

# HIV service delivery after the PEPFAR and USAID HIV funding withdrawal in Uganda and Zimbabwe: an interrupted time-series study



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## Summary

**Background** In January 2025, the US Government froze foreign aid and halted the President's Emergency Plan for AIDS Relief (PEPFAR), the largest external funder of HIV services globally. Early modelling studies and rapid assessments warned of major harm to millions, but robust quantitative evidence from those who relied most on the lost funding has been absent. We aimed to estimate the effect of the US funding withdrawal on HIV prevention, pre-exposure prophylaxis (PrEP), testing, and treatment services provided by non-governmental organisations (NGOs) serving primarily key populations in Uganda and Zimbabwe.

**Methods** In this interrupted time-series study, we used monthly and quarterly service-delivery data from NGOs in Uganda and Zimbabwe from January 2023 up to March 2026. All received stop-work orders and subsequent funding cuts. Core service indicators across prevention, PrEP, treatment, and testing were normalised into domain indices, in which 100 represents their mean 2024 amount. The main outcome was the change in these service indicators because of funding cuts. Specifying February 2025 as the interruption point, we estimated effects with an unweighted panel interrupted time-series (the organisation level) and a client-weighted interrupted time-series (the key-population level) on these indices.

**Findings** Eight organisations agreed to participate; four were subsequently excluded for reasons of data quality, lack of funding impact, and location, with four subsequently included in this study. All four service domains showed large, sustained declines. Across both the unweighted and weighted specifications, prevention fell by 36.8–62.7 index points, PrEP by 43.0–71.6, treatment by 22.0–31.5, and testing by 58.7–63.8 index points in February 2025 (index points are equivalent to percentage change from mean 2024 amounts). 95% CIs excluded zero for all estimates except PrEP in the unweighted panel. Services remained substantially below the 2024 amount up to March 2026. The antiretroviral therapy humanitarian waiver attenuated treatment effects but did not prevent substantial decline.

**Interpretation** The sudden withdrawal of US funding was followed by severe, sustained disruptions to HIV service delivery in Uganda and Zimbabwe across all major domains, with the largest declines in prevention, PrEP, and testing services for key populations. These results are the first quantitative findings on service-volume changes in NGOs whose US funding was terminated or sharply cut and illustrate the effect on the NGO-led, key-population layer of HIV services in sub-Saharan Africa. These services are crucial to people living with HIV to remain healthy and have a good quality of life. Urgent investment in service-continuity protocols and domestic financing is needed to prevent a rebound in HIV incidence.

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## Introduction

On Jan 20, 2025, the US Government froze foreign aid disbursements and issued stop-work orders to the United States Agency for International Development (USAID) and the US Centers for Disease Control and Prevention (CDC), abruptly halting work under the President's Emergency Plan for AIDS Relief (PEPFAR), the largest international funder of HIV services globally.<sup>1</sup> It is estimated that 83% of programmes under USAID were subsequently terminated<sup>2</sup> and around US\$3 billion of PEPFAR's \$6 billion allocation was not distributed in 2025.<sup>3</sup>

International bodies, including the UN and WHO, warned the cuts would lead to deterioration of HIV services and affect millions of people.<sup>4–6</sup> To date, quantitative evidence of the effect of this funding withdrawal has come from mathematical models<sup>7,8</sup> or quantitative effects from minimally affected non-governmental organisations (NGOs)<sup>9</sup> and surveys of operational disruption in public facilities.<sup>10</sup>

On Feb 1, 2025, a narrow humanitarian waiver preserved prevention of mother-to-child transmission services and antiretroviral therapy (ART) for those living

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## Research in context

## Evidence before this study

On May 31, 2026, we searched Google Scholar and grey literature sources via Google search and multilateral organisations document repositories, with no restriction on publication date, with the terms "PEPFAR", "USAID", "Global Fund", "bilateral", "multilateral", "cuts", "withdrawal", "stop-work order", "HIV funding", "foreign aid", "HIV/AIDS", "HIV", "HIV prevention", "HIV testing", "HIV treatment", "HIV service delivery", "TB", "malaria", and "Africa" to identify evidence on the effects of the 2025 US foreign aid withdrawal and previous funding disruptions on HIV and other infectious disease programmes. We included publications in any language and excluded studies focused solely on domestic funding changes without an external donor component. Before this study, evidence on the effect of the January 2025 US foreign aid freeze came from three sources: modelling studies and early empirical and qualitative studies. One modelling study projected 4·4–10·8 million additional HIV infections and 0·8–2·9 million additional deaths globally by the end of 2030 if disruptions were sustained. One existing empirical study used routine service data from US Centers for Disease Control and Prevention (CDC)-funded facilities across four sub-Saharan African countries, Angola, Democratic Republic of the Congo, South Sudan, and Zambia, finding short-term disruption to HIV testing and prevention of mother-to-child transmission after the US 2-week stop-work order. However, these CDC facilities had all funding restored after the stop-work order, with services largely rebounding after reinstatement. The effects on organisations that did not have funding reinstated remain undocumented. A second empirical study measured the breadth of disruption in South African health facilities, including

staff layoffs, reductions in contact tracing, and data disruptions. There remains a paucity of evidence of the effects for those organisations that lost funding.

## Added value of this study

This study provides the first quantitative evidence of HIV service-delivery disruption in non-governmental organisations (NGOs) that received stop-work orders and did not have US funding reinstated. Using interrupted time-series analysis of routine data from four NGOs in Uganda and Zimbabwe, we show that organisations serving key populations, populations who have the fewest alternatives when these services close, had large and sustained reductions, rather than the short-lived disruption seen when funding was quickly restored. Given the stigma and legal challenges key populations face, many are likely to disengage from care entirely.

## Implications of all the available evidence

The convergence of modelling projections, rapid assessments, and now real-world service data indicates severe and sustained harm to HIV programme capacity after the sudden 2025 US funding withdrawal and ongoing reductions in global health spending from donor countries. Prevention and testing services were more acutely affected relative to treatment but only HIV testing activity showed signs of incomplete recovery by March 2026 in the absence of partial funding reinstatement. These findings underscore the urgent need for pre-agreed service-continuity protocols, emergency transition funding, and accelerated domestic financing strategies to protect vulnerable populations from abrupt programme termination.

with HIV,<sup>11</sup> but programmes were disproportionately terminated for key populations, including men who have sex with men, female sex workers, transgender people, and people who inject drugs.<sup>1,12</sup> Legal challenges and administrative disruption make the full financial impact difficult to quantify, although reporting suggests less than half of PEPFAR's congressional allocation reached programmes in 2025. In January 2026, US Congress approved \$9·42 billion for global health, less than the \$12·4 billion in the 2024–25 allocation and with distribution mechanisms yet to be confirmed.<sup>3</sup>

The 2025 funding shock was sudden, unexpected, and extends beyond HIV, yet existing evidence of similar disruptions show infectious diseases rebound.<sup>13–16</sup> A systematic review of malaria resurgences overwhelmingly (91% of included studies) linked increased incidence to weakening of control programmes.<sup>14</sup> For HIV, when The Global Fund to Fight AIDS, Tuberculosis and Malaria did not renew programmes for key populations in Romania, it led to outbreaks among people who inject drugs.<sup>15,16</sup> Quantitative evidence of the effect from the 2025 shock remains scarce. Several studies have modelled the effects of

withdrawing such funding, projecting 4·4–10·8 million additional HIV infections and 0·8–2·9 million HIV-related deaths between 2025 and 2030 if the cuts remained unmitigated.<sup>7,8</sup> However, they relied on strong assumptions about homogeneity of budget cuts across countries and programmes, programme effectiveness, and health system resilience to shocks. The first quantitative study using real service data from sub-Saharan Africa highlighted substantial initial disruption to testing and prevention of mother-to-child transmission from the 2-week stop-work order, after which many services rebounded.<sup>9</sup> This study was based on US CDC-funded facilities for general populations and on services that were included in the waiver and therefore funding was broadly reinstated. A second study documented the range of disruption across a sample of 36 public facilities in South Africa providing HIV services. They did not quantify volume changes and facilities received additional domestic financing support.<sup>10</sup>

Beyond direct financing, the 2025 disruption had indirect effects on commodity supply chains, logistical systems, and technical and laboratory capacity of HIV services and other health-care services. These disruptions reduced testing,

leaving more people unaware of their HIV status and remaining infectious for longer. Combined with disruption to ART, this raises population viral load and transmission. Prevention services (condoms, pre-exposure prophylaxis [PrEP], and voluntary medical male circumcision) reduce transmission, particularly among key populations at heightened risk. Rapid assessments in Tanzania and Uganda documented immediate declines in service access and community trust, raising concern about HIV rebounds and tuberculosis co-infection.<sup>17,18</sup>

In eastern and southern Africa, where HIV prevalence remains high (including Uganda and Zimbabwe), HIV care is delivered through a mixed provider model with fragmented financing. Public, NGO, and faith-based (not-for-profit) providers deliver most facility-based ART and prevention of mother-to-child transmission interventions for people living with HIV, and are heavily subsidised by PEPFAR through the CDC and USAID, The Global Fund, and other bilateral and multilateral donors. Before 2025, external donors funded approximately 60% of Uganda's total HIV budget and more than 80% of Zimbabwe's budget.<sup>19,20</sup> A second layer consists of NGOs and community-led organisations that run drop-in centres, conduct outreach, distribute PrEP and post-exposure prophylaxis (PEP), provide testing, and deliver differentiated ART for key populations. Key populations face structural barriers to accessing HIV care, with sex work and same-sex relationships criminalised in both Uganda and Zimbabwe. Accessing care at public facilities exposes these populations to severe stigma from health workers and the general population, reducing the availability and quality of care they receive. Evidence shows Uganda's Anti-Homosexuality Act 2023 alone produced documented immediate declines in care-seeking among men who have sex with men.<sup>21</sup> As a consequence, key populations make up 25% of new infections and face disproportionately higher risk of infection, with men who have sex with men having an 8·6-times greater risk and female sex workers having a 42-times greater risk than their peers, yet key populations receive only 2% of total HIV spending.<sup>6,22,23</sup> Differentiated services are crucial for engaging key populations,<sup>24</sup> and the epidemic's future increasingly depends on their outcomes and the externally funded services they rely on.<sup>23,25,26</sup>

In this study, we aimed to estimate the effect of the US funding cuts on affected organisations' delivery of core HIV services for key populations across the prevention, PrEP, treatment, and testing domains with real-world service volume data. We build on previous studies by quantifying within-organisation effects on key-population HIV services that were most affected by the cuts.

## Methods

### Study design and data sources

In this interrupted time-series study, we assembled monthly or quarterly service-delivery indicators from NGOs operating in Uganda and Zimbabwe that provided

HIV prevention, PrEP, testing, and treatment services to populations living with, and at high risk of acquiring, HIV, including key populations.

Eligible organisations were identified through purposive snowball sampling. The lead researcher contacted researchers and practitioners with known associations with HIV NGOs, who then referred onward to other NGOs and contacts. The initial search scope included all countries in sub-Saharan Africa; Uganda and Zimbabwe were selected because they had the largest number of interested and eligible organisations so research clearance and ethical approvals were obtained for these countries and they became the focus of the study. Participation was voluntary; organisations were approached, informed of the study aims, then asked to contribute data with the agreement of organisational leadership and a signed data transfer agreement. An organisation was included in the study if it delivered treatment, testing, or prevention services for HIV; reported indicators that adequately captured those services; could share existing relevant monitoring and evaluation data with the research team; and operated in Uganda or Zimbabwe.

We excluded organisations that did not directly deliver HIV services (eg, community-led monitoring organisations). Predefined exclusions were incomplete pre-interruption data; major monitoring interruptions; inconsistent reporting; or indicators that did not capture at least one core service domain. All included organisations received stop-work orders in January 2025 and had sustained funding cuts.

A condition of initial inclusion, requested by organisations and honoured throughout, was full anonymity in analysis and reporting. We do not name organisations or contributing authors, and we mask organisational size, location, client populations, and service detail. One organisation waived their anonymity. All collaborators reviewed and approved findings and the manuscript before submission.

The Duke Institutional Review Board confirmed the research did not require review board approval. Local research approval from Uganda and Zimbabwe was obtained (reference numbers omitted for anonymity).

### Data preparation

Within each organisation, we classified indicators into four domains capturing their core services: prevention, PrEP, treatment, and testing. Prevention indicators were dominated by PrEP initiations and refills alongside condom distribution; the PrEP domain excluded non-PrEP prevention services; the treatment domain included ART initiations and refills; and testing included the total HIV tests completed at facilities and HIV self-test kits distributed. Indicators were selected because they are core to each service domain and are broadly comparable across different organisational populations and programme models.

The steps to create the organisation-level domain indices were to first select the most relevant indicators. Second, we

|                                                          | Indicators for prevention                                                            | Indicators for PrEP                                                                                  | Indicators for treatment                       | Indicators for testing                                   |
|----------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------|
| Organisation A (large size; medium [25–49%] funding cut) | Condoms distributed                                                                  | PrEP is offered by this organisation, but data were not readily available for inclusion in the study | New clients on ART; continued clients on ART*† | HIV tests administered; HIV self-test kits distributed   |
| Organisation B (small size; severe [≥50%] funding cut)   | PrEP initiations*; PrEP continuation*; condoms distributed*; lubricants distributed* | PrEP initiations*; PrEP continuation*                                                                | New clients on ART*; continued clients on ART* | HIV tests administered*; HIV self-test kits distributed* |
| Organisation C (small size; low [<25%] funding cut)      | PrEP initiations; PrEP continuation; condoms distributed; lubricants distributed     | PrEP initiations; PrEP continuation                                                                  | New clients on ART; continued clients on ART   | HIV tests administered; HIV self-test kits distributed   |
| Organisation D (medium size; severe [≥50%] funding cut)  | PrEP initiations; PrEP continuation; condoms distributed                             | PrEP initiations; PrEP continuation                                                                  | New clients on ART; continued clients on ART   | HIV tests administered; HIV self-test kits distributed   |

Size is the relative size of the organisation included in the study across three levels (small, medium, or large) based on their ART treatment service provision. Relative size does not change estimating based on other indicators. Funding cuts were categorised as the size of the difference in funding between 2024 and 2025 across 3 levels: low (<25%), medium (25–49%), and severe (≥50%). \*Indicator reported quarterly. †Data available from quarter 1 in 2023 to quarter 3 in 2025.

**Table 1: Domain indicator contributors and organisation characteristics**

|                                             | Index of prevention indicators | Index of PrEP indicators | Index of treatment indicators | Index of testing indicators |
|---------------------------------------------|--------------------------------|--------------------------|-------------------------------|-----------------------------|
| Trend in index before January 2025          | −0.424 (−3.064 to 2.215)       | 0.607 (−2.922 to 4.135)  | −0.161 (−1.349 to 1.026)      | 0.120 (−3.561 to 3.800)     |
| Level change in index after January 2025    | −36.80 (−61.99 to −11.60)      | −43.00 (−89.41 to 3.40)  | −31.53 (−54.62 to −8.43)      | −58.66 (−97.01 to −20.31)   |
| Change in slope of index after January 2025 | 0.413 (−4.682 to 5.508)        | −0.987 (−7.127 to 5.154) | −0.367 (−2.691 to 1.958)      | 2.005 (−3.380 to 7.389)     |
| Constant                                    | 78.13 (46.51 to 109.75)        | 59.80 (25.12 to 94.48)   | 75.93 (59.55 to 92.32)        | 73.23 (44.49 to 102.98)     |
| Observations                                | 115                            | 115                      | 154                           | 154                         |
| Number of organisations                     | 3                              | 3                        | 4                             | 4                           |
| Seasonality adjusted                        | Yes                            | Yes                      | Yes                           | Yes                         |

Data are regression coefficients (95% CI) or n. The constant represents an extrapolated value at time=0, outside the observation window, and offers no useful interpretation. The number of observations refers to organisation-month datapoints contributing to each model.

**Table 2: Unweighted panel interrupted time series results**

conducted data-quality checks on selected indicators, including completeness and consistency of reporting, stability of services, and outliers; all checks were discussed and confirmed with the participating organisations. Third, we normalised each indicator relative to its 2024 monthly mean to produce an index centred at 100. For example, if a mean of 1000 self-test kits were distributed per month in 2024, and 450 kits were distributed in June 2025, June would have a normalised indicator value of 45, or around 45% of the 2024 mean. Fourth, within each domain, we averaged the normalised indicators to form organisation-level domain indices. We did not apply weights to avoid overweighting high-frequency metrics. For example, condoms distributed have a high nominal volume relative to PrEP initiations, and weighting would distort the index. These organisation-level indices provide a proxy for each organisation's relative core activity level within that domain.

Additional adjustments included, when only quarterly data were available, converting to monthly series with linear interpolation between quarter midpoints. Sensitivity analyses excluded interpolated data and aggregated monthly data to quarterly.

These domain indices allowed us to interpret estimated changes in service levels relative to their mean 2024 level, the year before this funding shock took effect. No individual-level data on sex, gender, or ethnicity were collected or reported to researchers, only pre-aggregated service indicators.

## Statistical analysis

We analysed the domain indices via interrupted time-series methods, comparing activity before and after the stop-work order and associated funding cuts. We specified the model a priori, with February 2025 as the interruption point (the first fully affected period). We modelled both an immediate level change and a change in trajectory (slope), the latter reflecting how organisations adapted as they exhausted reserves, curtailed activities, or secured new funding. Therefore, all specifications fitted a segmented regression estimating the pre-interruption trend, the level change at the interruption, and the post-interruption slope change.

The interrupted time-series approach relies on several standard assumptions: the pre-interruption trend provides a reasonable approximation to the counterfactual post-interruption trajectory in the absence of the stop-work order; there are no other major contemporaneous shocks or measurement or reporting changes at the interruption that differentially affect the indices; outcome definitions and data completeness are stable over time; and observations are equally spaced in time. We are not aware of major contemporaneous shocks in Uganda or Zimbabwe coinciding with the February 2025 interruption point, although unobservable concurrent factors cannot be excluded. Data-quality checks confirmed stable definitions and completeness, and organisations confirmed they received no direct US support for information technology

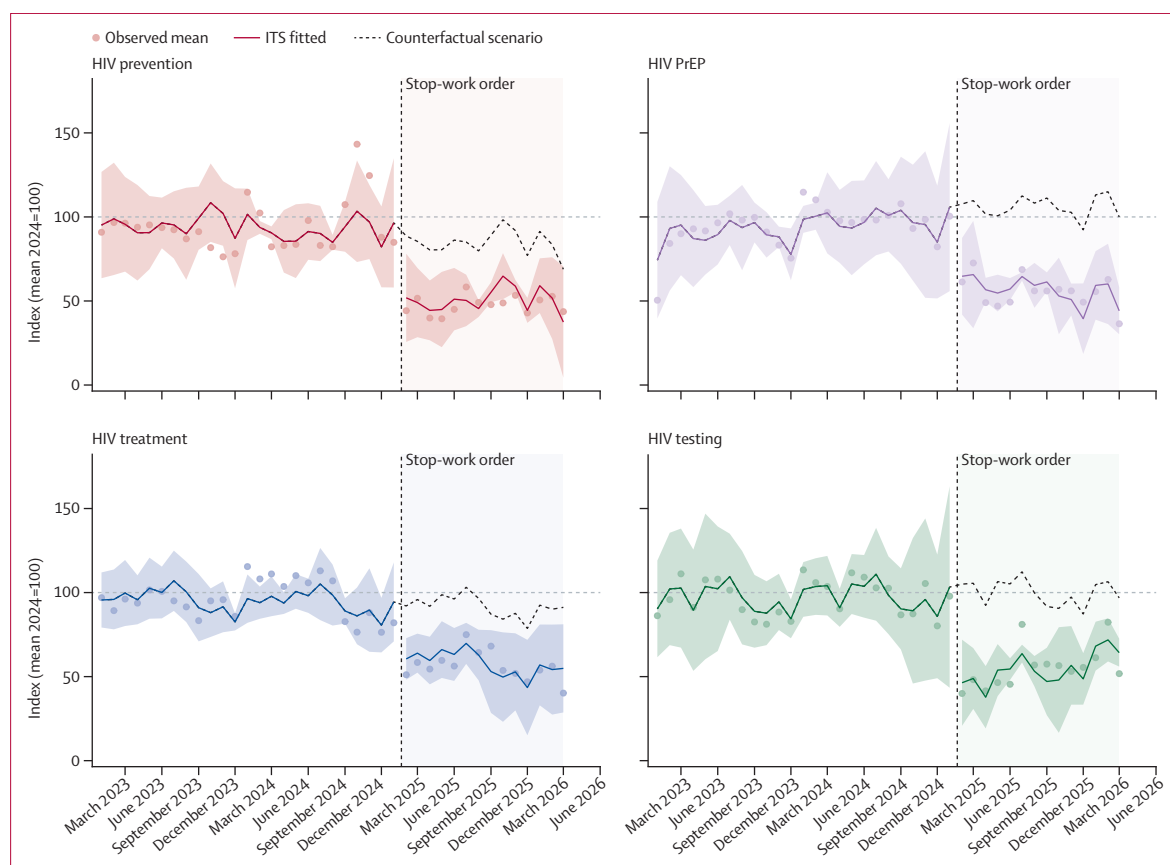


**Figure 1: Unweighted panel ITS results**

ITS=interrupted time-series.

or data collection before 2025 and made no substantial changes to reporting practices affecting core service indicators.

To estimate the effect of the cuts at an organisational level, we estimated a panel interrupted time-series model. Each organisation contributed its own series within each domain, permitting organisation-specific baseline values and trends while estimating a mean interruption effect across organisations. We adjusted for seasonality with month-of-year fixed-effects and organisation fixed-effects. We accounted for within-organisation serial correlation by specifying an AR(1) correlation structure in the panel estimation to account for errors being influenced by previous months, and robust (sandwich) SEs.

Next, to give more representative estimates for key populations, per domain, we aggregated all organisations into a single-time series weighted by their approximate 2024 key population ART client volume. We did not have disaggregated monthly key-population and general-population data but overall proportions for each organisation. Testing and treatment domains are dominated by the largest organisation, even after accounting for their 20% key population coverage. All models were adjusted for

seasonality and the weighted treatment domain analysis was run to September 2025 only, because of data availability. Weighting under a panel specification results in unreliable and biased clustered SEs with few organisations.

As a complementary inferential approach for client effects we treated organisations, rather than monthly observations, as the unit of analysis, and did a random-effects meta-analysis of organisation-specific level changes within each domain (appendix 1 p 5).

To assess sensitivity to specification choices, we estimated several alternatives. These analyses were variations on the primary organisation-effects analysis unless specified. First, we re-estimated the primary panel interrupted time-series specification with: an AR(2) rather than AR(1) within-organisation autoregressive error structure, motivated by Cumby–Huizinga tests on within-organisation residuals; controlling for the partly reinstated and re-allocated funding in organisation A; omitting January 2025; aggregating all data to quarterly frequency; and excluding the organisation reporting at quarterly frequency to remove the influence of the interpolated series.

Analyses were done in Stata (version 19) with the `xtitsa` and `itsa` commands.<sup>27,28</sup>

See Online for appendix 1

|                                             | Index of prevention indicators | Index of PrEP indicators  | Index of treatment indicators | Index of testing indicators |
|---------------------------------------------|--------------------------------|---------------------------|-------------------------------|-----------------------------|
| Trend in index before January 2025          | 1.586 (0.575 to 2.598)         | 2.194 (1.455 to 2.933)    | -1.361 (-1.678 to -1.044)     | -0.758 (-2.199 to 0.684)    |
| Level change in index after January 2025    | -62.66 (-78.33 to -46.99)      | -71.62 (-85.21 to -58.03) | -22.00 (-32.96 to -11.03)     | -63.78 (-95.70 to -31.86)   |
| Change in slope of index after January 2025 | -1.176 (-2.962 to 0.611)       | -1.861 (-3.243 to -0.479) | 1.843 (-0.878 to 4.565)       | 4.209 (1.388 to 7.031)      |
| Constant                                    | 76.93 (54.26 to 99.60)         | 63.13 (40.68 to 85.59)    | 121.8 (116.8 to 126.80)       | 108.5 (81.28 to 135.73)     |
| Observations                                | 39                             | 39                        | 33                            | 39                          |
| Seasonality adjusted                        | Yes                            | Yes                       | Yes                           | Yes                         |

Data are regression coefficients (95% CI) or n. The constant represents an extrapolated value at time=0, outside the observation window, and offers no useful interpretation. The number of observations refers to organisation-month datapoints contributing to each model. The treatment domain includes data from January 2023 to September 2025 because of data availability for the largest organisation.

**Table 3: Weighted panel interrupted time series results**

### Role of the funding source

The funders of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report.

### Results

Of eight organisations that returned signed data-transfer agreements, four were subsequently excluded: two for data quality reasons, one for not having received a funding cut, and one for operating outside Uganda or Zimbabwe, leaving four that met the criteria. Three of the four organisations primarily serve key populations (>80% of their caseload in 2024) and one larger organisation primarily serves the general population (~20% key-population clients). Collectively, these organisations serve around 6500 key population clients with ART monthly (range 50–5000). Table 1 summarises key characteristics of the participating organisations. All four organisations were able to sustain operations by reorganising and using existing funds. Organisation A, primarily serving the general population, received a partial reinstatement and reorganisation of US funding after September 2025.

Table 2 and figure 1 present the primary panel interrupted time-series estimates. We estimated large level changes at the February 2025 interruption point across all four service domains: prevention fell by 36.8 index points (95% CI -62.0 to -11.6), PrEP by 43.0 (-89.4 to 3.4), treatment by 31.5 (-54.6 to -8.4), and testing by 58.7 (-97.0 to -20.3), where each index point corresponds to approximately one percentage point of the 2024 mean. Pre-interruption trends were not statistically distinguishable from zero in any domain, and post-interruption slope changes were also not significant, consistent with sustained service reductions until March 2026 in our sampled organisations (figure 1). A random-effects meta-analysis of organisation-specific level changes produced pooled estimates broadly consistent with the primary panel interrupted time-series (prevention -51.4 [95% CI -122.5 to 19.6], PrEP -44.1 [-183.6 to 95.4], treatment -40.1 [-87.9 to 7.8], testing -58.1 [-132.8 to 16.6] index points) but with substantial between-organisation heterogeneity ( $I^2=52-94\%$ ) and 95% CIs that did not exclude zero (appendix 1 p 5). We report the weighted panel estimation in appendix 1 (p 2).

Table 3 and figure 2 present the client-weighted estimate. Level changes were larger for prevention (-62.7 index points [95% CI -78.3 to -47.0]), PrEP (-71.6 [-85.2 to -58.0]), and testing (-63.8 [-95.7 to -31.9]), but smaller for treatment (-22.0 [-33.0 to -11.0]). Pre-interruption trends were positive and significant for prevention and PrEP (table 3). Post-interruption, the slope change for PrEP was negative (table 3), implying services continued to fall further behind the rising counterfactual throughout 2025–26 and widening the gap to approximately 95 index points by March 2026 from the -72 step change. For treatment, the pre-intervention trend was downward (table 3), perhaps reflecting the declining HIV-positive population in these countries. There are few signs of recovery as the post-interrupt trend was statistically indistinguishable from zero by March 2026. For testing, a post-interruption slope of +4.21 (95% CI 1.39 to 7.03) partly offset the level change, narrowing the gap from the counterfactual to roughly 9 index points by March 2026. Accounting for the funding adjustments at Organisation A, this positive trend became flatter, implying reinstated funding contributed to this recovery (appendix 1 p 8).

Robustness checks (appendix 1 pp 2–9) were consistent with the primary analysis, and the primary level changes are robust across all specifications. Excluding the quarterly reporting organisation produced larger estimated declines in all four domains (prevention: -51.0 [95% CI -63.6 to -38.3]; PrEP: -71.1 [-72.6 to -69.5]; treatment: -46.1 [-65.0 to -27.3]; testing: -72.4 [-108.2 to -36.6]). Quarterly aggregation widened 95% CIs, with PrEP no longer excluding zero (-35.0 [-79.4 to 9.5]).

### Discussion

Real-world data from four HIV service-providing NGOs in Uganda and Zimbabwe indicate severe, immediate, and sustained reductions in service delivery after the January 2025 stop-work order and subsequent funding cuts. Our results show services immediately fell by between 37 and 63 index points in prevention, 43 and 72 in PrEP, 22 and 32 in treatment, and 59 and 64 in testing, reflecting significant proportional reductions from pre-funding cut mean 2024 levels. Treatment showed the smallest declines, with some signs of recovery consistent with a partly

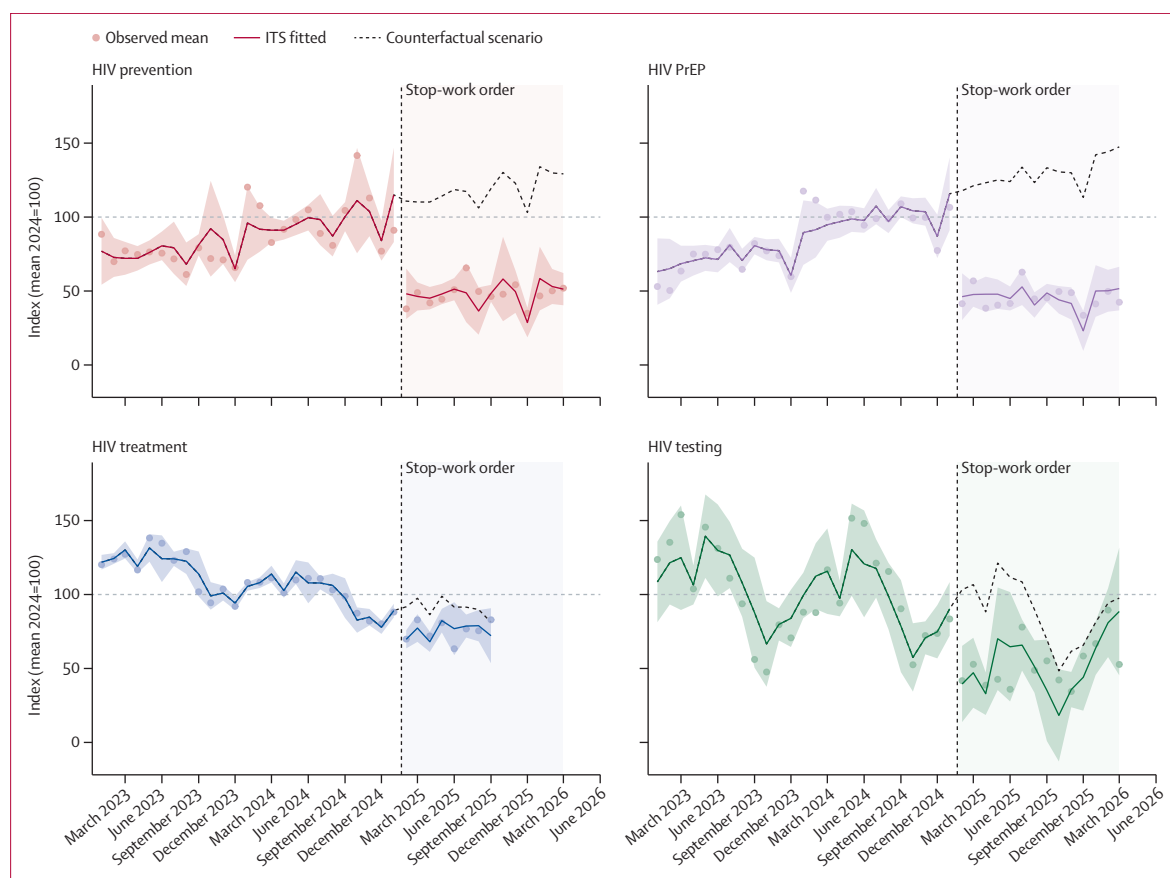


**Figure 2: Weighted single ITS results**

ITS=interrupted time-series. Incomplete treatment data for one organisation prevented the weighted aggregation so the treatment series is truncated at September 2025, the final period of complete data for all organisations.

effective humanitarian waiver in February 2025 and the ability of the largest organisation to better protect services. Our analysis, corroborated by collaborating organisations, describes two key pathways. First, the direct stop-work orders and loss of funding drove immediate reductions in outreach, prevention, PrEP, and testing activities. Second, indirect effects propagated through disruption to supply chains, laboratory systems, and personnel. This study builds on the work of Saito and colleagues<sup>9</sup> and Filiatreau and colleagues<sup>10</sup> by providing the first evidence of the volume of services lost from the NGOs primarily serving key populations. Our findings are the first to shed light on the direct service reductions to the most vulnerable people typically served outside the public and general-population health systems when replacement funding is not readily available.

Our study has several limitations. The interrupted time-series design assumes that pre-interruption trends provide a valid counterfactual and that data quality is stable after the interruption point. Both assumptions are imperfect in this real-world setting. Despite our data quality checks, NGOs had to adapt and reprioritise services and personnel due to the stop-work order, including those collecting and collating data. This change is unlikely to explain our findings.

A second limitation is possible client displacement to other providers. Given that key populations represented in this study face important structural, legal, and stigma barriers to accessing care, mass displacement to facilities open to the general population is unlikely. Indeed, Saito and colleagues<sup>9</sup> found that service volumes did not rebound above pre-stop-work levels after reinstatement of funding, suggesting little short-term displacement to CDC-funded facilities.

The generalisability of our findings beyond the sampled organisations is limited by our sample size of four. Pooled estimates from the meta-analysis have wide CIs and high heterogeneity ( $I^2 > 52\%$ ; appendix 1 p 6), indicating substantial variation in effect across organisations and limiting sector-wide inference. Beyond statistical uncertainty, organisational survivor bias is likely to affect the external validity. We found that many smaller organisations had ceased operating, leaving only larger organisations with more diversified funding available for inclusion. Combined with the exclusion of organisations that maintained their US funding, the direction of this bias is ambiguous.

However, our findings are illustrative of the effects on the NGO-led, key-population layer of the HIV service sector in high HIV-prevalence sub-Saharan African countries,

which is heavily reliant on overseas development assistance. Our findings are more representative of services for key populations for whom alternative service options are constrained by stigma and legal barriers.<sup>29</sup> Beyond Zimbabwe and Uganda, our four purposively selected organisations in two countries cannot be considered representative of the health systems in the more than 80 PEPFAR-supported countries. However, the sudden stop-work orders and severe ongoing cuts were common to USAID-funded NGOs across the region, suggesting that the disruptions documented here are likely to have occurred even where the magnitude of the funding cuts, health system, and institutional responses differed. Without international funding, a shift to domestic and central financing for key populations is necessary to sustain services<sup>30</sup> to avoid the predicted loss of life.<sup>13</sup>

These findings have three primary implications. First, only one organisation had any funding reinstated and the sustained reductions in services suggests transitional funding or support was largely unavailable for key population organisations in Uganda and Zimbabwe, whereas other countries were able to draw on some domestic support.<sup>10</sup> Treatment and testing showed signs of incomplete recovery in the largest organisation which had its funding partly reinstated, whereas smaller organisations more focused on key populations showed a new, lower equilibrium in service availability that could lead to a growing pool of undiagnosed and untreated HIV infection. Second, our findings suggest little effect of the February 2025 humanitarian waiver for so-called lifesaving services. Despite signs of recovery, treatment for people living with HIV showed sustained drops up to March 2026 even in the largest, primarily general-population, organisation. Third, rebuilding services for key populations will be difficult. The trusted community relationships, trained staff, and operational systems on which delivery depended took years to build but were disrupted immediately. As new US funding is distributed, there is an opportunity to address structural and legal barriers to care and build resilient and inclusive services for key populations. Future research should investigate the broader population-level health and HIV incidence effects of the funding withdrawal and track lost key populations who could be relying on informal or unregulated providers for care, a concern raised by our collaborating organisations.

Our results provide robust empirical evidence that abrupt withdrawal of US funding was followed by substantial and sustained losses of prevention, PrEP, testing, and treatment services for key populations up to at least March 2026, signalling the risk of broader HIV and health deterioration in high-prevalence countries. As international donors negotiate the future of HIV financing, we underscore the need for pre-agreed service-continuity protocols, emergency transition funding, and accelerated domestic financing to create more inclusive health systems that protect key populations from abrupt programme termination.

### Contributors

HC conceptualised, set up the study, collated data, performed analysis, and wrote and edited the manuscript. STC and three unnamed coauthors all contributed equally to conceptualisation, data curation, validation, and reviewing of the original drafts and final manuscript. All authors approved the final manuscript. All unnamed coauthors verified their own organisation's data. Anonymity protocols meant HC was the only author to view and verify the combined data. One unnamed author had access to all Ugandan data and another to all Zimbabwean data, complying with local institutional review board protocols.

### Equitable Partnership Declaration

The authors of this paper have submitted an Equitable Partnership Declaration (appendix 2). This statement allows researchers to describe how their work engages with researchers, communities, and environments in the countries of study. This statement is part of The Lancet Group's broader goal to decolonise global health.

### Declaration of interests

HC declares no competing interests. STC and contributing organisations received US Government HIV funding before January 2025 that was subsequently terminated; identities of organisations are withheld to prevent potential future funding repercussions. The unnamed contributors declare no other competing interests.

### Data sharing

Data will not be made available to prevent identification of organisations.

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See Online for appendix 2

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