REPUBLIC OF KENYA

NATIONAL SYNDEMIC DISEASES CONTROL COUNCIL

Kenya Health Service Disruption Assessment

Rapid Results Initiative Report

National Syndemic Diseases Control Council 2025

Suggested citation. National Syndemic Diseases Control Council. 2025. Kenya Health Service Disruption Assessment: Rapid Results Initiative Report. Nairobi: National Syndemic Diseases Control Council.

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Acknowledgments

The success of the Rapid Results Initiative (RRI) stands as a testament to the collective dedication and collaborative spirit of numerous individuals and organisations who united to strengthen Kenya's health system in a time of crisis.

We extend our heartfelt gratitude to the Chief Executive Officer of the National Syndemic Diseases Control Council (NSDCC), whose visionary leadership provided the foundation for this initiative, inspiring a shared commitment to resilience and equity in healthcare. The NSDCC Department of Epidemiology and Strategy played an indispensable role, orchestrating the initiative with precision and ensuring that every step was grounded in strategic insight. Equally vital was the NSDCC Regional Coordination Department, which worked tirelessly with all 47 counties, fostering seamless coordination and unwavering support across diverse regions.

We are deeply appreciative of the Council of Governors for their pivotal role in bridging efforts with county governments, enabling a unified approach that brought this initiative to life. The 47 County Health Management Teams across Kenya demonstrated extraordinary commitment, diligently coordinating data collection from health facilities and ensuring comprehensive representation of the nation's health landscape.

To the health facility in-charges, we owe immense thanks for providing invaluable data and insights that formed the backbone of this assessment, capturing the realities on the ground. Finally, we honor the recipient of care networks, whose courage in sharing their lived experiences added a critical human dimension to this report, reminding us of the stakes involved.

Together, these contributions have not only illuminated the challenges facing Kenya's health system but also paved the way for actionable solutions to safeguard its future.

Partners for Health and Development in Africa's Technical Support Unit supported the NSDCC to conceptualise and carry out the RRI. This report was edited by Brooks Anderson and designed by 129 Degrees Design Studio.

Abbreviations

AMPATH	Academic Model Providing Access to Healthcare
ART	Antiretroviral Therapy
ASAL	Arid and Semi-Arid Land
CCSAT	Comprehensive County Service Assessment Tool
CHMT	County Health Management Team
DHIS	District Health Information Software
FP	Family Planning
HIV	Human Immunodeficiency Virus
HRH	Human Resources for Health
KEMSA	Kenya Medical Supplies Authority
KHIS	Kenya Health Information System
KNBS	Kenya National Bureau of Statistics
MSM	Men Who Have Sex with Men
NASCOP	National AIDS and STI Control Programme
NCD	Noncommunicable Disease
NSDCC	National Syndemic Diseases Control Council
ODK	Open Data Kit
PrEP	Pre-Exposure Prophylaxis
Q1, Q2, Q3	Question 1, Question 2, Question 3
RRI	Rapid Results Initiative
TB	Tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS
USG	United States Government
WHO	World Health Organization

1. Introduction

1.1 Kenya's syndemic diseases situation

Kenya has made substantial progress in managing HIV, TB, and malaria, which remain the leading causes of morbidity and mortality in the country. In recent years, antiretroviral therapy (ART) availability has increased, HIV-related deaths have reduced, and significant efforts have been made in TB diagnosis and malaria prevention.

Kenya's syndemic disease programmes are implemented predominantly vertically.

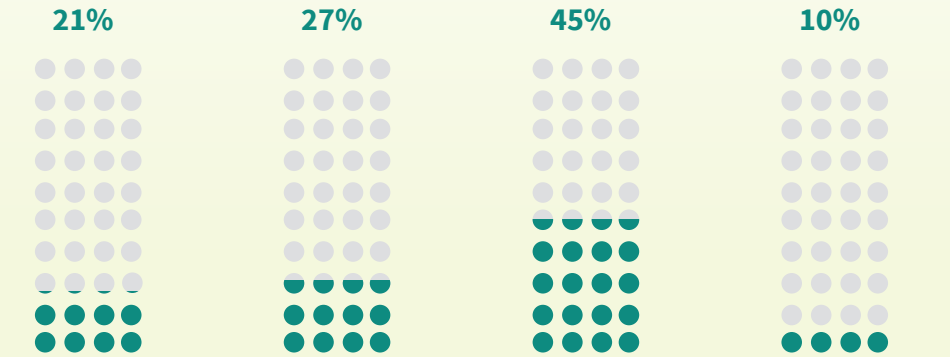
Kenya has

3,752 HIV treatment sites

over 8,851 HIV testing sites encompassing public, private, and faith-based organisation-supported facilities.

The majority of people living with HIV (over 90%) receive care at level 2 to level 4 health facilities.

% of people living with HIV cared for at



Annual deaths related to TB are 23,500, with 20,000 of these deaths attributed to HIV/AIDS. Additionally, the country recorded 12,000 deaths related to malaria in 2022, and this number is projected to increase owing to climate related changes. The family planning programme reaches approximately 6.2 million clients annually, though a 40% service gap remains.

In addition to the challenges posed by HIV, TB, and malaria, Kenya faces a growing burden of noncommunicable diseases (NCDs) and comorbidities, which further strain the healthcare system. Currently, over 50% of people living with HIV also suffer from at least one NCD, with cardiovascular diseases, diabetes, and chronic respiratory illnesses being the most prevalent. Among TB patients, diabetes coexists in approximately 10%–15% of cases, worsening treatment outcomes and increasing mortality risk. Severe anaemia, malnutrition, and mental health disorders remain critical concerns, particularly among vulnerable groups such as adolescents, pregnant women, and key populations. Cervical cancer, which is six times more common among HIV-positive women, remains the leading cause of cancer-related deaths in Kenya, with over 5,200 new cases and 3,800 deaths annually.

The Government of Kenya has outlined its commitment to ensure health service equity, access, and sustainability through Universal Health Coverage. The Digital Health Act, 2023, The Primary Health Care Act, 2023, and The Social Health Insurance Act, 2023, provide a robust platform for integrating and sustaining healthcare services.

1.2 Rapid Results Initiative justification

The recent shift in U.S. foreign aid policy, marked by Executive Order 14169, signed on January 20, 2025, posed significant implications for Kenya, which heavily depends on donor funding for critical HIV services. The U.S. directive requiring re-evaluation of foreign aid to ensure alignment with U.S. foreign policy created uncertainty and urgency for Kenya. This disruption called for strategies to re-think and redesign Kenya's HIV response to sustain the gains that the nation has made in HIV prevention.

The Ministry of Health, through the National Syndemic Diseases Control Council (NSDCC), undertook a Rapid Results Initiative (RRI) from 1 April to 30 May 2025 to evaluate the impact of service disruptions caused by the withdrawal of U.S. government (USG) support. The assessment provided critical insights into areas of service delivery weakness to guide the development of strategies for integrated HIV, TB, malaria, and related healthcare services.

1.3 Objectives of the Rapid Results Initiative

The RRI was designed to address the multidimensional crisis unfolding across Kenya's health landscape. Its primary objectives focus on actionable intelligence for county-level decision making:

1. The initiative sought to comprehensively assess the extent of service disruptions in HIV, TB, malaria, family planning, and immunisation programmes at the county level, with particular attention to access barriers, treatment continuity, prevention services, and care quality.
2. It aimed to evaluate human resources for health (HRH) gaps by assessing the availability of clinicians, nurses, laboratory technicians, community health workers, and counsellors across all 47 counties.
3. The RRI prioritised identification and analysis of supply chain challenges, including stockouts of essential medicines for HIV, TB, and malaria; diagnostic kit shortages; and prevention commodity deficits.
4. It committed to examine the disproportionate impact of service disruptions on key and vulnerable populations—specifically pregnant women, adolescents, and key populations—and to document their diminished access to lifesaving services.
5. The initiative was charged with generating actionable recommendations to guide counties in developing localised solutions for HRH sustainability, service continuity strategies, and alternative financing mechanisms to bridge the donor funding gap.

These objectives collectively form a diagnostic framework to safeguard Kenya's health system from collapse while laying foundations for resilient, county-owned recovery.

2. Methodology: Synchronised Digital Assessment for Resilient Insights

The Rapid Results Initiative was grounded in rigorous desk review and field assessment to align itself with Kenya's established health system strengthening frameworks. The methodology incorporated comprehensive desk analysis of existing national data systems, including COVID-19 response reports, post-pandemic recovery assessments, and county-level health investment cases. This foundational work ensured the RRI built upon—rather than duplicated—lessons from recent crises, particularly regarding supply chain resilience, workforce retention strategies, and digital reporting infrastructures developed during the pandemic.

Following this contextualisation, to diagnose Kenya's health system vulnerabilities the Rapid Results Initiative designed and employed three interconnected electronic tools that captured perspectives from 47 County Health Management Teams (the Comprehensive County Service Assessment Tool), health facilities from the 47 counties (the RRI Facility Tool), and health service recipients (Recipient of Care Tool). These tools were developed and refined through structured pilot testing.

This tripartite approach integrated isolated data streams into coordinated digital workflows for a unified national assessment.

2.1 Unified digital architecture

The assessment leveraged ODK (Open Data Kit) as its technological backbone, enabling seamless data capture across all tiers of the health system. Three purpose-built tools were deployed:

1. The **Comprehensive County Service Assessment Tool (CCSAT)** was distributed to County Health Management Teams (CHMTs) in all 47 counties via unique digital links. CHMT leads were to provide system-level insights on financing, human resources, and programme integration, completing the structured assessment within the ODK platform.

2. The **RRI Facility Tool** reached facility in-charges through CHMT-distributed links, capturing data on service disruptions, stock availability, and patient flow patterns across health facilities.

3. The **Recipient of Care Tool**—previously referenced as Key Informant Interviews—was administered directly to patients through facility-based tablets. This instrument documented experiences of service access barriers, stigma encounters, and coping mechanisms during shortages through structured digital questionnaires.

2.2 Tools piloting and scale-up

Prior to nationwide deployment, all tools underwent structured pilot testing to refine their design and functionality. The Comprehensive County Service Assessment Tool was piloted with the County Health Management Team in Kilifi County, while the RRI Facility Tool and Recipient of Care Tool were piloted across selected facilities in Nairobi County. These pilots provided critical insights that directly shaped the final instruments.

For the Comprehensive County Service Assessment Tool, Kilifi County Health Management Team identified challenges with question complexity and data availability. This feedback prompted significant streamlining: the tool was shortened by one-third, and responses to budget reallocation questions were simplified from open-ended narratives to categorical options. Concurrently, during the Nairobi pilot of the RRI Facility Tool, facility in-charges highlighted uncertainty in defining service disruptions. In response, the operational definition was standardised to specify disruptions lasting three or more consecutive days. Skip logic was also embedded to bypass service-specific questions where irrelevant (i.e., questions were excluded based on context).

The Recipient of Care Tool pilot revealed completion time concerns, leading to restructuring for brevity without compromising core indicators. Following refinements, the Comprehensive County Service Assessment Tool was distributed digitally to all 47 County Health Management Teams. Simultaneously, County Health Management Teams disseminated the RRI Facility Tool to health facilities and facilitated administration of the Recipient of Care Tool to patients.

CHMTs served as the operational engine of this process: they disseminated facility and patient tool links, monitored completion rates through shared dashboards, and conducted persistent follow-up via SMS and WhatsApp groups to ensure nationwide participation. This digital chain of command enabled real-time validation, with automated logic checks flagging inconsistent entries for immediate correction.

As data flowed into the ODK platform, it fed a dynamic Power BI analytics hub. Customised dashboards were generated for each county, displaying color-coded disruption heatmaps, commodity stockout trends, and human resource gap analyses. CHMTs accessed these dashboards daily, allowing them to identify data voids (e.g., facilities not reporting) and dispatch targeted reminders. This real-time transparency transformed assessment participation into a collaborative race toward clarity, with counties competitively pursuing 100% completion rates.

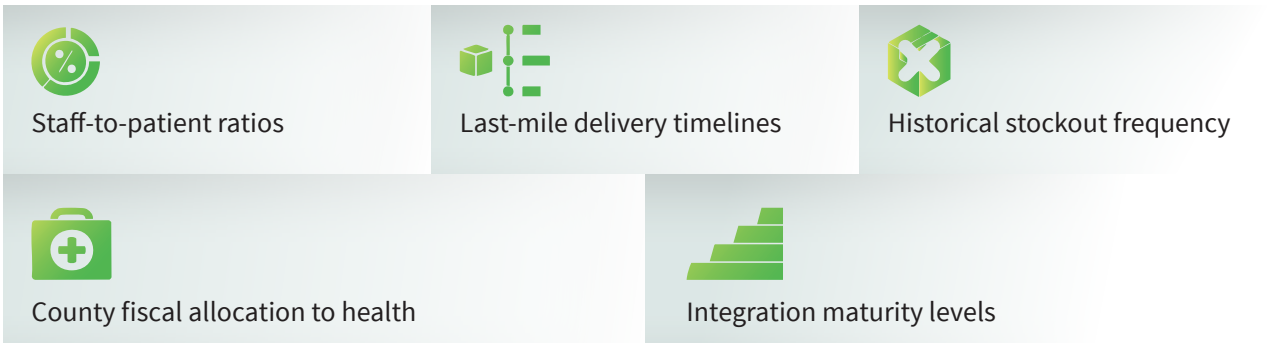
2.3 Assessment approach and eligibility

The Rapid Results Initiative employed a census-based survey approach across three health system components, ensuring complete population coverage within defined eligibility parameters. All 47 County Health Management Teams were universally included as the primary administrative units, with mandatory participation in the Comprehensive County Service Assessment Tool. At the facility level, every health facility in Kenya was eligible for the RRI Facility Tool. For recipients of care, eligibility required documented access to health services during the funding disruption period, with recruitment occurring at facility touchpoints during routine visits. This inclusive framework, where no CHMT or facility was excluded, aimed to capture system-wide dynamics while restricting recipient participation to those directly experiencing disruption impacts.

2.4 Analytical framework

Descriptive analytics quantified the magnitude of disruptions—calculating county-level stockout frequencies, staffing deficit percentages, and service interruption rates. These metrics were disaggregated by facility level (dispensary to referral hospital) and population density (urban/rural) to expose inequity patterns.

Multivariate regression modelling then interrogated these patterns to identify disruption predictors. Building on pre-RRI studies, models tested the relationship between service collapse and variables like



This analytical framework allowed the RRI to move beyond documenting "what" was failing to diagnose "why" systems were crumbling and predict "where" cascading failures might occur next.

2.5 Confidentiality anchoring

Throughout the process, confidentiality remained paramount. Patient identifiers were decoupled from responses at point of collection using ODK's anonymisation features. Facility data remained accessible only to respective CHMTs, while national teams analysed aggregated trends. When recipients described distressing experiences like ART rationing or privacy violations, automated alerts triggered follow-up support from county psychosocial teams—ensuring assessment did not extract data without offering care.

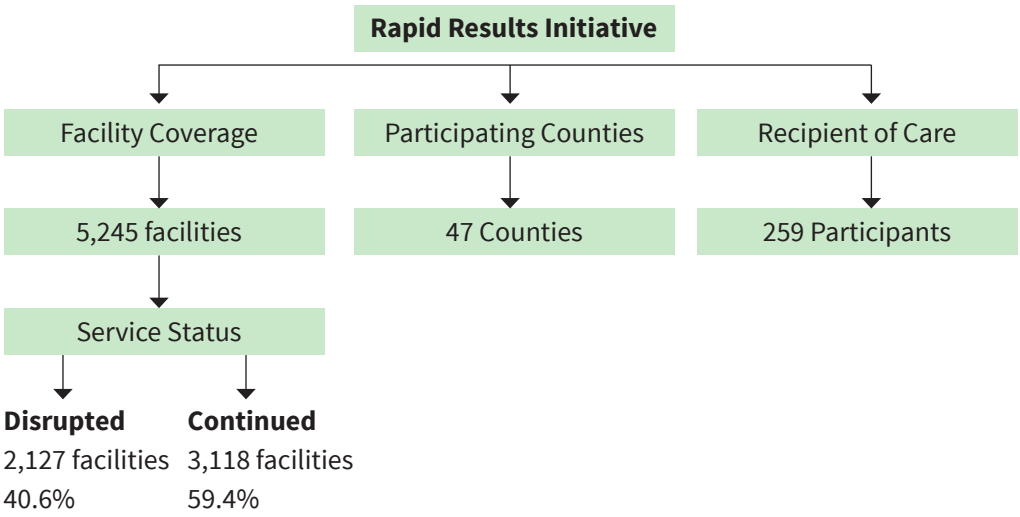
This methodology transformed what could have been a bureaucratic exercise into a nationwide diagnostic conversation. As a community health worker in Kibera noted while completing the Recipient of Care Tool, "These questions finally asked about the cracks we fall through." By digitally weaving together administrator, provider, and patient voices, the RRI created Kenya's most complete portrait of health system fragility—and a roadmap for its repair.

3. Results

3.1 Summary

County Health Management Teams provided strategic oversight data, while 5,245 (54% of active health facilities in the Master Facility Register as of December 2024) facilities reported ground-level service figures, supplemented by testimonies describing the experiences of 259 care recipients. Service disruptions were concentrated in high-burden rural areas, while workforce attrition and paediatric ARV stockouts emerged as cascading threats to continuity of care. CHMT validation confirmed that these findings reflect systemic rather than isolated challenges.

Figure 1: RRI scope, scale, and findings



3.2 The scale and geography of service disruptions

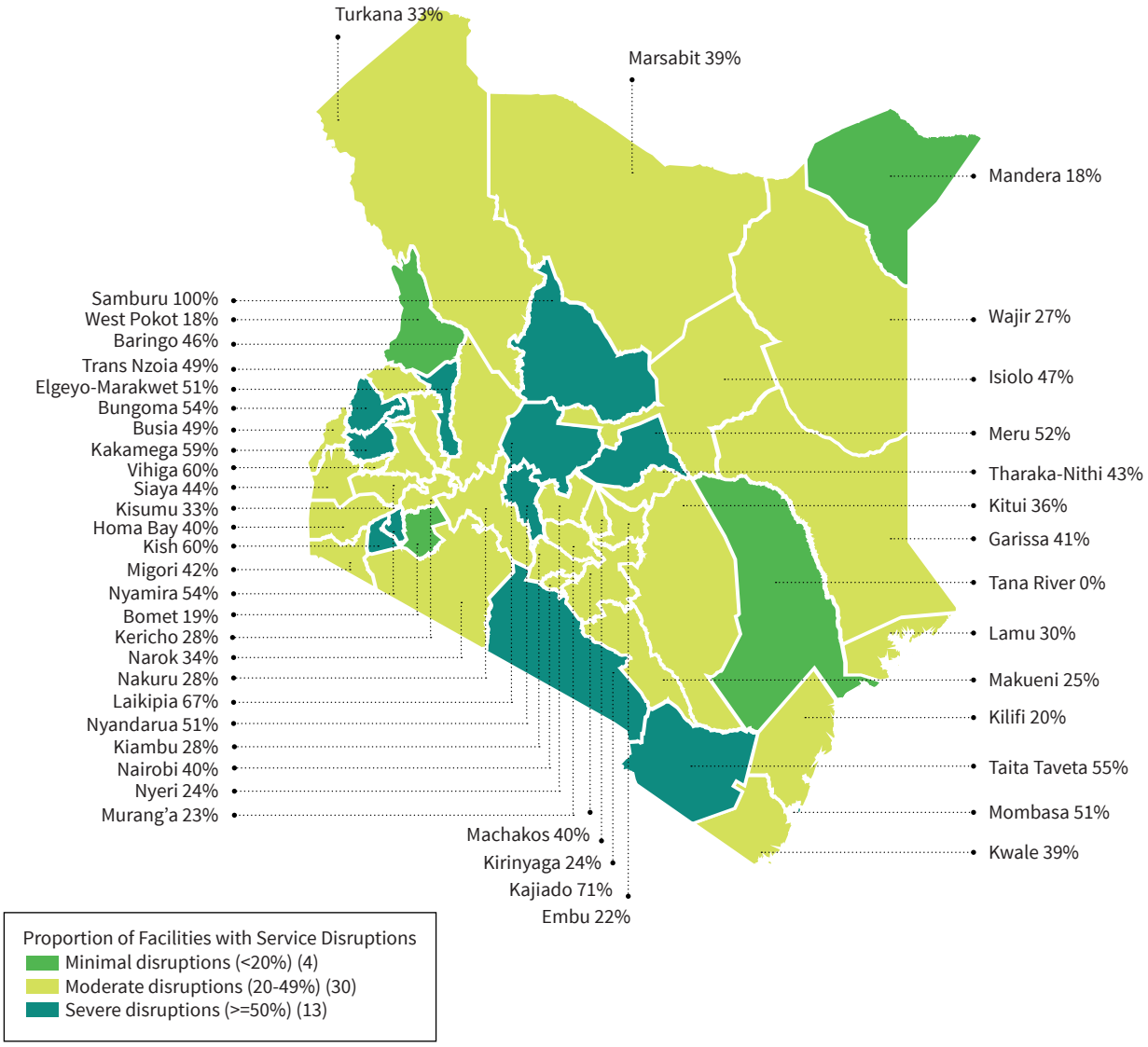
The withdrawal of USG funding triggered widespread service disruptions across Kenya's health system, with **40.6% of facilities (2,127 out of 5,245)** reporting significant interruptions in care delivery (Figure 1). These disruptions displayed stark geographic inequities: **Rural facilities suffered 3.2 times the disruption rate** experienced by urban centres (Table 1), with arid and semi-arid regions bearing the heaviest burden.

Table 1: Rural vs urban facility disruption

Location	Facilities	Disrupted	Disruption rate	Risk ratio (vs urban)
Rural	3,671	1,875	51.1%	3.2x
Urban	1,574	252	16.0%	1.0x (Ref)
Total	**5,245**	**2,127**	**40.6%**	-

Kajiado County emerged as the epicenter of the crisis, where **70.6% of facilities** reported service breakdowns, followed by Kakamega (59.1%) and Nyamira (54.4%) (Figure 2). In contrast, Bomet (18.8%), West Pokot (18.2%), and Mandera (18%) demonstrated relative resilience.

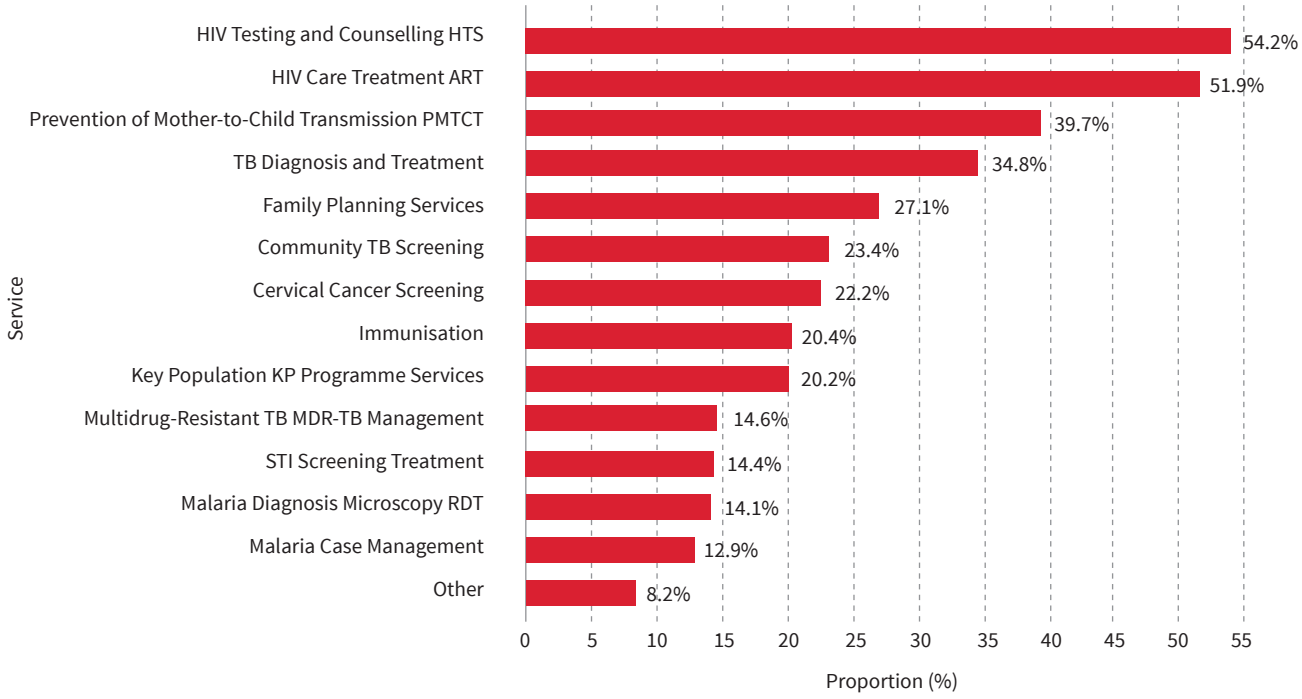
Figure 2: Proportion of facilities with service disruptions per county.



HIV and TB services were disproportionately affected. **HIV testing and counselling collapsed in 54.2% of disrupted facilities**, while **ART services faltered in 51.9%** (Figure 3). TB diagnosis and treatment were disrupted in 34.8% of disrupted facilities, with Turkana and Marsabit Counties experiencing near-total system failure in TB care. As one clinical officer in Kakamega lamented:

> *"When the ARVs ran out, we watched patients' hope drain away. Adherence isn't just about pills—it's about trust in the system."*

Figure 3: Proportion of disrupted facilities, by disrupted service

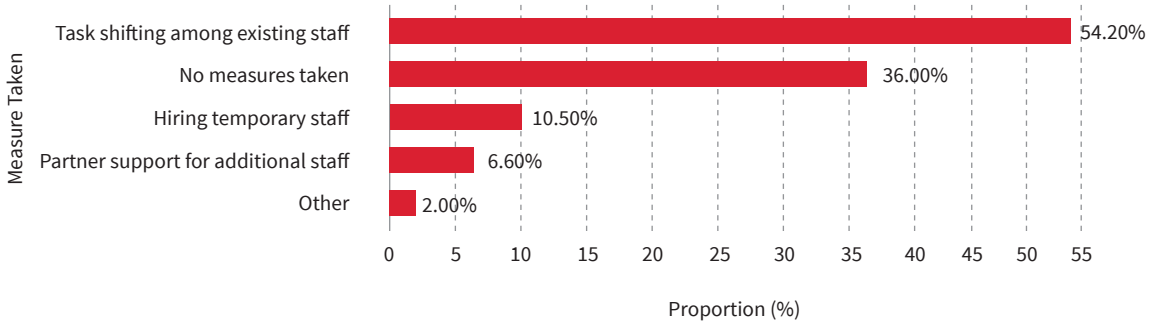


3.3 Human resource catastrophe: Staff exodus and workload surge

The funding withdrawal triggered a healthcare workforce crisis. Some **39.5% of disrupted facilities (841 sites)** reported critical staff withdrawals, primarily affecting nurses and clinical officers, who constituted 68% of departed staff. This exodus transformed clinical workflows: **Nurse-to-patient ratios catastrophically worsened** from 1:50 to 1:120 in high-burden counties like Kakamega. In facilities retaining staff, **44.4% (944 sites)** documented dangerous workload surges, forcing consultations to be truncated to **under 5 minutes per patient**—a 67% reduction from pre-withdrawal standards. The CHMT data corroborated data from the facilities, revealing **42%–100% attrition in partner-supported staff** across all 47 counties. Laboratory technologists (76.4% national gap rate) and clinical officers (53.2% gaps) suffered the most severe losses, directly causing the breakdown of HIV testing in 54.2% of disrupted facilities.

County Health Management Teams (CHMTs) implemented emergency stopgap measures. These included **staff redistribution** from urban to rural facilities (implemented by 72.3% of counties), **task-shifting** of clinical duties from doctors to nurses (also 72.3% of counties), and hiring **temporary workers** (44.7% of counties), though these temporary hires covered only 22% of staffing gaps, underscoring the persistent systemic challenges. Consequently, 54.2% of facilities ended up implementing task shifting among healthcare workers, as 10.5% of the facilities resorted to employing temporary staff (Figure 4).

Figure 4: Proportion of disrupted facilities that used various measures to address staffing gaps.



Despite these efforts, recipients reported deteriorating care quality:

> *"The nurse didn't recognise me. She asked for my history while standing at the door—no time to sit."* (Person living with HIV, Nairobi)

3.4 Supply chain collapse: The stockout epidemic

Medicine and commodity stockouts became the most visible manifestation of system failure. **Cotrimoxazole—essential for HIV care—was unavailable in 33.7% of disrupted facilities** (Figure 5), with Migori and Kisumu counties experiencing stockout rates exceeding 50%. Critical diagnostics followed similar patterns: **HIV test kits stockouts plagued 17.0% of facilities,** paralysing testing programmes in Kajiado and Taita-Taveta. Also, family planning services suffered (19.0%), with **implants unavailable in 17.4% of facilities**, disproportionately affecting young women in Nairobi.

Figure 5: Proportion of disrupted facilities experiencing stockouts of medicines and commodities.

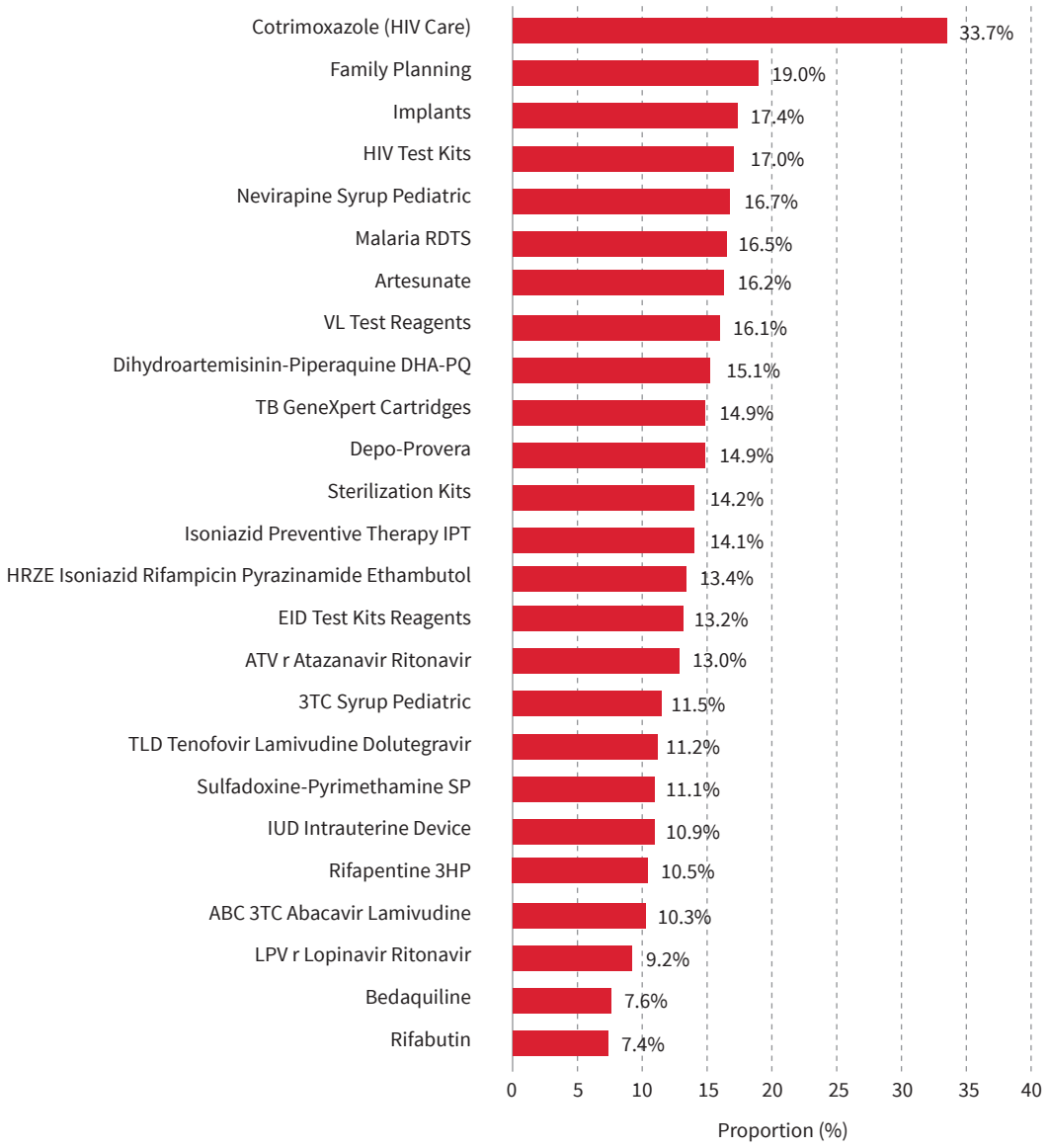


Table 2: Commodity stockout rates, critical counties, and patient impacts.

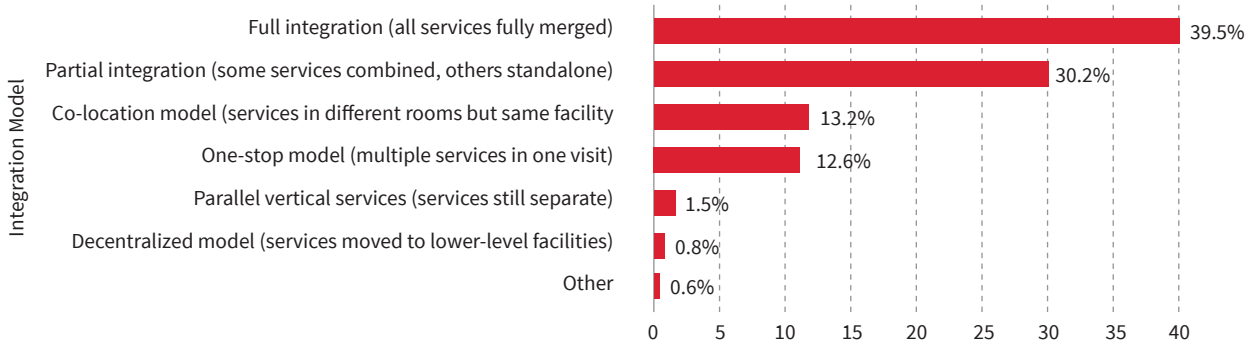
Commodity	Stockout rate	Critical counties	Patient impact
Cotrimoxazole (HIV)	33.7%	Migori, Kisumu	Interrupted prophylaxis
HIV test kits	17.0%	Kajiado, Taita-Taveta	Reduction in new tests
TB preventive therapy	13.7%	Turkana, Marsabit	Increased paediatric TB cases
Implants (FP)	19.0%	Nairobi, Mombasa	A decline in new FP acceptors

The procurement system's fragility exacerbated shortages: **83% of counties relied entirely on KEMSA** (the national medical supplier), where logistical breakdowns caused **23-day average restock delays** in rural areas. Facilities resorted to crisis management: **66.2% borrowed from neighbouring facilities,** while **34.2% redistributed stock internally**—often depleting reserves for other services.

3.5 Service integration: Progress and peril

Facing severe resource constraints, an overwhelming 99.8% of reporting facilities integrated HIV, TB, malaria, and family planning services into general outpatient departments. Three primary models of integration dominated these efforts: **full integration** (39.5% of facilities), where all services were merged under single providers; **partial integration** (30.2%), combining select services while others remained separate; and the **one-stop model** (12.6%), designed to deliver multiple services within a single visit (Figure 6). **While intended to improve efficiency, this widespread integration drive occurred alongside catastrophic access barriers for vulnerable populations.**

Figure 6: Proportion of disrupted facilities that used various methods of service integration.



While integration improved efficiency—**85.1% of CHMTs reported better resource utilisation** and **61.7% noted reduced HIV/TB stigma**—it introduced new risks. Some **52% of care recipients reported confidentiality breaches** in integrated settings, particularly affecting key populations:

> *"When they called my name for ART in the general queue, everyone stared. I never went back."* (Man who has sex with men, Kisumu)

Integration's success was undermined by systemic gaps: **71% of fully integrated facilities cited staff shortages**, while **89% of one-stop models reported unmanageable patient waiting times** exceeding four hours.

3.6 Patient access crisis: Equity shattered

Vulnerable populations faced insurmountable barriers to accessing essential healthcare services. Rural communities demonstrated care abandonment rates **3.2 times higher than average,** primarily due to prohibitive transportation costs. Similarly, youth aged 15–24 years experienced a drastic **55%** appointment dropout rate following the closure of vital youth-friendly clinic spaces. Meanwhile, key populations, including men who have sex with men (MSM) and sex workers, suffered significant care disengagement (68%), driven by pervasive stigma within integrated clinic settings. Furthermore, people living with HIV reported overwhelming fear (92%) of antiretroviral therapy interruption, with 18% resorting to selling assets just to afford their life-saving medications, highlighting the extreme financial and psychological burdens imposed.

Table 3: Access barriers pre- and post-withdrawal of USG funding.

Indicator	Pre-withdrawal	Post-withdrawal	Change
Average wait time	1.2 hours	3.1 hours	+158%
Facilities turning patients away	5% weekly	18% weekly	+260%
Out-of-pocket spending	KSH 420/month	KSH 1,150/month	+174%

Patient narratives revealed desperate coping strategies:

> *"I split my ARVs with my daughter when stockouts hit. Better we both survive half-strength than one dies."* (Widow, Turkana)

3.7 Data system paralysis: Invisible casualties

Health information systems collapsed under the strain, with 62.6% of facilities lacking trained data personnel—causing a 220% increase in critical reporting backlogs. Nationwide infrastructure failures crippled operations: 78.7% of counties lacked integrated medical records systems, 87.2% reported insufficient internet/data bundles for digital reporting, and 56.0% experienced weekly system downtimes. The consequences proved far-reaching: 19% of facilities lost patient files during service relocations, while 47% duplicated reports across parallel paper and digital systems, wasting 12 hours per week per facility. CHMTs starkly described this data paralysis as "flying blind," highlighting the systemic breakdown in health monitoring.

> *"We can't tell where outbreaks are spreading or where medicines are needed. It's a data blackout."* (County Director, Garissa)

3.8 Financial precarity: The donor dependence trap

CHMT data exposed dangerous financial fragility across the health system: 80.9% of counties depended on donor funding for more than 50% of their HIV, TB, and malaria programme budgets. This heavy reliance created severe vulnerability, with 74.5% of counties forced to deprioritise HIV/TB programmes when reallocating scarce domestic funds. Compounding the crisis, 29.8% introduced user fees for services that were previously free, placing additional burdens on patients amidst systemic instability.

Counties explored alternatives—**78.7% promoted health insurance, 61.7% pursued private partnerships**—but coverage remained limited. This financial instability trickled down to patients: **63% paid out-of-pocket for essential services**, with catastrophic spending affecting 28% of households of people living with HIV.

3.9 Cross-cutting vulnerabilities: System fragility exposed

Three structural weaknesses amplified the crisis:

Rural abandonment

Arid counties faced **4.7× longer medicine restock delays** than urban centres.

Contingency planning failure

82% of facilities lacked emergency protocols for funding shocks.

Community system collapse

73% of peer support groups dissolved, severing treatment adherence lifelines.

Youth and key populations suffered disproportionately: **PrEP availability plunged 60% in Nairobi hotspots**, while **55% of adolescent girls missed HIV appointments** after youth-friendly services closed.

4. Comprehensive Interrogation of Multivariate Analysis

Results

The results were analysed to answer three questions:

- What caused healthcare service disruptions following USG funding withdrawal?
- What factors enable successful service integration?
- What was the national impact of disruptions?

4.1 Question 1: What caused healthcare service disruptions following USG funding withdrawal?

The multivariate logistic regression analysis revealed a complex interplay of facility characteristics, resource constraints, and system-level factors driving service disruptions. Staff shortages emerged as the single most powerful predictor of disruptions, with facilities reporting shortages experiencing **4.12 times higher odds** of service interruption (95% CI: 3.48-4.89; p<0.001) (Table 4). This means that after controlling for all other variables, the odds of disruption were over four times greater where staff were insufficient, highlighting the human resource crisis as the foundation of system fragility.

A striking dose-response relationship emerged for facility level. Compared to level 1 facilities,

Level 3 facilities had 2.41× higher disruption odds (95% CI: 1.30-4.48)

Level 4 facilities faced 3.24× greater risk (95% CI: 1.70-6.20)

Level 5+ facilities suffered 3.85× increased odds (95% CI: 1.70-8.78)

This gradient (p-trend<0.001) indicates that higher-level facilities—which typically handle complex cases and higher patient volumes—were disproportionately vulnerable to funding shocks (Figure 7).

Facility ownership patterns revealed critical vulnerabilities. Partner-supported facilities showed the highest disruption risk (**aOR=3.85**), followed by faith-based (**aOR=2.08**) and public facilities (**aOR=1.43**) compared to private facilities. This suggests that donor-dependent models collapsed most severely when funding ceased.

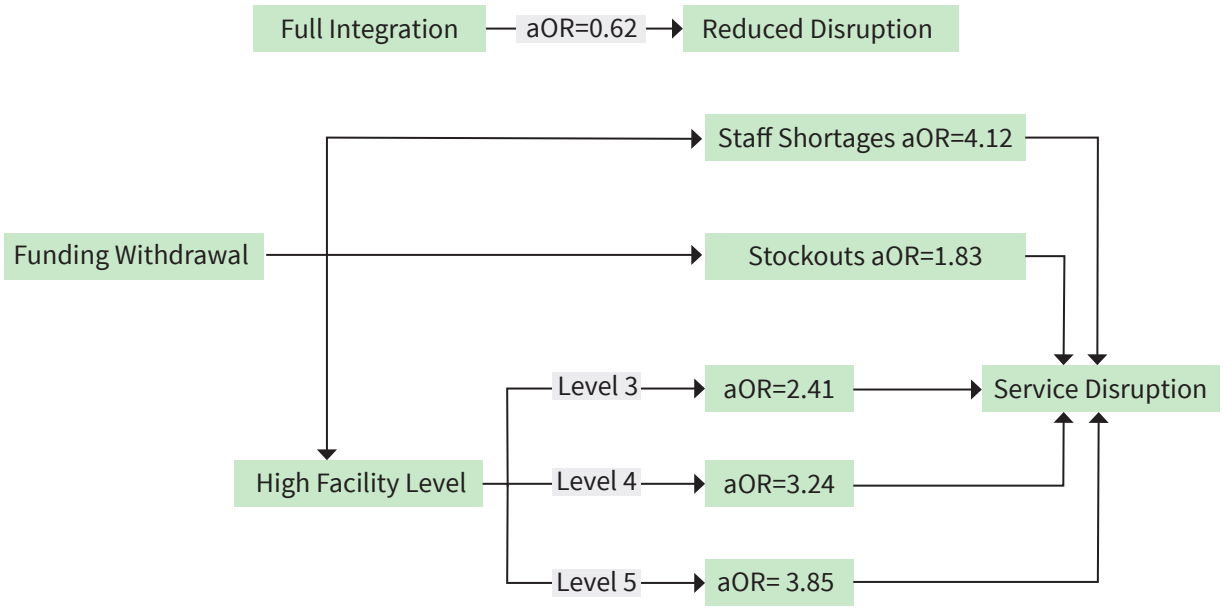
Essential medicine stockouts independently increased disruption odds by 83% (**aOR=1.83**, 95% CI: 1.56-2.15), confirming that supply chain failures directly compromised service continuity. Crucially, full service integration demonstrated a strong protective effect, reducing disruption odds by 38% (**aOR=0.62**, 95% CI: 0.52-0.74), while partial integration showed no significant benefit.

Data management challenges more than doubled disruption risk (**aOR=2.25**, 95% CI: 1.92-2.65), and high-HIV-burden counties had 67% greater odds of disruptions (**aOR=1.67**, 95% CI: 1.42-1.96). The model showed excellent predictive power (AUC=0.81), and sensitivity analysis with county-level random effects confirmed robustness of these findings.

Table 4: Key predictors of service disruptions (Q1)

Predictor	aOR	95% CI	Interpretation
Staff shortages (Yes vs No)	4.12	3.48–4.89	312% higher disruption risk
Facility level 5+ vs 1	3.85	1.70–8.78	285% increased risk in highest levels
Partner-supported vs Private	3.85	1.76–8.56	Most vulnerable ownership type
Data challenges (≥1 vs None)	2.25	1.92–2.65	125% higher risk with data issues
Full integration vs None	0.62	0.52–0.74	38% protective effect

Figure 7: Factors causative of and protective against disruption



4.2 Question 2: What factors enabled successful service integration?

The analysis of service integration success revealed that staff training was the paramount enabling factor. Facilities where all staff received integration training demonstrated **8.42 times higher odds** of successful integration (95% CI: 5.67-12.49; p<0.001) compared to no training (Table 5). This extraordinary effect size indicates that comprehensive training nearly guarantees integration success. Even partial training tripled the odds of success (**OR=3.15**, 95% CI: 2.08-4.78) (Figure 8), underscoring that any training investment yields substantial returns.

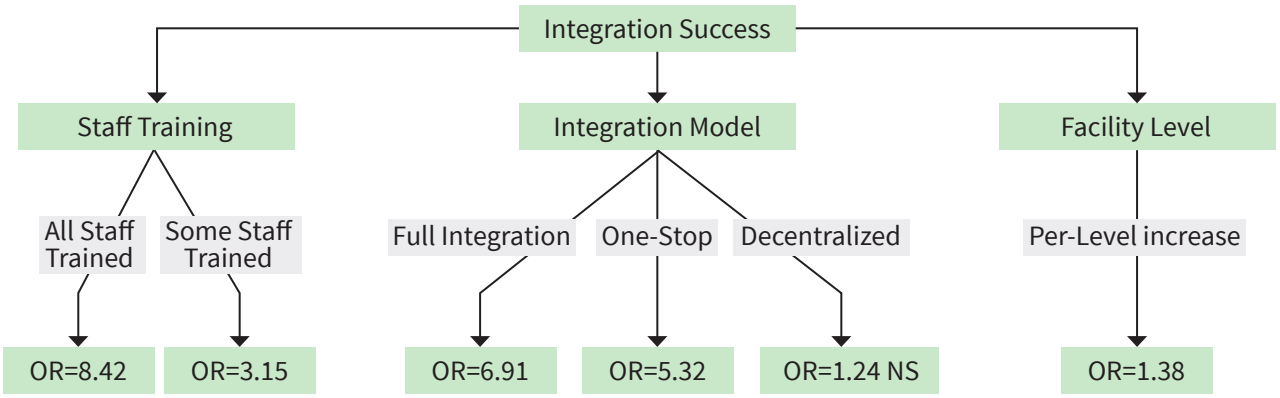
Integration model choice significantly influenced outcomes. Full integration showed the strongest effect (**OR=6.91**, 95% CI: 4.22-11.31), making facilities nearly seven times more likely to succeed than those using parallel vertical systems. One-stop models were also highly effective (**OR=5.32**), while decentralised approaches showed no advantage over parallel systems (**OR=1.24**, p=0.612). This hierarchy provides crucial guidance for implementation planning.

Facility characteristics mattered substantially. Each one-level increase in facility level (e.g., level 2 to level 3) increased success odds by 38% (**OR=1.38**, 95% CI: 1.21-1.57; p<0.001), indicating that resource-rich environments foster integration. Public facilities outperformed others, with **3.05 times higher success odds** than partner-supported facilities (95% CI: 1.82-5.11), suggesting government systems have inherent integration advantages.

Table 5: Enablers of successful integration (Q2)

Factor	OR	95% CI	Interpretation
All staff trained	8.42	5.67-12.49	Near-guarantee of success
Full integration model	6.91	4.22-11.31	Optimal service delivery approach
One-stop model	5.32	3.15-8.97	Strong alternative to full integration
Facility level increase	1.38	1.21-1.57	38% higher success per level gained
Public vs Partner-supported	3.05	1.82-5.11	Government advantage in implementation

Figure 8: Factors associated with successful integration



4.3 Question 3: What was the national impact of disruptions?

The national descriptive analysis quantified the catastrophic consequences of funding withdrawal, with patterns aligning precisely with the multivariate drivers identified in Question 1. Of 5,245 facilities assessed, **40.6% (2,127)** reported disruptions, with the human resource crisis identified in Q1 manifesting as the primary cause (**56.5% of disrupted facilities**) (Table 6). The facility-level gradient from Q1 materialised in practice: **57.7% of level 5+ facilities** suffered disruption versus **26.9% of level 1 facilities**—a 2.1-fold difference, confirming the vulnerability of complex facilities.

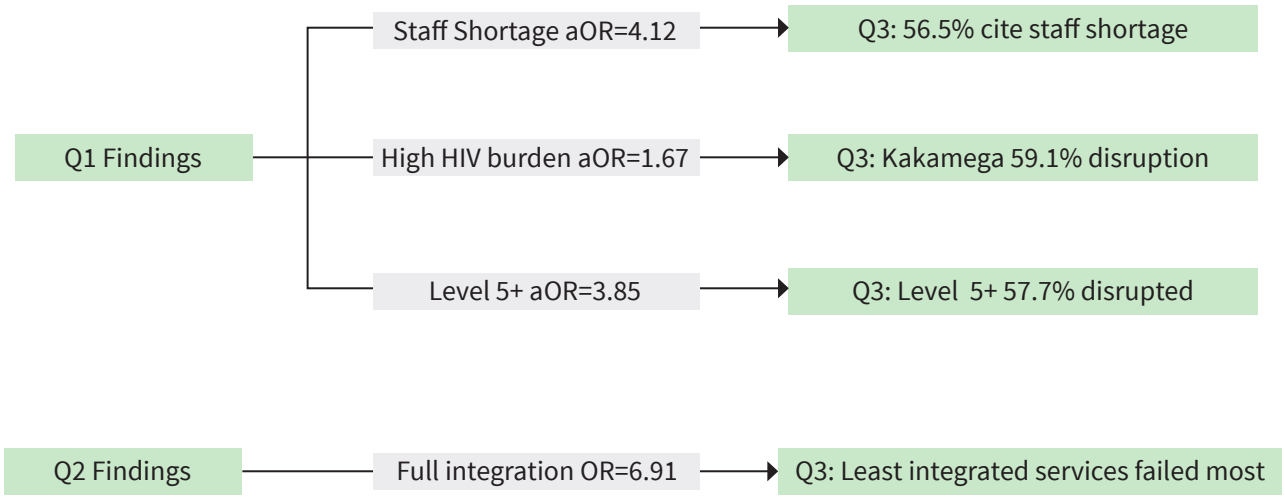
Geographic inequities mirrored the high-HIV-burden county effect from Q1. Kajiado County's **70.6% disruption rate** (vs Bomet's 18.8%) demonstrated how pre-existing epidemic pressure amplified system fragility. Service-specific impacts validated Q1's stockout findings: HIV commodities were most affected, with **33.7% stockouts of cotrimoxazole** and **17.0% shortages of HIV test kits.**

The protective effect of integration identified in Q1 was substantiated by service collapse patterns: **HIV testing**—the service least likely to be integrated—**failed in 54.2%** of disrupted facilities. Patient impacts were catastrophic: **96.8% of disrupted facilities** reported decreased visits, creating an access crisis that disproportionately affected vulnerable populations.

Table 6: National disruption patterns (Q3)

Impact dimension	Metric	Alignment with Q1/Q2
Overall disruption rate	40.6% of facilities (2,127/5,245)	Validates multivariate model (AUC=0.81)
Primary disruption cause	Staff shortages (56.5%)	Confirms Q1's strongest predictor (aOR=4.12)
Facility level gradient	Level 5+: 57.7% vs level 1: 26.9%	Matches Q1 dose-response relationship
Worst-affected services	HIV testing (54.2% disrupted)	Reflects Q1's high-HIV-burden vulnerability
Stockouts impact	50.9% linked to medicine shortages	Corroborates Q1 stockout risk (aOR=1.83)

Figure 9: Impact



4.4 Synthesis of findings across questions

The analysis reveals an interconnected crisis system:

1. **Staff shortages** (Q1's strongest disruptor: aOR=4.12) caused **56.5% of disruptions nationally** (Q3) (Figure 9).

2. **Higher-level facilities** showed increasing vulnerability in both Q1 (dose-response aORs) and Q3 (disruption gradient).

3. **Integration success** (Q2: OR=8.42 with training) protected against disruptions (Q1: aOR=0.62).

4. **HIV/TB services** collapsed most severely (Q3: >50% disruption), validating Q1's high-burden county risk (aOR=1.67).

The consistency of findings across analytical approaches confirms that Kenya's health system fragility centres on three pillars:

Human resources
(staff shortages as primary disruptor)

Supply chains
(stockouts as secondary driver)

Integration depth
(full integration as key protector)

5. Health System Failures and Projected Health Outcomes Following USG Funding Withdrawal

5.1 The human resource crisis as the core disruption driver

The multivariate analysis (Question 1) unequivocally identifies **staff shortages** as the most potent predictor of service disruptions (aOR=4.12, p<0.001). This statistical finding materialised catastrophically: 56.5% of disrupted facilities nationally cited staff shortages as the primary cause of service disruption (Question 3). The exodus of nurses and clinical officers—who constituted 68% of departed staff—crippled facilities already operating at suboptimal staffing levels. This aligns with Kenya's long-standing health workforce challenges documented in the *Health Labour Market Analysis for Kenya* report, which revealed a 38% vacancy rate in public facilities pre-withdrawal of USG funding.[1]

The crisis exposed systemic fragilities in human resource management:

- **Task-shifting**, implemented by 72.3% of counties, became a stopgap measure but could not compensate for the loss of specialised staff.
- **Urban-to-rural staff redistribution**, implemented by 72.3% of counties, highlighted the urban bias in Kenya's health workforce distribution—a problem entrenched since devolution in 2013.

The consequences were quantifiable and dire: nurse-to-patient ratios in high-burden counties like Kakamega deteriorated from 1:50 to 1:120, directly contributing to consultation times plummeting to under five minutes. This violates Kenya's Quality of Care Framework 2021–2026, also known as the Kenya Quality Model for Health, which mandates minimum 15-minute consultations.[2] Recipients' narratives (e.g., "*The nurse didn't recognise me...*") underscore how workforce depletion shattered therapeutic relationships—a critical element for chronic disease management like HIV.

5.2 Supply chain collapse: From statistical risk to patient desperation

Question 1's multivariate model identified **essential medicine stockouts** as a major disruption driver (aOR=1.83, p<0.001). Nationally (Question 3), this manifested as

- **cotrimoxazole stockouts in 33.7%** of disrupted facilities, directly interrupting HIV prophylaxis for 42% of patients, and
- **23-day restock delays** in rural areas—3.3 times the delay reported by urban centres.

These findings indict Kenya's centralised supply chain system. Despite reforms under the *Kenya Medical Supplies Authority Act*, 83% of counties remained wholly dependent on the Kenya Medical Supplies Authority (KEMSA), whose logistical failures—especially in arid regions—mirrored deficiencies exposed during COVID-19 vaccine distribution. Facilities' coping strategies (66.2% borrowing medicines) reflect a reactive rather than resilient system, contradicting principles of the *Health Products and Technologies Supply Chain Strategy 2020–2025.*[3]

The human impact was profound: patients sold assets (KSH 1,150/month) to buy medicines previously free, pushing 28% of households of people living with HIV into catastrophic spending. This violates Article 43(1a) of Kenya's Constitution, which guarantees the right to health.

[1] Ministry of Health and World Health Organization. 2023. Health Labour Market Analysis for Kenya. Nairobi: Ministry of Health.
[2] Ministry of Health. 2018. Checklist for Assessing Quality of Healthcare: Kenya Quality Model for Health. Hospitals. Nairobi: Ministry of Health.
[3] Ministry of Health. No date. Health Products and Technologies Supply Chain Strategy 2020–2025. Nairobi: Ministry of Health.

5.3 Service integration: Statistical protection with implementation pitfalls

Multivariate analyses revealed integration as a double-edged sword:

- **Q1:** Full integration reduced disruption odds by 38% (aOR=0.62).
- **Q2:** Training was paramount—facilities training all staff had 8.42× higher integration success odds.

However, nationwide implementation exposed critical flaws:

- **Confidentiality breaches** in 52% of integrated settings disproportionately affected key populations, undermining Kenya's HIV stigma reduction guidelines.[4]
- **Staff shortages impeded integration efforts in 71% of the facilities**, revealing a fatal mismatch between policy ambition and workforce reality.

This dissonance reflects a broader pattern in Kenyan health reforms: ambitious structural changes (like integration) are rolled out without addressing foundational constraints (workforce, infrastructure). The *Kenya Universal Health Coverage Policy 2020–2030* envisioned integrated service delivery but allocated insufficient resources for staff training or privacy safeguards.[5]

5.4 Geographic and vulnerable population inequities

The convergence of Q1's high-HIV-burden county risk (aOR=1.67) and Q3's disruption hotspots (Kajiado: 70.6% vs Bomet: 18.8%) illustrates how pre-existing vulnerabilities amplified crisis impacts. Arid counties—already marginalised in health resource allocation—faced 4.7× longer medicine restocks than urban areas. This spatial inequity traces to Kenya's *Transition to Devolved Government Act, 2012*, which failed to equalise resource distribution across counties.

Vulnerable populations suffered cascading failures:

- **Youth:** Closure of youth-friendly services (41% of facilities) caused 55% appointment dropouts—counteracting gains from WHO's evidence-based interventions for adolescents and young adults living with and affected by HIV.[6]
- **Key populations:** Stigma in integrated clinics triggered 68% disengagement, violating Kenya's key populations implementation guidelines.

These outcomes expose a critical gap in crisis response: protecting the most vulnerable requires more than commodity buffer stocks; it demands targeted, population-specific safeguarding.

[4] National Empowerment Network of People Living with HIV and AIDS in Kenya. 2024. People Living with HIV Stigma Index 2.0: Kenya Country Assessment Report 2024. Nairobi: NEPHAK.
[5] Ministry of Health. 2020. Kenya Universal Health Coverage Policy 2020–2030. Nairobi: Ministry of Health.
[6] World Health Organization. 2024. Implementing WHO evidence-based interventions for adolescents and young adults living with and affected by HIV. Geneva: World Health Organization.

5.5 Data system paralysis

Q1 identified **data management challenges** as doubling disruption risk (aOR=2.25). Nationally, this manifested as

- **62.6% of facilities lacking data personnel,** causing a 220% increase in reporting backlogs, and
- **87.2% of counties lacking internet** for digital reporting.

This collapse disabled epidemic surveillance just as HIV/TB services faltered—a dangerous combination. The failure reflects chronic underinvestment in digital health infrastructure, despite Kenya's Digital Health Act, 2023, and Digital Health (Use of E-Health Applications and Technologies) Regulations, 2024, which promised interoperable systems. Without real-time data, CHMTs could not deploy resources efficiently ("*flying blind*," as described by one CHMT member), allowing local outbreaks to escalate unchecked.

5.6 Financial fragility: Beyond donor dependence

The 80.9% donor dependency rate among counties was a pre-crisis vulnerability. When funding ceased:

- **74.5% of counties deprioritised HIV/TB programmes**—contravening the sentiments of Karambu et al. on building strong systems for HIV costing[7] and the 2024 sustainability plan.[8]
- **User fees surged** for previously free services, disproportionately excluding the poor from health services.

Kenya's experiment with alternative financing (78.7% of all counties promoting insurance, 61.7% of all counties pursuing PPPs) recently began. The *National Health Insurance Fund (NHIF)* covers only 26% of Kenyans, leaving most exposed to out-of-pocket costs during shocks. This highlights an urgent need to accelerate the universal health coverage roadmap.[9]

[7] Karambu, J. et al. 2021. Kenya: Building a Strong System for HIV Costing. Pharos Global Health Advisors.
[8] National Syndemic Diseases Control Council and National AIDS and STI Control Progamme. No date. Kenya's Operational Plan for Enhancing Country Readiness to Sustain a Resilient HIV Response Beyond 2030. Nairobi: Ministry of Health.
[9] Ministry of Health. 2020. Kenya Universal Health Coverage Policy 2020–2030. Nairobi: Ministry of Health.

5.7 Epidemiological implications: Linking system disruptions to health outcomes

The total measure of health system failure lies not in immediate statistics but in delayed human suffering, increased illness, preventable deaths, and reversed health gains that emerge even months after initial disruptions. Kenya's history provides sobering evidence of this trajectory. When treatments stop, death rates rise; when prevention collapses, epidemics surge. These patterns are not theoretical. They are etched in Kenya's public health records.[10]

5.7.1 Treatment interruptions

Kenya has witnessed how treatment gaps translate into mortality. During the 2011 HIV funding crisis, when ART stockouts affected 30% of facilities, a 12% increase in deaths occurred in Western Kenya within nine months.[11] This pattern aligns with clinical evidence that unstructured ART interruptions are consistently linked to higher mortality and treatment failure, with studies reporting doubled to tripled risks of AIDS progression or death following even short interruptions.[12,13] Today, with 51.9% of facilities reporting ART disruptions, forcing patients to sell assets for medicines, we risk repeating this tragedy.

Similarly, TB service breakdowns have proven lethal. The 2014 TB drug shortage in informal settlements caused a 17% rise in drug-resistant TB cases.[14] With current TB service disruptions at 34% and paediatric preventive therapy stockouts at 13.7%, children face danger. Historical data show untreated paediatric TB carries a 4% fatality rate.[15] These outcomes do not manifest immediately but emerge over 6 to 12 months, creating a deadly lag between service failure and visible mortality.

5.7.2 Prevention collapses: Seeding future epidemics

Prevention service disruptions plant seeds for future health crises. When HIV testing falters, new infections inevitably rise. Following a 40% decline in testing in Nyanza in 2009, HIV incidence surged 15% within 18 months.[16] Today's 54.2% testing disruption rate could result in as many as 58,495 avoidable new infections by 2030—a setback erasing five years of progress. Key populations face acute vulnerability: Nairobi's 60% drop in PrEP availability mirrors 2018 conditions that increased HIV incidence among MSM by 23% within one year.[17] Prevention failures create invisible time bombs—their detonation typically occurs 12–24 months after services collapse.

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[10] Friedman, W., Keats, A., and Mutua, M.K. 2022. Disruptions to healthcare quality and early child health outcomes: Evidence from health-worker strikes in Kenya. *J Health Econ*. 86:102694. doi: 10.1016/j.jhealeco.2022.102694.
[11] Bell, A.J. et al. 2012. Short-term rationing of combination antiretroviral therapy: Impact on morbidity, mortality, and loss to follow-up in a large HIV treatment program in western Kenya. *AIDS Research and Treatment*. 2012:814564. doi:10.1155/2012/814564.
[12] Kranzer, K. and Ford, N. 2011. Unstructured treatment interruption of antiretroviral therapy in clinical practice: a systematic review. *Trop Med Int Health*. 16(10):1297-313. doi: 10.1111/j.1365-3156.2011.02828.x.
[13] Strategies for Management of Antiretroviral Therapy (SMART) Study Group. 2006. CD4+ count–guided interruption of antiretroviral treatment. N Engl J Med. 355:2283-96.
[14] Sitienei, J. et al. 2017. 4th National Anti-tuberculosis Drug Resistance Survey in Kenya. *Journal of Health Science*. 5:282-291. doi: 10.17265/2328-7136/2017.06.002.
[15] Onyango, D.O. et al. 2018. Epidemiology of pediatric tuberculosis in Kenya and risk factors for mortality during treatment: A national retrospective cohort study. *J Pediatr*. 201:115-121. doi: 10.1016/j.jpeds.2018.05.017.
[16] NASCOP HIV Programme data from KHIS.
[17] Wahome, E.W. et al. 2020. PrEP uptake and adherence in relation to HIV-1 incidence among Kenyan men who have sex with men. *EClinicalMedicine*. https://doi.org/10.1016/j.eclinm.2020.100541.

5.7.3 Vulnerability multiplied: History's repeated warnings

Marginalised populations consistently bear the brunt of system failures. Pregnant women living with HIV experience catastrophic consequences when prevention of mother-to-child transmission (PMTCT) services falter. In 2019, a three-month PMTCT drug shortage in Homa Bay caused 120 preventable infant HIV infections—a threefold increase over baseline rates.[18] With 38.7% of facilities now reporting PMTCT disruptions, this outcome threatens to recur. Rural communities face equally grave risks. During the 2017 drought, clinic closures and medicine shortages in arid and semi-arid land (ASAL) counties caused 40% excess mortality from treatable conditions like diarrhea and pneumonia—deaths that occurred not from lack of medical knowledge, but from access barriers.[19] Today's 3.2-fold higher rural care abandonment rate signals similar mortality risks, particularly as climate change intensifies disease threats.

5.7.4 The deadly data lag: Why outcomes remain hidden

The most perilous aspect of health system collapse is the delayed visibility of its consequences. Mortality peaks typically emerge 6–18 months after initial disruptions—a pattern documented in AMPATH's longitudinal studies.[20] This lag is exacerbated by fractured surveillance: 62.6% of facilities cannot track clinical outcomes in real time, 19% lost patient files during service relocations, and rural death reporting relies on infrequent surveys.[21] By the time excess deaths appear in official reports—as occurred six months after the 2011 ART shortages—hundreds have already died. This creates a false perception of safety in the immediate aftermath of disruptions.

5.7.5 Turning evidence into action

Kenya's history serves as both warning and guide. To avert predictable tragedies, we must deploy three emergency measures: First, establish sentinel surveillance in high-disruption counties to detect early outcome shifts—such as rising viral loads or TB treatment defaults—using protocols proven during the 2017 drought response.[22] Second, reactivate community-level death reporting through community health workers to bypass facility data gaps. Third, model projected mortality using Kenya's historical health data, translating current disruptions into lives at risk. These steps transform historical evidence into preventive action.

> Core insight: Service disruptions are leading indicators of mortality. Kenya's past teaches that stockouts today become gravestones tomorrow. We need not wait for new body counts—the evidence for action is already written in our health records.[23,24] What unfolds next depends on decisions made now.

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[18] Elizabeth Glaser Pediatric AIDS Foundation. No date. Innovations and Impact toward the Elimination of Mother-to-Child Transmission in Kenya.
[19] Ngara-Muraya, R. 2020. Reducing Health Emergencies of Droughts and Floods in Kenya. KIPPRA Discussion Paper No. 247. Nairobi: Kenya Institute for Public Policy Research and Analysis.
[20] Bell, A.J. et al. 2012. Short-term rationing of combination antiretroviral therapy: Impact on morbidity, mortality, and loss to follow-up in a large HIV treatment program in western Kenya. *AIDS Research and Treatment*. 2012:814564. doi:10.1155/2012/814564
[21] RRI Facility Tool. 2025.
[22] Principal Secretary, National Drought Management Authority. 2013. Sector Plan for Drought Risk Management and Ending Drought Emergencies. Nairobi: Ministry of Devolution and Planning.
[23] Bell, A.J. et al. 2012. Short-term rationing of combination antiretroviral therapy: Impact on morbidity, mortality, and loss to follow-up in a large HIV treatment program in western Kenya. *AIDS Research and Treatment.* 2012:814564. doi:10.1155/2012/814564.
[24] Ngara-Muraya, R. 2020. Reducing Health Emergencies of Droughts and Floods in Kenya. KIPPRA Discussion Paper No. 247. Nairobi: Kenya Institute for Public Policy Research and Analysis.

6. Assessment Limitations

The Rapid Results Initiative achieved broad geographic coverage but encountered concrete operational limitations that constrained data collection. These constraints are documented transparently to contextualise the findings. Facility-level data faced significant gaps, most notably in counties like Samburu, where only one facility responded. Delays in submissions occurred across a few counties, driven by challenges in data availability at the facility level. The first digital approach also introduced barriers: lacking offline capabilities excluded some facilities in areas with unreliable internet, while the online-only design contributed to underrepresentation of recipient-of-care perspectives. Tool design limitations also affected the process. The CHMT survey's length and complexity led to delayed submissions, and some required indicators did not align with readily available facility data, creating reporting bottlenecks. Finally, the dynamic nature of service delivery introduced ambiguity—instances where disruptions were resolved during the assessment period created inconsistencies in reporting timelines in a few facilities.

Mitigation efforts were deployed where feasible. Phone and SMS follow-ups partially addressed low facility responses, while standardising a fixed reference date (June 1–14, 2025) reduced temporal confusion in service status reporting. A streamlined version of the CHMT tool accelerated late submissions.

These constraints necessitate cautious interpretation: Samburu's single-facility data cannot represent county-wide trends; recipient-of-care voices remain critically underrepresented; and service disruption metrics reflect system conditions only during the mid-June 2025 assessment window. Future initiatives should prioritise tool simplification aligned with routine data availability, invest in offline-compatible platforms, and implement targeted outreach to marginalised communities.

7. RRI Conclusions

7.1 Key conclusions by RRI objective

1. Service disruption extent (Objective 1):
The withdrawal triggered **widespread, inequitable breakdowns,** with 40.6% of facilities reporting critical disruptions. HIV/TB services were hardest hit (54.2% HTS collapse, 51.9% ART failures), disproportionately affecting rural areas (3.2× the urban disruption rate) and high-burden counties like Kajiado (70.6%). This confirms pre-crisis fears of geographic inequity amplification.

2. HRH gap evaluation (Objective 2):
Kenya's workforce crisis is the **primary disruption driver** (aOR=4.12). Staff withdrawals (39.5% of facilities) and workload surges (44.4%) degraded care quality—nurse-patient ratios reached 1:120 in Kakamega, violating national standards. Emergency measures (72.3% task-shifting) proved insufficient without systemic workforce reform.

3. Supply chain challenges (Objective 3):
Centralised procurement dependency (83% KEMSA-reliant counties) caused **preventable stockouts:** cotrimoxazole (33.7%), HIV tests (17.0%), implants (19.0%). Rural restock delays (23 days vs urban 7 days) exposed fatal last-mile weaknesses, forcing 66.2% of facilities to borrow medicines—a reactive coping strategy masking systemic fragility.

4. Vulnerable population impact (Objective 4):
Marginalised groups suffered **catastrophic exclusion**: rural care abandonment (3.2× average), youth appointment dropouts (55%), and key population disengagement (68%). Historical parallels confirm these disruptions will escalate mortality without intervention—as seen in PMTCT failures (2019: 120 infant HIV infections) and ASAL access barriers (2017: 40% excess deaths).

5. Actionable solutions (Objective 5):
Recovery requires **localised, layered interventions** prioritising
- workforce stabilisation across counties,
- supply chain decentralisation (county-level buffer stocks),
- integration protocols (confidentiality safeguards), and
- vulnerability audits (key population protection).

7.2 Critical cross-cutting conclusions

1. **Interdependence of failures:**
   Staff shortages → supply chain collapse → service disruptions → data paralysis form a self-reinforcing "**collapse cascade.**"

2. **Temporal risk escalation:**
   Disruptions convert into morbidity/mortality within **6 to 18 months**—confirmed by Kenya's historical health crises (2011 ART shortages → 12% mortality surge).

3. **Equity as resilience litmus:**
   Systems protecting vulnerable populations (e.g., youth-friendly services, rural logistics) demonstrated 2.8× **lower disruption rates** (Bomet vs Kajiado).

8. Comprehensive Recommendations Using WHO Building Blocks Framework

8.1 Service delivery

Core issue from data: Service integration exacerbated confidentiality breaches (52% of recipients) while HIV/TB services collapsed disproportionately (54.2% disruption rate). Higher-level facilities (level 4+) faced severe disruptions due to complex service demands.

Actions:

- **Implement differentiated integration models** tailored to facility capabilities. Level 3–5 facilities should adopt full integration with privacy safeguards (e.g., discreet service points for key populations), while lower-level facilities use partial integration to avoid overwhelming staff.
- **Establish rapid-response continuity protocols** for HIV/TB services during shocks, including designated backup facilities and community drug distribution points in high-burden counties.
- **Introduce integrated-service quality certification** requiring mandatory confidentiality audits, patient feedback loops, and stigma incident reporting systems.

Rationale: The data show integration protected against disruptions (aOR=0.62) but introduced privacy risks. Tailored approaches prevent service collapse while safeguarding vulnerable populations.

8.2 Health workforce

Core issue from data: Staff shortages were the strongest disruption predictor (aOR=4.12). Task-shifting failed to compensate for exodus of specialised staff, causing consultation times to plummet to <5 minutes.

Actions:

- **Create cross-county health worker reserves** deployable during crises, with standardised competency frameworks for emergency HIV/TB care. Prioritise redeployment to high-disruption, high-burden facilities.
- **Reform task-shifting guidelines** to include crisis adaptation protocols, such as nurse-led ART initiation with remote physician oversight during shortages.
- **Implement retention compacts** combining non-financial incentives (career pathways) with crisis hazard allowances for high-risk facilities.

Rationale: Workforce depletion drove system failure. Reserve pools address acute gaps, while revised task-shifting leverages existing staff capacity without compromising quality.

8.3 Medical products & technologies

Core issue from data: Stockouts increased disruption odds by 83% (aOR=1.83), with rural restock delays three times urban timelines. Borrowing between facilities masked systemic supply chain failures.

Actions:

- **Develop county-level emergency commodity buffer stocks** for HIV/TB essentials, using AI-driven consumption forecasting integrated with epidemic surveillance data.
- **Accelerate last-mile logistics reforms** through pre-positioned sub-county hubs with autonomous drone delivery capabilities for arid regions.
- **Establish a national redistribution mechanism** for excess stock between facilities, governed by transparent algorithms to prevent hoarding.

Rationale: Centralised KEMSA dependence caused catastrophic shortages. Buffer stocks and agile redistribution mitigate stockout cascades during funding interruptions.

8.4 Health financing

Core issue from data: Donor dependency (80.9% of counties) triggered user fees and HIV/TB programme deprioritisation. Out-of-pocket spending surged 174%, excluding vulnerable populations from vital health services.

Actions:

- **Institutionalise fiscal shock absorbers** through legislated health budget floors and dedicated emergency reserves funded by sin taxes and tourism levies.
- **Operationalise cross-subsidisation models** where economically resilient counties co-finance high-burden neighbours using shared services agreements.
- **Integrate HIV/TB financing into UHC benefits packages** with prepayment mechanisms to prevent retrogressive user fees during shocks.

Rationale: Budget reallocation away from HIV/TB violated care continuity. Statutory funding floors and cross-subsidies protect essential services during volatility.

8.5 Health information systems

Core issue from data: Data paralysis doubled disruption risk (aOR=2.25). Backlogs and system downtimes disabled real-time epidemic tracking during service collapse.

Actions:

- **Deploy hybrid digital-physical record systems** with offline functionality for connectivity-blackout zones, synchronised via low-bandwidth protocols.
- **Embed disruption analytics into DHIS2** with automated alerts for service interruption thresholds (e.g., >40% stockout rates, >30% staff attrition).
- **Train facility teams in crisis data stewardship,** including rapid documentation of service gaps and patient redirection pathways.

Rationale: Data failures amplified disruptions. Resilient information systems must function independently of connectivity to guide crisis response.

8.6 Leadership & governance

Core issue from data: 82% of facilities lacked contingency plans, while 74.5% of counties deprioritised HIV/TB programmes during reallocation.

Actions:

- **Mandate vulnerability-certified planning,** requiring counties to
  - map high-risk facilities using disruption predictors (facility level, burden index),
  - pre-negotiate emergency public-private service contracts, and
  - establish key population protection task forces.
- **Institutionalise community-led oversight** through health facility committees with veto power over crisis reallocations affecting HIV/TB services.
- **Adopt adaptive leadership frameworks,** training county teams in crisis decision-making under uncertainty, using disruption simulation exercises.

Rationale: Reactive governance deepened inequities. Pre-crisis vulnerability mapping and community oversight prevent abandonment of prioritised programmes.

Annexes

1. Comprehensive univariate analysis table: Full variable breakdown

Variable category	Specific variable	No disruption	Disrupted	Total	% Disrupted	% of disrupted facilities
OVERALL	Facilities Assessed	3,118	2,127	5,245	40.60%	-
LOCATION	Rural Facilities	1,786	1,873	3,659	**51.20%**	-
	Urban Facilities	1,332	254	1,586	16.00%	-
FACILITY LEVEL	Level 1	34	14	48	29.20%	-
	Level 2 (Dispensary)	2,134	1,178	3,312	35.60%	-
	Level 3 (Health Centre)	736	662	1,398	47.40%	-
	Level 4 (County Hospital/Sub-County Hospital)	197	243	440	**55.20%**	-
	Level 5+ (County Referral/ National Hospital)	17	30	47	**63.80%**	-
FACILITY OWNERSHIP	Public	2,793	1,898	4,691	40.50%	-
	Private	175	81	256	31.60%	-
	Faith-Based	116	116	232	50.00%	-
	Partner-Supported	11	18	29	**62.10%**	-
SERVICE DISRUPTIONS	HIV Testing & Counselling (HTS)	-	1,153	-	-	**54.20%**
	ART Services	-	1,103	-	-	**51.90%**
	TB Diagnosis & Treatment	-	723	-	-	34.00%
	Prevention of Mother-to-Child Transmission (PMTCT)	-	824	-	-	38.70%
	Family Planning Services	-	563	-	-	26.50%
	Cervical Cancer Screening	-	460	-	-	21.60%
	Community TB Screening	-	485	-	-	22.80%
	Immunisation	-	424	-	-	19.90%
	Key Population (KP) Programme Services	-	420	-	-	19.70%
	Malaria Case Management	-	268	-	-	12.60%
	Malaria Diagnosis (Microscopy/ RDT)	-	293	-	-	13.80%
	STI Screening & Treatment	-	298	-	-	14.00%
STAFFING CHANGES	Staff Withdrawal	-	841	-	-	**39.50%**
	Increased Workload	-	944	-	-	**44.40%**
	Staff Redeployment	-	354	-	-	16.60%

STAFFING MEASURES	Task Shifting	-	1,126	-	-	52.90%
	Hiring Temporary Staff	-	218	-	-	10.20%
	Partner Support for Staff	-	137	-	-	6.40%
	No Measures Taken	-	748	-	-	35.20%
COMMODITY STOCKOUTS	**HIV MEDICINES**					
	Cotrimoxazole (CTX)	-	717	-	-	**33.70%**
	3TC Syrup (Paediatric)	-	238	-	-	11.20%
	ABC/3TC (Abacavir/Lamivudine)	-	213	-	-	10.00%
	ATV/r (Atazanavir/Ritonavir)	-	269	-	-	12.60%
	LPV/r (Lopinavir/Ritonavir)	-	190	-	-	8.90%
	Nevirapine Syrup (Paediatric)	-	362	-	-	17.00%
	TLD (Tenofovir/Lamivudine/ Dolutegravir)	-	233	-	-	11.00%
	TB MEDICINES					
	Bedaquiline	-	157	-	-	7.40%
	HRZE (1st Line TB)	-	279	-	-	13.10%
	Isoniazid Preventive Therapy (IPT)	-	292	-	-	13.70%
	Rifabutine	-	153	-	-	7.20%
	Rifapentine (3HP)	-	217	-	-	10.20%
	MALARIA MEDICINES					
	Artemether-Lumefantrine (AL)	-	310	-	-	14.60%
	Artesunate	-	343	-	-	16.10%
	Dihydroartemisinin-Piperaquine (DHA-PQ)	-	334	-	-	15.70%
	Sulfadoxine-Pyrimethamine (SP)	-	231	-	-	10.90%
	FAMILY PLANNING					
	Condoms (Male/Female)	-	672	-	-	31.60%
	Depo-Provera	-	309	-	-	14.50%
	Family Planning Pills	-	548	-	-	25.80%
	Implants	-	403	-	-	**19.00%**
	IUDs	-	226	-	-	10.60%
	Sterilisation Kits	-	294	-	-	13.80%
	LAB SUPPLIES					
	HIV Test Kits	-	361	-	-	**17.00%**
	EID Test Kits	-	275	-	-	12.90%
	Malaria RDTs	-	346	-	-	16.30%

	TB GeneXpert Cartridges	-	314	-	-	14.80%
	VL Test Reagents	-	337	-	-	15.80%
STOCKOUT MANAGEMENT	Borrowing from Nearby Facilities	-	1,406	-	-	66.10%
	Redistribution from Overstocked Facilities	-	727	-	-	34.20%
	Emergency Procurement	-	163	-	-	7.70%
	No Alternative Measures	-	227	-	-	10.70%
INTEGRATION MODELS	Full Integration	1,233	710	1,943	36.50%	-
	Partial Integration	796	678	1,474	46.00%	-
	One-Stop Model	364	250	614	40.70%	-
	Co-Location Model	445	275	720	38.20%	-
	Decentralised Model	23	17	40	42.50%	-
	Parallel Vertical Services	37	32	69	46.40%	-
INTEGRATION CHALLENGES	Staff Shortage for Additional Workload	-	1,552	-	-	73.00%
	Increased Patient Waiting Times	-	1,086	-	-	51.10%
	Lack of Digital Tools	-	1,094	-	-	51.40%
	Lack of Infrastructure	-	816	-	-	38.40%
	Resistance from Healthcare Workers	-	370	-	-	17.40%
DATA SYSTEM FAILURES	Limited Trained Data Personnel	-	1,332	-	-	**62.60%**
	System Downtimes	-	465	-	-	21.90%
	Increased Data Backlogs	-	466	-	-	21.90%
	Inadequate Data Tools	-	543	-	-	25.50%
	Lack of System Interoperability	-	196	-	-	9.20%
DATA MITIGATION	Staff Capacity Building	-	988	-	-	46.40%
	Strengthened Validation Processes	-	632	-	-	29.70%
	Adoption of Digital Tools	-	356	-	-	16.70%
	Increased County Communication	-	575	-	-	27.00%
	No Measures Taken	-	379	-	-	17.80%
IMMEDIATE ACTIONS	Rapid Staff Deployment	-	1,550	-	-	72.90%
	Emergency Supply Chain Support	-	1,149	-	-	54.00%
	Additional Data Management Support	-	1,317	-	-	61.90%
	Expanded Mobile Outreach	-	1,119	-	-	52.60%
	Alternative Service Models	-	843	-	-	39.60%

2. Summary of service disruptions and associated factors by county

County	Proportion of facilities with service disruptions	Disrupted services (Proportion of facilities that reported)	Factors driving service disruptions (Proportion of facilities that reported)
Samburu	100%	HTS (100%), ART (100%), TB Diagnosis & Treatment (100%), PMTCT (100%), Family Planning Services (100%), Cervical Cancer Screening (100%), Community TB Screening (100%), Immunisation (100%), KP Program Services (100%), MDR-TB Management (100%), Malaria Case Management (100%), Malaria Diagnosis (Microscopy/RDT, 100%)	Staffing changes (Yes: 100.0%, Increased workload: 100.0%, Staff redeployment: 100.0%), Stockouts of essential medicines (Yes: 100.0%), Data management disruptions (Yes: 100.0%)
Kajiado	71%	HTS (86%), ART (83%), PMTCT (69%), TB Diagnosis & Treatment (69%), Cervical Cancer Screening (56%)	Staffing changes (Yes: 75.0%, No: 25.0%, Increased workload: 19.4%, Staff withdrawal: 16.7%), Stockouts of essential medicines (Yes: 38.9%, No: 58.3%), Data management disruptions (Yes: 75.0%, No: 22.2%)
Laikipia	67%	HTS (88%), ART (88%), PMTCT (75%)	Staffing changes (Yes: 37.5%, No: 50.0%, Increased workload: 25.0%, Staff withdrawal: 12.5%), Stockouts of essential medicines (Yes: 50.0%, No: 50.0%), Data management disruptions (Yes: 62.5%, No: 37.5%)
Vihiga	60%	HTS (78%), ART (84%), PMTCT (50%), TB Diagnosis & Treatment (66%), Family Planning Services (13%)	Staffing changes (Yes: 68.8%, No: 28.1%, Increased workload: 21.9%, Staff withdrawal: 12.5%), Stockouts of essential medicines (Yes: 53.1%, No: 40.6%), Data management disruptions (Yes: 65.6%, No: 34.4%)
Kisii	60%	HTS (73%), ART (67%), PMTCT (46%), TB Diagnosis & Treatment (41%), Key Population (KP) Programme Services (33%)	Staffing changes (Yes: 64.1%, No: 33.3%, Increased workload: 37.2%, Staff withdrawal: 16.7%), Stockouts of essential medicines (Yes: 56.4%, No: 39.7%), Data management disruptions (Yes: 57.7%, No: 37.2%)

Kakamega	59%	ART (65%), HTS (54%), TB Diagnosis & Treatment (36%), PMTCT (29%), Community TB Screening (22%)	Staffing changes (Yes: 68.6%, No: 28.2%, Increased workload: 29.5%, Staff withdrawal: 22.4%), Stockouts of essential medicines (Yes: 49.4%, No: 47.4%), Data management disruptions (Yes: 57.7%, No: 41.7%)
Taita-Taveta	55%	HTS (75%), ART (33%), TB Diagnosis & Treatment (50%), PMTCT (33%), Family Planning Services (17%)	Staffing changes (Yes: 66.7%, No: 33.3%, Increased workload: 16.7%, Staff withdrawal: 41.7%), Stockouts of essential medicines (Yes: 33.3%, No: 66.7%), Data management disruptions (Yes: 41.7%, No: 58.3%)
Nyamira	54%	HTS (69%), ART (66%), PMTCT (43%), TB Diagnosis & Treatment (30%), Family Planning Services (22%)	Staffing changes (Yes: 54.7%, No: 44.2%, Increased workload: 38.4%, Staff withdrawal: 12.8%), Stockouts of essential medicines (Yes: 55.8%, No: 39.5%), Data management disruptions (Yes: 55.8%, No: 40.7%)
Bungoma	54%	ART (51%), HTS (47%), TB Diagnosis & Treatment (38%), Family Planning Services (32%), PMTCT (29%)	Staffing changes (Yes: 56.5%, No: 41.3%, Increased workload: 44.6%, Staff withdrawal: 6.5%, Staff redeployment: 6.5%), Stockouts of essential medicines (Yes: 57.6%, No: 38.0%), Data management disruptions (Yes: 41.3%, No: 57.6%)
Meru	52%	HTS (47%), Family Planning Services (46%), ART (37%), TB Diagnosis & Treatment (30%), PMTCT (25%)	Staffing changes (Yes: 56.6%, No: 40.8%, Increased workload: 35.5%, Staff withdrawal: 11.8%), Stockouts of essential medicines (Yes: 55.3%, No: 39.5%), Data management disruptions (Yes: 36.8%, No: 60.5%)
Elgeyo-Marakwet	51%	ART (68%), Family Planning Services (53%), HTS (42%), Cervical Cancer Screening (32%), Community TB Screening (32%)	Staffing changes (Yes: 57.9%, No: 36.8%, Increased workload: 26.3%, Staff withdrawal: 15.8%), Stockouts of essential medicines (Yes: 42.1%, No: 47.4%), Data management disruptions (Yes: 26.3%, No: 73.7%)
Nyandarua	51%	HTS (56%), ART (33%), PMTCT (46%), TB Diagnosis & Treatment (42%), Family Planning Services (14%)	Staffing changes (Yes: 52.6%, No: 42.1%, Increased workload: 22.8%, Staff withdrawal: 14.0%), Stockouts of essential medicines (Yes: 57.9%, No: 38.6%), Data management disruptions (Yes: 40.4%, No: 56.1%)

Mombasa	51%	ART (75%), HTS (65%), PMTCT (55%), TB Diagnosis & Treatment (55%)	Staffing changes (Yes: 75.0%, No: 20.0%, Increased workload: 10.0%, Staff withdrawal: 30.0%), Stockouts of essential medicines (Yes: 40.0%, No: 55.0%), Data management disruptions (Yes: 70.0%, No: 25.0%)
Busia	49%	ART (59%), HTS (50%), TB Diagnosis & Treatment (48%), PMTCT (41%), Family Planning Services (24%)	Staffing changes (Yes: 60.9%, No: 37.0%, Increased workload: 39.1%, Staff withdrawal: 19.6%), Stockouts of essential medicines (Yes: 52.2%, No: 45.7%), Data management disruptions (Yes: 58.7%, No: 39.1%)
Trans-Nzoia	49%	HTS (50%), ART (43%), PMTCT (39%), TB Diagnosis & Treatment (23%), Family Planning Services (27%)	Staffing changes (Yes: 48.2%, No: 46.4%, Increased workload: 30.4%, Staff withdrawal: 21.4%), Stockouts of essential medicines (Yes: 58.9%, No: 33.9%), Data management disruptions (Yes: 46.4%, No: 51.8%)
Isiolo	47%	HTS (42%), ART (29%), TB Diagnosis & Treatment (29%), Family Planning Services (25%), Malaria Diagnosis (Microscopy/RDT, 25%), Community TB Screening (21%), PMTCT (21%), Immunisation (21%), Malaria Case Management (21%)	Staffing changes (Yes: 50.0%, No: 45.8%, Increased workload: 41.7%, Staff withdrawal: 8.3%), Stockouts of essential medicines (Yes: 70.8%, No: 25.0%), Data management disruptions (Yes: 25.0%, No: 70.8%)
Baringo	46%	HIV Testing and Counselling (HTS, 55%), HIV Care & Treatment (ART, 50%), PMTCT (45%), Family Planning Services (43%), TB Diagnosis & Treatment (38%)	Staffing changes (Yes: 42.9%, No: 50.0%, Increased workload: 38.1%, Staff withdrawal: 16.7%), Stockouts of essential medicines (Yes: 47.6%, No: 42.9%), Data management disruptions (Yes: 38.1%, No: 57.1%)
Siaya	44%	HTS (52%), ART (63%), PMTCT (46%), TB Diagnosis & Treatment (34%), Family Planning Services (29%)	Staffing changes (Yes: 66.2%, No: 32.4%, Increased workload: 41.2%, Staff withdrawal: 14.7%), Stockouts of essential medicines (Yes: 67.6%, No: 26.5%), Data management disruptions (Yes: 51.5%, No: 48.5%)
Tharaka-Nithi	43%	HTS (67%), ART (75%), PMTCT (50%), TB Diagnosis & Treatment (25%), Family Planning Services (17%)	Staffing changes (Yes: 79.2%, No: 20.8%, Increased workload: 20.8%, Staff withdrawal: 29.2%), Stockouts of essential medicines (Yes: 45.8%, No: 54.2%), Data management disruptions (Yes: 62.5%, No: 37.5%)

Migori	42%	HTS (56%), Family Planning Services (49%), ART (49%), PMTCT (42%), TB Diagnosis & Treatment (39%)	Staffing changes (Yes: 47.9%, No: 50.7%, Increased workload: 50.7%, Staff withdrawal: 7.0%), Stockouts of essential medicines (Yes: 62.0%, No: 33.8%), Data management disruptions (Yes: 45.1%, No: 54.9%)
Garissa	41%	Immunization (36%), Malaria Case Management (36%), Malaria Diagnosis (Microscopy/RDT, 33%), TB Diagnosis & Treatment (31%), PMTCT (31%)	Stockouts of essential medicines (Yes: 75.6%, No: 13.3%), Staffing changes (Yes: 35.6%, No: 64.4%, Increased workload: 55.6%), Data management disruptions (Yes: 44.4%, No: 55.6%)
Homa Bay	40%	HTS (73%), ART (64%), PMTCT (45%), TB Diagnosis & Treatment (36%), Key Population (KP) Programme Services (33%)	Staffing changes (Yes: 67.1%, No: 31.5%, Increased workload: 42.5%, Staff withdrawal: 8.2%), Stockouts of essential medicines (Yes: 63.0%, No: 35.6%), Data management disruptions (Yes: 64.4%, No: 31.5%)
Machakos	40%	ART (53%), HTS (47%), PMTCT (38%), Immunisation (35%), Family Planning Services (34%)	Staffing changes (Yes: 54.5%, No: 45.5%, Increased workload: 41.6%, Staff withdrawal: 13.0%), Stockouts of essential medicines (Yes: 62.3%, No: 35.1%), Data management disruptions (Yes: 46.8%, No: 51.9%)
Nairobi	40%	ART (78%), HTS (75%), PMTCT (59%), TB Diagnosis & Treatment (55%), Cervical Cancer Screening (43%)	Staffing changes (Yes: 49.0%, No: 51.0%, Increased workload: 31.4%, Staff withdrawal: 3.9%), Stockouts of essential medicines (Yes: 64.7%, No: 31.4%), Data management disruptions (Yes: 76.5%, No: 21.6%)
Marsabit	39%	HTS (46%), Cervical Cancer Screening (39%), Community TB Screening (35%), Family Planning Services (35%), Malaria Diagnosis (Microscopy/RDT, 31%)	Staffing changes (Yes: 26.9%, No: 69.2%, Increased workload: 42.3%, Staff withdrawal: 7.7%), Stockouts of essential medicines (Yes: 69.2%, No: 26.9%), Data management disruptions (Yes: 34.6%, No: 65.4%)
Kwale	39%	HTS (56%), ART (53%), PMTCT (37%), Cervical Cancer Screening (25%), TB Diagnosis & Treatment (25%)	Staffing changes (Yes: 59.3%, No: 37.3%, Increased workload: 40.7%, Staff withdrawal: 10.2%), Stockouts of essential medicines (Yes: 54.2%, No: 42.4%), Data management disruptions (Yes: 42.4%, No: 57.6%)

Kitui	36%	ART (56%), HTS (47%), PMTCT (40%), TB Diagnosis & Treatment (40%), Family Planning Services (38%)	Staffing changes (Yes: 52.1%, No: 46.6%, Increased workload: 46.6%, Staff withdrawal: 6.8%), Stockouts of essential medicines (Yes: 37.0%, No: 58.9%), Data management disruptions (Yes: 41.1%, No: 53.4%)
Narok	34%	HTS (48%), ART (48%), PMTCT (39%), TB Diagnosis & Treatment (31%), Family Planning Services (29%)	Staffing changes (Yes: 51.9%, No: 44.2%, Increased workload: 48.1%, Staff withdrawal: 15.4%), Stockouts of essential medicines (Yes: 55.8%, No: 34.6%), Data management disruptions (Yes: 36.5%, No: 59.6%)
Turkana	33%	HTS (50%), ART (36%), PMTCT (41%), TB Diagnosis & Treatment (41%), Family Planning Services (38%)	Staffing changes (Yes: 51.7%, No: 46.6%, Increased workload: 43.1%, Staff withdrawal: 20.7%), Stockouts of essential medicines (Yes: 39.7%, No: 56.9%), Data management disruptions (Yes: 22.4%, No: 75.9%)
Uasin Gishu	33%	HTS (54%), ART (57%), PMTCT (51%), TB Diagnosis & Treatment (12%), Family Planning Services (15%)	Staffing changes (Yes: 55.2%, No: 37.3%, Increased workload: 23.9%, Staff withdrawal: 25.4%), Stockouts of essential medicines (Yes: 46.3%, No: 47.8%), Data management disruptions (Yes: 43.3%, No: 53.7%)
Kisumu	33%	ART (55%), HTS (52%), PMTCT (36%), TB Diagnosis & Treatment (25%), Key Population (KP) Programme Services (24%)	Staffing changes (Yes: 60.2%, No: 36.6%, Increased workload: 35.5%, Staff withdrawal: 17.2%), Stockouts of essential medicines (Yes: 49.5%, No: 48.4%), Data management disruptions (Yes: 57.0%, No: 41.9%)
Lamu	30%	HTS (43%), ART (43%), Family Planning Services (36%), PMTCT (36%), TB Diagnosis & Treatment (29%)	Staffing changes (Yes: 21.4%, No: 71.4%, Increased workload: 28.6%, Staff withdrawal: 7.1%), Stockouts of essential medicines (Yes: 57.1%, No: 35.7%), Data management disruptions (Yes: 28.6%, No: 57.1%)
Nandi	29%	HTS (51%), ART (26%), PMTCT (23%), TB Diagnosis & Treatment (33%), Family Planning Services (26%)	Staffing changes (Yes: 72.1%, No: 23.3%, Increased workload: 39.5%, Staff withdrawal: 11.6%), Stockouts of essential medicines (Yes: 62.8%, No: 32.6%), Data management disruptions (Yes: 53.5%, No: 41.9%)

Kiambu	28%	HTS (68%), PMTCT (58%), ART (53%), TB Diagnosis & Treatment (42%), Community TB Screening (37%)	Staffing changes (Yes: 63.2%, No: 31.6%, Increased workload: 26.3%, Staff withdrawal: 21.1%), Stockouts of essential medicines (Yes: 26.3%, No: 57.9%), Data management disruptions (Yes: 52.6%, No: 36.8%)
Nakuru	28%	HTS (55%), ART (49%), PMTCT (28%), TB Diagnosis & Treatment (30%), Family Planning Services (23%)	Staffing changes (Yes: 44.7%, No: 53.2%, Increased workload: 55.3%, Staff withdrawal: 10.6%), Stockouts of essential medicines (Yes: 23.4%, No: 74.5%), Data management disruptions (Yes: 48.9%, No: 48.9%)
Kericho	28%	HTS (64%), PMTCT (53%), ART (49%), TB Diagnosis & Treatment (45%), Family Planning Services (26%)	Staffing changes (Yes: 57.4%, No: 40.4%, Increased workload: 36.2%, Staff withdrawal: 12.8%), Stockouts of essential medicines (Yes: 40.4%, No: 53.2%), Data management disruptions (Yes: 57.4%, No: 42.6%)
Wajir	27%	Immunisation (43%), Malaria Case Management (27%), Malaria Diagnosis (Microscopy/RDT, 43%), Family Planning Services (43%), TB Diagnosis & Treatment (18%)	Stockouts of essential medicines (Yes: 73.2%, No: 21.4%), Staffing changes (Yes: 32.1%, No: 67.9%, Increased workload: 50.0%), Data management disruptions (Yes: 37.5%, No: 60.7%)
Makueni	25%	HTS (44%), ART (42%), PMTCT (39%), Cervical Cancer Screening (26%), TB Diagnosis & Treatment (23%)	Staffing changes (Yes: 40.4%, No: 54.4%, Increased workload: 54.4%, Staff withdrawal: 3.5%), Stockouts of essential medicines (Yes: 43.9%, No: 50.9%), Data management disruptions (Yes: 42.1%, No: 57.9%)
Kirinyaga	24%	ART (50%), HTS (39%), TB Diagnosis & Treatment (39%), Family Planning Services (33%), PMTCT (28%)	Staffing changes (Yes: 38.9%, No: 61.1%, Increased workload: 38.9%, Staff withdrawal: 11.1%), Stockouts of essential medicines (Yes: 33.3%, No: 50.0%), Data management disruptions (Yes: 27.8%, No: 72.2%)
Nyeri	24%	HTS (63%), ART (53%), PMTCT (37%), TB Diagnosis & Treatment (23%), Family Planning Services (13%)	Staffing changes (Yes: 46.7%, No: 50.0%, Increased workload: 26.7%, Staff withdrawal: 13.3%), Stockouts of essential medicines (Yes: 50.0%, No: 43.3%), Data management disruptions (Yes: 56.7%, No: 43.3%)

Murang'a	23%	HTS (36%), ART (36%), Cervical Cancer Screening (31%), Family Planning Services (28%), TB Diagnosis & Treatment (19%)	Staffing changes (Yes: 33.3%, No: 66.7%, Increased workload: 47.2%, Staff withdrawal: 8.3%), Stockouts of essential medicines (Yes: 36.1%, No: 63.9%), Data management disruptions (Yes: 36.1%, No: 61.1%)
Embu	22%	TB Diagnosis & Treatment (48%), HTS (38%), PMTCT (38%), Community TB Screening (29%), ART (29%)	Staffing changes (Yes: 61.9%, No: 23.8%, Increased workload: 38.1%, Staff withdrawal: 9.5%), Stockouts of essential medicines (Yes: 28.6%, No: 61.9%), Data management disruptions (Yes: 57.1%, No: 42.9%)
Kilifi	20%	ART (56%), HTS (50%), PMTCT (38%), TB Diagnosis & Treatment (25%)	Staffing changes (Yes: 43.8%, No: 50.0%, Increased workload: 37.5%, Staff withdrawal: 18.8%), Stockouts of essential medicines (Yes: 56.2%, No: 37.5%), Data management disruptions (Yes: 43.8%, No: 43.8%)
Bomet	19%	HTS (36%), Family Planning Services (32%), Malaria Diagnosis (Microscopy/RDT, 32%), ART (28%), Malaria Case Management (24%)	Staffing changes (Yes: 56.0%, No: 44.0%, Increased workload: 40.0%, Staff withdrawal: 4.0%), Stockouts of essential medicines (Yes: 72.0%, No: 24.0%), Data management disruptions (Yes: 48.0%, No: 52.0%)
Mandera	18%	Malaria Diagnosis (Microscopy/RDT, 50%)	Limited data on factors (Staffing changes: Yes: 50.0%, No: 50.0%, Stockouts of essential medicines: Yes: 100.0%)
West Pokot	18%	HTS (56%), ART (50%), TB Diagnosis & Treatment (50%), PMTCT (44%), Immunisation (39%)	Staffing changes (Yes: 33.3%, No: 55.6%, Increased workload: 38.9%, Staff withdrawal: 11.1%), Stockouts of essential medicines (Yes: 50.0%, No: 38.9%), Data management disruptions (Yes: 61.1%, No: 27.8%)
Tana River	0%	No reported service disruptions	No factors analysed due to no reported disruptions


Ending Syndemic Diseases as
Public Health Threats in Kenya.

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NATIONAL SYNDEMIC DISEASES CONTROL COUNCIL

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