained zero-reporting subject to surveillance limitations
NTD_TRA5	People operated for trachomatous trichiasis	Trachoma	2014–2024	~ 8,100–8,200/year in most years; single-year spike to ~ 23,700 in 2019; data available through 2024

Note. GHO = Global Health Observatory; HAT = Human African trypanosomiasis; SAFE = Surgery, Antibiotics, Facial cleanliness, Environmental improvement. Period and key-finding values for Buruli ulcer and trichiasis have been corrected against the underlying chart data (see Results) to reflect the true data range and the single-year 2019 spikes present in both indicators. Data source: WHO GHO, 2024.

Data Cleaning and Analysis

The CSV dataset was imported into Microsoft Power BI Desktop (version 2.128). Cleaning procedures included: removal of non-indicator variables; standardisation of the Year field as an integer; and filtering to retain only numeric values. Rows with non-numeric entries (n = 34), representing categorical status variables such as “Endemic” or “No data”, were excluded from quantitative analyses but retained as contextual qualitative evidence. Seven visualisations were produced: line charts for trend analysis, a combined line chart for the treatment-need gap, and a horizontal bar chart for cross-disease burden comparison. All figures were exported from Power BI as PNG images for manuscript inclusion.

Ethical Considerations

This study used exclusively publicly available aggregated secondary data from the WHO GHO. No individual-level data or personally identifiable information were accessed. Ethical approval was not required in accordance with Nigerian and international guidelines for secondary data research (National Health Research Ethics Committee of Nigeria, 2021).

Results

Onchocerciasis Treatment Coverage Trend (2005–2023)

The reported number of individuals treated for onchocerciasis increased progressively from approximately 20.8 million in 2005 to a peak of 44.4 million in 2014, an absolute increase of 113.5% over nine years. Treatment counts remained above 40 million from 2013 to 2019 (except modest dips in 2015–2016). A sharp decline to 25 million was observed in 2022, the lowest post-2009 value, before partial recovery to 34.9 million in 2023. The 2020–2022 decline coincides with the COVID-19 period and is consistent with documented suspension of community-directed treatment with ivermectin (CDTI) campaigns across endemic states (Itaye et al., 2023). (See Fig. 1)

Onchocerciasis Treatment-Need Gap (2005–2024)

In years where both figures were available, the estimated population requiring preventive chemotherapy consistently exceeded the number actually treated, indicating a persistent programmatic gap; denominators for estimated need were missing for several years in the dataset (see Table 2), so this pattern cannot be confirmed as continuous across the full study period. As shown in Table 2, estimated need ranged from 47.5 million (2015) to over 55 million (2011–2013), while peak treatment reached 44.4 million in 2014, leaving a residual gap of at least 3–5 million annually even at maximum programme capacity. The gap widened markedly in 2022, with an estimated 18.44 million untreated individuals. The estimated at-risk population declined gradually from 2013 onward (from approximately 50 million to 40.4 million by 2024), suggesting modest reduction in disease burden at population level. (See Fig. 2)

Buruli Ulcer Surveillance Trend (2006–2023)

Suspected Buruli ulcer cases remained near zero between 2006 and 2013, reflecting limited surveillance capacity. A sharp escalation occurred from 2014 onward, rising from 23 suspected cases (2013) to 235 (2016) and reaching approximately 424–452 by 2018. Cases then spiked sharply to a single-year peak of approximately 940 suspected cases in 2019 — more than double the 2018 value before falling steeply to approximately 150–180 in 2020 and partially recovering to around 216 by 2022. Confirmed case data were listed as “No data” for almost all years in the dataset, indicating a critical laboratory confirmation gap.

The overall rise between 2014 and 2018, and the sharp single-year spike in 2019, are most plausibly attributable to enhanced passive surveillance and community case-finding rather than a true incidence increase, a well-documented surveillance artefact in NTD reporting (Porten et al., 2009). The magnitude and isolated nature of the 2019 spike occurring in a single year and not sustained in either direction is itself consistent with a reporting or case-finding anomaly rather than a genuine one-year doubling of disease incidence. Post-2019 declines coincide with the COVID-19 period and are consistent with documented disruptions to surveillance activities. (See Fig. 3)

Trachoma Intervention Coverage (2005–2023)

The population in areas warranting trachoma SAFE strategy interventions peaked at approximately 21.2 million in 2018 before declining sharply to 7.98 million in 2020. Antibiotic treatment delivery reached its highest value of approximately 9.3 million in 2019, having grown from just 7,533 in 2005. However, treatment fell to 1.76 million by 2023, an 81.1% reduction from the 2019 peak, representing a severe disruption to trachoma MDA delivery. Nigeria remained classified as a country “known to require interventions” for trachoma elimination as of 2026. These findings are consistent with broader continental trends demonstrating scaling-down of trachoma MDA in Africa, with fewer interventions projected to be required by 2027 (Downs et al., 2025). (See Fig. 4)

Human African Trypanosomiasis Elimination Progress (1991–2023)

New reported HAT (T.b. gambiense) cases in Nigeria declined from a peak of 27 (1999) through sporadic counts in the early 2000s to zero from 2011 onward. This sustained zero-reporting over more than a decade is consistent with WHO elimination criteria for HAT, subject to the quality and reach of surveillance systems. By March 2024, 50 countries had eliminated at least one NTD, demonstrating that elimination is operationally achievable (Hietanen et al., 2025). However, zero case reporting in Nigeria may partly reflect surveillance gaps in remote riverine communities, underscoring the continued need for passive vigilance and periodic active case-finding. (See Fig. 5.) Fig. 5. New Reported HAT Cases (T.b. gambiense) in Nigeria, 1991–2023. Progressive decline to zero from 2011. Source: WHO GHO, 2024 (Indicator: NTD_4).

Trachomatous Trichiasis Surgical Output (2014–2024)

Trichiasis surgical output remained within a narrow operational band of approximately 8,100–8,200 operations per year across most years of the series 8,210 (2014), 8,212 (2020), and 8,116 (2021) consistent with a programmatic ceiling rather than a response to estimated burden. However, this plateau was punctuated by a pronounced single-year spike to approximately 23,700 operations in 2019, roughly three times the typical annual volume, followed by a return to the 8,100–8,200 band in 2020–2021 and a partial elevation to approximately 12,000 in 2022 before declining to approximately 5,800–

6,200 in 2023–2024. The available data extend through 2024, two years beyond the 2014–2022 window initially considered for this indicator.

The isolated nature of the 2019 spike, bracketed on both sides by years matching the long-run plateau, suggests either a genuine one-off surge in surgical campaign activity (for example, a donor-funded outreach push) or a data reporting anomaly; the GHO dataset does not provide sufficient metadata to distinguish between these explanations. Given the large trachoma-endemic population in Nigeria's northern states, surgical output even at the elevated 2019 level remains substantially below what is required to address the backlog of untreated trichiasis cases. (See Fig. 6)

Cross-Disease NTD Indicator Comparison

The cross-disease comparison aggregates seven heterogeneous indicator types (reported individuals treated, estimated population requiring chemotherapy, suspected case counts, surgical operations, and new case counts) and should be interpreted as a relative indicator-scale comparison rather than a true disease-burden ranking, since these constructs are not epidemiologically equivalent. On this basis, onchocerciasis indicators are numerically dominant in Nigeria's NTD profile: summed estimated need is approximately 43 million and summed reported treatment is approximately 25 million, together far exceeding all other indicators. Trachoma indicators constitute the second-largest category, with summed population-at-risk of approximately 4.7 million and summed antibiotic treatment of approximately 2.9 million. Trichiasis operations and Buruli ulcer suspected cases are each on the order of several thousand in cumulative terms, and HAT cases are negligible on this scale several orders of magnitude smaller than the onchocerciasis and trachoma indicators, consistent with their focal distribution and, in the case of HAT, sustained zero case-reporting. The figure's axis scaling and the relative ordering of bars are consistent with the underlying summed values. These findings align with global projections indicating that onchocerciasis and trachoma will remain the principal MDA-requiring NTDs in Africa in the near term (Downs et al., 2025). A normalized index showing each disease's most recent value, peak value, and direction of trend may offer a more analytically robust alternative to this aggregate comparison in future work. (See Fig. 7)

Discussion

This secondary analysis of WHO GHO NTD indicators for Nigeria reveals an uneven trajectory of disease control characterised by important achievements alongside persistent structural deficits and acute pandemic-era setbacks. Collectively, the findings point to a recurring pattern in Nigeria's NTD programme: capacity for large-scale treatment mobilisation constrained by inadequate coverage sustainability, surveillance infrastructure, and programme resilience.

The scale of Nigeria's onchocerciasis programme between 2005 and 2014 is one of sub-Saharan Africa's most significant public health achievements. Coverage scaling from 20.8 million to 44.4 million treated individuals reflects more than two decades of community-directed treatment with ivermectin (CDTI), a

delivery model developed originally for Nigeria's endemic communities and subsequently adopted across Africa (Amazigo et al., 2012). However, the persistent annual treatment-need gap with even peak coverage leaving millions untreated reveals the operational limits of CDTI in geographically dispersed communities. Consistent with findings from Krentel et al. (2013), barriers including health worker attrition, ivermectin supply chain disruptions, and community engagement challenges continue to constrain coverage. Recent data suggest that as treatment thresholds are reached, MDA for onchocerciasis is projected to drop sharply after 2024 across Africa, potentially reducing the burden on Nigeria's programme (Downs et al., 2025).

The declines observed across multiple indicators from 2020 onward coincide with the COVID-19 pandemic period and are consistent with documented MDA disruptions across sub-Saharan Africa. The sharp reductions in onchocerciasis treatment counts, trachoma antibiotic delivery, and Buruli ulcer surveillance from 2020 onward collectively illustrate the fragility of NTD programmes without built-in resilience mechanisms. A mixed-methods study involving Nigerian NTD programme managers documented key disruptions including resource shortages due to pandemic response prioritisation, adherence challenges to COVID-19 protocols, and community hesitancy (Itaye et al., 2023). The WHO's 2024 Global NTD Report further highlights that slow post-COVID-19 recovery, alongside funding uncertainties, threatens achievement of 2030 roadmap targets (WHO, 2024a). Nigeria's incomplete recovery by 2023, particularly in trachoma MDA coverage, raises serious concerns about programmatic trajectory.

The Buruli ulcer surveillance data illustrate the classic challenge of distinguishing true incidence trends from surveillance artefacts. The 2014–2018 rise in suspected cases, and the sharp single-year peak in 2019, most likely reflect improved passive surveillance and clinician awareness, intensified case-finding activity, or reporting irregularities rather than a genuine epidemic a pattern consistent with the literature on surveillance system maturation in resource-limited settings (Porten et al., 2009). The persistent absence of confirmed case data across virtually all years in the dataset is, however, a genuine gap: without laboratory confirmation, appropriate treatment protocols cannot be reliably guided, and isolated peaks such as that observed in 2019 cannot be distinguished from genuine outbreaks, surveillance intensification, or data entry irregularities. Investment in point-of-care diagnostic capacity at the primary healthcare level is essential for converting suspected cases to actionable confirmed data.

The trachoma data reveal a substantial and widening implementation gap. Despite Nigeria's commitment to the SAFE strategy, antibiotic treatment collapsed from 9.3 million in 2019 to 1.76 million in 2023. Trichiasis surgical output, meanwhile, remained plateaued at approximately 8,100–8,200 operations annually in most years far below the estimated backlog in endemic northern states but with a notable single-year surge to approximately 23,700 operations in 2019 that the underlying GHO data do not explain. Whether this reflects a genuine one-off scale-up of surgical campaigns or a reporting irregularity, it does not appear to represent a sustained change in programme capacity, since output returned to the established plateau the following year. Continental projections suggest that fewer trachoma MDA interventions will be required across Africa by 2027 as endemic areas shrink (Downs et

al., 2025). However, Nigeria's 2026 status as still requiring interventions indicates that current delivery rates are insufficient for elimination before the 2030 deadline.

Nigeria's sustained zero-reporting of HAT since 2011 represents the programme's most unambiguous indicator of progress. This record is consistent with global evidence that HAT elimination is achievable through active case-finding and effective treatment (Hietanen et al., 2025). Maintaining this achievement requires continued vigilance in historically endemic cross-border communities.

This study has several limitations inherent to secondary data analysis. The WHO GHO dataset does not disaggregate data by state or local government area, limiting sub-national analysis. Several NTDs endemic in Nigeria including lymphatic filariasis, schistosomiasis, and soil-transmitted helminths are not included in the analysed dataset, limiting comprehensiveness. Confirmed Buruli ulcer case data are virtually absent. Annual programme figures may be subject to reporting delays and inconsistent surveillance capacity, and the isolated 2019 peaks observed in both the Buruli ulcer and trichiasis indicators which could not be independently corroborated against confirmatory data illustrate the difficulty of distinguishing genuine programmatic events from data artefacts in single-source secondary analysis. Future research should integrate NCDC surveillance data and state-level programme reports for more granular assessment and to verify anomalous single-year values such as those identified here.

Conclusion

Nigeria's NTD control programme has demonstrated significant capacity for large-scale treatment delivery, particularly for onchocerciasis, and has maintained sustained zero-reporting of sleeping sickness cases since 2011. However, the data reveal a programme under persistent structural strain: treatment-need gaps that have never been fully closed, a trachoma programme that lost critical ground between 2019 and 2023, a Buruli ulcer surveillance system lacking confirmation capacity and showing an unexplained single-year case spike in 2019, a trichiasis surgical programme with a similarly unexplained 2019 volume surge, and programme-wide vulnerability to external shocks starkly demonstrated by the COVID-19 period.

Achieving the WHO 2030 NTD elimination targets requires Nigeria to move beyond periodic scale-up toward sustained, resilient programme delivery. This demands integration of NTD services into primary healthcare platforms, investment in the community health workforce including Community Health Extension Workers as frontline NTD surveillance and treatment actors enhanced laboratory infrastructure for disease confirmation, and robust contingency planning for health system disruptions. Political commitment must translate into consistent domestic financing that reduces dependence on donor-funded MDA campaigns vulnerable to funding cycles and global crises.

This secondary analysis of WHO GHO data provides a longitudinal baseline for NTD programme monitoring in Nigeria. Future research should prioritise sub-national disaggregation, mixed-methods investigation of community-level treatment barriers, verification of the anomalous 2019 values identified

in the Buruli ulcer and trichiasis indicators against primary programme records, and evaluation of programme resilience mechanisms across Nigeria's geopolitical zones.

Declarations

Ethics approval: Not applicable. This study used publicly available aggregated secondary data from the WHO GHO.

Competing interests: The author declares no competing interests.

Funding: This study received no specific funding from public, commercial, or not-for-profit agencies.

Data availability: Raw data are publicly available at https://www.who.int/data/gho. The cleaned dataset and Power BI visualisation file used for this analysis are provided as supplementary material.

Reporting guideline: This manuscript was prepared in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist for observational studies using secondary data. A completed STROBE checklist is provided as supplementary material.

Author contributions: Fabunmi Abiola David conceptualised the study, performed data extraction and analysis, produced all Power BI visualisations, interpreted the findings, and wrote the full manuscript.

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Table 2

Table 2 is not available with this version.

Figures

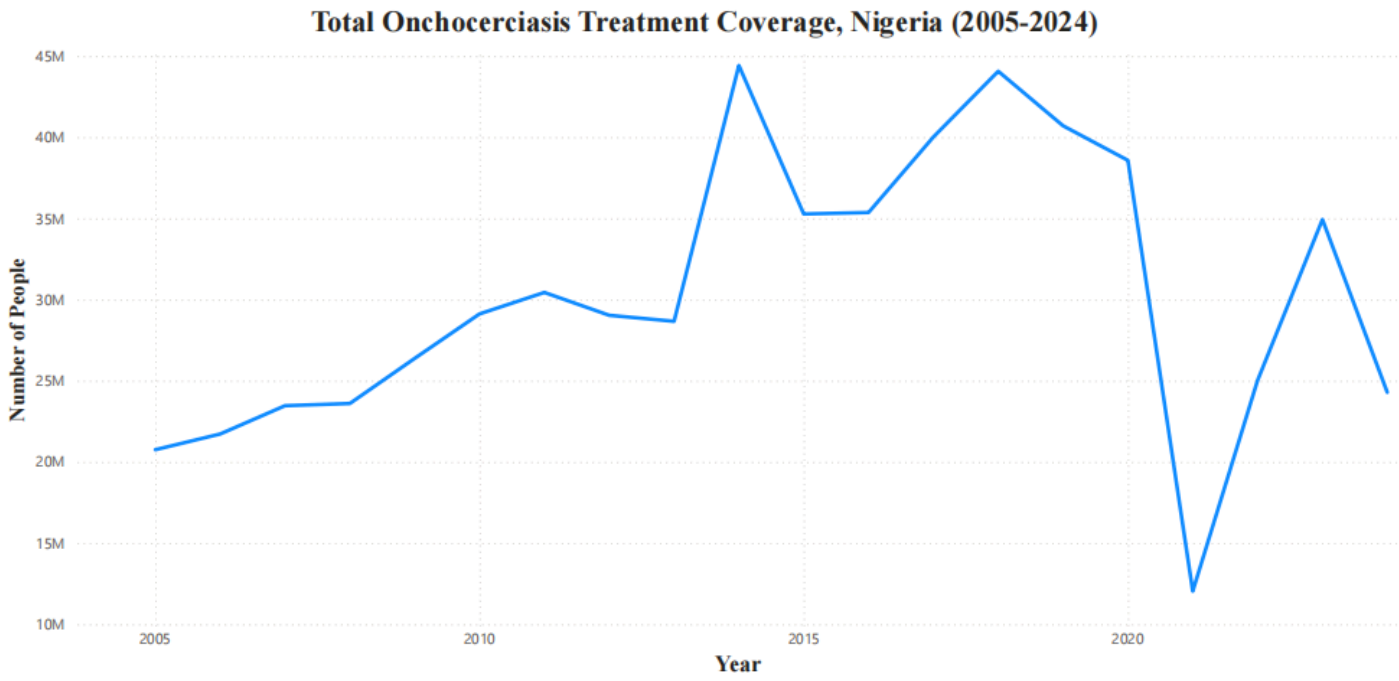


Figure 1

Reported Number of Individuals Treated for Onchocerciasis in Nigeria, 2005–2023. Annual treatment counts. Source: WHO GHO, 2024 (Indicator: NTD_ONCTREAT).

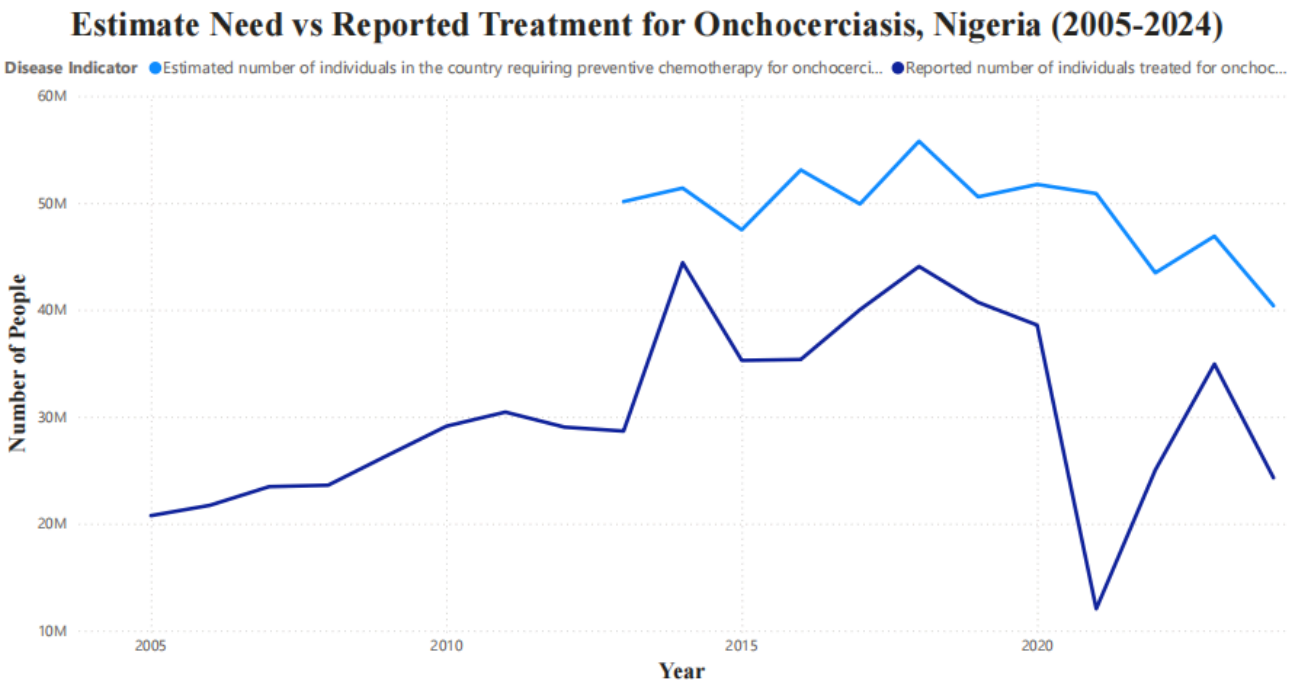


Figure 2

Reported Individuals Treated vs Estimated Population Requiring Preventive Chemotherapy for Onchocerciasis, Nigeria, 2005–2024. Treated individuals (orange line) against estimated need (blue line). Source: WHO GHO, 2024 (Indicators: NTD_ONCTREAT; NTD_ONCHEMO).

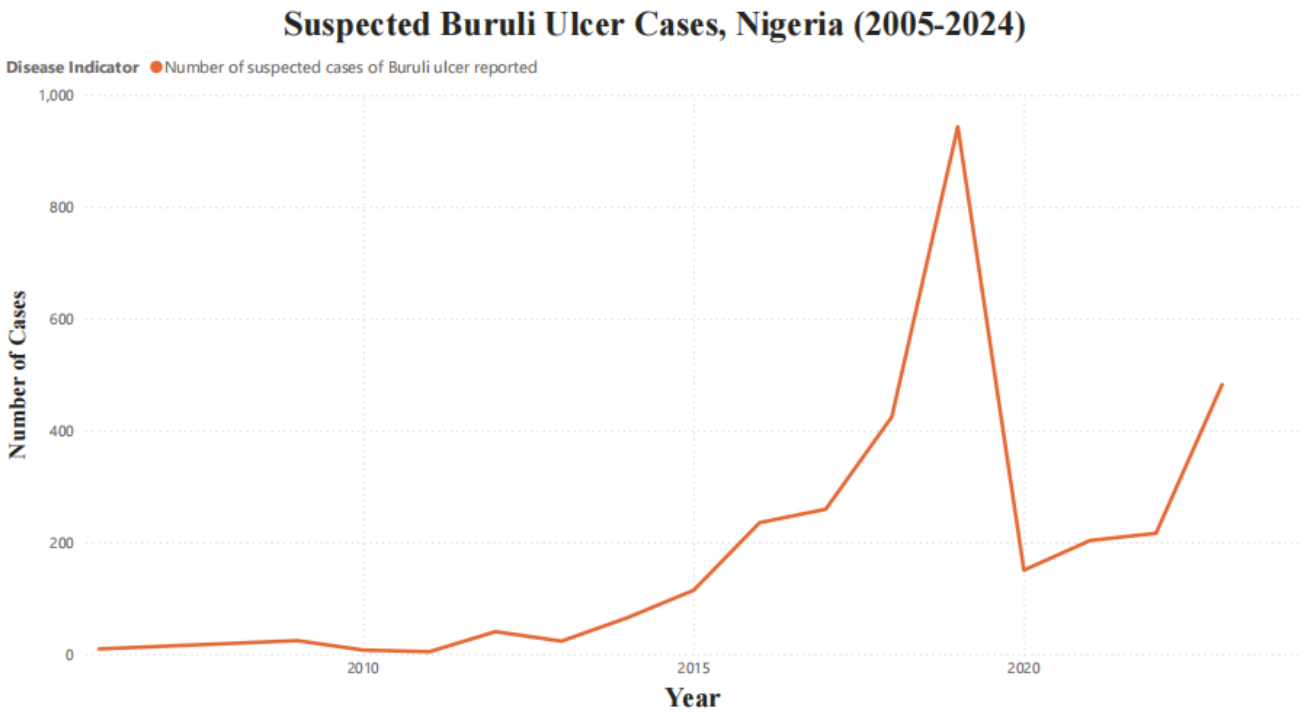


Figure 3

Suspected Buruli Ulcer Cases Reported in Nigeria, 2006–2023. Annual suspected case counts, including a single-year peak of approximately 940 cases in 2019; confirmed case data absent for most years. Source: WHO GHO, 2024 (Indicator: NTD_BU_SUSP).

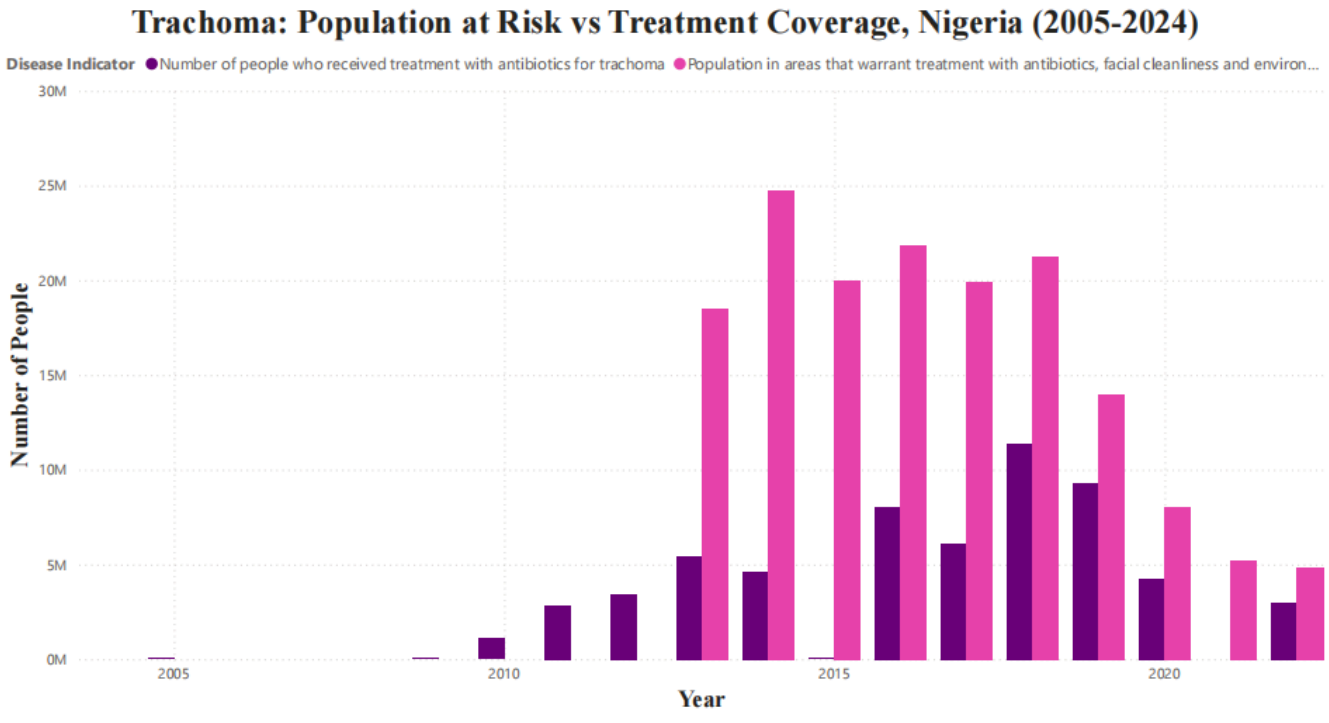


Figure 4

Trachoma Programme Indicators in Nigeria, 2005–2023. Population requiring SAFE strategy (blue line) vs people receiving antibiotic treatment (orange line). Source: WHO GHO, 2024 (Indicators: NTD_7; NTD_8).

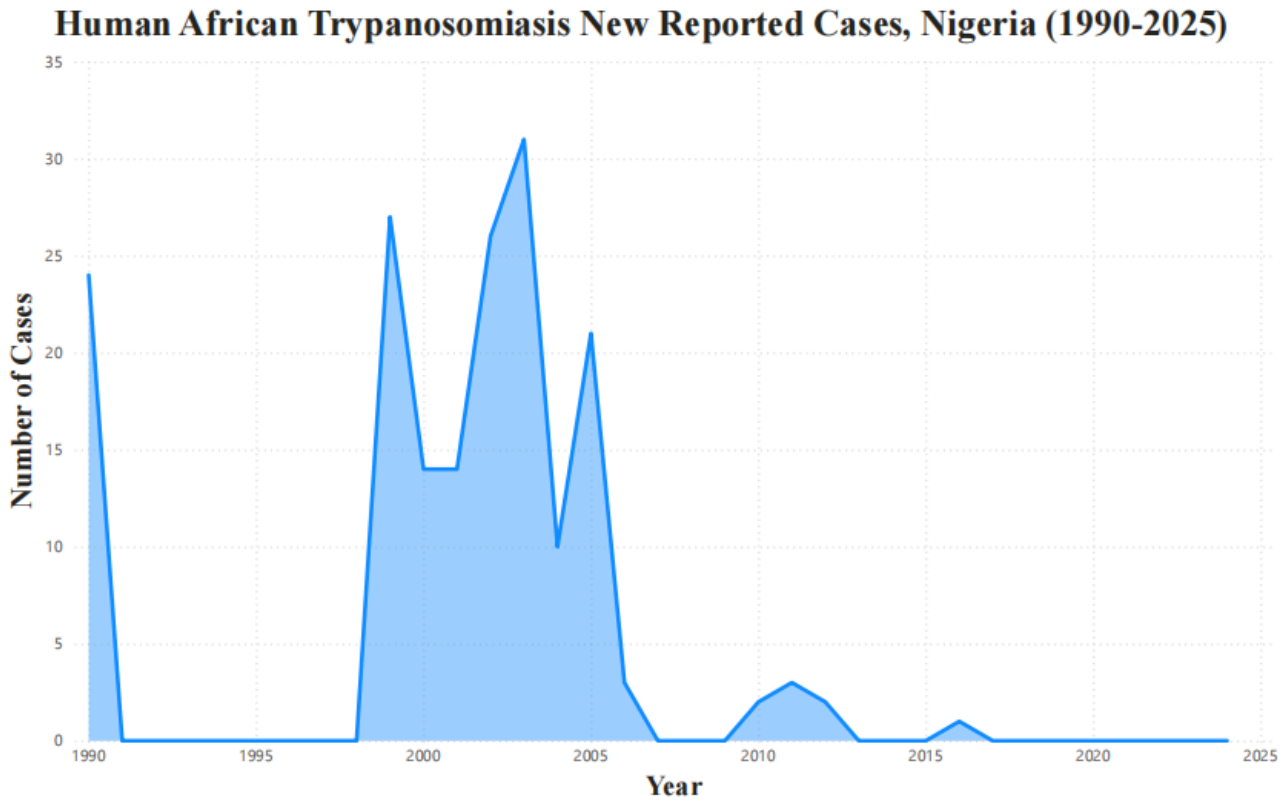


Figure 5

New Reported HAT Cases (T.b. gambiense) in Nigeria, 1991–2023. Progressive decline to zero from 2011. Source: WHO GHO, 2024 (Indicator: NTD_4).

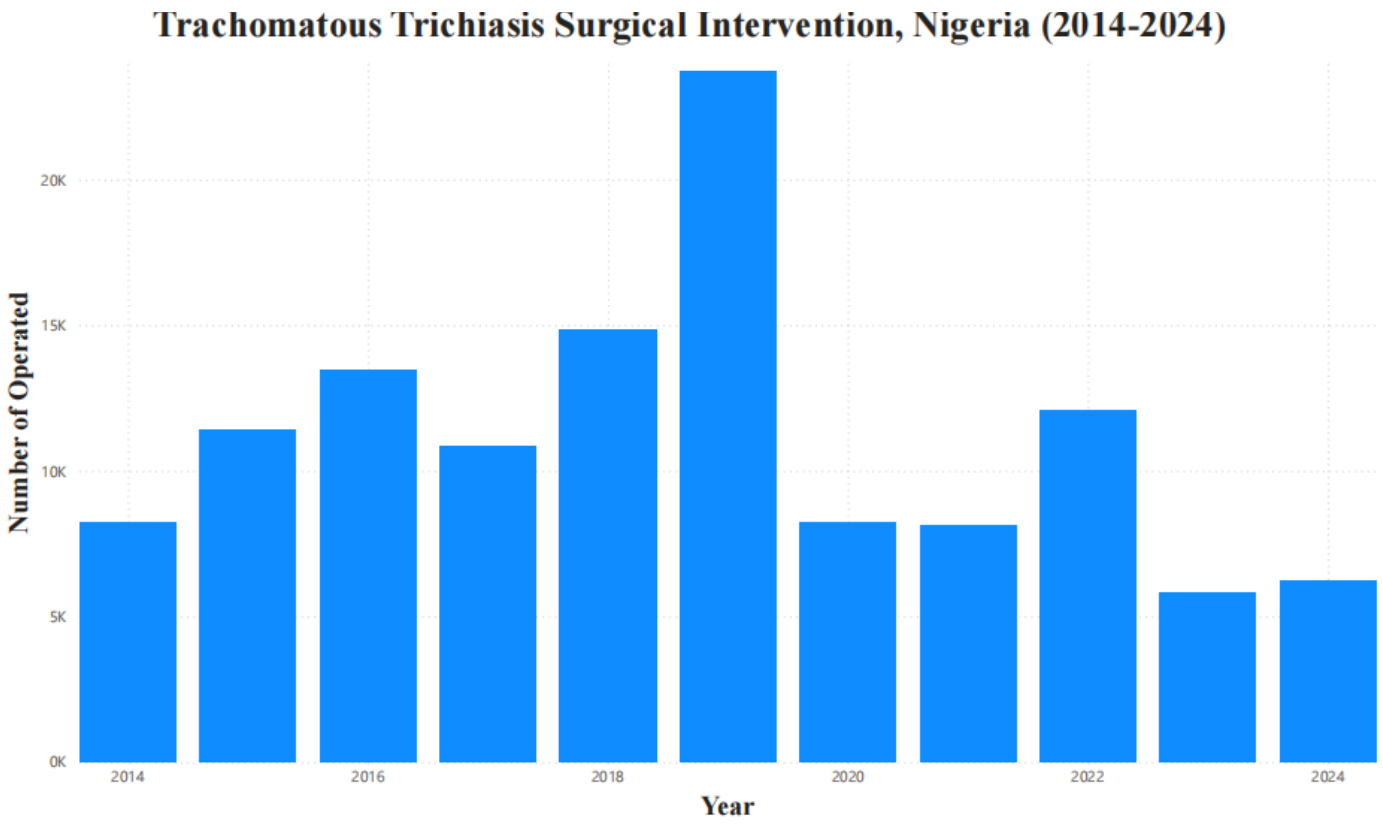


Figure 6

Annual Trachomatous Trichiasis Surgical Output, Nigeria, 2014–2024. Operations performed per year, showing a consistent plateau in most years interrupted by a single-year spike in 2019. Source: WHO GHO, 2024 (Indicator: NTD_TRA5).

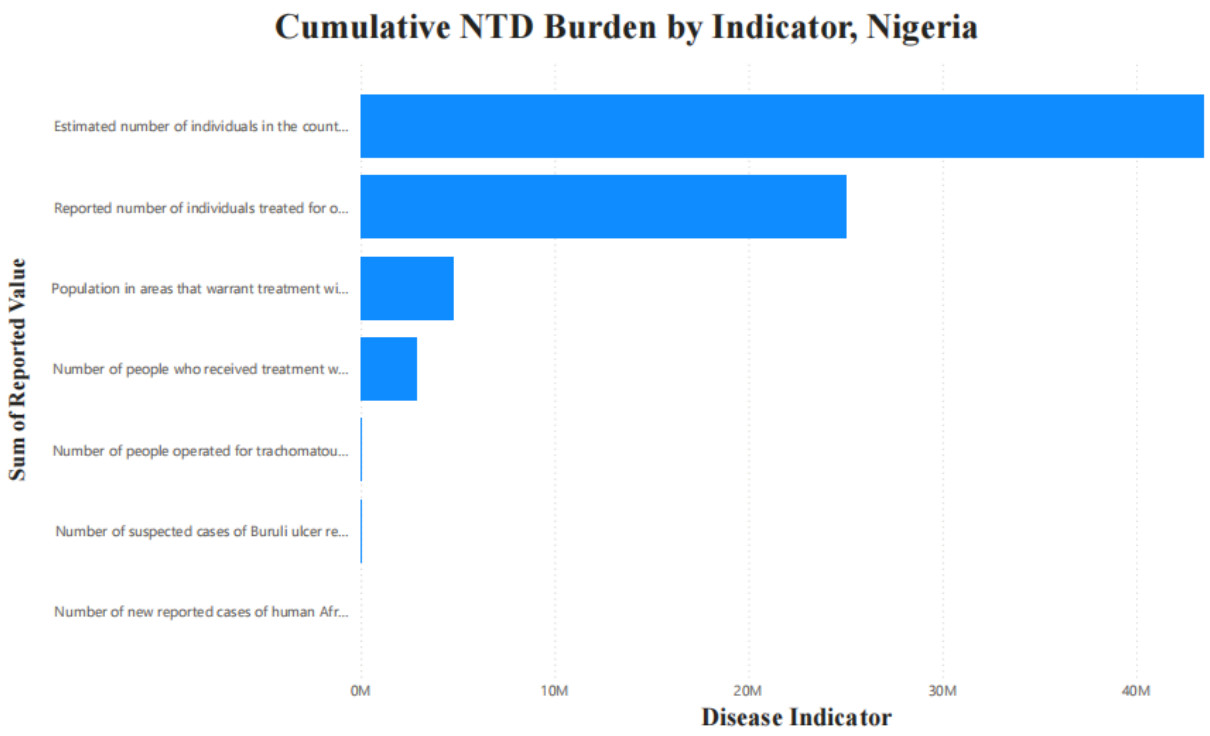


Figure 7

Cross-Disease NTD Indicator Comparison, Nigeria, Aggregate Values by Indicator Type. Horizontal bar chart comparing summed values across seven NTD indicators. Note: indicators represent heterogeneous constructs (treatment counts, population estimates, case counts, operations) and are not directly comparable. Source: WHO GHO, 2024.